

# United Nations Activities on Artificial Intelligence (AI)

2023





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2023



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2023 will go down in history as the year that generative artificial intelligence – also known as “gen AI” – took the world by storm. Public perceptions oscillated between shock, awe, and skepticism.

Companies began to rethink their business models amid projections of significant market growth.<sup>1</sup> And countries – especially in the developing world – looked to the United Nations (UN), and to the International Telecommunication Union (ITU), for guidance on how to make this transformative technology work for their benefit. At the same time, a third of humanity remains offline worldwide. As the pace of AI innovation continues unabated, we must avoid creating yet another digital divide. This requires striking a careful balance

between innovation, regulation, and inclusion.

This report – a joint effort between ITU and 46 UN agencies and bodies – features 408 projects covering all 17 Sustainable Development Goals (SDGs). Seven UN entities are making their debut this year. About a third involve collaboration with other UN entities, 24% with governments, 20% with academia, and 17% with the private sector. Every project within these pages shows the commitment of the UN family to help AI reach its potential to deliver on the 2030 Agenda.

This UN-led innovation takes many different forms, from improving health outcomes using large language models to mapping groundwater stores using satellite data and AI. And it comes at a time when AI governance efforts are ramping up inside and outside the UN. A recent [white paper](#) developed through a collaborative effort led by ITU and UNESCO identifies over 50 existing policy instruments within the UN system that can inform and shape AI governance.

Read on to discover how we are working as one UN to ensure AI benefits everyone, accelerates the SDGs, and ultimately advances our shared mission of peace, dignity, and prosperity on a healthy planet.

A handwritten signature in black ink, appearing to be 'DBM', written over a horizontal line.

Doreen Bogdan-Martin  
ITU Secretary-General

<sup>1</sup> The generative artificial intelligence market is expected to see a CAGR of over 24.4% from 2023 to 2030. <https://www.statista.com/outlook/tmo/artificial-intelligence/generative-ai/worldwide#analyst-opinion>

## Highlights

- 47 entities participated, 408 projects reported.
- An increase of 18% in participating entities and 45% in projects reported.
- Strong focus continues to be maintained by the reported projects on SDGs 9 (Industry, Innovation and Infrastructure), 10 (Reduced Inequalities), 16 (Peace, justice and strong institutions) and 17 (Partnership for the Goals), with SDG 13 (Climate Action) returning to the top 5 list again, similar to the 2021 edition of the Report. In 2022, SDG 3 (Good Health and Well-being) had featured among the top five SDGs and while focus remains consistent on it this year as well, the number of projects reporting work on SDG 13 (Climate Action) has increased, bringing it back to the top 5 SDGs addressed.
- More focus continues to be needed on SDGs 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 12 (Responsible consumption and production), 14 (Life Below Water) and 15 (Life on Land), which is a finding that remains consistent with the 2022 edition of the Report.
- Multi-stakeholder collaborations continue to remain a priority for the UN system. Nearly 60% of the UN projects have reported collaborations with the UN system, the private sector, governments, civil society, academia, or with another international organization, demonstrating the UN's focus on maintaining strong partnerships with internal and external stakeholders.
- Consistent with the findings of the 2022 edition, the most common outputs of the UN system's work on AI remain reports and software tools like mobile applications, web applications, searchable dashboards, and generative AI-powered chatbots. Besides, about 13% indicated a focus on creating datasets.

Urgent action is needed to achieve the Sustainable Development Goals (SDGs) by 2030. With the potential to drive progress across all 17 SDGs, the use of Artificial Intelligence (AI) can help speed and scale interventions for this purpose.

Recognizing this, the different bodies, agencies, offices and departments of the UN system have been exploring ways to leverage the potential of AI to drive change and impact across their issue areas. In 2020, the UN System Chief Executives Board for Coordination (CEB) and its High-Level Committee on Programmes (HLCP) established the [Interagency Working Group on AI \(IAWG-AI\)](#), co-led by ITU and UNESCO, to bring together UN system expertise on AI in support of the CEB and HLCP workstreams on the [ethics of AI](#) (led by UNESCO) [and the strategic approach and road map for supporting capacity development](#) (led by ITU), and the related gap analysis effort carried out by ITU, informed by the UN Activities on AI Report, to identify the gaps in UN AI-related activities in order to help the UN system prioritize strategic actions.

Since 2021, the IAWG-AI has successfully galvanized expertise from across the UN system as well as external stakeholder groups to advance the responsible development and use of AI in the UN, underpinned by ethics and human rights, while driving forward the 2030 Agenda on Sustainable Development. As part of the IAWG-AI, UNESCO and OICT have led the development of the [Principles for the Ethical Use of Artificial Intelligence in the United Nations System](#), which were based on UNESCO's Ethics of AI Recommendation and endorsed by the HLCP at its 43<sup>rd</sup>

session and the CEB in 2022. In addition, the IAWG-AI [United Nations System White Paper on AI Governance, which](#) analyses the UN system's institutional models, functions, and existing international normative frameworks applicable to global AI governance, has been approved by HLCP at its 47<sup>th</sup> session and was subsequently endorsed by the CEB in May 2024.

In 2023, the AI for Good platform, organized by ITU in partnership with more than 40 UN Sister Agencies and co-convened with Switzerland, reached over 1 million online views and grew its online community to over 100,000. The 2023 AI for Good Global Summit was joined by 2,500 in-person attendees and 10,000 online audience<sup>1</sup>. This multi-stakeholder community includes representatives from 180+ countries and has consistently attracted broad based international media coverage, making it the leading action-oriented, global and inclusive United Nations platform on AI.

The AI for Good Neural Network continues to grow: an AI-powered community networking and content platform designed to help users build connections with innovators and experts, link innovative ideas with social impact opportunities, and bring the community together to advance the SDGs using AI. AI for Good Partners showcase their work on the Neural Network through weekly live sessions, virtual exhibitions, networking features and interactive content. UN Partners have also created “poster boards” in the “UN SDG Zone” of the platform to virtually exhibit their work on AI, viewable by all Neural Network users, and open for interaction with users via the booth wall and smart matching system. The chapters of this Report are available on the respective poster boards of the UN entities as well.

Complementary to these efforts, ITU, the UN’s specialized agency on digital technologies, has been coordinating the compilation of an annual up-to-date directory since 2018 of all the AI-related projects, initiatives, events and processes that are being carried out within the UN system in the form of the UN Activities on AI Report.

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<sup>1</sup> This publication is being released during the 2024 AI for Good Summit - which is expected to have a significantly larger audience.

## Methodology:

- This edition's chapters were updated by each of the participating UN bodies and agencies respectively, based on the 2022 UN Activities on Artificial Intelligence Report.
- New chapters were drafted for the 7 additional entities who have contributed to this Report for the first time.
- Updated inputs were not provided by 7 entities for this edition. Their chapters and projects have been retained from the 2022 edition in this Report.
- All submissions received this year have been harmonized and formatted for the purpose of reproduction in the Report.
- For the Executive Summary, select data points were extracted from the submissions received to develop an analysis along five specific indicators: SDGs addressed, multi-stakeholder collaborations, types of projects, sectoral focus, and project status.
- All submissions received by 30 April 2024 have been included in the Executive Summary analysis.

The Report is a joint effort between ITU and 46 other UN agencies and bodies, all partners of [AI for Good](#) and members of the [UN Interagency Working Group on AI](#). It presents use cases, projects and initiatives run by the UN system, in areas covering all 17 SDGs and ranging from smart agriculture and food systems to transportation, financial services, and healthcare. This Report is not intended to produce an exhaustive inventory of the UN system's work on AI. Rather, it is a tool to further collaboration and build common understanding around emerging AI technologies and solutions.

In the 2023 edition, 47 UN entities were engaged, 7 entities for the first time, and 408 projects have been presented. A brief analysis of the key tracks and trends arising from the submissions is provided below to help provide an overview of the extensive work that is taking place within the UN system as well as to assist UN bodies and agencies to identify the areas which could benefit from increased interventions as they develop future projects.

With the increased number of projects submitted for the Report this year, along with the updates made to the existing ones, the findings of this edition remain substantially consistent with those of the 2022 edition of this Report. Some of the fluctuations in the analysis detailed below are likely attributable to standard deviations occurring due to changes in personnel and the level of reporting annually. Significantly, the substantial increase in project numbers demonstrates the emphasis that is now being placed across the UN system on leveraging the potential of AI across several issue areas through concrete projects.

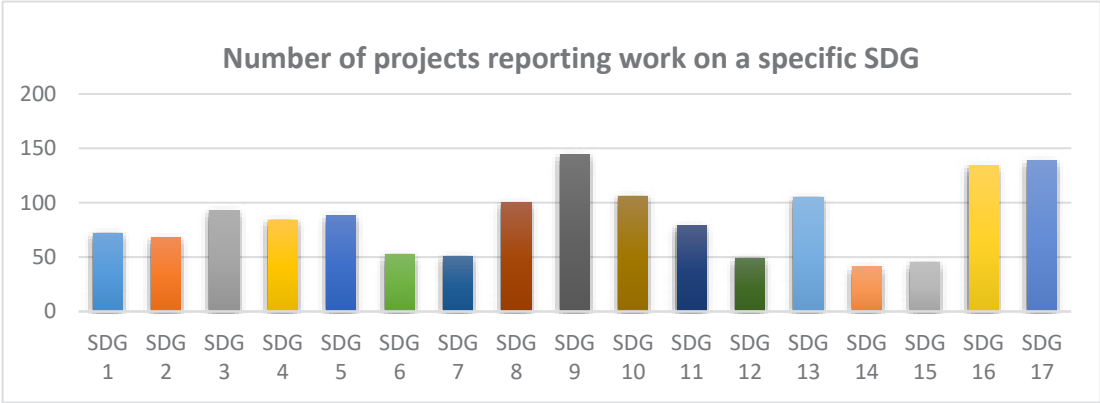
Relative stability on the key thematic priorities and SDGs across the 2022 and 2023 editions indicates a steadiness of efforts from entities in those areas. It could also be emblematic of the demand that is emanating from Member States and stakeholders for UN action and intervention across these topics. In particular, the renewed emphasis on SDG 13 (Climate Action), which aligns the priority SDGs once again with those of the 2021 Report, is illustrative of the critical timelines associated with achieving this SDG, the level of investment and effort needed to move the needle in this respect, as well as a potential recognition of the capacity of the technology to drive progress. Future editions of the Report will aim to continue analyzing these trends with an aim to provide insight into the nature and status of the UN AI activities.



This Report is being released at the [2024 edition of the annual AI for Good Global Summit](#).

## Key tracks and trends

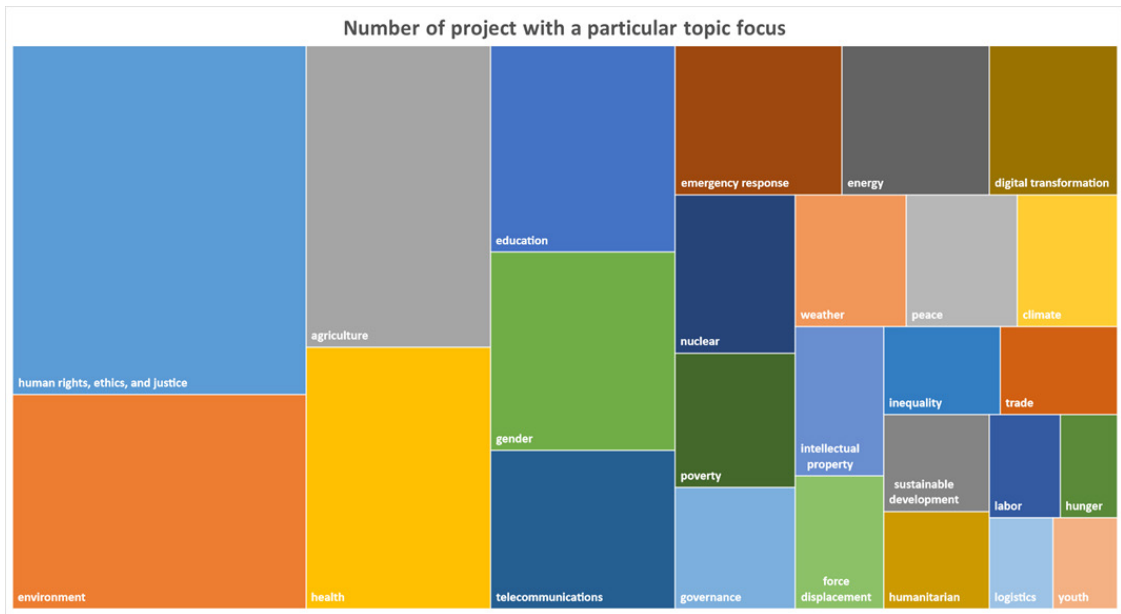
### 1. SDG Mapping



Around 83% of the submissions have linked their projects with outcomes driving forward specific SDGs. Among them, the overwhelming majority address more than one SDG, signaling holistic, multidimensional projects.

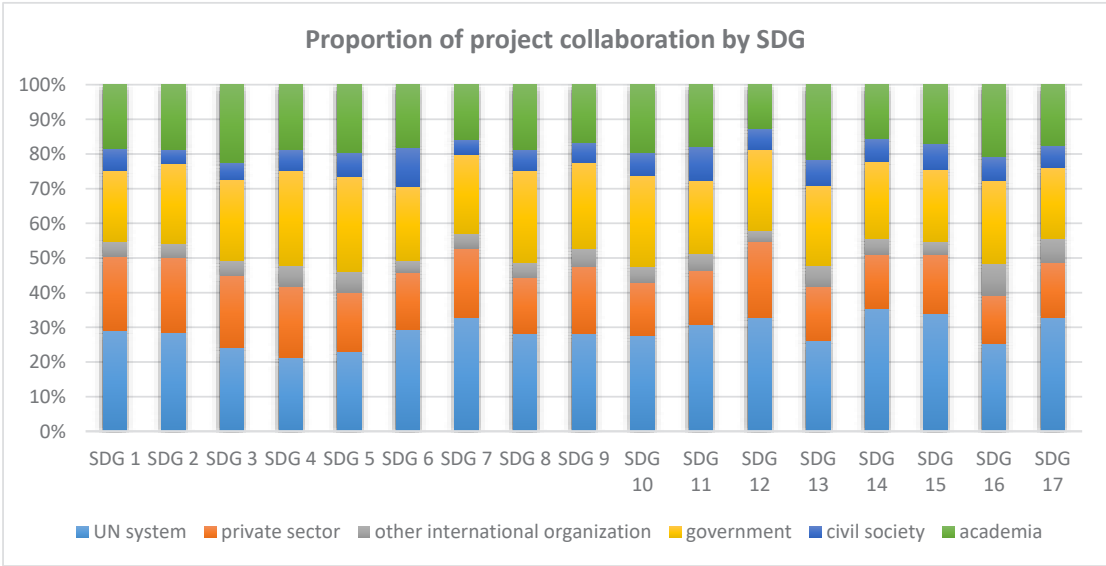
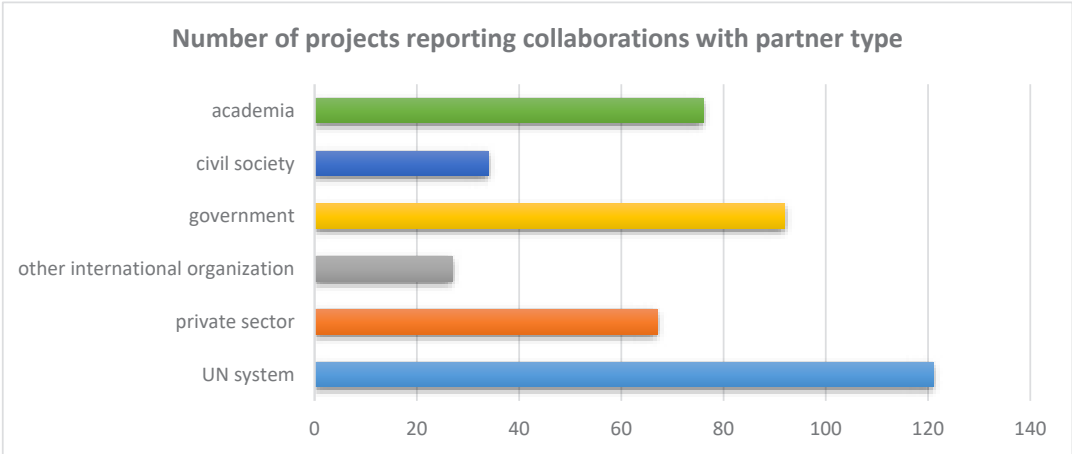
SDGs 9 (Industry, Innovation and Infrastructure), 10 (Reduced Inequalities), 16 (Peace, Justice and Strong Institutions), and 17 (Partnership for the Goals) continue to remain among the top five most common SDGs addressed by the UN AI projects. However, this year's edition reports that while focus on SDG 3 (Good Health and Well-being) remains consistent, there is an increase in the number of projects reporting on SDG 13 (Climate Action) bringing it up to the list of the top five most common SDGs addressed by projects this year. Meanwhile, similar to the last edition, more targeted action could be taken across SDGs 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 12 (Responsible consumption and production), 14 (Life Below Water) and 15 (Life on Land).

## 2. Project Subject Areas



In addition to the SDG mapping, participants have also set out some of the issue areas within which their AI projects are operating. Nearly 83% of the projects reported their specific issue areas. In most cases, the projects are often reported as addressing multiple areas. Consistent with the 2022 edition, human rights, ethics and justice, environment, agriculture, health, education, gender, and telecommunications are tagged as priority subject areas in this edition. In particular, projects focusing on agriculture and environment have increased since 2022 which correlates to the overall increased focus on SDG 13 (Climate Action) in this year's projects.

### 3. Driving Multi-stakeholder Collaboration



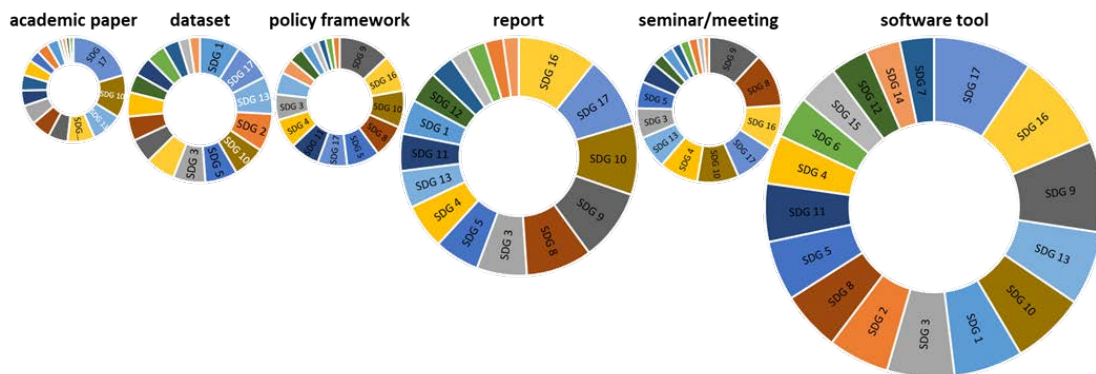
Almost 60% of the UN projects have reported collaborations with the UN system, the private sector, governments, civil society, academia, or with another international organization, demonstrating the UN’s focus on maintaining strong partnerships with internal and external stakeholders. A breakdown of the collaborations demonstrates

- Nearly 30% of the projects reporting collaborations with entities within the UN system; and
- 24% of the projects reporting collaborations with government, 20% with academia, and 17% with the private sector.

In particular, the data shows a 33% increase in projects collaborating with governments in comparison to the 2022 edition.

## 4. Reports and software tools to address challenges

### Project Outputs by SDGs



(Donut size = number of projects)

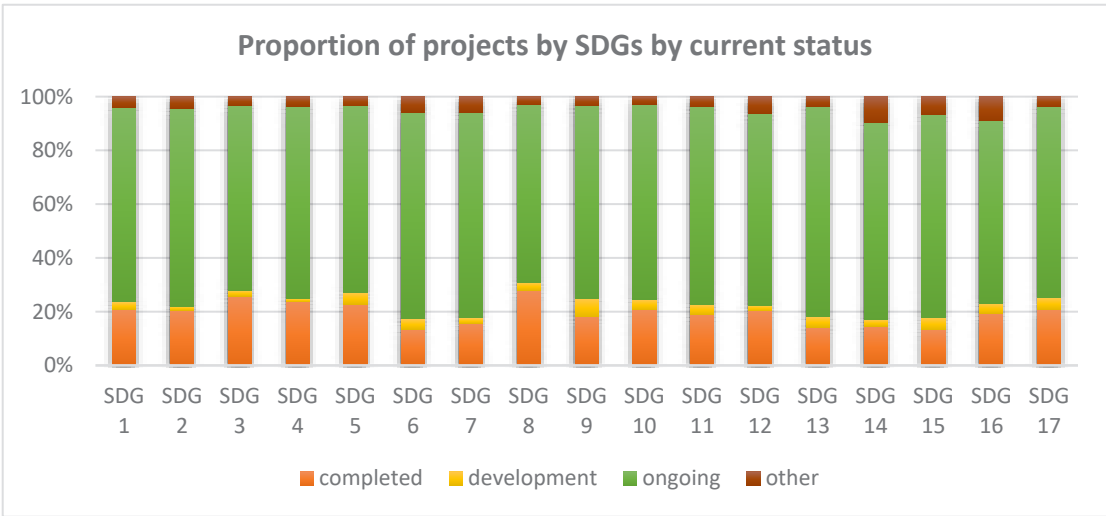
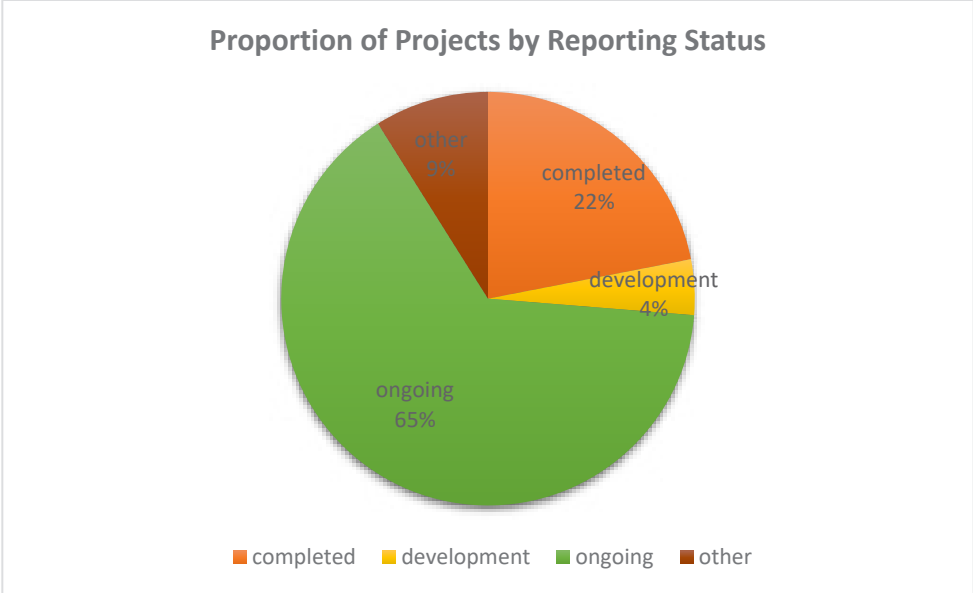
About 74% of the projects reported their project types or outputs this year. Among them, consistent with the findings of the 2022 edition, a significant number have focused on outcome-driven products and deliverables such as reports or software tools like mobile applications, web applications, searchable dashboards, or generative AI-powered chatbots. Besides, about 13% indicated a focus on creating datasets.

As of now, many of the current software tools produced on AI relate to SDGs 9 (Industry, Innovation, and Infrastructure) and 13 (Climate action) as compared to 2022's focus on SDGs 3 (Good health and well-being) and 9 (Industry, Innovation, and Infrastructure). Many reports relate to SDG 10 (Reduced Inequalities), which is consistent with the last edition. Focus on SDGs 16 (Peace, justice and strong institutions) and 17 (Partnership for the goals) remains strong across all the project outputs.

## 5. Looking forward

### Project Status by SDG

While over 90% of the projects reported their current status, a number of projects did not report specific end dates, or in some cases, the project duration.



In terms of status of the projects (in development, ongoing or completed), the majority of the reported UN AI projects are currently ongoing, i.e. 65% projects compared to 57% in 2022, with those related to SDG 8 (Decent work and economic growth) and SDG 17 (Partnership for the goals) reporting the most completed projects.

Of the projects in development, the majority feature software tools that are working on topics such as intellectual property, environment, human rights, ethics, and justice.

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## Comprehensive Nuclear-Test-Ban Treaty Organization



### 1. Description of Activities on AI

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) bans nuclear explosions on the Earth's surface, in the atmosphere, underwater and underground. The Treaty has a unique and comprehensive verification regime consisting of three pillars:

- The International Monitoring System (IMS) will, when complete, consist of 337 facilities worldwide to monitor the planet for signs of nuclear explosions. Around 90 percent of the facilities are already up and running.
- The International Data Centre (IDC) at the CTBTO's headquarters in Vienna acquires data from the IMS monitoring stations. The data are processed automatically, reviewed by human analysts and distributed to the CTBTO's Member States in both raw and analyzed form. On-site inspections (OSI) can be dispatched to the area of a suspected nuclear explosion if data from the IMS indicate that a nuclear test has taken place there. Inspectors collect evidence at the suspected site.

Artificial Intelligence (AI) is applied in all three pillars of the verification regime as outlined below.

#### Project 1: To detect fall army worm damage using a mobile application

Classifying signals from seismic stations to determine their seismic phase based on features measured automatically. The features include amplitude, frequency content, particle motion parameters, etc. Manual data processing of signals from seismic stations is cumbersome thus the need to automate data processing at ICTBTO's International data center.

- Project Type (Status): Software project (Proof of concept)
- Project Domain: Global nuclear explosion monitoring
- AI Approach: Artificial Neural Networks (ANN) and Bayesian Classifiers
- Datasets: Automatic signals from the International Monitoring System (IMS), reviewed and corrected by human analysts.
- Related SDGs: SDG 16 – Peace, Justice and Strong Institutions
- Resources/Skills: Human experts to review and correct the signals from seismic stations of IMS
- Technology: Deep Learning
- Challenges: Improvement of the current system by retraining the existing ANNs on a per station basis and replacing the ensemble of ANN and Bayes Classifiers with a deeper ANN. Methods are being explored for seismic phase identification directly from the waveform signal. Further studies are being undertaken to determine if the use of additional information, such as the raw waveform data, during classification can further improve performance

- Reported as part of 2022 Compendium on UN AI Activities? Yes

### **Project 2: Network Processing of detected signals to determine the events that have triggered them**

Detection of events by on-site inspections for every signal detected is time consuming and expensive hence the need for network processing of signals detected at seismic, infrasound and hydro-acoustic stations in determining the events that have caused these signals to be observed.

- Project Type (Status): Software project (Deployment)
- Project Domain: Global nuclear explosion monitoring
- AI Approach: Rule-based
- Datasets: Signals detected at seismic, infrasound and hydro-acoustic stations of IMS
- Related SDGs: SDG 16 - Peace, Justice and Strong Institutions
- Challenges: Further research is being undertaken on the classification of radionuclide spectra by ANNs
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### **Project 3: NET-VISA (NETwork processing Vertically Integrated Seismic Analysis)**

Improvement of the current rule-based system.

- Project Type (Status): Software project (Deployed)
- Project Domain: Global nuclear explosion monitoring
- AI Approach: Machine Learning + physics model. The theoretical underpinnings are based on the "Open Universe Probability Model"
- Datasets: Signals detected at seismic, infrasound and hydro-acoustic stations of IMS
- Related SDGs: SDG 16 - Peace, Justice and Strong Institutions
- Project Partners: University of California (developing NET-VISA software)
- Resource: Bayesian approaches. Knowledge of seismic, infrasound, and hydro data
- Challenges: Extending to stations without detailed history from which to derive priors.
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### **Project 4: Automatic triage**

Distribute certain trouble tickets based on their content.

- Project Type (Status): Software project (Deployment)
- Project Domain: Global nuclear explosion monitoring
- Datasets: Signals detected at seismic, infrasound and hydro-acoustic stations of IMS
- Related SDGs: SDG 16 - Peace, Justice and Strong Institutions
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### **Project 5: Predicting failure at IMS stations**

Predicting failure at IMS stations based on extensive State Of Health (SOH) parameters that are continuously collected and store.

- Project Type (Status): Software project (Deployed)
- Project Domain: Global nuclear explosion monitoring

- AI Approach: Statistical methods and rule-based system; Next approach: ANNs and Support Vector Machines (SVM).
- Datasets: IMS data and noble gas monitoring system SOH data.
- Related SDGs: SDG 16 – Peace, Justice and Strong Institutions
- Project Partners: Pacific National Northwest Laboratory (PNNL)
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### Project 6: Seismic aftershock monitoring

Monitoring changes in the geological structures caused by a possible nuclear explosion and classifying “weak” detections produced to enable separation of noise from signals of interest (aftershocks).

- Project Type (Status): Software project (Testing)
- Project Domain: Global nuclear explosion monitoring
- AI Approach: AI-based technique and Self Organizing Map (SOM)
- Datasets: IMS raw waveform data
- Related SDGs: SDG 16 – Peace, Justice and Strong Institutions
- Project Partners: University of Stuttgart (developed AI-based technique)
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### Project 7: Satellite monitoring for On Site Inspection (OSI)

The use of air-and-spaceborne multispectral imagery (MSIR) for classification and change detection in the inspection area, with the ultimate goal of limiting the search area and detecting features of interest.

- Project Type (Status): Software project (Ideation)
- Project Domain: Global nuclear explosion monitoring
- AI Approach: Pixel-based classification (unsupervised and supervised Machine learning), object-based classification (decision rules and fuzzy-logic) and Change detection techniques using Multivariate Alteration Detection (MAD)
- Datasets: Air and Space-borne multispectral imagery (MSIR)
- Related SDGs: SDG 16 – Peace, Justice and Strong Institutions
- Resource: GIS (Geographic Information Systems) operations
- Challenges: Timeframe during an ‘On Sight Inspection (OSI)’ (e.g. availability of imagery)
- Reported as part of 2022 Compendium on UN AI Activities? Yes

## 2. Related Sustainable Development Goals

SDG 16 – Peace, Justice and Strong Institutions

## 3. Relevant links

[www.ctbto.org](http://www.ctbto.org)

Contact information

Megan Slinkard, Chief, Software Applications, International Data Center Division ([Megan.Slinkard@ctbto.org](mailto:Megan.Slinkard@ctbto.org))

## The Food and Agriculture Organization



Food and Agriculture Organization  
of the United Nations

### 1. Description of Activities on AI

#### Project 1: AI-based interview on true cost accounting (TCA) case studies for SOFA 2024

- Project Description: AI-based interviewer application to implement qualitative surveys with a wide range of stakeholders. The AI-based survey aims at collecting relevant experiences and case studies that assess the hidden costs and benefits of various agrifood system components to steer them towards sustainability. The objective of this initiative was to showcase the feasibility of using AI to implement qualitative surveys as well as create content for The State of Food and Agriculture (SOFA) 2024. With this survey the SOFA team is inviting stakeholders to share case studies of assessments of hidden costs and benefits of agrifood systems and how such assessments have been used to inform decision-makers and other stakeholders in implementing transformative actions towards sustainable agrifood systems.
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Agrifood systems
- Data Source: Survey questions drafted by the team. The survey collects data on true cost of food and related case studies submitted by participants.
- Publicly Available Data: Yes
- Technology/Platform: Azure OpenAI Service, Google Cloud Platform.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being)
- Links and Multimedia:
  - [Sofa 2024 AI Survey \(fao.org\)](https://www.fao.org/sofa2024)
  - <https://www.fao.org/fsnforum/call-submissions/hidden-costs-and-benefits-agrifood-systems>
- Lessons Learned: Close collaboration between the technical team and the domain experts is essential. Testing the survey app using plausible and unplausible input is important to improve survey quality and data privacy/security. Questions posed by the app need to be more interactive to better approximate human interaction, improve interviewee experience and preference of AI app over human interviewer. Many people logged in out of curiosity and logged out. This may be better prevented with an interactive / dynamic starting page to engage the participant.



- Contact information: Martha García Acevedo ([Martha.GarciaAcevedo@fao.org](mailto:Martha.GarciaAcevedo@fao.org)); Andrea Cattaneo ([Andrea.Cattaneo@fao.org](mailto:Andrea.Cattaneo@fao.org)); Aslihan Arslan ([Aslihan.Arslan@fao.org](mailto:Aslihan.Arslan@fao.org)); Miguel Benitez Humanes ([Miguel.BenitezHumanes@fao.org](mailto:Miguel.BenitezHumanes@fao.org)).

### Project 2: GEO-AI Challenge 2023

- Project Description: Cropland extent maps are the basic products for the practical agricultural applications. This project aims to hold a challenge focusing on identifying cropland extent with satellite images by collaboration with ITU and UNODC. Both satellite imagery and ground truth data provided, and participants have tried to develop AI solutions to generate cropland extent in the pilot regions with these materials. 71 teams have submitted solutions, and five teams were prized based on the overall performance of classification accuracy, technical report and presentation.
- Project Type/Output: Dataset and open-source script
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Agriculture
- Data Source: Satellite data, ground truth data
- Publicly Available Data: Yes
- Technology/Platform: Google Cloud Platform; Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger
- Contact information: Pengyu Hao ([pengyu.hao@fao.org](mailto:pengyu.hao@fao.org)); Zhongxin Chen ([zhongxin.chen@fao.org](mailto:zhongxin.chen@fao.org)).

### Project 3: ATIO AI

- Project Description: Design the ATIO knowledge base and AI and web scraping technologies for the automated collection of entries for the ATIO Knowledge base. Advise on the strategic discussion on the roadmap, position and value of the ATIO Knowledge base for academia, civil society, policymakers and governments.
- Project Type/Output: Software, Dataset
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: Agrifood systems
- Data Source: [WIPO](#), [Digital Agri Hub](#), [Digital Impact Exchange](#) and [Green Technology Selector](#)
- Publicly Available Data: Yes
- Technology/Platform: Still to be selected.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Links and Multimedia: <https://www.fao.org/documents/card/en/c/cc2506en>
- Contact information: Fabrizio Brescani ([Fabrizio.Brescani@fao.org](mailto:Fabrizio.Brescani@fao.org)), Erik VanIngen ([Erik.VanIngen@fao.org](mailto:Erik.VanIngen@fao.org)), Sonia Dias ([Sonia.Dias@fao.org](mailto:Sonia.Dias@fao.org)).

#### Project 4: Large Large Language Models (LLMs) for FAO's Knowledge Enhancement and Practical Application

- Project Description: Exploration and Implementation of Large Language Models (LLMs) for FAO's Knowledge Enhancement and Practical Application. With a primary focus on leveraging LLMs, the initiative aims to elevate FAO's understanding and utilization of advanced language technologies.
- Project Type/Output: Software
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: Agrifood systems
- Data Source: FAO publications
- Publicly Available Data: Yes
- Technology/Platform: Still to be selected.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Contact information: Fabrizio Brescani ([Fabrizio.Brescani@fao.org](mailto:Fabrizio.Brescani@fao.org)), Erik VanIngen ([Erik.VanIngen@fao.org](mailto:Erik.VanIngen@fao.org)), Martha García Acevedo ([Martha.GarciaAcevedo@fao.org](mailto:Martha.GarciaAcevedo@fao.org)).

#### Project 5: Crop phenology and crop calendar with remote sensing and GEO-AI

- Project Description: Crops phenology and crop calendars are essential to many agricultural applications. This project uses time-series satellite remote sensing data and auxiliary data to generate crop phenology data and crop calendar, employing machine learning and GEO-AI. There are 2 phases of the project: First, algorithm development is committed in several pilot regions, and then a global dataset will be produced.
- Project Type/Output: Dataset
- Project Status: Ongoing (Phase 1 - Development and Validation)
- Project Start Year: 2022
- Project End Year: 2024
- Project Domain: Agriculture
- Data Source: Satellite data, agricultural statistical data, land cover, land use data and in-situ data.
- Publicly Available Data: Yes
- Technology/Platform: Google Cloud Platform; Python
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger, SDG 13 - Climate Action
- Contact information: Pengyu Hao ([pengyu.hao@fao.org](mailto:pengyu.hao@fao.org)); Zhongxin Chen ([zhongxin.chen@fao.org](mailto:zhongxin.chen@fao.org)).

#### Project 6: Creating Key Messages for the DSP mobile application

- Project Description: Digital Services Portfolio (DSP) is the FAO mobile application for digital advisory services. It has been implemented in over 11 countries. One of the biggest challenges during any implementation is creating content digestible by extension services and farmers. While there is a lot of technical information, manually creating key messages is very cumbersome and time consuming. The project is building a prototype using Open AI chatbot to create key messages from FAO/Country based technical documentation.

- Project Type/Output: Software tool (Proof of Concept)
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Agriculture Digital Advisory
- Data Source: Technical documentation.
- Publicly Available Data: Yes
- Technology/Platform: Open AI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Lessons Learned: The improvement of the current system by automating summary of the technical documentation and converting it to the appropriate language levels has been a challenge. It is essential to include human experts to review and correct key messages.
- Contact information: Dioguen Zaridze ([Dioguen.Zaridze@fao.org](mailto:Dioguen.Zaridze@fao.org)), Misael Sabbadini ([Misael.Sabbadini@fao.org](mailto:Misael.Sabbadini@fao.org)).

### Project 7: Animal Feed Balance calculation

- Project Description: Animal Feed Calculator is an existing FAO application that helps livestock keepers mixing cow feed based on agricultural byproducts. Milk production levels and quality heavily depend on the nutritional intake of the animals. The application contains Feed database, products available in a country with their nutritional values and nutritional requirements of the milking cows by weight category and levels of production. The project aims to use the power of Large Language Models (LLM) and advanced ML techniques to assist farmers to create best mix proportions based on available ingredients.
- Project Type/Output: Software tool (Proof of Concept)
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Agriculture Digital Advisory
- Data Source: Technical country-based data.
- Publicly Available Data: Yes
- Technology/Platform: Open AI, Python.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Lessons Learned: Teaching the Open AI algorithms for the calculation of the nutritional value of a mix is challenging.
- Contact information: Dioguen Zaridze ([Dioguen.Zaridze@fao.org](mailto:Dioguen.Zaridze@fao.org)), Misael Sabbadini ([Misael.Sabbadini@fao.org](mailto:Misael.Sabbadini@fao.org)).

### Project 8: Strengthening global access to agricultural information and knowledge (Hand-In-Hand Geospatial Platform)

- Project Description: Earth observation and geospatial IT play a critical role in the agricultural and related sectors. FAO has created the Hand-in-Hand Geospatial Platform that hosts data sourced from FAO, FAO partners in the public and private sectors including from across the UN, NGOs, government institutions, academia and space agencies. The platform has significantly increased the interoperability of FAO geospatial data as well as the cost-effective maintenance and sustainability of different FAO geospatial applications. Machine learning and AI are used in cutting edge quantitative remote sensing in agriculture; world class cloud computing capabilities; enabling unprecedented

cross-sectoral knowledge discovery by integrating data on Soil, Land, Water, Climate, Fisheries, Livestock, Crops, Forestry, Trade, Social and Economics and much more.

- Project Type/Output: Dataset, Software tool
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2025
- Project Domain: Agriculture
- Data Source: FAO projects data and relevant data from external data providers, covering all sub-disciplines of agriculture from animal health to trade/markets.
- Publicly Available Data: Yes
- Technology/Platform: Google Cloud Platform; TerriaJS; GeoNetwork; CKAN
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: more datasets added or updated, and new functions such as support for 5 languages, user profiles, single sign-on, now support predefined shapes, user styling, and GeoJSON annotations, and raster export.
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 2 - Zero Hunger; SDG 13 - Climate Action.
- Links and Multimedia:
  - <https://www.fao.org/agroinformatics/en>
  - <https://youtu.be/KLqgcpQUuHo>
  - <https://data.apps.fao.org/>
- Lessons Learned: Data federation supported by standardization makes a huge difference in data sharing. Open data sharing enables various users to contribute and get good results to solve identified problems.
- Contact information: Karl Morteo ([karl.morteo@fao.org](mailto:karl.morteo@fao.org)); Zhongxin Chen ([zhongxin.chen@fao.org](mailto:zhongxin.chen@fao.org)).

### Project 9: FAO Data Lab

- Project Description: The Data Lab employs cutting-edge methods, including web scraping and geospatial analysis, to source timely data from non-traditional sources. By using AI algorithms, it recognizes patterns in unstructured data, generating insights from news sources, summarizing policy documents, and enhancing FAO databases. Additionally, it pioneers geospatial methods to fill data gaps, collaborating across FAO divisions. By integrating AI, the Data Lab boosts processing efficiency, aiding evidence-based policymaking for agri-food systems transformations.
- Project Type/Output: Software, Dataset
- Project Status: Ongoing Programme of work
- Project Start Year: 2019
- Project Domain: Agriculture, Trade, Food and Agricultural Statistics
- Data Source: Internet web scraping, literature mining, sentiment analysis, social media, Earth Observation satellite imagery, Government policies, unstructured documents
- Publicly Available Data: Yes
- Technology/Platform: R, Jupyter, Python, running on the Google Cloud Platform, OpenAI
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG 12 - Responsible Consumption and Production
- Links and Multimedia: <https://www.fao.org/datalab/en>

- Contact information: Carola Fabi ([Carola.Fabi@fao.org](mailto:Carola.Fabi@fao.org)); Christian Mongeau ([Christian.Mongeau@fao.org](mailto:Christian.Mongeau@fao.org)).

### Project 10: Detecting Fall armyworm through user submitted photos (FAMEWS)

- Project Description: Combines an online monitoring platform for mapping data collected by the FAMEWS mobile app whenever fields are scouted, or pheromone traps are checked for FAW. The platform provides a real-time situation overview with maps and analytics of FAW infestations at global, country and sub-country levels. The FAMEWS mobile app enables data collection of scouting data, which can be collected manually or through an image recognition model which provides immediate advice on FAW infestation. The global monitoring platform and the mobile app are designed to expand with the evolving needs of farmers, analysts and decision-makers. Both are accessible for free and are helping to reduce crop yield losses and minimize risk of further introduction and spread of FAW.
- Department/Division: Plant Production and Protection Division (NSP)
- Project Type/Output: Dataset
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: 2024
- Project Domain: Agriculture
- Data Sources: Field scouting geo-referenced data, Pheromone traps data, Picture of FAW damage from the field.
- Link to Data:
  - <https://app.powerbi.com/view?r=eyJrIjoiMGQ3MzEwMTctMTlhOC00YzYzM3LTkxNTgtOWIxYjIwN2YyNjFlIiwidCI6IjE2M2FjNDY4LWFiYjgtNDRkMCM0MWMWZklWQ5ZGlxNWUzYWY5NiIsImMiOiJh9>
  - <https://data.apps.fao.org/>
- Publicly Available Data: Yes
- Technology/Platform: Google AI, TensorFlow
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: A new version of the FAW global platform was published. The project was extended up to the end of October 2024
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Partnership(s)/Collaborator(s):
  - Academia: Penn state University, USA (PlantVillage platform)
- Links and Multimedia:
  - [www.fao.org/fall-armyworm/monitoring-tools/en/](http://www.fao.org/fall-armyworm/monitoring-tools/en/)
  - <http://www.fao.org/3/CA1089EN/ca1089en.pdf>
  - [FAO-FAMEWS V3 - Apps on Google Play](#)
- Lessons Learned:
  - The most important challenge was promoting the adoption of the application and convincing FAO members to share their data.
  - The second challenge was the sustainability of the project as it is difficult to maintain and promote the system without any financial support.
  - The accuracy of the collected data was also another challenge as it is crowd sourced data.

- Contact information: Maged Elkahky ([maged.elkahky@fao.org](mailto:maged.elkahky@fao.org)).

### Project 11: WaPOR (Water Productivity through Open access of Remotely sensed derived data)

- Project Description: WaPOR is FAO's portal to monitor Water Productivity through Open-access of Remotely sensed derived data. It assists countries in monitoring water productivity, identifying water productivity gaps, proposing solutions to reduce these gaps and contributing to a sustainable increase of agricultural production. At the same time, it considers ecosystems and the equitable use of water resources, which should eventually lead to an overall reduction of water stress. The WaPOR portal provides open access to key land and water variables (including reference and actual evapotranspiration, biomass, land cover, precipitation) in near - real time at global level with a spatial resolution of 300 m. and, for Africa and the Near East and project countries at 100 m resolutions with pilot areas at 20 m.
- Project Type/Output: Dataset, Software tool
- Project Status: Ongoing
- Project Start Year: 2016
- Project End Year: 2025
- Project Domain: Agriculture
- Data Source: Geospatial Database with remote sensing data input. The database is publicly accessible, developed with open access data and open-source algorithms. It provides near real time information from 2009 to date.
- Publicly Available Data: Yes
- Technology/Platform: Google Cloud services, Python, Jupyter
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project updates: the WaPOR data is now global.
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG 6 - Clean Water and Sanitation; SDG 13 - Climate Action
- Partnership(s)/Collaborator(s):
  - Government: Ministry of Foreign Affairs of the Netherlands.
  - Private Sector: eLEAF and private sector entities in selected project countries.
  - Civil Society: not for profit organizations in several project countries.
  - Academia: IHE Delft.
  - Research: IWMI (CGIAR centre).
- Links and Multimedia:
  - <https://www.fao.org/in-action/remote-sensing-for-water-productivity/en/>
  - <https://wapor.apps.fao.org/> and <https://data.apps.fao.org/wapor/>
  - <https://www.youtube.com/watch?v=ZX7SOhk97hA>
  - [https://www.youtube.com/watch?v=gA\\_t4HuFNhM](https://www.youtube.com/watch?v=gA_t4HuFNhM)
- Contact information: Livia Peiser ([Livia.Peiser@fao.org](mailto:Livia.Peiser@fao.org)), Jippe Hoogeveen ([Jippe.Hoogeveen@fao.org](mailto:Jippe.Hoogeveen@fao.org)) or [wapor@fao.org](mailto:wapor@fao.org).

## 2. Related Sustainable Development Goals

SDG 1, 2, 3, 6, 12, 13, 14

### 3. Relevant Links

<https://www.fao.org/home/en>

Contact Information

CSI-Director ([CSI-Director@fao.org](mailto:CSI-Director@fao.org))

## International Atomic Energy Agency



### 1. Description of Activities on AI

#### Project 1: AI for Atoms - the IAEA's knowledge-sharing platform for partnership on AI applications in the nuclear field

- Project Description: The IAEA provides interdisciplinary fora for professionals to discuss and foster collaboration on the use of AI in nuclear applications, science and technology and is committed to sharing knowledge and forging partnerships through its AI for Atoms platform. As part of this initiative, the IAEA cooperates with the International Telecommunication Union, the UN Interagency Working Group on AI and almost 40 other UN organizations to provide a solid foundation for accelerated sustainable development with AI. The AI for Atoms platform provides information on the IAEA's activities on AI, featuring all related initiatives, news, publications, and events.
- Project Status: Ongoing
- Project Domain: Agriculture, Environment, Energy, Health, and Nuclear Science, Technology and Applications
- Related Sustainable Development Goals (SDGs): SDG 2 - No Hunger; SDG 3 - Good Health and Well-Being; SDG 6 - Clean Water and Sanitation; SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation, and Infrastructure; SDG 13 - Climate Action; SDG 15 - Life on Land; SDG 17 - Partnerships for the Goals
- Links and Multimedia:
  - AI for Atoms: <https://nucleus-new.iaea.org/sites/ai4atoms/>
- Contact information: [ai4atoms@iaea.org](mailto:ai4atoms@iaea.org)

#### Project 2: Crowdsourcing AI Solutions for Climate Change

- Project Description: A new contest for start-up companies was launched by the IAEA, the ITU, the FAO and UNESCO focusing on jumpstarting AI-powered solutions for food and climate-smart agriculture and water resource management. The five problems in need of solutions included:
  - How can AI help estimate soil properties across large areas? (based on data collected from infrared spectroscopy, gamma spectrometry techniques and satellite imagery)
  - How can AI help map and monitor soil moisture levels? (using data from cosmic ray neutron sensors and gamma spectrometry techniques, in combination with satellite imagery)
  - How can AI complement the Earth Map to help users identify water-related challenges in specific areas and provide useful insights on and analyses of water resources?
  - How can AI help identify water resources vulnerable to climate change and support flood and drought forecasting and early warning?



- How can AI be integrated into isotope hydrology studies to support water management and mitigate the world's water problems?

The project culminated in a COP28 high-level event showcasing the winning projects and solutions. The IAEA is working with the winning start-ups to identify synergies with its data collected using various nuclear technologies.

- Project Status: Ongoing
- Project Domain: Agriculture, Environment, Water and Nuclear Science, Technology and Applications
- Related Sustainable Development Goals (SDGs): SDG 2 - No Hunger; SDG 6 - Clean Water and Sanitation; SDG 9 - Industry, Innovation, and Infrastructure; SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- Links and Multimedia:
  - *AI Solutions for Climate Change - Innovation Factory*, <https://aiforgood.itu.int/about-ai-for-good/aiml-solutions-for-climate-change/>
- Contact information: Noura El-Haj ([N.El-Haj@iaea.org](mailto:N.El-Haj@iaea.org))

### Project 3: Publication on Artificial Intelligence in Medical Physics

- Project Description: The deployment of technologies based on AI in the medical use of radiation (i.e., radiation oncology, diagnostic imaging, nuclear medicine) and medical physics is expected to grow over the next 5-10 years. Clinically Qualified Medical Physicists (CQMP) are expected to play an important role in ensuring safe and effective clinical implementation of AI based tools. This publication launched in November 2023 frames the roles and responsibilities of CQMPs in the field of implementation and utilization of AI in the medical uses of radiation. The publication provides definitions, principles, examples, and associated risks of AI-based tools in medical physics. Furthermore, it provides principles and needs on academic education and continuing professional development for CQMPs.
- Project Status: Completed
- Project Domain: Health, Medical Physics
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being
- Links and Multimedia:
  - INTERNATIONAL ATOMIC ENERGY AGENCY, Artificial Intelligence in Medical Physics, Training Course Series No. 83, IAEA, Vienna (2023), <https://www.iaea.org/publications/15450/artificial-intelligence-in-medical-physics>
- Contact information: Mauro Carrara ([M.Carrara@iaea.org](mailto:M.Carrara@iaea.org)), Egor Titovich ([E.Titovich@iaea.org](mailto:E.Titovich@iaea.org))

### Project 4: AI-assisted Contouring Skills in Radiotherapy

- Project Description: The IAEA is conducting a Coordinated Research Project on The Potential of E-learning Interventions for AI-assisted Contouring Skills in Radiotherapy (CRP E33046). The objective of the project is to investigate changes in inter-observer variation and bias after e-learning in delineation guidelines and the use of deep learning-based auto-segmentation of organs-at-risk in head-and-neck cancer. In recent years, AI-algorithms, namely deep learning-based algorithms, have improved auto-segmentation drastically. It is believed that AI-tools lower variation and increase the accuracy and compliance of plans, which improves the chance of cure. AI-tools may also make care more cost effective by reducing the human capacity required, which is important in our overstretched health systems. A wide palette of commercial deep learning-based auto-segmentation solutions are emerging with the promise of leveraging the aforementioned

benefits. The selection and contouring of target volumes and organs-at-risk has become a key step in modern radiation oncology. Concepts and terms for definition of gross tumour volume, clinical target volume and organs at risk have been continuously evolving (e.g., through International Commission on Radiation Units and Measurements (ICRU) reports 50, 62, 78, 83) and have become widely disseminated and accepted by the European and international radiation oncology community. Currently, 102 participants from 23 IAEA Member States from 24 radiotherapy centers are participating in the project.

- Project Status: Ongoing
- Project Domain: Health
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being
- Contact information: Egor Titovich ([E.Titovich@iaea.org](mailto:E.Titovich@iaea.org))

### Project 5: AI to Assess Climate Impact on Global Lakes

- Project Description: Global warming is considered a major threat to Earth's lakes water budgets and quality. However, flow regulation, over-exploitation, lack of hydrological data, and disparate evaluation methods hamper comparative global estimates of lake vulnerability to evaporation. The stable isotope composition of 1,257 global lakes was analyzed using Artificial Intelligence techniques. It was found that in most of the lakes, this depends on precipitation and groundwater recharge subsequently altered by catchment and lake evaporation processes. Isotope mass-balance modelling shows that ca. 20 % of water inflow in global lakes is lost through evaporation and ca. 10 % of lakes in arid and temperate zones experience extreme evaporative losses >40 % of the total inflow. Precipitation amount, limpidity, wind speed, relative humidity, and solar radiation are predominant controls on lake isotope composition and evaporation, regardless of the climatic zone. The promotion of systematic global isotopic monitoring of Earth's lakes provides a direct and comparative approach to detect the impacts of climatic and catchment-scale changes on water-balance and evaporation trends. This project aims to establish a global network of isotopes in lakes (GNIL) to improve our AI-based assessments. Current activities include the design of the database, the selection of variables and the assessment of global coverage. Stable water isotope assays provide a low-cost effective tool to study lake-catchment changes with regards to sample collection and analysis. Additionally, stable isotope data from lakes is fully comparative globally, thereby providing a competitive advantage under the current scenario of different international methods and approaches that are not easy to compare in time and scale and which result in the current lack of the comparable data for lakes and catchments.
- Project Status: Ongoing
- Project Domain: Environment, Water Resource Management
- Data Source: Satellite open-source data on climate, hydrology and lakes parameters and stable water isotopes data in global lakes.
- Link to data: The data can be obtained by request at <https://nucleus-new.iaea.org/sites/ihn/Pages/GNIR.aspx>.
- Technology/Platform: R programming, Isotope Hydrology Collaboration Platform
- Related Sustainable Development Goals (SDGs): SDG 6 - Clean Water and Sanitation, SDG 13 - Climate Action
- Contact information: Yuliya Vystavna ([Y.Vystavna@iaea.org](mailto:Y.Vystavna@iaea.org)), Astrid Harjung ([A.Harjung@iaea.org](mailto:A.Harjung@iaea.org))

### Project 6: AI for Water and Environment

- Project Description: This project aims to promote and enable the use of isotopic techniques with AI tools for better management of water and environmental resources, as well as adaptation to climate change worldwide. Recognizing that with the increasing availability of data from satellites, unmanned airborne vehicles and sensor networks, there

is a myriad of data available to couple and explore in conjunction with the IAEA's global isotope databases.

The project is a platform for scientists working with AI tools at the interface of isotope hydrology, water resources protection and management. This facilitates sharing of experiences in the use of machine and deep learning for hydrological and environmental modelling, challenges, and research opportunities to move forward. The project aims to find synergies between isotope techniques, high-frequency or remote sensing, open-source resources, and AI to show how these can help inform policies to mitigate the world's water problems. Besides exchanging knowledge on current developments in the area that feed into research activities of the isotope hydrology section, the project foresees submission of a review paper to a hydrological journal that showcases different applications of AI in isotope hydrology. This paper intends to explore what role machine learning and big data can play in the advancement of isotope hydrology.

- Project Status: Ongoing
- Project Domain: Environment
- Technology/Platform: *R programming*
- Related Sustainable Development Goals (SDGs) SDG 6 - Clean Water and Sanitation, SDG 13 - Climate Action
- Contact information: Astrid Harjung ([A.Harjung@iaea.org](mailto:A.Harjung@iaea.org)), Yuliya Vystavna ([Y.Vystavna@iaea.org](mailto:Y.Vystavna@iaea.org))

### Project 7: Zoonotic Disease Integrated Action (ZODIAC) Respiratory Disease Phenotype Observatory

- Project Description: Medical imaging plays a crucial role in diagnosing and monitoring infectious diseases, and the COVID-19 pandemic has highlighted the critical role of chest imaging, including computed tomography (CT) scans and baseline X ray analysis, in the early stages of the disease. Medical imaging technologies, such as computed tomography (CT), can detect lesions smaller than 0.5 mm and assess activity without the need for a biopsy. This enables the identification of specific disease characteristics in each patient. However, the analysis of the complex images generated by these technologies can be challenging to the naked eye. Radiomics, a method for extracting large-scale imaging data from medical imaging studies like CT and X ray scans, utilizes data-characterization algorithms to identify disease findings that are not visible to the naked eye. This approach can be complemented by AI, ML, and deep learning to identify patterns of lung involvement in COVID-19 patients. The IAEA has initiated a project with the aim of identifying specific characteristics associated with different virus variants and determining if there are any epidemiological and clinical differences in the development of disease complications and specific medical imaging manifestations in several respiratory infectious diseases.

By 2026 The ZODIAC Respiratory Disease Phenotype Observatory will be collecting a continuous stream of imaging- and associated clinical data of patients with respiratory disease from around the world.

- Project Status: Ongoing
- Project Domain: Human Health, Zoonotic Diseases, Pandemic Prevention
- Links and Multimedia:
  - ZODIAC webpage: <https://nucleus.iaea.org/sites/zodiac/SitePages/Home.aspx>
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being
- Contact information: Enrique Estrada Lobato ([E.Estrada-Lobato@iaea.org](mailto:E.Estrada-Lobato@iaea.org))

## Project 8: AI to Support Remediation of Radioactive Contamination in Agriculture

- **Project Description:** Remediation of radioactive contamination of farmland requires accurate soil data and exchangeable potassium ( $K_{ex}$ ) plays a major role. As potassium competes with radiocaesium in soil-to-plant transfer, it can help reduce the crop uptake of this major fallout radionuclide. Information on potassium content in the soil is essential for optimizing remediation of radioactive contamination. Through the international research network under the IAEA funded Coordinated Research Project D1.50.19 on “Remediation of Radioactive Contaminated Agricultural Land”, the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture investigated how to predict exchangeable potassium in soil through Mid-Infrared Spectroscopy and Artificial Intelligence. In our study, which was finalized this year and is expected to be published soon, we show how this can be now achieved using a Convolutional Neural Network (CNN) model trained on a large Mid-Infrared (MIR) soil spectral library (40000 samples  $K_{ex}$  determined with 1M NH<sub>4</sub>OAc, pH 7), compiled by the National Soil Survey Center of the United States Department of Agriculture. Using Partial Least Squares Regression as a baseline, we found that our implemented CNN leads to a significantly higher prediction performance of  $K_{ex}$  when a large amount of data is available (10000), increasing the coefficient of determination from 0.64 to 0.79, and reducing the Mean Absolute Percentage Error from 135% to 31%. Furthermore, in order to provide end-users with required interpretive keys, we implemented the GradientShap algorithm to identify the spectral regions considered important by the model for predicting  $K_{ex}$ . Used in the context of the implemented CNN on various Soil Taxonomy Orders, it allowed (i) to relate the important spectral features to domain knowledge and (ii) to demonstrate that including all Soil Taxonomy Orders in CNN-based modeling is beneficial as spectral features learned can be reused across different, sometimes underrepresented soil orders.

In early 2023, KU Leuven and Curtin universities in collaboration with the Joint FAO/IAEA Centre, launched a PhD project to explore the integration of AI, soil spectroscopy, and remote sensing in  $K_{ex}$  characterization at both local and global scales. This research, which seeks to bridge soil science and deep learning, focuses on three key questions:

- The feasibility of using Mid-Infrared spectroscopy (MIRS) and deep learning with large soil spectral libraries to accurately predict  $K_{ex}$  for local-scale remediation.
  - Assessing Near-Infrared spectroscopy’s (NIRS) potential for high-throughput  $K_{ex}$  prediction, considering its lower cost and portability compared to MIRS.
  - Exploring global-scale  $K_{ex}$  prediction using remote sensing data and geographical soil-forming factors in advanced modeling approaches.
- **Project Status:** Ongoing
  - **Project Domain:** Food and Agriculture
  - **Related Sustainable Development Goals (SDGs):** SDG 2 – Zero Hunger; SDG 3 – Good Health and Well-Being
  - **Contact information:** Simon Kelly ([S.Kelly@iaea.org](mailto:S.Kelly@iaea.org)), Gerd Dercon ([G.Dercon@iaea.org](mailto:G.Dercon@iaea.org))

## Project 9: AI to Assess and Use Marine Environmental Radioactivity Data

- **Project Description:** Levels of radionuclides in the marine environment can be influenced by a range of manmade inputs (e.g., nuclear accidents and authorised discharges from nuclear fuel cycle facilities), underlying biogeochemical conditions, and other dynamic such as climate change and sea level rise. On the other hand, the presence of radionuclides – both natural and artificial – in the marine environment offers a wealth of possibilities for the application of radiotracers for quantification of climate and ocean change. The IAEA Marine Radioactivity Information System (MARIS) has been maintained for many years to provide data underpinning related monitoring and research activities. MARIS is currently being redeveloped in order to offer improved support and possibilities to its user community, including for AI and ML applications. The planned improvements

include adoption of Open Science principles, data management according to FAIR and/or GEO principles, improved API access and adoption of netCDF and related technologies, with all associated improvements in metadata provision and opening of access to a rich range of tools for accessing, analysing and visualizing data. The overall aim is to promote data re-use and to facilitate Open Science. Specifically for AI a range of possibilities are foreseen to incorporate marine modelling for prediction of *inter alia* transport, dispersion and settling rates for future and sparsely observed scenarios; visualisation of radionuclide levels in four dimensions; time series analysis; improved radiotracer applications and reanalyses using combined datasets.

- Project Status: Ongoing
- Project Domain: Marine Environment, Climate and Ocean Change, Emergency Preparedness and Response, Radiological Environmental Impact Assessment
- Data Source: IAEA Marine Radioactivity Information System <https://maris.iaea.org/>
- Related Sustainable Development Goals (SDGs): SDG 14 - Life Below Water; SDG 13- Climate Action
- Contact information: Paul McGinnity ([P.Mc-ginnity@iaea.org](mailto:P.Mc-ginnity@iaea.org))

### Project 10: AI for Nuclear Data Development and Evaluation

- Project Description: Explore, test, and deploy AI methods to improve and speed-up nuclear data development and evaluation. The IAEA coordinates and contributes to nuclear data development projects, e.g., within the International Nuclear Data Evaluation Network (INDEN) and the Neutron Data Standards project, and provides databases with atomic, molecular and nuclear data to support developments in various nuclear-related domains, such as fusion energy research, nuclear medicine, nuclear astrophysics and fundamental nuclear science.

Concerning nuclear data development, progress on AI-related activities is shared among collaborators within the various projects and networks. Additionally, open-source evaluation packages in R and Python are developed at IAEA that leverage machine learning frameworks, such as TensorFlow, for advancing evaluation methodology to enhance the quality of the nuclear data provided. These products are shared on the IAEA GitHub account for making developments more inclusive, traceable and reproducible, and also to lower the entrance barrier to new contributors. Methodological progress is documented in reports and journal publications.

Regarding the dissemination of databases, new APIs, formats, webservices and software tools are developed at IAEA to facilitate the access to nuclear data and to enhance the quality assurance procedures. Especially, programmatic access to nuclear data is anticipated to facilitate the application of machine learning for automatic data classification, outlier detection and estimation of nuclear quantities. Furthermore, the IAEA is involved in international projects and expert groups, such as OECD-NEA WPEC SG50, concerned with the development of experimental database suited for ML applications.

- Project Status: Ongoing
- Project Domain: Physics, Nuclear Data
- Technology/Platform: R, Python, TensorFlow / GitHub
- Link and Multimedia:
  - IAEA's GitHub repository: <https://github.com/IAEA-NDS>
- Related Sustainable Development Goals (SDGs): SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation, and Infrastructure
- Contact information: [nds.contact-point@iaea.org](mailto:nds.contact-point@iaea.org)

## Project 11: AI for Fusion

- **Project Description:** The IAEA has launched a 5-years Coordinated Research Project (CRP) on AI for Accelerating Fusion R&D (2022-2027) with the objective of accelerating fusion R&D with machine learning and AI, through the creation of a platform and cross-community network for innovation and partnership. The project features four work packages. These are:
  - **Real-time Magnetic Fusion Energy (MFE) System Behaviour Prediction, Identification & Optimization Using ML/AI Methods:** To accelerate fusion R&D by establishing a multi-machine database of experimental and simulation MFE data (adhering to FAIR/Open Science principles) for ML/AI-driven applications, and through increased access to knowledge and information of ML/AI methods for MFE.
  - **Inertial Fusion Energy (IFE) Physics Understanding through Simulation, Theory and Experiment Using ML/AI Methods:** To accelerate fusion R&D by establishing a database of experimental and simulation IFE data (adhering to FAIR/Open Science principles) for ML/AI-driven applications, and through increased access to knowledge and information of ML/AI methods for IFE.
  - **Feasibility of Magnetic Fusion and Inertial Fusion Image Database:** To determine the feasibility of an image database from MFE and IFE data (adhering to FAIR/Open Science principles) for ML/AI-driven applications with potential to accelerate fusion R&D.
  - **Community Engagement & Workforce Development:** To accelerate community engagement and capacity building, as well as create and provide with access to knowledge and information in the area of ML/AI methods applied to fusion R&D.

As part of this activity, in 2023 the IAEA and ITU conducted a **Crowdsourcing Challenge on AI for Fusion** which provided a platform for collaboratively explore the potential of AI in enabling predictive modelling for fusion energy systems. Through this Challenge, participants used data from three distinct fusion experimental machines to develop a cross-machine disruption prediction model using ML, with strong generalization capabilities. Finally, the IAEA designated the Massachusetts Institute of Technology Plasma Science and Fusion Center as its Collaborating Centre on research and education in the area of AI applications in fusion and plasma science for the period 2023-2027.

- Project Status: Ongoing
- Project Domain: Fusion Energy
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure
- Links and Multimedia:
  - *AI for Fusion:* <https://nucleus.iaea.org/sites/ai4atoms/ai4fusion>
  - *AI for Fusion Energy Challenge:* <https://aiforgood.itu.int/about-ai-for-good/ai-for-fusion-energy-challenge>
- Contact information: Matteo Barbarino ([M.Barbarino@iaea.org](mailto:M.Barbarino@iaea.org))

## Project 12: International Network on Innovation to Support Operating Nuclear Power Plants (ISOP)

- **Project Description:** The IAEA International Network on Innovation to Support Operating Nuclear Power Plants (ISOP), established in 2019, aims to facilitate the engagement on the deployment of near-term innovation in the nuclear power sector from diverse expertise, both internal and external to the IAEA. This project features several work packages, delivering unique outputs. These are:

- **Creation and coordination of the ISOP Working Group on AI** as the first pilot working group organized under the auspices of the ISOP Network. The AI working group was established in July 2022. The objective of the AI working group is to strengthen awareness and engagement in activities linked to recent and near-term deployment of AI in the nuclear power sector. The ISOP AI WG serves as an effective platform to share these ideas and put forth the vision for possible activities in the area of near-term deployable AI for the nuclear power sector. As of the end of 2023, the group comprised 66 international experts, from 18 Member States representing nuclear utilities, regulators, technical support organizations, national laboratories and academia.
- Nuclear Energy Series Publication on Deployment of Artificial Intelligence Solutions for the Nuclear Power Industry: Considerations and Guidance: The goal of the document is to provide overall guidance to the nuclear industry on what aspects should be addressed when developing and deploying AI solutions in the nuclear industry to help ensure its performance is adequate while maintaining safe and reliable operation based on the current knowledge, up to date best practices, experiences, benefits and challenges in the life cycle of NPPs. The work is coordinated within the ISOP AI working group described above.
- Project Status: Ongoing
- Project Domain: Energy
- Related Sustainable Development Goals (SDGs): SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation, and Infrastructure; SDG 13 - Climate Action
- Links and Multimedia:
  - IAEA International Network on Innovation to Support Operating Nuclear Power Plants (ISOP): <https://nucleus.iaea.org/sites/connect/ISOPpublic/SitePages/Home.aspx>
- Contact information: Nelly Ngoy Kubelwa ([N.Ngoy-kubelwa@iaea.org](mailto:N.Ngoy-kubelwa@iaea.org))

### Project 13: AI to Accelerate the Technological Development of Evolutionary and Innovative Reactor Designs

- Project Description: This project features the following deliverables:
  - IAEA Collaborating Centre on Artificial Intelligence for Nuclear Power, Center for Science of Information at Purdue University, established in November 2023.
  - IAEA Coordinated Research Project I31033 on Advancing the State-of-Practice in Uncertainty and Sensitivity Methodologies for Severe Accident Analysis in Water-Cooled Reactors (2019-2024): The CRP is ending in February 2024.
- Project Status: Ongoing
- Project Domain: Energy
- Related Sustainable Development Goals (SDGs): SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation, and Infrastructure; SDG 13 - Climate Action
- Links and Multimedia:
  - IAEA Collaborating Centre on Artificial Intelligence in Nuclear Power: <https://nucleus.iaea.org/sites/CollaboratingCentre/SitePages/Purdue%20University.aspx>
  - IAEA Coordinated Research Project I31033: <https://www.iaea.org/projects/crp/i31033>
- Contact information: Alexei Miassoedov ([a.miassoedov@iaea.org](mailto:a.miassoedov@iaea.org))

## Project 14: Safety Implications of the Use of AI in Nuclear Installations

Project Description: The purpose of the project is to collect current experiences in Member States on the use and application of AI techniques to support different aspects of the design, safety assessment and operation of nuclear installations; and to understand potential safety benefits and challenges related to safety demonstration and justification of AI applications. The experiences will be collected by conducting technical meetings, workshops and other events in the subject area for nuclear power plants, research reactors and nuclear fuel cycle facilities. These events include:

- a) IAEA Technical Meeting on the Safety Implications of the Use of Artificial Intelligence in Nuclear Power Plants
  - o The meeting was held at IAEA headquarters in Vienna from 16 – 20 October 2023 and attracted more than 70 participants from 25 Member States.
- b) IAEA Workshop on Safety Considerations in Use of Advanced Technologies at Nuclear Fuel Cycle Facilities
  - o The workshop was hosted at National Nuclear Laboratories, UK from 2 – 6 October 2023 and attracted participants from 11 Member States.
- c) IAEA Technical Meeting on Safety and Operational Considerations in the Use of Advanced Technologies at Research Reactors
  - o The meeting will be organized from 30 September – 4 October 2024 at IAEA Headquarters in Vienna.
- d) Side event on “Safety considerations in use of advanced and innovative technology in research reactors” at the International Conference on Research Reactors: Achievements, Experience and the Way to a Sustainable Future – to be held in 2024.

The discussions and insights from the work will be captured in IAEA publications.

- Project Status: Ongoing
- Project Domain: Nuclear Safety
- Related Sustainable Development Goals (SDGs): SDG 7 – Affordable and Clean Energy; SDG 9 – Industry, Innovation, and Infrastructure; SDG 13 – Climate Action
- Contact information: Yun Goo Kim ([Y.G.Kim@iaea.org](mailto:Y.G.Kim@iaea.org)), Lakshman Valiveti ([L.Valiveti@iaea.org](mailto:L.Valiveti@iaea.org))

## Project 15: AI Activities for Nuclear Security

Project Description: This project features the following activities:

Ongoing:

- Coordinated Research Project on Enhancing Computer Security for Radiation Detection Systems:
  - o This project is focused on enhancing computer security for radiation detection systems. The project has been exploring methods for analysing communication patterns in radiation detection equipment. This allows for the identification and flagging of anomalous behaviour, thereby enhancing the integrity of the devices and network infrastructure.



- Enhancement of Radiation Detection Systems:
  - This project is investigating enhanced operability to improve the detection of materials outside of regulatory control. This includes the development of sophisticated identification algorithms capable of detecting shielded materials, as well as improving analysis and pattern recognition using spectroscopic data, contributing to a more robust detection capability.
- Advancement in Security Equipment:
  - Progress is being made in wireless adapter development i, including the use of image recognition ML algorithms. These advancements facilitate the wireless transmission of detector data, streamlining operations and improving response times.
- Proactive Threat Identification:
  - Efforts are underway to identify emerging threats and capabilities, particularly involving AI/ML capabilities. This proactive approach ensures that our security measures are constantly evolving to meet the challenges posed by the dynamic nature of threats in nuclear security.

Forthcoming:

- Upcoming Coordinated Research Project J02021 on Computer Security for Small Modular Reactors (SMRs):
  - Research is planned into cyber-secure frameworks that can integrate with operational modes of SMRs, employing cutting-edge technologies, including AI and ML.
  - Building on the foundations of previous work, the project aims to conduct further research into AI-based cyber threat detection and response systems. These systems will be capable of continuous monitoring and analysis of instrumentation and control data to bolster security measures.
- Project Status: Ongoing
- Project Domain: Nuclear Security, Computer Security, Infrastructure, Data, Radiation Monitoring
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure
- Links and Multimedia:
  - IAEA NUSEC for WG on AI4NS materials: <https://nusec.iaea.org/portal/> (also <https://www.iaea.org/resources/databases/nusec>)
- Contact information: Mitchell Hewes ([M.Hewes@iaea.org](mailto:M.Hewes@iaea.org))

### Project 16: Investigating the Use of Generative AI for Public Communication during Emergency

- Project Description: The IAEA Coordinated Research Project, “Effective Public Emergency Communication in a Misinformation Environment: online misinformation disruption of nuclear/radiological emergency response”, and a 2024 IAEA Technical Meeting on “Effective Public Communication in a Disruptive Information Environment during Emergency Response” investigate generative AI’s capabilities in producing at a mass scale synthetic, deceptive, persuasive, multilingual disinformation content in video, image, audio and text formats.  
To support Member States in sustaining public trust and effective emergency public communication, this activity aims at gathering expert advice from academic, governmental and industry researchers. The resulting advice can be used to adapt emergency

preparedness and response procedures to mitigate the consequences of disruptive synthetic content.

- Project Status: Ongoing
- Project Domain: Emergency Preparedness and Response
- Technology/Platform: Open
- Related Sustainable Development Goals (SDGs): SDG 9 – Industry, Innovation, and Infrastructure and SDG 17 – Partnerships for the Goals
- Contact information: Nayana Jayarajan ([N.Jayarajan@iaea.org](mailto:N.Jayarajan@iaea.org))

### Project 17: Neural Artificial Intelligence for Document Indexing and Analysis (NADIA)

- Project Description: AI is used to categorize and add index terms to each record in the IAEA's International Nuclear Information System (INIS), to enrich searches and add structure to the repository.
- Project Status: Ongoing
- Project Domain: Nuclear Information Collection and Curation
- Data Source: Full-text and metadata of knowledge products provided by Member States and IAEA Publications to INIS in all areas of nuclear science and technology. This is supplemented with metadata of scientific articles harvested from publishers.
- Technology/Platform: Python is the main programming language. Natural Language Processing (NLP) routines and tasks are employed along with a customized BERT-based model, called distilBERT, which is used for categorizing records into 48 subject categories and 11,550 of the most frequently used thematic descriptors. To incorporate indexing for several thousands of less frequently used descriptors, as well as any descriptors that will henceforth be added periodically, semantic matching in record abstracts is used based on custom spaCy pipelines, which takes into account semantic relationships between descriptor terms. The solution is designed to utilize standard CPU hardware, making it very cost-efficient to operate. The project will furthermore employ quantization to further reduce the model's hardware footprint and increase prediction performance.
- Related Sustainable Development Goals (SDGs): SDG 4 – Quality Education; SDG 9 – Industry, Innovation, and Infrastructure
- Links and Multimedia:
  - *INIS Repository*: <https://inis.iaea.org/search/>
- Contact information: Brian Bales ([B.Bales@iaea.org](mailto:B.Bales@iaea.org))

### Project 18: AI-Assisted Processing of Safeguards-relevant Information for Nuclear Verification

- Project Description: The following ongoing projects leverage unstructured data and latest DL technologies to further increase effectiveness and efficiency in processing information declared by States and information available to the IAEA from open sources, including satellite imagery:
  - **Computer-Assisted Review of Open Source Information:** Modern Natural Language Processing (NLP) algorithms can assist the discovery and review of relevant open source (OS) information, including but not limited to news articles and science & technology publications. An additional classification model categorizes documents based on technologies related to the nuclear fuel cycle to facilitate the consistency analysis between information declared by a State and information validated by the IAEA, thereby supporting the assessment of the nuclear capabilities of the State. To encompass an even wider range of searches, AI is currently being explored to look into transcription and translation.

- **Computer-Assisted Review of State Declarations:** The continuous review of declarations, submitted by States under a safeguards legal instrument entitled Additional Protocol involves a high degree of manual work due to e.g, the diversity of formats and varying levels of detail submitted by States. NLP algorithms are being applied on such unstructured text data to assist IAEA staff in the identification of new entities, new research activities or new collaborations of between States of safeguards relevance. In so doing, the IAEA can compare historical data with other safeguards-relevant information, with the aim of identifying new declared (or undeclared) locations and research activities.
  - **Computer-Assisted Review of Satellite Imagery:** To assess the correctness and completeness of State declarations, the IAEA collects and reviews a high number of satellite imagery e.g., to detect any safeguards relevant changes in facilities. To reduce manual work, the IAEA is exploring the use of modern DL models to assist in the review process of satellite imagery. The DL models can highlight important infrastructure changes, including construction, building extensions, and demolition, helping to prioritize the use of human resources where such infrastructure changes have been identified and pointing attention to those that may require further (human) analysis.
- Project Status: Ongoing
  - Project Domain: Safeguards Verification
  - Data Source: The text-based applications utilize internal documents, documents available in the International Nuclear Information System (INIS) repository, as well as Internet-based sources including feeds for news articles and databases for science and technology publications. For satellite imagery, remote sensing data from various satellite imagery sources are used.
  - Technology/Platform: Python is used as the main programming language. NLP tasks are based on domain-adapted BERT-like models, as well as offline available Large Language Models, such as Llama2 and Mistral. Deep learning applications for satellite imagery use convolutional neural networks (e.g., U-Net) and transformer-based neural networks. For model training and inference GPU hardware resources and a ML platform are available.
  - Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 16 - Peace, Justice and Strong Institutions; SDG 17 - Partnerships for the Goals
  - Contact information: Paul Schneeweiss ([P.Schneeweiss@iaea.org](mailto:P.Schneeweiss@iaea.org))

### Project 19: Deep Learning for Safeguards Surveillance

- **Project Description:** As part of its safeguards activities, the IAEA carries out surveillance using cameras installed in nuclear facilities. The review of surveillance data is time-consuming and cognitively demanding. Implementing a DL decision support system for inspectors performing this task can allow for large efficiency gains due to significantly improved detection accuracy and fewer false alarms than classical algorithmic methods. In this project, the IAEA uses DL for critical safeguards activities: verification of spent fuel. A DL object detection algorithm is used to identify and localize safeguards relevant activities and objects in the surveillance data with a high level of accuracy. A DL system automatically and continuously flags events in remotely transmitted surveillance data so that it is immediately available to IAEA inspectors when they start their surveillance review, allowing them to quickly verify declarations made by nuclear facility operators. Using DL for spent fuel verification is relevant to the IAEA due to steadily growing inventories of such material. Additional algorithms are used to detect the presence of canister ID numbers and to detect the direction of spent fuel cask movements in facilities. In addition to helping to verify States' declarations more efficiently, the IAEA is also exploring the use of DL for the detection of abnormal events - i.e., events not falling into usual activities - thereby assisting in the detection of undeclared activities.

The IAEA DL system for greater surveillance review efficiency is currently computing results for over 20 cameras in four nuclear facilities in two Member States. Inspectors are acceptance testing DL results as part of their surveillance review, and they have reported significant time savings for reviewing surveillance data. Further, accuracy has been statistically evaluated at over 90%, far higher than classical algorithmic methods used by inspectors. Initial trained DL models are expected to be authorized for IAEA use in 2024 and efforts will continue to expand the DL system for other use cases and facilities.

- Project Status: Ongoing
- Project Domain: Safeguards Verification
- Data Source: Deep learning models are trained on images containing safeguards-relevant activities using data from past inspector surveillance reviews. Current focus is on movements of spent fuel.
- Technology/Platform: Python, Pytorch, Docker containers, Linux servers, GPUs.
- YOLOv7 algorithm for object detection and localization: <https://github.com/WongKinYiu/yolov7>
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 16 - Peace, Justice and Strong Institutions; SDG 17 - Partnerships for the Goals
- Contact information: Maikael Thomas ([M.Thomas@iaea.org](mailto:M.Thomas@iaea.org))

## 2. Related Sustainable Development Goals

SDGs 2, 3, 4, 6, 7, 9, 13, 15, 16, 17

## 3. Relevant Links

<https://www.iaea.org/>

<https://nucleus.iaea.org/sites/ai4atoms>

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## International Fund for Agricultural Development



### 1. Description of Activities on AI

#### Project 1: Athena: Leveraging Artificial Intelligence and Big Data for IFAD 2.0

- Project Description: The ATHENA project seeks to unlock the potential of artificial intelligence and machine learning to accelerate knowledge generation and strengthen data-driven decision-making in IFAD. The project developed an AI toolbox with three main objectives: (1) systemize IFAD's portfolio to facilitate results measurement and institutional learning, (2) enhance knowledge management through deployment of AI/ML in IFAD ICT systems to make project results and lessons learned accessible and actionable for staff, and (3) predict performance and impact of IFAD projects to inform decision-making, optimize targeting, and maximize impact. The (AI) "tool box" contains:
  - *AI-based Intervention Dashboard*: a searchable dashboard that classifies IFAD's investment portfolio by project features, including interventions, outcomes, animal and plant products, among others using natural language processing (NLP);
  - *Lessons Learned Web App*: an application to search for relevant "lessons learned" as reported in previous projects to inform new designs reports;
  - *Trend analyses of strategic themes*: historical evidence of activities related to strategic topics, such as SDGs, food systems and ICT4D, to understand IFAD's support and allocation of resources to different activities historically;
  - *Project performance prediction model*: a framework for ex-ante prediction of project performance based on a set of project features to facilitate better design and early action throughout project implementation;
  - *Project impact prediction model*: a framework to predict the probability of a positive impact of IFAD-supported interventions using impact evaluation data;
  - *Project targeting optimization model*: framework and tool to identify beneficiary features to maximize project impact; and
  - *Covid-19 impact prediction model*: model to predict impact of the pandemic in IFAD's beneficiary countries.

The tools developed by the project fill a gap within IFAD and the field by aiding and simplifying IFAD reporting, especially for more complex and data hungry thematic areas (i.e. food systems); leveraging under-utilized data resources, namely textual data buried in project reports; and enabling ex-ante data driven design and decision-making by closing the gap between policymakers and project evaluation and by translating data and project insights into actionable metrics. Together, these tools not only enhance IFAD's knowledge management but also embed learning and data-driven decision-making into existing project design and implementation processes

- Department/Division: Programme Management Department (PMD)
- Project Type/Output: Report, Academic paper, Dataset, Seminar/meeting, Software tool
- Project Status: Completed
- Project Start Year: 2019

- Project End Year: 2023
- Project Domain: Agriculture, Poverty
- Data Source:
  - AI-based Intervention Dashboard: Corporate IFAD data on the investment portfolio (financing, sectors, and project type) and textual data from project reports.
  - Lessons Learned App: Textual data from project reports.
  - Trend analyses of strategic themes: Corporate IFAD data on the investment portfolio (financing, sectors, and project type) and textual data from project reports.
  - Project performance prediction model: Corporate data on project performance ratings at design, during implementation, and at completion, corporate financing data and project features, and external open-source data on country-specific risk factors and characteristics from World Bank (WDI), IMF (WEO), and other sources.
  - Project impact prediction model: Household survey data from IFAD impact assessments.
  - Covid-19 impact prediction model: Google Mobility data, Google Trends data, John Hopkins Coronavirus Resource Center data, and INFORM Covid- 19 risk data, containing data on movement and search prevalence as well as actual reported Covid-19 incidence and risk factors.
- Publicly Available Data: No
- Technology/Platform:
  - AI-based Intervention Dashboard: Python, AWS Elasticsearch & Kibana
  - Lessons Learned App: R Shiny
  - Trend analyses of strategic themes: Python, R
  - Project performance prediction model: Stata, R
  - Project impact prediction model: Stata, Python
  - Covid-19 impact prediction model: Python, R
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s):
  - Academia: several consultants from various academic institutions contributed to the project over the two years of its implementation. Please refer to the acknowledgments sections in the final reports.
- Links and Multimedia:
  - Phase 1 Report: <https://www.ifad.org/en/web/knowledge/-/publication/accelerating-knowledge-generation-for-data-driven-decision-making>
  - Phase 2 Report: [https://www.ifad.org/en/web/knowledge/-/leveraging-artificial-intelligence-and-big-data-for-ifad-2.0-phase-2?p\\_l\\_back\\_url=%2Fen%2Fweb%2Fknowledge%2Fpublications](https://www.ifad.org/en/web/knowledge/-/leveraging-artificial-intelligence-and-big-data-for-ifad-2.0-phase-2?p_l_back_url=%2Fen%2Fweb%2Fknowledge%2Fpublications)
- Lessons Learned:
  - **Open-Source AI/ML:** Open- Source AI/ML and code transparency are essential elements that ensure that dashboards and apps can be updated in a real time fashion, when new data comes in as well as integrated with the organization’s data ecosystem.
  - **Human element to improve algorithmic performance:** the human element is essential to improve the accuracy of algorithmic performance and overall quality of the models. In the case of the AI-based intervention dashboard, IFAD staff and domain experts have provided accurate taxonomies and training datasets that have fed the models, producing classifications that are “realistic”.

- **The complexity of IFAD project documentation** is a key challenge for models that require standardized data. Not only are project reports written in four different languages, but they also vary in format and length. Data processing requires the development of multi-lingual algorithms and sensitive data filtration strategies to ensure relevant text is extracted for analysis.
  - **Integration with existing ICT systems and business model:** Sustainable and sustained AI/ML and “big data” use cases require appropriate data repositories, server space, and secure data storage within the business model.
  - **Institutional buy-in and support for innovation:** Support and buy-in from key actors and a willingness to experiment is crucial to the successful adoption and integration of new data-driven tools for decision-making.
  - The next steps would include the following activities: users’ validation and scaling-up of the algorithms and tools generated so that they can be integrated in existing IFAD systems (for automated reporting and briefs). Additionally, future phases of the project would also foresee additional work to explore and validate the prediction models by leveraging additional data sources and integrating additional cost data to predict return on investments.
- Contact Information: Alessandra Garbero, Phd., Lead Regional Economist, Near East, North Africa, Europe and Central Asia Division (NEN) ([a.garbero@ifad.org](mailto:a.garbero@ifad.org)).

## Project 2: Mapping food systems national pathways with AI and ML techniques

- Project Description: The analysis utilizes a supervised learning approach to classify sentences within the national pathways and dialogues documents. This method allows for the identification of prevalent topics across various dimensions, including food system drivers, components, and outcomes. The taxonomy for classification is derived from the HLPE Food System Framework, ensuring a comprehensive and relevant analytical lens.
- Project Type/Output: Report, Dataset, Seminar/meeting
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Agriculture, Food systems analyses
- Data Source:
  - Official public documents: Food systems Country level National Pathways and National Food Systems Dialogue reports
- Technology/Platform: The technology used is primarily the GPT-3.5 Turbo model, which is an advanced variant of OpenAI's Generative Pre-trained Transformer (GPT) model. This model has been trained on large volumes of text data and can understand text composition and generate natural language responses.
 

The AI model is accessed and utilized through the Azure OpenAI Service, whereby Microsoft Azure's cloud computing platform is being utilized to host and access the GPT-3.5 Turbo model for food systems analysis. This allows for scalable and efficient deployment of the AI model.

Prompt engineering techniques were employed to influence the model's understanding of the context of food systems and its ability to classify statements based on predefined categories. The output of the model is relevance scores for each statement, indicating the model's confidence in the statement's pertinence to each category.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty, SDG 2– Zero Hunger, SDG 3 – Good Health and Well-Being, SDG 5 – Gender Equality, SDG 6 – Clean Water and Sanitation, SDG 8 – Decent Work and Economic Growth, SDG 10 – Reduced

Inequalities, SDG 12 - Responsible Consumption and Production, SDG 13 - Climate Action

- **Lessons Learned:** This analysis was carried out on specific sub-regions to primarily test the potential of this technology for policy learning. The main aim was to uncover insights from publicly available national pathways for food system agenda achievement through artificial intelligence (AI) and machine learning (ML) techniques. Several key lessons were learned. First and foremost, the project underscored the importance of leveraging advanced technologies like AI and ML to dissect and understand complex programmatic documents across diverse socio-economic contexts. The use of supervised learning to classify statements within the national pathways illuminated the distinct priorities and actions of different countries, offering nuanced insights into their food system agendas. A critical takeaway was the recognition of the heterogeneity in food system priorities across the specific sub-regions analysed and countries' income classifications. This diversity necessitates tailored approaches in policy formulation and implementation to address the unique challenges and opportunities within each context. Furthermore, the project highlighted the significant potential of AI and ML in enhancing policy analysis and decision-making processes. By applying the HLPE Food System Framework for classification, the project demonstrated how structured taxonomies could provide a coherent framework for analysing and interpreting complex data.

Lastly, the analysis revealed the challenges and limitations of data availability and quality, particularly in countries where these documents are not available. This gap underscores the need for continued efforts to promote data generation and sharing across countries to support more comprehensive and informed policy analyses.

These lessons not only reflect the project's achievements in applying AI and ML to food system policy analysis but also pave the way for future research and applications in this field, emphasizing the critical role of technology in advancing sustainable food systems globally.

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### Project 3: Omnidata

- **Project Description:** Omnidata is IFAD's internal platform for data and analytics, including technologies such as Artificial Intelligence, Machine Learning, and Geographic Information Systems for advanced analytics. Omnidata empowers IFAD's workforce to do more with data and AI, developing data dashboards and AI solutions for use cases across many different and thematic areas such as biodiversity, south-south triangular cooperation, crop production, and more. Through the platform, a strong community of practitioners are developing new skills and augmenting the way they work at IFAD across all departments and divisions.

Through Omnidata, IFAD management and staff are working together side by side to pilot and release solutions in a phased manner, practically demonstrating that AI provides value not only in efficiency, but also in developing new products and insights with the potential to transform ways of working. Omnidata is both a platform with robust technical infrastructure, as well as a growing community of practitioners across the organization being upskilled with new competencies required for the continuous delivery of AI solutions for IFAD. The benefit of Omnidata's platform and community approach is not to solely focus on one or two AI use cases, but on democratizing technology and building capacity to address many complex problems where AI can provide value.

- **Department/Division:** Corporate Services Department, Information and Communications Technology Division
- **Project Type/Output:** Internal platform and community for data and analytics
- **Project Status:** Ongoing
- **Project Start Year:** 2020



- Project Domain: Agriculture, Environment, Gender, Health, Poverty, Weather
- Data Source:
  - Internal data from corporate systems; External data on development, agriculture, socioeconomics, demographics, etc.; Geospatial data on land use, biota, climate, environment, etc.; Unstructured data from reports and other documents.
- Technology/Platform:
  - Oracle Business Intelligence, Microsoft Azure, Azure Data Lake, Azure AI Studios, Azure ML Studios. Microsoft Power BI, GeoNode, GeoServer, QGIS, Python, JavaScript, OpenAI, LLaMA, Mistral
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Links and Multimedia:
  - <https://customers.microsoft.com/en-us/story/1729190323007055712-ifad-nonprofit-azure-openai-service>
- Lessons Learned: Choosing a single use case on which to pilot AI may be simple but might not unlock institution-wide value and transformative impact over time. Creating a platform underpinned by a community – as was done for Omnidata – was instrumental in sensitizing and mobilizing the workforce to address actual needs across IFAD. This also enabled wider impact in areas ranging from core operations to addressing biodiversity to legal matters. This approach can be further leveraged in the years to come.
 

Advanced analytics and AI work typically ignites new ideas, insights, and applications for new ways of working. This process is iterative and continuous. IFAD’s hands-on approach to use cases is the most effective means of explaining in practice how AI can support IFAD’s work. Embedding this approach more systematically to inform and augment work where there is value will be the focus going forward.

The transformative potential of technologies such as AI has been confirmed. IFAD has developed the requisite capacity and is now well positioned, not only internally but within the United Nations system, to make the most of advanced analytics and AI – key elements in support of the United Nations 2.0 agenda and ongoing discussions within the United Nations System Chief Executives Board for Coordination.
- Contact Information: Ricardo Rendon Cepeda, ICT Analyst, Emerging Technologies ([r.rendonceda@ifad.org](mailto:r.rendonceda@ifad.org)).

#### Project 4: Sustainability Action Plan Repository and Chatbot

- Project Description: IFAD’s Sustainability Action Plan aims to provide operational and technical actions to strengthen IFAD’s performance related to sustainability of benefits at the project level through an approach that commonly supports IFAD’s portfolio. Due to the diversity of IFAD projects and the numerous factors that may impact project sustainability, the action plan does not aim to address each one individually, but focuses on providing the necessary building blocks to support widespread knowledge, behaviors, and capacity to improve project sustainability.
 

As interventions to enhance sustainability of project benefits are context specific, a key output of the action plan is an artificial intelligence (AI)-enhanced repository on Sustainability. The repository offers a rich, interactive, and visual interface for country teams to explore IFAD’s resources on sustainability of benefits. Users are able to extract information from curated publications on sustainability, according to the criteria and dimensions detailed in the action plan. The repository allows country teams to develop a tailored approach to increasing sustainability and developing sound exit strategies for better ownership in a wide variety of contexts. The repository consists of how-to-do notes, analysis, and useful resources developed by IFAD, as well as tools and guidance from

external sources. These resources are processed with text-centric AI and automation tools that extract key concepts and generate focused summaries and data visualizations.

The repository is also connected to a Generative AI (GenAI) chatbot interface, which allows users to ask any questions about sustainability. The chatbot searches through the repository contents and provides a referenced answer to the question using Large Language Models (LLMs). This solution is implemented as a Retrieval Augmented Generation (RAG) search engine with a natural language interface.

- Department/Division: Corporate Services Department, Information and Communications Technology Division
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2022
- Project Domain: Agriculture, Environment, Gender, Health, Poverty, Weather
- Data Source:
  - Publicly available reports, documents, how-to-do notes, analysis, frameworks, and other resources on sustainability across social, environmental, financial, technical, and institutional dimensions.
- Technology/Platform:
  - Microsoft Azure, Azure Data Lake, Microsoft Power BI, Python, JavaScript, OpenAI, LLaMA, Mistral
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Contact Information: Ricardo Rendon Cepeda, ICT Analyst, Emerging Technologies ([r.rendoncepeda@ifad.org](mailto:r.rendoncepeda@ifad.org))

### Project 5: Corporate Portfolio Stocktake on Food Systems

- Project Description: IFAD's corporate portfolio stocktake provides a comprehensive overview of the performance and quality of the organization's operations and results, paying special attention to food systems, sustainability, and scaling up in 2023. To better understand IFAD's operating context and enhance the analysis of the global portfolio, interactive data dashboards enhanced by AI technologies were developed to evaluate the portfolio in terms of relevance and alignment on four sub-components of food systems: production, livelihoods, climate change, and resilience.  
Using Large Language Models (LLMs), AI translation tools, and other natural language processing (NLP) techniques, statements from national pathways, summit dialogues, and country strategies were processed, transformed, ranked, and classified according to IFAD-specific and multi-dimensional food system taxonomies.
- Department/Division: Corporate Services Department, Information and Communications Technology Division
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Agriculture, Environment, Poverty
- Data Source:
  - Summit Dialogues and National Pathways from the UN Food Systems Coordination Hub; Country Strategic Opportunities Programmes (COSOPs) and Country Strategy Notes (CSNs) from IFAD

- Link to data: <https://www.unfoodsystemshub.org>; <https://www.ifad.org/en/cosop>
- Technology/Platform:
  - Microsoft Azure, Microsoft Power BI, Python, OpenAI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger, SDG 3 - Good Health and Well-Being, SDG 6 - Clean Water and Sanitation, SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, and Infrastructure, SDG 11 - Sustainable Cities and Communities, SDG 12 - Responsible Consumption and Production, SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 15 - Life on Land, SDG 16 - Peace, Justice, and Strong Institutions
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### Project 6: Global Portfolio Analysis of Fragile Situations

- Project Description: The global portfolio analysis of fragile situations presents a new way of using Artificial Intelligence (AI) technologies to analyze IFAD's operating context as stated in country strategies, project design reports, and integrated project risk matrices. The analysis uses IFAD's definition of fragility and six additional sub-definitions of fragility to evaluate descriptions of IFAD's operating context, resulting in AI-generated fragile situation scores and fragile situation justifications to provide deeper insights into IFAD's portfolio.  
The analysis revealed that, as fragility becomes increasingly complex and the context of work around fragility changes, the specific application of IFAD's definition of fragility can identify a broader range of fragile situations across the IFAD portfolio. The analysis also showed that fragility occurs in different degrees across different dimensions, highlighting the importance of assessing fragility in the specific context in which IFAD operates. Advanced technologies like AI, Generative AI (GenAI), and Large Language Models (LLMs) can be combined with detailed source data such as IFAD's corporate documents to reveal new insights on fragility in order to better understand fragile situations across IFAD's portfolio, especially through interactive data dashboards that allow for multiple lines of investigation across countries and projects.
- Department/Division: Corporate Services Department, Information and Communications Technology Division
- Project Type/Output: Report, Software tool
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Agriculture, Environment, Gender, Health, Human Rights, Justice, Poverty
- Data Source:
  - Programme and Project documents from IFAD; Regional and Country Documents from IFAD
  - Link to data: <https://www.ifad.org/en/programme-and-project-documents>; <https://www.ifad.org/en/regional-and-country-documents>
- Technology/Platform:
  - Microsoft Azure, Microsoft Power BI, Python, OpenAI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger, SDG 3 - Good Health and Well-Being, SDG 5 - Gender Equality, SDG 6 - Clean

Water and Sanitation, SDG 8 – Decent Work and Economic Growth, SDG 9 – Industry, Innovation, and Infrastructure, SDG 10 – Reduced Inequalities, SDG 11 – Sustainable Cities and Communities, SDG 12 – Responsible Consumption and Production, SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land, SDG 16 – Peace, Justice, and Strong Institutions

- Contact Information: Ricardo Rendon Cepeda, ICT Analyst, Emerging Technologies ([r.rendonceda@ifad.org](mailto:r.rendonceda@ifad.org))

### Project 7: Farmer Chat

- Project Description: With the objective to support improvements to farm productivity and climate change adaptation, IFAD is partnering with Digital Green, a not for profit organisation and are engaging to pilot 'Farmer.Chat' an AI-enabled digital assistant for field extension agents and develop a 'proof of concept (POC)' as well as lessons from implementation with IFAD supported projects in Nigeria and Kenya.

Extension Agents will be supported to utilize this digital assistant through a smartphone application, called 'Farmer.Chat' to provide customised advisory to smallholders in local language'. Farmer.Chat Extension agents can triage farm-level needs with local language text and voice inputs and text and audio responses to facilitate the efficient delivery of customized advisory recommendations to small-scale farmers.

The proposed engagement will take a phased approach, with Digital Green collaborating with IFAD's country offices and local partners to scope and deliver "Proof of Concept" (POC/pilot) pilot initiatives. The main objective of the pilot is to test out the technology capabilities to support farmers and local agents in the value chains that are supported by IFAD projects and factor in the Natural language processing as a value addition to support inclusivity. The implementation and operational model for the digital assistant will a focus on enhancing advisory services as a base for replication in future IFAD supported projects.

- Department/Division: Sustainable Production Markets and Institutions Division
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2025
- Project Domain: Agriculture
- Data Source:
  - Information typically comes from research reports such as of international agencies, the CGIAR, FAO, national agricultural research and extension systems, university research reports, soils and meteorological data sources, some video content, etc. But the important thing to note is that any/all content included in the Content corpus is first scrutinized and attributed to a legitimate, credible source and then is included ONLY after the designated Content Manager, e.g. Ministry of Agriculture, Kenya Agriculture Livestock Research Organization, National Agricultural Extension and Research Liaison Service, etc has approved its inclusion.
- Technology/Platform:
  - Open AI, MSR, Meta AI, Google, Telegram
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty, SDG 13 – Climate Action
- Partnership(s)/Collaborator(s):
  - UN Partners: IFAD

- Government: Government of Kenya and Nigeria
- Civil Society: Digital Green
- Academia: National Agricultural Extension and Research Liaison Service, Nigeria
- Contact Information: Brenda Gunde ([b.gunde@ifad.org](mailto:b.gunde@ifad.org))

### Project 8: SMARTFARM: A data and digital technology driven farm and farm management solution for climate resilience

- Project Description: The SMARTFARM project objective is to enable smallholder farmers in Ethiopia and Rwanda to adapt to climate change and improve their crop productivity and food and nutrition security through the delivery of real-time weather and climate data, and through farm advisory services. The project is funded by the GEF Challenge fund for Adaptation Innovation with IFAD as the main executing agency and CropIn Technologies as the lead implementing agency.

SMARTFARM will promote the use of real-time weather and climate data, along with data-driven farm advisory services available to smallholder farmers. SMARTFARM leverages digital technologies such as Artificial Intelligence, Machine Learning, Remote Sensing & mobile telecommunication to offer data driven agriculture digital services weather and climate advisory (WACS) and Data Driven Agriculture Advisory (DDAS) on innovative and collaborative digital platforms, i.e., cloud web-based & mobile application.

Together, these will increase the adoption of climate-resilient agriculture practices and enhance rural communities' resilience to climate change. Digitalization of farm location data will be used to provide context-specific responses based on prediction data using advance analytical techniques to generate advisories.

The target group is made up of 130,000 SHFs, including women SHFs, (100,000 in Ethiopia and 30,000 in Rwanda), cumulative over a two-year period, with the help of 2,000 village/agroentrepreneurs. The project will be implemented over two years and will have the following components:

Component 1. Deployment, adoption and scale up of SMARTFARM to increase the climate adaptation and resilience of 130,000 SHFs over a 2-year period, including women SHFs, with the help of 2,000 village/agroentrepreneurs.

Component 2. Capacity-building of selected farmers', producers' and rural organizations and institutions, 2,000 village/agroentrepreneurs (of whom at least 25 per cent will be women) and implementation partners for knowledge and asset transfer.

Component 3. Creation of partnerships, knowledge and tools to promote engagement among off-takers, buyers and institutions for credit access and market linkages

- Department/Division: Sustainable Production Markets and Institutions Division
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2026
- Project Domain: Agriculture, Environment, Poverty
- Data Source:
  - IBM weather data, Landsat, World Bank Climate Change Knowledge Portal and other institutional repositories like the World Meteorological Organization. Some of the data is publicly available. Insitu data and farm level data will also be collected through village-based agents.
- Technology/Platform:
  - Own and use Microsoft Azure.
- Reported as part of 2022 Compendium on UN AI Activities? No

- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 13 - Climate Action
- Partnership(s)/Collaborator(s):
  - UN Partners: IFAD
  - Government: Government of Ethiopia and Rwanda
  - Private Sector: CropIn Technologies
- Links and Multimedia:
  - <https://www.cropin.com/invest-in-gef-ifad-climate-adaptation-project-in-africa>
- Contact Information: Brenda Gunde ([b.gunde@ifad.org](mailto:b.gunde@ifad.org))

### Project 9: Voice Companion for Farmers by Viamo

- Project Description: AI-powered Voice Companion for agriculture extension, delivering instant, localized climate-smart agriculture information in local languages.
- Department/Division: Innovation Unit
- Project Type/Output: Startup funded by IFAD in the context of the M4D Joint Open Innovation Challenge (2023)
- Project Status: Ongoing
- Project Domain: Agriculture, Environment
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger
- Links and Multimedia:
  - <https://viamo.io/>
  - <https://challenges.moonshots4dev.org/en/challenges/challenge2023/pages/about-us?lang=en>
  - <https://www.ifad.org/en/web/latest/-/m4d-joint-open-innovation-challenge-pitch-event>
- Contact Information: Gladys H. Morales ([g.moralesguevara@ifad.org](mailto:g.moralesguevara@ifad.org))

### Project 10: Farmer Lifeline Technologies

- Project Description: Farmer Lifeline's AI devices empower smallholder farmers by detecting and predicting crop pests and pathogens, promoting climate-smart practices for enhanced food security.
- Department/Division: Innovation Unit
- Project Type/Output: Startup funded by IFAD in the context of the M4D Joint Open Innovation Challenge (2023)
- Project Status: Ongoing
- Project Domain: Agriculture, Environment
- Technology/Platform:
  - TensorFlow, Python Django
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger
- Partnership(s)/Collaborator(s):

- Private Sector: Farmer Lifeline Technologies
- Links and Multimedia:
  - <https://farmerlifeline.co.ke/>
  - <https://challenges.moonshots4dev.org/en/challenges/challenge2023/pages/about-us?lang=en>
  - <https://www.ifad.org/en/web/latest/-/m4d-joint-open-innovation-challenge-pitch-event>
- Contact Information: Gladys H. Morales ([g.moralesguevara@ifad.org](mailto:g.moralesguevara@ifad.org)), Carmela Lopez ([ca.lopez@ifad.org](mailto:ca.lopez@ifad.org))

### Project 11: Agpreneur

- Project Description: Agpreneur is an all-in-one Agri-fintech Platform providing tailored financing, dynamic education, predictive input demands, and optimized market interactions for African farmers.
- Department/Division: Innovation Unit
- Project Type/Output: Startup funded by IFAD in the context of the M4D Joint Open Innovation Challenge (2023)
- Project Status: Ongoing
- Project Domain: Agriculture, Environment
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger
- Partnership(s)/Collaborator(s):
  - Private Sector: Agpreneur
- Links and Multimedia:
  - <https://agpreneur.com.ng/>
  - <https://challenges.moonshots4dev.org/en/challenges/challenge2023/pages/about-us?lang=en>
  - <https://www.ifad.org/en/web/latest/-/m4d-joint-open-innovation-challenge-pitch-event>
- Contact Information: Gladys H. Morales ([g.moralesguevara@ifad.org](mailto:g.moralesguevara@ifad.org)), Carmela Lopez ([ca.lopez@ifad.org](mailto:ca.lopez@ifad.org))

## 2. Related Sustainable Development Goals

SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

## 3. Relevant Links

<https://www.ifad.org/en/>

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## International Labour Organisation



### 1. Description of Activities on AI

#### Project 1: Algorithmic management in the logistics and healthcare sectors

- **Project Description:** This research explores how the algorithmic management practices that are often associated with platform work, such as rating systems, surveillance and control through tracking devices, online logging of work hours, the use of diverse forms of employment, etc. are being increasingly utilised by traditional companies in the logistics and healthcare sectors, thus leading to 'platformisation' of work. The project will look at the impact of such practices on work organisation, efficiency and working conditions in European (France, Italy) and non-European (India, South Africa) countries. It will also explore how the data that is collected through these practices is used by the firms, and who has control and rights over such data. The objective of this research is to understand the extent of the penetration of these practices in the logistics and healthcare sectors in both European and non-European countries, whether the experiences are similar or different, and the role of governments and social partners (workers' and employers' organisations) in addressing some of the challenges due to the rapid technological transformations. It will analyse whether the algorithmic management practices in the logistics and healthcare sectors leads to improved autonomy, flexibility, and working conditions for the workers. It will examine how the existing social and human rights standards are enforced in a context in which key employer functions are carried out by algorithms and are thus opaque. It will explore what public policies are required to address some of the challenges relating to worker surveillance, working conditions, thus ensuring greater transparency in the algorithms.
- **Department/Division:** Research Department
- **Project Type/Output:** Report/Academic paper/Seminar/meeting
- **Project Status:** Ongoing
- **Project Start Year:** January 2021
- **Project End Year:** December 2022
- **Reported as part of 2022 Compendium on UN AI Activities?** Yes
- **Project Domain:** Health, Human Rights, Logistics, Improving working conditions, Reducing inequalities
- **Data Source:** The project will adopt a case study approach and collect data from both workers and managers in enterprises in the logistics and healthcare sector in India and South Africa (non-European countries) and France and Italy (European countries).
- **Publicly available data:** No
- **Related Sustainable Development Goals (SDGs):** SDG 8 - Decent Work and Economic Growth; SDG 10 - Reduced Inequalities
- **Partnership(s)/Collaborator(s):**



- Academia: In the process of deciding the academic partners in India and South Africa. This project is in collaboration with the Joint Research Centre, Seville of the European Commission.
- Relevant Links and Multimedia: <https://www.ilo.org/employment/Whatwedo/Projects/building-partnerships-on-the-future-of-work/lang--en/index.htm>
- Contact information: Uma Rani ([amara@ilo.org](mailto:amara@ilo.org))

### Project 2: Research on worker privacy and personal data protect

- Project Description: The ILO conducted a comparative legal study on the protection of the personal data of workers and their right to privacy in the light of the ILO Code of Practice on the protection of workers' personal data. It also conducted a preliminary analysis of the issues raised in relation to digital monitoring of workers and algorithmic management as they have grown in importance with the development of the digital economy and teleworking, including during the COVID-19 crisis. The outcome of this research will contribute to the preparation of the Tripartite Meeting of Experts on decent work in the platform economy to be held in 2022.
- Entity Name: INWORK
- Department/Division: WORQUALITY
- Project Type/Output: Other: Ongoing research
- Project Status: Ongoing
- Project Start Year: 2021
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Domain (field): Human Rights, Justice, Labour
- Publicly available data: Yes
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth
- Contact information: Martine Humblet ([humblet@ilo.org](mailto:humblet@ilo.org))

### Project 3: Competency Profiling App (funded through the PROSPECTS partnership)

- Project Description: The number of international migrants and refugees is growing rapidly. Between 2000 and 2017, the number increased from 173 million to 258 million (an increase of almost 50%). To reap the benefits of migration, states need to enable migrants and refugees to integrate into the labour market and society through access to employment opportunities. One important factor that prevents this relates to the under-utilization of migrants' and refugees' skills in countries of destination and upon return. It is therefore vital not only to support governments in adopting policies and legislation that facilitates the access of migrant workers and refugees to the labour market but also to support them in developing and contextualizing technical solutions that may assist them to reduce the strain on public services whilst improving service delivery to the host-population.  
Therefore, the ILO Skills and Employability Branch is piloting a web-application in Kenya, Egypt and Lebanon
  - for 1500 refugees, migrants and host populations in developing countries
  - that allows individuals to capture and present their past experiences, skills and competences acquired both formally and informally.

The multi-lingual and minimal text-typing methodology allows individuals to produce a profile of their skills and competencies summarized in a standardized Curriculum Vitae, and in more detailed occupational competency profiles. Counsellors of employment

services, UNHCR, NGOs or other service providers can also assist in filling in and completing the profile.

- Entity Name: HQ
- Department/Division: ILO Skills and Employability Branch
- Project Type/Output: Software tool/Application
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: Ongoing pilot
- Project Domain: Education and training, Job and Employment
- Data Source: Individual level data is collected through implementing partners in Egypt, Kenya and Lebanon.
- The European System of Occupational Classifications ESCO, with more than 13.000 skills and 3000 occupations, is utilized as a reference framework for coding / classifying skills. An AI engine learns which skills tend to 'appear in combination' and prompts the right follow-up questions to the user / employment service provider.
- Technology/Platform: Testing and applying an AI-based competency profiling tool in Egypt, Kenya and Lebanon
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 8 - Decent Work and Economic Growth
- Partnership(s)/Collaborator(s):
  - UN Partners: under PROSPECTS
  - Government: ABA (Egyptian public employment services)
  - Private Sector: Project Partners: Skilllab (start-up that is developing the app)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contact information: Christine Hofmann ([hofmann@ilo.org](mailto:hofmann@ilo.org))

#### **Project 4: Digitalization of national TVET and skills systems: Harnessing technology to support LLL**

- **Project Description:** The project explores the potential for digitalisation of different functions in TVET, skills development and Life-long learning systems. Digital transition of TVET and skill systems goes far beyond taking training products and services online. A holistic and coordinated approach to digitalisation should be taken that looks at each high-level function of a national skills system, and its potential for digitalisation. This report describes and updates the picture of digital vocational education and training, providing an overview of the issues surrounding digitalisation across the key functional areas of skills systems. It gives an introduction to key frameworks and tools; concrete examples of national initiatives, adaptable digitalisation models and practical guides; as well as providing initial guidance on implementation, to deploy a strategic approach to the digitalisation of national TVET and skills development systems at the country level.
- Department/Division: SKILLS Branch
- Project Type/Output: Report
- Project Status: Complete
- Project Start Year: 2021
- Project End Year: 2021
- Project Domain: Education and training
- Reported as part of 2022 Compendium on UN AI Activities? Yes

- Related Sustainable Development Goals (SDGs): SDG 4 – Quality Education; SDG 8 – Decent Work and Economic Growth
- Contact information: Karine Sonigo ([sonigo@ilo.org](mailto:sonigo@ilo.org))

### Project 5: The Skills Gap In Jordan And Impact On Unemployment

- **Project Description:** Mehnati provides a solution for labour market information. The initial conceptual idea was born in a project ‘Applying the G20 Training Strategy Project’ that was funded by the Russian Federation through ILO Jordan office. The goal was to bridge the employability gap and to promote development. The design of the concept was undertaken in close collaboration with all relevant stakeholders with the aim to offer a smooth and easy to use platform to Employers, Job Seekers and Training providers.

Various national stakeholders including the chamber of industry, chemicals and garments sector skills councils as well as a number of training providers participated in the design of the concept. This process revealed the high need for the Mehnati platform in different sectors and geographical places. Also, it revealed the need to cover various skill types, ranging from TVET, Modular bridge learning, and work readiness for digital gig based workers.

To ensure that Mehnati learns from previous experiences and capitalizes on know-how achieved across various ILO projects, it will be implemented in phases or mini-projects, with the ultimate objective of creating value across the spectrum of ILO reach in different sectors and geographical places. Mehnati will be integrated into the national e-counselling platform Jordan has created with support of the ILO.

- Entity Name: RO Arab States
- Project Type/Output: Software tool
- Project Status: Development/Ongoing
- Project Start Year: 2020 (piloting)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Domain: Education and training; Gender; Poverty
- Data Source: LMI, Training content, Employment opportunities
- Technology/Platform: This currently being specified. But the portal uses AI for the “job fit test”, which helps automate some aspects of career counselling in the experience
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 17 – Partnerships for the Goals
- Contact information: Kishore Kumar Singh ([singhkk@ilo.org](mailto:singhkk@ilo.org))

### Project 6: Online digital labour platforms in China: Working conditions, policy issues and prospects

- **Project Description:** Digital labour platforms have been proliferating in China since 2005, making China one of the world’s largest platforms economies. This paper summarizes the results of an ILO survey, conducted in 2019, of workers’ characteristics and working conditions on three major digital labour platforms. Using the survey data generated, it provides first-hand information on worker demographics, motivations, and experiences. This paper also compares the findings between the Chinese platforms and dominant Western platforms, the object of previous ILO studies. The paper concludes with a discussion about the need for institutional reforms and suggests some possible avenues for implementing policies to improve working conditions.
- Department/Division: WORQUALITY
- Project Type/Output: Working Paper
- Project Status: Complete

- Project Start Year: 2020
- End Year: 2021
- Project Domain: Human Rights, Labour
- Data Source: Economic data
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth
- Relevant Links and Multimedia
  - [https://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---travail/documents/publication/wcms\\_768699.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_768699.pdf)
- Contact Information: Martine Humblet ([humblet@ilo.org](mailto:humblet@ilo.org))

### Project 7: Platform work and the employment relationship

- Project Description: This working paper analyses national and supranational case law and legislation about the employment status of platform workers. It does so by referring to the ILO Employment Relationship Recommendation, 2006 (No. 198). It finds that this Recommendation provides for a valuable compass to navigate the issues that emerge from the analysis of the existing case law and legislation about platform work.
- Department/Division: WORQUALITY
- Project Type/Output: Working Paper
- Project Status: Complete
- Project Start Year: 2020
- Project End Year: 2021
- Project Domain: Human Rights, Justice, Labour
- Data Source: Legal Information
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth
- Links and Multimedia: [https://www.ilo.org/global/publications/working-papers/WCMS\\_777866/lang--en/index.htm](https://www.ilo.org/global/publications/working-papers/WCMS_777866/lang--en/index.htm)
- Contact information: Martine Humblet ([humblet@ilo.org](mailto:humblet@ilo.org))

### Project 8: Digital Work in Eastern Europe: Overview of Trends, Outcomes, and Policy Responses

- Project Description: This paper presents the emergence and growth of digital labour markets in Eastern Europe over the period 1999-2019. It presents the profiles of digital workers, their working conditions and discusses how these are shaped by the business models of digital labour platforms.
- Entity Name: INWORK
- Department/Division: WORQUALITY
- Project Type/Output: Working Paper
- Project Status: Complete
- Project Start Year: 2021
- Project End Year: 2021
- Project Domain: Human Rights, Justice, Labour

- Data Source: Legal and economic data.
- Publicly available data: Yes
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth
- Relevant Links and Multimedia: [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_794543.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_794543.pdf)
- Contact information: Martine Humblet ([humblet@ilo.org](mailto:humblet@ilo.org))

### Project 9: How Do You Lip Read a Robot? – Recruitment AI has a Disability Problem

- Project Description: Information sharing webinar arising from discussion within ILO Global Business and Disability Network on the risks associated with using AI powered recruitment software, based on emerging evidence that it leads to the exclusion of candidates with different types of disabilities.
- Department/Division WORKQuality, Gender, Equality, Diversity and Inclusion Branch
- Project Type/Output: Seminar/ Meeting
- Project Status: Complete
- Project Start Year: 2021
- Project End Year: 2021
- Project Domain: Human Rights, Equality and non-discrimination, Employment
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 4 – Quality Education; SDG 8 – Decent Work and Economic Growth
- Relevant Links and Multimedia: [https://youtu.be/ndA-Z\\_wJ31s](https://youtu.be/ndA-Z_wJ31s)
- Contact information: Stefan Tromel ([tromel@ilo.org](mailto:tromel@ilo.org))

### Project 10: Tripartite Meeting of Experts on decent work in the platform economy

- Project Description: The ILO Centenary Declaration for the Future of Work, adopted on 21 June 2019, calls on all ILO Members to put in practice “policies and measures that ensure appropriate privacy and personal data protection, and respond to challenges and opportunities in the world of work to the digital transformation of work, including platform work”. On 27 March 2021, at its 341st Session, the Governing Body decided “to request the Office to convene a tripartite meeting of experts on the issue of “decent work in the platform economy” in the course of 2022”. This meeting is expected to take place in September 2022.
- Entity Name: INWORK
- Department/Division: WORQUALITY
- Project Type/Output: Seminar/Meeting
- Project Status: Ongoing
- Project Start Year: 2020
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Domain: Human Rights, Justice, Labour
- Data Source: Economic and legal data.
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth
- Contact information: Martine Humblet ([humblet@ilo.org](mailto:humblet@ilo.org))

### Project 11: Technical meeting on the future of work in the arts and entertainment sector

- Project Description: At its 341st Session, in March 2021, the Governing Body of the International Labour Office endorsed the convening of a technical meeting on the future of work in the arts and entertainment sector, which took place 13-17 February 2023.  
The purpose of the meeting was to discuss opportunities and challenges for decent work in the sector in the context of digital technologies, globalization, environmental sustainability, demographic changes and a human-centred COVID-19 recovery, with the aim of adopting conclusions, including recommendations for future action.  
In order to inform the meeting, a [report for discussion](#) was published including trends and developments regarding digitalization in the retail sector. The discussion took place based on [points for discussion](#), and the meeting resulted in agreed [conclusions](#) including recommendations for the Office and for the ILO constituents.
- Department/Division: SECTOR
- Project Type/Output: Seminar/meeting
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project Domain: Future of work, AI, Digitalization, Decent work
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth
- Contact information: Margherita Licata ([licata@ilo.org](mailto:licata@ilo.org))

### Project 12: Technical meeting on Digitalization in the retail sector as an engine for economic recovery and decent work

- Project Description: At its 346th Session, in October–November 2022, the Governing Body of the International Labour Office endorsed the convening of a technical meeting on digitalization in the retail sector as an engine for economic recovery and decent work, which took place 25-29 September 2023..  
The purpose of the meeting was to discuss opportunities and challenges for the future of work in retail and commerce in the context of digitalization as a vehicle to ensure a human-centred economic recovery, including from the COVID-19 pandemic, with the aim of adopting conclusions, including recommendations for future action..  
In order to inform the meeting, a [report for discussion](#) was published including trends and developments regarding digitalization in the retail sector. The discussion took place based on [points for discussion](#), and the meeting resulted in agreed [conclusions](#) including recommendations for the Office and for the ILO constituents.
- Department/Division: SECTOR
- Project Type/Output: Seminar/meeting
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project Domain: Future of work, Digitalization, Decent work
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth
- Contact information: Margherita Licata ([licata@ilo.org](mailto:licata@ilo.org))

## Project 13: Issues paper for the Technical meeting on the future of decent and sustainable work in urban transport services

- Project Description: Urban passenger transport systems are crucial to the achievement of sustainable cities and communities and contribute towards a zero-carbon future. Yet, the industry is faced with disruption from the pandemic, a technological revolution, as well as with plummeting ridership and occupational safety and health challenges. The meeting discussed challenges and solutions relating to the future of decent and sustainable work in urban passenger transport operations and services, with the aim of adopting conclusions, including recommendations for future action.

The document includes a section on technological innovation and AI, which emphasizes ITU's "AI for good" mandate. The paper aims to inform the meeting's discussion, highlighting the trends steering major sectoral changes and analysing how these impact employment, labour and social protection, and the sector's regulatory environment.

- Department/Division: SECTOR
- Project Status: Completed
- Project Start Year: 2020
- Project End Year: 2021
- Project Domain: Transport
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being (3.6 Road Safety); SDG 11 - Sustainable Cities and Communities (11.2 Sustainable public transport)
- Links and Multimedia: [https://www.ilo.org/sector/activities/sectoral-meetings/WCMS\\_726153/lang--en/index.htm](https://www.ilo.org/sector/activities/sectoral-meetings/WCMS_726153/lang--en/index.htm), [https://www.ilo.org/sector/activities/sectoral-meetings/WCMS\\_818255/lang--en/index.htm](https://www.ilo.org/sector/activities/sectoral-meetings/WCMS_818255/lang--en/index.htm)
- Contact information: Alejandra Cruz Ross ([cruzross@ilo.org](mailto:cruzross@ilo.org))

## 2. Related Sustainable Development Goals

SDGs 1, 3, 4, 5, 8, 9, 10, 11, 17

## 3. Relevant Links

[www.ilo.org](http://www.ilo.org)

Contact information: Ms Irmgard Nübler, Senior Economist ([nubler@ilo.org](mailto:nubler@ilo.org))

## International Monetary Fund



### 1. Description of Activities on AI

#### Project: Powering the Digital Economy: Opportunities and Risks of Artificial Intelligence in Finance

- Project Description: This paper discusses the impact of the rapid adoption of artificial intelligence (AI) and machine learning (ML) in the financial sector. It highlights the benefits these technologies bring in terms of financial deepening and efficiency, while raising concerns about its potential in widening the digital divide between advanced and developing economies. The paper advances the discussion on the impact of this technology by distilling and categorizing the unique risks that it could pose to the integrity and stability of the financial system, policy challenges, and potential regulatory approaches. The evolving nature of this technology and its application in finance means that the full extent of its strengths and weaknesses is yet to be fully understood. Given the risk of unexpected pitfalls, countries will need to strengthen prudential oversight.
- Department/Division: Money and Capital Markets Department and Information and Technology Department
- Project Type/Output: White Paper
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2021
- Project Domain: Finance
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth; SDG 10 - Reduced Inequalities
- Data Source: Many Sources
- Publicly available data: Yes
- Links and Multimedia: <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2021/10/21/Powering-the-Digital-Economy-Opportunities-and-Risks-of-Artificial-Intelligence-in-Finance-494717>
- Technology/Platform: Research Paper
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### 2. Related Sustainable Development Goals

SDGs 8 and 10

### 3. Relevant Links

[www.imf.org](http://www.imf.org)

Contact information: EL Bachir Boukherouaa ([eboukherouaa@imf.org](mailto:eboukherouaa@imf.org))



## International Maritime Organization



### 1. Description of Activities on AI

#### Project 1: Maritime Autonomous Surface Ships (MASS)

AI is part of the MASS functionality as the ship system (e.g. for collision avoidance) will have to learn from a large number of scenarios (Ship situations) to decide for the best anti-collision action to be taken. There will be many other AI applications for MASS. In this context, IMO developed a set of interim guidelines for the conduct of MASS trials, stipulating that trials should be conducted in a manner that provides at least the same degree of safety, security and protection of the environment as provided by the relevant instruments. IMO has also agreed on a road map for the development of a goal-based MASS Code which, as a first step, will be non-mandatory and is expected to be effective on 1 January 2025. With the experience gained, paired with new emerging concepts and technology, IMO will be working towards a mandatory Code, which is envisaged to enter into force on 1 January 2028.

- Project Type (Status): Framework/Strategy/Policy and Regulation (Development)
- Project Domain: Shipping
- AI Approach: AI as one of the drivers for enabling MASS operation; the IMO as the body responsible for regulating MASS, together with standard-setting organizations (e.g. ISO, IEC), will need to consider safety and security aspects of AI systems used for MASS
- Related Sustainable Development Goals (SDGs): SDG 8 Decent work and Economic growth, SDG 9 Industry, Innovation and Infrastructure, SDG 11 Sustainable Cities and Communities, SDG 13 Climate Action, SDG 14 Life below Water
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Website (links): [Autonomous shipping \(imo.org\)](https://www.imo.org/Autonomous-shipping)

#### Project 2: Marine Environmental Protection

IMO under its Global Industry Alliance to support Low Carbon Shipping (Low Carbon GIA) is working towards promoting Just-In-Time (JIT) arrivals of ships through the use of ship and port specific data with an aim to reduce fuel consumption and GHG emissions at sea and in ports.

IMO adopted MEPC in 2022 resolution 366 (79) which invites IMO Member States to encourage voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships. It is expected that AI will help with many elements of this cooperation, especially voyage optimization, weather routing, and just-in-time (JIT) arrivals in ports.

The in July 2023 adopted 2023 IMO Greenhouse Gas (GHG) Strategy (resolution MEPC.377(80)) also acknowledges the importance of addressing the human element, including the impact on seafarers and other maritime professionals, in the safe implementation of the Strategy. It

is expected that AI could assist in training seafarers with the safe handling of alternative low-carbon fuels and other decarbonization technology.

- Project Type (Status): Ideation
- Project Domain: Marine environmental protection
- Datasets: Port call data
- Related Sustainable Development Goals (SDGs): SDG 9 Industry, Innovation and Infrastructure, SDG 13 Climate Action
- Project Partners: -Members of the Low Carbon GIA, and other maritime stakeholders
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### Project 3: Digital Review

IMO is undertaking a digital review, to ensure a future-viable IMO, as part of a broader Functional Review. The Secretariat aims to ascertain what is working well and what is not working well, what is needed and what is redundant, and to develop a digital strategy and roadmap for the next 5 years to ensure the Secretariat embraces digital opportunities in a way which will make it future viable with regards to digital access.

- Project Type (Status): Framework/Strategy/Policy (Development)
- Project Domain: Internal management
- AI Approach: Digital review
- Related Sustainable Development Goals (SDGs): SDG 9 Industry, Innovation and Infrastructure; SDG 13 Climate Action; SDG 14 Life below Water; SDG 16 Peace, Justice and Strong Institutions; SDG 17 Partnership for the Goals
- Reported as part of 2022 Compendium on UN AI Activities? Yes

### Project 4: Knowledge building

A seminar/workshop to strengthen knowledge of the maritime community/IMO staff, as well as delegates.

- Project Type (Status): Training (Ideation)
- Project Domain: Capacity building
- AI Approach: Events
- Reported as part of 2022 Compendium on UN AI Activities? Yes

## 2. Related Sustainable Development Goals

SDGs 3, 8, 9, 11, 13, 14, 16 and 17

## 3. Relevant links

[www.imo.org](http://www.imo.org)

Contact information: Ms Galuh Rarasanti, Senior Maritime Advisor ([grarasan@imo.org](mailto:grarasan@imo.org))

## International Organization for Migration



### 1. Description of Activities on AI

#### Project: Expanding IOM's Displacement Tracking Matrix's (DTM) Data Foundations

Project Description: the process of integrating OpenAI tools into the Displacement Tracking Matrix (DTM) core systems. This process is ongoing in three significant, interlinked and mutually re-enforcing areas:

##### a) Semantic search in the Central Data Dictionary

DTM's Central Data Dictionary (CDD) is built to provide access to all DTM missions worldwide so that users in the field can select survey indicators from a global question bank. Using a proprietary Form Builder application and Form validator, data collection tools and indicators deployed now share a standardised structure and codification, resulting in standardised coded DTMs datasets. Missions in diverse contexts can then gather the comparable information in the same format – data that can then be fed into a central database, extracted, and analysed in the same way. Yet, with hundreds of indicators in the Dictionary, field users need to find the questions that fit their contexts and gain them the answers they can realistically use to provide the best support possible to affected communities. With that need in mind, an AI-powered semantic search has been deployed to ease the process of finding indicators and building survey tools. For example, within the semantic search, a field mission can search for “barrier questions” and receive a list of the standard indicators that fit, whether barriers to access for people with disabilities or language barriers, so that they can select the ones they need more quickly. In addition to speed and ease for missions, the semantic search facilitates improved indicator selection by offering a reduced range of relevant indicators so missions can see options they might not have thought of without being overwhelmed by unrelated questions. It also allows the user to search natively in one of the five supported languages and will allow DTM to support additional languages natively in the application more easily. This tool ultimately allows users to develop survey tools from a pre-developed indicator bank for contextual relevance, whilst adding common structuring and codification to the output datasets.

##### b) Retro-fitting historical data to the new DTM DataLake

DTM's ongoing work to centralize and harmonize displacement data across region and country contexts includes the re-development of the medallion structure Data Lake. New data will only be ingested into the DTM Data Lake if the naming structure is compliant with the Central Data Dictionary. By default, data gathered going forward will be compliant since they will be gathered using forms generated using the Data Dictionary as mentioned above. However, historical data (pre-2024) will need to be retroactively recoded to the new data names. OpenAI

search functions and clustering tools will be used to find and match similar questions that can be changed to the current standardized versions to sort and format existing data. Using AI, historical data will be recoded on scale, allowing DTM to benefit from its long history and contextual information within a new, harmonized data structure, which will enable other innovations, such as displacement projects, and support anticipatory action.

### c) DTM Chatbot for non-technical querying of its data systems

Utilizing the combined capabilities of OpenAI's large language model and Langchain's SQL Agent, DTM have developed a chatbot integrated with our aggregate baseline assessment database. This innovative chatbot empowers users to effortlessly query the database using natural language and receive responses in a similarly natural language format. Leveraging the SQL Agent functionality, the chatbot is adept at answering inquiries based on both the structure (schema) and contents of the database.

With this chatbot, we gain flexibility in extracting insights from our database. For instance, users can inquire about various statistics such as the total number of Internally Displaced Persons (IDPs), Migrants, or Returnees across different countries, regions, round and timeframes. Additionally, complex queries are supported, enabling users to delve into specific details, such as identifying the country, date and round with the highest number of IDPs over the past decade.

This integration not only streamlines the process of accessing critical information but also enhances the accessibility of our data for users across diverse skill levels. The chatbot serves as a user-friendly interface, bridging the gap between complex database structures and end-users, thereby facilitating more informed decision-making and analysis.

Keywords: Central Data Dictionary (CDD), humanitarian data collection, interoperability, harmonization of data systems

- Department/Division: Global Data Institute (GDI) - Displacement Tracking Matrix
- Project Type/Output: Global consolidation of DTM data into the DTM Data Lake
- Project Status: Ongoing
- Project Domain: data structure, displacement, human mobility
- Related Sustainable Development Goals (SDGs): 10.7 facilitate orderly, safe, and responsible migration and mobility of people, including through implementation of planned and well-managed migration policies
- Publicly available data: Yes
- Technology/Platform:
  - Angular, .NET Core, HTML, CSS, and JavaScript for the frontend of the system
  - Laravel 8 (PHP 7.4 and MySQL 8) for the back end of the system
  - Google Maps Services and GeolP for the Geolocation of the interview
  - Python (pandas, scipy, nltk, VADER, langchain) and Jupyter notebook
  - PowerBI for daily monitoring dashboard
  - Large Language Models (OpenAI)
  - Azure Services
    - Azure App Service
    - Azure Cosmos DB (NoSQL)
    - Azure Cosmos DB for Mongo DB

- Azure SQL Server
- Azure Front Door
- Active Directory services
- Azure Storage account
- Data Factory
- Azure Open AI
- Partnership(s)/Collaborator(s):
  - Civil Society: Microsoft, Kainos

## 2. Related Sustainable Development Goals

SDG 10

## 3. Relevant Links

[www.dtm.iom.int](http://www.dtm.iom.int)

Contact information: Robert Trigwell ([rtrigwell@iom.int](mailto:rtrigwell@iom.int))

## International Trade Centre



### 1. Description of Activities on AI

#### Project 1: Strengthening policy support for SMEs in developing countries using artificial intelligence

- Project Description: TradeAI is an AI-powered online trade policy advisory application that offers policymakers quick and complimentary access to relevant policy solutions for their most common trade-related challenges. This app empowers policymakers to understand trade strategy, connect with other professionals, and create their own streamlined trade and SME (Small and Medium Enterprises) competitiveness strategies.

The project leverages AI to identify potential policy solutions that can address a country's trade competitiveness constraints. It utilizes image recognition, natural language processing (NLP) techniques, and neural networks to discover patterns in data and generate new policy insights. TradeAI was initiated in 2020 as a pilot project to evaluate how AI could help the International Trade Centre (ITC) identify pertinent information within extensive repositories of trade policy documents. Throughout 2021 and 2022, the project delved into ITC's comprehensive database of national trade strategies, employing a mix of NLP methods, information extraction techniques, and neural networks to thoroughly analyze the trade competitiveness issues countries typically encounter, along with the solutions policymakers and experts commonly recommend. In 2023, TradeAI initiated a pilot to integrate generative AI into the app, enhancing its capability to offer innovative policy solutions.

- Department/Division: Research Strategies for Export / Division of Market Development
- Project Type/Output: Online Application
- Project Status: Ongoing
- Project Start Year: 2020
- Project Domain: International Trade
- Data Source: Trade Strategy Map data (ITC's repository of trade strategies)
- Data publicly available: No, partial datasets only
- Technology/Platform: Open Source - Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 8 - decent work and economic growth, and SDG 17 - partnership for the goals - by providing policy-relevant insights to policymakers in the area of trade strategy.
- Relevant Links and Multimedia:
  - Project site: <http://ai.intracen.org/>
  - Blog post: <https://www.linkedin.com/groups/9238012/>
- Lesson Learned: Supervised machine learning can be used to accurately identify relevant trade and SME-related content automatically. This capability significantly streamlines the tasks traditionally performed by junior policy analysts, who previously spent days on these activities. Now, similar (and consistently reliable) results can be achieved instantaneously

with the click of a button. The substantial time savings free up resources for tasks that add more value.

- Another key insight is the ability of AI to uncover patterns of interest to policymakers, which are often hidden within vast amounts of text data, including tables. The outcomes of this project underscore the vital role AI plays in the design of trade and SME policies. By automatically mining extensive quantities of trade-related text data, AI generates invaluable policy insights and fresh perspectives on familiar issues. This shows that AI paves the way for the formulation of more effective policies, which in turn, benefit SMEs. Innovative services powered by AI have the potential to enhance SME competitiveness significantly. The development of such services is critical.
- Contact Information: Alberto AMURGO PACHECO ([amurgo@intracen.org](mailto:amurgo@intracen.org))

## Project 2: Corporate Strategy for AI in ITC

- Project Description: ITC has developed an organizational strategy for AI in ITC's own operations - with a focus on how AI tools can make the organization more productive and innovate with new approaches to trade development.
- Project Type (Status): Ongoing
- Project Domain: International Trade and Development
- Datasets: Internal surveys
- Related Sustainable Development Goals (SDGs): SDG 8 - decent work and economic growth
- Project Partners: ITC
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Alberto AMURGO PACHECO ([amurgo@intracen.org](mailto:amurgo@intracen.org))

## 2. Related Sustainable Development Goals

SDG 8, 17

## 3. Relevant links

<http://ai.intracen.org/>

Contact Information: Alberto Amurgo Pacheco ([amurgo@intracen.org](mailto:amurgo@intracen.org))

## International Telecommunication Union



### 1. Description of Activities on AI

#### Project 1: AI for Good

- Project Description: AI for Good is the leading action-oriented, global & inclusive United Nations platform on AI. Its goal is to identify practical applications of AI to advance the United Nations Sustainable Development Goals and scale those solutions for global impact.

The “digital bouquet of flowers” has been arranged into three streams (Learn, Build, Connect). For the complete list of service offerings, please visit [this page](#). These service offerings are available for all UN partners to play an active role in moving the needle towards achieving the Sustainable Development Goals.

AI for Good consists of an all year online program which in 2022 broadcast over 160 webinars, and the annual in-person AI for Good Global Summit (which did not take place from 2020 to 2022 due to Covid-19 but which will resume in 2023).

The content of the online AI for Good platform is organized into the following “Discovery channels” (plus some other topics), which comprise of technical talks which dig deeper into thematic areas transformed by Artificial Intelligence/Machine Learning as well as into challenges of current AI/ML technology. Each “Discovery” episode dedicates in general one hour to one researcher to present their latest findings in one of the topic areas below:

- AI for Earth and Sustainability Science
- AI and Climate Science
- AI for Manufacturing
- Geospatial AI (GeoAI)
- Machine Learning in 5G networks (ML5G)
- Trustworthy AI
- AI and Health
- AI for Biodiversity
- AI and Robotics
- Data-centric Machine Learning for Good
- AI & Work

The [AI for Good Neural Network](#) is an AI-powered smart matchmaking community platform that is designed to help users build connections with innovators and experts, link innovative ideas with social impact opportunities, and bring the community together to discuss AI applications for social good.

Expanding on ITU’s AI for Good programme, the Neural Network offers content and collaboration opportunities aligned to each of the 17 SDGs. Through the Neural Network, community members can connect to each other, receive personalized content, and pursue engagement aligned to their profiles, goals and needs.



The smart matching mechanism - designed according to the principles of the [Global Initiative in AI and Data Commons](#) - connects AI innovators to anyone with an AI-related problem, as a step towards globally scaled AI solutions. For example, it can generate matches for open data and AI algorithms, cloud storage and computing power, problem statements and expertise, funding and mentorships, domain transfer, SDG alignment, and more.

The solution is meant to stimulate unprecedented cooperation across borders and boundaries, foster impactful SDG-focused partnerships in the field of AI, and directly serve Goal 17: Revitalize the global partnership for sustainable development.

Join the Neural Network and build your profile to enable smart matching and personalized suggestions and discover 1000s of hours of on-demand content, networking features and virtual exhibitions, in addition to almost daily live sessions and interactive content.

**LEARN** - Design your personalized programme with smart content suggestions

**BUILD** - Take the smart-matching quiz to meet your future AI for Good partners

**CONNECT** - Join our networking sessions to meet world-class AI experts

The AI for Good Neural Network is open to all with an interest in how AI can positively impact the future of humankind. Join the [AI for Good Neural Network](#) to help build the future of AI. 15,000 people have joined the Neural Network in just over 1 year and continues to grow rapidly.

An onboarding tutorial video of how the Neural Network works can be viewed here:

<https://www.youtube.com/watch?v=KULDHdb8xvM>

- Project Type: Platform/Event/Networking/Report/Meeting
- Project Status: Ongoing
- Project Start Year: 2017
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership: Partnership: AI for Good is organized by ITU in partnership with 40 UN Sister Agencies, and co-convened with Switzerland. In addition, various universities and organizations support AI for Good.
- Project Website (links): <https://aiforgood.itu.int/> ; <https://aiforgood.itu.int/about-ai-for-good/discovery> ; <https://aiforgood.itu.int/neural-network/>
- Contacts: Mr Reinhard Scholl ([reinhard.scholl@itu.int](mailto:reinhard.scholl@itu.int)); Mr Frederic Werner ([frederic.werner@itu.int](mailto:frederic.werner@itu.int))

## Project 2: UN Activities on Artificial Intelligence

- Project Description: Since 2018, ITU has issued the annual "Compendium of UN Activities on Artificial Intelligence", aiming to introduce activities being carried out by the UN system. A joint-effort between ITU and 47 UN agencies and bodies, all partners of AI for Good or members of the Interagency Working Group on AI, the 2022 version of the report includes the collection of activity report from 40 UN agencies, providing details on UN agencies experiments with AI to improve their response to global challenges. It also includes additional analysis and summary to provide a comprehensive overview of the trends and tracks within the UN system.
- Project Type: Report
- Project Status: Ongoing
- Project Start Year: 2018
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership: 40 UN entities
- Project Website (links):

- 2018 Compendium [https://www.itu.int/dms\\_pub/itu-s/opb/gen/S-GEN-UNACT-2018-1-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2018-1-PDF-E.pdf)
- 2019 Compendium [https://www.itu.int/dms\\_pub/itu-s/opb/gen/S-GEN-UNACT-2019-1-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2019-1-PDF-E.pdf)
- 2020 Compendium [https://www.itu.int/dms\\_pub/itu-s/opb/gen/S-GEN-UNACT-2020-1-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2020-1-PDF-E.pdf)
- 2021 Compendium [https://www.itu.int/dms\\_pub/itu-s/opb/gen/S-GEN-UNACT-2021-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2021-PDF-E.pdf)
- 2022 Compendium [https://www.itu.int/dms\\_pub/itu-s/opb/gen/S-GEN-UNACT-2022-PDF-E.pdf](https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2022-PDF-E.pdf)
- Contact Information: Jin Cui ([jin.cui@itu.int](mailto:jin.cui@itu.int)), Sadhvi Saran ([sadhvi.saran@itu.int](mailto:sadhvi.saran@itu.int))

### Project 3: Focus Group on Artificial Intelligence for Health (FG-AI4H)

- Project Description: The [ITU-WHO Focus Group on Artificial Intelligence for Health \(FG-AI4H\)](#), driven in close collaboration by ITU and WHO, is working towards the establishment of a framework and associated processes for the performance benchmarking of 'AI for Health' algorithms. The group is working on 20+ topic areas ("use cases") addressing health issues including breast cancer, neurodegenerative diseases, autism, vision loss, skin lesions, cardiovascular diseases, venomous snakebites and many more. An overview article was published in The Lancet - "[WHO and ITU establish benchmarking process for artificial intelligence in health](#)" - a weekly peer-reviewed general medical journal which is among the world's oldest, most prestigious and best known general medical journals. See also the [Whitepaper for the ITU/WHO focus Group on Artificial Intelligence for Health](#).
- Project Status: Ongoing
- Project Start Year: 2018
- Reported as Part of 2022 Compendium on AI Activities? Yes
- AI Approach: Framework/Strategy/Methodology Formation
- Partnership: World Health Organization
- Project Website (links): <https://www.itu.int/en/ITU-T/focusgroups/ai4h>
- Contact Information: Simao Campos ([simao.campos@itu.int](mailto:simao.campos@itu.int)), Bastiaan Quast ([bastiaan.quast@itu.int](mailto:bastiaan.quast@itu.int))

### Project 4: Focus Group on AI for autonomous and assisted driving (FG-AI4AD)

- Project Description: The [ITU Focus Group on AI for autonomous and assisted driving \(FG-AI4AD\)](#) supports standardization activities for services and applications enabled by AI systems in autonomous and assisted driving. FG-AI4AD studied the behavioural evaluation of AI (when it is responsible for the dynamic driving task of a vehicle), in accordance with the 1949 and 1968 Convention on Road Traffic of the UNECE Global Forum for Road Safety.

To build public trust it is fundamental that the performance of AI on our road meets, or exceeds, the performance of a competent and careful human driver. The FG aimed to create international harmonisation on the definition of a minimal performance threshold for these AI systems (such as AI as a Driver). This work has the potential to facilitate adoption of AI on our roads and aims to reducing road injuries, which are already the leading cause of death for children and young adults aged 5-29 years (more so than HIV and tuberculosis). In fact, AI can play a significant role to reduce 1.3 million road deaths and 25 million injuries (SDG 3.6) occurring each year, whilst also encouraging safe, affordable, accessible and sustainable transport systems (SDG 11.2). However, the widespread and socially acceptable deployment of AI on our roads is dependent upon technology achieving public trust. The Focus Group has raised attention from public and private entities and is becoming a popular forum for discussion. The Group concluded

its activities in September 2022. During its mandate FG-AI4AD has developed three deliverables, which were transferred to ITU-T SG16 for further deliberation:

- "Automated driving safety data protocol - Specification"
  - "Automated driving safety data protocol - Ethical and legal considerations of continual monitoring g"
  - "Automated driving safety data protocol - Practical demonstrators"
- See: <https://www.itu.int/en/ITU-T/ITS/standardization/Pages/sg16.aspx>

The Focus Group also pioneered the discussion on what is referred to as the "[The Molly Problem](#)".

**AI for Road Safety initiative:** ITU, the UN Secretary-General's Special Envoy for Road Safety, and the Office of the UN Envoy on Technology launched the new **AI for Road Safety initiative** in October 2021 to promote an AI-enhanced "safe system" approach to reduce fatalities based on six pillars: road safety management, safer roads and mobility, safer vehicles, safer road users, post-crash response, and speed control.

The AI for Road Safety initiative is in line with the UN General Assembly Resolution (UN A/RES/74/299) on Improving global Road Safety, which highlights the role of innovative automotive and digital technologies, as well as in line with the UN Secretary General's roadmap on digital cooperation. The initiative also supports achieving the UN SDG target 3.6 to halve by 2030 the number of global deaths and injuries from road traffic accidents, and the SDG Goal 11.2 to provide access to safe, affordable, accessible and sustainable transport systems for all by 2030.

- Project Start Year: 2019
- Project End Year: ongoing
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Project Domain: Vehicles
- AI Approach: Framework/Strategy/Methodology Formation
- Project Website (links): <https://www.itu.int/en/ITU-T/ITS/AIRoadSafety/Pages/default.aspx>
- Contact Information: Stefan Polidori ([stefano.polidori@itu.int](mailto:stefano.polidori@itu.int))

### Project 5: Focus Group on Environmental Efficiency for AI and other Emerging Technologies (FG AI4EE)

- Project Description: The [ITU Focus Group on Environmental Efficiency for AI and other Emerging Technologies \(FG AI4EE\)](#) is working to provide guidance on the environmentally efficient operation of emerging technologies. Additionally, this project seeks to study the impact of these technologies on the ecological/environmental feasibility of the broader ICT ecosystem by exploring AI, increasing automation and smart manufacturing. The group's work also supports ITU's ongoing research regarding the environmental requirements of IMT-2020 (5G) systems. FG-AI4EE has worked on over [20 deliverables](#) which cover topics related to requirements, assessment, measurement and implementation guidelines concerning the environmental efficiency of AI and other emerging technologies. Participation is open; there are no membership requirements. The Group concluded its work in December 2022.
- Project Start Year: 2019
- Project End Year: 2022
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Project Domain: Environment, Energy Efficiency
- AI Approach: Framework/Strategy/Methodology Formation
- Project Website (links): <https://www.itu.int/en/ITU-T/focusgroups/ai4ee>
- Contact Information: Charlyne Restivo, ([charlyne.restivo@itu.int](mailto:charlyne.restivo@itu.int))

### Project 6: Focus Group AI for Natural Disaster Management (FG-AI4NDM)

- Project Description: The Focus Group on AI for Natural Disaster Management (FG-AI4NDM) capitalizes on the growing interest and novelty of AI in the field of natural disaster management to help lay the groundwork for best practices in the use of AI for: assisting with data collection and handling, improving modelling across spatiotemporal scales, and providing effective communication.
- To achieve these objectives, FG-AI4NDM will develop a community of engaged stakeholders and experts and build on past progress made by ITU in this domain.
- Participation in the Focus Group is open to all interested stakeholders
- Project Start Year: 2020
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Project Domain: Disaster Management
- AI Approach: Framework/Strategy/Methodology Formation
- Partnership: WMO and UN Environment
- Project Website (links): <https://www.itu.int/en/ITU-T/focusgroups/ai4ndm>
- Contact Information: Mythili Menon ([mythili.menon@itu.int](mailto:mythili.menon@itu.int))

### Project 7: Focus Group on AI and IoT for Digital Agriculture (FG-AI4A)

- Project Description: To address the core challenges and opportunities within the agricultural sector, the Focus Group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A), explores the potential of emerging technologies including AI and IoT in supporting data acquisition and handling, improving modelling from a growing volume of agricultural and geospatial data, and providing effective communication for interventions related to the optimization of agricultural production processes. The Focus Group will also examine key concepts, and relevant gaps in current standardization landscape related to agriculture, and will underscore the best practices and barriers related to the use of AI and IoT-based technologies within the agricultural domain.  
  
To achieve these objectives, FG-AI4A cooperates closely with FAO converging multiple stakeholders and experts from across the globe, serving as an open platform to explore the potential of AI and IoT to support innovative practices for agricultural production processes.
- Project Start Year: 2021
- Reported as Part of 2022 Compendium on AI Activities? Yes
- Project Domain: Agriculture, Smart Cities, Smart Communities, Sustainable Development
- AI Approach: Framework/Strategy/Methodology Formation
- Partnership: FAO
- Project Website (links): <https://www.itu.int/en/ITU-T/focusgroups/ai4a>
- Contact Information: Mythili Menon ([mythili.menon@itu.int](mailto:mythili.menon@itu.int))

### Project 8: Focus Group on metaverse (FG-MV)

- Project Description: Recently, metaverse has become one disruptive area of innovation with great potential to change our economy, way of living and communicating and society. In this nascent phase of the metaverse, the industry has not converged towards common terms and definitions. The metaverse concept has attracted considerable public attention.  
  
The ITU-T Focus Group on metaverse was established in December 2022. The group analyses the technical requirements of the metaverse to identify fundamental enabling technologies in areas from multimedia and network optimization to digital currencies, Internet of Things, digital twins, and environmental sustainability.

It also provides a collaboration platform for dialogue, for identifying stakeholders with whom ITU-T could collaborate, and for enabling the inclusion of non-members to contribute to the technical pre-standardization work. The Focus Group work will be enriched with the identification of relevant use cases.

To stimulate global dialogue on metaverse, a series of ITU Forum on Embracing the metaverse will be held along with the Focus Group meetings.

- Department/Division: Telecommunication Standardization Bureau (ITU)
- Project Status: Ongoing
- Project Domain: Metaverse
- Project Start Year: 2022
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals: Potentially all 17 SDGs
- Relevant Links and Multimedia:
  - FG-MV webpage: <https://www.itu.int/en/ITU-T/focusgroups/mv>
  - Press release: <https://www.itu.int/en/mediacentre/Pages/PR-2023-01-19-TSB-Focus-Group-metaverse.aspx>
  - ITU metaverse activities: <https://www.itu.int/metaverse/>  
ITU metaverse related events: <https://www.itu.int/metaverse/meetings-events/>  
Publications on metaverse: <https://www.itu.int/metaverse/publications/>
- Contact information: Cristina Bueti ([cristina.bueti@itu.int](mailto:cristina.bueti@itu.int))

## Project 9: Global Initiative on AI and Data Commons

- Project Description: The [Global Initiative on AI and Data Commons](#) is a program and collaborative platform to support the implementation of beneficial AI based solutions to accelerate progress towards the 2030 Sustainable Development Goals. A [Roundtable on the Global Initiative on AI and Data Commons](#) was convened at ITU headquarters on 30-31 January 2020, attended by around 100 participants (including AI specialists, data owners, and infrastructure providers from the private sector, academia, governments, UN agencies and standards bodies). The roundtable highlighted the need for the Global Initiative to maximize collaboration in order to:
  - Match problem owners with providers of solutions using AI and data;
  - Scale and sustain AI-based projects;
  - Make available and accessible capabilities, resources, datasets, know-how, guidelines, frameworks, standards as a common good.
- At the roundtable, two working groups (on repositories and on marketplaces) were established and one project was identified (Global AI services platform, initially introduced at an AI for Good Global Summit) to progress toward achieving the mission of the Global Initiative, summarized [here](#). On 16 July 2020, as part of the AI for Good Webinar series, the Global Initiative launched the [Global Data Pledge project](#) to help identify, support and make available data as a common global resource.
- The Global Initiative on AI and Data Commons is now initiating a public collaborative effort named "[Project Resilience](#)". The vision, in the continuity of efforts towards AI for the common good, is to create a public AI service where a global community of innovators and thought leaders can enhance and utilize a collection of data and AI approaches both in the context of the current pandemic and for similar future challenges. The goal is to collaboratively design and build an open AI system that could inform and help tackle global decision-augmentation problems.
- Project Start Year: 2020
- Reported as Part of 2022 Compendium on AI Activities? Yes

- AI Approach: Framework/Strategy/Methodology Formation
- Project Website (links): <https://www.itu.int/en/ITU-T/extcoop/ai-data-commons/Pages/default.aspx>
- Contact Information: Martin Adolph ([martin.adolph@itu.int](mailto:martin.adolph@itu.int))

### Project 10: AI/ML Competitions (“Challenges”)

- **Project Description:** Since 2020, thousands of students and professionals are competing in the ITU AI/Machine Learning Challenges. In 2023, The ITU AI/ML Challenges were hosted in three (3) main themes: AI/ML in 5G Challenge, GeoAI Challenge, and tinyML Challenge. Through the Challenge, ITU encourages and supports the growing community driving the integration of AI/ML in networks and at the same time enhances the community driving standardization work for AI/ML, creating new opportunities for industry and academia to influence the evolution of ITU standards. Participants attempt to address the UN Sustainable Development Goals (SDGs) related problems using real-world data. In addition, participants will acquire hands-on experience in AI/ML in areas relevant to solving SDGs and compete for prizes, recognition, and certificates. These Challenges offer participants an opportunity to showcase their talent, test their concepts on real data and real-world problems. Participants are offered free computing resources (GPUs!) from ITU to train and optimize their machine learning models. The solutions can be accessed in several repositories on the Challenge GitHub;  
AI/ML in 5G Challenge: <https://github.com/ITU-AI-ML-in-5G-Challenge>.  
GeoAI Challenge: <https://github.com/ITU-GeoAI-Challenge>  
Most of the solutions submitted to the Challenge are innovative as well as improvements with respect to the baselines. To share the solutions with the larger community, every-year, ITU issues a call for papers for a special issue on AI and machine learning solutions in 5G and future networks of the ITU Journal on Future and Evolving Technologies (ITU J-FET). In this special issue, hosts (i.e., the originators of the problem statements) and participants of the ITU Challenge submit their solutions and learnings for publication. This special issue is dedicated to exploration of Artificial Intelligence and Machine Learning in 5G and future networks as well as enabling technologies and tools in networks.
- Project Type/Output: Datasets, Code, Papers, Standards  
“AI Challenges” are competitions where a “host” defines a problem statement and provides a dataset. Anyone in the world is invited to solve this problem statement using machine learning.
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: each competition has a 12-months cycle.
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: The ITU AI/Machine Learning in 5G Challenge is running for the 5<sup>th</sup> year in 2024. GeoAI and tinyML challenges are planned to run for the 3<sup>rd</sup> time in 2024.
- Project Domain: Agriculture, Environment, Energy, Gender, Health, Poverty, Telecommunications, and Weather
- Data Source: Data sets provided are real data, synthetic data or openly available data. Data for the ITU AI/Machine Learning in 5G Challenge use network data, i.e., data which occur in a communications network. Data for the GeoAI Challenge can be any data with a location component, i.a. satellite data, user generated content (like data from social media), sensor data or underwater data.
- Links to the challenges:
  - <https://aiforgood.itu.int/about/aiml-in-5g-challenge/>
  - <https://aiforgood.itu.int/about-ai-for-good/geoai-challenge/>
  - <https://aiforgood.itu.int/about-ai-for-good/tinyml-challenge/>

- Data is publicly available: Yes
- Technology/Platform: To solve the problem statements, any of the above environments or toolsets can be used.
- Related Sustainable Development Goals (SDGs): All the SDGs
- Partnerships:
  - UN Partners: UN partners are UNGGIM (United Nations Global Geospatial Information Management) Academic Network, UNGGIM Geospatial Network, UN Open GIS (Geographic Information System) Initiatives, FAO, UNICEF, UNODC, UNGSC and IAEA
  - Private Sector: see <https://aiforgood.itu.int/about/aiml-in-5g-challenge/> for private and academic partners of the ITU AI/Machine Learning in 5G Challenge
  - Academia: see <https://aiforgood.itu.int/about/aiml-in-5g-challenge/> for private and academic partners of the ITU AI/Machine Learning in 5G Challenge
- Contact information: Thomas Basikolo ([thomas.basikolo@itu.int](mailto:thomas.basikolo@itu.int)); Andrea Manara for GeoAI ([andrea.manara@itu.int](mailto:andrea.manara@itu.int))

### Project 11: United for Smart Sustainable Cities (U4SSC)

- Project Description: The United for Smart Sustainable Cities (U4SSC) is a global UN initiative coordinated by ITU, UNECE, UNEP and UN-HABITAT. It currently involves 19 UN bodies. U4SSC is a global platform for smart cities stakeholders, which advocates for public policies to encourage the use of ICT to facilitate the transition to smart sustainable cities. The initiative aims to: Generate guidelines, policies and frameworks for the integration of ICTs and emerging technologies into urban operations, based on the SDGs, international standards and urban key performance indicators (KPIs); and help streamline smart sustainable cities action plans and establish best practices with feasible targets that urban development stakeholders are encouraged to meet. The topics of this phase of U4SSC include: city platforms, urban economic resilience at the city-level, procurement guidelines for smart cities, artificial intelligence in cities, metaverse in cities, digital wellbeing and digital transformation for people-oriented cities. In the context of the Thematic Group on AI in Cities, a deliverable is being developed to explore how AI-based innovations be effectively deployed in the urban domain, while laying forth a framework which encompasses the governance principles for successfully implementing AI in cities in line with the Sustainable Development Goals (SDGs). The Thematic Group on AI in Cities is also working on autonomous cities. The initiative delivers policy guidelines and training materials through the work on specific outputs elaborated via regular e-meetings and one main meeting once per year. U4SSC stakeholders also elaborated a set of Key Performance Indicators (KPIs) for smart sustainable cities which includes 91 indicators (core and advanced) divided in the three dimensions of sustainable development: economy, environment, and society and culture. The indicators are fully aligned with the Sustainable Development Goals (SDGs) and serve as a tool for evidence-based decision making, self-assessments, progress monitoring and achieving the SDGs at the local-level. They are being implemented by 200 cities of different sizes and development worldwide.
- Department/Division: Telecommunication Standardization Bureau (ITU), Housing and Land Management, Forests, Land and Housing Division (UNECE), United Nations Environment Programme (UNEP), UN-HABITAT.
- Project Type/Output: Multi-agency partnership
- Project Status: Ongoing
- Project Domain: Sustainable urban development and digital transformation
- Project Start Year: 2016
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals: SDG 11 – Sustainable Cities and Communities; SDG 17 – Partnership for the Goal

- Partnerships:
  - UN Partners: ITU, UNECE, UN Habitat, CBD, ECLAC, FAO, UNDESA, UNDP, UNECA, UNESCO, UNEP, UNEP-FI, UNFCCC, UNIDO, UNOP, UNU-EGOV, UN-Women, UNWTO and WMO
- Relevant Links and Multimedia:
  - U4SSC webpage: <https://u4ssc.itu.int/>
  - U4SSC publications: <https://u4ssc.itu.int/publications/>
  - U4SSC KPIs project: <https://u4ssc.itu.int/u4ssc-kpi/>
  - U4SSC KPIs publications: <https://u4ssc.itu.int/u4ssc-kpis-report/>
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### Project 12: Digital Transformation Dialogues (DTD)

- Project Description: The International Telecommunication Union (ITU) is organizing the Digital Transformation Dialogues (DTD). It offers a dynamic platform to facilitate a deeper understanding of emerging technologies to reshape traditional processes, improve operational efficiency and unlock new possibilities for innovation and standardization. The Digital Transformation Dialogues seeks to address evolving themes associated with digital transformation, foster cooperation among city stakeholders, and examine the role of standardization within this domain. The Digital Transformation Dialogues serve as a unique platform for highlighting the latest work and outcomes of the ITU-T Focus Groups, Initiatives and ITU-T Study Groups. The Digital Transformation Dialogues will encompass:
  - Digital Transformation Webinars
  - Fireside Chats
  - Ask the expert: ITU-T Standard in Focus Sessions
- Department/Division: Telecommunication Standardization Bureau (ITU)
- Project Status: Ongoing
- Project Domain: Digital Transformation
- Project Start Year: 2021
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals: All 17 SDGs
- Relevant Links and Multimedia:
  - DTD webpage: <https://www.itu.int/cities/digitaltransformationdialogues/>
- Contact information: Cristina Bueti ([cristina.bueti@itu.int](mailto:cristina.bueti@itu.int))

### Project 13: AI in radiocommunications

- AI could be used during the process of making and distributing television and radio content. It is now being used to optimise workflows for broadcasting programme making, to improve audio and visual quality evaluation, to efficiently utilize the frequency spectrum in television and radio distribution and recently even to create new programmes by mining archives as well as automatically targeting content to specific audiences or individuals. For example, AI is being used for extracting content from vast archives; automatically localising content for international distribution; and generating access services such as captioning, audio description, text to speech and signing far faster and far more accurately than could be achieved in the past. AI could be used for spectrum management and radio monitoring activities.



For example, deploying machine learning technology for methodologies for assessing or predicting spectrum availability; introducing big data processing and other AI technologies in the automation of spectrum management and radio monitoring activities.

- Project Domain: Communication
- Reported as Part of 2022 Compendium on AI Activities? Yes
- AI Approach: Framework/Strategy/Methodology Formation
- Project Website (links): <https://www.itu.int/en/action/ai/emerging-radio-technologies/Pages/default.aspx>
- Contact Information: Ruoting Chang ([ruoting.chang@itu.int](mailto:ruoting.chang@itu.int))

### Project 14: Toolkit on Digital Transformation for People-Oriented Cities and Communities

- Project Description: The International Telecommunication Union (ITU) together with other 13 UN entities, have developed the Toolkit on Digital Transformation for People-Oriented Cities and Communities. The Toolkit on Digital Transformation for People-Oriented Cities and Communities is a comprehensive guide designed to help cities and communities leverage digital technologies for sustainable development. It provides practical strategies and tools to address challenges and harness opportunities in the digital age. 12 modules have been developed covering the topics from Smart Sustainable City Governance to Smart Manufacturing.
- Department/Division: Telecommunication Standardization Bureau (ITU)
- Project Status: Ongoing
- Project Domain: Digital Transformation
- Project Start Year: 2022
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals: All 17 SDGs
- Relevant Links and Multimedia:
  - Toolkit webpage: <https://toolkit-dt4c.itu.int/>
- Contact information: Cristina Bueti ([cristina.bueti@itu.int](mailto:cristina.bueti@itu.int))

### Project 15: Digital Transformation Resource Hub

- Project Description: The Digital Transformation Resource Hub collates a range of quality publications on various digital transformation topics such as smart sustainable cities, AI, IoT, blockchain, digital twin, metaverse, and digital transformation trends.
- Department/Division: Telecommunication Standardization Bureau (ITU)
- Project Status: Ongoing
- Project Domain: Digital Transformation
- Project Start Year: 2023
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals: All 17 SDGs
- Relevant Links and Multimedia:
  - Digital Transformation Resource Hub webpage: <https://www.itu.int/cities/dt-resource-hub/>
- Contact information: Cristina Bueti ([cristina.bueti@itu.int](mailto:cristina.bueti@itu.int))

### Project 16: Artificial Intelligence Landscape Survey

- Project Description: Artificial Intelligence (AI) is introducing new ways of analyzing, disseminating and even generating information, and reshaping entire economic sectors of activity. In addition to new opportunities, AI is bringing significant potential risks for policy makers and regulators to consider. Pursuant to Plenipotentiary Resolution 214 (Bucharest, 2022), ITU is seeking to gather more information about AI-related policy and regulatory initiatives of ITU Member States and how these efforts align with their ongoing Digital Transformation endeavors. The results of this survey will complement other ongoing data collection initiatives (within and beyond ITU), support the assessment of Member States readiness in the field of AI and serve as a valuable public resource for ITU and other UN agencies in fostering meaningful partnerships to support countries in their ongoing AI-related efforts.
- Project Type: Survey
- Project Status: Ongoing
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Project Website (links): <https://aiforgood.itu.int/ai-landscape-survey/>
- Contact Information: Jin Cui ([jin.cui@itu.int](mailto:jin.cui@itu.int)), Sadhvi Saran ([sadhvi.saran@itu.int](mailto:sadhvi.saran@itu.int))

### Project 17: AI Sub-Group of Early Warnings for All Initiative

- Project Description: Under the EW4All initiative, ITU and partners have created an [AI sub-group](#) that aims to leverage AI, particularly in disaster management, warning dissemination, and response capabilities, while acknowledging and mitigating associated risks through careful design and implementation protocols. The AI sub-group focuses on adding structure to the application of AI to support the attainment of the EW4All Initiative objectives. AI is mentioned as one of the outputs of Pillar 3 in the EW4All Executive Action Plan, launched in November 2022: "Leverage artificial intelligence to support the development of 'client' profiles and scale the dissemination of action alerts." AI is also featured under Pillar 1's strategic outcome seven on Innovation for Risk Knowledge; however, developments in AI provide opportunities to transform the practice of disaster management and support the implementation of all Pillars in the Early Warning System value chain. The sub-group have organised a workshop at the 2024 [AI for Good Global Summit](#) in Geneva on 31 May to demonstrate AI use cases for enhancing multi-hazard early warning systems, fostering dialogue, collaboration, and engagement with countries eager to pilot innovative AI applications. ITU will showcase how AI is being piloted in the [disaster connectivity map](#), pinpointing areas lacking electricity access, cellular, broadband, or siren-based technologies for early warning notifications. The results from three pilot countries (Fiji, Tonga and Vanuatu) will identify intervention needs and tailor early warning strategies accordingly.
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Domain: Emergency Telecommunications, Climate Change, Disaster Risk, Early Warnings
- AI Approach: Framework/Applications/Use Cases
- Partnership: WMO, UNDRR, IFRC, UNDP, UNFCCC, Google, Microsoft, GSMA, Group on Earth Observations
- Project Website (links): <https://www.itu.int/en/ITU-D/Emergency-Telecommunications/Pages/AI-Sub-Group-EW4All.aspx>
- Contact Information: Vanessa Gray ([vanessa.gray@itu.int](mailto:vanessa.gray@itu.int))

## Project 18: AI/ML solutions for Climate Action

- **Project Description:** Climate change is one of the biggest environmental challenges affecting the planet and humanity. The consequences of climate change are resulting in broad and deep social and economic consequences, impacting the lives and livelihoods of billions of people. The United Nations (UN) are playing a leading role in the global effort to fight and address climate change through a range of activities, initiatives and programs. The combination of ICTs and AI technologies offer a promising approach to tackle the climate crisis by reducing emissions, increasing resource use efficiency, and building resilience to the impacts of climate change.  
The project to crowdsource innovative AI solutions was supported by, the International Atomic Energy Agency (IAEA), the UN Food and Agriculture Organization (FAO), the UN Educational, and Scientific and Cultural Organization (UNESCO). Top solutions and projects pitched their solutions at the 2023 United Nations Climate Change Conference (COP28), in Dubai, United Arab Emirates, 30 November – 12 December 2023 in the context of the Green Digital Action. • **Project Start Year:** 2023
- **Reported as Part of 2022 Compendium on AI Activities?** No
- **Project Domain:** Climate Change
- **Partnership:** IAEA, FAO, UNESCO
- **Project Website (links):** <https://aiforgood.itu.int/about-ai-for-good/aiml-solutions-for-climate-change/>
- **Contact Information:** Thomas Basikolo ([thomas.basikolo@itu.int](mailto:thomas.basikolo@itu.int))

## Project 19: Artificial Intelligence & Machine Learning Capacity Building

- **Project Description:** The ITU Telecommunication Standardization Bureau (TSB) launched an AI capacity building project aimed at strengthening AI and ML capacities in developing countries. This project is a part of TSB's broader efforts to close the digital divide and enhance technological competencies globally, particularly in regions that are technologically underserved. At the core of this project is the mentoring activities, which pair AI experts with local practitioners in developing countries to provide training, guidance, and knowledge exchange. These mentorship programs are tailored to address the specific needs and challenges of each region, ensuring that the benefits of AI and ML technologies are accessible and relevant to local contexts.  
In addition, the project also contributes to the series of in-person workshops hosted by the Science, Technology and Innovation Unit of the International Centre for Theoretical Physics (ICTP). These workshops focus on tinyML technology—highly efficient ML models that can run on low-power devices at the edge of the network. TinyML is particularly suited for developing countries due to its low resource requirements and its ability to operate independently of extensive cloud infrastructure, making advanced AI applications feasible in remote and low-bandwidth environments. These workshops includes training on tinyML technologies and use case relevant for SDGs. Participants from developing countries are equipped with skills necessary in their respective communities.  
The ITU's initiative not only aims to educate and train individuals in these emerging technologies but also seeks to create a sustainable ecosystem where local developers can continue innovating with AI and ML. Through this project, ITU supports the implementation of practical, impactful AI solutions that can lead to significant advancements in healthcare, agriculture, education, and other critical sectors in developing regions. The goal is to empower these communities with the tools and knowledge necessary to harness the potential of AI and ML for their development and prosperity.
- **Project Status:** Ongoing
- **Project Start Year:** 2023
- **Reported as Part of 2022 Compendium on AI Activities?** No
- **Related Sustainable Development Goals (SDGs):** All SDGs

- Project related links:
  - <https://indico.ictp.it/event/10185/overview>
  - <https://tinyml.seas.harvard.edu/SciTinyML-23/>
- Contact Information: Thomas Basikolo ([thomas.basikolo@itu.int](mailto:thomas.basikolo@itu.int)), Marco Zennaro ([mzennaro@ictp.it](mailto:mzennaro@ictp.it))

### Project 20: Guidelines for staff on the Responsible use of GenAI in content creation

- Project Description: This project is about developing guidelines for ITU staff on the responsible use of genAI in content creation. UN system peers have expressed interest in collaborating to potentially elevate the guidelines to UN system use. Artificial intelligence (AI) has the potential to advance global prosperity by tackling critical issues that align with the United Nations Sustainable Development Goals (SDGs). Novel AI systems are continuously introduced to enhance creativity, innovation and efficiency of content creation and to elevate the overall performance of communications. Generative AI (genAI) is a field in AI that focuses on creating content such as text, images, sound and video. genAI systems also bring a spectrum of risks and challenges specific to content creation. These include the potential for malevolent use of genAI in manipulating or distorting information and images, challenges in safeguarding privacy and protecting personal data and ensuring the integrity of the information disseminated. If not properly managed, these risks could harm the communicator/communicating organization, users and society. What are the guardrails to put in place and to observe for maximum benefit and minimum harm?
- Project Type/Output: Guidelines for ITU/UN staff
- Project Status: Ongoing
- Project Domain: AI, ethics and governance
- Project Start Year: 2024
- Reported as part of 2022 Compendium on UN AI Activities? No
- Relevant Links and Multimedia:
  - (Adapting the principles laid out in the following document to content creation) Principles for the Ethical Use of Artificial Intelligence in the United Nations System: [https://unsceb.org/sites/default/files/2022-09/Principles%20for%20the%20Ethical%20Use%20of%20AI%20in%20the%20UN%20System\\_1.pdf](https://unsceb.org/sites/default/files/2022-09/Principles%20for%20the%20Ethical%20Use%20of%20AI%20in%20the%20UN%20System_1.pdf)
- Contact information: Monika Gehner ([monika.gehner@itu.int](mailto:monika.gehner@itu.int))

### Project 21: Demystifying Digital series

- Project Description: The ITU Demystifying Digital series aims to demystify technology for a predominantly non-technical audience. It brings together ITU staff and experts with members of the diplomatic community, facilitating a better understanding of emerging trends and fostering discussions on their potential impact.  
These informative sessions are hosted by Permanent Missions upon their request. The topics of interest are identified by the host. So far, the ITU has successfully conducted Demystifying Digital sessions on the Metaverse, Sustainable and Green Standards, and Quantum, with several more planned for the upcoming months.  
Past sessions include:
  - "WSIS+20 & AI for Good Summit", Permanent Mission of the Dominican Republic, March 2024
  - "How the Internet Works", ITU and ICANN (Geneva and New York), January 2024
  - "Global Digital Compact", ITU and GDC Co-Facilitators, December 2023

- "Digital Skills for Sustainable Development", Permanent Mission of Jamaica, November 2023
- "Demystifying the Civerse and Smart Cities", EU Mission, September 2023
- "ITU Specific Support Programmes (SIDs), Activities and Initiatives", Commonwealth Small State Office, July 2023
- "WRC-23", Permanent Mission of Canada, June 2023
- "Quantum", Permanent Mission of Denmark in Geneva, April 2023
- Project Type: Seminar/meeting
- Project Status: Ongoing
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership: Permanent Mission of member states
- Project Website (links): <https://www.itu.int/hub/membership/our-members/permanent-missions-in-geneva/demystifying-digital-series/>
- Contact Information: Preetam Maloor ([Preetam.maloor@itu.int](mailto:Preetam.maloor@itu.int)), Sadhvi Saran ([sadhvi.saran@itu.int](mailto:sadhvi.saran@itu.int))

## Project 22: Learning Labs Series

- Project Description: The ITU LearningLabs initiative provides experiential hands-on learning opportunities for ITU staff on new and emerging technologies, in partnership with external experts, with a view to facilitating (a) use of such technologies by staff in the day-to-day work; and (b) research and analysis relevant to ITU's activities. LearningLabs is part of the emerging trends observatory, which also involves: (a) analysing and showcasing technology megatrends and potential societal impact; (b) demystifying technology for a largely non-technical audience; and (c) developing a network of academics to serve as a key resource for ITU thought leadership.  
Past sessions include:
  - "Microsoft on ChatGPT", Microsoft, May 2023
  - "Space, the next generation", Aerospace, May 2023
  - "Cybersecurity", Saudi National Cybersecurity Authority (NCA), September 2023.
  - "Generative AI Enablement", Amazon Web Services (AWS), April 2024.
- Project Type: Seminar/meeting
- Project Status: Ongoing
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership: Microsoft, Aerospace, Saudi National Cybersecurity Authority, Amazon Web Services
- Contact Information: Preetam Maloor ([Preetam.maloor@itu.int](mailto:Preetam.maloor@itu.int)), Sadhvi Saran ([sadhvi.saran@itu.int](mailto:sadhvi.saran@itu.int)), Jin Cui ([jin.cui@itu.int](mailto:jin.cui@itu.int))

## Project 23: ITU Academy course on "The governance of Artificial Intelligence"

- Project Description: This course, conducted through ITU Academy training centres by UNU-Merit, examines the complex impact of artificial intelligence on society and emphasizes the urgent need for comprehensive governance. It covers ethical, normative, stakeholder, and technical aspects of AI governance across four modules, providing

participants with practical tools and knowledge to address challenges and dilemmas in AI implementation and regulation. This introductory course targets mainly civil servants of national and regional administrations.

- Project Type: Training course
- Project Status: Closed
- Project Start Year: 2024
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): SDGs 4, 9, 16 and 17.
- Partnership: UNU-Merit
- Contact Information: [ituacademy@itu.int](mailto:ituacademy@itu.int)

#### **Project 24: ITU Academy course on “Key technologies and governance of Internet of Things, Big Data and Artificial Intelligence”**

- Project Description: This course, conducted through ITU Academy training centres by National Institute of Telecommunications (NIT), focuses on the integration of Internet of Things (IoT), Big Data, and Artificial Intelligence (AI) in technical, business, and regulatory contexts. It comprehensively addresses IoT technologies, standards, and policies; explores Big Data processing techniques and architectures; and delves into AI applications in Internet and telecom networks, concluding with a focus on Internet governance issues related to IoT, Big Data, and AI. This course is targeted at managers, engineers and employees from regulators, government organizations, telecommunication companies and academia.
- Project Type: Training course
- Project Status: Closed
- Project Start Year: 2024
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): SDGs 4, 9, 16 and 17.
- Partnership: National Institute of Telecommunications (NIT)
- Contact Information: [ituacademy@itu.int](mailto:ituacademy@itu.int)

#### **Project 25: ITU Academy course on “Digital transformation regulation”**

- Project Description: This ITU Academy course aims to enhance participants' understanding of digital transformation policies and regulation, focusing on strategic elements such as regulatory governance, evidence-based decision making, regulatory sandboxes, and consumer protection. Targeted at ICT regional regulatory associations, ICT/Telecommunications regulators, other relevant regulatory agencies and ICT policy-makers, it included sessions on “transformative technologies and evolving regulation”.
- Project Type: Training course
- Project Status: Closed
- Project Start Year: 2024
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): SDGs 4, 9, 16 and 17.
- Partnership: EMERG and EaPeReg
- Contact Information: [ituacademy@itu.int](mailto:ituacademy@itu.int)

## Project 26: ITU Academy course on “Emerging technologies for resilient digital transformation”

- Project Description: This ITU Academy course is designed to provide a deep dive into emerging technologies and their applications, explores topics like blockchain, AI, Distributed Ledger Technology (DLT), and digital transformation strategies. It encompasses lectures and interactive sessions on digital identity applications in finance and healthcare, practical AI applications in various sectors, and insights into 5G technology. Additionally, the course includes site visits, workshops, and case studies focusing on government digital transformation and the application of GovStack frameworks. It is targeted at Ministries, Regulators, Digital Financial Service players from businesses, government agencies, non-profit groups, academia that are interested in building their capacity in emerging technologies and Enterprise Architecture.
- Project Type: Training course
- Project Status: Closed
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): SDGs 4, 9, 16 and 17.
- Partnership: NBTC
- Contact Information: [ituacademy@itu.int](mailto:ituacademy@itu.int)

## Project 27: GovStack Initiative

- Project Description: GovStack Architecture Framework guides government investment in establishing their customized digital government public infrastructure and technology stack, which is an integrated set of digital capabilities, e.g., digital identity, digital payments, information exchange, registries, consent, e-signature, GIS, digital wallets, AI models in collaboration with OSEE Project, etc. that constitute a digital infrastructure or foundation for digital transformation and digital economy. The Stack powers the whole of government with a set of shared digital services that any government agency or department can use to build quickly and at a fraction of the cost of new government digital services that are trusted, interoperable, and scalable across different sectors without having to design, test and operate the underlying systems and infrastructure themselves. GovStack structures its offerings around three areas:
 

GovSpecs: building blocks form the heart of GovStack. These standards for interoperable software components are published open source and can be used by governments to procure secure and reusable software. GovStack offers twelve building blocks to build Digital Public Infrastructure.

GovTest: prototyping is key for successful digital implementations. GovStack’s sandbox allows to experiment and prototype new services based on the Building Block approach.

GovLearn: digital online programs train civil servants and technical personnel on the Building Block approach. Different leaders’ forums connect GovStack implementing countries and foster peer-to-peer learning in the field of digital public infrastructure. Women in GovTech Challenge and GovStack Architects trainings provide university credited specializations on GovStack approach.

GovStack engage with countries by identifying priority use cases on government services to be digitalized using GovStack approach. This year GovStack contributed with use cases to be part of the AI Hack ‘Alntuition’: Retrieval Augmented Generation (RAG) for Public Services and Administration Tasks organized by OSEE. The models resulted from the Hackathon will be integrated as AI building blocks in GovStack.
- Project Type: Capacity Building, Service Design and Delivery
- Project Status: On-Going
- Project Start Year: 2019

- Reported as Part of 2022 Compendium on AI Activities? No
- Related Sustainable Development Goals (SDGs): SDGs 16.
- Partnership: GIZ, Ministry of Foreign Affairs Estonia (EE), DIAL
- Contact Information: [hani.eskandar@itu.int](mailto:hani.eskandar@itu.int)

### Project 28: ITU Open Source Programme Office (OSPO)

- Project Description: Open-source software (OSS), explainable AI algorithms, open data, and open content (collectively referred to as “open-source technologies”) can accelerate a country’s digital transformation and therefore, its ability to achieve the SDGs.

A part of the Open Source Programme Office work (and in collaboration with the AI for Good), ITU BDT has launched a community challenge to promote the development of open-source Retrieval Augmented Generation (RAG) solutions optimised for the public sector: <https://zindi.africa/competitions/retrieval-augmented-generation-rag-for-public-services-and-administration-tasks>

Public sector institutions, such as government agencies and municipalities, manage critical services impacting citizens' lives, including administrative tasks like regulatory compliance monitoring, procurement management, certifications issuance, and public communication.

The efficiency of these services relies on streamlined processes. AI virtual assistants, powered by Large Language Model (LLM) applications, can aid in this by facilitating seamless interaction with data, providing procedural guidance, and automating workflows.

To be effective, Generative AI applications in the public sector must deliver contextualized responses. RAG enhances LLM-powered virtual assistants' capabilities, allowing efficient access to information from vast document repositories. This ensures accurate and contextually relevant responses, supporting both employees and citizens in their interactions with public sector information.

Around 170 participants (individuals and teams) have enrolled in the challenge.

The community challenge and knowledge exchange among stakeholders in the open-source ecosystem are anticipated to foster the development of open-source RAG solutions tailored for the public sector. These solutions would empower public institutions to harness AI effectively, thereby enhancing service delivery efficiency and quality for citizens.

- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Domain: Digital Public Infrastructure
- Partnership: UNDP
- Project Website (links): [Open Source Ecosystem Enabler \(itu.int\)](#)
- Contact Information: David Manset ([david.manset@itu.int](mailto:david.manset@itu.int))

### Project 29: ITU Open-Source Ecosystem Enabler (OSEE)

- Project Description: As part of the ITU Open Source Ecosystem Enabler (OSEE) project, ITU is promoting the integration of open-source solutions and strategies into national digital infrastructure, projects, and strategies, including open-source AI for public sector use cases. To raise awareness of available resources and to promote dialogue and experience exchange between a diverse range of stakeholders, a series of webinars have been organized:

- Open-Source (generative) AI for Public Services Innovation (<https://aiforgood.itu.int/event/open-source-generative-ai-for-public-services-innovation/>);



- Innovating Educations: Navigating Challenges in Open-Source (Generative) AI Integration (<https://aiforgood.itu.int/event/innovating-education-navigating-challenges-in-open-source-generative-ai-integration/>);
- Alntuition: Unlocking Efficiency for Public Sector with Retrieval Augmented Generation Applications (<https://aiforgood.itu.int/event/aintuition-unlocking-efficiency-for-public-sector-with-retrieval-augmented-generation-applications/>).

The webinars have attracted stakeholders from public institutions, international organizations, NGOs, the private sector, and academia. The recordings of the webinars are available on the AI for Good platform.

- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Domain: Digital Public Infrastructure
- Partnership: UNDP
- Project Website (links): [Open Source Ecosystem Enabler \(itu.int\)](#)
- Contact Information: David Manset ([david.manset@itu.int](mailto:david.manset@itu.int) )

### Project 30: Giga and AI

- Project Description: While much of the initial school data comes from government datasets, many lack comprehensive, accurate and up-to-date locations for all the schools within their borders. To overcome this challenge, Giga uses AI and ML algorithms that can identify accurate school locations in satellite imagery tiles.

Here are some of the structures that help AI determine school buildings. And through this technology, we were able to identify and map more than 29,000 schools in a handful of countries.

- Giga aims to develop a global database of school locations, in support of our goal to connect every school to the internet by 2030.
  - We've developed ML models for school mapping for several countries, including Mongolia, Sudan, Colombia, Senegal and Ghana.
  - Our ML models tend to achieve model performances (F1-score) > 90%
  - High-resolution Satellite Images. Global high-resolution satellite images (60 cm/px) from Maxar made available with support from the US State Department.
  - High Performance Computing Resources. High Performance Computing (HPC) clusters with NVIDIA GPU support from Dell allows us to run computationally intensive AI models.
  - Experiment with different types of models and model architectures. Conduct hyperparameter tuning to identify the optimal configuration settings per model.
  - Evaluate model performances using an independent test set and identifying opportunities to further improve the performance. Develop more precise locations, e.g. using class activation maps.
  - Download nationwide Maxar satellite images and run the model on each image to generate school/non-school predictions.
  - Validate the model outputs. This include re-confirming existing school locations, identifying and fixing erroneous school locations, and discovering previously unmapped schools.
- Project start year: 2018
  - Reported as Part of 2022 Compendium on AI Activities? No
  - Project Domain: School connectivity (digital infrastructure)
  - Partnership: ITU-UNICEF
  - Related SDGs: SDG 4 & SDG 9

- Project Website (links): <https://projectconnect.unicef.org/map>
- Contact Information: Braden Phillips ([braden.phillips@itu.int](mailto:braden.phillips@itu.int)), Naroa Zurutuza ([nzurutuza@unicef.org](mailto:nzurutuza@unicef.org))

## 2. Related Sustainable Development Goals

All SDGs

## 3. Relevant Links

<https://www.itu.int/en/action/ai/Pages/default.aspx>

Contact Information

Mr Preetam Maloor, Head of Emerging Technologies Division ([Preetam.maloor@itu.int](mailto:Preetam.maloor@itu.int))

## Office of the United Nations High Commissioner for Human Rights



### 1. Description of Activities on AI

#### Project 1: Expert seminar on artificial intelligence and the right to privacy

Human Rights Council resolution 42/15 requested UN Human Rights to organize a one-day expert seminar to discuss how artificial intelligence, including profiling, automated decision-making and machine-learning technologies may, without proper safeguards, affect the enjoyment of the right to privacy. The seminar took place as a public online event over two half-days on 27/28 May 2020. One important area of discussion were the specific challenges for the right to privacy that the rapidly increasing use of AI brings about. The seminar also highlighted the key role that privacy plays in safeguarding other human rights affected by AI. It also articulated safeguards and processes that States, businesses and international organisations are required to put in place to promote and protect the right to privacy in the digital age.

- Project Type (Status): Full-fledged development (Framework/Strategy/Policy)
- Project Domain: Right to privacy
- AI Approach: Events
- Project Website (links): <https://www.ohchr.org/EN/Issues/DigitalAge/Pages/SeminarArtificialIntelligence.aspx>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

#### Project 2: Report on artificial intelligence and the right to privacy

Human Rights Council resolution 42/15 also requested UN Human Rights to analyse the widespread use of artificial intelligence by States and businesses and their impact on the enjoyment of the right to privacy, as well as economic, social and cultural rights. The report calls for a ban on AI applications that are incompatible with international human rights law, and for moratoriums to be imposed on the sale and use of high-risk AI systems, including a ban on remote biometric systems, unless and until adequate safeguards are put in place to protect human rights. The report recommends that States and businesses conduct human rights due diligence throughout the entire life cycle of AI systems.

- Project Type (Status): Report (Report)
- Project Domain: Freedom of peaceful assembly, freedom of expression, right to privacy, economic, social and cultural rights

- Project Website (links): [www.undocs.org/A/HRC/48/31](http://www.undocs.org/A/HRC/48/31)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### **Project 3: Report on the right to privacy in the digital age**

As a follow-up to the report on artificial intelligence and the right to privacy, published in September 2021, UN Human Rights will present a report examining recent trends and challenges regarding the right to privacy and clarifying related human rights principles, safeguards and best practices.

- Project Type (Status): Report (Report)
- Project Domain: Right to privacy
- Project Website (links): The report will become available here: <https://www.ohchr.org/en/privacy-in-the-digital-age>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### **Project 4: Expert consultation and report on 1) the practical application of the Guiding Principles on Business and Human Rights on the activities of technology companies; and 2) technical standard-setting and human rights**

Human Rights Council resolution 47/23 requested UN Human Rights to convene two expert consultations, to discuss the relationship between human rights and technical standard-setting processes for new and emerging digital technologies and the practical application of the Guiding Principles on Business and Human Rights (UNGPs) on the activities of technology companies, and to submit two reports. A virtual expert consultation was held on 7 and 8 March 2022 to discuss the practical application of the Guiding Principles on Business and Human Rights to the activities of technology companies, focusing on 1) the State duty to protect human rights; 2) the role of the UNGPs in tech policy and regulation; 3) the corporate responsibility to protect human rights; and 4) access to remedy. The report demonstrates the value and practical application of the UNGPs in preventing and addressing adverse impacts on human rights related to technology companies and provides a set of recommendations for States, technology companies, regional and international organizations, civil society, and the United Nations. The expert consultation and report on technical standard-setting and human rights will be completed in 2023.

- Project Type (Status): Event and report on the practical application of the UNGPs (concluded in 2022) / Event and report on human rights and technical standard-setting (to be completed in 2023)
- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/en/business-and-human-rights>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### **Project 5: Report on peaceful protests and new technologies**

In its resolution 38/11, the Human Rights Council requested the United Nations High Commissioner for Human Rights to prepare a thematic report on new technologies, including information and communications technology (ICT), and their impact on the promotion and

protection of human rights in the context of assemblies, including peaceful protests. The report, presented at the 44th session of the Human Rights Council highlights not only the character of new digital technologies as enablers of the enjoyment of human rights but also delves into issues linked to various surveillance technologies, including AI-based surveillance (such as facial recognition) of organizers of and participants in peaceful assemblies. Among other recommendations, it calls for a moratorium on the use of facial recognition in the context of peaceful assemblies.

- Project Type (Status): Report (Report)
- Project Domain: Freedom of peaceful assembly, freedom of expression, right to privacy
- Project Website (links): [www.undocs.org/A/HRC/44/24](http://www.undocs.org/A/HRC/44/24)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### Project 6: B-Tech Project deploying and using new technologies

UN Human Rights has launched the B-Tech Project which develops authoritative guidance and resources to enhance the quality of implementation of the United National Guiding Principles on Business and Human rights with respect to a selected number of strategic focus areas in the technology space. It focuses on the following thematic areas, all of which touch upon important aspects of the development, deployment and use of AI: (1) Addressing Human Rights Risks in Business Models; (2) Human Rights Due Diligence and End-Use; (3) Accountability and Remedy; and (4) A Smart Mix of Measures: Exploring regulatory and policy responses to human rights challenges linked to digital technologies.

- Project Type (Status): Full-fledged development (Framework/Strategy/Policy)
- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/EN/Issues/Business/Pages/B-TechProject.aspx>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### Project 7: Development of UN system-wide guidance on human rights diligence in the context of developing, deploying and using new technologies

In his Roadmap for Digital Cooperation, the Secretary-General asked UN Human Rights to develop UN System-Wide Guidance on Human Rights Due Diligence for Digital Technology Use (A/74/821) to support all UN entities to implement and strengthen human rights due diligence (HRDD) policies, processes and practices for the use (including development, acquisition and sharing) of digital technologies. The guidance provides a practical introduction to HRDD to assist each entity in developing, implementing and strengthening its HRDD for digital technology use, as well as actions to get started and strengthen HRDD over time.

- Project Type (Status): In development, scheduled completion by end of 2022 (Guidance)
- Project Domain: Human rights
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Project 8: United Nations Hub for Human Rights and Digital Technology

As part of the implementation of the UN Secretary-General's Call to Action for Human Rights, UN Human Rights launched the UN Hub for Human Rights and Digital Technology, which provides a central repository of authoritative guidance from various UN human rights mechanisms on the application of human rights norms to the use and governance of digital technologies, including artificial intelligence.

- Project Type (Status): Website (website)
- Project Domain: Human rights
- Project Website (links): [www.digitalhub.ohchr.org](http://www.digitalhub.ohchr.org) (beta version)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Project 9: Co-lead of implementation of the data protection pillar of the UN Data Strategy

In June 2016, the Secretary-General presented the UN Data Strategy for Action by Everyone, Everywhere. Data Protection and Privacy is one of the priority areas in the strategy. OLA, EOSG and UN Human Rights are the co-leads of the implementation of this priority area).

- Project Type (Status): Full-fledged development (Framework/Strategy/Policy)
- Project Domain: Human rights, Data protection
- Project Website (links): <https://www.un.org/en/content/datastrategy/>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Project 10: Universal Human Rights Index

The Universal Human Rights Index (UHRI) is designed to facilitate access to human rights recommendations issued by three key pillars of the United Nations human rights protection system: the Treaty Bodies established under the international human rights treaties as well as the Special Procedures and the Universal Periodic Review (UPR) of the Human Rights Council. Many of these outputs have been manually tagged for eight years. We have used this training dataset to build a natural language classifier, using a neural network, to create recommendations for how outputs should be classified.

- Project Type (Status): Proof of concept (Software product)
- Project Domain: Human rights
- AI Approach: Software application
- Datasets: Universal Human Rights Index
- Related Sustainable Development Goals: All SDGs
- Project Partners: HuriDocs, Danish Institute for Human Rights
- Membership or Secretariat-driven: Secretariat-driven
- Project Website (links): <https://uhri.ohchr.org/en>
- Resources/Skills: Natural language processing, software development
- Technology: PyTorch
- Challenges: Data quality and consistency in the tagging of training data is key. We are redeveloping the model on the basis of improved training data, with more consistent tagging.

- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### Project 11: Digital Image Verification and Classification Project

In the past, human rights investigations faced challenges in gathering sufficient data, but with the advent of portable consumer technologies the challenge has evolved. The amount of data is not such a pressing issue, but filtering information to create useful evidence is a challenge. The recent experience of the Commission of Enquiry on the protests in Gaza or the current experience of the Commission of Enquiry on the Syrian Arab Republic are instructive. Both initiatives have received huge quantities of video and image data from networks of informants, a big challenge to authenticate, classify and analyse into useful evidence. This project works to address this need by further developing existing open source tools, available to the human rights ecosystem, and creating an internal instance for conducting the same analysis on confidential information.

- Project Type (Status): Full-fledged development (Software product)
- Project Domain: Human rights
- AI Approach: Further development of an existing software application
- Datasets: DEFACTO: Image and Face Manipulation Dataset
- Related Sustainable Development Goals: All SDGs, especially SDG 16 – Peace, Justice, And Strong Institutions
- Project Partners: Information Technologies Institute of the Centre for Research and Technology Hellas (ITI-CERTH)
- Membership or Secretariat-driven: Secretariat-driven
- Project Website (links): <https://www.invid-project.eu/>
- Resources/Skills: Forensic image analysis and classification. Software development
- Technology: PyTorch
- Challenges: Video tampering detection is computationally expensive, and we are looking for more efficient ways to perform this task.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### Human Rights Council, Advisory Committee

#### Project 12: Report of the Advisory Committee of the Human Rights Council on New and Emerging Digital Technologies and Human Rights (A/HRC/47/52)

Pursuant to the adoption by the Human Rights Council resolution “New and emerging digital technologies and human rights” (A/HRC/RES/41/11) at the forty-first session, the Advisory Committee presented a report on the impacts, opportunities, and challenges of new technologies with regard to the promotion and protection of human rights, including mapping of relevant existing initiatives by the United Nations (UN) and recommendations on how human rights opportunities, challenges, and gaps arising from new technologies could be addressed by the Human Rights Council and its special procedures and subsidiary bodies in a holistic, balanced, and pragmatic manner. The report addresses a range of issues linked to the use of AI and notes that AI decision-making, even when unintended, may result in discriminatory outcomes if the decision-making is based on biased algorithms. It highlights that a rigorous human rights due diligence of automated decision-making tools is necessary.

- Project Type (Status): Full-fledged development (Report)

- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/en/hr-bodies/hrc/advisory-committee/thematic-reports>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Mr Eric Tistounet, Chief, Human Rights Council Branch ([eric.tistounet@un.org](mailto:eric.tistounet@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### Special Procedures of the Human Rights Council

#### **Project 13: Human Rights Council report of the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance on Racial discrimination and emerging digital technologies: a human rights analysis (A/HRC/44/57)**

The Special Rapporteur analyses different forms of racial discrimination in the design and use of emerging digital technologies, such as AI, and focuses in particular on the structural and institutional dimensions of this discrimination. She also outlines the human rights obligations of States and the responsibility of corporations to combat this discrimination.

- Project Type (Status): Full-fledged development (Report)
- Project Domain: Human rights
- Project Website (links): <https://www.undocs.org/A/HRC/44/57>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ms Beatriz Balbin Chamorro, Chief, Special Procedures Branch ([beatriz.balbin@un.org](mailto:beatriz.balbin@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

#### **Project 14: Human Rights Council report of the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance on racial and xenophobic discrimination and the use of digital technologies in border and immigration enforcement (A/HRC/48/76)**

The Special Rapporteur highlights how digital technologies, including AI systems, are being deployed to advance xenophobic and racially discriminatory ideologies which have become prevalent. The report also links the trends in immigration surveillance whereby AI-driven predictive models are prone to creating and reproducing racially discriminatory feedback loops.

- Project Type (Status): Full-fledged development (Report)
- Project Domain: Human rights
- Project Website (links): [www.undocs.org/A/HRC/48/76](https://www.undocs.org/A/HRC/48/76)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ms Beatriz Balbin Chamorro, Chief, Special Procedures Branch ([beatriz.balbin@un.org](mailto:beatriz.balbin@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

#### **Project 15: Human Rights Council report of the Special Rapporteur on the rights of persons with disabilities (A/HRC/49/52)**

Pursuant to the Human Rights Council resolution 44/10, the Special Rapporteur provides a study on artificial intelligence and the rights of persons with disabilities. The Special Rapporteur examines the opportunities and the risks posed by artificial intelligence technology to the enjoyment of the human rights of persons with disabilities, and emphasizes that the practical



benefits of artificial intelligence may be realized once their human rights risks are sufficiently addressed.

- Project Type (Status): Full-fledged development (Report)
- Project Domain: Human rights
- Project Website (links): [www.undocs.org/A/HRC/49/52](http://www.undocs.org/A/HRC/49/52)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ms Beatriz Balbin Chamorro, Chief, Special Procedures Branch ([beatriz.balbin@un.org](mailto:beatriz.balbin@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### **Project 16: Human Rights Council report of the Special Rapporteur on extreme poverty and human rights on the non-take-up of rights in the context of social protection (A/HRC/50/38)**

The Special Rapporteur notes that automation of benefits, by reducing administrative complexity for potential recipients, can reduce “non-take-up”, a phenomenon where social protection benefits often go unused even though they are designed to protect individuals throughout their lives. At the same time, the Special Rapporteur highlights that automation carries risks of exclusion for the most vulnerable groups, including people unregistered at birth, undocumented migrants, individuals without a fixed address, or informal workers.

- Project Type (Status): Full-fledged development (Report)
- Project Domain: Human rights
- Project Website (links): [www.undocs.org/A/HRC/50/38](http://www.undocs.org/A/HRC/50/38)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ms Beatriz Balbin Chamorro, Chief, Special Procedures Branch ([beatriz.balbin@un.org](mailto:beatriz.balbin@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

### **Project 17: UN General Assembly report of the Special Rapporteur on extreme poverty and human rights on digital welfare states and human rights (A/74/493)**

In the context of greater digitization of social protection and assistance systems and the increasing role played by automated decision-making through the use of algorithms and artificial intelligence in such systems, the Special Rapporteur warns of a digital welfare dystopia and recommends that rather than obsessing about fraud, cost savings, sanctions, and market-driven definitions of efficiency, the starting point should be on how welfare budgets could be transformed through technology to ensure a higher standard of living for the vulnerable and disadvantaged.

- Project Type (Status): Full-fledged development (Report)
- Project Domain: Human rights
- Project Website (links): [www.undocs.org/A/74/493](http://www.undocs.org/A/74/493)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ms Beatriz Balbin Chamorro, Chief, Special Procedures Branch ([beatriz.balbin@un.org](mailto:beatriz.balbin@un.org)); Mr Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Human Rights Committee

### Project 18: General comment No. 37, Article 21: Right of peaceful assembly

The General Comment No. 37 on the right of peaceful assembly was adopted on 23 July 2020 during the 129th online session of the Human Rights Committee. The General Comment addresses extensively question linked to the use of digital technologies, including AI-based tools, both by organizers of and participants in assemblies and state authorities.

- Project Type (Status): Full-fledged development (Other)
- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/EN/HRBodies/CCPR/Pages/GCArticle21.aspx>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ibrahim Salama, Chief, Human Rights Treaties Branch ([ibrahim.salama@un.org](mailto:ibrahim.salama@un.org)); Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Committee on the Rights of the Child

### Project 19: Committee on the Rights of the Child - General Comment No. 25: Children's rights in relation to the digital environment

The General Comment No. 25 on children's rights in relation to the digital environment was adopted on 2 March 2021 during the 131<sup>st</sup> session of the Human Rights Committee. The General Comment lays out how States parties should implement the Convention in relation to the digital environment and provides guidance on relevant legislative, policy and other measures to ensure full compliance with their obligations under the Convention and the Optional Protocols in light of the opportunities, risks, and challenges in promoting, respecting, protecting and fulfilling all children's rights in the digital environment.

- Project Type (Status): Full-fledged development (Other)
- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/EN/HRBodies/CRC/Pages/GCChildrensRightsRelationDigitalEnvironment.aspx>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ibrahim Salama, Chief, Human Rights Treaties Branch ([ibrahim.salama@un.org](mailto:ibrahim.salama@un.org)); Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Committee on the Elimination of Racial Discrimination

### Project 20: Committee on the Elimination of Racial Discrimination: General comment No. 36: preventing and combating racial profiling by law enforcement officials

The General Comment No. 36 on preventing and combating racial profiling by law enforcement officials was adopted on 17 December 2020 during the 102<sup>nd</sup> session of the Human Rights Committee. The General Comment focuses on algorithmic decision-making and AI in relation to racial profiling by law enforcement officials, and has observed that the increasing use of new technologies, including AI, has the potential to deepen racism, racial discrimination,

xenophobia and other forms of exclusion. focuses on algorithmic decision-making and AI in relation to racial profiling by law enforcement officials.

- Project Type (Status): Full-fledged development (Other)
- Project Domain: Human rights
- Project Website (links): <https://www.ohchr.org/EN/HRBodies/CERD/Pages/GC36.aspx>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contacts: Ibrahim Salama, Chief, Human Rights Treaties Branch ([ibrahim.salama@un.org](mailto:ibrahim.salama@un.org)); Scott Campbell, Senior Human Rights Officer ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## 2. Related Sustainable Development Goals

SDGs 1, 2, 3, 7, 9, 10, 11, 13, 16 and 17

## 3. Relevant Links

<https://www.ohchr.org/EN/pages/home.aspx>

Contact Information: Mr. Scott Campbell ([scott.campbell@un.org](mailto:scott.campbell@un.org))

## Office of the Secretary-General's Envoy on Technology



**United Nations**

Office of the Secretary-General's Envoy on Technology

### 1. Description of Activities on AI

- Project: Secretary-General's Advisory Body on Global AI Cooperation Project Description: As part of the follow-up to the Secretary General's Roadmap for Digital Cooperation, the Office of the Secretary-Generals' Envoy on Technology is coordinating the implementation of the Secretary-General's proposal to establish a multi-stakeholder advisory body on global artificial intelligence cooperation. The body will provide guidance on artificial intelligence that is trustworthy, human-rights based, safe and sustainable, and promotes peace. The advisory body will bring a diverse group of relevant entities in the AI landscape, including experts, scientists and academia, to address issues around inclusion, coordination, and capacity-building by sharing and promoting best practices, as well as exchanging views on artificial intelligence standardization and compliance efforts.
- Project Type/Output: Policy Framework
- Project Status: Development
- Project Start Year: June 2020
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: All Project Domains, as part of overall effort to strengthen
- Data Source: Various.
- Related Sustainable Development Goals (SDGs) : SDG 1 - No Poverty; SDG 2 - Zero Hunger; SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 6 - Clean Water and Sanitation; SDG 7 - Affordable and Clean Energy; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 13 - Climate Action; SDG 14 - Life Below Water; SDG 15 - Life on Land; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: Various
  - Private Sector: Various
  - Civil Society: Various
  - Academia: Various
- Links: <https://www.un.org/techenvoy/content/artificial-intelligence>

### 2. Related Sustainable Development Goals

SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17

### 3. Relevant Links

<https://www.un.org/techenvoy/>

## United Nations Global Pulse



### 1. Description of Activities on AI

#### Project 1: Operational response simulation tool for epidemics in refugee and IDP settlements

- **Project Description:** The spread of infectious diseases presents many challenges to healthcare systems across the world. Given their density and available infrastructure, refugee and internally displaced person (IDP) settlements can be particularly susceptible to the dangers of disease spread.

Since the beginning of 2020, we have been working with public health decision-makers to seek to understand how COVID-19 spreads in these settlements. We initially focussed our efforts on the Cox's Bazar settlement in Bangladesh, working with teams from UNHCR and WHO, and have since performed modeling of other settlements around the world. Our model simulates the movements and interactions of each individual in the settlement, incorporating information about family structures and demographic attributes, to understand how COVID-19 might spread under various intervention strategies and scenarios.

During the height of the pandemic we worked on simulating the effects on public health interventions in settlements under different scenarios and assumptions. We are now focussing on robustly understanding plausible excess mortality rates in the Cox's Bazar settlement given newly available data collected by Community Health Workers. In addition, we are developing new methods for the collection of data on contact patterns between individuals in settlements - a crucial input to many epidemiological models, and an important data point for understanding disease transmission routes. We are currently working towards publishing, to the best of our knowledge, the first set of contact matrices for a refugee settlement.

With almost 80 million forcibly displaced people in the world, we hope that this work will inspire more modeling groups to focus on these vulnerable populations, which have been traditionally under-served by such efforts, to ensure no one is left behind. To this end, we have also been working with 18 different institutions, both from inside and outside the UN system, to form a community of practice around disease modeling in refugee and IDP settlements. This collaboration has led to a report documenting shared challenges as well as a global call to action.

- Department/Division: Executive Office of the Secretary General
- Project Type/Output: Academic paper/Software tool/Report
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: Ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Health, crisis response and humanitarian assistance
- Data Source: Census, epidemiological and survey data

- Publicly Available Data: Partially
- Technology/Platform: Python, Javascript, AWS
- Related SDGs: SDG 3 – Good Health and Well-being; SDG 10 – Reduced Inequality; SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: UNHCR Innovation, WHO, UNHCR, OCHA
  - Private Sector: IBM
  - Academia: Durham University, University College London, London School of Hygiene and Tropical Medicine, Massachusetts Institute of Technology, Delft University of Technology, University of Manchester
- Lessons Learned: People living in refugee and IDP settlements are highly vulnerable to disease spread, however, few modelling works exist which address these groups specifically. As part of forming a community of practice around this challenge, we have systematically documented our lessons learned as a collective in our group report. The link to this can be found below.
- Links:
  - <https://www.unglobalpulse.org/microsite/epidemic-modelling-in-settlements/>
  - <https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1009360>
  - <https://gh.bmj.com/content/7/3/e007822>
  - <https://epimodel.unglobalpulse.net>
- Contact information: Joseph Aylett-Bullock ([joseph@unglobalpulse.org](mailto:joseph@unglobalpulse.org))

## Project 2: Using Social Media Tools to Monitor and Fight the COVID-19 Infodemic

- Project Description: This project consists of two core components. First, in partnership with the WHO we have been conducting ongoing social media listening exercises in the Africa region. The data is explored and analyzed with the help of a third-party platform but we have developed a custom classifier to categorize mentions as positive or negative from the perspective of the WHO. UN Global Pulse has produced over 40 reports to assist WHO AFRO in monitoring its brand and understanding the conversations associated with COVID-19 and poliovirus.

Second, in collaboration with WHO we are supporting a team from Stanford University which aims to test interventions to reduce vaccine hesitancy among social media users. Machine learning will be used to segment users into different vaccine hesitancy types based on their responses to an online chatbot survey, and a contextual bandits experiment will be used to dynamically assign personalized treatments to reduce vaccine hesitancy according to the user type.
- Department/Division: Executive Office of the Secretary General
- Project Type/Output: Report
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: Ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Health, misinformation
- Data Source: Our social media listening relies on data collected from platforms such as Twitter, blogs, and news media. The research on reducing vaccine hesitancy uses survey/chatbot log data collected through engagement with participants on Facebook.
- Publicly Available Data: No

- Technology/Platform: Our social media listening exercise adopts an AI-driven approach supported by a commercially available consumer research tool with a human in the loop to manually validate the performance of the tool and provide contextual insights.  
The vaccine hesitancy interventions will be deployed using the Facebook platform (Facebook ads will be used to recruit respondents, and Facebook messenger will be used to implement the surveys and treatments).
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being
- Partnership(s)/Collaborator(s):
  - UN Partners: UN Global Pulse, World Health Organization
  - Academia: Stanford University Golub Capital Social Impact Lab (research collaborator)
- Lessons Learned: Lessons learned from the social media listening exercise include the importance of clearly defining project objectives, the intended use of the data, timeframe, and a taxonomy at the start of the project in order to effectively filter the vast quantity of social media data into a useful product. At the same time, adopting an iterative approach was important for improving the sensitivity and specificity of the taxonomy as well as the ability of the analysis to address the questions most important to the WHO.  
While the social media analysis process has been simplified by the use of a third-party tool, the setup, monitoring and analysis steps are still very labor intensive. Automatic tools are not without flaws, which reinforces the importance of having a human in the loop to validate the findings. Challenges included the “black-box” nature of the third party tool’s algorithms and the need to define a custom classifier because the tool’s built-in sentiment analysis failed to capture some of the nuances of interest.
- Contact information: Katherine Hoffmann Pham ([katherine@unglobalpulse.org](mailto:katherine@unglobalpulse.org))

### Project 3: A computational framework for predictive modeling of refugee and IDP movements

- Project Description: Predicting forced displacement is an important undertaking of many humanitarian aid agencies, which must anticipate flows in advance in order to provide vulnerable refugees and Internally Displaced Persons (IDPs) with shelter, food, and medical care. While there is a growing interest in using machine learning to better anticipate future arrivals, there is little standardized knowledge on how to predict refugee and IDP flows in practice. Researchers and humanitarian officers are confronted with the need to make decisions about how to structure their datasets and how to fit their problem to predictive analytics approaches, and they must choose from a variety of modeling options. In an academic paper and an accompanying set of practitioner-focused “modeling cards”, we attempt to facilitate a more comprehensive understanding of this emerging field of research by providing a systematic model-agnostic framework, adapted to the use of big data sources, for structuring the prediction problem.
- Department/Division: Executive Office of the Secretary General
- Project Type/Output: Policy Framework/Academic paper
- Project Status: Completed
- Project Start Year: 2020
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Human Rights, Forced displacement
- Related Sustainable Development Goals (SDGs): SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s)
  - UN Partners: UNHCR

- Links:
  - <http://unglobalpulse.net/predictingdisplacement/>
  - <https://www.tandfonline.com/doi/abs/10.1080/1369183X.2022.2100546>
- Lessons Learned: The field of predictive analytics for humanitarian response is still at a nascent stage, but due to growing operational and policy interest we expect that it will expand substantially in the coming years. In the course of preparing this framework, we have found that relatively little is known about the structure of this prediction problem at the high level, and that there are a number of big-picture questions for which we lack empirical evidence, such as: how far in advance displacement can be predicted; how much data is needed to train effective models; and whether models transfer across borders and humanitarian settings. We hope that this framework will help to encourage future research on these questions; facilitate comparisons between existing models; and spark a broader discussion on best practices for predicting forced displacement.
- Contact information: Katherine Hoffmann Pham ([katherine@unglobalpulse.org](mailto:katherine@unglobalpulse.org))

#### **Project 4: PulseSatellite: A collaboration tool using human-AI interaction to analyse satellite imagery**

- Project Description: Humanitarian response to natural disasters and conflicts can be assisted by satellite image analysis. In a humanitarian context, very specific satellite image analysis tasks must be done accurately and in a timely manner to provide operational support. PulseSatellite is a collaborative satellite image analysis tool which leverages neural network models that can be retrained on-the-fly and adapted to specific humanitarian contexts and geographies. The tool grew out of a long standing collaboration with UNOSAT which began by building an AI model for counting structures in refugee and IDP settlements. This was then expanded to a web-based toolkit - PulseSatellite - that can be easily adapted to other remote sensing applications and which allows for the incorporation of models created by other users. Currently, we have three models loaded into the system - one that allows users to map structures in refugee settlements, a roof density detection model (e.g. for slum mapping), and a flood mapping application. PulseSatellite is now open for use by other UN agencies.
- Department/Division : Executive Office of the Secretary General
- Project Type/Output: Academic paper/Software tool
- Project Status: Ongoing
- Project Start Year: 2017
- Project End Year: Ongoing with various UN partners on a needs-based system
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: Over the past year we have continued to work with UNOSAT to develop and improve on the machine learning models included in the PulseSatellite tool. A particular focus has been on rigorous testing of the flood mapping capabilities of the tool by testing the model in a variety of settings. The model has been used to produce the UN's first AI generated flood maps which have been used in operational contexts, and has now been deployed in many countries across the world.

We are also working closely with UNOSAT to develop benchmark datasets for shelter (refugee camp) mapping, building footprint detection and damage assessment. We plan to use these to test many of the available well trained and top-performing models, but in the context of UN-focused datasets (e.g. with more of a Global South and development context than many of the standard machine learning benchmarks) and make this available as a service to the UN system.

In addition, we are working with WHO and UNOSAT, alongside the US CDC, to develop methods for rapid estimations of population counts in refugee camps for use in public health programming, such as inputs to computational disease models as well as for resource planning.



- Project Domain: Crisis response and humanitarian assistance
- Data Source: Satellite data
- Publicly Available Data: No
- Technology/Platform: Python, Javascript, TensorFlow, PyTorch, Keras, AWS
- Related Sustainable Development Goals (SDGs): SDG 10 Reduced Inequality; SDG 13 Climate Action; SDG 17 Partnership for the Goals
- Partnership(s)/Collaborator(s)
  - UN Partners: UNOSAT, WHO
  - Public sector: US CDC
  - Academia: Durham University
- Links:
  - <https://www.unglobalpulse.org/microsite/pulsesatellite/>
  - <https://ojs.aaai.org/index.php/AAAI/article/view/7101>
- Lessons Learned: Operational contexts are rapidly changing, meaning that AI models may not always perform well. Through using a human-in-the-loop approach we have found that models can be adapted to such changing settings, however, this still requires (sometimes significant) manual intervention from analysts. In addition, there are various workflows which have been more tailored to AI models but which do not always follow the workflow of satellite image analysis using our tool. In future work we will continue to work with end users to test and help refine PulseSatellite. We will also expand into more applications, and continue to open PulseSatellite as a tool to agencies across the UN system.
- Contact information: Tomaz Logar ([tomaz@unglobalpulse.org](mailto:tomaz@unglobalpulse.org))

### Project 5: Online radio monitoring for public health social listening and beyond

- Project Description: Radio remains the most reliable and affordable medium of accessing and sharing information in most of the developing world. Indeed, studies have shown that radio remains more prevalent as a means of communication in many parts of the world than social media. Since 2019, UN Global Pulse has worked with the WHO to explore the use of data from radio talk shows to signal early warnings of health risks and health-related matters. We have developed a radio monitoring pipeline which can 'listen' to online radio stations, transcribe the audio using machine learning speech-to-text models, and analyse the content using a series of NLP methods for display in a frontend dashboard. The dashboard was designed to be used by infodemic managers and decision makers to inform public health interventions and communication strategies. However, we aim to convert it into a generally applicable radio mining tool that can be used in a variety of settings.
- Department/Division : Executive Office of the Secretary General
- Project Type/Output: Academic paper/Dataset/Software tool
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: This year, we have continued to provide insights from radio data to the WHO as part of the Africa Infodemic Response Alliance. Through partnerships, we are currently working to adapt the dashboard to conduct radio monitoring in a wide range of additional application contexts, ranging from gender stereotypes and xenophobia to preparedness for environmental disasters. We are also independently conducting research on mentions of hate speech in a global sample of radio data.

- Project Domain: Telecommunications
- Data Source: Radio data from online stations
- Publicly Available Data: Yes
- Technology/Platform: Python, Spacy, Gensim, Plotly Dash, AWS
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-being; SDG 10 - Reduced Inequality; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s)
  - UN Partners: WHO, UNDP Accelerator Labs, UN Women
- Links: <https://www.unglobalpulse.org/2021/05/who-and-un-global-pulse-are-building-a-social-listening-radio-tool-to-aid-the-covid-19-infodemic-response/>
- Lessons Learned: One of the technical challenges encountered has been the wide variability in the quality of speech-to-text machine learning models when applied to speakers of the same language but with different accents. We have worked to find diverse training datasets to fine tune existing language models and performed benchmarking tests to find the most generalisable approach. We have also conducted user testing of the dashboard with WHO infodemic managers, which helped shape the development of the tool. In the future we also hope to be able to plug in our radio data to existing WHO analysis tools such as EARS and EIOS, as well as to transfer the technology for radio analysis to other partners for use in different contexts.
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### **Project 6: Imagining post-Covid-19 UN: foresight for organizational realignment and adaptation**

- Project Description: Through its SG Lab Futures Initiative, UN Global Pulse fostered a strategic foresight exercise and dialogue to frame the role of the UN post-COVID-19 through scenarios and future visioning. The activity leveraged partnerships with two private sector entities to access AI tools as a backbone for foresight research, including scenario building to support the UN leadership in accessing the futures and foresight capacity.
 

The purpose of the exercise is to systematically analyze the driving forces and future trends underpinned by the COVID-19 pandemic, synthesizing them into alternative futures scenarios. The scenarios provided a framework for discussing implications for the UN long-term, including country-level operations.
- Project Type/Output: Seminar/meeting/Strategic dialogue
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2021
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Strategic transformation and planning
- Data Source: 1. Horizon scanning included a combination of structured and unstructured qualitative data collected from web scraping and uploaded documentation to customize an internal search engine functionality. 2. Social media analysis
- Publicly Available Data: No
- Technology/Platform: IBM Watson
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-being; SDG 8 - Decent Work and Economic Growth; SDG 10 - Reduced Inequality; SDG 13 - Climate Action; SDG 16 - Peace, Justice, and Strong Institutions;SDG 17 Partnership for the Goals

- Partnership(s)/Collaborator(s):
  - UN Partners: HLCP foresight network, UNESCO, WHO
- Lessons Learned:
  1. Introducing the benefits of new methodologies and mixed methods approaches to foresight takes time and engagement with the stakeholders.
  2. Blending qualitative and quantitative data in foresight analysis can help contextualize and provide a broader understanding of long-term challenges within a system.
  3. Applying AI tools developed for commercial purposes in the UN context requires collaboration from a multi-disciplinary team from both sides.
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### Project 7: Understanding population movement related to COVID-19 border closures

- Project Description: UN Global Pulse and UNHCR are working to calculate and anticipate the number of displaced persons a) that have already crossed the Brazil-Venezuela border and b) that can potentially cross in order to understand their need for humanitarian support and overall strengthen protection efforts. This project consists of: (i) a queue modeling tool for simulating border crossings under different conditions, (ii) a nowcasting effort to calculate the amount of urban population and potentially identify interest in population movements to Brazil using big data sources, and (iii) predictive models for forecasting future arrivals/population movements.
- Project Type/Output: Report/Interactive dashboard tool
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Migration
- Data Source: We draw on a range of traditional and nontraditional data sources, including: Twitter and Facebook data; Google trends and Google mobility data; radio data; conflict data from ACLED; data on COVID cases, deaths, and symptoms; economic indicators; and data on arrivals from UNHCR.
- Publicly Available Data: No
- Technology/Platform: The data cleaning and modeling pipeline is primarily coded in Python and stored in Jupyter notebooks. Some scripts have been written in R. The code is stored on Github. The front-end dashboard has been coded with Plotly Dash.
- Related Sustainable Development Goals (SDGs): SDG 3 Good Health and Well-being and SDG 10 Reduced Inequality
- Partnership(s)/Collaborator(s):
  - UN Partners: UN Global Pulse, UNHCR
- Links:
  - <https://www.unglobalpulse.org/project/understanding-population-movement-from-venezuela-to-brazil-related-to-covid-19-border-closures/>
  - <https://brazil-venezuela-flows.unglobalpulse.net/>
  - <https://medium.com/unhcr-innovation-service/predicting-the-unpredictable-preparing-for-potential-future-scenarios-1b22cd7f8da2>
- Lessons Learned: One of the core challenges to prediction/forecasting/nowcasting is that there is a large period of unusual data from the COVID pandemic. At the time of this project, we could only make assumptions about how COVID-19 might have changed

population movement intentions, since we did not have reliable information on the extent of suppressed demand and the true number of people crossing illegally. We attempted to address these limitations by adapting our modeling approach. First, we developed a simulation tool for arrivals which does not rely on precise information about border crossings, but rather allows decision-makers to experiment with a variety of assumptions about crossing volumes, the demand for shelters, and relocation capacity. Second, we are conducting ongoing data collection to “nowcast” potential border flows in real time. Finally, we tested a range of different arrivals forecasting models, comparing predictions across methods and developing uncertainty estimates for each model.

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### Project 8: Ukraine response - Data Science Cell

- Project Description: In response to the Ukraine crisis there were many actors in the data science space who were providing support and performing analysis to inform the response efforts of the UN. Early in the crisis, we initiated a Data Science Cell to bring together entities from across the UN system to coordinate and collaborate on these topics. The cell has grown to over 60 members from over 15 institutions. The cell also has three subgroups: population estimation (facilitated by UNHCR and IOM); socioeconomic impacts (facilitated by the World Bank-UNHCR Joint Data Center on Forced Displacement); and situational awareness (facilitated by UNDP). These subgroups are currently being used as spaces for focused interagency collaboration on these topics.
- Project Type/Output: working group
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: Ongoing based on need
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Crisis response and humanitarian assistance
- Data Source: Varied
- Publicly Available Data: Mixed
- Technology/Platform: Varied depending on use case
- Related Sustainable Development Goals (SDGs): 10 (Reduced Inequality), 16 (Peace, Justice and Strong Institutions), 17 (Partnerships for the Goals)
- Partnership(s)/Collaborator(s):
  - UN Partners: UNHCR, OCHA, World Bank, UNHCR-World Bank JDC, UNICEF, IOM, WFP, UNDP, WHO, UNOCC, UNOSAT, WTO, UNFPA, IFAD
  - Non-UN Partners: NRC/DFS, Oxford University, QCRI, ACAPS
- Lessons Learned: Data science is being used in a vast number of ways across the UN system to respond to crises and humanitarian emergencies. There was and is a strong desire to collaborate among institutions to build better systems and overcome challenges. As a community we hope to release a report outlining our shared challenges and lessons learned throughout our response to the Ukraine crisis, which we aim to use as a foundation for continuing to improve the data science community's crisis responses in the future.
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### Project 9: Data Science Cell subgroup - situational awareness

- Project Description: Situational awareness can be broadly defined as the “knowledge, understanding and anticipation of a situation through monitoring and reporting of current events, analysis and predictive assessments” (2019 DPO JOCs). As part of the data science cell, one of the three subgroups is looking at understanding and developing data science

methods for improved situational awareness during a crisis, based on our experience in responding to the Ukraine crisis. We are currently focussed on damage assessment, conflict monitoring and understanding the affected geography in the first month and then the first six months of a crisis. We hope to produce a literature review of current methods, conduct an analysis of where gaps in this literature exist, and work towards developing methods to address these gaps. This subgroup is facilitated by UNDP, and UN Global Pulse is a member of the group.

- Project Type/Output: working group
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Crisis response and humanitarian assistance
- Data Source: Varied
- Publicly Available Data: Mixed
- Technology/Platform: Varied depending on use case
- Related Sustainable Development Goals (SDGs): 10 (Reduced Inequality), 16 (Peace, Justice and Strong Institutions), 17 (Partnerships for the Goals)
- Partnership(s)/Collaborator(s):
  - UN Partners: UNDP, UNOSAT, UNICEF, UNOCC
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### Project 10: Spotlight Initiative - Mining Gender Perceptions from Public Radio Discussions

- Project Description: UNGP in Kampala is using its AI-powered public radio social listening tool to mine data on perceptions around Gender Based Violence (GBV), Violence Against Women and Girls (VAWG), Harmful Practices (HP), Sexual Reproductive Health Rights (SRHR), and Violence Against Children (VAC) in Uganda. This data source complements perception surveys but provides the present state of affairs and the evolving context of violence against women and girls in the community to allow for timely and targeted interventions. Following engagements with the Recipient UN Organizations (RUNOs), the team of data analysts at UNGP in Kampala registered the following achievements:
  - Maintained the radio flow from 22 radio stations broadcast in Luganda covering Kampala and its surrounding districts.
  - Defined a detailed taxonomy of keywords to mine relevant data and defined a tagging taxonomy (capturing perpetrators, victims, and violence types).
- Department/Division: Executive Office of the Secretary General
- Project Type/Output: Dashboard/Report
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: Ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: Biweekly dashboard updates are produced by UNGP and shared with stakeholders to inform their programming.
- Project Domain: Telecommunications
- Data Source: Radio data from FM stations
- Publicly Available Data: No

- Technology/Platform: Python, Bash, AWS, My SQL, PHP, HTML, Ruby, C++
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality and SDG 10 - Reduced Inequality
- Partnership(s)/Collaborator(s)
  - WHO, MGLSD, UNICEF, UN RCO, UN WOMEN, UNFPA and Ministry of Gender Labour and Social Development in Uganda
- Links: <https://www.unglobalpulse.org/project/ending-violence-against-women-and-girls-in-uganda/>
- Lessons Learned: Radio remains the most popular source of information in Uganda, used by different people irrespective of their demographics. For example, according to the Spotlight Initiative's baseline report in 2020 the majority of respondents (70.8% of women and 73.3% of men) received information on VAWG/HPs and SRHR through radio. Radio shows allow two-way communication between radio studios and people in the community through call-ins, making them a rich representation of the people that are digitally marginalized.

### Project 11: Developing Ethical AI Frameworks and Data Exchanges for Uganda and Ghana

- Project Description: AI and other emerging technologies present opportunities for the achievement of national priorities and to increase national and regional welfare. To realize these opportunities, and to safeguard against risks and potential harms, key foundations need to be put in place, such as access to data (a.o., to train AI), and the development and use of emerging technologies need to be guided by ethical rules and principles. UNGP has been supporting the Government of Ghana and the Government of Uganda on developing solutions to address these two issues. This support has led to the development, in each country, of a Roadmap for an Ethical AI Framework informed by the local social and societal context, and a Roadmap for the development of Community-Centric Data Exchanges at the national level.
- Department/Division: Executive Office of the Secretary General
- Project Type/Output: Ethical AI Framework, and community-centric Data Exchange Roadmap to unlock data as a resource for the attainment of national and regional priorities (each for both Uganda and Ghana).
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: The recommendations made in the Ethical AI Framework and the data exchange roadmap are being used to inform the follow-up work in developing a data strategy for Uganda and implementing a use case of the data exchanges focusing on the tourism sector. Both projects are underway.
- Domain: Digital technologies
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth; SDG 12 - Responsible consumption and Production; SDG9 - Industry, Innovation and Infrastructure(each for both Uganda and Ghana), SDG11 - Sustainable Cities and Communities
- Partnership
  - Government: Government of Uganda (Ministry of ICT and National Governance)

## 2. Related Sustainable Development Goals

SDG 3, 8, 10, 13, 16, and 17

## 3. Relevant links

<https://www.unglobalpulse.org/>

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## United Nations Human Settlements Programme



### 1. Description of Activities on AI

#### Project 1: AI in Cities: Risks, Applications and Governance

- Project Description: UN-Habitat has collaborated with [Mila](#) to produce a policy paper on the application of artificial intelligence in urban contexts. The paper [AI in Cities: Risks, Applications and Governance](#), takes a risk-based approach highlighting the risks of AI throughout its lifecycle and application in cities. The report first describes AI, its different types, the opportunities it offers for cities, and its current limitations. It identifies key sectors for intervention for cities, along with examples of AI applications within each of those sectors. The report then presents a detailed risk assessment framework with reflective guiding questions. Finally, the report offers a set of recommendations and areas of action to consider when developing an AI strategy.
- Department/Division: Knowledge & Innovation Branch
- Project Type/Output: White paper
- Project Status: Published
- Project Start Year: 2021
- Project End Year: 2022
- Project Domain: Human Rights, Environment
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities
- Partnership(s)/Collaborator(s)
  - Civil Society: MILA
- Related Sustainable Development Goals: SDG 11
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#### Project 2: International Guidelines on People-Centred Smart Cities

- Project description: Member states adopted the resolution mandating UN-Habitat to develop International Guidelines on People-Centered Smart Cities in June 2023 at the UN-Habitat Assembly in its second session. The process will culminate in the development of [International guidelines on people-centered smart cities](#) which will address key areas of technology application in cities requiring international guidance, due to normative gaps. Among the areas to be tackled, AI and new technologies are specifically mentioned as in need to be regulated by international non-binding frameworks that can be used by



national and local policy-makers to ensure cities and technologies used are really built in a people centered fashion.

Strong emphasis is also put on the importance to preserve citizens right to privacy both online and offline, while building the capacity of policy makers to ensure there is enough understanding about the risks and opportunities related to the new technologies. In leading on the development of the guidelines, UN-Habitat will build on existing work and data collected through the AI need assessment, the global smart cities governance study and others, and is currently organizing global, regional, thematic and stakeholder consultations as the basis of the guidelines development process.

- Department/Division: Knowledge & Innovation Branch
- Project Type/Output: International guidelines
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2025
- Project Domain: Human Rights, Environment
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities
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### Project 3: AI for people-centered smart cities workstream in the UN inter-agency working group on AI

- Project Description: In early 2022, a new workstream on AI for people-centered smart cities, co-chaired by UN-Habitat ITU, UNESCO, and UNDP, was established in the UN's Inter-agency working group on AI. The objectives of the workstream are to understand the needs of cities and the capabilities of UN System organizations in relation to AI, and how to leverage AI for people-centered smart cities while promoting ethical guidelines for AI that are human-rights based, strengthening inter-agency cooperation, and implementing key performance indicators and other metrics to ensure that these values are respected. Currently, the project is kicking off a global assessment of responsible AI use in cities to map out the opportunities and constraints for local governments to responsibly use, implement and govern AI technologies in cities.
- Department/Division: Knowledge & Innovation Branch
- Project Type/Output: Reports
- Project Status: Development
- Project Start Year: 2022
- Project End Year: 2023
- Project Domain: Human Rights, Environment
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities
- Partnership(s)/Collaborator(s)
  - UN Agencies: UNDP, ITU, UNESCO
  - Civil Society: IDRC, UNU-E-GOV, U4SSC, CC4DR
- Related Sustainable Development Goals: SDG 11

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#### Project 4: Global Assessment of Responsible AI in Cities

- Department/Division: Knowledge & Innovation Branch
- Project Type/Output: Reports
- Project Status: Development
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Human Rights, Environment, Strategies, Capacity Building
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities
- Partnership(s)/Collaborator(s)
  - UNU-E-GOV
  - Civil Society: IDRC - International Development Research Centre
- Related Sustainable Development Goals: SDG 11
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#### Project 5: BEAM: Building & Establishment Automated Mapper: Mapping informal settlement in eThekweni, South Africa

- Project Description: The city of eThekweni has the largest number of informal settlements of any municipality in South Africa. To keep track of the fast changes in the built environment and develop a pipeline of public service delivery and upgrading projects, it is essential that the city has access to evidence-based information. That requires up-to-date records, particularly on the scale, location, and number of informal areas.

To assist the eThekweni's Human Settlement Unit (HSU) in automating their building mapping process, United Nations Technology Accelerator for Cities (UNITAC) developed BEAM, a model that uses machine learning to radically accelerate the spatial recognition of settlements and building structures on aerial imagery. BEAM can mark pixels specific to a building's spectral profile with an accuracy of 94%. It looks to provide HSU with up-to-date geo-referenced base maps.

In addition to the tool development, there will be a technology and knowledge transfer component. This capacity-building process aims to enable the eThekweni Municipal Government to leverage BEAM to more effectively target their upgrading and basic urban service delivery interventions. A project advisory group has been established to address the BEAM's potential risks, challenges, and opportunities.
- Department/Division: UNITAC Hamburg (linked to UN-Habitat's Flagship II Program: People Centered Smart City)
- Project Type/Output: Application Tool & Manual; Academic Paper; Project Advisory Group; External Communications, including blog posts and video content
- Project Status: Ongoing
- Project Start Year: 2021
- Project Domain: <https://unitac.un.org>

- Data Source:
  - Population demographics: 580 urban informal settlements encompassing 314,000 household
  - Geography: South Africa
  - Locations: eThekweni
- Link to data: Aerial photography is provided by the city
- Data publicly available: Not yet
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities, SDG 9 – Industry Innovation and Infrastructure, SDG 10 Reduce Inequalities, and SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s)
  - UNITAC partnership between the United Nations Human Settlements Programme (UN-Habitat), the United Nations Office for Information and Communication Technology (OICT), and HafenCity University
  - Human Settlement Department, City of eThekweni, South Africa
- Relevant Links and Multimedia:
  - [Using Artificial Intelligence for better city planning](#)
  - [Leveraging local expertise to enhance urban sustainability with BEAM](#)

• Lesson Learned:

Perception of AI in the Field of Informality

Mapping a community inherently makes it “legible” to public authorities. Doing so can have tremendous advantages for the planning and allocation of critical public health and infrastructure services, especially in slum settlements. However, such data collection must respect both the privacy of residents and their unique cultural dynamics. Similar initiatives need to ensure that all developed tools adhere to United Nations Human Rights guidelines. The legal agreements with project partners, including MoUs and NDAs, need to have clauses on human rights and social safeguards that denote language, such as that the data and results produced by the tool will not negatively impact people on the ground. It is vital to integrate within the project objective, the understanding that such tools are only to be used towards the upholding of rights and freedoms of all.

Without a doubt, such initiatives should be communicated openly and transparently to the public. A Community of Practice or Project Advisory Committee should be established to bring diverse perspectives on project development and implementation. At the same time, communication for #tech4good initiatives needs to be considerate of public perception and biases toward AI solutions, so that there are no misinterpretations of project objectives

Knowledge Transfer and Training Sessions can be Difficult

The tool was co-designed with project partners. However, knowledge transfer and training sessions can become difficult in the long run. Long-term hosting and maintenance of the tool require ongoing resources for cloud computing and HR. The cost may exceed the project’s lifetime. There is a risk that this tool cannot be ensured in the long run.

The Model needs to be Re-trained for New Cities

A key limitation for project upscaling is that the tool needs to be re-trained for each city. In addition to limited personnel, another challenge is access to geospatial images. BEAM currently relies on aerial photography. However, not every city has access to or can afford frequent aerial images. An alternative will be the use of satellite imagery. Not only are satellite images available on numerous platforms, but using them will also be

advantageous during the project upscaling phase, where some cities may not have the capacity to produce aerial imagery.

BEAM tool is currently being piloted in 8 cities in Central America.

Unfortunately, high-resolution (ideally 1m Ground Sampling Distance or below), freely-accessible satellite images are not always easily attainable. As such, it is worthwhile to consider the possibility of merging multiple sources and types of geospatial images.

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### **Project 6: Hola ISUD plan (Integrated Strategic Urban Development Plan for Hola Town, Tana River County, Kenya).**

- Project description: UN-Habitat in collaboration with UNEP (UN Environment Programme) is committed to supporting the preparation and elaboration of the Hola ISUD, with a strong link between urbanization, biodiversity, and ecosystem services. The preparation of Hola ISUDP will form part of a larger territorial strategy: The Go Blue project, an Innovative Land-Sea Planning and Management for Sustainable and Resilient Kenyan Coast, which is a partnership between the EU (European Union) and the Government of Kenya to advance the blue economy agenda through coastal development. For the Hola ISUDP, AI was primarily used in the remote sensing process of extraction of land cover information from satellite imagery. Land cover is a key layer necessary to perform most of the GIS-based multicriteria analyses, helping to analyze a territory to detect historical changes and trends, particularly in a poor data environment, in which we mostly rely on information extraction from satellite imagery. The land cover layer was obtained through a supervised process of machine learning (considered as a subcategory of AI) applied to Copernicus Sentinel-2 imagery with 10 m resolution, by which the software is trained to recognize the different land cover classes (built up, tree cover, shrubland, agriculture, water, etc.). The creation of a high-quality land cover layer was critical to producing different analyses related to natural hazards like flooding vulnerability, drought potential, or land degradation, to take into consideration, among different other factors, the impact or influence of each type of cover on the specific hazard. Moreover, it was important for environmental assessments as biodiversity condition land cover change and ecosystem service value, as well as for multicriteria analyses aimed to assess the agriculture or urban development suitability. Therefore, we used two key open-source datasets originated through AI processes, to fill the data gap and to support different analyses and maps. The first one is the high-resolution density map provided by Facebook data for good in collaboration with CIESIN (Center for International Earth Science Information Network) of Columbia University. The map estimates the population at 30 x 30 m resolution for different categories (youth, elder, women, men). The data are generated by distributing the aggregate population data from the available census on building footprint and density extracted using advanced AI methodology. The data were used in the project to produce a population density map, to estimate the population affected by natural hazards, the amount of population served or unserved by public facilities, and to support strategic scenarios of growth and development. The second one is the open buildings dataset provided by Google, which produced a large dataset of 516 M buildings covering 64% of Africa extracted from high-resolution imagery in 2021, by applying AI. We used the buildings layer for different applications from the production of topographic maps to city scale and neighborhood strategic plans.
- Department/Division: UN-Habitat, Global Solution Division, Planning Finance and Economic Section (PFES)
- Project type/output: The main objective is to prepare the Integrated Strategic Urban Development Plan For Hola Town. The ISUDP is a document that will define a comprehensive long-term vision of the Municipality and guide sustainable urban development for the upcoming ten years.

- Project status: Completed
- Project start year: 2022
- Project end year: 2023
- Project domain: Urban planning and design, spatial analysis
- Data source: Google earth engine [https://developers.google.com/earth-engine/datasets/Open\\_buildings](https://developers.google.com/earth-engine/datasets/Open_buildings) [https://developers.google.com/earth-engine/datasets/catalog/GOOGLE\\_Research\\_open-buildings\\_v1\\_polygons](https://developers.google.com/earth-engine/datasets/catalog/GOOGLE_Research_open-buildings_v1_polygons)  
High-resolution density map: <https://dataforgood.facebook.com/dfg/docs/methodology-high-resolution-population-density-maps>
- Publicly available data: Yes
- Technology/Platform: ArcGis, Google Earth Engine
- Related SDGs: SDG 3 - Good Health and Well-Being; SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action
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## 2. Related Sustainable Development Goals

SDG 3, 9, 10, 11, 13, 17

## 3. Relevant Links

<https://unhabitat.org/>

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## United Nations World Tourism Organization



### 1. Description of Activities on AI

UN Tourism, the United Nations World Tourism Organization, works with Artificial Intelligence principally through providing opportunities for startups that are either primarily involved in this technology or utilise it in their solutions. Spanning several startup competitions powered by UN Tourism, up to 60 top solutions from 35 countries are engaged in emerging technologies directly relevant or adjacent to AI. They are being supported by the UN Tourism Innovation Network through connection to Member States and investors as well as training and development support. By doing so, the Organization enables the digitalization of the tourism sector and facilitates broader adoption of technologies worldwide for the benefit of local communities and the sector stakeholders.

#### Project 1: UN Tourism - Women in Tech Startup Competition Middle East 1st Edition

Countries across the Middle East have been integrating innovation and women empowerment within their long-term economic development plans. With women across the region becoming more interested in STEM degrees and launching startups, they need support and access to growth and funding opportunities. In this regard, the Women in Tech Startup Competition offers a platform for innovation opportunities in tourism for new entrepreneurs.

Categories:

- Tourism & Travel Experience (food and beverage, transportation and accommodation, travel, and retail industries)
- Social Impact (technology in wellness, health, urban development, rural development, sustainability, and education)
- Events & Community (social and messaging platforms, e-sports and gaming platforms, community-based applications, events-related platforms, and education technology)
- Future Tech (AI, AR/VR, crypto currency, internet of things, blockchain technology, digital twining and the metaverse)

This competition closed with a total of 143 applicants from 11 countries in the Middle East. All the winning startups of the competition were based off AI-solutions:

- [Sparkle Haze](#) (UAE): Award-winning voice AI assistant speaker for luxury hospitality.

- [Plastus Biotech](#) (KSA): Patented tech converts organic waste into 100% biodegradable bioplastic.
- [Fosha](#) (Egypt): AI-powered app for travel service bookings.
- [Xenios Academy](#) (UAE): AI powered EdTech startup with gamified training programs for cafes, restaurants, and hotels to bridge skill gaps.

Official website: <https://www.unwto.org/startup-competition/unwto-women-in-tech-middle-east>

## Project 2: UN Tourism - Awake Tourism Challenge

Following a careful evaluation process, 15 winners out of 2,000 participants from 120 countries were released. The majority of applications came from Africa, Europe and the Americas, and mainly from the Tourism Tech for Good and Local Community Involvement categories. Top ready-to-implement solutions have joined the UN Tourism Innovation Network and look forward to engaging projects all over the world.

Official website: <https://www.unwto.org/unwto-awake-tourism-challenge>

## Project 3: UN Tourism Online Academy

UN Tourism Online Academy continues to grow now offering 40+ courses from renowned universities and now introducing more content on technologies and their application to daily tourism and hospitality operations. Women account for 57% of the total of students.

Official website: <https://www.unwto-tourismacademy.ie.edu/>

## Project 4: ITU Focus Group on Metaverse and the UN Tourism Task Group on Metaverse Tourism

UN Tourism is vice-chair of the ITU Focus Group on Metaverse and leads the Task Group on Metaverse Tourism which attempts to compile a list of possible use cases and applications of technology in the tourism sector and to analyse whether there is a need for standards or guidelines. Recommendations are expected as outputs of the expert discussions.

Official website: <https://www.itu.int/en/ITU-T/focusgroups/mv/Pages/default.aspx>

## Project 5: Other UN Tourism Startup Competitions and Innovation Challenges

UN Tourism has developed additional programmes which identify startups with use cases of AI in different segments of the value-chain, tourism products, and destination types.

- **Event Tourism Startup Competition:** <https://www.unwto.org/startup-competition/mega-events-and-mice-tourism>
- **Startup Competition for Island Destinations:** <https://www.unwto.org/unwto-tourism-tech-adventures-canarias-2023>
- **Hospitality Challenge:** <https://www.unwto.org/startup-competition-tourism-technologies-solutions-in-hotels-new-business-models>
- **4<sup>th</sup> Global Gastronomy Tourism Startup Competition:** <https://www.unwto.org/startup-competition/4th-global-gastronomy-tourism-startup-competition>

## 2. Related Sustainable Development Goals

SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

## 3. Relevant Link

<https://www.unwto.org/>

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## United Nations Women



### 1. Description of Activities on AI

#### Project 1: Action Coalition for Technology and Innovation for Gender Equality

- **Project Description:** With the rapid digitalization of work, school and social life stimulated by the COVID-19 pandemic, the importance of technology and innovation to achieving gender equality and inclusive development have never been clearer nor more urgent.

From a gender perspective, specific applications of AI and machine learning have shown the greatest risks of bias and misuse, like facial recognition and deep fakes. The AI world today is almost entirely dominated by men and we find societal biases relating to gender roles and identities embedded in social programs and services via automated decision-making. Data modelling such as predictive policing or social intervention increasingly transcends the individual to focus on groups or communities, making women more at risks of being discriminated.

UN Women's role and mandate is to reaffirm the need to focus on diversity and inclusiveness when developing AI technologies. Ensuring that societal values are reflected in algorithms and AI technologies will require no less creativity, hard work and innovation than developing the AI technologies themselves.

In order to drive action and unite efforts from across governments, private sector and civil society, UN Women is convening partners working on gender and technology as part of the Generation Equality Forum. An Action Coalition focusing on innovation and technology will be launched in 2021 to generate innovative ideas for policies and initiatives needed to accelerate progress for more gender-responsive AI.

The Action Coalition will explore how to harness opportunities arising from the use of AI and overcome the challenges associated with algorithms. By breaking down silos and fostering collaboration through this new multi-stakeholder platform, the Coalition aims to inspire public and private partners to make strong and actionable commitments that will advance gender equality and women's rights.

- **Project Update:** The Generation Equality Forum, held in Mexico and Paris in 2021, resulted in the launch of the Action Coalition for Technology and Innovation for Gender Equality, to ensure women and girls have equal opportunities to safely and meaningfully access, use, lead, and design technology but also to ensure that building inclusive digital economies is at the core of the COVID-19 recovery efforts.

This initiative is open to world leaders and grassroots leaders equally, which makes it a unique space for co-creating innovative solutions and for generating bold and transformative commitments in the next five years.

The Coalition's Global Acceleration Plan recommend stakeholders to join efforts on four priorities:

- First, to prioritize initiatives that support digital access and the development of digital skills, to ensure equal use, creation and control of digital technology by women and girls.

- Second, to invest in feminist technology and innovation, to embed gender in tech development and create solutions that leverage technology for social impact.
- Third, to build inclusive, transformative and accountable innovation ecosystems that ensure women and girls' full participation in digital economy and society.
- And finally, to prevent and eliminate online and tech-facilitated GBV and discrimination to allow women and girls in all their diversity to use digital spaces safely. More than a thousand commitments and 40 billion dollars were pledged for Generation Equality, many originating from governments, civil society, international organizations, youth networks and companies engaged in building more inclusive and gender-transformative technology and innovation ecosystems. This resulted in commitments to improve regulatory frameworks, to systematize gender impact assessments and AI audits, to improve the availability of disaggregated data and to bridge the massive gender gap that currently exists in tech professions - and Artificial Intelligence in particular.

In 2024, the collective mobilization of the Action Coalition led to the launch of the Position Paper "Placing Gender Equality at the Heart of the Global Digital Compact" which includes recommendations on AI governance.

- Project Type/Output: Multi-stakeholder partnership
- Project Status: Ongoing
- Project Start Year: 2021
- End Year: 2026
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: Gender
- Related SDGs: SDG 4 - Quality Education, SDG 5 - Gender Equality; SDG 9 - Industry, Innovation, and Infrastructure; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: ITU, UNICEF
  - Government: Chile, Rwanda, Armenia, Tunisia, Finland
  - Private Sector: Salesforce, Microsoft, Koc Holding
  - Civil Society: A+ Alliance, Social Builder, Global Fund for Women, Digital Grassroots
- Links and Multimedia:
  - <https://techforgenerationequality.org/>
  - <https://forum.generationequality.org/action-coalitions>
  - <https://www.unwomen.org/en/get-involved/beijing-plus-25/generation-equality-forum>
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## Project 2: Women, Peace and Cybersecurity: Promoting Women's Peace and Security in the Digital World

- Project Description: UN Women ROAP has been conducting research in 2023 on the implications of AI, including leveraging AI, for the implementation of the Women, Peace and Security agenda in Southeast Asia, in partnership with United Nations University Institute (UNU) in Macau. The research has been conducted under a broader project on digital security in the context of the WPS agenda, "[Women, Peace and Cybersecurity: Promoting Women's Peace and Security in the Digital World](#)", in partnership with the Governments of the Republic of Korea and Australia. The project aims to ensure that women meaningfully participate in cybersecurity decision-making processes and online peacebuilding efforts, in the prevention of cybersecurity threats (including disinformation and hate speech) and cybercrimes, and contribute to reforming cybersecurity laws,

policies and norms, where emerging technologies such as AI plays an important part. In addition to developing research relating to AI, UN Women is also developing e-Learning and other training material to further disseminate the research findings using an interactive methodology. These materials are being developed in close collaboration with key regional civil society partners and digital rights experts.

The learnings from the research will continue to inform ROAP's WPS programming and peacebuilding work in the coming years, and will be shared with UN Women COs & HQ, other ROAP teams and the UN system.

- Project Status: The research report is currently going through the final stages of internal review and will likely be launched in May 2024. The broader project under which the aforementioned activities are conducted will conclude on 30 June 2024.
- Project Sector: Peace and Security
- Related Sustainable Development Goals (SDGs): SDG 16; SDG 5

### Project 3: Andi-the Chatbot

- Project Description: UN Women MCO Caribbean is supporting a registered charity in Trinidad and Tobago - the Coalition Against Domestic Violence (CADV), to pilot an AI online platform - "Andi the Chatbot", that will provide immediate information to connect victims and survivors of domestic violence and the public to protective and essential services in the country. The chatbot is intended to augment human support with its 24/7 availability, in addition to a locally operated helpline "800-SAVE". The project will be implemented by three collaborating institutions - the Coalition against Domestic Violence, The Shelter and The Andrea Project, all of whom are working with vulnerable communities affected by violence.
- Project Status: Andi-the Chatbot, will be launched in March 2024 and UN Women MCO Caribbean will be providing technical support for the development of the Chatbot as well as supporting a portion of the services required for its operationalization.
- Project Sector: Social services
- Related Sustainable Development Goals (SDGs): SDG5

## 2. Related Sustainable Development Goals

SDG 4, 5, 9 and 17

## 3. Relevant Link

<https://www.unwomen.org/en>

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## The Joint United Nations Programme on HIV/AIDS



### 1. Description of Activities on AI

#### Project: Global AIDS Monitoring and use of AI

- Project Description: Currently, the Global AIDS Monitoring (GAM) data collection is done through an [online reporting platform](#), and the data are published in the annual [Global AIDS Report](#) and on [AIDSinfo data visualization platform](#). Much of this work includes manual processing: data entry (country rapporteurs), data management and organization, validation and presentation/visualization (strategic information department, SID).

While the new UNAIDS strategy and targets outline far more detailed and broader data framework, it is anticipated that the burden on collecting, validating and analyzing the data is likely to increase both for country rapporteurs and UNAIDS. It is necessary to explore new ways of automating the data collation from publicly accessible sources and platforms, reducing the reporting burden on countries. Furthermore, with the increase in data, iterative yet fast cross-analysis and learning are required to identify issues such as inequities in services and affected communities, as well as the role of societal enablers affecting peoples access to the services they need.

Collecting data via GAM online reporting tool is currently the primary data acquisition mechanism for GAM. The data submitted through the platform, by the authorities from different countries, have to be inspected by experts of UNAIDS and partner organizations to ensure the correctness of information reported in GAM. Often the direct data collection is complemented by analysis of existing reports and journal articles. This requires searching and reading the requested pieces of information from lengthy documents within many different repositories. An intelligent search functionality implemented with state-of-the-art NLP AI models becomes an invaluable assistant.

The following AI-functionalities are required for GAM processes: prefilling GAM online reporting tool fields with specific automatically retrieved information; helping UNAIDS experts to quickly find the relevant information from auxiliary sources to validate the reported data; extracting the tables from various PDF documents to UNAIDS internal repository to enable efficient search with predefined keywords.

- UN Entity Name: UNAIDS
- Entity Name: UN Joint Programme on HIV and AIDS
- Department/Division: Strategic Information Department
- Project Type/Output: Dataset, The AI is intended to be used to improve data validation process and to enrich the dataset on AIDS.
- Project Status: Ongoing
- Project Start Year: 2021
- Projected End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: Project has started in September 2021 with an inception phase where the case scenarios and the applied methodologies are described, and the AI summarizer

content is defined. The inception phase IDs completed by end October and the next step is to implement it for the selected datasets. Several pilot runs of AI searches to fill specific data gaps. The searches returned many results but nonewere useful for real-time tracking of the HIV epidemic. As per the results of these results, it was deemed that certain technology was not fit for addressing the needs of data validation.

- Project Domain: Health
- Data Source: Aggregate data on health and HIV related issues.
- Link to data: <https://aidsinfo.unaids.org>
- Technology/Platform: Apache Solr or Elastic Search, coupled with a language model, e.g. BERT or GPT-2. Other technologies applicable for retrieving information from documents are AI-models for text (OCR, optical character recognition) extraction and table extraction.
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being ; SDG 10 - Reduced Inequalities
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## 2. Related Sustainable Development Goals

SDG 3, 10

## 3. Relevant Links

<https://www.unaids.org/en>

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## United Nations Conference on Trade and Development



### 1. Description of Activities on AI

#### Project 1: Data for development

- **Project Description:** At a time when digital connectivity defines our lives, the importance of data and AI in shaping the trajectory of global development cannot be understated. To harness the benefits of AI and address its associated risks, robust governance mechanisms are essential for the international community. Preparations are currently underway for the 2024 United Nations Summit of the Future. These preparations, along with negotiations for the Global Digital Compact (GDC), aim at accelerating the development of international frameworks for AI governance. In parallel, existing international initiatives like the World Summit on Information Society (WSIS) are under review to assess their successes and shortcomings in governing digital technologies. Other regional initiatives like G7 Hiroshima Process, EU AI Act, and OECD AI principles have recently taken shape with a promise of regulatory spill-over effects across the globe. In the core of these AI policy efforts are data and data governance.

At its twenty-six session held in March 2023, the United Nations Commission on Science and Technology for Development (CSTD) selected “Data for Development” as one of its priority themes for the 2023–2024 intersessional period. The secretariat of the Commission convened an intersessional panel in Lisbon from 6 to 7 November 2023 to better understand this theme and assist the Commission in its deliberations at its twenty-seventh session. The theme “Data for Development” will also be discussed at the forthcoming Annual Session of CSTD from 15 to 19 April 2024. The UNCTAD publication ‘Data for Development’ will be released in late April 2024. This publication will provide comprehensive insights into the potential benefits and challenges associated with data for development and data governance. The publication is based on the CSTD panel’s findings and recommendations, country case studies contributed by CSTD member states, international organizations and other stakeholders.

While data-enabled technologies offer tremendous opportunities ranging from scientific advancement to the creation of new business models, improper management of data and associated technologies can exacerbate digital divides, create market monopolies, and pose threats to human rights.

In response to these challenges, and to advance data governance for development, consistent with the imperatives of multilateralism, multistakeholder approach and multidisciplinary consideration of data, the UNCTAD publication ‘Data for Development’ and the associated report of the United Nations Secretary-General proposed the following seven data governance principles:

- (1) foundation in human rights;
- (2) treating data in context;
- (3) balancing risks and innovation;
- (4) people empowerment;

- (5) multilayered approach in data governance;
- (6) multi-stakeholder inclusivity;
- (7) youth inclusion for future orientation.

- Department/Division: Technology, Innovation and Knowledge Development Branch/ Division of Technology and Logistics
- Project Type/Output: Publication
- Project Status: To be completed
- Project Start Year: 2023
- Project End Year: 2024
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Updates: Project to be completed.
- Project Domain: Telecommunications; Inequalities; Sustainable development; Technological gaps
- Data Source: Contributions from member states and the UN System.
- Publicly available data: Yes.
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 17 – Partnerships for the Goals.
- Links and Multimedia: [https://unctad.org/system/files/information-document/CSTD2023-2024\\_Issues01\\_data\\_en.pdf](https://unctad.org/system/files/information-document/CSTD2023-2024_Issues01_data_en.pdf);
- Contact information: Mr. Angel González Sanz, Chief, Technology, Innovation and Knowledge Development Branch/Division of Technology and Logistics, Division on Technology and Logistics ([angel.gonzalez-sanz@un.org](mailto:angel.gonzalez-sanz@un.org))

## Project 2: Panel discussion on “Protecting information integrity in the age of Artificial Intelligence (AI)” at Twenty-sixth annual session of the United Nations Commission on Science and Technology for Development (CSTD), 29 March 2023

- Project Description: Purposeful information manipulation (disinformation) conducted by malicious or unethical actors has been recognised globally as a major threat to public safety and security, as well as democratic stability of nations. At the same time, the tendency for online censorship and surveillance to be used as a way to address real or presumed information manipulation threats puts in danger fundamental human rights, especially, freedom of expression online, while appropriate measures should be taken to avoid illegal content on the internet.

This challenge is now aggravated by the maturing of AI technologies. Generative AI, e.g. large language models made popular by Chat GPT, voice generation and voice cloning and other technologies, can now be used by malicious and unethical actors to conduct information manipulation campaigns. The omnipresence of deep-fakes and loss of trust in information in the public space that the new AI capabilities portend can make restricting online freedom seem a necessary price to pay for protecting stability of societies.

However, both information disorder and suppression of online freedom are avoidable. A holistic approach focusing on information integrity and relying on multifaceted policies can support a free, open, safe and secure online environment resilient to the negative impacts of information manipulation, even in the new technological environment. Just as international cooperation is necessary to find new solutions to the challenges presented by AI, it is equally important to share more broadly the already accumulated knowledge and best practices on addressing information manipulation.

The event aims to provide solutions on protecting information integrity by inviting speakers to address the following questions: What are the implications of the evolving AI capabilities for the vision of an online public space that is open, free, but also safe and secure? How can governments and societies protect information integrity and address

AI-powered information manipulation with effective, rights compatible policies? What is the role of the existing, “traditional” policy tools against information manipulation in the new technological environment?

- Department/Division: Technology, Innovation and Knowledge Development Branch/ Division of Technology and Logistics
- Project Type/Output: Meeting
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Updates: Project was completed.
- Project Domain: Telecommunications; Inequalities; Sustainable development; Technological gaps
- Data Source: N/A.
- Publicly available data: N/A.
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 17 – Partnerships for the Goals
- Links and Multimedia: <https://unctad.org/meeting/26th-cstd-side-event-panel-discussion-protecting-information-integrity-age-artificial>;
- Contact information: Mr. Angel González Sanz, Chief, Technology, Innovation and Knowledge Development Branch/Division of Technology and Logistics, Division on Technology and Logistics ([angel.gonzalez-sanz@un.org](mailto:angel.gonzalez-sanz@un.org))

### **Project 3: Side-event on “The multifaceted implications of AI” at Twenty-sixth annual session of the United Nations Commission on Science and Technology for Development (CSTD), 29 March 2023**

- Project Description: To provide a brief overview of the potential multifaceted implications of the application of AI and possible solutions among policy makers, academia, private sector, civil society and international organizations. In the absence of an effective international normative framework, the future of AI is evolving without much input from most developing countries. Currently, most AI frameworks and regulation are developed by the Global North or self-regulation by digital platforms that control the data used to feed AI models and algorithms. So, what are the real alternatives? The event invited speakers to address the following questions: The power of AI systems is growing very fast. Knowledge and creative jobs were thought to be less exposed to AI disruption? Is this still true? Will any occupation escape the impact of AI? Are our societies ready to deal with the of AI, for jobs, for human rights, for civic and political participation, for ethics? Can education help make AI more likely to enhance workers’ abilities rather than replace them? What needs to change in education policies and practices for this to happen? Given that AI does not currently reflect most of the world, is it ethical or equitable to allow it to have an increasing role in managing global systems? Is there a risks that AI development will escape the regulatory power of governments? Can an open innovation approach for AI offer an alternative model which is more amenable to the ethical and equitable imperatives that matter for developing countries? How shall the rights issue in relation to AI and emerging technologies be addressed? How can international cooperation help solve these issues?
- Department/Division: Technology, Innovation and Knowledge Development Branch/ Division of Technology and Logistics
- Project Type/Output: Meeting
- Project Status: Completed
- Project Start Year: 2023



- Project End Year: 2023
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Updates: Project was completed.
- Project Domain: Telecommunications; Inequalities; Sustainable development; Technological gaps
- Data Source: N/A.
- Publicly available data: N/A.
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 10 - Reduced Inequalities; SDG 17 - Partnerships for the Goals
- Links and Multimedia: [https://unctad.org/system/files/information-document/Concept\\_note%26Programme\\_AI\\_26CSTD\\_side\\_event29Mar23PM.pdf](https://unctad.org/system/files/information-document/Concept_note%26Programme_AI_26CSTD_side_event29Mar23PM.pdf)
- Contact Information: Mr. Angel González Sanz, Chief, Technology, Innovation and Knowledge Development Branch/Division of Technology and Logistics , Division on Technology and Logistics ([angel.gonzalez-sanz@un.org](mailto:angel.gonzalez-sanz@un.org))

## 2. Relevant Sustainable Development Goals

SDGs 8, 9, 10 and 17

## 3. Relevant Links

[www.unctad.org](http://www.unctad.org)

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## United Nations Department of Economic and Social Affairs



### 1. Description of Activities on AI

#### Project 1: Use of Complex Network Mappings Development for Digital Government

- Project Description: The United Nations E-Government Survey is produced every two years and is a flagship publication of UN DESA. It presents the ranking of e-government development across 193 United Nations Member States by assessing e-government development according to a quantitative composite index based on Online Service, Telecommunication Infrastructure, and Human Capital Indices. It provides decision makers with information that enables them to identify their areas of strengths and challenges, as well as suggested options on how best to move ahead.

In 2022, UN DESA hired a consultant to conduct a pilot study using the science of complex systems to expand the analysis of factors affecting countries' e-government development beyond income level and test a complex network analysis model to address possible inequalities and biases inherent to rankings and find as yet unidentified similarities and differences between the Member States. The following section provides details on methodology of complex networks model used for the UN DESA pilot study conducted by Roberto Bellotti, Professor in Applied Physics and Director of the Physics Department of the University of Bari, Italy. More detailed information on the study and its findings is available on UNDESA Egovknowledge base.

The data set used for the analysis consisted of 305 World Development Indicators (WDIs) relating to health, economy, society and environment and 214 SDG indicators characterizing the general development level of each Member State. The SDG indicators have acquired a decisive role in the characterization of the 193 UN Member States as they allow to represent the general conditions for development of each nation in a multifaceted way, providing additional and complementary information to the WDIs, especially in strategic areas relevant to EGD: access to electricity, mobile networks coverage, and the number of fixed internet broadband subscriptions, to name a few. Selection of indicators followed the criteria of data availability, consistency, and non-redundancy. The reference year for data is 2020, with missing values filled up with data from 2019 and 2018 to represent a snapshot of the current situation.

- Entity Name: Digital government Branch.
- Department/Division: DESA - Division for Public Institutions and Digital Government
- Project Type/Output: Report/Academic paper/Software tool/Seminar/meeting
- Project Status: Development
- Project Start Year: 2019
- Project End Year: Continuous
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: This is a cross-cutting project covering most fields, as it is about effective Governments and Public Institutions, Digital transformational and Digital Development for sustainable development.

- Data Source:
  - World Development indicators (WDI) - World Bank Group
  - E-government Development Index (EGDI) - UN-DESA
  - Link to data: <https://publicadministration.un.org/egovkb/en-us/Data-Center>; <https://databank.worldbank.org/source/world-development-indicators>
- Publicly available data: Yes
- Technology/Platform: Python: libraries on machine learning and complex network analysis
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth, 9 - Industry, Innovation and Infrastructure, 10 - Reduced Inequalities, and 16 - Peace, Justice and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Academia: University of Bari - Italy - Department of Physic Scientific Partner
- Links: <https://publicadministration.un.org/en/Research/UN-e-Government-Surveys>; <https://www.nature.com/articles/s41598-020-74964-3> -Scientific publication as starting point for this pilot project.
- Lessons Learned: Grouping the countries into four development clusters using complex network analysis enables to reinterpret the level of e-government development of the UN Member States and their E-Government Development Index (EGDI) ranking considering their starting conditions, as well as their mutual similarities and differences. By comparing the countries EGDI values both within the same cluster, and between different clusters it is possible to identify top-of-the-class countries, whose performance goes beyond the expectations based on their development status, and room-for-improvement countries, that have the potential to reach their cluster peers in the EGDI ranking by increasing their efforts. For top-of-the-class countries their EGDI values are above the 75th percentile of the cluster they belong to, and, at the same time, they are above the 25th percentile of at least one development cluster above. By the same token, for room-for-improvement countries the EGDI values are below the 25th percentile of the cluster they belong to and, at the same time, are below the 75th percentile of at least one developed cluster below. The study also identified the benchmark countries, regarded as the best cases compared to the rest of the world, and trailing countries, which would need specific support to improve their condition in areas relevant for EDGI ranking. Benchmark countries are characterized by an EGDI values above the 75th percentile of the distribution within cluster I, while trailing countries have EGDI values falling below the 25th percentile of the distribution within cluster IV. I.
- Contact information: Vincenzo Aquaro ([aquaro@un.org](mailto:aquaro@un.org)) & Deniz Susar ([susar@un.org](mailto:susar@un.org))

## Project 2: Fast-evolving technologies in e-government: Government Platforms, Artificial Intelligence and people

Chapter 5 - The Future of Digital Government: Trends, Insights and Conclusions, within the United Nations E-Government Survey 2022 discusses evolving technologies and new approaches in digital government. It covers cognitive government, agile and adaptive government, seamless government.

- Project Type (Status): Other (Other)
- Project Domain: UN E-Government Survey 2022
- AI Approach: Publication
- Related SDGs: All SDGs, specifically SDG 16 Peace, Justice and Strong Institutions
- Membership or Secretariat-driven: Both
- Project Website (links): <https://publicadministration.un.org/egovkb>

- Resources/Skills: The need for data is nothing new but the ways in which data are created and used have changed dramatically in recent years, bolstered by the revolution in data technologies and the proliferation of applications of different types and forms of data, including small and big data, real-time data and geospatial data. The current COVID-19 pandemic also reinforces the centrality of data -- how governments and businesses handle data, as it turns out, is a crucial part of their pandemic response. Learn more about open government data development, policy and institutional trends on government data sharing, exchange and interoperability, as well as data security, privacy and ethics; and recommendations on national data leadership and data governance framework.
- Technology: Publication
- Challenges: Developing indicators to measure how AI is used in public administration
- Contacts: Vincenzo Aquaro ([aquaro@un.org](mailto:aquaro@un.org)) & Deniz Susar ([susar@un.org](mailto:susar@un.org))

### Project 3: National and Local Surveys of Digital Government Branch

To prepare for the production of United Nations E-Government Surveys, the Digital Government Branch conducts a national survey called Member States Questionnaire (MSQ) at the national level, and a city level survey called Local Government Questionnaire (LGQ) at city level. Both surveys include questions on artificial intelligence;

#### National Level

- Does the national e-government strategy make specific reference to the use of new/emerging technologies such as artificial Intelligence (AI), robotics, blockchains, 5G and Internet of Things (IoT)? \*

#### Local Level

- Do you have a specific city/municipality strategy on the following new technologies? (e.g., Artificial Intelligence, IoT, Blockchain, Smart City, 5G, Virtual/Augmented Reality, Robotics, 3D Printing)
- Does your city/municipality strategy plans for the use of big data analytics in their decision-making processes? Please explain further and provide links.
- Project Type (Status): Other (Other)
- Project Domain: UN E-Government Survey 2022
- AI Approach: Publication
- Related SDGs: All SDGs, specifically SDG 16 Peace, Justice and Strong Institutions
- Membership or Secretariat-driven: Both
- Project Website (links): <https://publicadministration.un.org/egovkb>
- Technology: Publication / Data
- Challenges: Developing indicators to measure how AI is used in public administration
- Contacts: Vincenzo Aquaro ([aquaro@un.org](mailto:aquaro@un.org)) & Deniz Susar ([susar@un.org](mailto:susar@un.org))

### Project 4: TFM findings on the impacts of rapid technological change on the SDGs

New and rapidly changing technologies, such as artificial intelligence, robotics and other automation technologies hold great promise for making accelerated progress towards the Sustainable Development Goals, but also pose formidable challenges in all of the SDG dimensions. Against this background, the UN General Assembly has called upon the TFM in

repeated resolutions to present their updated findings to the Annual Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs.

- Project Type (Status): Research/Study paper (Recurring event)
- Project Domain: New technologies, including AI
- AI Approach/Activity: Findings are crowdsourced from TFM partners and scientific and technological communities, through calls for inputs (policy briefs and research papers), leveraging institutional networks, university partnerships and meetings. In particular, a series of UN expert group meetings on AI since 2016 have provided a convergent series of general policy recommendations, upon which recommendations for specific issues elaborate.
- Datasets: Scientific data provided by contributors and volunteers. Database under development
- Related SDGs: SDG 17 Partnerships for the Goals
- Project Partners: DESA, IATT, 10-Member Group, TFM partners, Universities
- Project Website (links): <https://sustainabledevelopment.un.org/tfm>
- Resources/Skills: Mainly volunteer work; knowledge of technologies developments, sustainable development models and pathways.
- Technology: UN platform
- Challenges: Key challenges have been the vast scope of the exercise, limited resources, and large expectations. However, a series of lessons-learned have been identified and important support provided to various reports. Present work in 2020 focuses on the environmental impacts of AI.
- Contacts: Mr Richard A Roehrl, Senior Economic Affairs Officer ([roehrl@un.org](mailto:roehrl@un.org))

### Project 5: Exploring the impacts of new Internet applications and AI on the global energy system

New Internet applications and especially AI technologies have become a rapidly increasing source of energy demand but have also greatly shaped the opportunities for smart and cleaner energy systems. This project reviews what is known and what might be potential policy responses to these trends in the future.

- Project Type (Status): Research/Study paper (Ongoing)
- Project Domain: AI and Energy
- AI Approach/Activity: Desk study and expert surveys
- Datasets: (Under development)
- Related SDGs: SDG 7 Affordable and Clean Energy, SDG 9 Industry, Innovation and Infrastructure, SDG 17 Partnerships for the Goals
- Project Partners: DESA, IATT, 10-Member Group, Other experts
- Project Website (links): <https://sustainabledevelopment.un.org/tfm>
- Resources/Skills: Expert knowledge, volunteer work, and scientific networking skills. UNDESA 38 United Nations Activities on Artificial Intelligence (AI)
- Challenges: A key challenge has been the identification of work that exists in fragmented forms in various disciplines and both in academia and private sector. Hence, interdisciplinary expert surveys are key to their identification. Furthermore, a common technical terminology is needed.
- Contacts: Mr Richard A Roehrl, Senior Economic Affairs Officer ([roehrl@un.org](mailto:roehrl@un.org))

### Project 6: IEEE/UN Event series

Training and outreach event on technology, policy, ethics and engagement of AI and other new technologies.

- Project Type (Status): Event (Concept note)
- Project Domain: New technologies, including AI: technology, policy, ethics and engagement
- AI Approach/Activity: Webinar series
- Datasets: IEEE datasets
- Related SDGs: SDG 17 Partnerships for the Goals
- Project Partners: DESA, IEEE, TFM partners
- Resources/Skills: Expert knowledge.
- Contacts: Mr Richard A Roehrl, Senior Economic Affairs Officer ([roehrl@un.org](mailto:roehrl@un.org))

### Project 7: Long-term AI and technology scenarios for the SDGs

Long-term technology scenarios are routinely used to explore feasible technology pathways to tackle big global challenges, such as climate change and biodiversity. While an increasing number of them assume significant new opportunities due to AI, most of them do not make any effort to quantify these effects in both positive and negative terms. This initiative aims to explicitly account for AI and potential future AI technology developments based on existing technology development data. It also provides inputs for the mandated discussions of long-term future scenarios and the impact of current trends in the high-level segment of ECOSOC each year.

- Project Type (Status): Research/Study paper (Recurring event)
- Project Domain: AI scenarios
- AI Approach/Activity: Scenario analysis
- Datasets: Various scientific and technological data sources
- Related SDGs: SDG 7 Affordable and Clean Energy, SDG 13 Climate Action, 17 Partnerships for the Goals
- Project Partners: DESA, TFM partners
- Project Website (links): <https://undocs.org/e/2020/60>
- Resources/Skills: Scenario analysis, technology change, AI techs
- Technology: Various scenario models
- Challenges: A challenge is the linking to the national level and national level AI scenarios (where they exist)
- Contacts: Mr Richard A Roehrl, Senior Economic Affairs Officer ([roehrl@un.org](mailto:roehrl@un.org))

### Project 8: Guidebook on AI ethics for government and development practitioners

While there are hundreds of publications and proposed AI ethics frameworks and codes of conduct by scientific and engineering communities, as well as an UNESCO initiative on AI ethics, little practical United Nations Activities on Artificial Intelligence (AI) 39 guidance exists for governments and development practitioners, especially guidance that is fully based on a balanced scientific and technological understanding. The guidebook aims to fill this gap.

- Project Type (Status): Report (Ongoing)
- Project Domain: AI ethics

- AI Approach/Activity: Collaborative product developed by academics working on AI ethics with practical experience
- Related SDGs: SDG 9 Affordable and Clean Energy, SDG 16 Peace, Justice and Strong Institutions, SDG 17 Partnerships for the Goals
- Project Partners: DESA, TFM partners
- Challenges: A key challenge is the translation of technical specificities into practical, easy understandable guidance for practitioners.
- Contacts: Mr Richard A Roehrl, Senior Economic Affairs Officer ([roehrl@un.org](mailto:roehrl@un.org))

### Project 9: TFM online platform

The TFM online platform was mandated to provide a single-entry point for technology information.

- Project Type (Status): Software project (Deployed)
- Project Domain: Online platform for information on technologies and SDG knowledge
- AI Approach/Activity: Gateway to networks of curated SDG-related technologies and knowledge from UN and non-UN resources
- Related SDGs: All SDGs
- Project Partners: DESA, OICT, UNCTAD, 10-Member Group, and an increasing number of other partners (see website)
- Project Website (links): <https://tfm2030connect.un.org/>
- Challenges: Further development of content and operational support work.
- Contacts: Ms Stephanie Rambler, Sustainable Development Officer ([rambler@un.org](mailto:rambler@un.org))

### Project 10: Guidebook to resources on AI strategies (supplement to the IATT Guidebook on STI roadmaps for the SDGs)

While there is an increasing number of AI strategies and an exponentially increasing number of publications on AI, government officials and development practitioners alike could benefit from a trusted, curated and annotated list of written resources on the various aspects of AI.

- Project Type (Status): Report (Ongoing)
- Project Domain: Curated listing of AI publications
- AI Approach/Activity: Curated and annotated list of publications on the various aspects of AI, in support of STI roadmaps for the SDGs
- Related SDGs: SDG 17 Partnerships for the Goals
- Project Partners: DESA, IATT
- Challenges: Curation and selection of most important publications and other resources on the various aspects of AI strategies.
- Contacts: Mr Wei Liu, Sustainable Development Officer ([liuw@un.org](mailto:liuw@un.org))

### Project 11: FAO-UNSD project using satellite data and farm surveys to estimate crop statistics

The project aims to identify crops, map crop areas and estimate crop yield using satellite data and farm surveys.

- Project Type (Status): Software product (Development)
- Project Domain: Agriculture

- AI Approach/Activity: Supervised Machine Learning uses random forests and support vector machines – Datasets: Satellite data and Farm surveys
- Related SDGs: SDG target 2.4
- Project Partners: FAO
- Membership/Secretariat-driven: Driven by UNSD and FAO
- Resources/Skills: We work with highly skilled data scientists, statisticians and computer engineers of international and national statistical agencies.
- Technology: UN Global Platform, <https://marketplace.officialstatistics.org/earth-observation>
- Challenges: While providing service through a Cloud-based environment, the biggest challenge is still making the tools and applications useful to national statistical agencies in developing countries by lowering the entry level of required technological knowledge.
- Contacts: Mr Ronald Jansen, Chief of Data Innovation and Capacity Branch, Statistics Division ([jansen1@un.org](mailto:jansen1@un.org))

### Project 12: Estimating Port Calls using AIS vessel tracking data

The project aims to identify ships which are entering and leaving a port (by vessel type) using AIS vessel tracking data AIS data are real-time data of ship positioning. This is obtained as a global feed.

- Project Type (Status): Software product (Development)
- Project Domain: Maritime Transport
- AI Approach/Activity: Supervised Machine Learning uses random forests to estimate vessel types and carrying capacities
- Datasets: AIS vessel tracking data (<https://comtrade.un.org/data/cache/AISdashboardMethodology.pdf>)
- Related SDGs: SDG target 9.1
- Project Partners: UNCTAD, University of Oxford, ONS (UK)
- Membership/Secretariat-driven: Driven by UNSD – Project Website (links): <https://marketplace.officialstatistics.org/ais-weekly-port-calls>;
- Resources/Skills: We work with highly skilled data scientists, statisticians and computer engineers of international and national statistical agencies, and research institutes.
- Challenges: UN Global Platform, see <https://marketplace.officialstatistics.org/ais-data>.
- Contacts: Mr Markie Muryawan, Chief of Trade Statistics Section, Statistics Division ([Muryawan@un.org](mailto:Muryawan@un.org), +1 212 963 3083) United Nations Activities on Artificial Intelligence (AI) 41

### Project 13: LinkedSDG

A demo app that automatically extracts key concepts related to sustainable development from text documents and links them to the most relevant sustainable development goals, targets, indicators and series.

- Project Type (Status): Software product (Full-fledged development)
- Project Domain: SDG ontology – AI Approach/Activity: This uses Semantic Web technologies and ontologies, which is a subfield of AI and Computer Science research
- Datasets: Sustainable Development Goals Taxonomy (<http://metadata.un.org/sdg/?lang=en>)
- Related SDGs: All SDGs
- Project Partners: DESA - Division for Sustainable Development Goals



- Membership/Secretariat-driven: Driven by DESA – Project Website (links): <http://linkedsdg.apps.officialstatistics.org/#/>; <https://sustainabledevelopment.un.org/LinkedSDGs/about>
- Resources/Skills: Statisticians and computer engineers of DESA
- Technology: UN Global Platform
- Contacts: Mr Luis Gonzalez Morales, Chief of Web Development and Data Visualization Section, Statistics Division ([gonzalezmorales@un.org](mailto:gonzalezmorales@un.org), +1 212 963 0692)

## 2. Related Sustainable Development Goals

All SDGs

## 3. Relevant Links

<https://www.un.org/development/desa/en/>

Contact information

Vincenzo Aquaro ([aquaro@un.org](mailto:aquaro@un.org))

## United Nations Development Programme



### 1. Description of Activities on AI

#### Project 1: Increasing AI capability

- **Project Description:** From big data to machine learning, digital technologies are transforming our world. In mid- 2019, UNDP launched its first Digital Strategy to enhance its support to governments in adapting to this rapidly-changing environment - including by building digital capacity within the Organization. The strategy seeks to increase understanding of digital technologies and how they can be used to achieve the Sustainable Development Goals, as well as the risks and trade-offs that come with them.

AI is a key element of the strategy, as a tool for equitable and accessible digital responses and UNDP has been nurturing AI projects as well as investing in the data foundations needed to harness its potential. In parallel, UNDP is working on ways to manage the ethical challenges that arise from deploying AI in an international development context. This work is coordinated by the Chief Digital Office, in close collaboration with all UNDP bureaux and offices.

There are currently several evolving projects with a focus on increasing AI ability internally and externally, as well as assessing AI readiness of member states and safeguarding internal products.

**AI readiness tool for governments:** Building on UNDP's Digital Readiness Assessment, CDO has developed a readiness assessment focused specifically on AI - The Artificial Intelligence Readiness Assessment (AIRA), which was successfully launched in Rwanda, Colombia, and Sri Lanka in 2023. The assessment comprises a comprehensive set of tools that allow governments to get an overview of the AI landscape and assess their level of AI readiness across various sectors. The framework is focused on the dual roles of governments as 1) facilitators of technological advancement and 2) users of AI in the public sector. Critically, this assessment also prioritises ethical considerations surrounding AI use. The assessment highlights key elements necessary for the development and implementation of ethical AI, including policies, infrastructure and skills and is suitable to all AI maturity levels. These aspects are important for countries to consider as AI-powered technologies are implemented at population scale to help meet national priorities and achieve the Sustainable Development Goals.

- **Establishment of the UNDP AI Working Group:** To navigate the transformative impact of AI on UNDP's internal operations and member state support, the UNDP AI Working Group was officially formed in December 2023 with the key role of overseeing responsible AI use, streamlining internal applications, and developing approaches for legal compliance, risk management, and transparency. The Working Group is led by the Secretariat, consisting of the Chief Digital Officer (CDO), the Chief Technology Officer (ITM) and the Deputy Assistant Administrator and Deputy Director (GPN).
- **Department/Division:** Chief Digital Office
- **Project Type/Output:** Digital Readiness Assessment tool, Working Group
- **Project Status:** Development

- Project Start Year: 2021, 2023 respectively
- Data Source: open and closed government data, survey data, UNDP project data
- Reported as part of 2022 Compendium on UN AI Activities? The AI Readiness tool - yes, the rest - no
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 8 - Decent Work and Economic Growth, SDG 10 - Reduced inequalities, SDG 16 - Peace, Justice, and Strong Institutions, 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - Government: AI readiness assessment will be made available to all governments. Rwanda, Colombia, and Sri Lanka governments were partners in 2023.
- Relevant Links and Multimedia:
  - [www.digitalstrategy.undp.org](http://www.digitalstrategy.undp.org)
  - <https://feature.undp.org/making-ai-work-for-us/>
  - <https://www.undp.org/blog/are-countries-ready-ai-how-they-can-ensure-ethical-and-responsible-adoption>
- Contact information: Gayan Peiris ([gayan.peiris@undp.org](mailto:gayan.peiris@undp.org))

## Project 2: SURGE Data Hub

- Project Description: The SDH helps UNDP Country Offices provide governments with human-centered data for evidence-based decision-making that ensures no one is left behind in crisis response and recovery. The Hub ensures decision-makers have access to evidence and insights that reveal the true cost and impact that fragility and shocks have on people's lives.
 

SDH was created in 2020 building on previous individual UNDP initiatives such as the HBDA and the Digital Socio-Economic Impact Assessment (SEIA) tools, to provide a comprehensive, structured, and institutionalized solution in UNDP (and partners) for end-to-end digital assessments in crisis. The Crisis Bureau developed these tools, making use of available technologies and building on the existing assessment offer in the humanitarian and development sector.

SDH seeks to facilitate rapid end-to-end digital assessments remotely for Country Offices in crisis all over the globe—in time zones that are convenient and in languages they understand. Since its inception we have supported over 45 countries across five regions in partnership with national counterparts to carry out digital assessments for decisions about recovery programming (e.g., debris and waste management, emergency employment etc.) and advanced data analysis to address underlying causes of vulnerability and fragility.

SDH is powered through the UNDP Crisis Bureau Country Support Management Team (CSMT). To roll out the tools in a fast-paced and effective fashion, CSMT established a Remote Support Unit (RSU) that provides targeted technical support with local language and context knowledge on planning and implementing digital assessments. It includes experts in Information Management, Economics, Statistics, Data analysis, and Systems.

In addition, SDH has developed a training programme to strengthen UNDP practitioners' skills in digital assessments to enhance COs analytical capabilities. We seek to invest in people and nurture a community of 800+ practitioners to generate internal transformation and bring about change with national counterparts through a corporate culture of data and evidence-based decision-making.

To uphold our shared ambition under Agenda 2030, SDH offers a bold new approach to knowing what's going on in the world through data, ensuring vulnerable populations aren't overlooked in policy-making decisions after crisis.
- Department/Division: Crisis Bureau
- Project Type/Output: Report; Data set; Software tool

- Project Status: Ongoing
- Project Start Year: 2020
- (Projected) End Year: Undefined
- Project Domain: Crisis
- Data Source: Primary data collection through digital assessments (and surveys).
  - HBDA collects digital and georeferenced data on damages, for public and private buildings, and captures socio-economic indicators on Health, Food Security, Education, and WASH at the household level. HBDA have also been expanded through additional modules that collect other data, such as Micro/Informal SME, impact in inventories and sales, available coping mechanisms or support received, and other aspects of business needs.
  - Digital SEIA allows impact assessment of the crisis on vulnerable households and micro, small and medium enterprises. In most of the cases, the focus is on the impacts of COVID-19. Households' assessments can target specific population groups within a country (e.g. refugees and IDPs, informal settlements, women and girls). MSMEs assessments allow for analysis of small business, the socio-economic situation of the workers, and can include gender, risk reduction, and other dimensions for a tailored intervention.
  - The tools can be adapted to focus on specific categories, particularly by modifying the Household section and adding, wherever relevant, issues of concern pertaining to vulnerable groups, economic sectors, or geographical areas. Through innovative tools and open-source software, customized assessments can dig deeper into a thematic area or specific indicators for both holistic and segmented views of impact.
  - The tools also lend themselves to the integration of innovative solutions and aggregation of secondary data analysis and resources, including big data (i.e. sentiment analysis), satellite imagery, and machine learning. For instance, assessments have been carried out with social media trend analysis and sentiment analysis from Twitter posts. Other advanced analyses have also been carried using satellite data and machine learning algorithms. For instance, following the Russian invasion in Ukraine, SDH assessed the humanitarian needs of affected communities using ACLED data and machine learning techniques.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates:
  - Household Building Damage Assessment (HBDA), piloting in Philippines, working with the Disaster Risk Reduction & Recovery for Building Resilience at the Asia Pacific Regional Hub, the SDH and the UNDP Philippines CO. The goal is to harmonize the Early Recovery Needs Assessment (ERNA), Rapid Damage Need Assessment (RDNA), the HBDA and iPDNA, on indicators glossary, data exchange and data analyses. The need to integrate different assessments implemented after a crisis is crucial to avoiding overlap and maximizing efficiency to address challenges in the field.
  - Another new initiative is the interagency Global Data Access Initiative (GDAI). This project is coordinated from the UNDP's Chief Digital Office (CDO), with the technical lead of the SDH. The project is in the design phase, and in collaboration with UN Global Pulse, World Food Programme and McKinsey, will add value by leveraging data on risk reduction, risk management, response and recovery. The project is expected to have the first pilots of Minimum Scalable Product (MSP) in 2022.
  - In 2023, SDH introduced a novel tool called Rapid Post-Disaster Damage Assessment (RAPiDA), which combines the capabilities of satellite imagery and artificial intelligence with primary data to enable effective response efforts. RAPiDA has already been deployed in four countries, namely Syria, Libya, Afghanistan, and Gaza.
  - In Syria, SDH initially utilised satellite imagery to estimate the volume of debris in the aftermath of the 2023 earthquakes, enabling a swift response to the crisis.

- Currently, ongoing research employs nighttime satellite data, normalized difference vegetation index (NDVI), and machine learning to evaluate the short-term impact of the earthquake on economic activities and food security.
- In Libya, RAPiDA played a crucial role in assessing the consequences of recent floods on communities by analyzing satellite data and other relevant secondary information. This assessment informed the design of early recovery programs by the UNDP country office in Libya.
  - In Afghanistan, satellite imagery was leveraged to develop a robust multistrata geo-sampling strategy, facilitating a household and building damage assessment (HBDA) carried out following the recent earthquake.
  - In the case of Gaza, SDH relied on nighttime data and machine learning techniques to estimate the early impact of the conflict on economic activities and macroeconomic indicators.
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 10 - Reduced Inequalities; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnerships for the Goals
  - Partnership(s)/Collaborator(s): All assessments can be conducted across the globe - in all UNDP regions - with access to additional data sources at scale. To support the process, SDH engages partners at the local and global levels, including government authorities, NGOs/CSOs, private sector organizations and UN agencies.
    - UN Partners: SDH has worked and will continue working to build strong synergies with relevant actors in the UN system for instance with the UN Big Data Working group, WFP, UN Global Pulse, UNSSC, DPO, UNOOSA and the OCHA-UNDP Connecting Business Initiative
    - Government: By design, SDH works to support national authorities, INSTAT offices, civil protection and emergency units, ministries, and works in collaboration with partners at country and local level.
    - NGO: REACH-IMPACT Initiatives, ACLED (Armed Conflict Location & Event Data Project)
      - Academia: LSE (London School of Economics, OPHI (Oxford Poverty and Human Development Institute), QCRI (Qatar Computing Research Institute)
      - Private Sector: ESRI
    - Civil Society: Engineers Without Borders
  - Links and Multimedia
    - [Twitter](#)
    - [Medium](#)
    - [Website](#)
    - Blogs:
      - [Suriname's Indigenous community "continue to hope and believe" despite devastation from COVID-19](#)
      - [#Data4Development](#)
      - [How human-centred data is helping make evidence-based decisions post-Easter Floods](#)
      - [From disaster to recovery: this is the 360 reconstructions of the archipelago of San Andrés, Providencia and Santa Catalina](#)
    - Videos:
      - [Household and Building Damage Assessment in Equatorial Guinea](#)

- [Paris Peace Forum - Digital SEIAs](#)
- o Images:
  - [SURGE Data Hub Images](#)
- Lesson Learned
  - o The project has underscored the importance of building internal and external capacity for digital end-to-end digital assessment and data literacy across organizations. SDH has designed a Household and Building Damage Assessment (HBDA) training programme and has already certified more than 300 UNDP staff and partners.
  - o Partnerships for development and implementation are also important. This includes the need for digital infrastructure, digital frameworks as well as data-sharing protocols with external partners, and further building on synergies with other initiatives in the UN system.
  - o Further action is needed to create an enabling environment for digital innovation, in terms of appropriate resources, operating frameworks, and partnerships development. Additional support is needed for developing innovative partnerships with the private sector on data, digital, and infrastructure development. This could be achieved by fostering engagement with external partners, supporting collaboration models with appropriate resources, attracting investment, and actively supporting risk mitigation.
  - o UNDP COs should be further empowered, through mechanisms and support that builds their capacity to inform governments about UNDP's digital offer, to use existing data and analyses, and to offer their owned datasets and analyses. This could include a common regulated framework, clear protocols of data exchange and the necessary digital infrastructure.
  - o UNDP could also be better positioned - playing an active role in clusters, and among other agencies, to make sure data can be one of drivers toward HDP Nexus.
- Contact information: Fabjan Lashi, Project Manager ([Fabjan.lashi@undp.org](mailto:Fabjan.lashi@undp.org))

### Project 3: Artificial Intelligence for Development Analytics (AIDA)

- Project Description: The Artificial Intelligence for Development Analytics (AIDA) is a system developed to search inside more than 6,000 UNDP Evaluation Reports and generate insights based on sentiment analysis and topic modelling. It provides 4 search types, including by each Sustainable Development Goal.
- Department/Division: Independent Evaluation Office
- Project Type/Output: System with a website portal
- Project Status: Ongoing. Phase 1 completed in January 2022, and phase 2 completed in September 2023.
- Project Start Year: 2020
- Project Domain: Evaluation evidence
- Data Source: UNDP Evaluation Reports from centralised and decentralised evaluations
- Link to Data: <http://erc.undp.org>
- Publicly available data: Yes
- Technology/Platform: Amazon AWS with hosting provided by UNICC
- Related Sustainable Development Goals (SDGs): Project covers work related to all SDGs.
- Partnership(s)/Collaborator(s):
  - o Collaboration with UNDP ITM, UNICC and Amazon Web Services.
- Relevant links and Multimedia: <https://aida.undp.org>

- Contact information: Gonzalo Gomez ([gonzalo.gomez@undp.org](mailto:gonzalo.gomez@undp.org)), Anish Pradhan ([anish.pradhan@undp.org](mailto:anish.pradhan@undp.org))

#### Project 4: iVerify

- Project Description: Building on UNDP's long standing support for democratic governance, iVerify is part of the next generation of tools to assist states in carrying out free and fair elections in this era of misinformation.

The tool uses open-source machine learning to track misinformation and AI to detect hate speech. It leverages Crowdtangle to conduct daily monitoring of significant conversations happening on Facebook and runs posts through an open algorithm, Detoxify, to determine whether there might be toxic content. When such content is flagged, it gets sent to Meedan Check, an open collaborative media annotation platform that uses a 'humans in the loop' approach to combine machine learning with human oversight. Trained experts from a number of organizations can use the platform to send potentially toxic content and/or misinformation - using email, an online form, Facebook Messenger, WhatsApp and Telegram - to local partner organizations who can verify the content as true, false or somewhere in between.

AI increases efficiency by matching flagged content to similar posts, and reports are published automatically to a Wordpress website for access and amplification - with a simple traffic light system that enables users to see at a glance whether a claim is true, half true, unproven, misleading, false, toxic or later retracted. An analytics dashboard further supports quick analysis, agile monitoring and evaluation.

iVerify is built like a comprehensive support package around the provision of digital tools as well as the expert technical support to activate the digital innovations. The project has been deployed in Zambia at the occasion of the August 2021 general elections. The team is actively working at evaluating the impacts of that pilot phase while planning for the continuation of the activities in a sustainable manner. In addition, the initiative is currently in a roll-out phase in Honduras ahead of the November presidential elections. Other countries for future planning include: Zimbabwe, Liberia, Mali and Kenya.

- Department/Division: EC-UNDP Joint Task Force on Electoral Assistance, Bureau for Policy & Programming and Chief Digital Office
- Project Type/Output: Software tool and dataset
- Project Status: Ongoing
- Project Start Year: 2021
- Project Domain: Governance and democratic process. While it is currently applied with a focus on elections, the tool has many potential applications - from preventing human rights abuses by flagging hate speech to encouraging vaccine take-up by combating misinformation.
- Data Source: Social Media Data, information submitted via tip lines
- Link to Data: <https://www.crowdtangle.com/>
- Data Publicly available: Yes in anonymised form
- Technology/Platform: Crowdtangle, Detoxify
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 4 Quality Education; SDG 5 - Gender Equality; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: UN Development Programme, UN International Computing Centre
  - Government: European Union, USAID, UK aid, Irish aid, Germany, Sweden
  - Private Sector: Crowdtangle, Meedan
  - Civil Society: Various organizations, where in each country there is a different partner

- Academia: UNITEC Honduras (Honduras application)
- Relevant Links and Multimedia:
  - <https://www.undp.org/digital/iverify>
  - <https://digitalpublicgoods.net/about/>
  - <https://www.undp.org/policy-centre/oslo/publications/guidance-implementation-undp-iverify>
  - <https://www.undp.org/policy-centre/oslo/publications/undp-iverify-monitoring-and-evaluation-framework>
  - <https://sl.i-verify.org/>
- Lessons Learned:
  - Prioritise preparation time
 

Getting things ready well before the start date is crucial for setting up a tool like iVerify successfully. This process involves developing and getting the system up and running, training the individuals who'll be using it, and starting an awareness campaign. During the planning phase, it's also important to make sure there's enough time to get the system up to speed. This preparation time is vital for iVerify. It allows the system to work faster and more efficiently and helps to build its reputation. This all means iVerify can make a real difference in reducing the amount of misinformation, disinformation, and offensive speech being spread.
  - Set achievable goals
 

The process of implementing iVerify requires a careful balance between ambitions, time constraints, and available funding. An assessment mission is essential in guiding the best method of allocating resources in an impactful, efficient, and sustainable way. It's also crucial to understand the ongoing efforts required to maintain the system after the primary roll-out.
  - Ensure local presence for an efficient implementation follow-up
 

During the early stages of implementation, having an iVerify team on the ground or a dedicated focal person is fundamental for smooth and swift coordination. This arrangement helps tackle any immediate challenges and keeps the implementation process on track.
  - Consider refresher trainings
 

Training individuals on how to use iVerify is certainly a key step, but it's just as important to keep the learning process going. Just as you would revisit a recipe to perfect a dish or repeat a drill to improve at sport, going back to the training helps keep the knowledge fresh and builds user confidence.
  - Maintain the online-offline balance
 

It's important to note the significant role offline mediums, such as radio, continue to play in disseminating information, especially in developing countries. Despite the increasing digitalisation, many communities still rely on traditional media channels for their daily news and updates.

This reality presents an opportunity for tools like iVerify. While a strong online presence is undoubtedly advantageous, ensuring accessibility through offline channels, like radio, becomes equally crucial. This strategy allows us to extend iVerify's reach beyond internet users, thereby creating a more comprehensive network for countering misinformation and ensuring that our tool benefits a larger, more diverse audience.
  - Invest in raising awareness is critical
 

Awareness plays a critical role in the success of any initiative. Without it, even the most effective tool may go unnoticed and unused, rendering all development and implementation efforts ineffective. In the context of iVerify, a comprehensive communication campaign is instrumental to the success of this initiative. Such a



campaign can dramatically amplify iVerify's impact and uptake, positioning it as a go-to resource for fact-checked news within the community. Ultimately, a well-planned communication strategy can transform iVerify from a mere tool into a widely recognized and trusted resource for countering misinformation.

- Invest in core functionality

Like any digital tool, continuous tweaking, debugging, and feature enhancements based on user feedback are all integral to the long-term effectiveness of tools such as iVerify. This ongoing improvement and maintenance process helps the tool stay relevant and valuable in identifying potential misinformation, disinformation, and hate speech. However, such work requires not just time, but also consistent investment.

Often, funding is secured for specific deployments and might overlook the need for continual investment in the tool's core functionality. Hence, it's important to develop a funding strategy that recognizes and accommodates the need for regular updates and improvements.

- Contact information: Gabriel Van Oppen ([gabriel.van.oppen@undp.org](mailto:gabriel.van.oppen@undp.org)) Saré Knoope ([sare.knoope@undp.org](mailto:sare.knoope@undp.org))

### Project 5: eMonitor+

- **Project Description:** eMonitor+ is a set of digital tools, with advanced artificial intelligence capabilities, which is used to expand national, regional, and global stakeholder capacities to analyse and address a range of challenges, including but not limited to toxic communication, hate speech, disinformation, and gender-based violence. eMonitor+ collects and analyses thousands of pieces of online content daily, from platforms like Facebook, Instagram, Twitter, and YouTube, as well as website content and offline media. The system integrates external tools and solutions into UNDP-built software. Nonetheless, human monitors lead its operation, utilising the suite's automated functions to streamline otherwise time-consuming tasks. This fusion of human oversight and AI-driven analytics results in a more cost-effective, time-efficient, and comprehensive monitoring process. Every eMonitor+ deployment is accompanied by comprehensive technical support, enabling national stakeholders to develop and execute information integrity strategies that are evidence-based and tailored to address the unique challenges of their contexts. Outcomes can include advancing long-term digital resilience, particularly in the form of innovative policies, encouraging whole-of-society responses, and enhancing media literacy and public awareness.

eMonitor+ has supported national partners in several countries, analysing more than 2 million pieces of online content, and is being used by more than 100 national monitors and fact-checkers. The system has contributed to fostering a national culture of digital media analysis and the measurement of trends in information pollution issues, which were previously not researched. Additionally, the support enhanced the capacities of partners and built national alliances to promote information integrity. eMonitor+ has contributed to strengthening public resilience and media literacy through communicating results to the public.

- Department/Division: BPPS
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2018
- Project End Year: -
- Project Domain: Information integrity - Democratic Institutions and Process
- Data Source: Social media
- Publicly available data: No
- Technology/Platform: 1- ReactJS 2- Elasticsearch. 3- Docker 4-Node.js. 5- Python 6. Multer 7. Nodemailer.

- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 10 - Reduced Inequalities, SDG 16 - Peace, Justice & Strong Institutions
- Partnership(s)/Collaborator(s): Government, Media Institutions, Civil Society, Academia, and Electoral Management Bodies
- Links and Multimedia: <https://www.undp.org/arab-states/emonitor>
- Contact information: Osama Aljaber ([osama.aljaber@undp.org](mailto:osama.aljaber@undp.org))

## Project 6: Horizon Scanner (HS)

The Horizon Scanner (HS) is an off-the-shelf software suite which brings a paradigm shift by incorporating built-in automation, empowering users to identify and assess emerging risks and opportunities. Identified problems and how the Horizon Scanner suit addresses them:

The following are the identified problems that the Horizon Scanner has been designed and built to solve, along with the corresponding solutions.

### 1. Fragmented Data Landscape:

- Solution: The platform consolidates all available data into a comprehensive, categorized, and prioritized repository. It establishes a one-stop-shop, future-proofing data accessibility for the organization.

### 2. Costly and Time-Consuming Data Collection:

- Solution: The built-in feature for data requests, automated questioning protocols, and innovative tools like API integration, wizard features, and drop boxes streamline communication between organizations. The platform provides proxy indicators developed from available data, and recommends data collection when necessary, resulting in a significant 65% reduction in time and costs based on previous trials.

### 3. Conflicting Data Sources:

- Solution: The platform centralizes all data sources, offering an additional reliability matrix and triangulation according to organizational guidelines, ensuring data consistency and coherence.

### 4. Enhancing Data Literacy:

- Solution: The user-friendly design (UX) of the platform ensures seamless usage, supplemented by training initiatives, fostering enhanced data literacy among staff.

### 5. Financial Constraints in Data Positioning:

- Solution: The platform overcomes financial constraints by deploying analytics power through algorithm development and AI-backed mechanisms. It harnesses the potential of existing data, providing new insights and optimizing data collection requests for strategic positioning.

Key Product Features:

- Customization: Tailor the system to your specific needs by seamlessly incorporating on-demand features.
- Interrogatable Nature: Dive deep into analysis and customization with the software's user-friendly and easily interrogatable with existing ERP systems.
- Real-world Applicability: Tested through two integration experiments and five extensive pilots in Sudan (3 to 9 months each), the software has evolved based on user feedback.

Insights from these trials have guided the completion and successful launch of the pilot phase for expansion in Egypt.

#### Strategic Collaborations:

In partnership with UNDP's Regional Bureau for Arab States (RBAS), the software is to go through its second integrability test with [eMonitor+](#), an AI-powered elections monitoring and fake news detection system. This collaboration enhances the software's capabilities, solidifying its position as a comprehensive solution for horizon scanning and risk management.

#### Current Phase (scale-up):

Localization of the software and the development of on-demand features are currently underway in Egypt in collaboration with UNDP partners, including the government. Our software employs a data-driven approach to ensure relevance and up-to-date functionality, actively supporting horizon scanning efforts in the country. This phase reflects our dedication to practical implementation and the software's real-world impact.

#### In Conclusion:

This innovative software stands as a powerful tool, offering a data-driven solution for proactive horizon scanning. Leveraging ready-available segmented data, this analytics software generates insightful analyses, significantly cutting costs and time in data collection. The utilization of segmented data leads to a remarkable reduction in overhead costs for data collection, up to 65%. Additionally, the software's automated opportunities and threats detection streamlines processes, enabling new projects and interventions. With its adaptability, interrogatable nature, and successful integrations, it serves as a valuable asset for organizations aiming to enhance their decision-making processes.

- Horizon Scanner (Sudan - SHS) Demo: <https://drive.google.com/file/d/19hn7rjmH67O4agSevj-HA7xNbiCcpARo/view>

Horizon Scanner (Egypt - EHS): Egypt Horizon Scanner (EHS) Implementation Handbook <https://drive.google.com/file/d/1s60zDBoMMFukj0eOINQwAlgaj3S1FbOj/view>

Egypt Horizon Scanner (EHS) Custom Features Design <https://drive.google.com/file/d/1s60zDBoMMFukj0eOINQwAlgaj3S1FbOj/view>

- Presentation: [SHS Algorithm AI Presentation1](#)
- Contact information: Wigdan Seedahmed [wigdan.seedahmed@undp.org](mailto:wigdan.seedahmed@undp.org) OR [wigdan229@gmail.com](mailto:wigdan229@gmail.com) (preferred)

SDGs: Goal 9 & Goal 17 (for both Sudan and Egypt versions). Plus Goal 16 (for Sudan Horizon Scanner due to an on-demand customizable feature)

#### Project 7: POPP ChatBot

- Project Description: Leveraging ChatGPT 4.0 to create a virtual agent to answer questions about UNDP policies and procedures.
- Department/Division: ITM and BPC/BMS
- Project Type/Output: ChatBot embedded in Intranet
- Project Status: Ongoing
- Project Start Year: Q3/2023

- Project End Year: Q1/2024
- Project Domain: Operations
- Data Source: POPP web sites
- Publicly Available Data: Yes
- Technology/Platform: Microsoft Azure
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure
- Partnership(s)/Collaborator(s): Microsoft
- Links and Multimedia: [popp.undp.org](http://popp.undp.org)
- Contact information: Diwen Xu ([diwen.xu@undp.org](mailto:diwen.xu@undp.org))

### **Project 8: Revamping of the UNOSSC Galaxy and introduction of an AI digital assistant**

- Project Description: UNOSSC and CDO are revamping the South-South Galaxy repository of solutions on SSTRC. As part of the initiative, AI will be used to assist end-users to navigate, extract insights and access valuable resources on the platform related to SSTRC.
- Department/Division: United Nations Office for South-South Cooperation (UNOSSC)
- Project Type/Output: Digital dynamic repository of SSTRC solutions
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: Cross-cutting
- Data Source: Multiple datasets
- Publicly Available Data: Yes
- Technology/Platform: TBC
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Various partnerships with member states, UN agencies, think tanks, academia and private sector.
- Links and Multimedia: <https://unsouthsouth.org/library/south-south-galaxy/>
- Contact information: Dumitru Vasilescu, Research Specialist, UNOSSC [dumitru.vasilescu@unossc.org](mailto:dumitru.vasilescu@unossc.org)

### **Project 9: Viva Implementation**

- Project Description: As part of UNDP's continued efforts in transforming our digital workplace experience, Microsoft (MS) Viva Suite was enabled across the organisation. The MS Viva Suite, including Viva Connections, Viva Insights, Viva Engage, Viva Topics, Viva Learning and Viva Goals, will ensure all personnel are connected to their colleagues and have personal productivity insights, expert knowledge, strategic priorities and key learning resources available at their fingertips. All those components are backed up by Microsoft AI engines.
- Department/Division: ITM/BMS, OHR/BMS and SDGI/BPPS
- Project Type/Output: SharePoint, Teams, Viva Suite
- Project Status: Ongoing
- Project Start Year: Q3/2022
- Project End Year: Q4/2024
- Project Domain: Operations and Management

- Data Source: M365 datasets
- Publicly Available Data: No
- Technology/Platform: Microsoft 365
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure, SDG 12 - Responsible Consumption & Production, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Microsoft
- Links and Multimedia: <https://undp.sharepoint.com/teams/ITM/SitePages/DWP-MSvivasuite.aspx> (internal)
- Contact information: Diwen Xu ([diwen.xu@undp.org](mailto:diwen.xu@undp.org)), Daniel Tshin ([daniel.tshin@undp.org](mailto:daniel.tshin@undp.org))

### Project 10: ABADEI Chatbot project -- Afghanistan Country Office

- Project Description: ABADEI project implemented by Afghanistan Country Office collects a vast amount of data from multiple sources, stores in a SQL database and visualises data on a web-based portal. The ABADEI portal is soon expected to introduce a chatbot powered by Azure OpenAI where users could ask questions about the data.
- Department/Division: AFG/RBAP and ITM/BMS
- Project Type/Output: Chatbot
- Project Status: Ongoing
- Project Start Year: Q3/2023
- Project End Year: Q1/2024
- Project Domain: Humanitarian crisis response
- Data Source: Azure SQL
- Publicly Available Data: Yes
- Technology/Platform: Microsoft Azure/OpenAI/ChatGPT
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 2 - Zero Hunger, SDG 3 - Good Health & Well-being, SDG 10 - Reduced Inequalities, SDG 11 - Sustainable Cities & Communities
- Partnership(s)/Collaborator(s): Afghanistan Government
- Links and Multimedia: <https://www.undp.org/afghanistan>
- Contact information: Arvind Kumar ([arvind.kumar@undp.org](mailto:arvind.kumar@undp.org))

### Project 11: Entity extraction and text formulation for emails

- Project Description: The project will allow OAI investigators to go through identified email account messages to flag important information related to investigations.
- Department/Division: OAI and ITM/BMS
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: Q4/2023
- Project End Year: Q1/2024
- Project Domain: Operations
- Data Source: Outlook Messages
- Publicly Available Data: No
- Technology/Platform: Microsoft Azure/ChatGPT

- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure
- Partnership(s)/Collaborator(s): N/A
- Links and Multimedia: N/A
- Contact information: Daniel Samuel ([daniel.samuel@undp.org](mailto:daniel.samuel@undp.org))

### Project 12: GeoAI for coastline erosion and slums detection

- Project Description: The project is an experiment of GeoAI in two fields of work:
  - 1) Coastline erosion: was tested over multiple years on the Liberia shore and Gaza shoreline.
  - 2) Slums detection: was created for the Philippines by a private sector through the RBAP regional hub which we took over to corporately host it and test it. slums detection was tested over Cairo, Egypt
- Department/Division: GIS/DATA/ITM/BMS
- Project Type/Output: GIS
- Project Status: Ongoing
- Project Start Year: Implemented in 2022 to 2023.
- Project End Year: 2023 but with ongoing finetuning and testing for improving the machine learning algorithm.
- Project Domain: Coastline erosion and slums detection
- Data Source: Satellite Images with ground truth data for validation
- Publicly Available Data: Yes
- Technology/Platform: Python script, Azure Hosting, Integration with ArcGIS Enterprise Server
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 13 - Climate Action
- Partnership(s)/Collaborator(s): Academia
- Links and Multimedia: [https://undp.sharepoint.com/:p:/r/sites/SatelliteImageryAnalysis/Shared%20Documents/Projects/Coastline%20Tool/Coastline\\_Tool\\_presentation\\_to\\_end\\_user.pptx?d=wfe1abf2577d743c897cf2951b2f2f4ac&csf=1&web=1&e=PznZ48](https://undp.sharepoint.com/:p:/r/sites/SatelliteImageryAnalysis/Shared%20Documents/Projects/Coastline%20Tool/Coastline_Tool_presentation_to_end_user.pptx?d=wfe1abf2577d743c897cf2951b2f2f4ac&csf=1&web=1&e=PznZ48) (internal)
- Contact information: Tala Hussein ([tala.hussein@undp.org](mailto:tala.hussein@undp.org))

### Project 13: AI for Sustainable Development

- Project Description: This project proposes an AI-powered platform designed to bridge the information gap and empower the region. This project is expected to result in accurate monitoring, data-driven insights, an early warning system, forecasting capabilities, and scenario analysis, all aimed at driving sustainable development in the Arab Region. It is poised to address the region's data deficiency challenge comprehensively and contribute significantly to achieving the Sustainable Development Goals.
- Department/Division: RBAS
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2028

- Project Domain: Optimising Agricultural and Environmental Resilience, Ensuring Climate Adaptation, Improving water resources management, Fostering Social Cohesion, Reducing inequalities
- Data Source: Satellite imagery, weather data, social media data, news reports, and more
- Publicly Available Data: No
- Technology/Platform: Google Cloud, Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): Multiple partners, including Office of the Minister of AI in the UAE, MBZUAI, TII, and more to be confirmed.
- Links and Multimedia: Panel discussion at COP28 that convened main partners: <https://www.undp.org/arab-states/press-releases/uaes-minister-state-artificial-intelligence-undp-and-e-discussed-ways-harness-power-ai-sustainable-development>
- Contact information: Dany Wazen ([dany.wazen@undp.org](mailto:dany.wazen@undp.org)) and Yasmine Hamdar ([yasmine.hamdar@undp.org](mailto:yasmine.hamdar@undp.org))

#### Project 14: UN Volunteers Description of Assignment qualitative rating

- Project Description: UN Volunteers Description of Assignment qualitative rating. For each request for a UN Volunteer of assignment, a Description of Assignment (DoA) is produced. As it contains lots of text and description, and is critical to identify suitable talent, we will deploy an AI solution to give a qualitative scoring to this DoA.
- Department/Division: ICTS/UNV/BMS
- Project Type/Output: Feature within the UNV Recruitment tool
- Project Status: Not initiated
- Project Start Year: Q2 2024
- Project End Year: Q1 2025
- Project Domain: HR
- Data Source: UNV recruitment data
- Publicly Available Data: No
- Technology/Platform: TBC
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 10 - Reduced Inequalities, SDG 16 - Peace, Justice & Strong Institutions
- Partnership(s)/Collaborator(s): None
- Links and Multimedia: Not applicable yet
- Contact information: Frederic LeMaistre ([frederic.lemaitre@unv.org](mailto:frederic.lemaitre@unv.org))

#### Project 15: Chat GPT AI application for Advanced Search in Project Information Management System, PIMS+

- Project Description: By applying the Chat GPT technology, PIMS+ is aiming to provide a more in-depth, communication based data search/analysis function to the user this year.
- Department/Division: BPPS/VF oversight unit
- Project Type/Output: Dataset is the product documents and other projects documents uploaded in PIMS+ platform
- Project Status: Ongoing
- Project Start Year: Q1-2 in 2024 for the preliminary version to be published in PIMS+ website.
- Project End Year: -

- Project Domain: System and Data
- Data Source: Data & documents entered by each project team
- Publicly Available Data: No
- Technology/Platform: Chat GPT4
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action
- Partnership(s)/Collaborator(s): None
- Links and Multimedia: pims.undp.org (internal)
- Contact information: Bonjung Goo ([bonjung.goo@undp.org](mailto:bonjung.goo@undp.org))

### Project 16: Thematic tagging of UNDP projects

- Project Description: Using supervised machine learning algorithms to tag UNDP projects based on project description text. Modelling based on pre-tagged training data sets with verification and fine-tuning by iterative training and model-adjusting.
- Department/Division: BPPS/Effectiveness/Results
- Project Type/Output: Excel data sets, STATA script (SVM)
- Project Status: Ongoing
- Project Start Year: 2019 and is on-going with adjustment of models for existing themes and expansion of themes (social protection, SP outputs, SDGs, etc.)
- Project End Year: -
- Project Domain: Various thematic areas (rule of law, climate, disaster, digital, anti-racism, women's political participation, etc)
- Data Source: Project description data extract from Quantum (not public). Training completed by thematic subject experts.
- Publicly Available Data: No
- Technology/Platform: Local offline PC with potential for Azure virtual machine (cost implications).
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 5 - Gender Equality, SDG 10 - Reduced Inequalities, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 16 - Peace, Justice & Strong Institutions
- Partnership(s)/Collaborator(s): Thematic experts from various BPPS/CB units.
- Links and Multimedia: Portfolio Analytics Dashboard (internal Power BI report)
- Contact information: Xiaodong Cai ([xiaodong.cai@undp.org](mailto:xiaodong.cai@undp.org)), Huiyan Du ([huiyan.du@undp.org](mailto:huiyan.du@undp.org))

### Project 17: Sentiment analysis of UNDP-tagged tweets

- Project Description: With help from UN Pulse API, we extract tweets from the X platform (previously known as Tweeter) for the past 6 months, where UNDP was tagged. Then three off-the-shelf python sentiment analysis packages are applied on the tweets with an automated/calculated final assessment based on the agreement among the results from the three packages. Initial testing showed accuracy above 85% within 1500+ human-labelled tweets. The results are visualised in an internal Power BI report.
- Department/Division: BPPS/Effectiveness/Results
- Project Type/Output: Excel data sets, Python packages
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: -



- Project Domain: Social media
- Data Source: UN Pulse Tweeter API
- Publicly Available Data: Yes
- Technology/Platform: Local offline PC with potential of full online automation within Power BI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): UN Pulse
- Links and Multimedia: Internal Power BI report
- Contact information: Xiaodong Cai ([xiaodong.cai@undp.org](mailto:xiaodong.cai@undp.org)), Huiyan Du ([huiyan.du@undp.org](mailto:huiyan.du@undp.org))

### Project 18: Mapping UNDP projects against SDG concepts and indicators

- Project Description: We use the UN LinkedSDGs API to analyze UNDP projects and map them against SDG concepts and indicators. The API employs natural language processing (NLP) techniques to identify key concepts based on UNBIS and EuroVoc thesauruses and their association with specific SDGs. For each project, we extract the top 5 key concepts and the top 3 SDG goals most closely related to these concepts. Then we integrate the extracted concepts and related SDG goals into UNDP's project portfolio dashboard, which allows for easy categorization and filtering of projects based on their alignment with specific SDGs and concepts.
- Department/Division: BPPS/Effectiveness/Results
- Project Type/Output: Excel data sets, Python
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: -
- Project Domain: SDGs
- Data Source: UNDP project database
- Publicly Available Data: No
- Technology/Platform: Python, Power BI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): N/A
- Links and Multimedia: Internal Power BI report
- Contact information: Xiaodong Cai ([xiaodong.cai@undp.org](mailto:xiaodong.cai@undp.org)), Huiyan Du ([huiyan.du@undp.org](mailto:huiyan.du@undp.org))

### Project 19: Automated Scoring System for UNV Volunteer Descriptions of Assignment (DoA)

- Project Description: United Nations Volunteers (UNV) performs the full recruitment cycle for thousands of volunteers for various UN agencies for different kinds of contract types. These volunteer assignments cover a range of specifications, encapsulated within job descriptions that include both structured and unstructured data. However, the variability in the quality of these job descriptions drafted by different UN agencies necessitates an automated scoring system to rank them based on quality.
- Department/Division: United Nations Volunteers (UNV)
- Project Type/Output: Dataset and Software service
- Project Status: Not initiated

- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: Human Resource analytics
- Data Source: UNV Descriptions of Assignment database
- Publicly Available Data: Yes
- Technology/Platform: Potentially: Azure OpenAI or Open source model hosted on Azure.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 9 - Industry, Innovation, & Infrastructure, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): N/A
- Links and Multimedia: N/A
- Contact information: Ashok Hariharan ([ashok.hariharan@unv.org](mailto:ashok.hariharan@unv.org))

### Project 20: SDG Push Diagnostics (National Priorities)

- Project Description: The National Priorities feature of the SDG Push Diagnostics enables users to upload and analyse policy documents with respect to 17 Goals. Documents such as Voluntary National Reviews (VNRs) and National Development Plans can be used to identify priorities of the government that can be mapped to the SDGs. A neural network algorithm helps to discover which SDGs feature most prominently as a priority. The SDG Push Diagnostics platform already provides results for more than 120 VNRs. Link: <https://sdgdiagnostics.data.undp.org/AFG/current-priorities>
- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: Web-based software tool
- Project Status: Completed
- Project Start Year: 2022
- Project End Year: 2024
- Project Domain: Cross-cutting
- Data Source: Documents, e.g., publications, reports, policy briefs and so on.
- Publicly Available Data: Yes
- Technology/Platform: Python, Microsoft Azure.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): National governments in more than 100 countries.
- Links and Multimedia: <https://sdgdiagnostics.data.undp.org/AFG/current-priorities>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Mykola Skrynnyk ([mykola.skrynnyk@undp.org](mailto:mykola.skrynnyk@undp.org))

### Project 21: DFX AI Chat

- Project Description: UNDP AI as a Service (AIaaS) is a collection of services that leverage the latest advancements in Machine Learning (ML), Natural Language Processing (NLP) and Generative Artificial Intelligence (GenAI) to help UNDP staff tap into the wealth of data for better development policies. It consists of DFX AI Chat, a flagship multi-purpose GenAI platform built upon Azure OpenAI, and a set of micro-services we use to build custom products that enable you to extract, analyse and summarise knowledge from non-traditional data sources including webpages, documents, images, and social media interactions at scale.
- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: Web-based software tools, platform, APIs.

- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Cross-cutting
- Data Source: Any text data, including but not limited to project documents, reports, publications etc.
- Publicly Available Data: No
- Technology/Platform: Python, Azure OpenAI Service, Azure Cognitive Services and other Microsoft Azure services.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): Government and private sector.
- Links and Multimedia: <https://chat.data.undp.org> and <https://data.undp.org/what-we-do/ai-as-service>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Mykola Skrynyk ([mykola.skrynyk@undp.org](mailto:mykola.skrynyk@undp.org))

### Project 22: NDC Analytics App

- Project Description: Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of its long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The NDC Analytics App is an AI-powered application that allows users to search through 120 Nationally Determined Contributions (NDCs) to find information of interest. The application supports search queries in English, French and Spanish.
- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: A web-based application
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Environment, energy and climate
- Data Source: Documents from NDC Registry.
- Publicly Available Data: Yes
- Technology/Platform: Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 7 - Affordable & Clean Energy, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Governments.
- Links and Multimedia: <https://ndc-analytics-app.azurewebsites.net>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Mykola Skrynyk ([mykola.skrynyk@undp.org](mailto:mykola.skrynyk@undp.org))

### Project 23: Gender Social Media Monitoring Tool

- Project Description: The Gender Social Media Monitoring Tool is a pilot initiative that leverages artificial intelligence technologies to track conversations on social media networks across categories relevant to gender-responsive policymaking: education, politics, reproductive rights, work, and violence. Supporting over 100 languages, the tool detects harmful content and hate speech against women and girls, an indicator of online gender violence and backlash against women's rights and gender equality. It can

also provide policymakers, civil society and practitioners with new data and insights to take action to address these backlashes.

- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: A web-based tool
- Project Status: Completed
- Project Start Year: 2022
- Project End Year: 2023
- Project Domain: Gender
- Data Source: Social media data
- Publicly Available Data: Yes
- Technology/Platform: Python, Twitter API and Databricks.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 10 - Reduced Inequalities, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Government, private sector and other UN agencies.
- Links and Multimedia: <https://data.undp.org/insights/gender-social-media-monitoring>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Raquel Lagunas ([raquel.lagunas@undp.org](mailto:raquel.lagunas@undp.org))

#### Project 24: Identifying electricity access gaps at a hyperlocal level

- Project Description: UNDP, in partnership with University of Michigan, has used high-resolution satellite imagery to complement household derived information on electricity access at subnational level for more than 100 countries. By monitoring and comparing how strong the night-time light of a specific settlement is in relation to other areas around the globe, the approach uses a statistical model to calculate the likelihood of a human settlement to be electrified. Unlike household surveys, satellite data allows us to rapidly capture the evolution, quality and frequency of electrification. Based on this approach, the number of people that lack access to reliable electricity services surpasses 1 billion – a much larger figure than the official count of 675 million lacking electricity access. This suggests that not all those classified as having access actually benefit from electricity.
- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: A web-base tool and a dataset
- Project Status: Completed
- Project Start Year: 2022
- Project End Year: 2022
- Project Domain: Energy
- Data Source: Satellite data
- Publicly Available Data: Yes
- Technology/Platform: Python and Microsoft Azure
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 7 - Affordable & Clean Energy,
- Partnership(s)/Collaborator(s): Academia and private sector.
- Links and Multimedia: <https://data.undp.org/insights/achieving-universal-electricity-access/electricity-access-from-space>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Riad Meddeb ([riad.meddeb@undp.org](mailto:riad.meddeb@undp.org))

### Project 25: SIDS Data Platform

- Project Description: UNDP's integrated approach supports Small Island Developing States to accelerate transformative development based on three pillars: Climate Action, Blue Economy, and Digital Transformation.
- Department/Division: Bureau for Policy and Programme Support / SDG Integration
- Project Type/Output: A web-based tool
- Project Status: Completed
- Project Start Year: 2022
- Project End Year: 2023
- Project Domain: Cross-cutting
- Data Source: Indicator data and geospatial data.
- Publicly Available Data: Yes
- Technology/Platform: JavaScript and Python.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All SDGs
- Partnership(s)/Collaborator(s): Governments.
- Links and Multimedia: <https://sids.data.undp.org>
- Contact information: Babatunde Abidoye ([babatunde.abidoye@undp.org](mailto:babatunde.abidoye@undp.org)) or Oksana Leshchenko ([oksana.leshchenko@undp.org](mailto:oksana.leshchenko@undp.org))

### Project 26: Risk Anticipation Data Hub

- Project Description: The project aims to transform an existing UNDP Crisis Bureau internal data platform (Crisis Risk Dashboard) into a digital public good by providing a one-stop data warehouse combining a large set of public datasets to facilitate integrated multidimensional data analytics. A key feature of this project will be a Generative AI LLM front-end that will enable analysts to interact with the data warehouse using natural language queries. This innovative feature will empower analysts to extract insights without relying on traditional business intelligence tools, enhancing rapid risk analysis and reducing barriers to entry and costs.
- Department/Division: Crisis Bureau
- Project Type/Output: Software tool
- Project Status: Not initiated
- Project Start Year: 2024
- Project End Year: 2025
- Project Domain: Crisis
- Data Source: Multiple sources of mostly tabular data
- Publicly Available Data: Yes
- Technology/Platform: TBD
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): CRAF'd funded project
- Links and Multimedia: TBD
- Contact information: Shouryadipta Sarkar ([shouryadipta.sarkar@undp.org](mailto:shouryadipta.sarkar@undp.org))

## Project 27: Digital Social Vulnerability Index (DSVI)

- **Project Description:** The Digital Social Vulnerability Index is a cutting-edge digital solution for vulnerability assessments to monitor and understand the exact location, distribution and underlying drivers of social vulnerabilities. While previous vulnerability measures would require conducting timely and costly surveys, the DSVI provides a higher resolution and improved representation of a country's social vulnerability beyond administrative boundaries. Moreover, compared with previous instruments, the DSVI is the first tool of its kind to incorporate a much more comprehensive SV analysis by integrating numerous data sources and indices into one.

Tailored to the specific needs of UNDP, government agencies and other development actors, DSVI can provide effective digital SV analyses with an implementation time frame of two to three months per country. It seeks to help UNDP national or regional offices to improve their understanding of local vulnerabilities, thereby facilitating the adoption of more targeted and coordinated interventions that build stronger community resilience. DSVI offers a set of outputs which help to deliver the key messages and data to its target audiences. These elements start with raw datasets and scientific methods for calculation and end with training sessions, maps, reports or digital infrastructure to visualise the findings. First, DSVI offers high-accuracy SV scores. SV scores are calculated by an automated data science pipeline which gathers high-quality and freely available raw data from USAID, the UN and scientific resources. Using GIS and machine learning, DSVI generates high-resolution vulnerability maps. These maps are a new, more technologically advanced addition to the long tradition of vulnerability mapping.

The DSVI has been implemented in 6 countries: Tajikistan, Burkina Faso, Niger, Ethiopia, Kenya and Somalia.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Digital Social Vulnerability Index (DSVI) calculations, Interactive Social Vulnerability Maps, Analytical Briefs and Trainings (General and Technical)
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: -
- Project Domain: Resilience
- Data Source: USAID Demographic and Health Surveys (DHS), satellite imagery, open-source data
- Publicly Available Data: Yes
- Technology/Platform: Python, GIS, Machine Learning
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 6 - Clean Water & Sanitation, SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, & Infrastructure, SDG 10 - Reduced Inequalities, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 16 - Peace, Justice & Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UNDP Country Offices (Tajikistan, Niger, Burkina Faso, Niger and UNDP Resilience Hub)
  - National stakeholders (Ministries and Statistics Agencies)
  - UNDP Disaster Risk Reduction and Recovery for Building Resilience Team (DRT)
  - Policy makers and decision makers in selected countries
  - UN Online Volunteer Data Scientists
- Links and Multimedia: <https://www.undp.org/policy-centre/istanbul/news/iicpsd-undp-tajikistan-hosted-training-digital-social-vulnerability-index-dsvi>

- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org))

### Project 28: Frontier Technology Radar for Disaster Risk Reduction (FTR4DRR)

- Project Description: Frontier Technology Radar for Disaster Risk Reduction (FTR4DRR) is an online tool for the monitoring and tracking of existing and emerging digital solutions for anticipatory risk, risk reduction, and crisis recovery. Developed through a partnership between UNDP's Disaster Risk Reduction and Recovery for Building Resilience Team (DRT), ICPSD SDG AI Lab, and Connecting Business Initiative (CBI), the FTR4DRR aims to effectively support UNDP and other development stakeholders in navigating fast-growing digital solutions for disaster risk reduction and management. It enables an improved understanding of the technological landscape among development stakeholders and encourages the adoption of proven solutions while furthering UNDP as a thought leader on the use of innovative technologies in disaster contexts. Since the launch of FTR4DRR in October 2022, SDG AI Lab has continued developing the tool. In addition, the partners have hosted three outreach webinars that introduced how frontier technologies are used in Disaster Risk Reduction (DRR).
- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Online web platform
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: -
- Project Domain: Resilience
- Data Source: UNDP publications, open sources, online volunteers crowdsourcing
- Publicly Available Data: Yes
- Technology/Platform: Typescript, React, sass, D3.js
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities, SDG 13 - Climate Action, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): UNDP Disaster Risk Reduction and Recovery for Building Resilience Team (DRT) and Connecting Business Initiative (CBI)
- Links and Multimedia: <https://drtechradar.org/#/>
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org))

### Project 29: Crisis Risk Dashboard: Predictive Analytics and Multi-dimensional Analysis

- Project Description: The Risk Anticipation Hub is developing predictive analytics components to the Crisis Risk Dashboards and related products. This includes:

#### 1. Better anticipation of conflicts & impacts of prevention

We leverage the most recent advances in machine learning to obtain conflict forecasts and conflict prevention impact estimates to improve risk anticipation. For this we combine the world-leading conflict forecasting systems in a new data product that will enable forward-looking risk analysis and decision-support, including a prioritisation of countries for prevention activities and sub-national forecasts of conflict risks.

#### 2. Conflict forecasting using news data

We utilise GDELT's high frequency, text-based data to capture the "chatter" of what is happening in local contexts to see if it is predictive of conflict. We limited the geographic scope to the

Horn of Africa and aggregated to each country's admin level 1 and to a 1-2 week time interval. With an escalation of ACLED fatalities as the outcome to predict, we utilise article document embeddings as the main predictors, and conflict history and some static features (population density, etc.) as additional features.

### 3. Multi-dimensional analysis

We utilise AI and machine learning-based technologies for in-depth multi-dimensional analyses. The types of analyses include:

\* Natural language processing and text analysis - Given a body of texts, we can find the topics and representative keywords, commonly used terms and phrases, and sentiments and emotions reflected in the content. We can also categorise texts into predefined groups to find trends, and summarise and distil text into its most essential content. This includes analysis of social media data.

\* Hotspot and spatial analysis - Given data on events or phenomena, hotspot analysis can find patterns and uncover relationships between spatial information. We can identify geographic areas with significantly high (or low) levels of incidents for further investigation.

\* Outlier and anomaly detection - Given data on events or measurements, various algorithms and methods can be used to find unexpected values that differ significantly from the norm or usual trend. This can alert us to further monitoring or investigation.

\* Time series analysis - Given data recorded over time at regular intervals, we can identify underlying trends and detect seasonality and repeating patterns to better understand a context.

Department/Division: Crisis Bureau

- Project Type/Output: Software tool, dashboard
- Project Status: Ongoing
- Project Start Year: Ongoing
- Project End Year: -
- Project Domain: Crisis
- Data Source: Multiple open source datasets
- Publicly Available Data: Yes
- Technology/Platform: Azure services, Databricks, Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, & Infrastructure, SDG 16 - Peace, Justice & Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Several.
- Links and Multimedia: TBD
- Contact information: Sun-joo Lee ([sun-joo.lee@undp.org](mailto:sun-joo.lee@undp.org))

### Project 30: Fair Digital Finance SupTech

- Project Description: UNDP Morocco's Accelerator, Morocco Central Bank, and ICPSD SDG AI Lab partnered to analyse consumer sentiments to identify vulnerable social groups' needs. To do so the partners used social listening to amplify the collective voice of consumers and highlight the concerns of the most marginalised people. ICPSD SDG AI Lab has used Machine Learning (ML) and Natural Language (NLP) techniques to collect



and analyse data from social media platforms like Twitter, Facebook, and Instagram. The developed Supervisory Technology (SupTech) solution offers insights on financial stability, inclusion, and market conduct. ICPSD SDG AI Lab established an advanced data analysis system for two languages and developed a web application. This SupTech solution can analyse daily social media posts in Arabic and French. Moreover, the SupTech web application aggregates the analysis into PDF-ready reports and visualisations. The users can listen to specific topics or data sources and produce visualised reports.

This project supports the country's digital transformation and experiments with digital technologies for financial supervision and innovative digital finance. It aims to identify vulnerable social groups' needs and amplify the collective voice of consumers and highlight the concerns of the most marginalised people. The developed Supervisory Technology (SupTech) solution offers insights on financial stability, inclusion, and market conduct. The supervisory technologies will also advance Morocco's digital transformation, while generating insight into the local digital economy.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Data Analysis Pipeline, Web Platform and reports
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: -
- Project Domain: Economic Growth, FinTech
- Data Source: Social media platforms (Twitter, Facebook, Instagram)
- Publicly Available Data: Yes
- Technology/Platform: Python, Django
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, & Infrastructure, SDG 10 - Reduced Inequalities, SDG 16 - Peace, Justice & Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): UNDP Morocco Accelerator Lab, Morocco Central Bank
- Links and Multimedia: <https://www.undp.org/fr/morocco/blog/ais-next-frontier-making-finance-more-sdgs-aligned>
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org))

### Project 31: OSDG

- Project Description: The OSDG is a partnership between PPMI and UNDP Istanbul International Centre for Private Sector in Development (ICPSD) SDG AI Lab. The partners joined forces to streamline efforts by consolidating existing research and to foster transparency by making its methodology and code publicly accessible. The partnership's flagship product is OSDG, a free, fully open-source, and user-friendly tool that classifies text and publications into the different SDGs. This innovative tool is designed to assist various stakeholders, including governments, companies, development organisations, universities, research funders, and individual researchers, in aligning their activities with the Sustainable Development Goals (SDGs). The OSDG has been recognized as one of Top 100 AI Solutions for SDGs by UNESCO IRCAI.

Under the OSDG initiative, the partners have established the largest broadest possible consultation on the SDGs monitoring. To do so, the OSDG team has mobilised over 2500 online volunteers from 130 countries, which includes 900+ UN Online Volunteers. Online volunteer citizen scientists assess the relevance of various text excerpts to SDGs, bringing together the knowledge and expertise to better understand the nature of SDGs. With the volunteers' contributions PPMI and ICPSD SDG AI Lab released nine quarterly versions of the OSDG Community Dataset with a total of 7,901 views and almost 5000 downloads

from over 40 countries. The dataset has been used in academic research (15+ academic publications) and several hackathons.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Online SDGs classification tool, API, OSDG Community Dataset
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: -
- Project Domain: Sustainable Development
- Data Source: Original Dataset
- Publicly Available Data: Yes
- Technology/Platform: Python
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education, SDG 9 - Industry, Innovation, & Infrastructure, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): European Research Center - PPMI
- Links and Multimedia: <https://osdg.ai/> , <https://www.undp.org/news/osdg-initiative-recognized-top-100-ai-projects-advancing-sustainable-development-goals>
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org) )

### Project 32: AI for Tourism

- Project Description: Tourism stands as a priority for sustainable development in both Malawi and Zanzibar, Tanzania. However, both regions encounter challenges such as inadequate infrastructure, low-quality service, and ineffective marketing, leading to a lower ranking in the Travel & Tourism Competitiveness Index compared to their counterparts. Addressing these issues involves employing AI for data gathering and analysis to identify trends and insights, facilitating informed decision-making and improving tourism development, visitor experiences, and revenue generation.

Ai for Tourism Project offers a path to a greater understanding of the tourist industry using advanced digital technologies such as Artificial Intelligence, Natural Language Processing, GIS, and others. SDG AI Lab will develop an interactive web platform with real-time data to help businesses understand the most popular destinations, preferred types of accommodations, and activities that tourists enjoy. By using this information to make informed decisions about their services and offerings, tourism businesses will be able to improve customer satisfaction and generate more revenue.

Additionally, for predictive analytics the project uses AI algorithms to analyse past customer behaviour data and forecast future trends, such as popular destinations and services in high demand. Supported with this information, tourism businesses will be able to better plan and prepare for the future, effectively meeting customer needs and expectations. Overall, the partnership supports rising tourist destinations with innovative open-source solutions, which can be adopted by many countries.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Data Pipeline, Web Platform
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: -
- Project Domain: Economic Growth
- Data Source: Social Media Data
- Publicly Available Data: Yes
- Technology/Platform: Python
- Reported as part of 2022 Compendium on UN AI Activities? No

- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty, 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, & Infrastructure, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): UNDP Malawi Accelerator Lab, UNDP Tanzania Accelerator Lab
- Links and Multimedia: N/A
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org))

### Project 33: Illegal Dumpsite Detection Guatemala

- **Project Description:** In Guatemala, the implementation of participatory actions in the integrated management of solid waste at the municipal level is listed as one of the strategic goals of the National Development Plan and the Country Priorities. The Ministry of Environment and Natural Resources (MARN) and UNDP Guatemala are focusing on the establishment of baselines and indicators in areas of biological importance in fluvial and marine-coastal zones, such as the Motagua river (the largest in the country). The river carries a high volume of waste to the Atlantic Ocean that has created a geopolitical crisis with the neighbouring country Honduras. Illegal waste dumping undermines efforts to protect the environment and contaminates soil, water resources, oceans, and ecosystems. It poses serious environmental and health risks. It is necessary to identify the illegal dumping areas and initiate action that would prevent further environmental and health risks. Proper identification and monitoring of illegal waste dumping sites with methods such as regular inspection, reporting, and on-field surveillance require a considerable amount of budget on a local and national level. Remote sensing and other digital technologies offer an alternative approach to identify and monitor these areas in a timely and cost-effective manner.

UNDP ICPSD SDG AI Lab partnered with UNDP Guatemala Accelerator Lab for identifying the illegal waste dumping sites, particularly alongside the river basins. To do so, SDG AI Lab utilised cutting-edge tools and techniques like machine learning and artificial intelligence combined with advanced GIS and remote sensing techniques. The project is planned for further scaling up and handover to national authorities. The obtained data will complement official statistics, particularly the National Information System for Climate Change. SDG AI Lab combined publicly available high-resolution satellite images, very high-resolution satellite images originating from MAXAR, Google Earth and Sentinel Hub (under ESA sponsorship) with confirmed illegal dumpsites' locations. The obtained data was used to train the machine learning and deep learning models that help in the detection of new locations and estimation of volume and structure of the waste. After the calculations and visualisation efforts are completed, the partners will conduct trainings to localise the capacity and ensure the sustainability of the initiative.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Image classification model for detecting illegal dumping sites and Technical Report
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: -
- Project Domain: Environment
- Data Source: Satellite data
- Publicly Available Data: Yes
- Technology/Platform: Python, Google Maps Static API, GIS, Remote Sensing, Computer Vision
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 6 - Clean Water & Sanitation, SDG 9 - Industry, Innovation, & Infrastructure, SDG 11 - Sustainable Cities & Communities,

SDG 13 - Climate Action, SDG 14 - Life Below Water, SDG 15 - Life on land, SDG 17 - Partnerships for the Goals

- Partnership(s)/Collaborator(s): UNDP Guatemala Accelerator Lab, Ministry of Environment and Natural Resources (MARN), Polytechnic University of Milan
- Links and Multimedia: N/A
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org) )

### Project 34: AI-powered Data Management and Analysis for SDG Finance

- **Project Description:** Integrated National Financing Frameworks (INFFs) help countries finance their national sustainable development objectives and the Sustainable Development Goals (SDGs). Through INFFs, countries develop a strategy to mobilise and align financing with all dimensions of sustainability, broaden participation in the design, delivery and monitoring of financing policies, and manage risk. Globally, there are over 85 countries currently using INFFs to build a more sustainable financial architecture at the national level. With an increasing number of countries moving forward in the INFF process, the INFF Facility team identified the need for an efficient system to manage, collect, and analyse data related to the reforms being put forward as part of countries' INFF processes, both as part of their financing strategies and development finance assessments.

INFF has partnered with ICPSD SDG AI Lab to obtain strategic insights into national-level financing solutions and help understand how different countries are proposing to enhance the mobilisation and alignment of financing with the SDGs. Moreover, it helps identify trends and inform strategic planning by INFF Facility partners and decision-making around the supply of relevant technical assistance. To visualise the findings, the Lab has prepared an interactive PowerBI dashboard. The partners also have worked on creating a comprehensive and standardised taxonomy on various financial categories. The established taxonomy supported taxonomy-based analysis, which allowed careful validation of the findings. Moreover, the taxonomy allowed the creation of an invaluable labelled dataset for future machine-learning applications.

- Department/Division: BPPS/ICPSD/SDG AI Lab
- Project Type/Output: Data pipeline, PowerBI dashboard, taxonomy
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: SDG Finance
- Data Source: INFF Reports
- Publicly Available Data: No
- Technology/Platform: Python, PowerBI
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 16 - Peace, Justice & Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Integrated National Financing Framework (INFF)
- Links and Multimedia: N/A
- Contact information: Gokhan Dikmener ([gokhan.dikmener@undp.org](mailto:gokhan.dikmener@undp.org) )

### Project 35: INFORM-Warning

- **Project Description:** INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM is developing a suite of quantitative, analytical products to support decision-making at different stages of the crisis management cycle.

INFORM-Warning seeks to make a contribution to the better use of data to anticipate, prevent, and respond to climate and complex risks in fragile and crisis-affected settings. The objective of INFORM-Warning is to present reliable, quantified, multi-hazard information that warns about risk trends, forecasts, scenarios and events that could lead to crisis impacts in the next 12 months and can be easily used to support decisions on preparedness and anticipatory action. The INFORM Warning system will be unique as an open source aggregator of existing early warning data sources that simplifies and interprets quantitative data to understand early warning trends.

- Department/Division: Crisis Bureau
- Project Type/Output: Interactive website, models, scientific paper
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2025
- Project Domain: Climate, crisis
- Data Source: Multiple open source datasets
- Publicly Available Data: Yes
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action, SDG 16 - Peace, Justice & Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): OCHA, JRC, WFP, UNICEF, UNHCR, FAO, IOM, WHO, IFRC, ACAPS, EU, OECD, FCDO
- Links and Multimedia: TBD
- Contact information: Sun-joo Lee ([sun-joo.lee@undp.org](mailto:sun-joo.lee@undp.org))

### Project 36: SDG interlinkages report

- Project Description: Development of a report in 2024 that will look into the interlinkages between SDG16 and SDG13. The research team plans to test an AI tool for research.
- Department/Division: UNDP Global Policy Centre for Governance
- Project Type/Output: Research to be facilitated by an AI tool
- Project Status: Not initiated
- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: Governance
- Data Source: Not known yet
- Publicly Available Data: Yes
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action, SDG 16 - Peace, Justice & Strong Institutions
- Partnership(s)/Collaborator(s): UNDP GPCG is working with IDOS to jointly develop this publication.
- Links and Multimedia: TBD
- Contact information: Julia Kercher ([julia.kercher@undp.org](mailto:julia.kercher@undp.org))

### Project 37: UN "HR Policies Interagency" Gen AI Chat Website

- Project Description: To design & build production grade AI chatbot website based on Azure OpenAI for HR

Inter Agency to enable them to automate time consuming activities related to administration of

HR Policies. The Chat Website provides the ability to benchmark responses against the complex HR policies of different UN entities.

The provision of the UN "HR Policies Interagency" Gen AI Chat Website to UNDP and 12 other UN entities is managed by United Nations International Computing Centre (UNICC). UNDP is part of the HR Network that has outsourced the development, hosting, and support of this solution to UNICC.

- Department/Division: BMS/Office of Human Resources
- Project Type/Output: Chatbot Website
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2024
- Project Domain: HR
- Data Source: HR policies of various UN entities
- Publicly Available Data: No
- Technology/Platform: Azure Open AI
- Reported as part of 2022 Compendium on UN AI Activities?
- Related Sustainable Development Goals (SDGs): SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Collaboration among 13 UN entities
- Links and Multimedia: N/A
- Contact information: Yuichi Kawamoto, [yuichi.kawamoto@undp.org](mailto:yuichi.kawamoto@undp.org)

### Project 38: NBSAP Target Similarity Assessment

- Project Description: The Convention on Biological Diversity (CBD) aims to guide action to conserve biodiversity, promote the sustainable use of its components, and ensure the fair and equitable sharing of the benefits arising from the use of genetic resources. National Biodiversity Strategies and Action Plans (NBSAPs) are the main policy instrument for implementation of the CBD at the national level and contain national biodiversity targets that contribute towards the Convention. At the 15th CBD Conference of Parties (COP15) in 2022, 196 nations adopted the Kunming-Montreal Global Biodiversity Framework to put nature on a path to recovery by 2030 and achieve harmony with nature by 2050. Parties are initiating processes to align the national biodiversity targets within their NBSAPs through an inclusive whole-of-government and whole-of-society approach by the COP16. To improve alignment of NBSAP alignment with the Kunming-Montreal Global Biodiversity Framework, it is essential to identify which elements of the global goals and targets can be more effectively incorporated into national targets to reduce gaps.

The GEF Early Action Support Project is exploring new applications of Artificial Intelligence to support governments to more quickly advance in uncovering patterns and gaps in national biodiversity target alignment using a whole-of-government and whole-of-society approach. The goal is to provide individual assessments for 69-support countries on the similarity between a country's national biodiversity targets and the four goals and 23 targets of the Kunming-Montreal Global Biodiversity Framework. The results offer detailed guidance that can inform country-led processes to strengthen alignment between national biodiversity targets with those in the Kunming-Montreal Global Biodiversity Framework and support NBSAP revision or update. Developed through the application of GPT-4, these customized assessments have the potential to:

- Enable stakeholder engagement to convene around an informed neutral starting point;
- Support more dynamic and effective engagement by providing a common starting place for advanced conservation among diverse stakeholders;

- Expedite the alignment processes so that resources can be conserved for other aspects of NBSAP review, update, and implementation;
- Support activities towards the GEF Global Biodiversity Framework Early Action Support Project; and
- Provide useful information towards CBD reporting requirements in advance of COP16.
- Department/Division: UNDP Nature for Development, GEF Global Biodiversity Framework Early Action Support Project
- Project Type/Output: Customized policy summaries and in-depth analysis for countries
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Biodiversity
- Data Source: National biodiversity targets are found via the CBD website: <https://www.cbd.int/nbsap/targets/>
- Publicly Available Data: Yes
- Technology/Platform: Azure OpenAI Service
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): 1. No Poverty, 2. Zero Hunger, 5. Gender Equality, 6. Clean Water & Sanitation, 7. Affordable & Clean Energy, 8. Decent Work and Economic Growth, 10. Reduced Inequalities, 11. Sustainable Cities & Communities, 12. Responsible Consumption & Production, 13. Climate Action, 14. Life Below Water, 15. Life on land
- Partnership(s)/Collaborator(s): To date, feedback and recommendations on how to improve the assessments have been provided by the CBD, UNDP Chief Digital Office, UNDP Information and Technology Management, UNDP country offices in Cambodia, Costa Rica, Lebanon, Nepal, and the National Commission for Knowledge and Use of Biodiversity of Mexico.
- Links and Multimedia: <https://www.youtube.com/watch?v=9UV3yFRrX4M&feature=youtu.be> <https://www.learningfornature.org/wp-content/uploads/2020/07/Target-Similarity-Assessment-Tool-Presentation-GM-final.pdf>
- Contact information: Lea Phillips ([lea.phillips@undp.org](mailto:lea.phillips@undp.org)), Christina Supples ([christina.supples@undp.org](mailto:christina.supples@undp.org)), Nicole DeSantis ([nicole.desantis@undp.org](mailto:nicole.desantis@undp.org))

### Project 39: Brazil Justica 4.0

By July 2023, the “Justiça 4.0” Program launched four new Artificial Intelligence models for classifying court cases, contributing to the reduction of trial time and the number of appeals in the Brazilian courts. All models were developed in partnership with Federal Universities as follows:

- PEDRO (Court Precedents Extraction and Discovery Platform): Developed in partnership with the University of Brasília (UnB), the model infers, from the initial petitions, the qualified precedents of the Federal Supreme Court (STF) and the Superior Court of Justice (STJ), also showing the degree of similarity with the analyzed case.
- KAIROS (K-Means Clustering Similarity for Legal Documents): Groups processes using an unsupervised machine learning method and can be used to manage the collection of processes and classify them by subject, branch, among others. It is the result of a partnership with the Federal University of Goiás (UFG).
- ALICIA (Linguistic Analysis for Automated Classification): Developed in partnership with the University of Fortaleza (Unifor), it promotes assignment of subjects based on Unified Procedural Tables.

- ANA (Automated Standards Analysis): Model trained for retrieving legal texts and associated jurisprudential precedents, developed with Unifor.
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### **Project 40: Argentina AI - Argentine Intelligence**

The project advances AI for the development agenda. It comprises a series of initiatives to foster a national dialogue on AI and its potential for development and raising awareness about it among the population and relevant stakeholders.

The portfolio of initiatives includes the identification of the ecosystem of referents and researchers in the country; the exploration of uses, good practices, risks, and opportunities of this tool; the analysis of global and regional regulations to formulate guidelines and recommendations for the country; and the use of AI as a tool to tackle political polarisation in the context of the country's 40th anniversary of democracy.

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## **2. Related Sustainable Development Goals**

All 17 SDGs

## **3. Relevant links**

<https://www.undp.org/>

Contact Information

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## United Nations Department of Political and Peacebuilding Affairs and Department of Peace Operations



### 1. Description of Activities on AI

#### Project 1: AI -powered large-scale synchronist dialogues

- Project Description: Complementing other efforts to address the challenges of systematically involving public voices in the specifics of peace negotiations, the Innovation Cell has been exploring the use of Artificial Intelligence (AI) for mediators and actors to hold real-time consultations with a large group of individuals in local dialects and languages, allowing for analyses and segmentation based on demographic interests.
- Department/Division: DPPA – Policy and Mediation Division – Innovation Cell
- Project Type/Output: Software tool, Design Methodology
- Project Status: Ongoing
- Project Start Year: 2020
- Project Domain: Human Rights, Gender, Justice
- Data Source: Anonymous demographic data and insights from participants to the AI-enabled digital dialogue.
- Publicly available data: No
- Technology/Platform: Interface with external software.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates:
  - Following the successful pilot of the Artificial Intelligence (AI)-assisted large-scale public dialogues in June 2020 with the Office of the Special Envoy of the Secretary-General for Yemen (OESGY) on challenges and opportunities brought on by COVID-19 pandemic on humanitarian and economic issues, the DPPA Innovation Cell continued its support of large-scale digital dialogues for inclusive peacemaking. For instance, towards the end of 2020, the Innovation Cell supported UN Support Mission in Libya (UNSMIL) in designing and deploying the methodology in Libyan dialect on two separate occasions related to the UN-led Libyan Political Dialogue Forum (LPDF). The first digital dialogue, which took place on 16 October with 1000 Libyan youth, aimed to help set the agenda for a subsequent meeting with youth groups under the LPDF. Based on the experience and results of the October dialogue, UNSMIL chose to apply the methodology for a consultation with the wider Libyan public (1500 individuals) on political, military, and economic issues in early November 2020. In continuing support of UNSMIL, the Innovation Cell developed an online dialogue platform (Alhiwar.ly) and prepared for a nationwide poll using Computer-Assisted Telephone Interviews (CATI).
  - In 2021, the Innovation Cell advanced partnerships with field missions, such as most recently with the United Nations Assistance Mission for Iraq (UNAMI) as part of its larger efforts in providing technical support to the upcoming early elections in October. This

ongoing initiative with UNAMI also incorporates behavioral insight to test dialogue engagement nudges.

- Additionally, the Innovation Cell completed the building of five different dialect dictionaries (or corpora) – Yemeni, Libyan, Iraqi, Palestinian and Sudanese Arabic. This represents a major step forward in training computers to understand what is being said in different dialects. These corpora can now be leveraged to support the relevant UN Special Political Missions (SPMs) and presences conduct more AI-enabled dialogues, in addition to helping them parse and better understand radio, TV, and online content in the aforementioned dialects.
- Related Sustainable Development Goals (SDGs): SDG 9 – Industry, Innovation, and Infrastructure; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Private Sector: Remesh.AI
- Relevant Links and Multimedia:
  - <https://futurespeace.org/ai-for-peacemaking.html>
  - <https://osesgy.unmissions.org/cutting-edge-tech-service-inclusive-peace-yemen>
  - <https://unsmil.unmissions.org/asrsg-williams-conducts-digital-dialogue-1000-libyans>
  - <https://iraq.un.org/en/144266-srsg-jeanine-hennis-plasschaert-conducts-first-digital-dialogue-iraqi-voters>
- Lessons Learned: In addition to substantial lessons learned, such as the development of the discussion guide and importance of baseline study suitable to the context, the issue of trust in AI, security and data gathering continues to be a recurring theme. Although the insights gathered by the tool itself are anonymous, participants in the dialogue have expressed a general sense of declining trust in digital tools, especially when discussing formal political processes. The Innovation Cell continues to consider more confidence-building measures, including by working through partnership with local groups.
- Contact information: Martin Waehlich ([martin.waehlich@un.org](mailto:martin.waehlich@un.org)), Daanish Masood ([masood@un.org](mailto:masood@un.org))

## Project 2: Exploring the Potential and Risks of Generative Artificial Intelligence in the UN System

- Project Description: As Generative Artificial Intelligence technologies progress, they offer numerous advantages, such as improved knowledge management, enhanced translation capabilities, and efficient content generation. Especially with the release of AI applications such as ChatGPT, Perplexity.ai, and Microsoft Bing for general use, Generative AI continues to permeate the tools and applications used in the UN's daily work. To foster greater awareness and capabilities among UN staff regarding both the potential benefits and risks of this technology, DPPA's Innovation Cell organizes AI Innovation Workshops, including prompt engineering labs and other creative ideation sessions.
- Department/Division: DPPA – Policy and Mediation Division – Innovation Cell
- Project Type/Output: AI Innovation Workshops
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Generative AI
- Data Source: Insights from participants from across the UN system
- Publicly available data: No
- Technology/Platform: ChatGPT, Perplexity.ai, Casper.AI
- Reported as part of 2022 Compendium on UN AI Activities? No

- Project Updates:
  - As an example, on 3 May 2023, DPPA's Innovation Cell, in collaboration with EOSG's Data Strategy Team and the United Nations Innovation Network (UNIN), organized a brainstorming workshop on the potential and risks of Generative Artificial Intelligence in the UN System with over 40 participants from across the organization. The discussion revealed that the main areas where AI is already applied in the UN system include: 1) content creation and editing, 2) learning and analysis, 3) communications, 4) accessibility and assistive technologies, and 5) task automation and efficiency. In particular, AI is being tested for processing massive amounts of sitreps and producing automated summaries, used for SWOT analysis, assessing project timelines, and much more. With regard to future potential, the group highlighted a number of ideas in similar categories, such as insight extraction from planning and reporting documents, developing chatbots for knowledge bases, predictive modeling, and AI for auditing. The group also discussed concerns regarding data security and organizational challenges and outlined several potential priorities, such as tailoring Generative AI application to the UN Secretariat.
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s): EOSG's Data Strategy Team and the United Nations Innovation Network (UNIN)
- Relevant Links and Multimedia:
  - <https://futurespeace.org/project/innovation-workshop-on-artificial-intelligence>
  - <https://futurespeace.org/project/generative-artificial-intelligence-and-its-implications>
- Lessons Learned: Advancing Generative AI applications tailored to the UN Secretariat requires different levels of collaboration between various parts of the UN. This emphasizes the importance of training and sensitizing management and staff regarding the potential and the risks of AI. Participants welcomed the workshops as providing an important forum for discussion and expressed interest in further developing and maintaining it to facilitate exchange and practice amongst different parts of the UN in the area of AI.
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## 2. Related Sustainable Development Goals

SDG 9 and 16

## 3. Relevant Links

[www.dppa.un.org](http://www.dppa.un.org)

Contact Information

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## United Nations Economic Commission for Europe



### 1. Description of Activities on AI

#### Project 1: UK Office of National Statistics (ONS) - UNECE Machine Learning Group 2022

- Project Description: national and international statistical organisations produce official statistics that affects important policies and decisions for the society and economy. ML holds a great potential for statistical organisations to harness new data sources (e.g., big data) and make their business more efficient, allowing them to provide better data services. The ONS-UNECE Machine Learning Group 2022 (ML 2022) is an initiative targeted at the official statistics community, providing a platform for the global statistical community to develop research, build skills and share common challenges and solutions on ML developments and applications. It builds on the momentum of the 2019-2020 UNECE HLG-MOS Machine Learning Project and the ML Group 2021. The initiative was launched in January 2022, is led by the ONS Data Science Campus and the UNECE. ML 2022 consists of theme groups focusing on following topics text classification, modelling, imagery analysis, quality of training data, model re-training, web-scraping data and IT infrastructure.
- Department/Division: Statistics
- Project Type/Output: Community of expertise, research collaboration
- Project Status: Ongoing
- Project Start Year: 2019
- Project Domain: Statistics
- Data Source: Survey data, register data, automatic identification system (AIS) data, web-scraped data, satellite imagery data (LandSat, Sentinel), etc.
- Data Publicly available: No
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: the results from the ML Project 2019-20 and ML Group 2021 have been compiled as an UNECE publication "Machine Learning for Official Statistics": <https://unece.org/statistics/publications/machine-learning-official-statistics>
- Related Sustainable Development Goals (SDGs): All the SDGs
- Partnership(s)/Collaborator(s):
  - Government: ONS (United Kingdom Office for National Statistics) Data Science Campus is the main coordinating partner of the ML2022 Group, but theme groups are led by different organisations such as Statistics Netherlands, Statistics Flanders, Statistics Sweden, Statistics Ireland and Norwegian School of Economics and Center for Applied Research; the group itself consists of more than 380 members from various national and international statistical organizations
- Relevant Links and Multimedia: <https://statswiki.unece.org/display/ML/Machine+Learning+Group+2022>

- Contact information: InKyung Choi ([choii@un.org](mailto:choii@un.org))

## Project 2: Functional Requirements for Automated Vehicles

- Project Description: The Group dealing on Functional Requirements for Automated Vehicles is led by China (MIIT), Germany (KBA) and the United States of America (NHTSA). It reports to the Working Party on Automated/Autonomous and Connected vehicles of UNECE. It works on safety requirements covering all Automated Driving Systems (ADS) configurations (SAE Levels 3-5). These activities at intergovernmental level form a novel initiative aimed at harmonizing globally automated vehicles regulations and creating a more productive environment for innovation.
- Work assumptions: to Improve road transport, Performance-based, Technology-neutral, Measurable, Feasible, and Socially acceptable.
- Entity Name: WP.29/GRVA
- Project Type/Output: Seminar/meeting; Policy Framework; Intergovernmental working group dealing with technical regulations for vehicles.
- Project Status: Ongoing, initial deliverables already in force.
- Project Start Year: 2019
- End Year: 2024
- Project Domain: Automotive
- Technology/Platform: performance based, technology neutral
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 3 – Good Health and Wellbeing; SDG 9 – Industry, Innovation and Infrastructure; SDG 11 – Sustainable Cities and Communities
- Partnership(s)/Collaborator(s)
  - UN Partners: All UN Agencies may participate
  - Government: All UN member States
  - Private Sector: Represented through NGO with ECOSOC accreditation
  - Civil Society: Represented through NGO with ECOSOC accreditation
  - Academia: In support of the national delegations or upon invitation
- Relevant Links and Multimedia:
  - Press release on adoption of the Framework Document on Automated vehicles: <https://unece.org/media/press/1610>
  - Press release on adoption of the Level 3 UN Regulation No. 157: <https://unece.org/media/press/348314>
  - Press release on extending UN Regulation No. 157 to trucks and coaches: <https://unece.org/media/press/362551>
  - Press release on adoption of amendment extending automated driving to up to 130 km/h: <https://unece.org/media/press/368227>
  - Meetings and documents: <https://unece.org/transport/vehicle-regulations/working-party-automatedautonomous-and-connected-vehicles-introduction>
- Contact information: Francois E. Guichard ([francois.guichard@un.org](mailto:francois.guichard@un.org))

## Project 3: Validation Method for Automated Driving

- Project Description: The Group on Validation Method for Automated Driving is led by Canada (Transport Canada), The Netherlands (RDW) and Japan (NTSEL). It reports to the Working Party on Automated/Autonomous and Connected vehicles of UNECE. It includes

four subgroups on (a) Scenarios, (b) Simulation, (c) Audit and Monitoring, and (d) Track Test and Real-world Test.

It deals with the validations methods leading to the demonstration of a robust design and validation process based on a systems-engineering approach with the goal of designing automated driving systems free of unreasonable safety risks and ensuring compliance with road traffic regulations [...]. Design and validation methods should include a hazard analysis and safety risk assessment for Automated Driving System (ADS), for the Object and Event Detection and Response, but also for the overall vehicle design into which it is being integrated and when applicable, for the broader transportation ecosystem. Design and validation methods should demonstrate the behavioural competencies an Automated/autonomous vehicle would be expected to perform during a normal operation, the performance during crash avoidance situations and the performance of fall-back strategies. Test approaches may include a combination of simulation, test track, and on-road testing.

- Entity Name: WP.29/GRVA
- Project Type/Output: Policy Framework; Seminar/meeting; Intergovernmental working group dealing with technical regulations for vehicles.
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: 2024
- Project Domain: Automotive
- Technology/Platform: performance based, technology neutral
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 3 – Good Health and Well-Being; SDG 9 – Industry, Innovation, and Infrastructure; SDG 11 – Sustainable Cities and Communities
- Partnership(s)/Collaborator(s):
  - UN Partners: All UN Agencies may participate.
  - Government: All UN member States
  - Private Sector: Represented through NGO with ECOSOC accreditation
  - Civil Society: Represented through NGO with ECOSOC accreditation
  - Academia: In support of the national delegations or upon invitation
- Relevant Links and Multimedia: <https://unece.org/reference-documents-0>
- Contact information: Francois E. Guichard ([francois.guichard@un.org](mailto:francois.guichard@un.org))

#### Project 4: Task Force on Digitalization in Energy

- Project Description: Technologies facilitating new market opportunities: digital innovations – tools, technologies and processes (such as Artificial Intelligence, Blockchain, Machine Learning, Advanced Data Analytics, Internet-of-Things, Big Data, Cloud Computing, Sensors, Automation, 3D Printing, Robotics, etc.), are inspiring energy suppliers, transmission and distribution companies, and demand sectors (buildings, industry, transport) to establish new business models allowing to generate, deliver and consume energy in a more sustainable fashion. These innovative technologies are providing new opportunities to businesses by changing the way how interaction happens, optimizing processes, enhancing flexibilities, and improving efficiencies.

The Task Force on Digitalization in Energy was established by the Committee on Sustainable Energy in 2020 with the mandate for the period of 2021-2022, which was further extended for 2023-2024 with a possibility of extension. The Task Force on Digitalization in Energy reports to the Group of Experts on Energy Efficiency. The Task Force provides a platform for cross-industry experts from the energy sector (including

from the other subsidiary bodies of the Committee on Sustainable Energy) and digital innovations to develop a unified voice on digitalization in energy. It critically explores the landscape of stakeholders through a constructive dialogue (including assessment of opportunities, challenges, risks, and trade-offs) to understand the interaction in the digitalized energy system and bringing consensus about the approach that should be considered for shaping the future of the energy system. Activities of the Task Force also include aggregating and reviewing the existing national policy initiatives as well as harmonizing the information produced by other key national and international bodies, in order to better assist policymakers and other stakeholders in UNECE region to provide evidence-based direction to achieve the higher levels of efficiency in the energy system.

- Department/Division: UNECE Sustainable Energy Division
- Project Type/Output: Conference(multiple meetings on a theme), papers
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2024
- Project Domain: Energy
- Data Source: Publicly available data sources.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: United Nations Development Programme, United Nations Economic and Social Commission for Western Asia, UNEP-CCC Copenhagen Climate Centre
  - Government: Swiss Federal Office of Energy, Ministry of the Environment (France), Government of the United Kingdom, National Energy Efficiency Centre (Russian Federation)
  - Private Sector: The Energy Authority, Energy Policy Group, Sustainable Decisions, North American Electric Reliability Corporation, DigiTransfo Expertise, Grid Singularity, Irys, Google X
  - Academia: International Energy Research Centre, Vector Institute, Harvard Kennedy School of Government, University of Bayreuth, Institute for Energy Efficiency in Production (EEP), Green Growth Knowledge Partnership (Green Industry Platform)
- Relevant Links and Multimedia: <https://unece.org/sustainable-energy/energy-efficiency/digitalization-energy>
  - [https://unece.org/sites/default/files/2020-12/GEEE-7.2020.INF\\_3.pdf](https://unece.org/sites/default/files/2020-12/GEEE-7.2020.INF_3.pdf)
  - <https://unece.org/sed/documents/2021/06/working-documents/improving-efficiency-buildings-through-digitalization>
  - <https://unece.org/sed/documents/2022/07/session-documents/digitalization-accelerating-electricity-system>
  - <https://unece.org/sed/documents/2022/07/session-documents/addressing-behavioural-barriers-energy-digitalization>
  - <https://unece.org/sed/documents/2022/07/informal-documents/policy-discussion-challenges-big-data-and-analytics-driven>
  - <https://unece.org/sed/documents/2023/08/working-documents/key-considerations-and-solutions-ensure-cyber-resiliency-0>
  - <https://unece.org/sed/documents/2023/08/working-documents/improving-efficiency-and-reliability-energy-systems-means-1>

- <https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-grid-edge-management-reference>
- <https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-cyber-resilience-critical-energy>
- Contact information: Igor LITVINYUK ([litvinyuk@un.org](mailto:litvinyuk@un.org))

### **Project 5: Improving efficiency and reliability of energy systems by means of Big Data analytics**

- Project Description: The energy sector has experienced a shift towards disruptive trends such as decarbonization, decentralization and digitalization, fuelling the energy transition that creates a major impact on the utility industry worldwide. These ambitions drive the imperative for Artificial Intelligence in general and more specifically, Data Analytics. Deployment of Big Data analytics, machine learning, and Artificial Intelligence in utilities and energy providers is growing at a rate that may outpace the maturity of the organizations. In fact, organizations may have already engaged in advanced algorithmic deployment. Yet, without a strategy, organizations may not have developed workable plans for the curation of data, training datasets, or analytics results. This document is the result of the collaborative work of the product of the Group of Experts on Cleaner Electricity Systems and the Group of Experts on Energy Efficiency, conducted on the platform of the Task Force on Digitalization in Energy. It is an expansion of the unofficial document GEEE-9/2022/INF.3 entitled "Policy discussion - Challenges of Big Data and analytics-driven demand-side management" that contains the original set of questions posed for further consideration by the Task Force on Digitalization in Energy in collaboration with the subsidiary bodies of the Committee on Sustainable Energy. .
- Department/Division: UNECE Sustainable Energy Division
- Project Type/Output: Official document
- Project Status: Complete (presented at the tenth session of the Group of Experts on Energy Efficiency)
- Project Start Year: 2022
- Project End Year: 2023
- Project Domain: Energy; Telecommunications
- Data Source: Publicly available data sources.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs) SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: UNEP-CCC Copenhagen Climate Centre,
  - Government: Swiss Federal Office of Energy
  - Private Sector: The Energy Authority, Energy Policy Group, DigiTransfo Expertise, Grid Singularity, Irys
  - Academia: N/A
- Relevant Links and Multimedia: [https://unece.org/sed/documents/2023/08/working\\_documents/improving-efficiency-and-reliability-energy-systems-means-1](https://unece.org/sed/documents/2023/08/working_documents/improving-efficiency-and-reliability-energy-systems-means-1)
- Contact information: Igor LITVINYUK ([litvinyuk@un.org](mailto:litvinyuk@un.org))



## Project 6: Key considerations and solutions to ensure cyber resiliency in the smart integrated energy systems

- **Project Description:** Digitalization, as the application of digital technologies and business models for existing processes, is gaining more attention as a way to support and complement the energy transition. However, integration of different energy sources and interconnection of various energy system components which constitute smart integrated energy systems, involve exchange of large amounts of data that increases the exposure to cybersecurity risks. This document was developed on the platform of the Task Force on Digitalization in Energy, by the Group of Experts on Energy Efficiency and the Group of Experts on Cleaner Electricity Systems in line with their respective Work Plans for 2022-2023 and in recognition of the growing information security threats amid increasing digitalization of the energy system. The Task Force on Digitalization in Energy further recognizes the importance of collaboration across all subsidiary bodies of the Committee on Sustainable Energy in the effort to address aspects specific to various elements of the energy value chain. The document contains an overview of the subject, identifies, and categorizes the types of cyberattacks on the exposed energy system components and their possible consequences, and concludes with a set of managerial- and technical-level measures and policy recommendations to mitigate the cybersecurity risks.
- **Department/Division:** UNECE Sustainable Energy Division
- **Project Type/Output:** Official document
- **Project Status:** Complete (presented at the tenth session of the Group of Experts on Energy Efficiency)
- **Project Start Year:** 2023
- **Project End Year:** 2023
- **Project Domain:** Energy; Telecommunications
- **Data Source:** Publicly available data sources.
- **Reported as part of 2022 Compendium on UN AI Activities?** No
- **Related Sustainable Development Goals (SDGs)** SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 -Partnerships for the Goals
- **Partnership(s)/Collaborator(s):**
  - UN Partners: UNEP-CCC Copenhagen Climate Centre,
  - Government: Swiss Federal Office of Energy
  - Private Sector: Sustainable Decisions, The Energy Authority, Energy Policy Group, DigiTransfo Expertise
  - Academia: N/A
- **Relevant Links and Multimedia:** [https://unece.org/sed/documents/2023/08/working\\_documents/key-considerations-and-solutions-ensure-cyber-resiliency-0](https://unece.org/sed/documents/2023/08/working_documents/key-considerations-and-solutions-ensure-cyber-resiliency-0)
- **Contact information:** Igor LITVINYUK ([litvinyuk@un.org](mailto:litvinyuk@un.org))

## Project 7: Development of national case studies on digitalization in energy

- **Project Description:** Development of national case studies on digitalization in energy that have significant potential of replication, feeding into a compendium of case studies (publication) in 2024.
- **Department/Division:** UNECE Sustainable Energy Division
- **Project Type/Output:** Compendium of national case studies (minimum five case studies)
- **Project Status:** In progress (two case studies published)
- **Project Start Year:** 2022

- Project End Year: 2024
- Project Domain: Energy; Telecommunications
- Data Source: Publicly available data sources.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs) SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 -Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: UNEP-CCC Copenhagen Climate Centre,
  - Government: Swiss Federal Office of Energy
  - Private Sector: Energy Policy Group, Grid Singularity, The Energy Authority
  - Academia: N/A
- Relevant Links and Multimedia:
  - [Case Study on "Grid Edge Management Reference Architecture and Policy Recommendations for Interoperability and Resilience": https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-grid-edge-management-reference](https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-grid-edge-management-reference)
  - [Case study on "Cyber Resilience of Critical Energy Infrastructure": https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-cyber-resilience-critical-energy](https://unece.org/sustainable-energy/publications/digitalization-energy-case-study-cyber-resilience-critical-energy)
- Contact information: Igor LITVINYUK ([litvinyuk@un.org](mailto:litvinyuk@un.org))

### Project 8: Platform for Resilient Energy Systems - chatenergy.app

- Project Description: Countries across the ECE region are in high need of tools to make informed decisions on how to design and build resilient energy systems (i.e. ones where energy makes an optimal contribution to a country's social, economic, and environmental development and that is able to withstand and recover quickly from any unanticipated shocks and reflects potential impacts of climate change on energy resources in its planning and operations). With a mission to mainstream the resiliency concept and systems-thinking approach in national policies UNECE is shaping a Platform for Resilient Energy Systems. Its objective is to provide member States and the energy expert community with an advanced AI-based tool that allows to navigate through a secure, comprehensive and authoritative knowledge base built by UNECE and partnering organizations (EIB, ESCAP, IAEA, IEA, IRENA, OSCE, WMO, etc.), producing user-friendly inputs and insights for informed decisions on how to create more resilient energy systems. The demo-version of the Platform is called [chatenergy.app](#) and has been developed by the team of prof. M. Leippold from University of Zurich. UNECE is mobilizing funds to a fully operational AI-enabled query & response platform which can leverage a library composed of energy documents from authoritative sources and provide real-time, summarized insights, enable UNECE and the wider community to spot knowledge gaps and trends, provide support for UNECE member states and beyond in drafting future energy policies and guidelines. From a knowledge repository with a smart search engine, robust data and documents library of vetted sources, UNECE seeks to move towards a more advanced scenario building tool, which will allow to see different options for decision-makers and make data understandable and actionable. The AI model will be specifically crafted with vetted data and tailored for the unique requests regarding energy systems resilience.
- Department/Division: UNECE Sustainable Energy Division
- Project Type/Output: Software Tool

- Project Status: ongoing (launched at the thirty-second session of the Committee on Sustainable Energy)
- Project Start Year: 2023
- Project End Year: 2026
- Project Domain: Energy; Technology and Applications;
- Data Source: Publicly available data sources from partnering organizations.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs) SDG 7 - Affordable and Clean Energy; SDG 9 - Industry, Innovation and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - EIB, IEA, IRENA, OSCE
  - UN Partners: UNICC, IAEA, WMO, ITU, ESCAP, ECLAC
  - Academia: University of Zurich
- Relevant Links and Multimedia: <https://unece.org/climate-change/press/unece-and-partners-develop-ai-powered-platform-help-build-resilient-energy>
- Contact information: Iva BRKIC ([iva.brkic@un.org](mailto:iva.brkic@un.org))

### Project 9: Use of artificial intelligence in trade facilitation

- Project Description: Artificial intelligence (AI) is shifting global value chains and international trade pattern. Artificial intelligence (AI) has a transformative effect on international trade. Specific applications in multiple areas such as analytics and cognitive services are diminishing trade barriers.  
AI undoubtedly will underpin productivity growth, economic growth and create new opportunities in facilitating trade  
The purpose of this project is to look at AI's role in trade facilitation in the context of UN/CEFACT's mandates and create whitepapers that focus on how AI can be used to facilitate trade processes and key issues that need to be looked into while leveraging AI capabilities in collecting, processing, analyzing data and extracting inferences from the data  
Potentially, this work could also provide guidance to data providers, application developers and technology adopters
- Project scope  
The project scope is to define and create white papers on the best practices in implementing secure data flow during cross border trade with a view to examining:
  - How AI technology could be used to facilitate trade and related processes in international supply chain including study of areas such as data privacy, AI based trade policies, use of AI in e-Commerce and payments
  - How existing UN/CEFACT deliverables could be used in AI applications
  - Possible changes to existing UN/CEFACT deliverables, or new deliverables, that could be considered in order to support AI trade facilitation applications

All of the above will be examined from the perspective of UN/CEFACT's mandates in order to provide input to the Bureau, Programme Development Areas and Domains on Possible future work and a possible common approach  
Application developers as a potential new user group for UN/CEFACT standards
- Project deliverables
  - Deliverable 1: A white paper on technical aspects of AI and its relation to UN/CEFACT deliverables

- Deliverable 2: A business case/process oriented whitepaper on how AI technology could be used to facilitate cross border paperless trade
- Department/Division: The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT)
- Project Type/Output: White Paper
- Project Status: Ongoing
- Project Start Year:2021
- End Year: 2022
- Project Domain: Trade
- Data Source: Initial contributions include existing descriptions and technical specifications for the UN/CEFACT:
  - AGAT document "Artificial Intelligence Demystified"
  - Core Components Library (CCL);
  - Business Requirement Specifications (BRs),
  - Requirement Specification Mappings (RSMs) and
  - Reference Data Models (RDMs) as well as
  - already published material on AI technology and implementations,
  - Blockchain work undertaken by UN/CEFACT
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - Private Sector: UN/CEFACT Experts
- Relevant Links and Multimedia: <https://uncefact.unece.org/display/uncefactpublic/Use+of+Artificial+Intelligence+in+Trade+Facilitation>
- Contact information: ([UNECE Secretariat uncefact@un.org](mailto:UNECE_Secretariat_uncefact@un.org))

### Project 10: United for Smart Sustainable Cities (U4SSC)

- Project Description: In 2016, UNECE and the International Telecommunication Union (ITU) established the UN global initiative United for Smart Sustainable Cities (U4SSC), which currently involves 16 UN bodies. U4SSC is a global platform for smart cities stakeholders, which advocates for public policies to encourage the use of ICT to facilitate the transition to smart sustainable cities. The initiative aims to: Generate guidelines, policies and frameworks for the integration of ICTs into urban operations, based on the SDGs, international standards and urban key performance indicators (KPIs); and help streamline smart sustainable cities action plans and establish best practices with feasible targets that urban development stakeholders are encouraged to meet. The topics of this phase of U4SSC are: circular cities, financing smart sustainable cities projects, blockchain in cities, artificial intelligence in cities, sensing technologies and Internet of Things in cities. The initiative delivers policy guidelines and training materials through the work on specific outputs elaborated via regular e-meetings and physically gathers once per year. In 2017, the U4SSC stakeholders also elaborated a set of Key Performance Indicators (KPIs) for smart sustainable cities which includes 92 indicators (core and advanced) divided in the 3 dimensions of sustainable development: economy, environment, and society and culture. The indicators are fully aligned with the Sustainable Development Goals (SDGs) and serve as a tool for evidence-based decision making, progress monitoring and achieving the SDGs at the local level. They are being implemented by 50 cities of different sizes and development worldwide.

- Department/Division: Housing and Land Management, Forests, Land and Housing Division
- Project Type/Output: Multi-agency partnership
- Project Status: Ongoing
- Project Start Year: 2016
- Project Domain: Sustainable urban development
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 11 – Sustainable Cities and Communities; SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: UNECE, ITU, UN Habitat, CBD, ECLAC, FAO, UNDP, UNECA, UNESCO, UNEP, UNEP-FI, UNFCCC, UNIDO, UNOP, UNU-EGOV, UN-Women and WMO
- Relevant Links and Multimedia: <https://unece.org/housing/sustainable-smart-cities>; <https://twitter.com/UNECEHLM>; <https://www.facebook.com/UNECE.Housing/>
- Contact information: Gulnara Roll ([gulnara.roll@un.org](mailto:gulnara.roll@un.org))

### Project 11: Regulatory compliance of products with embedded artificial intelligence or other digital technologies

- Project Description: Products with embedded technologies present specific challenges to their conformity assessment and market surveillance. Regulators need to ensure that the products are safe and secure (for consumers, for the environment, for public health, for the culture...) while not stifling innovation. Agencies may approach such products differently, resulting in technical regulations which may not be harmonized between countries and may not even be harmonized within a same country. This would in turn create problems for traders as they may need to adapt their product for multiple markets. An additional challenge for regulators is the possibility for these types of products to evolve in time, either because of their own learning or because of distant updates coming from a remote source potentially outside of the country. Market surveillance authorities need to ensure that these products remain compliant throughout their lifecycle and do not receive updates which may render them non-conformant to regulations. The UNECE-WP6 Recommendation L proposes a policy framework document to encourage harmonization of such technical regulations through a voluntary mechanism called a common regulatory arrangement (CRA). The project team will then work on a "declaration" which countries could ratify on this topic.
- Department/Division: Economic Cooperation and Trade Division, Working Party on Regulatory Cooperation and Standardization Policies (WP.6)
- Project Type/Output: Policy Framework (a "common regulatory arrangement" as per UNECE-WP.6 Recommendation L. Declaration that countries could ratify on this topic), White Paper
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2024+
- Project Domain: Trade
- Data Source: Concerns technical regulations on products. Will address international standards and conventions to which such products should remain compliant (see the white paper already completed).
- Reported as part of 2022 Compendium on UN AI Activities? No

- Project updates:
  - Project team have already delivered the White Paper with the base principles, available at: <https://unece.org/trade/documents/2023/12/session-documents/regulatory-compliance-products-embedded-artificial>
  - Further information on project advancement available at: <https://unece.org/trade/wp6/digital-regulation-goods-artificial-intelligence>
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality, SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, and Infrastructure, SDG 10 - Reduced Inequalities, SDG 12 - Responsible Consumption and Production, SDG 16 - Peace, Justice, and Strong Institutions, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): Note that this project is under UNECE WP.6. All projects within WP.6 are open to all experts and experts participate in their own capacity without representing any countries, organizations or specific interests. The resulting deliverables are presented to UN Member States for endorsement.
- Relevant Links and Multimedia:
  - <https://unece.org/trade/wp6/digital-regulation-goods-artificial-intelligence>
  - [https://unece.org/trade/wp6/Projects#accordion\\_4](https://unece.org/trade/wp6/Projects#accordion_4)
- Contact information: Lance Thompson ([regulatory.cooperation@un.org](mailto:regulatory.cooperation@un.org))

## 2. Related Sustainable Development Goals

All the SDGs

## 3. Relevant links

<https://www.unece.org/info/ece-homepage.html>

Contact Information

Thomas Croll-Knight, Information Unit, United Nations Economic Commission for Europe ([thomas.croll-knight@un.org](mailto:thomas.croll-knight@un.org))

## United Nations Environment Programme



### 1. Description of Activities on AI

#### Project 1: Artificial Intelligence tool for valuing the contributions of nature (ARIES for SEEA)

- Project Description: The project aims to accelerate implementation of the new ground-breaking standard for valuing the contributions of nature that was adopted by the UN Statistical Commission in March 2021, the System of Environmental-Economic Accounting (SEEA) Ecosystem Accounting.

Artificial Intelligence for Environment & Sustainability ([ARIES](#)), developed by researchers at the Basque Centre for Climate Change ([BC3](#)), is an integrated, open-source modelling platform for environmental sustainability, where researchers from across the globe can add their own data and models to web-based repositories.

Using ARIES technology, the ARIES for SEEA Explorer application allows users anywhere in the world to produce rapid, standardized, scalable and customizable ecosystem accounts for their area of interest that are consistent with the SEEA Ecosystem Accounting framework. ARIES for SEEA is available on the [UN Global Platform](#), a cloud-service platform supporting international collaboration in the development of official statistics using new data sources and innovative methods.

The ARIES for SEEA platform is currently being piloted in Botswana, Ghana, Uganda, Rwanda, Senegal and South Africa, following a [workshop in Kigali in July 2022](#).

- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: Ongoing
- Project Domain: Environment
- Data Source: freely available global remote-sensing derived data
- Data Publicly available: Yes
- Technology/Platform: ARIES technology; semantics and machine reasoning to automate data and model integration
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 6 - Clean Water and Sanitation; SDG 13 - Climate Action; SDG 14 - Life Below Water; SDG 15 - Life on Land
- Partnership(s)/Collaborator(s):
  - The ARIES for SEEA Explorer was developed by the Basque Center for Climate Change (BC3) under the EU-funded Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project, which is jointly implemented by the Statistics Division of the UN Department of Economic and Social Affairs and UNEP.
- Relevant Links and Multimedia: <https://seea.un.org/content/aries-for-seea>

- Lessons Learned: Functionalities for the ARIES for SEEA explorer will be continuously improved and expanded
- Contact information: William Speller ([william.speller@un.org](mailto:william.speller@un.org))

### **Project 2: Adaptation to climate change in sub-Saharan African humanitarian situations**

- Project Description: The project harnesses artificial intelligence to investigate past environmental change around selected humanitarian hotspots of displacement in Burundi, Chad and Sudan and future projections in the face of the climate crisis to inform climate change adaptation measures and anticipatory action for integration in humanitarian programming.
- Entity Name: UNEP/OCHA Joint Environment Unit
- Project Type/Output: Report; Academic paper; Seminar/meeting
- Project Status: Completed
- Project Start Year: Sept 2018
- Project End Year: April 2021
- Domain: Environment; Humanitarian
- Data Source: Population data, satellite imagery and IPCC climate projections
- Publicly Available Data : No
- Technology/Platform: GIS, MapX
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: WFP, UNHCR, UNICEF, OCHA
  - Government: Governments of Burundi, Chad and Sudan
  - Academia: University of Ghadarif, Sudan
- Relevant Links and Multimedia: <https://eecentre.org/2019/05/01/iki-project/>
- Lessons Learned: The project was implemented during the COVID-19 pandemic, with artificial intelligence proving an effective solution to continue delivering despite movement restrictions that hampered fieldwork and other project activities requiring presence
- Contact information: Margherita Fanchiotti ([fanchiotti@un.org](mailto:fanchiotti@un.org))

### **Project 3: Identifying the potential applications of Artificial Intelligence for Disaster Management.**

- Project Description:

Background

Rapid advances in science and practices of Artificial Intelligence (AI), Robotics, Drones and Internet of Things (IoT) is expected to change all aspects of human society in the coming decades. Social scientists call this collective change the “Fourth Industrial Revolution” (4IR). There are many possibilities for introducing these technologies into the domain of disaster response, especially for environmental disaster response. In addition to helping mitigate the consequences of disasters, the technologies of the fourth industrial revolution also help prepare for them.

The proposed project is aimed at the current state of play on the applications of 4IR technologies for disaster management and identifies opportunities and partners to promote these technologies for environmental emergency response in the future.



For instance, in October 2020, during the AI for Good Summit organized by ITU, UNEP led a session on Artificial Intelligence for Natural Disaster Management. In addition to UNEP and ITU, the session had speakers from Google, Government of India and Monash University. With over 2000 registrations, it was the most well attended session at the AI for Good summit. This led ITU, UNEP and WMO to form a partnership to take this work forward.

- Scope of Work
  - Conduct a comprehensive literature review of the developments in the field of AI, Robotics and IoT to identify those with potential applications in Environmental Disaster Response
  - Identify technologies which has been developed and employed, even at pilot phase, for emergency response and prepare a technology forecast for its potential applications in environmental emergency response
  - Identify research and technology partners in academia, research laboratories and industries who are currently working on the area of applications of 4IR technologies and form a network for information exchange and potential collaborations
  - Prepare training programme on the potential applications of 4IR technologies in environmental emergency response
- Department/Division: Ecosystems Division, Resilience to Disasters and Conflicts Global Support Branch.
- Project Type/Output: Report, Seminar/meeting, Conference
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2022
- Domain: Environment; Health; Telecommunications; Weather; Technology
- Data Source: We are currently using open source information and qualitative data.
- Data Publicly Available: Yes
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure; SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: International Telecommunications Union (ITU), World Meteorological Organisation (WMO)
- Relevant Links and Multimedia:
  - Webinar series promotion
    - [UNEP Website](#)
    - [Other materials](#)
  - Video recordings of Modern Technologies for Disaster Management Webinar Series
    - Robotics for Disaster management - [video](#)
    - Artificial Intelligence for Disaster Management - [video](#)
- Lesson Learned:
  - Future work:
    - Continue to identify research and technology partners in academia, research laboratories and industries who are currently working on the area of applications

of 4IR technologies and form a network for information exchange and potential collaborations

- Prepare training programme on the potential applications of 4IR technologies in environmental emergency response and deliver such trainings.
- Contact information: Muralee Thummarukudy ([muralee.thummarukudy@un.org](mailto:muralee.thummarukudy@un.org)) and Paula Padrino Vilela ([paula.padrinovilela1@un.org](mailto:paula.padrinovilela1@un.org))

#### Project 4: Global Partnership on Marine Litter (GPML) Recommender

- Project Description: The Global Partnership on Marine Litter (GPML) Digital Platform is a multi-stakeholder platform that compiles different resources, connects stakeholders, and integrates data to guide action. Its vision is to be the go-to open source multistakeholder Platform that successfully connects and informs all actors working towards addressing the global problem of marine litter and plastic pollution.

The Platform allows stakeholders to get an overview of the different initiatives, find relevant resources and connect with other stakeholders in the field. To encourage and make it easier for stakeholders to connect, UNEP would like to implement a matchmaking system that automatically matches stakeholders based on their interests, skills, and other relevant information.

Three levels of recommender systems are under consideration.

- Level 1 is a Content-based Recommender Engine. This will match an individual to an individual and an entity to an entity. For individuals, user profile data is used. For entities, the data on representative sector, country, geo-coverage type, entity, seeking, offerings, and bookmarks fields are used. For both, the Geo-coverage is used to further rank/order recommendations.
- Level 2 is a Content-based Recommender Engine Using Natural Language Processing. Apart from the predefined fields used in the Level 1 Recommender, this model uses the "About Yourself" and document uploads i.e., "Curriculum Vitae" features for matching stakeholders. These fields are natural language data; hence NLP techniques are beneficial for the design of the recommender engine. Matches are prioritized by geo-coverage and offerings of the stakeholders.
- Level 3 is a Content-Based Recommender Boosted by Collaborative Filtering (Interaction Data). This is a hybrid recommender model that treats collaborative information (interaction data) as additional feature data of the Level 1 or Level 2 recommenders. At this level, the K-means clustering algorithm is used to combine content-based and collaborative filters. In addition to profile data used by the Level 1/Level 2 recommenders, the system will take in interaction data prioritized as follows; Time spent on resources. Clicks on a link or resource, and Stakeholder browsing history.

With more users signing up to the platform, there will be more interaction data being recorded and stored. The Recommender will not only perform Individual-Individual matching, but also incorporate Entity-Entity and Entity-Individual matching.

- Department/Division: Ecosystems Division
- Project Type/Output: Software tool
- Project Status: Development
- Project Start Year: 2021
- Project End Year: 2022
- Project Domain: Environment
- Data Source: User Profile Data + innovative data sources for the data hub
- User profile data is collected when individuals or entities sign up to the GPML Digital Platform.

- This data includes information such as what resources a user is offering and what they are seeking from other users on the GPML digital platform as well as their geo-coverage type if a user signs up as an entity.
- Publicly available data: No
- Technology/Platform:
  - Jupyter Notebook: The Jupyter Notebook App is a server-client application that allows editing and running notebook documents (documents produced by the Jupyter Notebook App, which contain both computer code (e.g., python) and rich text elements (paragraph, equations, figures, links, etc....)) via a web browser. The Jupyter Notebook App can be executed on a local desktop requiring no internet access (as described in this document) or can be installed on a remote server and accessed through the internet.
  - Python: Python is an interpreted high-level general-purpose programming language.
  - Natural Language Toolkit (NLTK): a suite of libraries and programs for symbolic and statistical natural language processing for English written in the Python programming language.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 6 - Clean Water and Sanitation; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 14 - Life Below Water; SDG 15 - Life on Land; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: United Nations Office of ICT
  - Civil Society: AKVO Foundation
- Relevant Links and Multimedia:
  - Digital Platform: <https://digital.gpmarinelitter.org/about-us>
  - GPML: <https://www.gpmarinelitter.org/>
  - LinkedIn: <https://www.linkedin.com/company/global-partnership-on-marine-litter/>
  - Youtube: <https://www.youtube.com/channel/UCoWxFwDeoD4c9GoXzFdm9Bg>
  - <https://digital.gpmarinelitter.org/GPML-One-pager-19.08i.pdf>
- Lesson Learned: The GPML Recommender project has just started, lessons learned yet to be obtained.
- Contact Information: Heidi Savelli-Soderberg ([heidi.savelli@un.org](mailto:heidi.savelli@un.org))

### Project 5: Using Machine Learning to Make Government Spending Greener

- Project Description: The project seeks to show how machine learning (ML) models can help policy makers and researchers design data-driven policies that most efficiently and effectively allocate scarce government resources at home and abroad to maximize inclusive and sustainable prosperity and development.  
 For policy- and decision-makers in many countries, one of the key impediments to designing well-targeted green transition policies is a lack of data and intelligence on the causal chains from a policy to its impact on society, the economy, and the environment. It is difficult to manage and prioritize green spending if you can't measure its effects.  
 Properly trained machine learning (ML) models can enable rapid, quantitative predictions of policy impacts.  
 This exploratory research venture between the UN Environment Program (UNEP) and UNCTAD showcases how machine learning has the potential to transform the measurement of policy impacts on Sustainable Development Goals (SDGs), Nationally

Determined Contributions ([NDCs](#)) and National Biodiversity Strategies and Action Plans ([NBSAPs](#)) and enable targeted and efficient decision making for underpinning green and inclusive transitions.

Illustrative models and analyses were created for 6 different countries: Zambia, Haiti, DRC, Solomon Islands, Liberia, Madagascar

- Project Type/Output: Report; Software tool
- Project Status: Ongoing
- Project Domain: Environment
- Data Source: Data features are collected from: [The ODA by sector](#), [Aid activities targeting Global Environmental Objectives](#), and [The Global Forest Watch](#)
- Publicly available data: Yes
- Technology/Platform: Trained and evaluated five different types of ML models: Artificial Neural Networks (ANNs), Long Short-Term Memory Networks (LSTMs), Gradient Boost Models (GBMs), Ordinary Least Squares Regression (OLS) models, and Random Forest (RF) models.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 12 – Responsible Consumption and Production; SDG 13 – Climate Action; SDG 15 – Life on Land; SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s) :
  - UN Partners: UN Environment Program (UNEP) and UNCTAD
- Relevant Links and Multimedia: <https://greenfiscalpolicy.org/blog/using-machine-learning-to-make-government-spending-greener/>
- Lesson Learned: A more comprehensive pilot study in collaboration with a national government using historical budget data would serve as a valuable next step in exploring this innovative method of transforming public finance decision-making.
- Contact Information: Himanshu Sharma ([himanshu.sharma@un.org](mailto:himanshu.sharma@un.org))

### Project 6: SDG-meter

- Project Description: Textual data (policies, project reports, speeches, academic papers, news) that can provide insights on progress, obstacles, and opportunities on SDGs is available digitally. However, such data is not mapped nor scored according to the 17 Goals or its 169 targets. Valuable knowledge remains siloed with overall progress difficult to capture and made known. UNEP's ICT Unit of the Economy and Industry Division has been developing a ML/NLP tool since mid-2020 to identify and score concepts. This digital good, named "SDG-meter", is already able to identify and score the relevance of the 17 SDGs within any text, with similar accuracy to a human expert.  
The SDG-Meter, a web platform based on one of the most sophisticated deep learning - natural language processing algorithms (BERT), can analyze any text to rate its relation to each of the 17 SDGs .
- Department/Division Economy Division, ICT Unit
- Project Type/Output: Web application
- Project Status: In progress
- Project Start Year: 2020
- Project End Year: ongoing
- Data Source: Textual data, in English, with two entries: texts from IISD website (limited to a maximum of 512 words) + associated labels (SDGs) as chosen by experts.
- In total, the database contains 2242 labeled texts (1247 from "News", 677 from "Guest Article" and 318 from "Policy Brief")

- Publicly available data: Yes
- Technology/Platform: BERT (Bidirectional Encoder Representations from Transformers), PyTorch, Python, jupyter Notebook.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates:
  - Current work focuses on the search for an algorithm that is just as powerful as BERT but has the ability to analyze texts without word limitations. To do so, we are in the process of forming a consortium of experts around the problem of automatic classification of SDGs in order to acquire more information on the latest advances in the field. Moreover, via the chair established with the engineering school ISEP, we had the opportunity to realize a hackathon allowing to gather engineering students around our problem of word limitations. The study and the continuation of the various proposed solutions are in progress.
- Related Sustainable Development Goals (SDGs): All the SDGs
- Partnership(s)/Collaborator(s):
  - Academia: ISEP (Institut supérieur d'électronique de Paris)
- Relevant Links and Multimedia: Pilot - <http://62.160.8.100>
- Lesson Learned:
  - Challenges:
    - Limitation of the size of the text to process with the Google BERT algorithm (512 words or 2 pages)
  - Future work:
    - Experiment new deep learning algorithm in order to avoid input text length limitation
    - The tool can be further developed to analyze texts in bulk, from web databases, and provide insights from collections of texts. Ideally this can be included in different CMS as a plugin/module, streamlining the process.
- Contact Information: Robert Rodriguez ([robert.rodriquez@un.org](mailto:robert.rodriquez@un.org)), Jade Guisiano ([jade.guisiano@etu.sorbonne-universite.fr](mailto:jade.guisiano@etu.sorbonne-universite.fr)) and Jonathas De Mello ([Jonathas.demello@un.org](mailto:Jonathas.demello@un.org))

### Project 7: Predictive analytics to support governments in transforming food systems (TEEBAgriFood)

- Project Description: This project catalyzes the use of predictive analytical tools to support governments in transforming food systems faster, better and at a greater scale than before.
 

Predictive analytics and scenario modeling allow decision makers to compare future policy intervention options in the food system, illuminating the full impacts of a policy decision on natural, social, human and produced capital. This enables strategic foresight and anticipatory decision-making that values instead of discounts the future.

Modeling techniques and tools are increasingly becoming more efficient through machine learning and the use of Earth Observations. Models applied for such exercise can range from 'snapshot' biophysical ecosystem service models (such as InVEST) up to the modeling of dynamic biophysical and socio-economic systems including dynamic relationships between conflicting or compounding government policies (for example agriculture subsidies and environmental regulations).

Applications are initiated in Brazil, China, India, Indonesia, Mexico, Thailand, Malaysia, Colombia, Kenya, Tanzania, Thailand and Mexico.

- Project Type/Output: Report; Policy Framework
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2023
- Project Domain: Agriculture
- Data Source: freely available global remote-sensing derived data; national and subnational government data; biophysical data at the watershed level
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contact Information: Salman Hussain ([salman.hussain@un.org](mailto:salman.hussain@un.org)), Tomas Declercq ([declercq2@un.org](mailto:declercq2@un.org))

### Project 8: UNEP International Methane Emissions Observatory (IMEO)

IMEO is operationalizing a Methane Alert Response System (MARS) to support governments and businesses reducing methane emissions as necessary to meet the objective of the Paris Agreement and as promised in the framework of the Global Methane Pledge. Machine learning is used together with expert judgement to detect major methane emission sources based on satellite imagery and sensor data.

- Project Type/Output: Monitoring platform
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: N/A
- Project Domain: Climate change / Methane
- Data Source: freely available global remote-sensing derived data; national and subnational government and site data;
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Manfredi Caltagirone <[manfredi.caltagirone@un.org](mailto:manfredi.caltagirone@un.org)>

### Project 9: Freshwater Ecosystems Explorer

Uses machine learning to identify areas of surface water from satellite imagery at a global level. It produces an annual dataset of surface water extent as a formal reporting indicator for SDG 6.6.1. This is an important precedent as it is the only globally derived satellite-based indicator in the SDG framework that member states can use in their national reporting. SDG 6.6.1 platform is a partnership between UNEP, Google Earth Engine and the EU Joint Research Center.

- Project Type/Output: Monitoring platform
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: N/A
- Project Domain: Freshwater ecosystems
- Data Source: freely available global remote-sensing derived data; national and subnational government data; biophysical data at the watershed level
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Stuart Crane <[stuart.crane@un.org](mailto:stuart.crane@un.org)>

### Project 10: Counter Measures II Project

This innovative project has been working with communities along Asian rivers including the Mekong and Ganges Rivers to map where and how plastic waste is entering the waterways. Citizen science is a key part of this effort, alongside drone imaging, machine learning and GIS algorithms. Using the project app, communities can identify plastic waste hotspots to help find how plastic is leaking into rivers.

- Project Type/Output: Monitoring platform
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: N/A
- Project Domain: Plastic waste
- Data Source: freely available global remote-sensing derived data; national and subnational government data; biophysical data at the watershed level
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Kakuko Nagatani-Yoshida <[nagatani-yoshida@un.org](mailto:nagatani-yoshida@un.org)>

### Project 11: Environment-GPT

A refined large language model for information aggregation and generation of high-integrity scientific information on the environment. EnvironmentGPT will be trained using authoritative data sources including from the IPCC, IPBES, GEO, and scientific papers and reports about the climate and interconnected topics such as ecosystems, biodiversity, air quality, and energy. The vision for EnvironmentGPT is to develop a digital public good that will distil the world's environmental science to support the work of a) Environmental managers/practitioners and decision-makers in government and business to easily access and use authoritative science; b) Scientists and specialists to deliver environmental assessments more rapidly and track progress against environmental commitments more easily.

- Project Type/Output: chatbot platform
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: N/A
- Project Domain: environmental knowledge
- Data Source: UNEP vetted environmental science
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Clara Wegenast <[clara.wegenast@un.org](mailto:clara.wegenast@un.org)>

### Project 12: Sustainable Consumption and Production Hotspot Analysis Tool (SCP-HAT)

SCP-HAT is deploying AI to enable the tracing of environmental pressures and impacts along the supply chain of the goods and services consumed within a given country. It can identify the hot spot areas of unsustainable production and consumption in order to support setting priorities in national sustainable product and consumption policies and transition plans. The tool was jointly developed by the Life Cycle Initiative, the One Planet network and the International Resource Panel, in collaboration with the University of Vienna of Economics and Business, the

CSIRO and the University of Sydney. The current version of SCP-HAT uses relatively simple predictive text techniques to derive automated reports from the information within the tool; more sophisticated AI could be used to help the user navigate / extract further information.

- Project Type/Output: Monitoring platform
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: N/A
- Project Domain: sustainable consumption
- Data Source: GLORIA database
- Publicly available data: Yes
- Reported as part of 2022 Compendium on UN AI Activities? No
- Contact Information: Llorenc Mila I Canals <[llorenc.milaicanals@un.org](mailto:llorenc.milaicanals@un.org)>

## 2. Related Sustainable Development Goals

All the SDGs

## 3. Relevant links

<https://www.unep.org/>

Contact Information

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Sally Radwan, Chief Digital Officer, UN Environment Programme, ([golestan.radwan@un.org](mailto:golestan.radwan@un.org))



## United Nations Educational, Scientific and Cultural Organization



### 1. Description of Activities on AI

#### Project 1: Defending Human Rights in an Age of Artificial Intelligence

- Project Description: UNESCO and UNITAR jointly launched a new microlearning course on AI and Human Rights for youths aged 16 to 24. The course breaks down complex concepts about AI through activities built around our daily technology interactions. Through interactive exercises, users will identify and engage with practical examples of uses of AI, which are problematic from a human rights perspective. In turn, they learn about the implications of AI for freedom of expression, the right to privacy and the right to equality.  
The course is originally available in English, French, Spanish, Russian and Chinese.
- Department/Division: Sector for Communication and Information
- Project Type/Output: Other: Online course
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Update:
  - Translated online course into 20 languages including Bosnian, Catalan, Polish, Italian etc.
- Project Domain: Education; Human Rights (Freedom of Expression, Right to Privacy, Right to Equality); Artificial Intelligence
- Related Sustainable Development Goals SDGs: SDG 4 - Quality Education, SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UNITAR (Co-partner)
  - SALTO (co-partner)
- Links and Multimedia:
  - <https://en.unesco.org/news/join-unesco-and-unitars-ai-and-human-rights-course>
  - <https://www.edapp.com/course/defending-human-rights-in-the-age-of-artificial-intelligence-2>
- Contact information: Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

## Project 2: AI and the Rule of Law

- **Project Description:** Based on the findings of the AI Needs Assessment Survey in Africa and another survey of over 1200 judicial operators in 100 countries, UNESCO has launched a global MOOC on AI and the Rule of Law to strengthen capacities of judicial operators in the use of AI in the administration of justice, while addressing the human rights and legal implications of the use of AI with respect to bias, discrimination, privacy, freedom of expression among others. The course is structured around six introductory modules that unpack AI's application and impact in the judiciary.

The course is available in 7 languages and taught by 20 speakers - including sitting judges from Supreme Courts, Human Rights Courts, Legal Experts and Technology experts. The experts teaching the course come from India, Senegal, Kenya, Netherlands, United States, Chile, Brazil to China.

Over 5900 judicial operators from 142 countries have enrolled in the course until 2023.

The project continues to support capacity building for judicial operators through online and in person trainings on AI and the Rule of Law.

- **Department/Division:** Sector for Communication and Information
- **Project Type/Output:** Capacity Building through - Massive Open Online Course (MOOC), online and in person trainings and webinars
- **Project Status:** Ongoing
- **Project Start Year:** 2021
- **Project End Year:** 2025
- **Reported as part of [2022 Compendium on UN AI Activities?](#)** Yes
- **Project updates:**
  - Follow up trainings are being held in-person and online to further build capacities on AI and the Rule of Law, reaching over 140 judicial operators from Qatar, The Gambia, Congo- Brazzaville, Nepal, Ghana, Togo and Costa Rica. The latter comprised a regional training of all Judges from the Inter-American Court of Human Rights.
  - Two interregional trainings conducted in partnership with SADA reaching over 350 judicial operators from 15 countries in Africa.
  - Webinar series on Artificial Intelligence and the Rule of Law
  - Collaborating with the Future Society in hosting the 5th edition of the Athens Roundtable of AI and the Rule of Law.
- **Project Domain:** Artificial Intelligence
- **Related Sustainable Development Goals (SDGs):** SDG 4 - Quality Education, SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnership for the Goals
- **Partnership(s)/Collaborator(s):**
  - CETIC.br
  - IEEE
  - The Future Society
  - National Judicial College
- **Links and Multimedia:** AI and the Rule of Law: Capacity Building for Judicial Systems ([unesco.org](https://unesco.org))
- **Contact information:** Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org)), Guilherme Canela De Souza Godoi ([g.godoi@unesco.org](mailto:g.godoi@unesco.org))

### Project 3: Multistakeholder AI Development – 10 building blocks for inclusive policy design

- **Project Description:** With the Innovation for Policy Foundation (i4Policy), UNESCO facilitated community consultations and developed a report to advise governments on inclusive and multi-stakeholder-driven processes for developing AI policies. Through an iterative series of multi-stakeholder learning and co-creation workshops, i4Policy and UNESCO developed a report on Multistakeholder AI Development, including existing examples of inclusive national approaches to AI and Digital Policy Development.  
In the report, UNESCO and i4Policy distill 10 essential lessons for policymakers to harness the collective intelligence of communities and ensure that the process of creating and implementing public policy is inclusive and multi-stakeholder driven.  
It leverages AI and innovation community networks in developing countries to inform the development of global protocols on AI policy development process.
- **Department/Division:** Sector for Communication and Information
- **Project Type/Output:** Policy Framework/Seminar/meeting
- **Project Status:** Ongoing
- **Project Start Year:** 2021
- **Project End Year:** 2022
- **Reported as part of [2022 Compendium on UN AI Activities?](#)** Yes
- **Project Updates:** Mozfest 2022 (held in Mar 2022): Workshop on building a research agenda and community to foster Global South engagement in global AI and data governance
- **Project Domain:** Human Rights; Artificial Intelligence
- **Related Sustainable Development Goals (SDGs):** SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, And Strong Institutions; and SDG – 17 Partnership for the Goals
- **Partnership(s)/Collaborator(s):** Innovation for Policy Foundation (Co-partner)
- **Links and Multimedia:** <https://events.unesco.org/event/?id=4180394255&lang=1033>
- **Contact information:** Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 4: UNESCO's first graphic novel on Artificial Intelligence

- **Project Description:**  
In the framework of UNESCO's work to harness emerging technology for sustainable development, this graphic novel for young adults explores the impact of Artificial Intelligence on humankind. The comic strip is designed to provide basic AI education to all, showcasing the opportunities and challenges of technology in regard to freedom of expression and human rights and ethics, along with other issues related to AI, including AI and Sustainable Development and AI Professions.  
The publication goes beyond theoretical understanding of the topic and shows the everyday applications of AI, their origins, challenges and how these challenges can be addressed. Additionally, the publication will further elaborate AI in relation to the SDGs and UNESCO's ROAM principles.  
In this original work, examples will respect geographical diversity and gender distribution by showing one story based in Asia, Africa, Oceania and South America. Half of these stories feature women as the main character. The screenwriters and graphic designers are from different world regions, ensuring inclusion.  
The comic strip will be published in September 2022. It has also been translated into Kiswahili and Malagasy to enhance multilingualism in cyberspace especially in Africa, and is due to be launched on World Kiswahili Day (7 July) 2024.

- Project Type/Output: Graphic Novel
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Environment; Gender; Human Rights; Justice; Artificial Intelligence
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education, SDG 5 - Gender Equality, SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - Katherine Evans (Writer and AI Expert)
  - Bimot Media (Illustration and Publication)
  - Sylvia Adongo (Kiswahili Translation)
- Links and Multimedia:
  - <https://www.unesco.org/en/articles/inside-ai-algorithmic-adventure>
  - <https://unesdoc.unesco.org/ark:/48223/pf0000382456>
  - Contact information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)) Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 5: Globalpolicy.ai Portal

- Project Description: The platform provides policy and decision makers with data, research, use cases, and best practices in the field of AI policy and facilitates access to relevant AI-related resources from International Organizations. It serves as a platform that highlights cooperation between International Organizations and makes information readily available on one centralized portal related to AI Governance. Key partners include the Council of Europe, the European Commission, the European Union Agency for Fundamental Rights, the Inter-American Development Bank, the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), and the World Bank Group.
- Department/Division: Sector for Communication and Information
- Project Type/Output: A neutral, authoritative portal where citizens and stakeholders can access up-to-date, accurate information on global AI policy initiatives.
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: Continuous
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Artificial Intelligence - Artificial Intelligence will disrupt/impact almost all industries and society.
- Technology/Platform: Wordpress
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UNESCO
  - Council of Europe
  - The European Commission
  - The European Union Agency for Fundamental Rights
  - Inter-American Development Bank
  - Organisation for Economic Co-operation and Development (OECD)
  - United Nations (UN)

- World Bank Group
- Links and Multimedia:
  - <https://globalpolicy.ai/en/>
  - <https://www.facebook.com/unesco/videos/3005127219743840/>
- Contact Information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 6: Missing Links in AI Governance

- Project Description: The publication will provide world leaders, policy-makers, and civil society members with perspectives that will be critical to face the immense task they're presented with: to ensure the development of AI reaches its full potential in accordance with democratic values and fundamental rights and freedoms. The magnitude of this challenge requires a collaborative effort that transcends disciplinary barriers and geographical borders. This publication brings together academics, civil society representatives, artists and innovators to help us shift the conversation from what we already know to what we have yet to render visible to ensure AI technologies leave no one behind.
- Department/Division : Sector for Communication and Information
- Project Type/Output: Academic journal
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project updates:
  - Downloaded more than 3619 times and consulted 18991 times
- Project Domain: Artificial Intelligence - Artificial Intelligence will disrupt/impact almost all industries and society.
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 -Decent Work and Economic Growth; SDG 10 - Reduced Inequality; SDG 13 - Climate Action; SDG 16 - Peace, Justice, And Strong Institutions; SDG 17 Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - Academia: MILA - Quebec Artificial Intelligence Institute
- Contact information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 7: AI and Gender Equality

- Project Description: UNESCO, the Organisation for Economic Co-operation and Development (OECD), the Inter-American Development Bank (IADB) and Cambridge University have developed a joint report concerning AI's effects on women's working lives.  
The report is intended to raise general awareness of the disruptions of AI during the workforce lifecycle from a gender perspective.  
This descriptive publication is targeted broadly at the general public and decision-makers across sectors including public sectors, private sectors and academia, and provides policymakers with an introduction to issues regarding gender and AI, including applied use cases to consider in AI Programmes and Policy Development

It has been published in March 2022, in English, Spanish and French.

- Department/Division: Sector for Communication and Information
- Project Type/Output: Report
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project update:
  - International Women's Day (8 Mar 2022): Launch of OECD-IDB Joint Publication on "The Effects of AI on the Working Lives of Women"
  - A new policy brief on gender bias in Large Language Models will be published in March 2024 with the International Research centre on AI (IRCAI), Slovenia
- Project Domain: Artificial Intelligence
- Technology/Platform: Report, on UNESCO web page
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic Growth; SDG 10 - Reduced Inequality; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UNESCO (Data Collection and Project Management)
  - Organisation for Economic Co-operation and Development (Data Collection and Project Management)
  - Inter-American Development Bank (Data Collection and Project Management)
  - The Minderoo Centre for Technology and Democracy, University of Cambridge
- Links and Multimedia:
  - <https://www.unesco.org/en/articles/what-are-effects-ai-working-lives-women-global-experts-weigh>
  - <https://unesdoc.unesco.org/ark:/48223/pf0000380861>
- Contact information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Vanessa Dreier ([v.dreier@unesco.org](mailto:v.dreier@unesco.org)); Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### **Project 8: AI and Digital Transformation Competency Framework for Civil Servants**

- Project Description: The challenges of digital era governance require a new set of skills and competencies from civil servants, ICT ministries and digital units in government. The UN Broadband Commission's Working Group on AI Capacity Building, which UNESCO co-chairs with Nokia, is developing a Digital Transformation and Artificial Intelligence Competency Framework for Civil Servants. Through a series of interviews with regional policymakers, collection and assessment of good practices globally, and global consultations, the Working Group has developed evidence-based competency domains, complementary attitudes and recommendations, in a Digital Transformation and AI competency framework, for public sector duty bearers. As an open resource, the Competency Framework is context-sensitive and adaptable for use to support capacity building for civil services across ICT Ministries and Digital Units in governments.
- Department/Division: Sector for Communication and Information
- Project Type/Output: Broadband Commission Report
- Project Status: Ongoing
- Project Start Year: 2021

- Project End Year: 2025
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Updates:
  - Piloting and implementing Competency Framework on AI and Digital Transformation for Civil Servants with the Rwanda Development Board (Feb-Apr 2024)
  - Disseminated knowledge on the Competency Framework on AI and Digital Transformation for Civil Servants for more than 430 stakeholders, via 20 events.
  - Developed and piloted the assessment methodology for the Competency Framework on AI and Digital Transformation for Civil Servants with approximately 70 policymakers from more than 40 countries.
  - Published a policy brief and summary of framework with translations into Arabic, Chinese, English, French, Spanish and Russian.
  - Developed short videos for outreach to civil servants.
  - There are ongoing projects in the preliminary phase in collaboration with over 10 countries.
- Project Domain: Artificial Intelligence
- Technology/Platform: Publication
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure; SDG10 - Reduced inequalities, SDG 16 - Peace, Justice, And Strong Institutions; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UN Broadband Commission
  - UNESCO
  - Nokia
  - Open Knowledge Foundation
- Links and Multimedia:
  - <https://www.broadbandcommission.org/working-groups/ai-capacity-building/>
- Contact Information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 9: The Athens Roundtable

- Project Description: On 1-2 Dec 2022, the fourth edition of The Athens Roundtable will be co-hosted by UNESCO to advance and widen the global dialogue on the enforcement of AI policies and regulations, coordinated efforts toward AI standards and benchmarks, and the adoption of AI in alignment with human rights and democratic values.  
The Athens Roundtable is an annual multi-stakeholder conference seeking to advance the sound development of policies, educational initiatives and evidence-based instruments, to enable the trustworthy adoption of AI in legal systems, the practice of law, and related regulatory compliance.
- Department/Division: Sector for Communication and Information
- Project Type/Output: Conference
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2025
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Artificial Intelligence - Artificial Intelligence will disrupt/impact almost all industries and society.

- Technology/Platform: Hybrid format
- Related Sustainable Development Goals (SDGs): SDG10 – Reduced inequalities, SDG 16 – Peace, Justice, And Strong Institutions; SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - The Future Society
  - European Parliament
  - IEEE
  - Council of Europe
- Links and Multimedia:
  - <https://www.aiathens.org/dialogue/fourth-edition>
- Contact Information: Cédric Wachholz ([c.wachholz@unesco.org](mailto:c.wachholz@unesco.org)), Prateek Sibal ([p.sibal@unesco.org](mailto:p.sibal@unesco.org))

### Project 10: AI and the Futures of Learning project (based on the Teaching Artificial Intelligence at School project)

- Project Description: To support Member States to harness AI for education, with equity and inclusion as guiding principles, UNESCO initiated this project on effective use of AI in the future of learning underpinned by three enablers: (1) needs-driven AI-enabled futures of learning: the project will reveal emerging use cases for leveraging AI to address fundamental needs of learning and provide recommendation on planning; (2) a guidance on ethical principles: the project will develop ethical principles for the design, deployment, and applications of AI in learning and education; and (3) AI competencies: the project will develop a guiding framework on AI competencies needed by all learners to live and learn with AI.  
  
The Project will address both the technological and the human-oriented dimensions of AI and the futures of learning across three sub-domains as identified in [UNESCO's AI and Education: Guidance for policy-makers](#): learning with AI, learning about AI, and learning to work and live with AI.
- Department/Division: Sector for Education
- Project Type/Output: Report/seminar/meeting:
  - report on AI and the Future of Learning
  - Guidance for generative AI in education and research
  - AI competency framework for teachers and AI Competency framework for school students
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project updates:
  - The launch event of the AI and the Futures of Learning project was organized in September 2021 to present the main activities and elicit comments, map out ongoing initiatives, and build partnerships around the project.
  - Since the launch of the project, UNESCO has carried out two surveys on government-approved AI curricula targeting UNESCO Member States and non-governmental organizations that provide AI curricula. The findings indicate that despite the wide demand for AI-related competencies, only 11 countries have endorsed AI curricula to



- date in their K-12 education systems, with a further 5 countries currently developing AI curricula.
- A survey on the governmental use of AI in education was completed in early 2023, covering assessments of Member States' setting up of regulations on ethics of AI and its use in education, strategies for AI in education, and national programmes on developing AI competencies for teachers. The results of the survey informed the AI Competency Framework for teachers. A series of extensive consultations with experts, policy-makers, teachers, youth and other stakeholders were organized to inform the AI competency frameworks.
  - In May 2023, UNESCO organized the first online ministerial roundtable on GenAI gathering over 40 Ministers for an in-depth discussion on the implications and potential of GenAI in ED.
  - UNESCO has mobilized and coordinated groups of experts working on the development of the two AI competency frameworks. The two drafts were presented during the first edition of Digital Learning Week (Sept 2023). A 3-day working group meeting took place at UNESCO HQ (Nov 2023) to validate the structure of the two frameworks. The two competency frameworks are in the process of being finalized and will be released in June 2024.
  - The Guidance for Generative AI in Education and Research was released and launched during Digital Learning Week, in September 2023. This is the first-ever global guidance on generative AI (GenAI) in ED. The guidance is undergoing translation into Arabic, Chinese, French, Portuguese, Romanian, Russian and Spanish.
  - A call for contribution to the definition of Algorithm Literacy and Data Literacy was launched in June 2023. The selected think-pieces will feed inputs for the development of AI Competency Frameworks for students and teachers.
  - UNESCO Digital Learning Week "Steering technology for education" took place in September 2023: the topics addressed, on public digital learning platforms and GenAI, have informed the work related to the three strands of the initiative. 17 ministers and high-level representatives from 16 countries took part in the event
- Project Domain: Education
  - Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education
  - Partnership(s)/Collaborator(s): Private Sector- This project is financially supported by TAL Education Group and is open to a multi-stakeholder approach
  - Links and Multimedia:
    - <https://en.unesco.org/themes/ict-education/ai-futures-education>; <https://en.unesco.org/artificial-intelligence/education>
    - <https://en.unesco.org/artificial-intelligence/education>
    - <https://www.unesco.org/en/digital-education/ai-future-learning/competency-frameworks>
    - <https://www.unesco.org/en/articles/guidance-generative-ai-education-and-research>
  - Contact information: Dr. Fengchun Miao ([f.miao@unesco.org](mailto:f.miao@unesco.org))

### Project 11 Guiding the development of policies on AI and education

- Project Description: Based on UNESCO's publication *AI and education: guidance for policy-makers*, the project provides guidance and support with the development of national policies on AI and education. The publication is made available in 7 languages and offers guidance for policy-makers on how best to leverage the opportunities and address the risks, presented by the growing connection between AI and education. It starts with the essentials of AI, provides a detailed analysis of the emerging trends and implications of AI for teaching and learning and introduces the challenges of harnessing AI to achieve SDG 4 and offers concrete actionable recommendations for policy-makers

to plan policies and programmes for local contexts. The project also includes country support and the organization of the awareness raising and knowledge sharing events, such as launch events of the policy guidance or international forums on AI and education. Moreover, policy examples, promising initiatives and best practices stemming from the forum discussions are documented in the form of synthesis reports.

- Project Type/Output: Report/Policy Framework/Capacity building activities based on the Guidance are under development.
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: TBD
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project updates: The Guidance for policy makers has been published in March 2021, it is in 6 UN languages and Korean
- Online launch events, which included high-level ministry officials, were organized in the LAC region and the Gulf States with the support of relevant Field Offices and UNESCO Category 2 centres in the first half of 2022. These events serve as the first step in a series of activities to support the development of national policies on AI and education in concerned regions and beyond. The launch of the French version is being planned for September 2022.
- Over the past four years, the following events were organized:
  - International Conference on Artificial Intelligence and Education ( May 2019) resulting in the adoption of the Beijing Consensus
  - International Forum on AI and the Futures of Education (December 2020)
  - International Forum on AI and Education: Ensuring AI as a Common Good to Transform Education (December 2021)
  - International Forum on AI and Education: Steering AI to Empower Teachers and Transform Teaching (December 2022)
- Project Domain: Education
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education
- Partnership(s)/Collaborator(s):
  - Private Sector- Weidong Group (financial support)
- Links and Multimedia:
  - <https://unesdoc.unesco.org/ark:/48223/pf0000376709>
  - <https://unesdoc.unesco.org/ark:/48223/pf0000376709>
  - <https://en.unesco.org/artificial-intelligence/education>
- Contact information: Dr. Fengchun Miao ([f.miao@unesco.org](mailto:f.miao@unesco.org))

### Project 12 Developing AI competencies for school students

- Project Description: Based on Teaching Artificial Intelligence at School project, the main objectives are to develop a reference framework on AI competencies to raise awareness and build capacities related to developing knowledge, skills and values needed to live and work in the AI era. The project will further facilitate the planning of national or institutional AI curricula for school education of fostering the competencies of both girls and boys. A Report on Mapping of K-12 AI curricula based on the two surveys carried out by UNESCO will inform the development of a guiding framework. Also, the project involves capacity building activities and organization of workshops with countries based on the tools and guidance developed by UNESCO. The project has been aligned with the activities of the AI and the futures of learning project.
- Department/Division: Sector for Education

- Project Type/Output: Seminar/meeting
- Development of an AI skills framework for schools; Workshops to support the integration of AI training into national or institutional school curriculum in a selected number of countries.
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: TBD
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project updates:
  - In February 2022, UNESCO published a Report on Mapping of K-12 AI curricula based on two surveys on government-approved AI curricula targeting UNESCO Member States and non-governmental organizations that provide AI curricula. The findings indicate that despite the wide demand for AI-related competencies, only 11 countries have endorsed AI curricula to date in their K-12 education systems, with a further 4 countries currently developing AI curricula.
  - In May 2022, based on the above mentioned report, UNESCO with the Ministry of Education of Oman, RCEP, UNESCO Doha office and Ericsson organized an online workshop to develop the capacities of more than 25 national curriculum developers in integrating appropriate AI competencies (including knowledge, skills and values relating to AI) into the national K-12 curriculum and/or institutional programmes.
  - In collaboration with Lebanon's Ministry of Education and the UNESCO Beirut office, UNESCO conducted a 3-day AI and coding training for 20 teachers and 12 Ministry of Education representatives, from 10 to 12 May 2023, in Beirut.
  - UNESCO has mobilized a group of experts working on the development of the AI competency framework for school students. The framework is in the process of being finalized and will be released in June 2024.
- Project Domain: Education
- Data Source: What the data contains, such as demographic data, satellite data
- Related Sustainable Development Goals (SDGs): SDG 4 Quality Education
- Partnership(s)/Collaborator(s): Private Sector: This project is being developed in partnership with Ericsson and is open to a multi-stakeholder approach.
- Links and Multimedia:
  - <https://en.unesco.org/artificial-intelligence/education>
  - <https://en.unesco.org/artificial-intelligence/education>
- Contact information : Dr. Fengchun Miao ([f.miao@unesco.org](mailto:f.miao@unesco.org))

### Project 13: Flood forecasting for next 24 hours using AI

- Project description: Through the project "Enhancing Climate Services for Improved Water Resources Management in Vulnerable Regions to Climate Change: Case Studies from Africa and Latin America and the Caribbean" (ClimWaR) activities have been developed on regional and national flood and drought monitoring platforms for the improvement of relevant information on climate and water for decision-making, while making the information actionable, locally relevant and timely.  
The implementation of the platforms has been delivered by Princeton Climate Institute and covers the continental area of Africa, and the national-level of Cameroon, Mozambique, Zimbabwe, South Africa, Africa (at regional level) Namibia, Malawi. The platform is based on a set of ground, satellite and modelled datasets, which are combined to provide a consistent picture of hydrological conditions close to real-time, as well as forecasts out to 7-days for floods and out to 6 months for drought. The system is updated every day, about

1-2 days behind real-time and it runs a hydrological model with a 5 km resolution. The system integrates an AI-driven flood forecast at 30m resolution, indicating the expected area to be flooded in the next 24-36 hours.

- Department/Division: Natural Sciences Sector
- Project Type/Output: Other: Software tool/Application
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Disaster risk reduction; Artificial Intelligence
- Related Sustainable Development Goals SDGs: SDG 11 – sustainable cities and communities (disaster risk reduction) SDG 13 – climate action
- Partnership(s)/Collaborator(s): Princeton Climate Institute, University of Montana
- Links and Multimedia: <https://en.unesco.org/disaster-risk-reduction/ews-water>
- Contact information: Koen Verbist ([k.verbist@unesco.org](mailto:k.verbist@unesco.org))

#### Project 14: STEM education

- Project description: Development of the Robotics and Artificial intelligence program to focus on designing codes, algorithms, linkage between hardware and software and 3D printing to allow teachers, trainers, and students to create machines and AI applications in MS especially in SIDS and Africa.

In Rwanda, about 120 students, teachers and UNESCO Trainers have convened in FAWE Girls School/Gisozi for STEM Mentoring Boot Camp on Robotics, Artificial Intelligence, 3D Printing and Microscience. UNESCO in partnership with Rwanda National Commission for UNESCO (CNRU), Ministry of Education, Ministry of ICT & Innovation, Rwanda Basic Education Board, Rwanda TVET Board, FAWE Rwanda and the Creativity Lab have organized the event.

Training on Artificial Intelligence Technology for University Teachers In collaboration with Huawei Kenya, a series of training activities will be organized from 11-29th July on AI for teachers in Eastern Africa. The objective of this course is to provide the most fundamental knowledge to the University / College teachers so that they can understand what the A.I is. So, the teachers can introduce AI to their students during their course of teaching.

Dominican Republic, The 4 days workshop took place from 15 to 18 March, 2022. 57 teachers from around the country participated in the training workshop. 15 of them have participated in phase 1 workshop, dedicated to Artificial intelligence and robotics that was held Virtually in July 2021. This was the first face-to-face workshops after the pandemic period. The teachers were exposed to a number of open source softwares such as Cura, Teachable machines etc.

- Department/Division: Natural Sciences Sector
- Project Type/Output: Other: training
- Project Status: Completed
- Project Start Year: 2020
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Disaster risk reduction; Artificial Intelligence
- Related Sustainable Development Goals SDGs: SDG 4.- quality education
- Partnership(s)/Collaborator(s): Rwanda National Commission for UNESCO (CNRU), Ministry of Education, Ministry of ICT & Innovation, Rwanda Basic Education Board, Rwanda TVET Board, FAWE Rwanda and the Creativity Lab,

- Links and Multimedia:
- Contact information: Imteyaz Khodabux ([i.khodabux@unesco.org](mailto:i.khodabux@unesco.org))

### Project 15: Decision Making support tool using AI for school safety

- **Project Description:** Exposure of school infrastructure to multi-hazards poses significant risk to vulnerable populations of students and their education process. In response to this objective, UNESCO Chair in Disaster Risk Reduction and Resilience Engineering developed a probabilistic resilience framework, combining two methodologies which exploit Machine Learning technology, Agent-based (AB) and Bayesian Network (BN) approaches, for system performance analysis. The framework aims to estimate the disruption to education due to multiple hazards to quantify its resilience, considering physical, functional, and social vulnerability aspects of the infrastructure. The resilience of the system depends on the interdependencies of system variables from these qualitative and quantitative aspects.
- Department/Division: Natural Sciences Sector
- Project Type/Output: Other: Software tool/Application
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities?](#) Yes
- Project Domain: Disaster risk reduction; Artificial Intelligence
- Related Sustainable Development Goals SDGs: SDG 11 SDG 11 – sustainable cities and communities (disaster risk reduction)
- Partnership(s)/Collaborator(s): University College London
- Links and Multimedia:
- Contact information: Soichiro Yasukawa ([s.yasukawa@unesco.org](mailto:s.yasukawa@unesco.org))

### Project 16: Harnessing the power of AI to promote equal opportunities in the digital world (McGovern I)

- **Project Description:** This project assists four countries (Chile, Morocco, Senegal, Brazil) to translate the Recommendation into national institutional and regulatory frameworks and to build a national consensus on the shared vision for AI. At the end of this project, these countries will have national AI strategies developed from a bottom-up approach and their capacities enhanced based on an ethical framework. A meta-strategy will be developed for the global roll-out, based on the evidence and experience gained by the four pilots.
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- **Project Domain:** Environment, Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence will disrupt/impact almost all industries and society. In particular, the Recommendation proposes concrete, impact-oriented policy actions in 11 areas: Ethical Impact Assessment; Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Gender; Culture; Education and research; Communication and information; Economy and labour; Health and social well-being
- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic

Growth; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 13 - Climate Action; SDG 16 - Peace, Justice, and Strong Institutions

- **Partnership:** Patrick J. McGovern Foundation, AIEB Network, key government entities, local think tanks, academic experts, civil society
- **Project Website** (links): <https://en.unesco.org/artificial-intelligence/ethics>
- **Contact Information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 17: Supporting Member States in Implementing UNESCO's Recommendation on the Ethics of AI through Innovative Tools

UNESCO aims to advance the global implementation of the Recommendation on the Ethics of AI by assisting countries in establishing robust national institutions for effective AI governance. Over 70 UNESCO Member States have joined the Group of Friends, expressing interest in technical assistance for building national institutions addressing AI technologies. The project addresses these needs and will facilitate implementation of the Recommendation in the form of support for developing and implementing national policy, legislation, regulation and other governance mechanisms.

To build the capacities of Member States and support them in translating the Recommendation on the Ethics of AI into policies and practices at the national level, UNESCO has developed the following tools and mechanisms as mandated by the Recommendation:

- > **Readiness Assessment Methodology (RAM)** to help governments determine how prepared the country is for developing, adopting and using AI systems, by analysing different dimensions of readiness, including legal, social, cultural, economic, scientific, educational, technological and infrastructural.
- > **Ethical Impact Assessment (EIA)** to enable countries to evaluate AI technologies based on the standards of UNESCO Recommendation, underscoring the benefits and risks of a specific system to individuals, society and the environment.
- > The tools should identify impacts on human rights and fundamental freedoms, in particular but not limited to the rights of vulnerable groups, poverty, digital divide, labour rights, the environment and ecosystems, and ethical and social implications.
- **Department/Division:** Sector for Social and Human Sciences
- **Project Type/Output:** development of tools
- Project Status: ongoing
- Project Start Year: January 2022
- Project End Year: open-ended
- Reported as part of 2022 Compendium on UN AI Activities? No
- **Project updates:** The tools are being piloted and implemented in over 50 countries around the world.
- **Project Domain:** Environment, Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence will disrupt/impact almost all industries and society. In particular, the Recommendation proposes concrete, impact-oriented policy actions in 11 areas: Ethical Impact Assessment; Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Gender; Culture; Education and research; Communication and information; Economy and labour; Health and social well-being
- **Related Sustainable Development Goals (SDGs):** SDG 3 - Good Health and Well-being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic

- Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: European Commission – DG INTPA, 70+ Member States of the Group of Friends of the Recommendation (an op-ended alliance of countries spearheading the implementation of the Recommendation). Particular governmental partners include Japan, South Africa, Namibia, Mozambique, and Zimbabwe.
  - Foundations: Patrick J. McGovern Foundation
- **Links and Multimedia:** <https://en.unesco.org/artificial-intelligence/ethics>
- **Contact information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 18: Supervising AI by Competent Authorities

**Project Description:** UNESCO currently works with the Dutch Digital Infrastructure Authority on a project funded by European Commission DG Reform on the supervision of AI by competent authorities. The project will support the challenge confronting European competent authorities in implementing the upcoming EU AI Act and other relevant legislations and international standards. The project will provide technical support to enhance the capacities, competencies, and knowledge of members of the Dutch and European Working Groups of Competent Authorities on AI, to supervise AI in compliance with the forthcoming AI Act and other relevant legislation and international standards, such as UNESCO’s Recommendation on the Ethics of AI, developing case studies for good practices, and assessing different modalities for supervising AI via a multistakeholder consultation.

The project has 3 phases:

- 1) comprehensive approach to understand the current state of AI supervision in the EU and beyond presented in a comprehensive report;
  - 2) capacity building efforts centring on specific domains and topics based on results of first phase, in the form of a series of case studies to explore AI supervision. It will look at how existing tools such as the EIA can contribute to the mission of the competent authorities;
  - 3) a multistakeholder consultation to explore and develop options for operationalizing AI supervision among Competent Authorities. This will culminate with recommendations on the operational settings and requirements for AI supervision.
- Project Status: Ongoing
  - Project Start Year: 2024
  - Project End Year: 2025
  - Reported as Part of 2022 Compendium on AI Activities? No
  - **Project Domain:** Knowledge sharing, capacity building, AI governance, ethical AI, multi-stakeholder participation, implementation of the Recommendation
  - **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
  - **Partnership:** European Union, Dutch Digital Infrastructure Authority
  - **Contact Information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 19: Supporting Africa and SIDS to Benefit from AI Technologies while Addressing Ethical Risks

- **Project Description:** This project aims to strengthen capacities and policies of Member States in Africa and SIDS to benefit from Artificial Intelligence (AI) technologies and to address the associated ethical risks, focusing especially on gender inequalities and discrimination. This will be pursued through the development of innovative capacity-building tools, including the Ethical Impact Assessment and Readiness Assessment Methodology as outlined in the Recommendation on Ethics of AI, which upholds protection, promotion and respect of human rights and fundamental freedoms, human dignity and equality as its objective.
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2024
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project Domain:** A capacity building, implementation of the UNESCO Recommendation on the Ethics of AI, Africa, SIDS
- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- **Partnership:** Government of Japan
- **Project Website** (links): <https://en.unesco.org/artificial-intelligence/ethics>
- **Contact Information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 20: AI Governance for Africa Toolkit - Regional and International Frameworks

- **Project Description:** This toolkit unpacks the context of AI governance, in Africa and globally, and considers advocacy approaches for future governance. It does so in the following ways: Part 1 examines existing AI governance instruments in Africa with a particular focus on the East African Community. This chapter outlines continental responses and details existing governing measures in Africa. Part 2 unpacks existing international governance measures. In doing so it considers governance trends and important considerations included in governance instruments. Part 3, which is a separate document, explores a series of key questions for the design of advocacy strategies on AI governance, particularly in African contexts. The aim of the toolkit is to empower journalists and civil society organizations to inform public discourse, drive policy and regulatory change and advocate for ethical and responsible AI deployment.
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year:
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project Domain:** [some keywords about the project]
- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- **Partnership:** Thompson Reuters Foundation, Patrick J. McGovern Foundation
- **Project Website** (links): <https://www.trust.org/>
- **Contact Information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)



## Project 21: Business Council for Ethics of AI

- **Project Description:** The UNESCO AI Business Council is a strategic initiative designed to collaborate with companies worldwide in promoting the ethical development and use of artificial intelligence (AI). Drawing on the UNESCO Recommendation on the Ethics of Artificial Intelligence, the council aims to implement ethical principles in AI applications, foster the exchange of best practices, and enhance ethical impact assessments to promote AI that respects human rights globally.
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: Indefinite
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project Domain:** Ethical Artificial Intelligence
- **Related Sustainable Development Goals (SDGs):** The project contributes to multiple SDGs, including but not limited to SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), SDG 10 (Reduced Inequalities), SDG 13 (Climate Action), SDG 16 (Peace, Justice, and Strong Institutions), and SDG 17 (Partnerships for the Goals), by promoting ethical standards in the development and use of AI technologies.
- Partnership(s), Collaborator(s):
  - Co-chairs: Microsoft, Telefónica
  - Members: Bimbo Group, Salesforce, LG AI Research
  - Observers: GSMA
- **Links and multimedia:** <https://www.unesco.org/en/artificial-intelligence/business-council>
- **Contact Information:** Melguizo, Angel [a.melguizo@unesco.org](mailto:a.melguizo@unesco.org) ; Eleonora Lamm [e.lamm@unesco.org](mailto:e.lamm@unesco.org); Gonzalez, Natalia [n.gonzalez@unesco.org](mailto:n.gonzalez@unesco.org)

## Project 22: AI Ethics Experts Without Borders (AIEB)

The AI Ethics Experts without Borders (AIEB) Network assists Member States in implementing the [UNESCO Recommendation on the Ethics of AI](#) by providing on-demand support and tailored policy advice and by contributing to UNESCO's knowledge production to guide the implementation of the Recommendation. The key tools used by the experts are the [Readiness Assessment Methodology](#) and the [Ethics Impact Assessment](#). The AIEB Network represents an expert facility featuring international pool of recognized experts (independent consultants, academics and researchers, governmental officials and civil servants, experts working in private sector, etc.) that have a relevant experience in designing or implementing policies to advance ethical governance of AI, fostering collaboration, building capacities and competences, and sharing knowledge and experience globally.

- **Department/Division:** Sector for Social and Human Sciences
- **Project Type/Output:** networks/event/research
- **Project Status:** ongoing
- Project Start Year: 2024
- Project End Year: open-ended
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project updates:** Project was launched at the Global Forum on the Ethics of AI in February 2024.
- **Project Domain:** Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence, Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Culture; Education and

research; Communication and information; Economy and labour; Health and social well-being

- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: 70+ Member States of the Group of Friends of the Recommendation (an open-ended alliance of countries spearheading the implementation of the Recommendation).
  - Academia: Alan Turing Institute, IE University, London School of Economics, MIT, Technical University of Munich, Harvard University, Singapore Management University, University of Ghana, Universidad del Rosario, United Nations University, Chinese Academy of Science.
- Links and Multimedia: <https://www.unesco.org/ethics-ai/en>
- **Contact information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 23: The Global AI Ethics and Governance Observatory

The Global AI Ethics and Governance Observatory is a collaborative and information-sharing platform to increase understanding of the challenges and impact of AI and promote peer learning. The Global AI Ethics and Governance Observatory will host the results of the analytical work from all countries participating in the RAM exercise, together with the contributions from experts from around the world. The aim of the Observatory is to provide a global resource for policymakers, regulators, academics, the private sector and civil society to find solutions to the most pressing challenges posed by Artificial Intelligence.

- **Department/Division:** Sector for Social and Human Sciences
- **Project Type/Output:** research/database
- **Project Status:** ongoing
- Project Start Year: December 2023
- Project End Year: Open-ended
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project Domain:** Environment, Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence will disrupt/impact almost all industries and society. In particular, the Recommendation proposes concrete, impact-oriented policy actions in 11 areas: Ethical Impact Assessment; Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Gender; Culture; Education and research; Communication and information; Economy and labour; Health and social well-being
- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - UN Partners: UN
  - Government: 70+ Member States of the Group of Friends of the Recommendation (an open-ended alliance of countries spearheading the implementation of the Recommendation).

- Academia: Alan Turing Institute, IE University, London School of Economics, MIT, Technical University of Munich, Harvard University, Singapore Management University, University of Ghana, Universidad del Rosario, United Nations University, Chinese Academy of Science.
- **Links and Multimedia:** <https://www.unesco.org/ethics-ai/en>
- **Contact information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 24: Women for Ethical AI Network (Women4EthicalAI)

The Women for Ethical AI platform (Women4EthicalAI) leverages the knowledge, contribution and networks of leading Artificial Intelligence (AI) experts to advance gender equality in the AI agenda. This new multi-stakeholder collaborative platform supports governments and companies' efforts to ensure that women are represented equally in the design, use and deployment of AI, and to promote trustworthy, gender-friendly and inclusive AI systems. Women4Ethical AI's experts further contribute to advance all the other policy chapters and to implement the provisions contained in the UNESCO Recommendation on the Ethics of Artificial Intelligence, from education and research, to economy and labour, and the environment and ecosystems.

- **Department/Division:** Sector for Social and Human Sciences
- **Project Type/Output:** networks/event/research
- **Project Status:** ongoing
- Project Start Year: 2023
- Project End Year: open-ended
- Reported as Part of 2022 Compendium on AI Activities? No
- **Project Domain:** Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence, Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Culture; Education and research; Communication and information; Economy and labour; Health and social well-being
- **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: 70+ Member States of the Group of Friends of the Recommendation (an op-ended alliance of countries spearheading the implementation of the Recommendation).
  - Academia: Alan Turing Institute, IE University, London School of Economics, MIT, Technical University of Munich, Harvard University, Singapore Management University, University of Ghana, Universidad del Rosario, United Nations University, Chinese Academy of Science.
- Links and Multimedia: <https://www.unesco.org/en/artificial-intelligence/women4ethical-ai>
- Contact information: Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

## Project 25: Global Forum on the Ethics of AI

The Global Forum on the Ethics of AI will mark an important milestone in the building of a robust international coalition towards ensuring the ethical development and use of AI worldwide. The Forum will comprise three major components:

1. Ethical Development and Use of AI across the world reinforcing national regulatory frameworks and institutions.
  2. Global Collaboration on the Implementation of the Recommendation on the Ethics of AI: This session will feature digital ministers from across the world, including Africa, Latin America and the Caribbean, and Asia and the Pacific.
  3. Special Topics: parallel sessions will be dedicated to the exploration of the state of AI from different angles – Gender Equality, Environmental Protection, Readiness and Ethical Impact Assessments, Transparency and Non-discrimination.
- The Forum will take stock of the national efforts to promote the ethical development and use of AI and identify the best regulatory practices and institutional settings to ensure the ethical development of these technologies.
  - **Department/Division:** Sector for Social and Human Sciences
  - Project Type/Output: event
  - **Project Status:** ongoing
  - **Project Start Year:** December 2022
  - Project End Year: recurrent
  - **Department/Division:** Sector for Social and Human Sciences
  - Reported as Part of 2022 Compendium on AI Activities? No
  - **Project Domain:** Environment, Education, Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence will disrupt/impact almost all industries and society. In particular, the Recommendation proposes concrete, impact-oriented policy actions in 11 areas: Ethical Impact Assessment; Ethical governance and stewardship; Data policy; Development and international cooperation; Environment and ecosystems; Gender; Culture; Education and research; Communication and information; Economy and labour; Health and social well-being
  - **Related Sustainable Development Goals (SDGs):** SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
  - Partnership(s)/Collaborator(s):
    - Government: 70+ Member States of the Group of Friends of the Recommendation (an op-ended alliance of countries spearheading the implementation of the Recommendation).
  - **Links and Multimedia:** [Global Forum on the Ethics of AI event website](#), [Youtube Playlist](#) with all livestreams of the sessions
  - **Contact information:** Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

## Project 26: Sensitizing and building capacity of the stakeholders to address ethical issues of AI

Project Description: To build the capacities of stakeholders of AI technologies (developers and beneficiaries), UNESCO has organized a series of roundtables on the selected topics of ethics of AI inviting eminent experts around the world. A series of short educative and informative video of each topic of the roundtable are produced and made available through UNESCO's

YouTube channel for educational purposes. This project was financially supported by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

- Department/Division: Sector for Social and Human Sciences
- Project Type/Output: Roundtables, short videos
- Project Status: completed
- Project Start Year: July 2019
- Project End Year: July 2022
- Reported as Part of 2022 Compendium on AI Activities? No
- Project updates: Three roundtables on selected topics of Ethics of AI had been organized at UNESCO HQ inviting eminent experts from different regions as follows:
  - The 1st roundtable on Ethics of AI “Changing Relationship between Artificial Intelligence and Humans”, December 2019.
  - The 2<sup>nd</sup> roundtable on Ethics of AI “Shaping the Future of AI through Cultural Diversity”, March 2021.
  - The 3<sup>rd</sup> Roundtable on the ethics of AI “Challenges of AI Ethics and Governance”, February 2022.
- The video recording of the roundtables are freely accessible through UNESCO website. 5 short educational videos on the topics addressed during the roundtables are freely accessible through UNESCO’s youtube channel with several language subtitles.
- Project Domain: Gender, Health, Human Rights, Justice, Telecommunications, Artificial Intelligence will disrupt/impact almost all industries and society.
- Related Sustainable Development Goals (SDGs): SDG 3 – Good Health and Well-being; SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 9 – Industry, Innovation and Infrastructure; SDG 10 – Reduced Inequality; SDG 16 – Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s): Japanese Ministry of Education, Culture, Sports, Science and Technology
  - Academia: Twente University (Netherlands), Harvard University (USA), Tokyo University (JPN), Kyoto University (JPN), Cardiff University (UK), Glasgow University (UK), Robotics Institute (Spain), Article 19, Concordia University (Canada), Rio de Janeiro State University (Brazil), Australian National University (Australia), Stanford Digital Civil Society Lab (USA), Pollicy organization (Uganda), Pretoria University (South Africa)
- Links and Multimedia:
 

Roundtable video recordings:

  - 1<sup>st</sup> roundtable: “Changing Relationship between Artificial Intelligence and Humans”, [http://webcast.unesco.org/live/vod/2019/shs/20190312\\_shs\\_room-02/en/](http://webcast.unesco.org/live/vod/2019/shs/20190312_shs_room-02/en/)
  - 2<sup>nd</sup> roundtable: “Shaping the future of AI through Cultural diversity”, <https://www.youtube.com/watch?v=Rdp6hQXVpqM>
  - 3<sup>rd</sup> roundtable: “AI Ethics and Governance: From Principles to Practices”, <https://www.youtube.com/watch?v=Innb8D9NLp8>

Educational short video links:

- Do you know AI or AI knows you better? <https://youtu.be/im0XTC91qMI>
- Does AI make better decisions than humans? <https://youtu.be/2E7I1hdjHsg>
- Shaping AI through Cultural diversity <https://www.youtube.com/watch?v=AiK0iYZuNS0>
- Evolving interactions between Humans and AI <https://youtu.be/xDmQMpwiHdA>

- Contact information: Orio Ikebe ([o.ikebe@unesco.org](mailto:o.ikebe@unesco.org)), Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### **Project 27: Landscape Study of AI Policies and Use in Southern Africa**

Project Description: Guided by the UNESCO Recommendation, this project includes a policy mapping of AI and relevant digital policies in 9 countries in Southern Africa (Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe), as well as a light-weight review of the extent of AI use across four key sectors in the 9 countries. These analyses will adopt strong human rights and ethical standpoints, And will Highlight the areas of potential ethical risks and threats on the long-term fulfillment of fundamental rights, protection of social cohesion, and promotion of justice and equality will be essential for the future of technological development.

UNESCO will use the study findings to inform the expert and policy discussions ensuring that dialogues are evidence-based. In this framework, the specific objectives of this study are to:

1. Understand and raise public awareness on the actual utilization of the AI technologies in the Southern Africa region, taking some sectors as examples and case studies.
2. Alert policy makers and technicians on the potential risks and threats of AI utilization on human rights and fundamental freedom of individuals, on social justice and equality, on governance of public affairs, and on the environment.
3. Guiding the process of ethical governance by investigating existing stewardship principles from industries and government agencies.
4. It also seeks to promote human rights respecting governance frameworks by assessing ratification to international, continental and regional policies/frameworks/strategies.

The study will include two segments: (i) a mapping review of policies that will focus on providing critical analysis of the policy and normative environment from a human rights and ethical standpoint, which can frame the AI utilization;<sup>1</sup> and (ii) a sectoral landscape review of how the AI technologies have been used concretely, without necessarily the public and the policy makers being aware of all the human rights and ethical implications.

- Department/Division: UNESCO Harare office
- Project Type/Output: Research
- Project Status: completed
- Project Start Year: May 2022
- Project End Year: August 2022
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Domain: Research/report
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe
  - Academia: Research ICT Africa
- Links and Multimedia: Link to the final study: <https://unesdoc.unesco.org/ark:/48223/pf0000385563>

- Contact information: Phinith Chanthalangsy [p.chanthalangsy@unesco.org](mailto:p.chanthalangsy@unesco.org)

### Project 28: UNESCO-Southern Africa sub-Regional Forum on Artificial Intelligence (AI)

- Project Description: The Forum aims to provide a platform for Member States, international organizations, civil society, academia, the AI industry, and other stakeholders to discuss issues and challenges related to AI development in Africa, including equity and ethics and encourage intra-African cooperation in AI.
- Department/Division:
- Project Type/Output: Conference, synthesis report
- Project Status: completed
- Project Start Year: 2018
- Project End Year: 2022
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Domain: Artificial Intelligence; human rights; STEM education; data protection; gender equality
- Related Sustainable Development Goals (SDGs): SDG 17-Partnership for the Goals, SDG 5- Gender Equality, SDG 4- Quality education, SDG 10- Reduced Inequality
- Partnership(s)/Collaborator(s): Ministry of Higher Education, Technology and Innovation of Namibia
- Links and Multimedia: [www.sarfai2022.org](http://www.sarfai2022.org)
- Contact information: Irakli Khodeli ([i.khodeli@unesco.org](mailto:i.khodeli@unesco.org)), [ai-ethics@unesco.org](mailto:ai-ethics@unesco.org)

### Project 29: UNESCO IPDC Handbook on Reporting on Artificial Intelligence for Journalists

- Project Description: Against the backdrop of AI's emerging ubiquity, AI coverage must inform audiences about the implication of the technology itself, beyond journalism. For instance, reporting on the power dynamics in the changing relationship between companies, authorities, citizens and computer chips, and between data and algorithms. While many AI deployments serve public interest, journalists also need insight and expertise to alert about aspects like exclusions, unequal benefits, and violations of human rights. As part of its journalism education series, UNESCO's International Programme for the Development of Communication (IPDC) has supported the World Journalism Education Council in commissioning this handbook. The handbook aims to inspire and empower journalism educators to help both journalism students and working journalists do justice to one of the major issues of our times. Trainings for journalists based on the handbook have already been piloted in Rwanda, in support of the government's effort to raise awareness about its National AI Policy among the population, and to strengthen journalist's ability to report on AI in Africa in an accurate, nuanced and informed way.
- Department/Division: Communication and Information
- Project Type/Output: Handbook/ Capacity Building
- Project Status: Completed
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- Project Domain: Gender, Human Rights, Telecommunications, Communication and Information, Medi, Education
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions

- Partnership(s)/Collaborator(s):
  - UN Partners: World Journalism Education Council (WJEC)
  - Academia: Çukurova University, Utrecht University, Christ Nagar College, Trivandrum, Saint Petersburg University
- Contact information : Misako Ito ([m.ito@unesco.org](mailto:m.ito@unesco.org))

### Project 30: UNESCO Framework for Culture and Arts Education 2024

The UNESCO Conference on Culture and Arts Education took place from 13-15 February 2024 in Abu Dhabi, UAE and resulted in the unanimous adoption of the first [Global Framework for Culture and Arts Education](#), strengthening the synergies between education and culture in formal, non-formal, informal, lifelong and life wide education and learning, including TVET, across the broad spectrum of cultural resources from cultural heritage to living expressions and the creative economy. The Framework includes two specific references to AI among its policy guidance and recommendations:

- (II. Objectives, point ii) "Harness contemporary advances and seize the opportunities opened up by technology, while identifying, preventing and mitigating risks, notably in digital technologies and Artificial Intelligence (AI), in order to support and promote reflection, creativity, initiatives, and ethical and responsible use in this domain, in particular to the benefit of the educational, cultural and creative sectors."
- (IV Strategic Goals, a) Access, inclusion and equity; point 14): "All learners, educators and teachers should have equitable and inclusive access to infrastructure and resources and learning opportunities to develop the skills and competencies to benefit from digital technologies and AI. While digital technologies and AI have expanded new ways to access and engage with culture and arts education, addressing the digital divide and the imbalance in cultural diversity and expressions online have become equally critical priorities to remove barriers to participation due to economic, geographical and social disparities, and to equip learners, teachers and educators with the relevant knowledge and skills they need, including media and information literacy."
- Department/Division: UNESCO Division of Cultural Policies and Intercultural Dialogue
- Project Type/Output: Policy Guidance
- Project Status: Adopted
- Project Start Year: 2022
- Project End Year: 2024
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- Project updates: Framework adopted on 15 Feb 2024
- Project Domain: Culture and Education
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: UAE
- Links and Multimedia:
  - Steps: <https://www.unesco.org/en/frameworkcultureartseducation>
  - Adoption: <https://www.unesco.org/en/articles/unesco-member-states-adopt-global-framework-strengthen-culture-and-arts-education>



- Contact information: Paola Leoncini Bartoli, Director of UNESCO CPD, [p.leoncini-bartoli@unesco.org](mailto:p.leoncini-bartoli@unesco.org)

### Project 31: UNESCO High-level discussion on AI in the audio-visual industry (2023)

- On 19 October 2023, UNESCO organized a high-level discussion on AI in the audio-visual industry entitled "The Film sector on the frontlines" at its HQ in Paris, which brought together film stakeholders and AI experts from across the globe to voice a diversity of perspectives on the challenges and opportunities presented by AI in the cultural and creative sectors. Recommendations from the discussion highlighted the need for UNESCO and other international organizations to develop inclusive and participatory international guidelines and standards that are human-centered and guarantee:
  - Consent: artists and cultural professionals should be informed of and consent to the use of their work for training generative AI models;
  - Fair remuneration: artists and cultural professionals whose work is being used by generative AI tools should be remunerated and have their intellectual property rights protected;
  - Transparency: users of generative AI tools should be aware of the sources used to create the content they are requesting, notably to avoid unintentional plagiarism. Similarly, works that were generated through AI should be clearly indicated;
  - Cultural diversity: generative AI models should be trained and corrected to avoid perpetuating biases and stereotypes and ensure that diverse and representative stories or images are produced and disseminated.
- Department/Division: UNESCO Diversity of Cultural Expressions Entity
- Project Type/Output: Awareness raising, policy recommendations
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- Project updates: Event organized 19 October 2023
- Project Domain: Culture and Creative Industries/ Audio-visual sector (Film)
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - UN Partners: consultations with ILO, WIPO
  - Private Sector: CISAC
- Links and Multimedia:
  - <https://www.unesco.org/en/articles/unesco-unites-diverse-perspectives-inform-policies-ai-creative-sectors>
- Contact information: Karalyn Monteil, Head of Programmes & Stakeholders Outreach, UNESCO Diversity of Cultural Expressions Entity, [k.monteil@unesco.org](mailto:k.monteil@unesco.org)

### Project 32: UNESCO Expert Reflection Group on the diversity of cultural expressions in the digital environment (2024-2024)

- In the framework of the UNESCO 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions, UNESCO has established a reflection group on the diversity of cultural expressions in the digital environment. The reflection group's

mandate for 2024-2025 will be to exchange knowledge and experiences regarding the implementation of the 2005 Convention in the digital environment and to formulate recommendations, which will be presented to the UNESCO Intergovernmental Committee on the Protection and Promotion of the Diversity of Cultural Expressions at its eighteenth session in February 2025 and then transmitted to the tenth session of the Conference of Parties of the 2005 Convention in June 2025. The group is composed of 18 experts from 6 regions. They will participate in two meetings to be held in May and September 2024.

- Department/Division: UNESCO Diversity of Cultural Expressions Entity
- Project Type/Output: Policy recommendations
- Project Status: Ongoing
- Project Start Year: 2024
- Project End Year: 2025
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- Project updates: Experts identified Jan 2024
- Project Domain: Culture and Creative Industries
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 9 - Industry, Innovation and Infrastructure; SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s):
  - Government: Canada, France
- Links and Multimedia:
  - <https://www.unesco.org/creativity/en/articles/closed-call-experts-reflection-group-diversity-cultural-expressions-digital-environment>
- Contact information: Laurence Mayer-robotaille, [L.mayer-robotaille@unesco.org](mailto:L.mayer-robotaille@unesco.org), UNESCO Diversity of Cultural Expressions Entity

### Project 33: Addressing Hydro-Climatic Vulnerability through Citizen and Open Science

- The project aims to improve the ability to forecast hydro-climatic extremes, such as droughts and floods through innovative technologies, such as AI, to build water resilience against climate change and improve water management in pilot countries of Sub-Saharan Africa and Latin America. A mapping of Machine Learning (ML) and Artificial Intelligence (AI) applications for water resource management is currently underway, beginning from November 2023. These exercises will establish the baseline and identify potential for ML/ AI applications in sustainable water management.
- Department/Division: UNESCO Natural Sciences Sector, Water Sciences Division
- Project Type/Output: research, databases
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2026
- Reported as part of [2022 Compendium on UN AI Activities?](#) No
- Project updates:
- Project Domain: water, climate change, disaster risk reduction
- Related Sustainable Development Goals (SDGs): SDG 6 Clean water and sanitation; SDG 13 Climate action

- Partnership(s)/Collaborator(s):
  - Government: Government of Flanders, Belgium; UNESCO IHP National Committee of the Republic of Korea
  - Academia: Delaters
- Links and Multimedia: <https://www.unesco.org/en/ihp/hydro-resilience>
- Contact information: [k.verbist@unesco.org](mailto:k.verbist@unesco.org) Koen Verbist UNESCO Intergovernmental Hydrological Programme

## 2. Related Sustainable Development Goals

SDGs 3, 4, 5, 8, 9, 10, 11, 13, 16, and 17

## 3. Relevant links

<https://www.unesco.org/en>

Contact information

Clare Stark ([c.stark@unesco.org](mailto:c.stark@unesco.org)), and Misako Ito ([m.ito@unesco.org](mailto:m.ito@unesco.org))

## United Nations Framework Convention on Climate Change



### United Nations Framework Convention on Climate Change

#### 1. Description of Activities on AI

##### Project 1: UNFCCC Technology Mechanism Initiative on Artificial Intelligence for Climate Action

- Project Description: The UNFCCC Technology Mechanism Initiative on Artificial Intelligence for Climate Action (#AI4ClimateAction) aims to explore the role of AI as a powerful technological tool for advancing and scaling up transformative climate solutions for mitigation and adaptation action in developing countries with a focus on least developed countries (LDCs) and small island developing States (SIDS), while also addressing the challenges and risks posed by artificial intelligence. In 2023, the Conference of the Parties (COP) of the UNFCCC requested the UNFCCC Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN) to implement the initiative with special attention to capacity needs and technology priorities of developing countries and in support of the Technology Mechanism joint work programme for 2023-2027;
- Division: Means of Implementation Division/Technology Sub-Division
- Project Type: Initiative
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Climate action
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All, in particular SDG 13 - Climate Action
- Partnership(s)/Collaborator(s):
  - UNEP/CTCN
- Relevant Links and Multimedia: [https://unfccc.int/ttclear/artificial\\_intelligence](https://unfccc.int/ttclear/artificial_intelligence)
- Contact information: Moritz Weigel ([tec@unfccc.int](mailto:tec@unfccc.int))

##### Project 2: AI Innovation Grand Challenge

- Project Description: The UNFCCC Technology Executive Committee (TEC) launched the AI Innovation Grand Challenge in partnership with Enterprise Neurosystem during a [High-level Event on Artificial Intelligence for Climate Action](#) at the UN Climate Change Conference in Dubai in December 2023. The AI Innovation Grand Challenge is a climate innovation competition to identify new AI applications for climate mitigation and adaptation action in developing countries and to make them available open-source as a public good.
- Division: Means of Implementation Division/Technology Sub-Division
- Project Type: Innovation contest

- Project Status: Ongoing
- Project Start Year: 2024
- Project Domain: Climate action
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): All, in particular SDG 13 – Climate Action
- Partnership(s)/Collaborator(s):
  - Enterprise Neurosystem
- Relevant Links and Multimedia: [https://unfccc.int/ttclear/artificial\\_intelligence](https://unfccc.int/ttclear/artificial_intelligence)
- Contact information: Moritz Weigel ([tec@unfccc.int](mailto:tec@unfccc.int))

## 2. Related Sustainable Development Goals

All SDGs: SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17

## 3. Relevant Links

<https://www.unfccc.int/>

Contact information

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## United Nations Population Fund



### 1. Description of Activities on AI

#### Project 1: TABOO

- Project Description: Taboo is a service that offers users relevant information and to easily obtain and visualize disaggregated and significant data about myths and misconceptions of sexual and reproductive health contained in the genuine opinions of the Spanish-speaking population on Twitter.

Through scraping techniques this data is meant to be a complement to the official information gathered by the entities in charge of guaranteeing sexual and reproductive rights in Colombia and other Spanish-speaking countries. In this way, it is possible to obtain a more robust picture of what is happening around this issue, based on this compilation of information to make better decisions when we approach the citizens with new actions and strategies that seek behavioral changes.

Implementing trusted and tailored messages, in the right channels will bust myths and unveil misinformation and help women, young women and adolescents, to exercise their sexual and reproductive health and rights and prevent unwanted pregnancies.

The project is centered in eliminating barriers encountered in the demand of family planning related to taboos, lack of understanding of RH and limited decision making. Since we intend to unveil the myths and misconceptions in family planning, our innovation will contribute to preventing unplanned/unwanted pregnancies.

- Department/Division: Innovation Lab UNFPA Colombia
- Project Type/Output: Dataset; Software tool
- Project Status: Completed
- Project Start Year: 2019
- Project End Year: 2021
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: Main results: Through Taboo, it was possible to carry out a classification of myths regarding sexual and reproductive health and to collect 212.257 Tweets.

After this first exercise we obtained three categories of myths: 1. Sexually transmitted diseases, 2. Modern contraceptive methods and 3. Unscientific methods of contraception.

From the first category, five major misconceptions were obtained: 1. You cannot get an STI by practicing oral sex, 2. Condoms do not protect people from STIs, 3. Gay people are more likely to get STI's, 4. There is a cure for HIV/AIDS, and 5. Only promiscuous people get STI's, of which 177.522 related tweets were found.

From the second category, 11 great myths were obtained: 1. More babies die from abortion in two days than all deaths from COVID- 19, 2. Abortion is never medically necessary, 3. The use of the pill can cause varicose veins, 8. You should only use the IUD if you have children, 9. Occasionally you should stop taking contraceptives to "clear" or "take a break" from hormones, 10. The morning-after pill causes abortions, and 11. The

morning-after pill can be used as a regular contraceptive, of which 20345 related tweets were found.

Finally, from the third category, 6 myths were obtained: 1. The first relationship does not make you pregnant, 2. There are safe days for a woman not to become pregnant, 3. During menstruation a woman cannot become pregnant, 4. Parsley serves as an abortion, of which 14.390 related tweets were found.

Additionally we have arranged the complete database in a dashboard so that it can be explored by users.

This information will allow the UNFPA Colombia office, other spanish-speaking COs and LACRO to better understand the beliefs of the population with respect to sexual and reproductive health, so that from the lack of clear knowledge these beliefs can be broken by means of more accurate messages.

Activities achieved:

- A clear methodology for the collection of information by looking out some fake news.
- An improvement was made to the scraping algorithm to obtain the expansion information on each myth (Retweets, likes, followers).
- The brand identity of the project (brandbook) was designed: identity guidelines, logo, logo marks and color palette.
- A functional microsite was designed and developed, which contains: 1. Technical information that counters the myths in the form of storytelling, 2. Myths Explorer Dashboard and 3. Tweets Explorer Dashboard.
- By updating the scraping algorithm improvements, 3 categories containing a total of 21 myths were obtained.

Three main assumptions tested and proven:

1. People talk and share their beliefs and myths about family planning and contraception on Twitter and Google search:

Our first scrapping process allowed us to get more than 800.000 tweets. It was possible to carry out a classification of myths regarding sexual and reproductive health and to collect 212.257 Tweets.

After this first exercise we obtained three categories of myths: 1. Sexually transmitted diseases, 2. Modern contraceptive methods and 3. Unscientific methods of contraception.

2. There are areas of the country that have different discussions about contraception and sexuality.

Our main finding here is that not just in the same country we can find different myths, also throughout Latin America we discovered diverse myths and discussion about contraception and sexuality. The gathered information enables UNFPA Colombia office, other Spanish-speaking COs and LACRO to better understand the beliefs of the population with respect to sexual and reproductive health. We identified that the borders on the internet are the languages and not the country borders, so we found posts from all the Spanish speaking countries.

3. We can gather the information, including new insights, needed (by user) to build an effective campaign for myth busting through scraping.

The main source of information explored was the Twitter posts (near to 300.000) from July 5, 2007 to December 3, 2020, which contain words that we have identified as relevant and recurrent in conversations about contraceptive myths (our own taxonomy). However, some publications with these same terms try to disprove these misconceptions, not to spread them. The nature of social networks means that we cannot ensure that all trills refer to these myths or want to spread them, which is why in the data exploration tools we have referred to the issues associated with contraceptive myths and not the myths themselves.

We found the next insights related to myths and misconceptions around contraception:

1. You cannot get an STI by practicing oral sex
2. Condoms do not protect people from STIs
3. Gay people are more likely to get STI's
4. There is a cure for HIV/AIDS
5. Only promiscuous people get STI's
6. More babies die from abortion in two days than all deaths from COVID-19
7. Abortion is never medically necessary
8. The use of the pill can cause varicose veins
9. You should only use the IUD if you have children
10. Occasionally you should stop taking contraceptives to "clear" or "take a break" from hormones
11. The morning-after pill causes abortions, and 11. The morning-after pill can be used as a regular contraceptive
12. The first relationship does not make you pregnant
13. There are safe days for a woman not to become pregnant
14. During menstruation a woman cannot become pregnant
15. Parsley serves as an abortion

- Project Domain: Education; Health; Human Rights
- Data Source: Taboo was aimed at searching for information on social networks, specifically on Twitter. More than 330 thousand tweets were collected between July 5, 2007 and December 3, 2020 that were related to sexual and reproductive health and were classified into 3 major areas (Sexually transmitted infections, Non-scientific methods of contraception and Modern methods of contraception).
- Link to data: <https://datasketch.github.io/unfpa/>
- Publicly Available Data: Yes
- Technology/Platform: NLP (Word vectorization), Web Scraping - Python, D3.js, Google Cloud
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-being; SDG 4 - Quality Education; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s)
  - UN Partners: UNFPA Innovation Secretariat
  - Government:
    - Ministry of Health
    - Major's office of Bogotá
    - National Planning Department
    - ICT Ministry
    - Secretariat for Youth in Medellín
  - Private Sector: DataSketch
  - Academia: Universidad del Norte (Barranquilla, Colombia)
- Lessons Learned: *Make sure you have the staff and tools you need:* One of the great lessons we learned during the project was related to human capabilities and technological tools required at the right time. Knowing the resources needed for the project from the beginning allows us to investigate the processes required to obtain them or discover the elements that the Fund already has that can be used. Taboo as a new project in the organization, had administrative processes unknown to the team, which generated reprocessing and delays in service delivery.



*Build on what is built:* As a great learning process we understood that innovation does not work when it is done individually, in the environment there are multiple actors who have worked on scraping social networks and discovering myths around sexual and reproductive health, actors who can help others not to make the same mistakes and move forward in an optimal way in the development of the project. Before you invent something "new" look around, explore and be inspired by others.

*Involve the users in the whole process:* Including the users in the process of creating the project is an essential step that cannot become a barrier to the continuity of the process, it is important to establish the different objectives that you want to achieve with the users in each session to make the most of them and to collect all the valuable information, it is also important to adjust the expectations of the users' participation in each stage of the process, this will guarantee a better appropriation of the service.

- Links and Multimedia:
  - <https://datasketch.github.io/unfpa/>
  - <https://drive.google.com/drive/folders/1qiRe4NkXgEHYb43QCcQB2shMRoLqaWy6?usp=sharing>
- Contact information: Jaime Aguirre ([jaaguirre@unfpa.org](mailto:jaaguirre@unfpa.org))

## Project 2: ECHO: Amplifying citizen's voices for the SDGs"

- Project Description: ECHO is a unique tool that uses Automatic Speech Recognition, Cognitive Computing, and Data Analytics to improve the efficiency in processing large amounts of information in real-time. ECHO collects information from individuals of all backgrounds, including minorities and vulnerable populations  
ECHO is a tool powered by artificial intelligence that promotes citizens' participatory planning and awareness about the SDGs through real-time guided public discussion. ECHO is seeking to link conversational and informal citizen's language to SDGs language using a classification model, developed by UNFPA Colombia. After the first phase of the implementation of the interviews in Medellín through ECHO, we obtained, among other things:
  - More than 4,800 guided discussions were carried out, whose results in 56.22% were performed in women and 43.8% in men. Of the total number of respondents, 44.8% were young and 18.3% were older adults.
  - A pact for the SDGs was signed by more than 10 public institutions in Antioquia. These entities include Antioquia Governorate, National Police, EPM, Medellín Metro, Metropolitan Area of the Aburrá Valley, Inder, Medellín City Council, Teleantioquia and TeleMedellín, which makes Medellín the first city in Colombia to use AI to make better public policies and make deep commitments around the 2030 Agenda.
  - A draft of a Dashboard of the SDGs related to the main concerns of the people in these areas. It also contains a call to action and "What to do" related to the SDGs that resulted from the analysis.
  - Data collection campaigns have been conducted in many new cities such as Cartagena, Villavicencio, and the Venezuelan immigrant population in Medellín. Thus obtaining more than 3,000, 15,000 and 1,200 new testimonies in each city respectively.

The process will cover groups of populations of Medellín, Bogotá and Cartagena, three different zones and two of the largest cities of Colombia.

- Project Type (Status): Software project (Deployment)
- Project Domain: Participatory planning, Freedom of Speech
- AI approach: Automatic Speech Recognition, Cognitive Computing, Natural Language Processing (NLP)
- Technology: GraphQL, Deep Learning IA, live speech to text

- Datasets: ECHO stores all recorded and processed voice information (with NLP technology) in a structured manner. This then involves a large amount of information from recorded voice testimonials converted to text, stored as documents in noSQL databases.
- Related Sustainable Development Goals (SDGs): All SDGs, especially SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s): UNFPA Innovation Secretariat, Antioquia Governorate, National Police, EPM, Medellín Metro, Metropolitan Area of the Aburrá Valley, Inder, Medellín City Council, Teleantioquia, TeleMedellín
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Links and Multimedia: [www.echo-vis-2020.herokuapp.com](http://www.echo-vis-2020.herokuapp.com), Echo Interviewer System: [www.echo.carinalab.co](http://www.echo.carinalab.co). If you are interested and want to get access please write an email to [nieto@unfpa.org](mailto:nieto@unfpa.org), <https://echo.carinalab.co/#/mMedellin1>, Social Media Data Scraper (Beta): <http://165.227.124.98/tweetsunfpa/>
- Challenges: a) The urgency to achieve our organizational priority areas and leverage the power of AI toward that end. b) The prevalence of myths and misconceptions about contraceptives. c) The prevalence data and visualization. d) Humanitarian crisis: internal and external migration
- Opportunities: a) To accelerate our mandate through AI and cutting-edge technologies. b) The improve our impact including BC and C4D campaigns through among others the internet and social network messages, radio, public tv channels, public spaces, etc.

### Project 3: Big Data for Family Planning Inequalities Analysis (BiDaFPInAs)

- Project Description: The Big Data for Family Planning Inequalities Analysis (BiDaFPInAs) project aims to capture social media conversations of Filipinos about family planning and develop a machine learning (ML) algorithm that converts those conversations to insights. These insights will help provide real-time data on awareness and perception of Filipinos about family planning to government planners. Using appropriate keywords and filters, the system is programmed through a series of iterations to identify levels of awareness and perception of Filipinos on family planning.
- Department/Division: UNFPA Philippines
- Project Type/Output: Dataset and Analysis, Data Visualisation and Dashboard
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: 2022
- Project Updates:

Through BiDaFPInAs, a social media dashboard was developed to capture and broaden the scope of data on Family Planning among key population groups. Social media data was harnessed to provide insights that improve the planning, targeting and execution of Family Planning programs in the Philippines.

The initial phase of analysis explored the wider dataset that included publicly available tweets, posts, and comments; however, this approach led to poor data quality that made the management of data and the generation of useful insights very challenging. By working with an implementing partner and an academic expert, and with a focus on the data from Reproductive Health Care Info, a Facebook community dedicated to family planning (FP), the analysis of FP-related social media posts was completed at the end of 2021. Another challenge was the difficulty in accessing and using social media data due to data privacy concerns.

The evidence generated from the analysis validated social media as a means to connect Filipinos into several networks, which then facilitated knowledge generation and sharing as to the benefits and disadvantages of FP. More importantly, it suggests the usability of the Big Data Sentiment Analysis platform and likewise recommends a more targeted

approach of pre- identifying family planning related social media accounts in order to more effectively capture and analyse the needed data.

- Reported as part of 2022 Compendium on AI Activities? Yes
- Project Domain: Health
- Datasets: Social Media (Twitter and Facebook)
- Publicly Available Data: No
- Partnerships and Collaborators: Philippine Legislators Council for Population and Development (PLCPD)
- Related Sustainable Development Goals: SDG 3 (Good Health and Well Being), SDG 5 (Achieve Gender Equality and Empower All Women and Girls)

#### Project 4: AI based Early Warning System (EWS) on Youth and SRHR

- Project Description: The early warning system is aimed to provide UNFPA access to real time information on dialogues, social media behaviour, reported and/documented programme interventions by development partners with regards to adolescents and young people. This data is expected to be analysed by an AI algorithm to predict rapid and critical response to address the root causes and/or prevent further escalation of the early signs of opposition/backlash against ASRH deduced from the data analysis. Additionally, we seek to bridge the gap between knowledge and (social media) behaviours by shifting attitudes among the target population group and subsequently adopting positive behaviour choices.

Young people, who are connected to the internet, use social media to share their thoughts, feelings and impressions about various SRHR issues. Some of the conversations include sexual behaviour, contraceptive use, intergenerational relationships, peer violence. Moreover, social media is often used by opposition groups against SRHR and CSE, this tool will facilitate timely action in response to growing opposition before it escalates and allow relevant UNFPA's offices to counteract misconceptions and opposition to SRHR.

UNFPA have identified three middle income countries (current suggestions include: Zambia, to largely track opposition opinions to SRHR; Namibia and Rwanda, due to their access to technology and smaller population) implementing the Safeguard Young People Programme with high internet usage especially among young people under 30 years to form a part of the pilot implementation of the early warning system.

The developed AI based system will be applied to Twitter and/or Facebook during the pilot phase to generate data to train the AI algorithm to familiarise with the conversations. Initially, UNFPA will facilitate conversations through targeted questions to the young people in the target group to test the response of the developed algorithm. In addition to this, we will feed the AI system UNFPA program documents, reports, intervention plans etc. to align the discussions to program response. It is expected that the system will generate reports with recommendations of urgent action in the form of graphs, infographics, word clouds etc. for each use of the information.

A front facing visualisation platform will be developed to aggregate and present the reports in a user friendly manner. This visualisation platform will be connected to existing UNFPA tools including social media platforms to make the generated report available to all stakeholders.

- Department/Division: Youth and Innovation Units UNFPA ESARO
- Project Type/Output: Data visualisation, AI Algorithm
- Datasets: Social Media (twitter and facebook), publicly available data
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: AI Platform currently being developed.

- Project Domain: Currently being developed
- Related Sustainable Development Goals (SDGs): SDG 3, 4, 5, 9
- Partnership(s)/Collaborator(s):
  - Safeguard Young People Project - Funding the project
  - Private Sector AI developer
- Links and Multimedia: NA
- Contact information: Sydney Hushie- [hushie@unfpa.org](mailto:hushie@unfpa.org) , Renata Tallarico- [tallarico@unfpa.org](mailto:tallarico@unfpa.org), Isabelle Jost - [jost@unfpa.org](mailto:jost@unfpa.org)

### Project 5: Hayati Chatbot

- Project Description: 'Hayati', meaning 'my life' is a mobile application being developed by Men4Women in collaboration with UNFPA South Sudan. The chatbot is a way forward for South Sudan given the increase in technology and phone user uptake across the country. The chatbot is critical for the need to provide young people with a platform where they can access SRH and GBV information confidentially from wherever they are.

In future, the chatbot also plans to incorporate live information such as reporting of sexual harassment in public spaces etcetera. But currently it will only look at providing free, timely and confidential information on SRH and GBV to the people.

Key features of the App:

The chatbot is in a form of an Android based Mobile Application with integrated services/features which includes:

1. Pinning location from the app with corresponding reason(s)/ information the person seeks to receive.
2. Integrated Interactive Voice Response (IVR) through the National Helplines 623, 662 and 885.
3. Canned/ automatic responses linked to the FAQs. Saves time when answering common questions.
4. Knowledge base or frequently-ask-questions integration. This allows you to incorporate topics of discussion into a support section that can be used for instant answers and to troubleshoot problem areas of the website/app.
5. Ticket creation and management. This allows visitors to submit a request after business hours. Ideally, it includes auto follow-ups to remind visitors you are waiting for their reply.
6. Support and agent ratings to identify areas needing improvement.
7. Visitor tracking. By seeing the pages, the visitor is on or has visited, requests can better be understood.
8. Analytics integration so you can see which services were assisted by chat. It should also provide periodic reports
9. Chat tags and keywords to help you find common issues and questions.
10. Mobile dashboard or app, to monitor chats while on-the-go.
11. Visitor banning, to minimize "trolls" from taking up your time.
12. Translation features- It is linked to Google Translate, which is free and can be helpful for the Arabic speakers.
13. Transcript of emails can be done
14. Long-term logging to extend visitors' visiting journey.
15. Chat log and data exporting feature.
16. Chat transfers among agents. This eliminates the need for the visitor to repeat her or himself.

17. Emoji support.

18. File upload support to help visitors describe what they need.

- Department/Division: UNFPA South Sudan and Innovation Unit UNFPA ESARO
- Project Type/Output: Data visualisation, AI Chatbot
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2023
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: AI Chatbot currently being developed.
- Project Domain: Currently being developed
- Related Sustainable Development Goals (SDGs): SDG 3, 4, 5, 9
- Partnership(s)/Collaborator(s):
  - Men4Women - Youth tech startup supported by UNFPA South Sudan
- Links and Multimedia: NA
- Contact information: Shruti upadhyay - [shupadhyay@unfpa.org](mailto:shupadhyay@unfpa.org), Sydney Hushie- [hushie@unfpa.org](mailto:hushie@unfpa.org)

### Project 6: SophiBot

- Project Description: Sophie Bot is an AI application that directly answers SRHR questions in a private and confidential way. The information is pre-fed in the platform and in instances where no response is provided, the user is linked to a direct chat where they are able to communicate with someone to receive the correct responses and also join the discussion forum. Sophie Bot can also be accessed through Messenger, Telegram or Twitter. The solution seeks to address poor SRH outcomes among young people attributed to inadequate access to comprehensive and correct information on SRH. In Kenya, it is estimated that one in every five teenage girls between the ages of 15-19 years is either pregnant or has had their first child while 51% of new HIV infections occur among young people between the ages of 15-24.
- Department/Division: UNFPA Kenya
- Project Type/Output: AI Chatbot
- Project Status: Ongoing
- Project Start Year: 2016
- Project End Year: NA
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: Major results since the launch of SophieBot in December 2016:
  1. SophieBot has been downloaded 1700 times;
  2. 38,549 questions have been asked across all platforms (most of them through the app and Facebook);
  3. \$40,000 raised through the KCB Lions Den Show;
  4. Enrolled in the Merck Accelerator Program (3 months acceleration cycle);
  5. Awarded the Microsoft Insiders4Good East Africa Fellowship, which grants support from Microsoft and the broader Windows Insider community including hardware, software, tailored mentorship and access to Microsoft's global network;
  6. Enrolled in the SRHR Africa Trust leadership programme for building capacity for advocacy in sexual and reproductive health rights.
- Project Domain: Youth, Reproductive Health
- Related Sustainable Development Goals (SDGs): SDG 3, 4, 5, 9

- Partnership(s)/Collaborator(s):
  1. Nailab
  2. National AIDS Council - Kenya,
  3. Discover JKUAT
- Links and Multimedia:
  - <http://misssophiebot.com/>
  - <https://www.theguardian.com/careers/2018/feb/21/sex-education-at-the-push-of-a-button-the-apps-changing-lives-worldwide>
- Contact information: Shruti upadhyay - [shupadhyay@unfpa.org](mailto:shupadhyay@unfpa.org), Sydney Hushie- [hushie@unfpa.org](mailto:hushie@unfpa.org)

### **Project 7: #TECH4YOUTH AND #NLP SOLUTIONS TO AMPLIFY SRHR ACCESS AND ACCELERATE THE ACHIEVEMENT OF #SDG3**

- Project Description: The number of languages spoken in Africa varies between 1,000 to 2,500, depending on different estimates and definitions. Almost half (48 per cent) of Sub-Saharan African countries have an African language that is spoken by over 50 per cent of the population as a mother tongue. With the additional secondary speakers sometimes at mother-tongue proficiency level, the proportion increases to more than two-thirds (67 per cent). Sixteen of Africa's shared cross-border languages have more than 150 million speakers. Outside the education sector, at least 56 African languages are used in administration and at least 63 African languages are used in the judicial system (26 sub-Saharan nations allow African languages in legislation). In written business communication, at least 66 African languages are used, and at least 242 African languages are used in the mass media. In short, the existence of so many languages within a single country and their right not only to survival but also to development represent a matter of importance that has to be considered over and above the categories into which they fall. This diversity is in itself perceived as an inherent challenge in matters of communication, governance and education. Such a multiplicity is perceived as a communication barrier and viewed as synonymous with conflicts and tension but also a great opportunity to spread messages and information till the last mile.
- Five UNFPA country offices, BENIN, TOGO, GHANA, BURKINA FASO, and NIGERIA, have decided to work collaboratively to use technology-based solutions in Adolescent and Youth Sexual
- and Reproductive Health (AYSRH) to improve knowledge and access to information. In order to reach all youth, especially those left behind, the innovation and technology team set out to
- integrate natural language processing (NLP) in four local languages (Fon-Gbe, Hausa, Fulfulde, and Yoruba) into their existing digital solutions.
- Department/Division: UNFPA Benin, Burkina Faso, Ghana, Nigeria and Togo
- Project Type/Output: Natural language processing, AI Algorithm
- Datasets: 25 hours of professional Hausa audio for text to speech, french and english with African accent licences
- Project Status: Ongoing
- Project Start Year: 2019
- Project End Year: N/A
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project Domain: SRHR education
- UN partner: ITU

- Partnership(s)/Collaborator(s)/: Tsinghua University, Dorabot, W.B, European Institute of technology, Voxygen, Etrilabs, Africa Design School
- Project updates : Due to the lack of datas on african languages and to accelerate the development of this NLP solution, we are establishing a research & development partnership with European Institute of technology on BIG Data and AI issues so that, through its specialized Data/AI Masters, students can undertake research specifically on automatic translations into natural language support from UNFPA Benin.
- Links and Multimedia: [Tech4Youth](#)
- Contact information: Wilfried ROUAMBA- [rouamba@unfpa.org](mailto:rouamba@unfpa.org) , Djawad RAMANOU -[djawad@unfpa.org](mailto:djawad@unfpa.org), Wilfried GOSSAN- [gossan@unfpa.org](mailto:gossan@unfpa.org)

## Project 8: SAS & UNFPA Partnership

- Project Description:

The overall goal of this partnership is to: (1) increase awareness of GBV, in particular targeting the business community in the region; and (2) develop solutions to analyze GBV using data and artificial intelligence to tailor policies on GBV prevention.

As part of the second goal, SAS and UNFPA will jointly explore how to leverage and analyse large administrative data sets to understand the risk and protective factors using AI, and explore a model that can be used by the public sector and civil society to prevent the incidence of violence against women, and improve GBV response programmes.

A proof of concept will be developed and showcased for local authorities and public opinion using available data sources such as for example survivors' interviews and police records, and the analytical model (AI) will be applied to identify risk factors that will inform prevention plans at local and national level.

SAS will convene its internal data scientists, as well as data scientists from SAS customer companies, to explore data sets and analytical techniques to assess what can be learned from data to prevent GBV, improve services for survivors and optimise GBV programs. SAS will also bring its business client base to the advocacy component of the partnership.

UNFPA will liaise with its country office staff and partners throughout the region to identify countries and public sector bodies who would partner in this project and share data from its own GBV programs. UNFPA will also provide technical expertise and support accurate and robust messaging around the topic of GBV.

Both organizations will also collaborate on and support each other messaging or communications campaigns to elevate public awareness of GBV.

Background of AI technology and SAS projects:

- The first phase of SAS technology was based on improving the existing system to ensure that every woman is given the correct risk factor and receives the correct support and protection. The data included information from the victims, complaints made and the different risk assessments, both at the time of registration of the case and during its evolution.
- The studies compiled a range of indicators regarding the psychological profile of the perpetrators and the vulnerability of the victims. This includes information such as suicide attempts, addictions, and the perpetrator's family history, giving a total of more than 50 indicators. This provided a very large data pool to be used for modeling purposes.
- After initial data processing, a two-stage modeling strategy was chosen to manage the different levels of information received.
- This includes drawing on the experience and professionalism of police officers in their reports. Using only these reports, a predictive model was created that assigns the probability of recidivism. In the second stage, an analytical model was developed using the probability generated in the first stage and offender-related indicators were added to assign the eventual recidivism probability.

- Overall, a machine learning model was found to help reduce the risk of recidivism, and AI technology was found to be actionable by authorities. It is believed that the effective use of predictive analytics and machine learning can help prevent a large number of cases of gender-based violence.
- Department/Division: UNFPA Eastern Europe & Central Asia Regional Office (EECARO)
- Project Type/Output: Partnership on Development of Data Analysis Methods and AI Technology to Adapt Policies for GBV Prevention
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: N/A
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates:
  - Three webinars were organized to introduce the project to its potential stakeholders;
  - The project is in its initial stage of development and SAS is developing a white paper to agree on specific outputs
- Project Domain: Implementing AI Technology and Advanced Data Analysis Methods to Prevent Gender-Based Violence
- Related Sustainable Development Goals (SDGs): SDG 5 - Gender Equality
- Partnership(s)/Collaborator(s):
  1. Private Sector - SAS
    - SAS is a private US-based global company, operating for more than 40 years, offering the most advanced analytics and AI solutions to its clients.
- Links and Multimedia:
  - <https://eeca.unfpa.org/en/news/unfpa-and-sas-partner-work-preventing-gender-based-violence-power-ai>
- Contact information: Gabriela Alvarez-Minte, UNFPA EECARO, [alvarezminte@unfpa.org](mailto:alvarezminte@unfpa.org)

### Project 9: AMMA App - Period & Pregnancy Tracker

- Project Description: "Amma" is an international mobile application that allows women and their families to have an informed, safe, and healthy pregnancy. The application, which continues to work in cooperation with UNFPA Eastern Europe and Central Asia Regional Office (EECARO), provides information sharing in a wide scope. Within the application, detailed information can be obtained about the development of the baby, the changes that the mother may experience during pregnancy, and nutrition & moods. In addition, with the AI technology created, the weight gain and abdominal growth of the expectant mother are controlled, and pregnant women can count the contractions they experience and send their data to their doctors. The application also contains high-quality ultrasound images and explanations. In addition, there is a personal calendar for each day of pregnancy with reminders for medications and mood changes.

With the support of UNFPA EECARO, additional content in mobile applications is created to convey more accurate information on safe pregnancy, prenatal care, and sexual and reproductive health. With the AI technology to be developed, it is aimed to conduct joint research to understand user information, behavior, and information needs on maternal health, sexual reproductive health, and gender issues.
- Department/Division: UNFPA Eastern Europe & Central Asia Regional Office (EECARO)
- Project Type/Output: Mobile Application
- Project Status: Ongoing



- Project Start Year: 2022
- Project End Year: N/A
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates:
  - Amma currently has 1.5 million active users. The partnership with UNFPA is quite new (officially launched in 2022), however UNFPA has been able to feed quality SRHR-related content to the application, which has potentially reached the users of the app. UNFPA plans to expand the partnership and tap into the potential the app provides to reach users with accurate SRHR information and data.
  - The Amma app is downloaded by 10 mln pregnant women every year (or 7% of all pregnant women in the world). As content is provided in 13 languages, there are users in almost all countries of the world.
  - With UNFPA support, 3 articles have been published and 12 more topics will be covered before the end of the year. So far, the published articles have had close to 5,000 active engagement with Amma users.
- Project Domain: Education; Sexual and Reproductive Health
- Related Sustainable Development Goals (SDGs): SDG 3, 4, 5
- Partnership(s)/Collaborator(s):
  - Private Sector (Financial Support) - PERIOD TRACKER & PREGNANCY AND BABY CALENDAR LIMITED
- Links and Multimedia:
  - <https://pregnancytracker.app/>
  - <https://amma.family/#landing>
- Contact information:
  - Tamar Khomasuridze - [khomasuridze@unfpa.org](mailto:khomasuridze@unfpa.org), UNFPA EECARO

### Project 10: Just Ask! Khulke Poocho! AI Chatbot

- Project Description: UNFPA India's Just Ask!: The 'Just Ask!' Chatbot, launched by UNFPA in India, is an AI-driven digital platform tailored for adolescents, young adults and couples, aimed at enhancing their understanding of sexual and reproductive health and rights. This initiative offers a safe, confidential, personalized, and non-judgmental space for individuals aged 15-29 to access reliable information, dispel misconceptions, and seek services related to their sexual and reproductive well-being. The chatbot is part of the project "My Rights, My Choices" aimed to increase awareness and access to SRHR services and is co-financed by Bayer.
 

The digital engagement platform is designed on the principles of behavioral science, user-centered design, data security and Artificial Intelligence aligned to the UN 2.0 Quintet of Change. The Chatbot has been developed by UNFPA experts and was launched in collaboration with National Health Mission (NHM), State Government of Madhya Pradesh in July 2023.

The chatbot is designed to encourage informed decision-making and foster interest in often misunderstood or stigmatized topics such as puberty, menstruation, sexual and gender identity, safe sex, and contraception. The platform will also introduce more topics such as safe cyber use (highlight areas around TF-GBV) and mental health in 2024. Adhering to UNFPA's guidelines for the safe and ethical use of technology, the chatbot prioritizes user data privacy in its design, ensuring a secure and responsible digital experience for its users. This project reflects UNFPA's commitment to using digital innovations as an accelerator to promote sexual and reproductive health among young

people, particularly in settings where access to accurate and comprehensive health information is limited.

- Location/Country Office: UNFPA India
- Department/Division: Innovation Unit in collaboration with Programme, State and Resource Mobilization & Partnership Units
- Project Type/Output: My Rights, My Choice - Increasing awareness and access to SRHR services
- Datasets:
  - Content - The content for the AI chatbot was designed in accordance with the Ministry of Health & Family Welfare (MoHFW), Government of India guidelines and International Sexuality Guidelines. The dataset was validated by SRHR experts and agencies specialized in this domain. Currently, the chatbot has accumulated over 2.8 million user queries and continues to enhance its dataset regularly.
  - Technology - The chatbot is built on an open source AI-tech stack and operates within the predefined content boundaries. It has been deployed on WhatsApp platform considering its wide user base in India.
- Project Status: On going
- Project Start Year: 2023
- Project End Year: 2025
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Domain: SRHR and Innovations
- UN partner: none
- Partnership(s)/Collaborator(s)/: Bayer AG, Amazon Web Services (AWS), State Government of Madhya Pradesh and Rajasthan (India)
- Project updates:
  - Co-designed and Piloted in 2023 with 500 adolescent and young adults.
  - Currently scale up in 2 States with aim of reaching 1mn users by 2025 across India.
- Links and Multimedia: <https://www.unfpa.org/updates/india-unfpa-launches-just-ask-chatbot-sexual-and-reproductive-health-and-rights>
- Contact information: Sahil Kapoor, [kapoor@unfpa.org](mailto:kapoor@unfpa.org), Swati R Dutt, [dutt@unfpa.org](mailto:dutt@unfpa.org)

### Project 11: NeMa Smartbot in India

- Project Description: The Maternity Foundation, in partnership with Finnish AI startup Neuvo Inc. Global and facilitated by the United Nations Population Fund (UNFPA), has introduced an innovative AI tool, the NeMa smartbot, to enhance midwifery skills and knowledge in low-resource settings. This tool is integrated into the Maternity Foundation's Safe Delivery App, a resource already reaching over 375,000 healthcare workers globally, to provide real-time, evidence-based answers on pregnancy and childbirth. Designed with an ethical approach to AI and data, the smartbot functions offline and uses clinically verified material, ensuring reliable access in areas with limited connectivity. The initial pilot, involving healthcare professionals in Punjab, India, and financed by Organon, marks a significant advancement in using technology to improve maternal and newborn health, especially in underprivileged regions. UNFPA's facilitation of this project underscores its commitment to reducing global maternal and newborn mortality and highlights the potential for AI to transform healthcare education and delivery in challenging environments.
- Location/Country Office: India
- Department/Division:

- Project Type/Output: AI enabled capacitation for midwives
- Datasets:
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Domain: SRHR
- UN partner: UNFPA
- Partnership(s)/Collaborator(s)/: Maternity Foundation, Neuvo Inc.
- Project updates:
  - Links and Multimedia: <https://www.unfpa.org/updates/unfpa-and-organon-support-maternity-foundation-using-ai-strengthen-midwifery-skills>
  - <https://www.maternity.dk/maternity-foundation-and-neuvo-inc-global-launch-new-ai-tool-to-ensure-safer-childbirths-in-low-resource-settings/>
- Contact information:
  - Maternity Foundation: Head of Communications, Helle Degn: [helle@maternity.dk](mailto:helle@maternity.dk) / [www.maternity.dk](http://www.maternity.dk)
  - Neuvo Inc. Global: Data Ethics and Communications Specialist, Ada Kangas: [ada.kangas@neuvo.ai](mailto:ada.kangas@neuvo.ai) / <https://neuvo.ai/>
  - UNFPA: Chief, Innovation Unit, Nigina Muntean: [muntean@unfpa.org](mailto:muntean@unfpa.org) / <https://www.unfpa.org/innovation>

## Project 12: BabyChecker

- Project Description: The UNFPA Honduras Country Office is utilizing advanced AI technology to address maternal health challenges, especially in remote areas with limited healthcare services. The AI-powered tool, "BabyChecker", enables individuals without specialized knowledge in prenatal care to effectively conduct ultrasounds on pregnant women. This technology can estimate the gestational age of the fetus, detect whether there is more than one fetus, determine potential delivery risks due to fetal positioning, and identify early warning signs that require specialist referral. This initiative aims to significantly enhance maternal and prenatal care in resource-limited settings, demonstrating the potential of AI to bridge gaps in healthcare accessibility and quality.
- Location/Country Office: Tegucigalpa, Honduras
- Department/Division: Sexual Reproductive Health component
- Project Type/Output: Pilot Project for the use of AI in medical services to Reduce Maternal Mortality
- Datasets:
- Project Status: Ongoing
- Project Start Year: Initiated in 2023 with a formal agreement between the Ministry of Health of Honduras (SESAL), Delft Imaging and UNFPA to initiate the use of BabyChecker, an AI application to collect data and help utilize the use of the equipment to detect early signs of potential risks for the mother and the fetus.
- Project End Year: 2025
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Domain: Country level in Honduras
- UN partner: UNFPA Honduras country office
- Partnership(s)/Collaborator(s)/: Delft Imaging <https://www.delft.care>
- Project updates:

- Links and Multimedia:
- Contact information:
  - Jose Manuel Pérez - [joperez@unfpa.org](mailto:joperez@unfpa.org)
  - Silvia Padilla - [spadilla@unfpa.org](mailto:spadilla@unfpa.org)

### Project 13: UNFPA ESARO's iSAY

- **Project Description:** UNFPA's East and Southern Africa Regional Office's AI-based platform, iSAY - Intelligent Sentiment Analysis on Youth and SRHR Platform, employs advanced machine learning and natural language processing to monitor and analyze public dialogues and social media trends related to adolescent sexual and reproductive health and rights (ASRHR). This innovative platform filters relevant content, classifies opinions and information into categories, and extracts key insights, enabling UNFPA to make real-time program predictions, follow-ups, and recommendations based on credible data from diverse sources. iSAY's capabilities include temporal analysis of conversations, intent detection, sentiment analysis, gender gap analysis, age filtering, and geographical analysis, making it a comprehensive tool for understanding and addressing ASRHR issues. Additionally, its expandable nature allows for potential application in other areas, reflecting its utility across UNFPA's various mandate areas.

While the dashboard developed in 2022 is only accessible by selected UNFPA ESARO staff, in December 2023 a semi-public platform will be accessible for all UNFPA staff in the ESARO region.

- **Location/Country Office:** UNFPA ESARO - covering all 23 countries in the region
- **Department/Division:** ESARO Youth and Innovation unit
- **Project Type/Output:** Data Visualization
- **Datasets:**
  - Data is collected daily from online conversations in publicly available sources, including Twitter, Facebook public pages, online forums, news comments, and blogs.
  - More specifically, from each data source we collect the following information:
- **Twitter:** All the comments in the country of interest that mention the defined keywords.
- **Facebook:** We select a list of Facebook Public Pages of interest and analyse the comments on those pages.
- **Web content:** Comments on websites, news, blogs and forums that mention the defined keywords.
- **Project Status:** ongoing
- **Project Start Year:** 2023
- **Project End Year:** Current licence ending December 2024
- **Reported as part of 2022 Compendium on UN AI Activities?** no
- **Project Domain:** <https://dashboard.citibeats.com/beta/organization/citibeats-projects/project/sexual-and-reproductive-hea-ji/transparency/> (not publicly available)
- **UN partner:** none
- **Partnership(s)/Collaborator(s):** Citibeats (service provider)
- **Project updates:** NA
- **Links and Multimedia:** NA
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## 2. Related Sustainable Development Goals

All SDGs: SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17

### 3. Relevant Links

<https://www.unfpa.org/>

Contact information

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## United Nations High Commissioner for Refugees



### 1. Description of Activities on AI

#### Project 1: Azure Open AI - Generative AI-powered chatbot

- Project Description: UNHCR's Microsoft Azure Open AI solutions aim to provide personalized and individual chatbots for different use cases with an agile deployment approach. The chatbots are developed as internal "sandboxes" for operations: they are individual website instances that serve as "playgrounds" for teams to safely test generative AI capabilities, such as talking to internal pools of documents and producing new content based on the input (user prompts).

The pilot phase for these sandboxes encompasses more than fifty use cases, representing a diverse range of operational scenarios, including country operations, regional teams, and inter-agency work at our headquarters (e.g., HR Policy chatbot, ERP Job Aid chatbot). For the 50+ use cases, we deployed more than 20 chatbots in 2023 with an interface where colleagues can chat with their own data to generate content, find information, create summaries, discover patterns, and more. All case studies aim to leverage their text-based data such as:

- Documents/Text most representative to HQ teams: 1) Legal documentation, 2) Policies, rules, and regulations, 3) Reports: evaluation, financial audit, universal periodic review, oversight, submissions proposals, 4) Talking Points, etc
- Text from Regional teams: 1) Query situational reports to find incidents or trends, 2) Summarize data (e.g., refugee case interviews), to mention some
- Text from Country Operations: 1) Security notes, 2) Mission reports, 3) Protection monitoring documents, cluster reports, 4) Translations of original language reports, 4) Participatory data.

UNHCR also adopted Copilot in Bing in the course of 2023, enhancing the capabilities of the chatbot instances with additional information and content from the web. Copilot in Bing is rolled out as a secure way to use Generative AI across UNHCR.

- Department/Division: Division of Information Systems and Telecommunications (DIST), Innovation Service, UNHCR
- Project Type/Output: Web-based GAI chatbot for individual business units
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Generative AI (GAI), RAG (Retrieval-augmented generation), Foced displacement and policy
- Data Source: In the interest of agility, UNHCR's business units' non-sensitive data. Exceptions are made for use cases with sensitive/confidential data.
- Data publicly available: No
- Technology/Platform: Generative AI, GPT 3.5 turbo and 4.0 from Azure OpenAI (Microsoft), Web site instances are hosted in a dedicated Microsoft Azure subscription connected to UNHCR corporate Microsoft 365 tenant.

- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 10 – Reduced Inequality; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnership for the Goals
- Partnership(s)/Collaborator(s): Microsoft, OpenAI/GPT
- Relevant Links and Multimedia:
  - OCHA publication (UNHCR case study portrayed): <https://reliefweb.int/report/world/generative-ai-humanitarians-september-2023>
- Lesson Learned:
  - Reskilling personnel: on prompt completion, limitations of GAI (e.g., quantification of text-based inputs), and ethical/human rights considerations on Automated Decision-Making Systems (ADMs)
  - Governance: organization-wide solutions on GAI have high costs associated with it
    - Direct costs: IT infrastructure, indexing costs plus staff time (semi-automated and sometimes manual dataset curation process), prompt completion (currently pay-as-you-go), website hosting, semantic searches costs.
    - Indirect: Staff time for training and implementation. This project has a multidisciplinary team (mostly working part-time): a) Project management dedicated personnel, b) business analyst (for curating/selecting case studies, solution engineering/prompt engineer, c) data scientist, d) AI/data engineer, e) ML DevOps engineer (cognitive search), f) Web/Full stack development and g) policy researcher.
  - Data protection: Microsoft's framework agreement with the UN includes privileges and immunities for data hosting.
  - Capacity building: the user feedback from walk-through sessions confirms the need for enhanced capabilities for prompt engineering to get the best results out of Gen AI.
  - Tailored prompt engineering and follow-up/testing support facilitates successful adoption by business partners.
  - The approach for us needs to be agile and follow innovation methodologies (e.g., scrum methodologies, agile DevOps)
- Contact information: Nicole Henderson [hendersn@unhcr.org](mailto:hendersn@unhcr.org),Carolynn Oleniuk [oleniuk@unhcr.org](mailto:oleniuk@unhcr.org), Marc Schitteck [schitteck@unhcr.org](mailto:schitteck@unhcr.org)

## Project 2: Monitoring hate speech with data-driven alert system

- Project Description: UNHCR's HateFree project aims to provide an internal digital platform for humanitarians, allowing them to easily monitor, analyze, and archive hate speech targeting refugees, stateless, and forcibly displaced people on social media. The platform offers humanitarians three main tools:
  - A dashboard, where harmful activities online can be easily researched and analyzed with various interactive data visualizations and filters based on sentiment, date, language, and origin. Research parameters can be saved or results downloaded for more in-depth analysis.
  - A situation page acts as a centralized space to help UNHCR colleagues coordinate their understanding, response, and tracking of specific cases of hate speech. Colleagues can access background information, updated if-asked lines, focal points information and directly upload evidence of hate on the platform.
  - An alert system that serves as a complement to the situation page, where colleagues can subscribe to situation of interest to them and receive alerts and notifications when

there is a shift in tone of conversation, sudden spikes, or influential mentions made within that conversation.

The digital platform sits within UNHCR's domain, and is built on AWS, to facilitate the scalability and flexibility of the project, with the intention of enabling a deeper and wider analysis of harmful online conversations by allowing easy expansion of the platform with new tasks, models and languages. The platform currently hosts a bespoke scalable AI model allowing the detection of hate speech targeting refugees in English. As of now, three additional AI models are being developed or have been developed to compliment the initial model, including a Spanish AI hate speech model, a thematic analysis model and a sentiment analysis model.

- Department/Division: UNHCR Innovation Service, [Data Innovation Fund](#) 2022-2023, UNHCR Division of External Relations (DER)
- Project Type/Output: In-house digital platform / web application. Two AI models for detection of hate speech targeting refugees (English, Spanish), one Spanish hate speech against refugees dataset, one AI model for sentiment analysis, one AI model for thematic analysis.
- Project Status: Ongoing
- Project Start Year: 2022
- Project Domain: Forced displacement, Human rights,
- Data Source: Meltwater
- Data publicly available: No
- Technology/Platform: Python, Transformer models (BERT), Large Language Models (Llama2), React/Next, Django, AWS, GCP, Huggingface. The platform consists of a frontend, backend and a data pipeline and is built on a serverless architecture, using AWS Lambda, AWS S3, AWS SQS, AWS SNS, and AWS RDS Postgres, AWS Fargate and AWS Amplify. The machine learning models are sourced in 3 ways: Using existing open-source models, retraining existing models with open-source data as well as data created internally or in collaboration with other teams and academia. The models are deployed using AWS SageMaker, and the predictions are made using AWS Lambda. The predictions are then stored in a database, and the results are displayed in the frontend.
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s): MDH ECHO Project, DPO
- Relevant Links and Multimedia:
  - Project site: not public ([hatefree.unhcr.org](https://hatefree.unhcr.org))
- Lesson Learned:
  - Scale of project is hard to keep: Despite starting off as a project with a very limited scale (i.e.: supporting the Analytics unit monitoring hate speech as per the SG's Strategy and Action plan), it became evident from early consultations with additional teams across the organisation that the platform could be a great asset for other UNHCR colleagues, thus widening the scope of HateFree and the workload necessary to make it come to fruition.
  - Expertise and staffing is difficult to gain / retain: Project relied heavily on expertise not available or not part of the team's core work. Acquiring NLP experts and full stack developers for such a timebound project was very difficult, as the team was looking for senior expertise, putting the team in a competitive hiring environment with private sector companies and conditions. Overall, this seems to be a problem across the UN system, with many teams building similar tools having shared the same challenges.



- This project is still on-going and will be developing for the year to come, so additional lessons will inevitably be learnt in the coming months. The ones shared above seemed to be the most important challenges to mention.
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### Project 3: Machine learning to boost digital education uptake and impact

- Project Description: Learning Equality and UNHCR have been working to enable streamlined curriculum digitization and alignment processes, helping edtech platforms and implementers to source and organize relevant materials, educational content providers to contextualize their work to serve new audiences, and curricular bodies to understand gaps and similarities across curricular standards. We've developed end-to-end processes with human-in-loop workflows. Using generative AI, we've automated the process of digitizing curricular standards from raw source documents into a machine-readable format that is usable within an educational platform. Next, we co-hosted a Kaggle machine learning competition to develop initial curricular recommendation machine learning models that match relevant content items from a large library to particular learning objectives in a curriculum. These workflows are currently being prototyped.
- Department/Division: UNHCR Innovation Service, [Data Innovation Fund 2022-2023](#), UNHCR Education Unit
- Project Type/Output: A content recommender tool that can make recommended matches for digital content according to curricular standards.
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Generative AI (GAI), Forced displacement
- Data Source: Metadata (titles, descriptions, topic trees, and text) from aligned content in the Kolibri Library
- Data publicly available: <https://www.kaggle.com/competitions/learning-equality-curriculum-recommendations/data>
- Technology/Platform: Open Source, Python, OpenAI's GPT-4 API
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s): Learning Equality (project developer)
- Relevant Links and Multimedia:
  - Kaggle competition: <https://www.kaggle.com/competitions/learning-equality-curriculum-recommendations>
  - GitHub documentation: <https://github.com/learningequality>
- Lesson Learned:
  - Value of competition: Kaggle convenes an active community of machine learning specialists who are primed for engagement in competitions to solve different problems using these technologies. The Kaggle community helped to propel this work forward in a way that would have otherwise taken longer or have been less effective.
  - Advancements in generative AI: A few years ago we attempted to digitize curricular documents through OCR, computer vision, and statistical methods, but it was time intensive and not generalizable.
- Contact information: Kent Awiti Ojok [awiti@unhcr.org](mailto:awiti@unhcr.org), Sofia Kyriazi [KYRIAZIS@unhcr.org](mailto:KYRIAZIS@unhcr.org)

#### Project 4: Brazil Predictive Analytics for UNHCR Improved Contingency Planning

- **Project Description:** This project seeks to forecast the number of people who cross the border into Brazil and the shelter capacity in Boa Vista and Pacaraima, the Brazil border with Venezuela. This project utilises interlinked tools that consists of three computer-based solutions using different techniques: a queueing modelling tool for simulating future border crossing scenarios under different conditions, nowcasting model efforts for estimating the current urban population and potentially identifying interest in population movements to Brazil using big data sources, and the development of predictive models for forecasting future arrivals and population movements. This is done using different tools (e.g., web engines search, surveys, and social media analysis) as well as different computer and data science techniques (e.g., artificial intelligence, specifically supervised machine learning for time series analysis).

These tools have been developed in collaboration with operational teams over the past year and a half, and currently are deployed in the Brazil operation. The desired effect of the project is increased evidence-informed decision-making in contingency planning, using scenarios triggered by estimated nowcasting and forecasting figures related to population movements. These tools have been developed in collaboration with UNHCR Brazil operational teams over the past year and a half, and currently are deployed in the Brazil operation. UNHCR Brazil has already used the preliminary findings to advocate and prepare for arrivals and to have medical services and shelter available according to their needs. In the past. For example, UNHCR utilised these tools to expanding isolation areas to treat COVID-19 cases, and UNHCR and its partners have advocated for the delivery of vaccines according to the level of demand from new arrivals.

- **Department/Division:** UNHCR Innovation Service
- **Project Type/Output:** Report, Software tool, Medium Blog Post
- **Project Status:** Ongoing
- **Project Start Year:** 2020
- **Project Domain:** Forced Displacement
- **Data Source:** Population data: population historical data , Other variables: COVID-19, market prices, transportation, exchange rates
- **Data publicly available:** No, partial datasets only. Publicly available: <https://data.humdata.org/group/ven>
- **Technology/Platform:** Open Source - Python application
- **Reported as part of 2022 Compendium on UN AI Activities?** Yes
- **Related Sustainable Development Goals (SDGs):** SDG 10 - Reduced Inequality; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnership for the Goals
- **Partnership(s)/Collaborator(s)**
  - UN Partners: UN Global Pulse, UNHCR Brazil
- **Relevant Links and Multimedia:**
  - Project site: not public (<https://predictive-analytics-brazil.unhcr.org>)
  - Academic papers: <https://arxiv.org/abs/2303.15614>
  - Blog post: ([blog post 1](#))
- **Lesson Learned:** For predictive analytics of mixed-migration and forcibly displaced populations, it is important to take into consideration existing policies - such as the [UNHCR contingency planning and emergency-related policies](#)- to strengthen ongoing work and avoid duplication. It is also important to keep in mind that the sporadic nature of population movements across a number of informal crossings undermines many field operations' ability to collect data crucial to their work, which makes the application of predictive analytics a useful tool that can be one of datasets used to inform decision making. Additionally, a key lesson learned is the need to assess the risks related to

data management – particularly data protection-related. There are risks associated with predictive/forecasting analytics data/information/variables (inputs), as well as the results/predictions (forecast outputs). These may be direct or unintended consequences (e.g., lack of access to territory/asylum) derived from analytics results. It is important to consider and adequately mitigate these risks through the implementation of safeguards when embarking on any predictive analytics project.

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### Project 5: Project Jetson (Predictive Analytics of Forced Displacement, Somalia)

- Project Description: Project Jetson is UNHCR's first AI-based predictive analytics project to predict population flow, specifically the movement of internally displaced persons within Somalia. Project Jetson also aimed to understand the factors that cause or exacerbated that forced displacement. This project focused on the development of predictive models for forecasting future arrivals and population movements in each region. This is done using a variety of datasets (e.g., conflict, weather/climate anomalies, market commodity prices, and historical population movement) and utilizes different computer science and data science techniques (e.g., artificial intelligence, specifically supervised machine learning for time series analysis). The project follows UNHCR guidance for data responsibility, [data protection](#), ethics and human rights due diligence, as well as [OCHA peer-review framework for predictive analytics projects](#). The Innovation Service intends for Project Jetson to lead to evidence-informed decision-making in contingency planning, improved humanitarian action through preparedness and risk reduction, and strengthened protection for those who are forcibly displaced.
- Department/Division: UNHCR Innovation Service
- Project Type/Output: Academic paper, Software tool (application)
- Project Status: Project Jetson ran from 2017-2019, but the UNHCR Innovation Service deploys the project by the request of operations in need and with similar operational contexts
- Project Start Year: 2017
- Project End Year: 2019
- Project Domain: Human Rights, Weather, Conflict, and Forced displacement
- Data Source: PRMN-UNHCR Somalia, ACLED, FAO SWALIM, FAO FSNAU
- Link to data:
  - <https://unhcr.github.io/dataviz-somalia-prmn/index.html>
  - <https://data.unhcr.org/en/geoservices/>
  - <https://data.humdata.org/group/som>
  - <https://acleddata.com/#/dashboard>
  - <https://dashboard.fsnau.org/>
  - <https://www.faoswalim.org/article/swalim-online-systems-virtual-launch>
- Data Publicly Available: Yes
- Technology/Platform: Open Source, Python Jupyter Notebooks and R Markdown notebook, R several packages, including R-shiny <https://unhcrinnovation.shinyapps.io/Somalia/>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Update: UNHCR undertook a formal procurement process to acquire DataRobot software [www.datarobot.com](http://www.datarobot.com) to test an alternative to open source models and the models produced great results. While Project Jetson has not had any specific technical updates, the teams are currently exploring ad hoc support for UNHCR Somalia Operation in times of crises. The project was featured at a Somalia inter-agency IDP working group

meeting in May 2023. Conversations are ongoing both with different members of the UNHCR in Somalia to identify new trends and assess current needs and capacity, as well as with researchers at Essex University exploring the link between conflict and climate in Somalia. Additionally, UNHCR Project Jetson was featured highlighting relevant lessons for decision makers in the [IOM Big Data for Migration Handbook \(BD4M\), Chapter 5 \(2023\)](#).

- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action; SDG 16 - Peace, Justice, and Strong Institutions, and SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s)
  - UN Partners: UN Global Pulse
  - Civil Society: Uptake Foundation (Data Fellows Program) (Capacity Building), Omdena Foundation ([Challenge Team](#))
  - Academia: University of Essex (Human Rights, Big Data & Technology Project HRBDT)
- Relevant Links and Multimedia:
  - The [project page](#) for Project Jetson on UNHCR's website <http://jetson.unhcr.org>
  - The [book chapter](#) that explains the journey on Predictive Analytics for UNHCR
  - Some academic papers highlighting Jetson ([paper 1](#), [paper 2](#), [paper 3 on ethics](#))
  - Some blogs about project jetson ([blog 1](#), [blog 2](#), [blog 3](#), [essay](#))
  - The code repositories ([repo 1](#))
  - Some media articles highlighting Jetson ([here](#), [here](#), [here](#), [here](#) and [here in German](#))
- Lesson Learned: Because this was UNHCR's first application of predictive analytics experiment to try to predict movement and understand some of the unique drivers and indicators of displacement within Somalia and along the Somali-Ethiopian border, it prompted significant learnings. The most crucial lessons learned highlighted the importance of engaging the populations you serve; Project Jetson received crucial inputs from refugees and IDPs in Somalia who described the act of selling their goats before fleeing. This information allowed the Innovation Service to identify the market prices for goats as a predictor for potential displacement behavior. Additionally, although Project Jetson represented the first time predictive analytics had been leveraged by UNHCR to understand displacement, it was never operationalized and used by field or country operations to inform their decision making prior to arrivals. It just served as proof of concept that an AI-based system could be used to anticipate displacement. Linkages with emergency-related policies, ethics, human rights-based approach to AI and other issues such as closure of borders due to predictions, need to be taken into account prior triggering decision-making based on AI products.
- Contact Information: Hovig Etyemezian ([etyemezi@unhcr.org](mailto:etyemezi@unhcr.org)), Rebeca Moreno Jimenez [morenoji@unhcr.org](mailto:morenoji@unhcr.org)

## Project 6: Detecting drought with computer vision (AI) and satellite imagery

- Project Description: This project came out of engagement with Human Rights, Big Data and Technology Initiative, University of Essex during a previous innovation project, Project Jetson. This project saw the utilisation of computer vision (AI sub-domain) and satellite imagery of Somalia to detect drought in the different regions and correlate with conflict and displacement patterns. This project represents a nascent exploration for UNHCR to incorporate the detection of extreme weather events due to climate change as part of regular monitoring to perhaps one day better anticipate the flow of internally displaced people due to drought. This project utilised Landsat 8 satellite imagery to detect indicators of drought on the terrain, which was cross-validated with weather datasets from the same regions.
- Department/Division: UNHCR Innovation Service

- Project Type/Output: Code repository, Software tool (application), Blog article
- Project Status: Ongoing
- Project Start Year: 2020
- Project Domain: Forced Displacement, Computer Vision
- Data Source:
  - Conflict Data: <https://acleddata.com/>, Satellite imagery: Landsat8
  - Geography: Somalia, admin level 2 (subnational, per region)
- Link to data: <https://data.unhcr.org/en/geoservices/>
- Data publicly available: Yes
- Technology/Platform: Docker. Open Source, Python with the following libraries: `espa-bulk-downloader`, `rasterio`, `scikit-image`, `matplotlib`, `earthpy` and `geopandas`. GitHub for the project available here: <https://github.com/unhcr/Jetson/wiki/3c.-Experiment-3>
- Project Update: built a project docker for computer vision/AI researchers and other GIS-experts to download the software package in their local computer in Project Jetson site. The researchers need their own credentials for accessing satellite imagery data (e.g. Landsat)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 13 - Climate Action; SDG 16 - Peace, Justice, and Strong Institutions, and SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - Academia: University of Essex - Human Rights, Big Data and Technology (HRBDT) Initiative
- Relevant Links and Multimedia:
  - Project Site: <http://jetson.unhcr.org>
  - Github repository: ([link](#))
  - Software tool: ([application link](#)) and in <http://jetson.unhcr.org>
- Lesson Learned: For a successful project implementation, there was a requirement for extensive computer vision (AI) and geographical information systems (GIS) knowledge, a need that was satisfied through the ongoing partnership with the HRBDT team from University of Essex. The project also needs significant server storage space for the satellite imagery tasking and processing. Additional data protection considerations need to be taken in case the imagery is high definition (HD) and therefore capturing settlements or other areas of concern.
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## Project 7: ARiN

- Project Description: ARiN is a software solution that uses machine learning techniques for the screening of applications submitted to UNHCR's human resources talent pools, according to a set criteria. It assists the pre-screening phase, where the recruiters make the first parsing of the thousands of talent pool applications. It is a web application developed by UNHCR's Innovation Service for the Affiliate Partnerships and Recruitment Section (APRS) within DHR. The application is machine-learning based and supports them with the screening process for external candidates coming from the [UNHCR external talent pool applications](#). The talent pools are the most sought-after functional profiles within UNHCR, and they are dedicated to help respond urgently to forced displacement crises. There are approximately [29 talent pools](#) (Evergreen job vacancies) that receive on average 8000, mostly text-based, applications per month. Contrary to other off the

shelf tools, ARiN was customized in order to comply with the internal policies and rules for talent acquisition within UNHCR, which includes transparency of process, gender and diversity considerations.

- Department/Division: Division of Human Resources (DHR), UNHCR Innovation Service
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2016
- Project End Year: 2022, officially hand over to UNICC
- Project Domain: Forced Displacement, Human resources allocation
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: ARiN was developed as a proof of concept by UNHCR Innovation. The software has been officially handed over to UNICC for maintenance with user requirements coming from the human resources team. ARiN is currently being analysed for potential interoperability/integration to Workday (new human resources system, Workday).
- Related Sustainable Development Goals (SDGs): SDG 8 – Decent Work and Economic Growth, SDG 9 – Industry, Innovation and Infrastructure; SDG 16 – Peace, Justice, and Strong Institutions; SDG – 17 Partnership for the Goals
- Partnership(s)/Collaborator(s):
  - UNICCC
- Relevant Links and Multimedia:
  - Project Site: <https://arin-hr.unhcr.org/account/login?returnUrl=%2Ftalent-pools>
  - Project description: <https://www.unhcr.org/innovation/division-of-human-resources-dhr-arin/>
  - Presentation: [ARIN public presentation](#)
  - Blogs: ([Blog 1](#), [Blog 2](#), [Blog 3](#), [Blog 4](#), [Blog 5](#))
- Contact Information: Hovig Etyemezian [etyemezi@unhcr.org](mailto:etyemezi@unhcr.org), Sofia Kyriazi [kyriazis@unhcr.org](mailto:kyriazis@unhcr.org)

## 2. Related Sustainable Development Goals

SDG 3, 8, 9, 10, 13, 16, and 17

## 3. Relevant Links

<https://www.unhcr.org>

<https://www.unhcr.org/innovation/data-innovation/>

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## United Nations International Computing Centre



### 1. Description of Activities on AI

#### Project 1: An AI Approach to Flag Sexist Text Content on Social Media Channels in Latin American Countries

**Project Description:** Rapidly growing access and use of information and communication technologies (ICT), accelerated by the COVID-19 pandemic, has had multiple impacts on gender equality and women's rights, including the further exacerbation of existing forms of sexism, abuse and violence against women (VAW). At the same time social media platforms, especially X (Previously Twitter), have become powerful conduits for communication in Latin American countries. The rise of online sexism and the perpetuation of harmful narratives necessitate proactive measures.

To address this concern, UNICC and UN Women developed an artificial intelligence (AI) model designed to automatically detect and flag sexist text content on X (Previously Twitter) across Spanish-speaking countries in Latin America.

The AI model employs advanced supervised algorithms, carefully chosen and trained on diverse labeled datasets, to identify sexist and abusive language that may contribute to perpetuating harmful stereotypes. Recognizing the linguistic and cultural diversity across Latin American countries, the model incorporates a multilingual approach, considering regional nuances to ensure accurate detection.

Despite linguistic and cultural challenges, the model demonstrates promising results in detecting and categorizing sexist content. Continuous refinement and ethical considerations remain integral aspects of the approach we used, emphasizing the importance of flagging the content with freedom of expression.

Ultimately, the AI model serves as a valuable tool for addressing online sexism in Latin American countries. Its insights and trends gleaned from the analysis will play a pivotal role in informing the development of a systematic approach to prevention and response to sexism and technology-facilitated Violence Against Women (TF VAW). This includes evidence-based prevention interventions aimed at transforming harmful social norms, enhancing understanding of the issue in the region, and fostering the creation of safe online spaces for women and girls. Moreover, the model will contribute to the development of effective enforcement mechanisms and consistent standards for content moderation, specifically tailored for UN Women initiatives.

- **Project Type/Output:** Policy Framework, Software tool
- **Project Status:** Ongoing

- Project Start Year: 2022
- Project End Year: 2023
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Gender, Human Rights, Justice
- **Data Source:**
  - Publicly available Social Media Data (X- Formerly Twitter)
  - Filtered data specific to Guadalajara, Mexico.
- **Technology/Platform: Python, Jupyter notebook.**
- **Related SDGs:** SDG 3 - Good Health and Well-Being, SDG 5 - Gender Equality, SDG 16 - Peace, Justice, and Strong Institutions, SDG 17 - Partnerships for the Goals
- **Partners:**
  - UN Partners: UN Women
  - Private Sector: Twitter
  - Academia: UPV Valencia
- **Links and Multimedia:**
  - <https://www.unicc.org/news/2022/07/20/unicc-academic-partnerships-help-students-take-learning-beyond-the-classroom/>
- **Lessons Learned:**

Effectiveness of OpenAI/GPT in Data Translation: The application of OpenAI/GPT in data translation has proven highly effective, maintaining exceptional standards of quality and performance.

Successes and Limitations of Keyword Approach: Leveraging keywords, we successfully identified sexist tweets with a detection rate of 10-12%. However, this approach fell short in fully distinguishing between different types of sexism.

Insights into the Relationship Between Sexism, Emotions, and Hate Speech: Our research has provided valuable insights into the complex relationship between various forms of sexism, emotions, and hate speech, enriching our understanding of these interconnected phenomena.

Competitiveness of Our Model: Despite the limitations, our model's performance is comparable to other Spanish language models, highlighting its competitiveness within the field.

Areas for Improvement and Expansion: Moving forward, we have identified areas for improvement and expansion. Initiatives such as implementing a dashboard and conducting hyperparameter search are underway to enhance efficacy and efficiency. Additionally, we aim to broaden the project's scope by adapting the methodology to encompass Spanish-speaking and other LATAM countries, facilitating code reutilization and scalability.

Potential Applications: Our research findings pave the way for several potential applications. These include the development of a real-time app to alert users about sexist content, as well as the creation of an API for seamless integration of our models into existing systems, benefiting stakeholders such as UN agencies and LATAM countries.

Overall Impact and Contribution: Through these endeavors, we aim not only to advance the field of AI-driven data translation but also to contribute to societal well-being by combating harmful online behavior and fostering a safer online environment.



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## Project 2: An AI Approach to Incident Management

**Project Description:** The United Nations International Computing Centre (UNICC) is the leading digital service provider within the UN system. UNICC's AI Approach to Incident Management integrates Information Technology Infrastructure Library (ITIL) processes, providing a structured framework for efficient incident management and problem resolution. This innovative approach aims to establish a robust decision support mechanism, refining the monitors responsible for initiating incidents. By enhancing the accuracy and effectiveness of incident detection, our approach contributes to more streamlined infrastructure management. Through the application of AI technologies, we strive to optimize the monitoring process, ultimately minimizing downtime and improving overall operational efficiency.

**Background:** ITIL is a renowned framework of IT best practices, aimed at aligning IT services with both customer and business needs. Within this framework, incidents are defined as unplanned interruptions or reductions in the quality of IT services, while problems represent the root or potential causes of such incidents.

ITIL categorizes changes as additions, modifications, or removals of elements that could impact IT services, including hardware, software, and application patching. Workarounds, considered temporary fixes, aim to restore service provisionally without addressing the underlying problem's root cause. Meanwhile, UNICC employs a catalog system to provide customers with self-service capabilities, encompassing categories, catalog items, variables for customization, and the generation of requests and requested items.

Incident management within UNICC focuses on promptly resolving service-related issues to minimize negative impacts. All incidents are meticulously recorded in the Service Now (SNOW) tracking and analysis. Our problem management approach aims to reduce the incidence and impact of recurring issues by identifying root causes and implementing effective solutions. Solutions may range from component-level adjustments to organizational process improvements.

Incident resolution follows a structured process within UNICC, starting with the creation of incident records triggered by monitoring tools or user reports. Service Desk agents then identify the affected service and associated Configuration Item (CI), subsequently assigning the issue to the relevant team for resolution. Technical teams troubleshoot the problem, implement workarounds or permanent fixes, and close the incident once resolved.

In summary, UNICC's utilization of ITIL processes ensures efficient incident and problem management, fostering continuous service improvement and enhancing the delivery of IT services to UN system organizations.

**Solution:** We harnessed the power of AI to enhance decision-making processes at UNICC. Facing the challenge of effectively managing infrastructure status, we devised a groundbreaking solution leveraging AI technology. UNICC's Operation (OPX) team implements sophisticated monitors to continuously assess various parameters against predefined thresholds. Upon detecting breaches in these thresholds, incident tickets are automatically triggered, each assigned with designated priorities. This system is dynamic, with parameters, thresholds, and

priorities subject to regular review and ad-hoc adjustments by the team. Our objective is to establish a robust decision support mechanism aimed at refining the monitors responsible for initiating incidents, thereby elevating the overall management of our infrastructure. Importantly, input for this mechanism includes a list of incidents, ensuring data privacy through masking techniques.

- **Project Type/Output:** Academic paper, Software tool
- **Project Status:** Ongoing (deployed)
- Project Start Year: 2021
- Project End Year: 2022
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Operational improvement & Process efficiencies
- **Data Source:** Incident data from Internal Tools such as Service Now /SNOW and ITIL
- **Technology/Platform:** Python Notebook.
- **Related SDGs:** SDG 7 – Affordable and Clean Energy, SDG 9 – Industry, Innovation, and Infrastructure, SDG 11 – Sustainable Cities and Communities, SDG 17 – Partnerships for the Goals
- **Partners:**
  - UN Partners: UNICC OPX Operations
  - Academia: University of Salento
- **Links and Multimedia:**
  - <https://www.unicc.org/news/2022/07/20/unicc-academic-partnerships-help-students-take-learning-beyond-the-classroom/>
- **Lessons Learned:**

**Text Cleaning and Data Anonymity:** Our journey began with the critical step of text cleaning, focusing on enhancing data anonymity and confidentiality. Named Entity Recognition (NER) techniques were instrumental in removing proper names, while word embeddings tailored to the IT domain effectively captured domain-specific semantics. Additionally, refinement of stopwords and exploration of automatic techniques like NER for identifying organization names were vital in ensuring data quality.

**Prioritization Strategies:** We underwent an iterative process of experimenting with prioritization strategies. While some approaches initially seemed promising, we encountered roadblocks that hindered the classification process. Eventually, we settled on a method that involved reducing the number of classes from five to three and modeling the problem as binary classification. This decision allowed us to distinguish critical from non-critical incidents effectively.

**Custom Vocabulary Development:** A key insight gained was the importance of curating a custom vocabulary comprising words specific to high-priority incidents. This focused approach facilitated the development of a more accurate and impactful model.

**Optimizing Data Analysis Workflows:** Through the implementation of comprehensive processing and prioritization methods, our aim was to optimize data analysis workflows. By deriving actionable insights and driving informed decision-making, we sought to enhance organizational efficiency in incident management.

**Culmination of Industry Standards and Iterative Experimentation:** Our approach represents a culmination of industry-standard practices and iterative experimentation. By leveraging

established methodologies and continuously refining our techniques through experimentation, we have developed a robust and effective methodology for data analysis in incident management.

By sharing these lessons learned and insights gained, we hope to assist others in navigating similar challenges and achieving success in their endeavors.

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### Project 3: Detection of Misinformation in Social Media

**Project Description:** The Detection of Misinformation in Social Media project was a collaborative effort conducted between UNICC and NYU Capstone participants from 2021 to 2022. The objective of this joint endeavor was to leverage AI technology to develop a precise and efficient classification system for identifying "fake news" (i.e. misinformation and disinformation) encompassing misinformation and disinformation. The overarching goal was to empower users to assess the reliability of information encountered on social media platforms.

The term fake news encompasses both misinformation and disinformation, disseminated primarily through dedicated fake-news outlets, which purposefully fabricate and spread false information (Janice & The Verified Initiative of the United Nations, 2021). Misinformation constitutes unintentional errors, encompassing inaccuracies in statistical data, images, or comments that are mistakenly perceived as accurate. On the other hand, disinformation involves the deliberate creation or manipulation of audio or visual content, along with the propagation of intentionally crafted conspiracy theories or rumors, all aimed at gaining some form of advantage. Furthermore, disinformation can serve to suppress alternative viewpoints or divert attention elsewhere.

To address this pervasive issue, UNICC collaborated with NYU Stern (students & faculty) to develop a comprehensive data labeling approach aimed at categorizing information based on its veracity. Together, we established the following classification criteria:

"True": Claims that have undergone rigorous fact-checking and are confirmed to be entirely accurate by credible sources.

"Misleading": Claims containing varying degrees of falsehood, as determined by fact-checkers, including partial falsehoods, questionable assertions, or misleading information.

"False": Claims that have been thoroughly debunked and proven to be entirely untrue by reliable fact-checking sources.

"Unproven": Claims lacking sufficient evidence or scientific support to determine their veracity, categorized as unproven, unsupported, or unfounded.

This collaborative effort resulted in a structured approach to classifying content, enabling more accurate identification and assessment of information accuracy and reliability.

This AI based systematic classification was aimed at enabling users to discern the reliability of information they encounter, empowering them to make more informed decisions and combat the spread of misinformation and disinformation. By fostering transparency and accountability in the dissemination of information, this project's approach can play a crucial role in safeguarding

the integrity of public discourse and promoting a more discerning and critical approach to media consumption.

- **Project Type/Output:** Report, Academic Paper, Dataset, Software tool
- **Project Status:** Ongoing
- Project Start Year: 2021
- Project End Year: 2022
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Education, Human Rights, Justice
- **Data Source:**
  - The data labeling leveraged a manual approach of annotating for 31K out of 350K tweets from May 2021 to Jan 2022 using keywords "COVID-19 Vaccine" and its variation in English.
  - 31K tweets are labeled based on the whitelist and the fact-check website Politifact.com. The label categories are simplified based on the fact-check website Politifact.com.
  - Publicly available Social Media Data (X- Formerly Twitter).
  - Filtered data specific to Guadalajara, Mexico.
  - Whitelist - BBC News, CNN, Al Jazeera, Deutsche Welle, The Hindu, AllAfrica, the big four global news wire services: UPI, AP, Reuters, and Agence France Presse, and the [World Health Organization](#).
  - Fact-checking website - Politifact.com will be used for identifying the tweets outside of the whitelist. We further simplified the Truth-O-Meter into four labels. True, False, Misleading, and Unproven, a newly created label for those data that need to be verified in the future.
- **Technology/Platform: Python notebooks & Final presentation uploaded to UNICC GitHub, Reusable Python classes and modules.**
- **Related SDGs:** SDG 4 - Quality Education, SDG 5 - Gender Equality, SDG 16 - Peace, Justice, and Strong Institutions, SDG 17 - Partnerships for the Goals
- **Partners:**
  - Academia: NYU Stern Business Analytics
- **Links and Multimedia:**
  - <https://www.unicc.org/news/2022/07/20/unicc-academic-partnerships-help-students-take-learning-beyond-the-classroom/>
- **Lessons Learned:**

Enhancements in Dataset: Significant improvements were noted in our dataset, which now comprises a broader array of attributes for comprehensive analysis. With over 350,000 tweets collected for this project, each accompanied by relevant attributes, we have gained a rich repository of data to draw insights from. Despite fields like location and country remaining largely empty, their absence does not impact our analysis, given our focus on English-speaking tweets.

Impact of COVID-19 Pandemic on Twitter Activity: A noteworthy observation was the sharp increase in Twitter account subscriptions coinciding with the onset of the COVID-19 pandemic. This phenomenon suggests a mix of established institutions creating accounts during Twitter's early years and opportunistic users capitalizing on the pandemic.

**Effective Use of CRISP Methodology:** The CRISP methodology for data mining proved to be effective in guiding our analysis efforts. This structured approach enabled us to efficiently navigate the complexities of the dataset, extracting meaningful patterns and insights.

**Commitment to Robust Methodologies:** As we continue to explore the data and its implications, our project remains committed to leveraging robust methodologies and innovative approaches to uncover actionable insights. We are continuously seeking new methodologies and techniques to enhance our analysis and drive informed decision-making.

**Future Plans for Expansion:** Moving forward, we are exploring the possibility of trying other AI methodologies and techniques to further enhance our analysis. Additionally, we are actively creating new annotated datasets related to social media to expand our research further and unlock additional insights in this domain. This commitment to continuous improvement and expansion reflects our dedication to delivering tangible benefits through our project.

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## 2. Related Sustainable Development Goals

**SDGs 3, 4, 5, 7, 9, 11, 16, 17**

## 3. Relevant Links

<https://www.unicc.org/news/2022/07/20/unicc-academic-partnerships-help-students-take-learning-beyond-the-classroom/>

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## United Nations Children's Fund



### 1. Description of Activities on AI

#### Project 1: End-Year Summary Narrative Quality Assurance Tool

- Project Description: End-year reports are important instruments for accountability and monitoring of UNICEF's ongoing performance for all offices. The End-year Summary Narrative (EYSN) component is posted on UNICEF's [external website](#), making it accessible to the general public - including through UNICEF's Transparency Portal (<https://open.unicef.org/>). It needs to be written in a style and tone that is appropriate, credible, relevant, and understandable for external audiences. It is important to ensure the quality of the report, as well as guarding against the inclusion of statements that may give rise to reputational risk to UNICEF and partners in the public domain.
- Collaborating with UNESCWA, UNICEF DAPM developed an AI-driven quality assurance tool that can quickly scan the draft EYSN reports and assess the degree of adherence to reporting guidelines, flag any potential reputation risk language, and perform certain editorial check functions. This tool was offered to COs during 2021 end year reporting period and helped achieve efficiency gains and improve the overall quality of final reports.
- Department/Division: Division of Data, Analytics, Planning and Monitoring (DAPM)
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2021
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Domain: Improved quality of end-year summary narrative reporting that's made available to the public, as well as guarding against the inclusion of statements that may give rise to reputational risk to UNICEF and partners in the public domain.
- Data Source: Executive analyses of key aspects of annual results and management performance for both external and internal audiences.
- Link to data: Past reports - [Country, Regional and Divisional Annual Reports 2020 | UNICEF](#)
- Data is publicly available: Yes
- Technology/Platform: Net core with ML running on Python. Frontend build with Angular
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 17 - Partnerships for the Goals
- Partners: UN Partners: UN ESCWA
- Contact information: Sanjana Gaddam, Timothy Takona ([sgaddam@unicef.org](mailto:sgaddam@unicef.org), [ttakona@unicef.org](mailto:ttakona@unicef.org))

#### Project 2: AI4D Research Bank

- Project Description: Data gaps hinder the development sector from implementing evidence-based programs for children and other vulnerable populations. Access

to updated and high-resolution data would help unlock timely insights for decision making such as vulnerability, economic activity, and environmental conditions. The AI4D Research Bank will leverage various geospatial analytic solutions to help fill in and augment data gaps, scaling poverty estimation efforts and air quality exploratory research, while promoting open science by giving other data scientists access to datasets and machine learning model training references. Access to updated and high-resolution data would help unlock timely insights for decision making such as vulnerability, economic activity, and environmental conditions. The resulting web app is designed for both data scientists and program staff, and will offer a Data Catalogue, a Model Catalogue, and API Functionality to ensure replicability. Funding for this initiative is made possible through the UNICEF Venture Fund, Office of Innovation.

- Department/Division (if applicable): Frontier Data Hub, Regional Office for East Asia and the Pacific islands (EAPRO), Office of Innovation
- Project Type/Output: Software tool
- Project Status: Development
- Project Start Year: 2021
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Domain: Environment and Poverty
- Data Source: Our poverty estimation model features a low-cost and efficient implementation that will use publicly available data sources:
  - Google Earth Engine satellite images
  - Facebook High Resolution Settlement Layer
  - OpenStreetMap
  - Ookla Internet Dataset
- The exploratory air quality research side of the platform will use data from:
  - Satellite Imagery MODIS, VIIRS (NASA Earth Data)
  - Mapillary Street-level Sequences Dataset image dataset for Bangkok
  - Meteorological data from the [World Air Quality Index](#)
- Data is publicly available: Yes
- Technology/Platform: The web app itself will be open sourced and data analysis made available via an API. The repository will be maintained on GitHub.
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty; SDG 3 – Good Health and Well-Being; SDG 13 – Climate Action; SDG 16 – Peace, Justice, and Strong Institutions
- Partnerships:
  - UN Partners: UNICEF
  - Private Sector: Thinking Machines
- Links: Partner’s website: <https://thinkingmachin.es/>
- Lessons Learned: The bulk of the development work for the AI4D Research Bank will happen in 2022. During 2021, UNICEF and the technology partner co-designed the project through a constant communication of respective priorities and interests. This alignment is paramount on such projects, where the capacity and expertise of partners is crucial to guarantee the rigor and speed of execution. We will create an impact assessment report to evaluate the use of the AI4D Research Bank, poverty estimation models, and air quality estimation research. We will gather information on how these models and tools have helped other users’ work and inputs to future iterations.
- Contact information: Karim Ghalaini ([kghaliani@unicef.org](mailto:kghaliani@unicef.org))

### Project 3: Safer Chatbots

- **Project Description:** Chatbots, including those run by UNICEF, often do not detect, or respond to users' attempts to seek urgent help with potentially life threatening experiences. The Safer Chatbots project aims to standardise safeguarding mechanisms within any chatbot reaching vulnerable communities, especially those engaging girls and women. Safer Chatbots includes 3 options for chatbot implementers who wish to improve the ability of their chatbot to detect and respond automatically to safeguarding disclosures, for example, messages from users indicating they have experienced or are at risk of serious harm including Gender Based Violence or suicidal ideation. Implementers can take inspiration from tried and tested mechanisms which have been accessibly documented via Implementation Guidelines and piloted by 3 UNICEF country offices. Chatbot developers do not have to be running an AI powered chatbot, but one of the options is powered by an NLP model developed and tested by external partners with our support. Mechanisms and guidelines can be implemented on any chatbot-building software but the guidelines have been tailored for those using platforms such as RapidPro, Turn.io and Bothub. By implementing a Safer Chatbot mechanism, chatbot developers can improve the safety of their chatbots' users and ensure they get the support they need from appropriate referral services.
- **Department/Division:** Gender (EAPRO)
- **Project Type/Output:** The main output of this project is implementation guidelines including RapidPro flows. Through a partnership with external organisations we have also produced a first draft of a safeguarding NLP model.
- **Project Status:** Completed
- **Project Start Year:** 2020
- **Project End Year:** 2021
- **Reported as part of [2022 Compendium on UN AI Activities](#)?** Yes
- **Domain:** Gender, Health
- **Data Source:** Data used for the development of the NLP model option was collated anonymously based on training data from external partners. No other data is involved in this project until the point of implementation, at which point the data collected depends on that collected by the implementer, but may include anonymised safeguarding disclosures, and demographic data including age and gender.
- **Data is publicly available:** Yes
- **Technology/Platform:** Templates have been created and made available using RapidPro (.json files available as part of project documentation). One of the options is available via the Turn.io platform as a template, and the other via Weni/Bothub as well as via Github.
- **Related Sustainable Development Goals (SDGs):** SDG 3 - Good Health and Well-Being; SDG 5 - Gender Equality; SDG 16 - Peace, Justice, and Strong Institutions
- **Partnerships:**
  - Private Sector: Weni, technical partner
  - NGO: Girl Effect, technical partner
- **Lessons Learned:** One of the biggest challenges was understanding what other initiatives may already be in motion to address this important problem within UNICEF, and ensuring we were not doubling up our efforts. Secondly, although local teams running or planning chatbots recognised the importance of this issue, it was hard for them to prioritise addressing it amongst the many other pressing issues involved in running/developing a chatbot. For us this emphasised the importance of making this mechanism available as part of the 'standard' templates for teams wishing to roll out a new chatbot, and a pre-condition for its release to vulnerable users.
- **Contact information:** Gerda Binder ([Gbinder@unicef.org](mailto:Gbinder@unicef.org))



## Project 4: Spotlight

- Project Description: Spotlight is a project to predict country-level changes in the ACLED data set (events and fatalities) using the news-report event data set GDELT. It will be used to inform the UNICEF Horizon Scan, a monthly process that seeks to identify a short list of countries facing imminent increases in humanitarian need, to support enhanced country office preparedness. It aims to solve the problem of an absence of statistically proven quantitative forecasting inputs related to changes in conflict intensity.
- Department/Division (if applicable): EMOPS
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2022
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Domain: Risk analysis and emergency preparedness, Risk mitigation
- Data Source: News and media events (GDELT), conflict events (ACLED)
- Link to data:
  - <https://www.gdeltproject.org/>
  - <https://acleddata.com/data-export-tool/>
- Data is publicly available: Yes
- Technology/Platform: Microsoft Azure Databricks (Pyspark) Notebooks, Microsoft Azure ML (Pyspark/TensorFlow) Jupyter Notebooks, Microsoft Azure Data Factory, Microsoft SQL Server, Power BI
- Related Sustainable Development Goals (SDGs): SDG 16 – Peace, Justice, and Strong Institutions
- Links: Tool is only available on UNICEF internal network
- Lessons Learned: The computing costs associated with calculations on a large dataset are a constraint on exploration. Internal bureaucracy is an impediment to experimentation. A lack of internal expertise is a limit on development.
- Kevin Wyjad ([kwyjad@unicef.org](mailto:kwyjad@unicef.org))

## Project 5: UNICEF Venture Fund

- Project Description: Launched in 2016, the UNICEF Venture Fund makes \$50k - \$100k early-stage investments in technologies for children developed by UNICEF country offices or companies in UNICEF program countries. By providing flexible funding, UNICEF has the ability to quickly assess, fund and grow open-source technology solutions that show potential to positively impact the lives of vulnerable children.

The Venture Fund has made specific calls for solutions that are in the data science and AI space. Specific focus is placed on using satellite imagery or social media to map infrastructure, using natural language processing, generating insights from big data, and curating data from various sources.

In 2021, the fund launched a call for [AI & ML solutions to improve access to and delivery of digital services and systems](#), which resulted in investments in [nine startups developing AI solutions in the health and education space](#). In 2022, the fund also [announced 2](#) new investments into Child Online Safety solutions, both utilizing AI to strengthen children's skills to stay safe in the digital world. In 2023 the Fund announced investments in several AI-powered startups as part of its call for [climate change solutions](#).

The Fund has made investments of over \$5.2MM to date in AI-related projects in countries including Argentina, Brazil, Chile, Guatemala, India, Kenya, Mexico, Philippines, South Africa, and Tanzania. For example, UNICEF invested in Afinidata, which offers a

personalized, virtual assistant that guides parents with early childhood development tools for children under the age of six. The company has delivered over 2 million educational sessions. Using machine learning, Afinidata has built a content personalization algorithm which increases the use of suggested content, benefiting over 80k families in Latin America.

### Startup Investments

Portfolio Company Name	Country	Programmatic/Operational Area	SDGs	One-Line Summary
Afinidata	Guatemala	early child development, education	4	Artificial intelligence powered personalized educational development centered (ECD) advice for parents
AfriLearn	Nigeria	education	4	A personalized learning platform for West African curricula that engages students with the help of gamification, recommender systems, and generative AI
Angaza Elimu	Kenya	education	4	AI powered eLearning platform that delivers personalized and mastery based learning experiences to students and amplifies teacher student engagement
AQAI (Formative Resilience)	India	environment, health	3, 11, 13	Multi-modal machine learning models to assess exposure to climate-related pollutants, to identify at-risk demographic groups including children
Avyantra	India	newborn health, child survival	3	Using machine learning for early diagnosis of neonatal sepsis
Bioverse Labs	Brazil	environment, climate	11, 13, 15	Machine learning on remote sensing imagery to identify key tree species that can be sustainably managed and harvested by indigenous communities

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Portfolio Company Name	Country	Programmatic/ Operational Area	SDGs	One-Line Summary
Bookbot	Indonesia	education	4	Improving pronunciation, comprehension and reading among primary school children with the help of real-time, on-device speech recognition technology in Bahasa Indonesian
Cboard (Cireha)	Argentina, ECARO	support for children with disabilities, education, social inclusion	4	Helping those with speech and language impairments to communicate by symbols and text-to-speech
Project AEDES (Cirrolytix)	Philippines	health	3	Predict dengue cases from climate and digital data and pinpoint possible hotspots from satellite data
OTTAA (Comunicacion Aumentativa)	Chile	education, support for children with disabilities, social inclusion	4	AI enabled communication assistant for children with speech impairments using AI and pictograms
Daktilograf (Om3ga)	Serbia	education	4	A speech-to-text and text-to-speech solution that makes it possible for children with disabilities to communicate
Datawheel Chile	Chile	social and economic policy evaluation	1, 9, 10, 11	Data visualization engine for integrating data from multiple sources
Dymaxion Labs	Argentina	emergency response, social and economic policy evaluation	11	Using satellite imagery and machine learning to deliver geospatial analytics insights
Equinoct	India	environment, climate, emergency response	11, 13	AI and machine learning with community-sourced data to provide real-time monitoring and early warnings of climate change hazards

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Portfolio Company Name	Country	Programmatic/ Operational Area	SDGs	One-Line Summary
Eyebou	UAE	health	3	A smart phone application that can detect eye abnormalities such as strabismus
Geospoc GeoSpatial	India	connectivity, education	3, 4, 8, 9, 11	Platform using artificial intelligence and machine learning with satellite data to map schools and hospitals in India
Giraffe	South Africa	youth engagement, education, social inclusion, upskilling young people's digital skills for the future	4, 8, 10	Job matching portal connecting employers and jobseekers, while also generating insights around critical skills in demand.
Weni (Ilhasoft)	Brazil	education, health, emergency response, child protection	3, 4	Open platform for training and sharing Natural Language Processing datasets in multiple languages
Elsa (Inspired Ideas)	Tanzania	health	3	Health Assistant tool, powered by artificial intelligence
Intelligent Network Solutions	Albania	environment, climate, water and sanitation	6, 11, 13, 15	Integrating machine learning with a geographic information system platform to detect illegal waste landfills while monitoring changes in legal landfills
ISTEM	India	education, support for children with disabilities, social inclusion	3, 4, 10	Dashboard for students with disabilities providing automated workflows, accessible content conversion, and mentorship matching services
Jellow (Ninaad Digital Technology)	India	education, support for children with disabilities, social inclusion	3, 4, 10	An open-source app for children with speech impairments to communicate using symbols

(continued)

Portfolio Company Name	Country	Programmatic/ Operational Area	SDGs	One-Line Summary
Jobzi	Brazil	education, capacity building, upskilling young people's digital skills for the future	4, 8, 10	Forecasting the influence of school connectivity on employment and educational outcomes
Kimetrica	Kenya	nutrition, health, child survival	2, 3	AI-based tech to detect severe malnutrition from an image
Map Action	Mali	environment, climate	11, 13	A dynamic platform that empowers citizens and organizations to report on environmental incidents
Map&Rank	Cameroon	environment, climate	11, 13	Machine learning platform to deliver climate risk information and facilitate disaster preparedness in vulnerable communities
Neural Labs Africa	Kenya	health	3	Deep learning and computer vision to screen medical images in real time to identify diseases such as pneumonia and tuberculosis
Towi (Pixframe Studios)	Mexico	education	4	Game-based learning tools customized using data science
Portal Telemedicina	Brazil	health	3	A telehealth and population health management platform for streamlining information from fragmented and disparate data sources for faster, more reliable, and lower-cost diagnostics
qAIRA	Peru	environment, climate, health	3, 11, 13	AI to process sensor data and create air pollution maps that visualize air quality

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Portfolio Company Name	Country	Programmatic/Operational Area	SDGs	One-Line Summary
SolarRec (Renovus Clean Energy)	Uruguay	environment, climate	11, 13	An AI-powered platform connecting solar generators to create carbon offsets and finance additional solar panel installations
Similie	Timor Leste	environment, climate, emergency response	11, 13	An Early Warning System using machine learning and low-cost sensors to assess risk levels and mitigate the effects of natural disasters
Simple Maps (Rentadrone)	Chile	environment, climate	11, 13	Detects, classifies, and organizes the errors and damaged modules in solar plants and assesses crop disease using thermal imagery
Somleng (Chatterbox)	Cambodia	emergency response	11, 13	An interactive voice response platform that was used to create an early warning system that sends cell phone warning messages to people at risk of seasonal flooding
Talk2U	Brazil	education, child protection	4, 5	An interactive learning experience to raise awareness about the impact of hate speech on young people with the goal of strengthening emotional intelligence and mental wellbeing in youth
Thinking Machines	Philippines	emergency response, social protection	10, 11	Mapping hard-to-reach areas and connecting communities to resources using artificial intelligence and geospatial analysis
Tilli	Sri Lanka	education, child protection	4, 5	An AI-powered play-based social-emotional learning (SEL) tool for children

(continued)

Portfolio Company Name	Country	Programmatic/Operational Area	SDGs	One-Line Summary
Vrapeutic	Egypt	education, social inclusion	4	Virtual reality content to promote skill-based learning in children with ADHD and autism, with the help of AI to enrich customizable educational scenarios
WonderTree	Pakistan	education, social inclusion	4	Augmented Reality to create games for children with disabilities that are based on physiotherapy and cognitive exercises
Cryptolab (Xcapit)	Argentina	social protection	1, 10	A financial services platform powered by blockchain and AI that enables financial planning, gamified savings and wealth management
Yuddee 2 (Beijing Daokoudai)	China	education, support for children with disabilities, social inclusion	4	Personalized learning for children with autism to help develop complex sentence structures

### Country Office Investments

Country	Project	Description
Colombia	Big Data for Emergencies and Resilience	AI for emergency preparedness in Colombia
Iraq	Monitoring child poverty through new methods and data	Poverty estimation using big data and AI
Brazil	Big Data for Epidemics	Big data to predict and prevent tropical disease transmission in Brazil
India	Safetipin	Using Machine Learning to analyze night-time images taken by taxi cabs to provide insights on safety of public spaces to women and girls
Mexico	MatematIA (Pixframe Studios)	AI-powered game based learning tool to enhance mathematics skills in upper secondary school children. Developed by Innovation Fund alumni Pixframe.

(continued)

Country	Project	Description
India	UniLearn	Learning management system that will use AI / ML to provide personalized learning for children
EAPRO, Indonesia	Thinking Machines	Data Science & ML to use new and different data sources for better poverty estimations and insights on pollution. Implemented jointly with fund alumni Thinking Machines.
Mongolia, Indonesia	Oky	A period tracking app that promotes privacy and provides positive and accurate information about reproductive health
Greece, Eastern Caribbean	FunDoo	A digital life skills development tool for adolescents and young adults that is integrated into U-Report

- Department/Division: Office of Innovation
- Project Type/Output: Software tool, Investments into early stage open source frontier technologies (including AI, ML, data science) developed by startups in UNICEF's programme countries or UNICEF's Country Offices.
- Project Status: Ongoing
- Project Start Year: 2016
- Project End Year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Domain: Environment, Education, Gender, Health, Poverty, and Risk mitigation
- Related Sustainable Development Goals (SDGs) SDG 1 - No Poverty; SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, and Infrastructure, SDG 10 - Reduced Inequalities, SDG 13 - Climate Action; SDG 15 - Life on Land; SDG 16 - Peace, Justice, and Strong Institutions
- Partnerships:
  - Government: Country governments that are implementing partners to the Country Office solutions
  - Private Sector: Startup companies
- Links:
  - <https://www.unicefinnovationfund.org>
  - <https://www.unicef.org/innovation/venturefund>
  - <https://www.facebook.com/unicef.innovation>
  - <https://twitter.com/UNICEFinnovate>
  - <https://www.instagram.com/unicefinnovate/>
  - <https://www.linkedin.com/showcase/unicef-innovation/>
  - <https://www.unicef.org/innovation/research-and-reports/download-impact-brief-2023>
- Lessons Learned: As AI becomes increasingly pervasive across all programmatic areas in which UNICEF works, the demand and the opportunities for investing in AI solutions for children keep growing. It is important to discern where AI can deliver the greatest impact in advancing UNICEF's priorities, providing added value to the programmes, and realizing the transformative potential of AI to scale solutions for children.



- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

### Project 6: UNICEF Policy Guidance on AI for Children

- Project Description: The Office of Global Insight and Policy led a two-year project to better understand how Artificial Intelligence (AI) systems can protect, provide for, and empower children. Key to this project was the development of a guide for creating and implementing AI policies and systems that protect children’s rights and brings the attention of the public and private sectors to how AI systems impact on children. To develop the guidance over 200 experts were consulted in 5 regions, and almost 250 children were consulted on AI issues.
- Department/Division: Office of Global Insight and Policy
- Project Type/Output: Report, Policy Framework, and Conference (multiple meetings on a theme)
- Project Status: Completed
- Project Start Year: 2019
- Project End Year: 2021
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: UNICEF released a report of the consultation with 245 children as well as the consultation workshop methodology. The draft policy guidance was put out for public consultation to solicit feedback. UNICEF also worked with eight governments, companies, and non-profit organizations to “pilot” the guidance. The results were released as case studies and a version 2 of the [Policy Guidance on AI for Children](#) was published during the first-ever Global Forum on AI for Children. The guidance has been translated into French, Spanish and Arabic.
- Domain: Education, Human Rights, Child rights, and Digital technologies
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic Growth
- Partnerships:
  - Government: Government of Finland
  - Civil Society: IEEE Standards Association, World Economic Forum, the 5Rights Foundation
  - Academia: Berkman Klein Centre for Internet & Society, Harvard University
- Links: <https://www.unicef.org/globalinsight/featured-projects/ai-children> #ai4children
- Lessons Learned: There is a real need for greater guidance on how to develop AI policies and systems that uphold child rights, that include children in the design process. Many of the valuable lessons learned by the organizations piloting the guidance are captured in the case studies. The Government of Scotland formally adopted the policy guidance in its National AI Strategy in 2021, a key success for the project.
- Contact information: Steven Vosloo ([svosloo@unicef.org](mailto:svosloo@unicef.org))

### Project 7: UNICEF’s Good Governance of Children’s Data

- Project Description: Since data is a key input into AI systems, the governance of children’s data to ensure child-centred AI is critical. UNICEF developed a [Manifesto](#) that sets aspirational benchmarks to guide governments, the private sector and international organizations in developing data governance that take full account of children’s issues and rights. The Manifesto proposes the world we want and aims to address ambiguous or sensitive areas where there are no straightforward answers. To develop this Manifesto, a [working group](#) of 17 global experts from the private sector, academia, think tanks and others provided analysis, insights, guidance and comments. They wrote [short](#)

[commentaries](#) examining data governance approaches, evidence, gaps and grey or conflicting areas. A wider group of experts was engaged through convenings, webinars and consultations throughout the year.

- Department/Division: Office of Global Insight and Policy
- Project Type/Output: Report
- Project Status: Completed
- Project Start Year: 2020
- Project End Year: 2021
- Reported as part of [2022 Compendium on UN AI Activities](#)? Yes
- Project updates: A Manifesto that articulates a vision for a better approach to children's data has been published.
- Domain: Human Rights, Child rights, Digital technologies, Data
- Links: <https://www.unicef.org/globalinsight/good-governance-childrens-data>
- Related Sustainable Development Goals (SDGs): SDGs 1, 3, 4, 5, 8, 9, 10, 13, 16, 17
- Contact information: Jasmina Byrne ([jbyrne@unicef.org](mailto:jbyrne@unicef.org))

### Project 8: More Water More Life - Groundwater Mapping Project Using Satellite Data

- Project Description: UNICEF's More Water More Life initiative was designed to increase the drilling success rate for groundwater by mapping deep aquifers—bodies of permeable rock that can contain groundwater—with satellites and science. Since 2017, UNICEF has collaborated with the European Union Joint Research Centre (EU-JRC) to develop this new way of mapping groundwater using geospatial imagery and data. Together, EU-JRC and UNICEF found a way to use satellite images in conjunction with conventional exploration techniques to reduce the time and resources required for groundwater feasibility studies. More Water More Life's data-driven approach helps find groundwater before drilling, doubling the drilling success rate. It has improved water access for [1.2 million people](#) (including [740,000 children](#)) in Ethiopia and Madagascar.
- Department/Division: Office of Innovation
- Project Type/Output: Map
- Project status: Ongoing
- Project start year: 2017
- Project end year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project domain: Water and Sanitation
- Technology/platform: Remote sensing, geospatial AI
- Related SDGs: SDG 6 - Clean water and sanitation, SDG 11 - Sustainable cities and communities
- Partnerships: European Union Joint Research Centre (EU-JRC)
- Relevant links: <https://www.unicef.org/innovation/stories/finding-water-driest-places>
- Lessons learned: Geospatial technology allowed UNICEF to access far-flung areas that would otherwise be impossible to map using conventional survey methods. Remote sensing data allowed UNICEF to cover wide areas, including those traditionally known to be too remote and too fragile due to conflict. In spite of difficult terrain and conflict, More Water More Life proved effective. This provides a strong case for expanding More Water More Life in East and Southern Africa and beyond.
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

## Project 9: Climate-Based Ensemble Machine Learning Model to Forecast Dengue Epidemics in Peru and Brazil

- **Project Description:** Researchers from UNICEF's Office of Innovation worked alongside colleagues from the Latin American and Caribbean Regional Office (LACRO) – plus data scientists from the European Space Agency and researchers across a wide range of universities and institutions – to develop a climate-based ensemble machine learning model to forecast dengue epidemics more accurately. Combining 20 years of data about dengue cases from Brazil and then Peru, satellite-based meteorological products and socioeconomic data, they trained the ensemble machine learning model to learn from the past in order to forecast the near future. The model then autonomously correlated dengue cases with meteorological conditions like temperature, rainfall and altitude, as well as the socioeconomic conditions of the area under analysis, to enable it to forecast caseloads under the different conditions. The forecasts proved to be notably more accurate than estimates using previous approaches, including those that had been based on single machine learning architectures. This indicates that the new ensemble-based approach could provide local health authorities with the timely information they need to prepare for a likely outbreak and ensure intervention to contain the spread of disease and save lives. First piloted in Brazil, the model appeared to be as accurate when tested in a second country – Peru – giving the team confidence that it could be reproduced in other countries.
- **Department/Division:** Office of Innovation
- **Project Type/Output:** Epidemiological model
- **Project status:** Ongoing
- **Project start year:** 2018
- **Project end year:** Ongoing
- **Reported as part of [2022 Compendium on UN AI Activities](#)?** No
- **Project domain:** Health, infectious disease, climate impacts
- **Technology/platform:** Geospatial modeling, remote sensing, ensemble machine learning
- **Related SDGs:** SDG 3 – Good Health and Well-Being, SDG 13 – Climate action
- **Partnerships:** European Space Agency, University of California San Diego, Newlight Technologies
- **Relevant links:**
  - <https://www.unicef-irc.org/publications/pdf/Best-of-unicef-research-2022.pdf>
  - <https://www.unicefusa.org/stories/using-artificial-intelligence-fight-dengue>
  - <https://philab.esa.int/%CF%86-lab-and-unicef-joint-dengue-fever-research-receives-further-award/>
  - <https://www.climatechange.ai/papers/icml2021/10>
- **Lessons learned:** The single most important finding was that the ensemble machine learning model provided considerably more accurate predictions of dengue outbreaks than any previous approach. The study also looked at the factors that appeared to have the greatest influence on dengue incidence. While it was no surprise that the case rate for the previous month came out on top, followed by temperature, the next most influential factors were wind speed and direction. The analysis was conducted first in Brazil, which had a longer time-series of dengue cases freely available compared with Peru. The ensemble machine learning model was first trained and validated using the Brazilian dataset, then transferred to the Peruvian context. This proved to be a highly effective solution for countries that lack sufficient dengue data to train machine learning models.
- **Contact information:** Do-Hyung Kim ([dokim@unicef.org](mailto:dokim@unicef.org)), Hanoch Barlevi ([hbarlevi@unicef.org](mailto:hbarlevi@unicef.org))

### Project 10: Anomaly Detection in Yemen Cash Transfers

- Project Description: In Yemen, the OOI is piloting AI-based anomaly detection for UNICEF's cash transfer program. The project hopes to build on existing anomaly detection algorithms and move beyond detecting "predictable anomalies" with the use of AI. The goal is to help find suspicious transactions and avoid the loss of much-needed funds, tackling fraud in a cash transfer program that has already reached 1.4 million beneficiaries and impacted 9 million people, almost a third of the country's population.
- Department/Division: Office of Innovation
- Project Type/Output: Anomaly detection algorithm for risk mitigation
- Project status: Ongoing
- Project start year: 2023
- Project end year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project domain: Social protection
- Data source: Yemen Service Center Management Information System
- Data is publicly available: No
- Technology/platform: Anomaly detection capability integrated into an existing Management Information System
- Related SDGs: SDG 1 - No poverty, SDG 2 - Zero hunger
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

### Project 11: Machine Translation for Emergencies

- Project Description: The Office of Innovation and EMOPS are prototyping AI-based machine translation tools in several countries, including the Democratic Republic of the Congo. The solution makes humanitarian knowledge and training materials available to local emergency responders and volunteers in their own language (including low-frequency languages), improving first-responders' capacity to achieve full operational readiness for emergencies.
- Department/Division: Office of Innovation, EMOPS
- Project Type/Output: Translation tool and translated texts
- Project status: Ongoing
- Project start year: 2023
- Project end year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project domain: Emergency response
- Technology/platform: open-source machine translation models, large language models
- Related SDGs: 13 - Climate action, 16 - Peace, justice and strong institutions
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

### Project 12: Integrating Speech Technology into the U Youth Application in Burkina Faso

- Project Description: UNESCO data from 2021 show a literacy rate of 65% among young people in Burkina Faso, placing it among the 10 countries with the worst literacy rates. These young people who are challenged with low literacy, many of whom only speak local languages, are in urgent need of equal access to information. Similarly, this population is currently cut out of key feedback and accountability mechanisms that allow them to participate in and report on programmes implemented by UNICEF and other actors. However, many of these youth have access to mobile phones and potentially smartphones. Therefore, Burkina Faso is upgrading the UYouth application to integrate

speech-to-text and other AI-powered language tools, including in low-resource languages such as Mooré. The solution will make the platform more user-friendly, interactive, and inclusive, increasing engagement and expanding its capacity to amplify the voices of young people.

- Department/Division: Office of Innovation
- Project Type/Output: AI-based speech-to-text functionality in a mobile application
- Project status: Ongoing
- Project start year: 2023
- Project end year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project domain: Youth engagement and empowerment, Social inclusion
- Technology/platform: Speech-to-text, text-to-speech, machine translation, and NLP
- Related SDGs: 8 - Decent work and economic growth, 10 - Reduced inequalities
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

### Project 13: Accessible Textbooks with the help of Generative AI

- Project Description: In most countries, learning materials rely primarily on the printed word, which is not accessible to everyone. Millions of children have little or no access to books in a language they can understand, limiting their basic human right to literacy and education. Children with disabilities remain one of the most marginalized and excluded groups and, for them, gaining access to accessible learning materials is a key to quality education. However, to date, producing these materials has proven costly. UNICEF has worked with governments on producing Accessible Digital Textbooks (ADTs) that enhance learning for all children. However, it currently takes 6 - 9 months to produce a single accessible textbook. Generative AI can significantly reduce the cost of production of accessible digital formats. Following Universal Design for Learning principles, accessible textbooks can be made available and affordable in days, not months, for students of all abilities. This project aims to explore the potential of generative AI to create interactive digital textbooks for a wide audience of learners (with an initial focus on Latin America and Eastern and Southern Africa, where ADTs are already in use), and to generate evidence on the use of AI for inclusive education.
- Department/Division: Office of Innovation, ICTD, Innocenti
- Project Type/Output: Textbooks
- Project status: Ongoing
- Project start year: 2023
- Project end year: ongoing
- Reported as part of [2022 Compendium on UN AI Activities](#)? No
- Project domain: Education
- Technology/platform: Generative AI
- Related SDGs: 3 - Good health and well-being, 4 - Quality education, 10 - Reduced inequalities
- Relevant links: <https://www.accessibletextbooksforall.org/>
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

## 2. Related Sustainable Development Goals

SDG 1 - No Poverty; SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 5 - Gender Equality; SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, and Infrastructure, SDG 10 - Reduced Inequalities, SDG 13 - Climate Action; SDG 15 - Life on Land; SDG 16 - Peace, Justice, and Strong Institutions

### 3. Relevant Links

- <https://www.unicefinnovationfund.org>
- <https://www.unicef.org/innovation/venturefund>
- Contact information: Sunita Grote ([sgrote@unicef.org](mailto:sgrote@unicef.org))

## United Nations Interregional Crime and Justice Research Institute



### 1. Description of Activities on AI

#### Project 1: Operation of the Centre for Artificial Intelligence and Robotics

- **Project Description:** The Centre for Artificial Intelligence and Robotics is a specialized centre of the United Nations Interregional Crime and Justice Research Institute (UNICRI). It was established in 2017 and is located in The Hague, the Netherlands. The focus of the Centre is to advance understanding of the challenges and opportunities brought by artificial intelligence (AI) and other new and emerging technologies from the perspective of justice, crime and other security threats. It seeks to support Member States both through practically-oriented policy guidance, research and reporting, as well as capacity building activities to leverage the potential of these technologies in a responsible manner.
- **Department/Division:** Centre for Artificial Intelligence and Robotics
- **Project Type/Output:** Through its specialized Centre for AI and Robotics in The Hague, UNICRI advances understanding on the risks and benefits of AI, robotics and related technologies vis-à-vis crime, terrorism and other threats to security and seeks to support Member States to leverage the potential of these technologies in a responsible manner.
- **Project Status:** Ongoing
- **Project Start Year:** 2017
- **Project End Year:** -
- **Project Domain:** Crime Prevention, Justice
- **Reported as part of 2022 Compendium on UN AI Activities?** No
- **Project Updates:**
  - Relying on its convening power as a UN entity, UNICRI organized several events, including information-sharing meetings, technical workshops, training courses, multi-stakeholder policy discussions, and high-level awareness-raising and visibility events.
  - UNICRI has laid the groundwork to continue advancing the Centre's mission, exploring new opportunities and emerging research areas related to the challenges and opportunities brought by AI and other new and emerging technologies from the perspective of justice, crime and other security threats.
- **Related Sustainable Development Goals (SDGs):** SDG 16 –Peace, Justice, and Strong Institutions
- **Relevant Links and Multimedia:** <https://unicri.it/topics/Toolkit-Responsible-AI-for-Law-Enforcement-INTERPOL-UNICRI>
- [https://unicri.it/index.php/topics/ai\\_roboticsttps://unicri.it/News-AI-for-Safer-Children-Regional-Training-Singapore](https://unicri.it/index.php/topics/ai_roboticsttps://unicri.it/News-AI-for-Safer-Children-Regional-Training-Singapore)

- Partnership(s)/Collaborator(s): Multiple stakeholders in the fields of artificial intelligence and criminal justice, including Member States, UN Partners such as ITU, UNESCO, UNPOL, UNODC, UNICEF and OICT; and other International Organizations such as INTERPOL and the European Union.

- Lesson Learned:

Challenges:

1. Lack of a global governance framework on AI and a diverse and rapidly changing regulatory landscape regarding AI and law enforcement's use of AI.
2. Constant developments within the field of AI and digital transformation in law enforcement and beyond.
3. Distinct levels of engagement from different stakeholders, with varied levels of interest and availability to invest time and resources in the topic, resulting in difficulty with ensuring a balanced representation across stakeholder groups, demographics and regions across the globe.
4. Stakeholders in the field have various backgrounds and often different priorities, objectives and motivations, making it challenging to balance their diverse perspectives and foster collaborations.

Lessons learned:

1. Engagement and strong collaboration with diverse stakeholders (law enforcement, criminal justice practitioners, technology providers, human rights experts, etc.) are essential for successfully pursuing the Centre's mission.
2. The project implementation requires flexibility, constant updating of knowledge and review of practices to keep pace with the ongoing and rapid changes in the realm of emerging technologies.
3. Translating technical concepts into language accessible to non-technical stakeholders such as policy makers and the general public is crucial for effective communication and knowledge-building.

Future work:

1. Furthering the Centre's mission, further advancing the understanding of the challenges and opportunities brought by AI and related technologies from the perspective of justice, crime and other security threats.
  2. Building an understanding of citizens' perceptions of law enforcement's use of AI and how it relates to trust in law enforcement.
  3. Conducting research on current practices and proposing strategies for enhancing transparency around law enforcement's use of AI.
  4. Developing recommendations for communication strategies to foster public trust in law enforcement's responsible use of AI.
  5. Exploring new areas related to the core mission of the Centre, focusing on the development of educational resources on AI to empower children, parents, and caregivers, as well as on building knowledge on AI and law enforcement of the broader criminal justice community, targeting practitioners such as prosecutors.
- Contact Information: Irakli Beridze ([irakli.beridze@un.org](mailto:irakli.beridze@un.org)); Odhran McCarthy ([odhran.mccarthy@un.org](mailto:odhran.mccarthy@un.org))

## Project 2: Responsible Artificial Intelligence Innovation in Law Enforcement

- Project Description: Fostering responsible AI innovation within the law enforcement community is one of the priority areas of the UNICRI's Centre for Artificial Intelligence and Robotics. In this context, UNICRI has established a partnership with INTERPOL to create a unique global forum to discuss the advancements and impact of using AI for law



enforcement. The purpose of this project is to demystify the world of AI, not only for law enforcement officers but also for policymakers, practitioners, industry partners, academic researchers, civil society and the general public.

Within this project, UNICRI and INTERPOL organize annual global meetings on AI for law enforcement, conducting in-depth interviews with several law enforcement experts and other partners and hosting virtual meetings with a multi-disciplinary group of experts to identify AI use cases for law enforcement and discuss issues related to the dichotomy between the potential opportunities and challenges presented by AI, coupled with the lack of guidance tailored to the relative novel use of AI in law enforcement.

During this process, UNICRI and INTERPOL have identified the need for developing operationally oriented support and guidance for law enforcement in the design, development and deployment of AI in a trustworthy, lawful and responsible manner and, in this regard, have undertaken the development of a “Toolkit for Responsible Artificial Intelligence Innovation in Law Enforcement”. The Toolkit, the development of which is funded by the European Commission DG HOME, is intended to provide guidance and support for law enforcement agencies on the development, procurement and deployment of AI in their work in a human rights compliant and ethical manner.

Through the Toolkit, law enforcement agencies globally will have access to the knowledge and resources needed to enable them to tap into the positive potential of AI. At the same time, many different stakeholders play an important role in promoting responsible AI in law enforcement. As a result, the resources developed as part of the Toolkit will also cater for and be approachable by other stakeholders, including industry, academia, civil society and the general public.

- Department/Division: Centre for Artificial Intelligence and Robotics
- Project Type/Output: Multi-stakeholder platform bringing together law enforcement, industry and academia from all over the world to explore the positive potential of AI in law enforcement in a trustworthy, lawful and responsible manner, as well as an actionable Toolkit consisting of resources that include principles, guidance documents and actionable recommendations to support law enforcement to make more informed decisions and prevent possible risks related to the implementation of AI in their work.
- Project Status: Ongoing
- Project Start Year: 2018
- Project End Year: 2024
- Project Domain: Justice
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates:
  - The Core Group of Experts, which was established in November 2020, got together for an additional Virtual Discussion Room organized. This Virtual Discussion Room focused on the presentation of the near final version of the AI Toolkit ahead of its release to the public at the INTERPOL-convened Police Science Congress in June 2023. The central objective was to gather final feedback and specialist perspectives from the Core Group, particularly regarding the style, thoroughness, and content of the resources which constitute the AI Toolkit.
  - A validation session with law enforcement representatives worldwide also took place. The goal of this session was to collect feedback from the law enforcement community about the draft AI Toolkit ahead of its finalization. This validation was considered the final checkpoint before public release at the INTERPOL-convened Police Science Congress in June 2023.
  - In June 2023, UNICRI and INTERPOL organized a special event on responsible AI innovation as part of the Police Science Congress in Singapore on 8 June, gathering representatives from the global law enforcement community. This event served to

formally and publicly launch the AI Toolkit, which was announced by Secretary-General of INTERPOL, Dr Jürgen Stock as part of his keynote address

- The testing phase of the project took place from March until November 2023, with a view to having the AI Toolkit tested in a practical setting by volunteering law enforcement agencies. This exercise was a crucial step in the development process of the AI Toolkit. A total of 15 law enforcement agencies participated in the testing and provided valuable insights that helped improve its functionality, utility and completeness. The results were used to refine the AI Toolkit for the release of a revised version in 2024.
- The survey on public opinions on the use of AI by law enforcement, launched in November 2022, ran until June 2023. The survey was shared with UNICRI's network and publicized on different online platforms including the UNICRI website, and its accounts on Facebook, LinkedIn, Twitter and YouTube. 759 people responded to the survey, and their contributions are currently being analysed.
- Three specialized training sessions on responsible AI innovation in law enforcement were conducted, building on the AI Toolkit's content:
  - On 8 September 2023, UNICRI together with INTERPOL and CARICOM IMPACS, hosted a webinar to present the AI Toolkit and introduce the concept of responsible AI innovation in law enforcement. The webinar was attended by mid to senior-level management professionals within the law enforcement community in the region of the Caribbean Community.
  - On 4 and 5 October 2023, UNICRI and Naif Arab University for Security Studies (NAUSS) co-hosted the 1st Artificial Intelligence Forum for Law Enforcement for Arab Countries. On the margins of the Forum, UNICRI and INTERPOL convened a specialized workshop for participants focused on responsible AI Innovation. The workshop aimed to introduce participants to the AI Toolkit, explain what responsible AI is and why it is important and, finally, to help participants to understand how the contents of the AI Toolkit can be applied through an interactive scenario-based exercise.
  - On 13 November 2023, UNICRI and INTERPOL together with CEPOL hosted a webinar with the objective of enhancing awareness regarding responsible and human-compliant engagement with AI in law enforcement agencies across the European Union (EU). The webinar convened 247 experts from EU law enforcement officials, including police officers, border guards, customs, and others. The webinar's main goal was to provide insights into the principles, organizational elements, and procedures essential for guiding agencies in the ethical and human rights-compliant development, procurement, and use of AI systems.
- Related Sustainable Development Goals (SDGs): SDG 16 -Peace, Justice, and Strong Institutions
- Relevant Links and Multimedia: <https://unicri.it/topics/Toolkit-Responsible-AI-for-Law-Enforcement-INTERPOL-UNICRI>
- Partnership(s)/Collaborator(s):
  - UN Partners: UNPOL, OICT
  - Other International Organizations: INTERPOL, European Commission (European Union)
- Lesson Learned:  
Challenges:
  1. Ensuring human rights compliant AI and building public trust in AI for law enforcement.
  2. Lack of a global governance framework and the prevalence of policies and regulatory frameworks centred in the global north.

3. Differences in rules and regulations on AI and the law enforcement use of AI.
4. Evolving development of AI and digital transformation in law enforcement.
5. Heterogenous level of technical capabilities and the level of engagement with AI by law enforcement agencies around the world.

Lessons learned:

- It is essential to work with law enforcement directly to identify their needs and help them fill their gaps in a practical and operationally oriented manner.
- The Toolkit should be a living document rather than a complete and definitive statement on the topic, to keep pace with ongoing developments in the area.
- The Toolkit should build upon the already established legal and ethical discussions and guidelines surrounding the use of AI, rather than redefining them.
- The Toolkit must promote trust in the law enforcement use of AI, by fostering a sense of openness and transparency and engaging all relevant stakeholders from the outset.

Future work:

- A revised version of the AI Toolkit will be released in early 2024, including an interactive website.
  - Further pilot training sessions will be organized on the basis of the AI Toolkit.
  - The 4th Global Meeting on AI for Law Enforcement will take place in early 2024, disseminating the improved AI Toolkit for the law enforcement community.
  - Additional areas of research, awareness-raising and capacity building will be explored to ensure the continuous advancement of the concept of responsible AI innovation in law enforcement across the globe.
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### **Project 3: Building Capacities of Law Enforcement Worldwide to Leverage the Positive Potential of Artificial Intelligence to Combat Child Sexual Abuse and Exploitation**

- **Project Description:** In 2020, UNICRI, through its Centre for AI and Robotics, together with the Ministry of Interior of the United Arab Emirates launched the AI for Safer Children initiative. This project aims to explore the positive potential of AI to support law enforcement agencies to prevent, detect and prosecute child sexual exploitation and abuse.

The issue of child sexual exploitation and abuse has been growing exponentially over the last decades and has experienced a further increase throughout the COVID-19 pandemic. Developing technologies that allow for increasingly vast amounts of files to be stored and shared, as well as AI image generation which allows more child sexual abuse material to be created, both exacerbate the issue further. Law enforcement agencies face significant challenges in combating this crime, including a high turnover of investigators - largely due to the psychological burden of reviewing the abuse material, the difficulties in identifying both perpetrators and victims in huge amounts of data, subsequent high backlogs, the challenges posed by the global nature of the Internet and new technologies such as encryption.

While many existing AI tools can and are already contributing to solving these challenges, law enforcement agencies are not yet widely using them. Many are not aware of the potential of the AI tools, or are sceptical about the technology's benefits. Additionally, selecting and implementing AI tools is a complex process for which law enforcement agencies may lack the necessary knowledge and resources.

The project aims to tackle this issue through the continued development of its AI for Safer Children Global Hub - a unique, online platform where law enforcement officers can access a repository of information on 80 AI tools that are available to combat child

sexual exploitation and abuse. The Global Hub also allows law enforcement officers to communicate with each other and learn how to implement and use AI tools responsibly within their workflow.

To further distribute the Global Hub's information and resources, the AI for Safer Children initiative is also offering free online and in-person training to advance the capacities of law enforcement agencies across the globe to combat child sexual exploitation and abuse. These training sessions are tailored to the specific needs and contexts of participating law enforcement agencies and cover a broad range of AI tools and techniques across an investigative workflow.

- Department/Division: Centre for Artificial Intelligence and Robotics
- Project Type/Output: Online platform, trainings
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2024
- Project Domain: Justice
- Data Source: AI tools that can be leveraged by law enforcement agencies in preventing, detecting, and prosecuting child sexual exploitation and abuse.
- Data publicly available: No
- Technology/Platform: Microsoft SharePoint
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates:

Since the launch of the AI for Safer Children Initiative in 2020, UNICRI has:

- Developed and rolled out the Global Hub platform dedicated to supporting law enforcement in leveraging AI to combat child sexual exploitation and abuse, including a database of over 80 existing AI-based tools and guidance on how to implement them responsibly, as well as a communication section. As of the end of 2023, the Global Hub has over 570 registered law enforcement users from 107 countries.
- Continually updated and managed the AI for Safer Children Global Hub on SharePoint by collecting, adding and adjusting information to display on the Global Hub (including creating content such as learning videos for the law enforcement audience, collecting information about AI tools from technology providers, and adding relevant news and events as they arise), translating the Global Hub into all official UN languages and onboarding law enforcement agents worldwide to the Global Hub.
- Designed and launched specialized AI for Safer Children trainings which adapt the information on the Global Hub to local or regional contexts. In total, nine trainings have already been conducted for 24 countries - including 11 Caribbean states - and 1,446 law enforcement participants, including 1,000 from Zimbabwe Republic Police alone. These trainings take place both in person and online, and aim at teaching investigators how they can responsibly implement a broad range of AI tools to facilitate their child sexual abuse investigation workflows at each step of the process.
- Established an Advisory Board composed of representatives of law enforcement agencies, technology providers, academia, international organizations and civil society organizations, to support the initiative and ensure its relevance to the needs and requirements of combating child sexual exploitation and abuse.
  - Held many meetings, including annual Advisory Board meetings in December 2023, February 2023, March 2022 and 2021; annual Technology Provider meetings in November 2023, September and February 2022; two Stakeholder Meetings for law enforcement agencies in June 2022 and 2021; and an Ethics Expert Meeting on December 2021.
- Carried out extensive research and analysis on the ethical considerations associated with the AI for Safer Children initiative, including those associated with the ethical development and deployment of AI in law enforcement efforts to combat child sexual exploitation and abuse. This resulted in the development of the core principles of

the initiative, the Terms of Engagement for Law Enforcement Users, the Terms of Engagement for Technology Providers, and the Data Protection Policy. A Responsible AI Questionnaire was also developed to collect information from the technology providers on ethical and legal aspects related to the development of their tools.

- Presented and attended a variety of events and conferences including but not limited to the United Nations General Assembly, INTERPOL Conference, the AI for Good Summit and the United Nations Chiefs of Police Summit to promote the initiative and further build the AI for Safer Children community.
- Related Sustainable Development Goals (SDGs): SDG 16 - Peace, Justice, And Strong Institutions
- Partnership(s)/Collaborator(s):
  - UN Partners: UNICEF, OICT, UNPOL, UNODC
  - Government: Ministry of Interior of the UAE
  - Private Sector: Griffeye, SafeToNet, Kaseware, Semantics21, Web-IQ, Cyacomb Examinor, Qumodo, ZiuZ Visual Intelligence, Paliscope, CameraForensics Ltd, FriendMTS, Trilateral Research, SUMURI, 1st1 Technologies, Netspark, GetData Forensics, Nuix, Dark River Systems, Magnetic Forensics, Breakpoint Forensics, Wiretap, Securium, Epieos, SAS Software, Amped Software, iCOP, Global Emancipation Network, Palantir, OSForensics and PassMark Software, Privately SA, BlueBear.
  - Civil Society: Red Papaz, ECPAT, International Justice Mission, National Center for Missing & Exploited Children, Thorn, Childhood Foundation, Bracket Foundation, RATI Foundation, Prerana, Canadian Center for Child Protection, wePROTECT Alliance, Gucci Foundation, Project Vic, Child Rescue Coalition.
  - Academia: University of Massachusetts Amherst.
  - Other International Organizations: INTERPOL, European Commission (European Union), Europol, Virtual Global Taskforce, Fund to End Violence Against Children.
- Relevant Links and Multimedia:
  - <https://unicri.it/topics/AI-for-Safer-Children>
  - <https://unicri.it/index.php/topic/AI-for-Safer-Children-Global-Hub>
  - <https://unicri.it/News-AI-for-Safer-Children-Regional-Training-Singapore>
  - <https://www.forbes.com/sites/markminevich/2023/12/26/revolutionizing-child-protection-the-un-and-uaes-groundbreaking-ai-for-safer-children-collaboration/?sh=5f912b871cdf>
  - Twitter: @AISaferChildren
  - <https://youtu.be/aYJJ2m2Y29g>
  - <https://www.youtube.com/watch?v=sJShhYiTjoM&t=20s>
- Lessons Learned:
  - Challenges:
    - Heterogenous level of technical capabilities, accessibility, and engagement with AI by law enforcement agencies around the world.
    - Reaching a truly global and diverse range of law enforcement agencies, both for members of the Global Hub and to host trainings.
    - Differences in rules and regulations in different countries and regions not only on AI and the law enforcement use of AI, but also on online child sexual exploitation and abuse.
    - Lack of a global governance framework and the prevalence of policies and regulatory frameworks centred in the global north.

- Ensuring ethical and human rights compliant AI and building public trust in the use of AI by law enforcement.
- o Lessons learned:
  - The project should target law enforcement agencies in all Member States, especially low- and middle-income countries and law enforcement agencies in the global south.
  - The project should seek to build a community around the responsible use of AI by law enforcement, with a strong emphasis on a human rights-centred approach.
  - The project should take a bottom-up approach, working with law enforcement agencies directly to identify their needs and help them fill their gaps.
  - The project should include appropriate measures and processes to ensure that it is developed and implemented in accordance with ethical principles to warrant that any possible issues are addressed early on.
  - The project should seek to pursue specialized training for law enforcement to increase capacity building and engagement of AI to combat child sexual abuse and exploitation around the world.
  - The project should seek to increase accessibility of AI tools around the world.
- o Future work:
  - Maintain, optimize, and grow the Global Hub, including desk-based research and analysis on the continually developing field of AI tools and techniques for the purposes of inclusion in the Global Hub and coordination with technology developers; creation and curation of content for the Learning Centre; networking with law enforcement agencies for onboarding purposes; promotion and visibility activities of the Global Hub in general.
  - Continue to provide and adapt trainings to build capacities and implement knowledge imparted through the Global Hub by promoting such training programmes and delivering the training courses to law enforcement agencies from all over the world.
  - Build on this connection with law enforcement users worldwide through trainings to gather more information about their priorities and limitations, as well as feedback about AI for Safer Children services and impact, through regular meetings, interviews, and surveys both before and after trainings. This feedback will guide research and development of the Global Hub and training materials in future.
  - Leverage the Global Hub to foster further innovation, including organizing hackathon challenges and sharing selected tools with the AI for Safer Children community.
  - Development of tailored resources for other non-law enforcement stakeholders and conducting research and analysis on the evolving phenomenon of child exploitation and abuse as well as on responsible AI.
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#### **Project 4: Building Knowledge on Counter-Terrorism in the Age of Artificial Intelligence / Human Rights Aspects Of The Use Of Artificial Intelligence In Counter-Terrorism**

- Project Description: In 2020, UNICRI, through its Centre for Artificial Intelligence and Robotics commenced a research initiative aimed at exploring the dual nature potential of artificial intelligence (AI) from the perspective of counter-terrorism. Together with the United Nations Counter-Terrorism Centre (UNCCT) of the United Nations Office of Counter-Terrorism (UNOCT), UNICRI explored the dual nature potential

of AI, analyzing the concerning aspects of the advent of AI, such as the possibility of its use with malicious intent by terrorist groups and individuals, as well as how AI might be leveraged to support counter-terrorism efforts, in particular in terms of combatting terrorist use of the Internet and social media. This resulted in the release of two reports “Algorithms and Terrorism: The Malicious Use of Artificial Intelligence for Terrorist Purposes” and “Countering terrorism online with artificial intelligence – An Overview for Law Enforcement and Counter-Terrorism Agencies in South and South-East Asia”.

In partnership with UNOCT/UNCCT and the Office of the High Commissioner for Human Rights (OHCHR), UNICRI further examined how artificial intelligence technology can be used to counter terrorism in a manner that complies with human rights. The ongoing research will result in the release of report on the human rights aspects of the use of AI in counter-terrorism .

UNICRI, UNOCT/UNCCT and OHCHR organized a high-level briefing entitled “Counter-Terrorism in the Age of Artificial Intelligence: Risks, Opportunities and Safeguarding Human Rights” on 29 June 2021 as part of the Second Counter-Terrorism Week at the United Nations. During this briefing the findings of their collective research were presented.

- Project updates:
  - UNICRI and UNOCT organized an expert group meeting to explore the specific application of AI-enabled social network analysis in counter-terrorism in March 2022 to develop knowledge and understanding of this application and develop a concept for further activities in this domain.
  - Department/Division: Centre for Artificial Intelligence and Robotics
- Project Type/Output: Report
- Project Status: Finished
- Project Start Year: 2020
- Project End Year: 2023
- Project Domain: Justice
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 16 -Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s) :
  - UN Partners: UNOCT/UNCCT and OHCHR
  - Government: Kingdom of Saudi Arabia, Government of Japan
- Relevant Links and Multimedia:
  - <https://www.un.org/counterterrorism/sites/www.un.org.counterterrorism/files/malicious-use-of-ai-uncct-unicri-report-hd.pdf>
  - <https://www.un.org/counterterrorism/sites/www.un.org.counterterrorism/files/countering-terrorism-online-with-ai-uncct-unicri-report-web.pdf>
- Lesson Learned:
  - Challenges:
    - Ensuring human rights compliant AI and building public trust in the use of AI by law enforcement and counter-terrorism agencies, especially given the complex interaction between human rights and counter-terrorism.
    - Absence of consensus on the definitions of both terrorism and AI.
    - Lack of a global governance framework and the prevalence of policies and regulatory frameworks centred in the global north.

- Insufficient public information related to the level of technological readiness and the current use of AI tools in the regions of South Asia and South-East Asia.
- Lack of understanding of how malicious actors could use AI.
- o Lessons learned:
  1. While the use of AI for terrorist purposes is currently not a developed threat, it is important to not underestimate it.
  2. The capacity of all stakeholders to identify and respond to the threat of the malicious use and abuse of AI for terrorist purposes should be improved.
  3. Efforts need to be made to raise awareness of governments and industry partners about the role of AI in counter-terrorism.
  4. It is essential to ensure that law enforcement and counter-terrorism agencies appreciate the potential human rights impacts of AI, as well as the limitations and fallibility of AI.
- o Future work:
  - Supporting the design of human rights compliant models for the use of AI for counter-terrorism together with UNOCT/UNCCT and OHCHR.
  - Building good practices for the use of AI for social network analysis for counter-terrorism together with UNOCT/UNCCT.
  - Further research and monitoring of the willingness and future ability of terrorists to use or abuse AI.
  - Further collaboration with UNOCT/UNCCT in the topic of responsible AI innovation for counter-terrorism.
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### Project 5: Responsible Limits on Facial Recognition Technology

- **Project Description:** The development of facial recognition technology (FRT) presents considerable opportunities for socially beneficial uses, mostly through enhanced authentication and identification processes, but it also creates unique challenges. To fully grasp these challenges and the trade-offs they may entail and to build appropriate governance processes, it is necessary to approach FRT deployment through specific use cases.

To this end, the World Economic Forum, in partnership with UNICRI, INTERPOL and the Netherlands Police, has spearheaded a global and multistakeholder policy initiative to design a robust governance framework for the responsible use of FRT for law enforcement investigations

This workstream was started in November 2020 focused on the law enforcement use case - identifying a person by comparing a probe image to one or multiple reference databases to advance a police investigation. The ambition of this work is to support law- and policy-makers across the globe to design an actionable governance framework that addresses key policy considerations in terms of the prevention of untargeted surveillance, the necessity of a specific purpose, the performance assessment of authorized solutions, the procurement processes for law enforcement agencies, the training of professional forensic examiners, and the maintenance of the chain of command for emergency situations. This framework is structured around two critical components: a set of principles that defines what constitutes the responsible use of FRT for law enforcement investigations, and a self-assessment questionnaire that details the requirements that law enforcement agencies must respect to ensure compliance with the proposed principles. To validate this governance framework a pilot was run with police agencies in France, Sweden, New Zealand, Netherlands and Brazil. All participating agencies provided very



positive feedback which served to improve the overall quality of the framework and to ensure that what is presented is actionable, relevant and useable in an operational law enforcement context. Besides these six, other law enforcement agencies have already demonstrated interest in integrating this policy framework into their current and future practices, including law enforcement agencies in Canada and Ireland.

- Project updates:
  - Law enforcement agencies in France, Brazil, New Zealand, Sweden and the Netherlands participated in the pilot, which consisted of testing the 8 established principles together with the self-assessment questionnaires and discussing the results and suggestions for improvement during three pilot workshops.
  - After the pilot, the final version of the Policy Framework was released in November 2022.
  - Press releases were published by World Economic Forum, UNICRI, INTERPOL and the Netherlands Police in several media channels.
  - Promotion of the project results in relevant FRT forums such as the IDEMIA Users Conference.
  - Preliminary discussions with other law enforcement agencies that are interested in implementing the Policy Framework at the national level.
- Department/Division: Centre for Artificial Intelligence and Robotics
- Project Type/Output: Report
- Project Status: Finalized
- Project Start Year: 2020
- Project End Year: 2023
- Project Domain: Justice
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 16 -Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s): World Economic Forum; INTERPOL; the Netherlands police; Brazilian Federal Police; New Zealand Police Agency; Swedish Police Authority; Gendermerie Nationale, France; the Central Directorate of Judicial Police, France.
- Relevant Links and Multimedia:
  - <https://unicri.it/A-Policy-Framework%20for-Responsible-Limits-on-Facial-Recognition>
  - <https://www.weforum.org/publications/a-policy-framework-for-responsible-limits-on-facial-recognition-use-case-law-enforcement-investigations-revised-2022/>
- Lesson Learned:
  - Challenges:
    1. The use of FRT by law enforcement is one of the most controversial uses of AI with negative records of abusive practices, discriminatory decisions, wrongful arrests, moratoriums and bans by several public and private entities.
    2. There are several initiatives to regulate AI worldwide but most of them are general frameworks that do not give technical and procedural specific recommendations on how to implement FRT in a responsible way.
    3. Because of the misuse of the technology, there is a lack of public trust on the use of FRT by law enforcement.
    4. Law enforcement agencies are not used to publicly share their use of technology which further contributes to general distrust.
  - Lessons learned:

- It is essential to work with law enforcement directly to identify their needs and help them fill their gaps in a practical and operationally oriented manner.
  - Among the pilot members, there were very different procedures on the use of FRT which shows a lack of guidance and standardization on the use of FRT by law enforcement.
  - None of the pilot agencies implements real-time FRT which is the most controversial use of FRT that has been banned by several countries.
  - Pilot members were cognizant that transparency is the field where they could develop the most to increase their trust by the public and improve their relation with the communities.
- o Future work:
    - Global study on uses of FRT: mapping of the different uses of this technology by law enforcement worldwide.

## 2. Related Sustainable Development Goals

SDG 16

## 3. Relevant Links

<http://www.unicri.it/>

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## United Nations Institute for Disarmament Research



### 1. Description of Activities on AI

#### Project: Security and Technology – AI and Autonomy Workstream

- **Project Description:** The UNIDIR Security and Technology Programme’s (SecTec) AI and Autonomy workstream conducts original research and convenes international events to promote a fact-based, technologically sound dialogue between policymakers, the tech community, the private sector and other stakeholders working on AI technology and its implications for peace and security. This project directly supports the Convention on Certain Conventional Weapons Group of Government Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems (GGE on LAWS) in its efforts to advance multilateral debate on concepts such as human control and responsibility, the human-machine interface, and the predictability and reliability of AI-enabled conventional weapon systems (among other considerations). This project also seeks to address considerations related to broader applications of AI in military systems—particularly in decision-making support tools, cyber operations, and command and control— which themselves raise novel concerns about understandability, reliability and predictability; the potential for unintended interactions or outcomes; and susceptibility of these systems to manipulation. The rate of technological progress in this space requires, as the Secretary-General has described it, a “broader consideration of the impacts of introducing autonomy and artificial intelligence into other military systems, and how effective governance and risk mitigation can be achieved”. The implications of AI for digital, physical and even political security require a fundamental reassessment and, in some instances, re-equipping of the multilateral arms control toolbox.

UNIDIR’s AI and autonomy workstream seeks to a) support understanding of the implications of military uses of AI in and beyond weapon systems and b) explore the options available for AI governance and arms control. In addition to continuing its work on autonomy in weapon and military systems, in 2022, UNIDIR adopted a new research agenda on AI and Autonomy that focuses on building an understanding of different types of AI, their different purposes and military uses, the broader international security implications of advancements in AI, convergence between AI and other new and emerging technologies and issues of AI governance.

- **Project Type/Output:** Framework/Strategy/Policy, Research (Fully fledged Development)
- **Project Status:** Ongoing
- **Project Domain:** Peace and Security, Lethal Autonomous Weapons Systems, Military applications of AI
- **Data Source:** Research, Events
- **Reported as part of 2022 Compendium on UN AI Activities?** Yes
- **Project Updates:** In previous submissions, UNIDIR outlined that its future work will encompass research studies and events at the regional and international level on the science, significance, and solutions related to artificial intelligence and the weaponization of increasingly autonomous technologies. This research agenda and program of

convenings form a fundamental part of UNIDIR's efforts in support of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapon Systems, as well as other stakeholder communities. As part of this research agenda, UNIDIR completed the following activity in 2023: the Programme updated a [resource paper](#) (first published in 2022), which provides a comprehensive and comparative analysis of the Proposals submitted to the GGE on LAWS. Furthermore, SecTec published two research reports, which were launched during the General Assembly, both exploring different aspects related to AI in the military domain and in the context of international security. One study offers an analysis of [uses of AI beyond weapon systems](#) and another provides a [taxonomy of risks of AI](#) (the latter is part of the UNIDIR project on confidence-building measures for AI). The Programme's ongoing research projects focus on the following key themes: governance of AI and confidence-building measures, the role of AI in disinformation, the AI-cybersecurity nexus. . In addition, the Programme continues to develop [AI Policy Portal \(AIPP\)](#) which aims at gathering available information at the national, regional and international level on policies, processes and structures that are relevant to development and use of AI for military or security purposes.

- Related Sustainable Development Goals (SDGs): SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s): Technology and academic research community, arms control practitioners and other experts in the area of technology governance and regulation.
- Links and Multimedia
  - <https://unidir.org/programmes/security-and-technology>
- Lesson Learned:
  - Challenges: Complexity and constant evolution of the research Project Domain, uncertainties regarding possible future applications of military AI, low technological literacy of many policy makers and a reluctance to adopt multistakeholder approaches (particularly in cooperation with the private sector and technical community) to international security challenges, exploring the governance of applications of AI that do not fit within the mandate of existing multilateral arms control processes.
  - Opportunities: demand is high for UNIDIR primers, briefings and multistakeholder convenings such as the Innovations Dialogue (in 2023, the theme of the Innovations Dialogue was [The Impact of AI on Future Battlefields](#) Through these outputs we seek to create spaces to build knowledge, raise awareness among policy makers and convene multi-stakeholder discussions on new technology issues, as mandated by the Secretary-General in his Agenda for Disarmament.
  - Lessons learned: - Need and demand for focused research on specific topics, clarification of the scope and exact meaning of broadly used terms or concepts, as well as description of process pertaining to the use of AI in the framework of military operations or the weaponization of AI. - The multi-stakeholder approach continues to be valuable for finding common ground and building constructive approaches among stakeholders holding divergent or competing points of view. - Neutral expert analysis is very much welcomed by stakeholders and policy makers.
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## 2. Related Sustainable Development Goals

SDG 16

## 3. Relevant Links

<https://unidir.org/>

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## United Nations Industrial Development Organization



### 1. Description of Activities on AI

#### Project 1: Fostering Slovenian - Cuban innovation cluster for biopharma, medical and nanotechnologies sectors 2020 - 2023

- Project Description: The project intends to develop a Slovenian - Cuban innovation cluster model for biopharma, medical and nanotechnologies sectors along the period 2020 - 2021. The project can be considered a pilot model for interregional cooperation, facilitating knowledge sharing and technology transfer from and to participant countries, and could be replicated or extended to other countries in Latin American and Caribbean region, and in Southeastern Europe/The Balkans region as well. More specifically the project seeks:
  - to support competent authorities in the upgrading of legal / regulatory framework for development of the bio-pharma cluster;
  - improving the conditions for larger business interventions (technology transfer, joint design and production);
  - increase the competitiveness in the field of bio-pharma industry of participating countries;
  - promote the development of innovative products, technologies and processes contributing to improve the human health and quality of life.

UNIDO launched the e-training course "Application of Advanced Technologies and New Business Models in the Biopharma and Medical Sectors" in May 2023. This training course is intended to provide a solid foundation on the biopharma and medical industries within the context of the Fourth Industrial Revolution (4IR). The online training comprises four modules and intends to highlight the 4IR implications for developing countries, particularly least developed countries, outline related challenges, and elaborate on how to capitalize on the potential that 4IR technologies present in these industries, particularly Artificial Intelligence (AI).

- Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/Division of SME Competitiveness, Quality and Job Creation/SME Development and Job Creation Unit
- Project Type/Output: E-training
- Project Status: completed
- Project Start Year: 2020
- End Year: 2023
- Project Domain: biopharma, medical and nanotechnologies sectors
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 3 - Good health and well-being, SDG 9 - Industry; Innovation and Infrastructure

- Lesson Learned: UNIDO provided capacity-building support for innovative technologies and business models, emphasizing the potential of digital technologies like AI and the opportunity to materialize them through joint ventures, partnerships, and technology transfer. The combination of investment promotion tools and innovative solutions, including digitalization, facilitated the identification of a significant number of common projects with the aim to enhance industrial competitiveness and innovation.
- Media and Links:
  - <https://hub.unido.org/training-modules-aatbm>
- Contact Information: Alejandro Rivera Rojas ([A.RIVERA-ROJAS@unido.org](mailto:A.RIVERA-ROJAS@unido.org))

## Project 2: Promoting sustainable bush-processing value chains in Namibia

- Project Description: In Namibia, where agriculture is a primary livelihood but suffers from low productivity, this project aims to bolster food and income sources by converting invasive bush species into valuable products like animal feed and charcoal. This initiative, responding to Namibia's challenges such as water scarcity, waste, and bush encroachment, leverages digital tools for sustainable land management and biomass processing. The NGGP plant, part of a strategic action plan, is set to produce high-value items from Acacia species, enhancing agro-industrial productivity. This will improve local and regional availability of livestock feed, energy, and other products, promoting better meat and dairy quality, reducing imports, and boosting exports. Achievements include:
  - Technological solutions for Acacia Bush product development.
  - Effective decision-making tools, including maps and innovative software.
  - GIS data mapping and analysis for Acacia tree management.
  - Automated Acacia detection using AI with satellite and drone images.
 Outputs include:
  - Advanced mapping, dashboards, and Web GIS tools.
  - Updated geospatial data management.
  - Automated analysis and mapping processes.
  - AI-powered Acacia species detection and mapping process and technology.
- Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/ Division of Digital Transformation and AI Strategies
- Project Type/Output: AI processing of satellite and drone imagery, reports, Dataset, Software tools, Conferences
- Project Status: Ongoing
- Project Start Year: 2017
- Project End Year: 2024
- Project Domain: Agriculture, Environment, Energy
- Data Source: Geographic Information System (GIS) data–reference maps, satellite imagery, geospatial technology data, visual example data of Acacia bush trees
- Link to storymap: <https://storymaps.arcgis.com/stories/d316418096244bb0b00ece24082d7632>
- The libraries used are open source, the code developed is proprietary.
- Data publicly available: Yes
- Technology/Platform: The project is developed using the R programming language using RStudio.
- Reported as part of 2022 Compendium on UN AI Activities? Yes

- Project Updates:
  - Outputs in 2023:
    - The Ministry of Industry and Trade of Namibia (MIT), as in kind contribution for the bush-processing plant in Otjiwarongo, has agreed to supporting the UNIDO Project with key utilities for the plant, such as electricity and water supply connections.
    - The project has contributed to the key content to be presented, and featured as best practice in applying digital and AI solutions for real sector and socio-economic development at the UNIDO's launching of the Global Alliance on Artificial Intelligence for Industry and Manufacturing (AIM Global) at the World Artificial Intelligence Conference (WAIC) held in Shanghai, China on 6-8 July 2023 as well as at the AI for Good Global Summit 2023 in Geneva, Switzerland on 5-7 July 2023.
    - A team of local harvesters supervised by the harvesting advisor were hired to collect bush harvest for trial sessions during the start-up of the bush-processing plant.
    - The future recipes for the animal feed were verified and approved by the Ministry of Agriculture.
    - Terms of Reference for the future management company of the production plant was developed and the Tender for the plant management company/plant operator was announced by MIT.
    - On 24 November 2023, MIT informed about the Ministry's contribution of NAD 413,000.00 to support the installation of equipment at the plant, which is currently being covered by the local developer (that erected the hub buildings and infrastructure).
  - Impact in 2023:
    - Based on a detailed analysis of the viability to convert bush biomass into livestock feed and charcoal and taking into account environmental and social impacts, UNIDO proposed a set of suitable approaches, technologies and production processes to deliver bush-based final products for agricultural, chemical and pharmaceutical purposes, as well as domestic use. The results of this research published in a Strategic Action Plan proposes a market-oriented sustainable business model enabling to establish a bush biomass-based processing and production that leads to higher value-added products competitive on both local and external markets. This solution is expected to have a multiplier effect of the pilot plant by a factor of 30-50 in Namibia, and by 100 of similar plants to be established in the region.
    - Thanks to the strong public-private partnership established with the support of UNIDO between the Government of Finland and a private equity fund, the partners are jointly establishing a unique pilot production plant that will be the first of its kind to convert invasive bush species into livestock feed and charcoal – a key step towards establishing zero-emission bush biomass processing and production in Namibia.
    - Innovative digital technologies and know-how for responsible harvesting have been transferred: specifically, the Machine Learning Model for acacia species mapping that is based on remote sensing texture image analysis, satellite- and drone-supported imagery recognition for enhanced performance of the agricultural sector and related value chains during the COVID-19 crisis and beyond. Machine Learning algorithm was fine-tuned to provide yield predictions, which will enable the NGGP to produce high quality bio charcoal and animal feed. A special-purpose animal feed recipe developed by the project experts will help farmers optimise livestock feeding. The main expected benefits include the following:
      - 1) Sustainable use of land in harmony with natural processes, improved farming practices and productivity: reduced land degradation and diminishing invasive bushes pave the way towards enhanced agricultural activities, which is the major source of food supply for the local population;
      - 2) Address issues related to water management and shortages, waste generation and pollution;



- 3) Job creation: technological know-how, hands-on skills and ready-to-use business models facilitated by the project will provide better opportunities for sustainable jobs creation among women and men, especially in rural areas.
  - Preparations for the operationalization of the special-purpose processing and production plant are underway following the installation of the procured equipment. National experts, including technicians, manufacturers, farmers, skilled and semi-skilled workers, entrepreneurs and their associations, as well as staff of local agencies and other stakeholders, are undergoing training on the collection and manufacturing of products derived from bush/Acacia.
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 7 - Affordable and Clean Energy ; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production
- Partnership(s)/Collaborator(s) :
  - UN Partners: UNIDO, EURO Trust Funds
  - Government: Ministry of Foreign Affairs of Finland, Ministry of Industrialization, Trade and SME Development of Namibia, Ministry of Agriculture, Water and Forestry of Namibia,
  - Private Sector Funding
  - Civil Society: Trust Fund for Increased Food Security through Agribusiness, Trust Fund for Trade-related Capacity Building, Walvis Bay Corridor Group, Namibian Meat Board, Agricultural Bank of Namibia
  - Academia: University of Namibia
- Relevant Links and Multimedia:
  - UNIDO Open Data Platform: <https://open.unido.org/projects/NA/projects/170017>
  - ProDoc: <https://open.unido.org/api/documents/7524581/download/ProDoc%20Namibia%20170017%20signed.pdf>
  - Brochure: <https://www.unido.org/sites/default/files/files/2019-12/NAMIBIA%20BAOBAB%202020%20PDF%20WEB.pdf>
  - Strategic Action Plan for sustainable bush value chains: [https://www.unido.org/sites/default/files/files/2020-02/Namibia\\_v\\_2.20-spreads%20%281%29.pdf](https://www.unido.org/sites/default/files/files/2020-02/Namibia_v_2.20-spreads%20%281%29.pdf)
  - Twitter posts:
    - <https://twitter.com/UNIDOInnovation/status/1260240671551750145>
    - <https://twitter.com/UNIDOInnovation/status/1261323437630459904>
    - <https://twitter.com/UNIDOInnovation/status/1271459140548923395>
    - <https://twitter.com/UNIDOInnovation/status/1272906796135518208>
    - <https://twitter.com/UNIDOInnovation/status/1280513545235546117>
    - <https://twitter.com/UNIDOInnovation/status/1309523426776879107>
    - <https://twitter.com/UNIDOInnovation/status/1326475288805564417>
    - <https://twitter.com/UNIDOInnovation/status/1423669128464932865>
    - Practical Application: Web, Dashboard, AR-based manual on Mobile Devices <https://unido.maps.arcgis.com/apps/webappviewer/index.html?id=7e3265ab3bbc43b1a5b2a6b2c23dfc3a>



- UNIDO Success Stories on Promoting Green and Smart Manufacturing, video recording: <https://xfiles.unido.org/index.php/s/cwNWW6792Rmo8M7>
- Lesson Learned: The project resulted in a novel machine learning algorithm, a resource that could be used in the future by further AI projects in Namibia and in regions facing similar bush encroachment and land degradation issues. The deployment of the technology has proven to be successful and the reliability of the Acacia-detection algorithms is high; the algorithms themselves could be training for other vegetation species and can be applied in other projects addressing issues related to sustainable biomass processing and detection of eligible species, improving agricultural productivity and strengthening drought resilience. This technological solution can produce a multiplier effect in terms of providing a market-oriented sustainable business model to benefit from biomass for production of competitive higher value added products, identification of market niches at local and external markets, thereby facilitating job creation.

This project was especially valuable as an exploration of the applications of Artificial Intelligence and Machine Learning and the successful collaboration among several international organizations.

As an added benefit and drawing upon the successful use of GIS in this project, UNIDO has committed to promoting the creation of a Global GIS Community to raise awareness on this technology, and to expanding GIS capacity across the organization.

The project methodology holds high potential for subsequent implementation in the SADC Region, East Africa, Latin America, and even in Europe, where similar invasive species pose threats to traditional or emerging agricultural activities. International partners and national counterparts are already expressing strong interest in expanding industrial development of market-oriented and sustainable value chains within the cattle-related sector, including leather, textile, wool, and dairy products.

- Contact Information: Farrukh Alimdjano (F.ALIMDJANOV@unido.org), Kawira Bucyana (K.BUCYANA@UNIDO.ORG)

### **Project 3: Strengthening Implementation Design of Artificial Intelligence (AI) Eco-System in Jordan**

- Project Description: To support building the Artificial Intelligence (AI) Ecosystem in Jordan aiming at creating job opportunities and improving the efficiency and quality of government services as well as enhancing the comprehensive social and economic development of different sectors, accelerating economic development, and creating suitable opportunities for innovation and entrepreneurship thus making Jordan a regional and enabling center for information technology.
- Project Background: Jordan's entrepreneurial ecosystem, pivotal for job creation and economic growth, has seen significant development over the last decade, with notable improvements in global entrepreneurship rankings. The country's efforts in nurturing technology entrepreneurship have positioned Jordanian startups prominently in the Arab World, showcasing a high level of education and experience among founders. Despite these advances, entrepreneurs face challenges such as high taxes, regulatory hurdles, and a need for legal reforms to foster a more business-friendly environment.

In response, the Jordanian government, recognizing the importance of digital entrepreneurship and the digital economy, established the Ministry for Digital Economy and Entrepreneurship (MoDEE). This initiative aims to support digital entrepreneurship, enhance electronic payments, and develop digital skills. Key measures include expanding broadband access, promoting digital payments, and facilitating access to finance and global markets. Furthermore, to bolster Jordan's position in the digital economy and leverage artificial intelligence (AI) for sustainable development, the government, in collaboration with UNIDO industry stakeholders, created its National AI Strategy and Implementation roadmap. This strategy, and its subsequent implementation roadmap, aims to:

- Promote the use of AI in all key economic sectors.
  - Build an enabling environment for AI that encompasses the legislative, regulatory and technological environment.
  - Develop a digital infrastructure to keep pace with AI needs and developments.
  - Build AI-specialized Jordanian capacities, expertise and skills, and employ knowledge in developing all sectors.
  - Strengthen the role of the public sector in the use of AI and its applications and build the necessary partnerships with the private sector with the aim of enhancing productive pathways toward sustainable development.
  - Strengthen AI business environment and increase investment and support for AI-related initiatives and Jordanian startups in the IT sector, providing service-based solutions.
  - Build a well-established system for scientific research, development, application and experimentation related to AI, and create the right environment for it.
  - Raise public awareness and increase confidence in AI in the public sector and all segments of society.
- Expected Outcome: Artificial intelligence ecosystem in Jordan established and the 2020 Jordan Artificial Intelligence Policy goals achieved.
  - Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/ Division of Digital Transformation and AI Strategies
  - Project Type/Output: AI Strategy, Report, Technical Guidelines, and Practical Toolkit
  - Project Status: On going
  - Project Start Year: 2021
  - End Year: 2024
  - Project Domain: Trade, Innovation, Digital Transformation, Industrial Technology, Economic Competitiveness
  - Reported as part of 2022 Compendium on UN AI Activities? Yes
  - Related Sustainable Development Goals (SDGs): SDG 8 -Decent Work and Economic Growth, SDG 9 - Industry; Innovation and Infrastructure; SDG 17 - Partnership for the Goals
  - Partnership(s)/Collaborator(s):
    - UN Partners: UNIDO, European Union
    - Government: Jordan
  - Impact in 2023:
    - The efforts by UNIDO, the Ministry of Digital Economy and Entrepreneurship of Jordan (MoDEE), and other development partners under the project have contributed to elevating Jordan's profile as an upper-middle-income country undergoing an AI-powered transition. According to the Government AI Readiness Index published by Oxford Insights in 2023, Jordan now ranks 55th out of 193 countries, as compared

to 63rd place in 2022 and 81st in 2021. This improvement can be attributed to the publication of the AI Strategy and Implementation Roadmap for Jordan. Consequently, Jordan is poised to become a regional leader in terms of AI readiness, opening doors for additional innovation, investment promotion, and sustainable growth.

- The implementation of this project signifies a significant milestone in promoting AI-powered digital transformation in Jordan and, ultimately, the development of a robust AI ecosystem. The project's impact was presented by Mr. Abdelkader Bataineh, Senior Director of the Policies and Information Department at MoDEE, during the launch of UNIDO's Global Alliance on Artificial Intelligence for Industry and Manufacturing (AIM Global) on July 6, 2023, at the World Artificial Intelligence Conference in Shanghai, China.
- Lesson Learned: Navigating the governmental political landscape takes time and effort and thus has to be calculated in the overall timeframe of the project.
- Media and Links:
  - <https://www.dataguidance.com/news/jordan-ministry-announces-draft-ai-strategy-and>
- Contact Information: Farrukh Alimdjano (F.ALIMDJANOV@unido.org)

#### **Project 4: Industry 4.0 to foster youth employment in Tunisia and Côte d'Ivoire**

- Project background: This project document outlines UNIDO's proposed approach to address a major socio-economic problem in Tunisia, as well as in the complementary country Côte d'Ivoire, namely the high unemployment rates among youth and women. In the context of the industrial sector, the focal problem lies in the lack of dedicated policy and mechanisms as well as updated capabilities and infrastructure to benefit from the 4IR in promoting growth and fostering youth employment. BMZ's has a Special Initiative on training and Job Creation with emphasis on technology and innovation development and value chains promotion, under which the current project document is designed to boost integration into 4IR ecosystems combined with increased and enhanced employment opportunities and conditions in selected enterprises in Tunisia and Côte d'Ivoire. The suggested industrial sector for intervention are: Mechanical (engineering), textile, pharmaceutical, and agri-food. (Tunisia); ICT and agro-industry (Côte d'Ivoire).

The intervention will foster higher demand for skilled workers by addressing constraints on the business side that prevents firm growth and cluster development and will support youth and others to engage in these opportunities by increasing access to technology, skills, and information about jobs and business prospects. Consequently, the project will focus on agents working in the targeted clusters, especially youth and women, support for labour market integration, entrepreneurship, incubators and training structures; and strengthening of financing institutions (banks, micro-credit institutes, etc.). In addition, alignment will be sought with the broader framework of relevant national policies.

The project is addressing the main challenge identified in Tunisia, as well as in the complementary country Côte d'Ivoire, which is the high unemployment rates especially among youth and women. Regarding the industrial sector, the focal problem to be addressed is the identification and elaboration of missing points or gaps at dedicated policy and strategies, capability and infrastructure to adopt and benefit from the 4IR to promote growth and foster youth employment.

- Specifically, the involved countries share the following challenges on their efforts towards transition to Industry 4.0:
- The lack of demonstrative institutions which showcase the potential of Industry 4.0 technologies.
- The lack of capacity to quantitatively measure the country's progress towards Industry 4.0 adoption.
- The lack of relevant courses in education curricula to promote digital skills development.

- The absence of industrial accelerators to support the industrial development capacities of start-ups.
- High unemployment rate among large youth populations.
- A considerable SMEs and labour base but lack technology, innovation, skills and access to finance thus limiting formal sector growth.
- Inexistent or inadequate regulations, laws, rules and policies in favour of employment (including youth and women) and SME development.
- Project objective: The main goal of UNIDO interventions is to support Tunisia and Côte d'Ivoire in increasing youth employment, salaries and labour conditions through shaping and consolidating a digital economy ecosystem. The envisaged wide impact of this objective will contribute to a structural transformation of the economy in Tunisia and set the ground for this transformation in Côte d'Ivoire in the targeted sectors, leading to sustainable job creation.
- To accomplish this objective the project will carry out a set of activities that contribute to the following conditions:
  - An active governance system, including sound labor regulations.
  - A supportive business environment.
  - Efficient mechanisms to build 4IR capacity among labor and businesses.
  - Enhanced awareness of the opportunities of 4IR.
- The project adopts an integrated approach that seeks to support the four conditions for employment generation and job security by simultaneously strengthening policy and regulations, and public-private partnerships that engage business. The project will also help establish 4IR demonstrations and build institutional capacities for training labour in 4IR and it will develop a support network among institutions in different countries promoting 4IR investments, partnerships, and financing. The project has the following six components, which will be fully implemented in Tunisia as the main and primary beneficiary, whereas some components will be implemented (with a limited scope) for Cote d'Ivoire (as the complementary country):
  1. Enhanced and conducive business environment for employment generation and adoption of 4IR technologies and methods within priorities VC and sectors (CIV will undergo the 4IR readiness assessment; specific strategies will be developed for the targeted sectors).
  2. Establishing a SMART factory within or adjacent to training facilities, development of curricula, facilities, and methodologies for 4IR integration and adoption (CIV will benefit from trainings and capacity building/services offered by the smart factory in Tunisia (i.e. virtual facilities)).
  3. Development of dedicated training capacity on 4IR knowledge in vocational centers, universities and business school (CIV to benefit from the trainings methods and material adapted from Tunisia, as well as ones developed for CIV)
  4. Establishing and strengthening of 4IR institutions and centers in selected country(s) for shared training, knowledge, experience and activities (CIV will benefit from established online platform for training, assistance, knowledge and experience sharing).
  5. Pilot on adopting and operating 4IR technologies in a selected number of enterprises (CIV will have a limited number of enterprises that will benefit from diagnosis, instalment of new technologies, trainings and skills development for staff).
  6. Investment promotion network digital transformation facilitation for attracting investors, partners and finances for acquiring 4IR technologies.
- Artificial Intelligence Component: The component on Smart Factory will allow the use, training and deployment of AI for increasing competitiveness of the enterprise sector. In addition, component five, will bring equipment and technologies supported by AI to enhance production and quality control, as well as to reduce waste and ensure

compliance with market standards. Under output four, a number of trainings on AI and its application in manufacturing were provided to beneficiaries and trainers.

- Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/ Division of Digital Transformation and AI Strategies
- Project Status: under implementation
- Project Start Year: 2022
- Project End Year: 2024
- Project Domain: I4.0, Youth Employment, Digital Transformation, Industrial Technology, Economic Competitiveness
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry; Innovation and Infrastructure;
- Partnership(s)/Collaborator(s):
  - UNIDO
  - Government: Tunisia, Cote D'Ivoire
- Contact Information
  - Rafik FEKI ([R.Feki@unido.org](mailto:R.Feki@unido.org))

### Project 5: UNIDO Global Alliance on Artificial Intelligence for Industry and Manufacturing (AIM Global)

- Project Description: AIM Global to catalyze international partnerships across governments, industry, private sector, academia and civil society, committed to the responsible development and deployment of AI and frontier technologies in industry and manufacturing. The Alliance strives to redirect the trajectory of technological advancement towards shared progress and reduced digital divide by advancing industrial competitiveness, sustainable development, while ensuring fair and responsible access to AI's benefits across countries and industries. The Alliance seeks to support global exchanges on the use of technology, reduce the digital gap, and promote the safe, inclusive, and sustainable application of artificial intelligence (AI) in industry and manufacturing. By uniting key players from government, industry, academia, and civil society, the Alliance aligns with the UN Secretary-General's call in the "Our Common Agenda" report for a Global Digital Compact to ensure an "open, free, and secure digital future for all." It aims to enhance industrial competitiveness and sustainable development through AI, ensuring its benefits are distributed fairly and sustainably, while addressing challenges like AI literacy, ethical considerations, and data protection.
- Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/ Division of Digital Transformation and AI Strategies
- Project Type/Output: Convening Function, Events, Knowledge Products
- Project Status: Ongoing
- Project Start Year: 2023
- End Year: continuous.
- Project Domain: Digital Transformation, AI, IR 4.0, IR 5.0
- Publicly available data: <https://aim.unido.org/>
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 7 - Affordable and Clean Energy; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s) :

- UNIDO
- Private sector: Huawei (China)
- Relevant Links and Multimedia: <https://aim.unido.org/>
- Contact Information: Ana Paula Nishio de Sousa ([a.nishio@unido.org](mailto:a.nishio@unido.org))

### Project 6: Alliance for I4.0 and Smart Manufacturing in Africa (AISMA)

- **Project Description:** Africa has been left behind during the past industrial revolutions, despite its affluent population and natural resources. In this context, Industry 4.0 and smart manufacturing offer significant opportunities and challenges to manufacturing companies in the African continent. But failure to harness these opportunities and overcome the challenges will undoubtedly impose considerable risks on the socio-economic development of African countries, especially for youth at risk of unemployment. Hence, without efforts to coordinate, develop and improve the existing policies, institutional and legal frameworks, physical/digital infrastructure, innovation models, education/ vocational training programmes and funding schemes on the continent, African manufacturing companies risk falling further behind, exacerbating the global “digital divide” and lowering Africa’s global competitiveness.

The Alliance aims to address this by unlocking the potential of smart manufacturing in Africa through raising awareness on Industry 4.0, fostering collaboration among diverse stakeholders within the Industry 4.0 ecosystem and facilitating the adoption of frontier technologies in manufacturing companies across the continent.

AISMA will provide a collaboration platform for a wide range of experts from academia, industry, private sector, policy makers, technology providers, financial institutions or any other structure relevant to the adoption of Industry 4.0 within the African continent. The network of experts will focus on exchanging knowledge and expertise, sharing best practices and forging strategic partnerships on Industry 4.0 related themes such as industry applications, digitalization technologies, skills development, scientific research and innovation, standardization and policies/strategies, just to name a few. AISMA will also offer a number of tools and support functions to its members.

AISMA ultimately aims to promote Africa's integration, generate inclusive and sustainable development, stimulate job creation, empower people and break the digital divide, in accordance with the UN Secretary-General's call to establish a Global Digital Compact that upholds shared principles for an open, free, and secure digital future for all. It also aligns with the goals and objectives set by the African Union through the Digital Transformation Strategy for Africa (2020-2030).

UNIDO launched the Alliance for I4.0 and Smart Manufacturing in Africa (AISMA) on 28 November 2023 on the margin of the twentieth session of UNIDO General Conference. For its launch, several leading experts from various organizations committed to support UNIDO’s efforts to enhance Africa industrial competitiveness and sustainable development through Industry 4.0 and smart manufacturing.

The Alliance will contribute to:

- UNIDO’s motto - Progress by innovation
- The Alliance for I4.0 and Smart Manufacturing in Africa (AISMA), aligns with UNIDO's motto (“Progress by Innovation”), by creating an environment that is conducive for innovation, as it brings experts, academia, industry professionals and decision makers from the African continent together, and provide the tools to exchange and develop innovative initiative and approaches to address the needs of the African continent.
- UNIDO’s vision - a leading platform for knowledge and technology transfer, innovation and investment
- It aims to raise awareness of Industry 4.0 (I4.0) in Africa, facilitate the adoption of I4.0 technologies, and provide a platform for information sharing, knowledge creation, and innovative proposals on I4.0 related themes. In addition, it fosters collaboration among

diverse stakeholders within the Industry 4.0 ecosystem and facilitates the adoption of frontier technologies across the continent, aligning with UNIDO's vision and strategic objectives.

The Alliance will have the following functions:

- Conducting research, surveys and in-depth data analysis on 4ir related issues in the African context
  - Prepare policy briefs for decision makers
  - Monitor and evaluate impact of policies and initiatives of I4.0
  - Creating a space for communication and exchange of experience knowledge and data.
  - Providing a facility for training, capacity building and skill development
  - Facilitating interaction between policy makers, academia, private sector, technology providers and financial institutions to fine-tune and align policies and initiatives.
  - Supporting industry define their specific digitalization & industrialization journey and accessing/implementing I4.0 methods, technologies and tools
  - Identifying mechanisms for financing I4.0 adoption in Africa and facilitating access to such mechanisms for startups, SMEs and digital entrepreneurs
  - Promoting conducive legal and ethical frameworks for I4.0 applications by providing recommendations for governments and industries
  - Promotion and raising awareness on I4.0 themes (impact on employment, gender, business models, best practices, etc.)
- Department/Division: Directorate of Technical Cooperation and Sustainable Industrial Development/ Division of Digital Transformation and AI Strategies
  - Project Type/Output: policies and strategies, standardization, training and skills development, digitalization technologies, industry applications
  - Project Status: Ongoing
  - Project Start Year: 2023
  - End Year: continuous
  - Project Domain: Smart manufacturing in Africa, industry 4.0
  - Publicly available data: [https://www.unido.org/sites/default/files/files/2024-02/AISMA\\_Leaflet.pdf](https://www.unido.org/sites/default/files/files/2024-02/AISMA_Leaflet.pdf)
  - Reported as part of 2022 Compendium on UN AI Activities?: No
  - Related Sustainable Development Goals (SDGs): SDG 9 - Industry; Innovation and Infrastructure;
  - Relevant Links and Multimedia: [https://www.unido.org/sites/default/files/files/2024-02/AISMA\\_Leaflet.pdf](https://www.unido.org/sites/default/files/files/2024-02/AISMA_Leaflet.pdf)
  - Contact Information: Rafik FEKI ([R.FEKI@unido.org](mailto:R.FEKI@unido.org))

## 2. Related Sustainable Development Goals

SDG 1 - No Poverty; SDG 7 - Affordable and Clean Energy; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 17 - Partnerships for the Goals

## 3. Related Links

UNIDO Main Web site: [www.unido.org](http://www.unido.org)



UNIDO Open Data Platform: <https://open.unido.org>

UNIDO IATI Publication (d-portal) [https://d-portal.org/ctrack.html?reporting\\_ref=XM-DAC-41123#view=main](https://d-portal.org/ctrack.html?reporting_ref=XM-DAC-41123#view=main)

UNIDO Technical Cooperation: <https://www.unido.org/technical-cooperation>

General Contact Information: [das@unido.org](mailto:das@unido.org)

## United Nations Institute for Training and Research



### 1. Description of Activities on AI

#### Project 1: NVIDIA

- Project Description: The United Nations Satellite Centre (UNOSAT) announced a collaboration with NVIDIA on training and research activities to promote the use of Artificial Intelligence (AI) for Earth Observation activities in support of the Sustainable Development Goals (SDGs), with an initial emphasis on disaster management. This cooperation framework allows UNOSAT and NVIDIA to benefit from their respective facilities, resources, and domain experience. The collaboration has two initial priorities: 1) integration of NVIDIA's accelerated computing platform within UNOSAT's infrastructure to fast track research and development of AI for Earth Observation and 2) design and roll out of an e-learning course on the use of deep learning for flood detection to upskill data scientists within disaster management agencies worldwide.
- Department/Division: United Nations Satellite Centre (UNOSAT)
- Project Type/Output: Research and Training
- Project Status: Development
- Project Start Year: 2022
- Project Domain: Other - Geographic Information System (GIS)
- Data Source: Copernicus Sentinel-1 satellite imagery, flood maps, exposed population impact layer
- Data Publicly Available: Yes
- Technology/Platform: NVIDIA Deep Learning Institute
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 3 - Good Health and Well-Being; SDG 6 - Clean Water and Sanitation; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation, and Infrastructure; SDG 10 - Reduced Inequalities; SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action; SDG 15 - Life on Land; SDG 16 - Peace, Justice, and Strong Institutions; SDG 17 - Partnerships for the Goal
- Partnership(s)/Collaborator(s)(s):
  - NVIDIA
- Relevant Links and Multimedia:
  - <https://blogs.nvidia.com/blog/2022/06/24/un-satellite-centre-boosts-sustainable-development-goals/>
  - <https://courses.nvidia.com/courses/course-v1:DLI+S-ES-01+V1>
- Contact Information: Einar Bjorgo ([einar.bjorgo@unitar.org](mailto:einar.bjorgo@unitar.org))

## Project 2: UNOSAT S-1 FloodAI

- **Project Description:** The UNITAR-UNOSAT designed, developed, and deployed UNOSAT S-1 FloodAI: an end-to-end pipeline where Copernicus Sentinel-1 Synthetic Aperture Radar (SAR) imagery of flood-prone areas are automatically downloaded and processed by a deep learning model to output flood vector data and update operational dashboards. Access to timely and accurate data could not only inform the decision-making process to help optimize the disaster response, but it also has the potential to significantly reduce the loss of life and mitigate structural damage, particularly in the context of humanitarian operations, thus supporting both national authorities and international emergency management organizations for the benefit of affected populations.
- **Department/Division:** United Nations Satellite Centre (UNOSAT)
- **Project Type/Output:** Software tool
- **Project Status:** Ongoing
- **Project Start Year:** 2019
- **Project Domain:** Other – Geographic Information System (GIS)
- **Data Source:** Copernicus Sentinel-1 satellite imagery, flood maps, exposed population impact layer, JRC permanent water layer
- **Data Publicly Available:** Yes
- **Technology/Platform:** UNOSAT S-1 FloodAI was deployed on a local GPU at the European Organization for Nuclear Research (CERN) connected to a 64 TB data storage server and a high-speed CERN internet connection. The entire infrastructure is currently in the process of being transferred to a cloud centralized service at CERN built on Kubeflow, a machine learning platform on Kubernetes. The deep learning model was written in Pytorch. The operational dashboard is based on an ESRI dashboard linked to a web map.
- **Reported as part of 2022 Compendium on UN AI Activities?** Yes
- **Project Updates:** Previously reported in 2021 as “Project 3: Flood Mapping – UNOSAT FloodAI”, is now fully deployed and embedded as one of the UNOSAT Rapid Mapping Service.
- **Related Sustainable Development Goals (SDGs):** SDG 1 – No Poverty; SDG 3 – Good Health and Well-Being; SDG 6 – Clean Water and Sanitation; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 11 – Sustainable Cities and Communities; SDG 13 – Climate Action; SDG 15 – Life on Land; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnerships for the Goal
- **Partnership(s)/Collaborator(s)(s):**
  - UN Partners: UN Global Pulse
  - Academia: European Organization for Nuclear Research (CERN) , NVIDIA
- **Relevant Links and Multimedia:**
  - <https://www.unitar.org/about/news-stories/news/unosat-flood-ai-dashboards-nepal-creation-one-stop-shop-real-time-evidence-based-decision-making>
  - <https://www.mdpi.com/2072-4292/12/16/2532>
  - <https://ahacentre.org/wp-content/uploads/2022/07/ARMOR-3rd-Ed.pdf>
- **Contact Information:** Einar Bjorgo ([einar.bjorgo@unitar.org](mailto:einar.bjorgo@unitar.org))

## Project 3: Mapping Refugee Settlement and Damage Assessment with Machine Learning and Remote-Sensing Data

- **Project Description:** The purpose of this project is the creation of an end-to-end pipeline that takes high-resolution satellite imagery as input and returns damage assessment maps in the form of a building footprint together with a damage class label.

- Department/Division: United Nations Satellite Centre (UNOSAT)
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2018
- Project Domain: Geographic Information System (GIS)
- Data Source: Satellite data, building footprints, damage assessment data
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: Previously reported in 2020 as "Project 3: Mapping refugee settlement with machine learning and remote-sensing data". The focus is now not only on mapping refugee settlement, but on building footprints in general and damage assessment.
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty; SDG 3 – Good Health and Well-Being; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 11 – Sustainable Cities and Communities; SDG 13 – Climate Action; SDG 15 – Life on Land; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - Academia: European Organization for Nuclear Research (CERN), CERN Openlab, Wuhan University
- Relevant Links and Multimedia:
  - <https://arxiv.org/abs/2201.10953v2>
- Contact Information: Einar Bjorgo ([einar.bjorgo@unitar.org](mailto:einar.bjorgo@unitar.org))

#### Project 4: ML4Floods

- Project Description: UNITAR-UNOSAT partner with Trillium Technologies and FDL Europe to test and use ML4Floods: an ecosystem of data, models and code pipelines to tackle flooding with machine learning ML. After a successful testing phase of the methodology, UNOSAT is implementing ML4Floods into its operations and deploying the tool into the UNOSAT AI pipeline at CERN.
- Department/Division: United Nations Satellite Centre (UNOSAT)
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2021
- Project Domain: Geographic Information System (GIS)
- Data Source: Copernicus Sentinel-2 images, flood maps from Copernicus EMS, UNOSAT and GloFIMR, JRC Permanent water layer
- Data Publicly Available: Yes
- Technology/Platform: Google Cloud Platform, Pytorch, pytorch lightning, weights and biases, GDAL, jupyter notebook, colab tutorials.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 1 – No Poverty; SDG 3 – Good Health and Well-Being; SDG 6 – Clean Water and Sanitation; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 11 – Sustainable Cities and Communities; SDG 13 – Climate Action; SDG 15 – Life on Land; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnerships for the Goals

- Partnership(s)/Collaborator(s)(s):
  - Private Sector: Trillium Technologies
  - Academia: Frontier Development Lab Europe
- Relevant Links and Multimedia:
  - <http://trillium.tech/ml4floods/content/intro/introduction.html>
  - [ML4Floods time series segmentation](#)
- Contact Information: Einar Bjorgo ([einar.bjorgo@unitar.org](mailto:einar.bjorgo@unitar.org))

### Project 5: AI and Diplomacy Trainings

- Project Description: The Division for Multilateral Diplomacy (DMD) launched a series of training activities in the field of Artificial Intelligence (AI) and Diplomacy to the benefit of the diplomatic community. The aim of this initiative is to delve into the sphere of AI and Diplomacy, analyzing the impacts, implications, and frameworks in place needed to navigate the opportunities and intricacies that AI is bringing to the diplomatic world and overall global context. These trainings allow DMD to support the achievement of the Sustainable Development Goals (SDGs) and support the reskilling and upskilling of diplomats and UN personnel to adapt to the future of work and become empowered and informed global decision-makers.
- Department/Division: Division for Multilateral Diplomacy (DMD)
- Project Type/Output: Training and Research
- Project Status: Ongoing
- Project Start Year: 2024
- Project Domain: Diplomatic Trainings
- Data Source: UNITAR
- Data Publicly Available: n/a
- Technology/Platform: n/a
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG4 Quality Education; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnerships for the Goal
- Partnership(s)/Collaborator(s)(s):
  - n/a
- Relevant Links and Multimedia:
  - <https://unitar.org/courses/free-face-face-training-introduction-generative-artificial-intelligence-geneva-based-permanent-11704>
  - <https://event.unitar.org/full-catalog/free-face-face-training-artificial-intelligence-and-diplomacy>
- Contact Information: Amine Mesdoua ([amine.mesdoua@unitar.org](mailto:amine.mesdoua@unitar.org)); Malcolm Olivieri ([malcolm.olivieri@unitar.org](mailto:malcolm.olivieri@unitar.org))

### Project 6: AI Forum “Three Horizons: Governance, Education and the Future of Work”

- Project Description: The Division for Multilateral Diplomacy (DMD) and IE University (IE) jointly hosted a Forum on Artificial Intelligence (AI) in Madrid. The Forum focused on various aspects of AI, including governance, ethics, education, and the corporate world. Entitled, ‘Three Horizons: Governance, Education and the Future of Work’, it

brought together around 100 participants from a variety of sectors, including government officials, academia, private sector specialists, and education and training providers, to discuss the impact of AI across various domains. UNITAR and IE jointly organized the event within the premises of the IE Tower in Madrid. This Forum allowed DMD to support the achievement of the Sustainable Development Goals (SDGs) and spread the knowledge on pivotal areas for all beneficiaries from different sectors to become empowered and informed professionals, educators, and global decision-makers.

- Department/Division: Division for Multilateral Diplomacy (DMD)
- Project Type/Output: Training and Research
- Project Status: Developed
- Project Start Year: 2023
- Project Domain: Diplomatic Trainings
- Data Source: UNITAR
- Data Publicly Available: n/a
- Technology/Platform: n/a
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG4 Quality Education; SDG 8 – Decent Work and Economic Growth; SDG 9 – Industry, Innovation, and Infrastructure; SDG 10 – Reduced Inequalities; SDG 16 – Peace, Justice, and Strong Institutions; SDG 17 – Partnerships for the Goal
- Partnership(s)/Collaborator(s)(s):
  - IE University
- Relevant Links and Multimedia:
  - <https://unitar.org/about/news-stories/news/unitar-and-ie-university-jointly-hosted-forum-artificial-intelligence>
- Contact Information: Amine Mesdoua ([amine.mesdoua@unitar.org](mailto:amine.mesdoua@unitar.org)); Malcolm Olivieri ([malcolm.olivieri@unitar.org](mailto:malcolm.olivieri@unitar.org))

## 2. Related Sustainable Development Goals

SDG 1, 3, 6, 8, 9, 10, 11, 13, 15, 16, 17

## 3. Related Links

<https://unitar.org/>

Contact Information

Einar Bjorgo ([einar.bjorgo@unitar.org](mailto:einar.bjorgo@unitar.org))

## United Nations Joint Staff Pension Fund



### 1. Description of Activities on AI

#### Project: UNJSPF Digital Certificate of Entitlement

**Project Description:** The UNJSPF “Digital Certificate of Entitlement” (DCE) system is a state-of-the-art mobile application (App) and web-based authentication solution that can verify the identity, existence, transactions, and location of the United Nations Joint Staff Pension Fund (UNJSPF) retirees (approx. 84,000 individuals located in more than 192 countries), providing a faster, secure, and easier way to meet the requirements for continued benefit payments.

The DCE system allows retirees to use their smart phone, tablet, or other personal device to submit an electronic proof of their eligibility, in lieu of paper-based submissions. The solution uses cutting edge biometric/facial recognition, blockchain, AI, and global positioning technologies to confirm the eligibility of retirees.

The DCE was developed by UNJSPF with the support of the UN International Computing Center, and piloted in 2020, with retirees from the World Food Programme and the Food and Agricultural Organization. Its deployment was then fast-tracked in 2021, as a response to the worldwide disruption of postal services caused by the COVID-19 pandemic.

The DCE introduced innovative processing changes and organizational efficiencies, using a secure and user-friendly design based on new technologies, making it an environmentally friendly solution, which significantly reduced the use of paper, mailings, as well as physical and digital storage.

Aligned with the UN Secretary-General’s strategies on “New Technologies” and “UN2.0”, and the vision of a digital United Nations, the DCE is part of the implementation of the UNJSPF strategy in simplifying client experience and modernizing the Fund’s services.

Assurance on the DCE solution is based on independent certifications and audits, including:

- ISO27001 Certification
- Ethics Audit
- Algorithm Audit

NIST verification of the biometric algorithm The DCE solution received the:

- United Nations Secretary-General Award for Innovation and Sustainability; and
- Government Blockchain Association Award for Social Impact.

Furthermore, the DCE solution was subject of a case study published by Gartner Inc., as an example of digital transformation in the public sector.

As of November 2023, over 40 per cent of the UNJSPF retirees' population has sought enrolment in the UNJSPF/DCE solution. UNJSPF recently deployed a new "kiosk version", extending the ability to use the DCE solution to UN retirees who do not own a computing device.

For more information about the [UNJSPF Digital Certificate of Entitlement](https://www.unjspf.org/newsroom/unjspf-digital-certificate-of-entitlement-wins-the-united-nations-secretary-general-award-for-innovation-and-sustainability) please visit <https://www.unjspf.org/newsroom/unjspf-digital-certificate-of-entitlement-wins-the-united-nations-secretary-general-award-for-innovation-and-sustainability>

- **Project Type/Output:** Software tool, Conference
- **Project Status:** Completed (and in production)
- Project Start Year: 2018
- Project End Year: 2021 (With ongoing expansion/extension of the scope)
- **Reported as part of 2022 Compendium on AI Activities?** No
- **Project Domain:** Environment, Health, Human Rights, Poverty, Telecommunications, Other: Governance & Public Services, Finance & Banking, Supply-chain, Cybersecurity
- **Data Source:**
  - Demographic data = UNJSPF retirees and beneficiaries -> Held and processed on UNJSPF/UNICC systems covered by UN Privileges and Immunities
  - Biometrics, transactions, and locations data = Retirees and beneficiaries' devices -> Held on users' devices and protected by tamper-resistant "Hardware Security Modules", with advanced encryption
  - In accordance with ISO/IEC 29100/2011/Amd 1:2018, personally identifiable information are not stored on the blockchain.
- Technology/Platform:

The DCE Technology Stack (version 4.0), is composed of:

- UI Screens & User Interaction = React Native/TS/JS
- Custom Application Modules (platform dependent):
  - Services
    - Face features extraction service: Insightface; PyTorch
    - Face verification service: Insightface; PyTorch -> UNICC Biometric AI Solution (NIST FRVT verified)
    - ID Document scanning AI solution -> UNICC Doc Scan Solution
    - Real-time liveness and face detection service: ML Kit (Android); iOS Core ML (Apple)
    - Hardware encryption service: Hardware-backed keystore (Android); Apple Secure Enclave (Apple)
  - Platforms: Kotlin/Java (Android); Swift/Objective C (Apple)
  - Blockchain:
    - Digital Wallet: Hyperledger Aries
    - Decentralized PKI: Hyperledger Indy
- **Related SDGs:** SDG 1 - No Poverty, SDG 3 - Good Health and Well-Being, SDG 4 - Quality Education, SDG 5 - Gender Equality, SDG 8 - Decent Work and Economic Growth, SDG 9 - Industry, Innovation, and Infrastructure, SDG 10 - Reduced Inequalities, SDG 16 - Peace, Justice, and Strong Institutions, SDG 17 - Partnerships for the Goals
- **Partners:**



- UN Partners: United Nations International Computing Centre (UNICC)
- **Links and Multimedia:**
  - [Digital Certificate of Entitlement \(DCE\) - UNJSPF \(https://www.unjspf.org/for-clients/digital-certificate-of-entitlement/\)\)](https://www.unjspf.org/for-clients/digital-certificate-of-entitlement/)
  - [Retirees and Beneficiaries: the new Digital Certificate of Entitlement App is now live - UNJSPF](#)
  - [The Certificate of Entitlement soon in digital format - watch the video - UNJSPF](#)
- Lessons Learned:
  - Ensuring that the DCE App performs the “biometric test/validation” only locally on the device (i.e., no transmission/storage of biometrics data outside the control of the user).
  - Inability to use biometric-based authentication mechanisms natively available in the Android/Apple devices (i.e., SW libraries exposing limited functionalities; Need to limit App access to extended biometrics information).
  - Different approaches between Apple and Android devices in capturing user’s face in 3D.
  - Challenging “environmental conditions” (i.e., low lighting; background “noise”), during biometric profile capturing.
  - Relatively limited availability of “modern/secure” devices (i.e., devices with HSM module) in the user population.
  - Communicating user-friendly instructions
- **Contact information: Dino Cataldo DELL’ACCIO ([dellaccio@un.org](mailto:dellaccio@un.org))**

## 2. Related Sustainable Development Goals

SDGs 1, 3, 4, 5, 8, 9, 10, 16, 17

## 3. Relevant Links

<https://www.unjspf.org/newsroom/unjspf-digital-certificate-of-entitlement-wins-the-united-nations-secretary-general-award-for-innovation-and-sustainability>

Contact information: Dino Cataldo DELL’ACCIO ([dellaccio@un.org](mailto:dellaccio@un.org))

## United Nations Office for the Coordination of Humanitarian Affairs



### 1. Description of Activities on AI

#### Project 1: Global Tropical Cyclone Impact Model

**Project Description:** Tropical cyclones (known as hurricanes or typhoons in certain regions) can cause significant humanitarian impact, with up to 800 million people affected yearly around the world. By using machine learning methods and existing forecasts, the impact of cyclones can now be anticipated, allowing humanitarian organizations to respond more quickly and efficiently.

The project initially aimed at developing a trigger mechanism for the tropical cyclone early action protocol of the Philippines Red Cross Forecast Based Financing project, in partnership with The Netherlands Red Cross' data and digital initiative '510'. A model was developed that predicts the potential damage of a tropical cyclone before landfall. The model uses 'inputs' or 'features' for the cyclone track such as windspeed, and rainfall, as well as static features like topography, housing building material, household relative wealth, and population density. Based on these inputs, the model then determines the percentage of completely damaged houses per municipality. The model is currently being used in the OCHA anticipatory action framework for the Philippines, where pre-agreed financing is released for a pre-agreed action plan by UN agencies if a certain level of damage is predicted.

In collaboration with the ISI Foundation, the model has now been adapted to work using a grid (instead of the specific municipalities in the Philippines) using open global data sources, which helps enable its application globally, and improves its accuracy. The new grid-based model is currently being extended for use in Fiji to support the OCHA anticipatory action framework, and will be used in other contexts in the coming year.

- **Project Type/Output:** Policy framework, Academic paper, Software tool
- **Project Status:** Ongoing
- Project Start Year: 2021
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Weather
- **Data Source:**
  - Satellite weather data such as wind speed and rainfall
  - Topography data such as slope, terrain ruggedness index, elevation, coast length
  - Vulnerability data such as housing material, proportion of area that is classified as urban or rural, Meta's relative wealth index data
  - Demographic data such as population per municipality

- **Technology/Platform: Model is coded in Python, with analysis in Jupyter notebooks. Automated model runs are done with GitHub Actions.**
- **Related SDGs:** SDG 10 – Reduced Inequalities, SDG 13 – Climate Action, SDG 17 – Partnerships for the Goals
- **Partners:**
  - UN Partners: OCHA Philippines Country Office, OCHA Pacific Islands Regional Office
  - Government: Fiji Meteorological Services, Fiji National Disaster Management Office
  - Civil Society: 510 – Netherlands Red Cross
  - Academia: ISI Foundation
- **Links and Multimedia:**
  - GitHub repository: <https://github.com/OCHA-DAP/GlobalTropicalCycloneModel>
  - OCHA Anticipatory Action Framework: <https://reliefweb.int/report/philippines/philippines-anticipatory-action-framework-2022-revision>
  - Peer review of model: <https://centre.humdata.org/peer-review-of-510s-typhoon-model-and-its-use-in-the-philippines/>
  - Academic paper: <https://nhess.copernicus.org/articles/24/309/2024/nhess-24-309-2024.html>
- **Lessons Learned: One key challenge in the project was accessing and processing all the input data required to train and run the model. Most important is reliable impact data for historical cyclones. To be useful for model training, the impact data needs to be geographically specific; in the very least, sub-national. However, this data is often unavailable, which limits the model's accuracy. Historical forecasts of tropical cyclones can also be difficult to find and access in an easily usable format, further limiting the extent to which the model can be trained.**

**OCHA and its partners are currently working to extend the grid-based model to be used globally. This requires finding and assessing the validity of global public datasets for model training. As the model is applied to further contexts, other country-specific datasets will be incorporated where possible.**

**The aim is to make the model available publicly in a relatively easy-to-use format, such as a web application.**
- **Contact information: Leonardo Milano ([leonardo.milano@un.org](mailto:leonardo.milano@un.org))**

## Project 2: AI based content classification service

**Project Description:** Manually analyzing a large volume of text data can be a tedious and time-consuming task. By leveraging Azure Open AI service, the process becomes significantly more efficient. The service, built using Microsoft Power Platform, enables end-users to feed in text snippets or excel spreadsheets, receiving categorized content in return. This versatile service can be configured to analyze diverse content types, including news snippets, project descriptions, social media posts, or budgetary spreadsheets.

One notable application involves the Climate Team at OCHA, utilizing the service to analyze historical data within OCHA-administered Country-based Pooled Funds. Project summaries are input into the service, allowing the discernment of activities specifically relevant to climate adaptation. This enhances OCHA's ability to optimize the effectiveness and impact of these initiatives in the future.

Additionally, the Digital Services section at OCHA employs the service to analyze Internet or Cyber Security incidents, categorizing them into types such as Internet Outage and Data

Breach. Leveraging Microsoft Power Automate Flow for real-time classification, the data feeds directly into a Power BI dashboard used for monitoring purposes.

We are also exploring applications such as automatically sifting through social media postings to identify those most relevant to humanitarian work.

- **Project Type/Output:** Software tool
- **Project Status:** Ongoing
- Project Start Year: 2023
- Project End Year: 2025
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Humanitarian Information
- **Data Source:** The service is generic and can be applied to any context.
- **Technology/Platform:** Microsoft Azure Open AI, Microsoft Power Platform
- **Related SDGs:** SDG 13 – Climate Action
- **Lessons Learned:** We aim to test the service with diverse content types to comprehensively understand its limitations. In our experience, when utilizing the service to identify climate adaptation activities, we encountered instances where the AI generated new categories despite explicit prompts to the contrary. To address this, we plan to explore the application of fine-tuned models for specific variations. Engaging in more diverse applications will undoubtedly contribute to a deeper understanding of the service's capabilities and areas for improvement.
- **Contact information:** Ikramullah Quraishi ([ikramullah.quraishi@un.org](mailto:ikramullah.quraishi@un.org)), Ranu Gupta ([guptar@un.org](mailto:guptar@un.org))

### Project 3: Automated tagging of ReliefWeb Jobs

- **Project Description:** Leverage a Large Language Model to automatically apply certain categories to jobs being posted to ReliefWeb - <https://reliefweb.int/jobs>. The intention is to reduce human efforts in areas that we believe AI can provide a suitable solution thereby allowing our human capacity to focus on more impactful activities.
- **Project Type/Output:** Software tool
- **Project Status:** Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Automatic tagging of humanitarian jobs being posted on ReliefWeb
- **Data Source:** Job descriptions are provided by various humanitarian and development entities – either through an automated feed, by email, or by self-posting. We are using LLM without any fine-tuning as we have found the results to be more than sufficient ‘as is’.
- **Technology/Platform:** LLM is Microsoft Azure OpenAI, Website is Drupal
- **Lessons Learned:** Over-engineering is an easy trap to fall into. In our case, we were able to back away from advanced work and costs (e.g. fine-tuning, dedicated services running at all times) when we simply tested the LLM directly and found the results to be satisfactory.
- **Contact information:** Andrej Verity ([verity@un.org](mailto:verity@un.org))

### Project 4: ReliefWeb Q&A Chatbot

- **Project Description:** As a first version, the ReliefWeb Q&A Chatbot will allow a site visitor to ask questions about the (single) report page that they are viewing. On average, a single

report had an attached file of approximately 17 pages. The Q&A Chatbot will retrieve answers from that material.

- **Project Type/Output:** Software tool
- **Project Status:** Ongoing
- Project Start Year: 2023
- Project End Year: 2024+
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Humanitarian Information
- **Data Source: Reports stored on ReliefWeb. Link to data:** <https://reliefweb.int/updates>
- **Technology/Platform:** Microsoft Azure OpenAI, AWS Bedrock, Drupal
- **Partners:**
  - Private Sector: Amazon AWS
- **Lessons Learned:** Trying to provide a Q&A (RAG) across many documents was challenging when users knew the content extremely well - as they did not find the results very usual (e.g. missing specific details or nuance). Focusing on a single report reduces that challenge and thus us time to gather feedback, better understand the technology and investigate how to expand/grow the solution.
- **Contact information:** Andrej Verity ([verity@un.org](mailto:verity@un.org))

#### Project 5: United Nations' Central Emergency Response Fund (CERF) AI project summarization tool

- **Project Description:** We've developed an AI summarization tool using Microsoft Azure OpenAI for the United Nations' Central Emergency Response Fund (CERF). This tool efficiently processes Microsoft Word project proposals, extracting relevant information from various sections to generate a three-sentence project summary. The summary serves dual purposes: it's publicly available on the CERF website, and it's submitted to OCHA management (including the OCHA USG) for project approval. Traditionally, CERF program officers manually crafted these summaries, which consumed approximately 5 minutes each. Our tool, however, produces accurate summaries within seconds. Given the volume of over 500 CERF projects annually, this tool stands to save more than 40 hours of staff time per year—a significant efficiency gain.
- **Project Type/Output:** Software tool
- **Project Status:** Completed
- Project Start Year: 2023
- Project End Year: 2023
- **Reported as part of [2022 Compendium on AI Activities](#)?** No
- **Project Domain:** Humanitarian Financing
- **Data Source:** Project objective data, project activity data, targeted beneficiary data (disaggregated by sex, age and persons with disabilities)
- **Technology/Platform:** Microsoft Azure OpenAI
- **Lessons Learned:** We learned that creating an AI tool can take several iterations. The CERF AI project summarization tool required several attempt to create the prompt that would produce the project summarizations in the correct format. In the future, we plan to expand the suite of summarization tools which will include an application summarization tool and a reports summarization tool which are all currently manually written.
- **Contact information:** Samir Mahmoud ([mahmoud14@un.org](mailto:mahmoud14@un.org))

## 2. Related Sustainable Development Goals

SDGs 10, 13, 17

## 3. Relevant Links

<https://www.unocha.org/>

Contact information: Andrej Verity ([verity@un.org](mailto:verity@un.org))

## United Nations Office for Counter Terrorism



**United  
Nations**

**Office of Counter-Terrorism**

### 1. Description of Activities on AI

#### Project 1: Building Knowledge on Counter-Terrorism in the Age of Artificial Intelligence

- **Project Description:** In 2020, UNOCT's Global Counter Terrorism Programme on Cybersecurity and New Technologies collaborated with UNICRI, through its Centre for Artificial Intelligence and Robotics commenced a research initiative aimed at exploring the dual nature potential of artificial intelligence (AI) from the perspective of counter-terrorism.

The initiative explored the dual nature potential of AI, analyzing the concerning aspects of the advent of AI, such as the possibility of its use with malicious intent by terrorist groups and individuals, as well as how AI might be leveraged to support counter-terrorism efforts, in particular in terms of combatting terrorist use of the Internet and social media. This resulted in the release of two reports "Algorithms and Terrorism: The Malicious Use of Artificial Intelligence for Terrorist Purposes" and "Countering terrorism online with artificial intelligence - An Overview for Law Enforcement and Counter-Terrorism Agencies in South and South-East Asia".

UNOCT, UNICRI, and OHCHR organized a high-level briefing entitled "Counter-Terrorism in the Age of Artificial Intelligence: Risks, Opportunities and Safeguarding Human Rights" on 29 June 2021 as part of the Second Counter-Terrorism Week at the United Nations. During this briefing the findings of their collective research were presented.

- **Project updates:**  
UNOCT and UNICRI organized an expert group meeting to explore the specific application of AI-enabled social network analysis in counter-terrorism in March 2022 to develop knowledge and understanding of this application and develop a concept for further activities in this domain.
- **Department/Division:** UNOCT's Cybersecurity and New Technologies programme and UNICRI's Centre for Artificial Intelligence and Robotics
- **Project Type/Output:** Report
- **Project Status:** Closed
- **Project Start Year:** 2020
- **Project End Year:** 2023
- **Project Domain:** Justice
- **Reported as part of 2022 Compendium on UN AI Activities?** No
- **Related Sustainable Development Goals (SDGs):** SDG 16 -Peace, Justice, and Strong Institutions
- **Partnership(s)/Collaborator(s) :**
  - UN Partners: UNICRI and OHCHR
  - Government: Kingdom of Saudi Arabia, Government of Japan

- Relevant Links and Multimedia:
  - <https://www.un.org/counterterrorism/sites/www.un.org.counterterrorism/files/malicious-use-of-ai-uncct-unicri-report-hd.pdf>
  - <https://www.un.org/counterterrorism/sites/www.un.org.counterterrorism/files/countering-terrorism-online-with-ai-uncct-unicri-report-web.pdf>
- Lesson Learned:
  - Challenges:
    - Ensuring human rights compliant AI and building public trust in the use of AI by law enforcement and counter-terrorism agencies, especially given the complex interaction between human rights and counter-terrorism.
    - Absence of consensus on the definitions of both terrorism and AI.
    - Lack of a global governance framework and the prevalence of policies and regulatory frameworks centred in the global north.
    - Insufficient public information related to the level of technological readiness and the current use of AI tools in the regions of South Asia and South-East Asia.
    - Lack of understanding of how malicious actors could use AI.
  - Lessons learned:
    1. While the use of AI for terrorist purposes is currently not a developed threat, it is important to not underestimate it.
    2. The capacity of all stakeholders to identify and respond to the threat of the malicious use and abuse of AI for terrorist purposes should be improved.
    3. Efforts need to be made to raise awareness of governments and industry partners about the role of AI in counter-terrorism.
    4. It is essential to ensure that law enforcement and counter-terrorism agencies appreciate the potential human rights impacts of AI, as well as the limitations and fallibility of AI.
  - Future work:
    - Supporting the design of human rights compliant models for the use of AI for counter-terrorism together with UNICRI and OHCHR.
    - Building good practices for the use of AI for social network analysis for counter-terrorism together with UNICRI
    - Research on potential uses of generative AI for terrorist purposes and mitigation strategies
    - Enhancing Critical Infrastructure Protection through AI against Cyber-Terrorist Attacks
    - Further research and monitoring of the willingness and future ability of terrorists to use or abuse AI.
- Contact Information: Balques Al Radwan ([balques.alradwan@un.org](mailto:balques.alradwan@un.org)), Akvile Giniotien ([akvile.giniotiene@un.org](mailto:akvile.giniotiene@un.org))

## 2. Related Sustainable Development Goals

SDG 16



### 3. Relevant Links

<https://www.un.org/counterterrorism/cct/programme-projects/cybersecurity>

Contact Information

Akvile Giniotiene ([akvile.giniotiene@un.org](mailto:akvile.giniotiene@un.org)), Balques Al Radwan ([balques.alradwan@un.org](mailto:balques.alradwan@un.org))

## United Nations Office for Disarmament Affairs



### 1. Description of Activities on AI

#### Project 1: CCW Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems

- Project Description: The Office for Disarmament Affairs (ODA) supports the work of the Convention on Certain Conventional Weapons (CCW) Group of Governmental Experts on emerging technologies in the area of lethal autonomous weapons systems (LAWS). The Group has affirmed eleven guiding principles to guide its work, covering, inter alia, the applicability of international humanitarian law, the retention of human responsibility and that human-machine interaction should ensure LAWS are used in compliance with international law. The 2023 Meeting of High Contracting Parties to the CCW renewed the mandate of the Group, which will work over the next three years to further consider and formulate a set of elements of an instrument and other possible measures to address emerging technologies in the area of LAWS.
- Project Type/Output: Intergovernmental Meeting
- Project Status: Ongoing
- Project Domain: Peace and security, legal, humanitarian
- Related Sustainable Development Goals (SDGs): SDG 16 -Peace, Justice, and Strong Institutions
- Relevant Links and Multimedia: <https://meetings.unoda.org/meeting/group-of-governmental-experts-gge-on-emerging-technologies-in-the-area-of-lethal-autonomous-weapons-systems-laws/>
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Contact Information: Tania Banuelos Mejia ([tania.banuelos@un.org](mailto:tania.banuelos@un.org)), , Juliana Helou van der Berg ([juliana.helou@un.org](mailto:juliana.helou@un.org))

#### Project 2: Report of the Secretary-General on Developments in Science and Technology and their Potential Impact on International Security and Disarmament Efforts

- Project Description: As requested by United Nations General Assembly resolution 77/43, the United Nations Secretary-General reported to the 78th session of the General Assembly on current developments in science and technology and their potential impact on international security and disarmament efforts, including on developments related to AI. This report has been issued as [A/78/408](#).
- Project Type/Output: Report
- Project Status: Ongoing
- Project Domain: Peace and security
- Related Sustainable Development Goals (SDGs): 16 - PEACE, JUSTICE, AND STRONG
- Reported as part of 2022 Compendium on UN AI Activities? Yes

- Relevant Links and Multimedia: <https://www.un.org/disarmament/topics/scienceandtechnology/>
- Contact Information: Rene Holbach ([holbach@un.org](mailto:holbach@un.org)) ; Beyza Unal ([beyza.unal@un.org](mailto:beyza.unal@un.org))

### Project 3: Responsible Innovation in AI for Peace and Security

- Project Description: The Office for Disarmament Affairs (ODA) and the Stockholm International Peace Research Institute (SIPRI) have partnered for a three-year initiative on responsible innovation in artificial intelligence (AI) for peace and security. This project, which is funded by a decision of the Council of the European Union (Council Decision (CFSP) 2022/2269 of 18 November 2022), aims to support greater engagement from the civilian AI community in mitigating the risks that the misuse of civilian AI technology can pose to international peace and security. Combining awareness raising and capacity building activities, it seeks to provide the civilian AI community – especially the next generation of AI practitioners – with the necessary knowledge and means to engage in responsible innovation and help ensure the peaceful application of civilian AI technology. The project covers three work packages that:
  1. engage with students – introduce selected Science, Technology, Engineering and Mathematics (STEM) students from around the world to how the peace and security risks posed by the diversion and misuse of civilian AI development by irresponsible actors may be identified, prevented or mitigated in the research and innovation process or through other governance processes. This through a number of channels including a series of international in-person workshops that centre a diverse group of young practitioners from around the world;
  2. engage with the AI industry – work with practitioners in industry, as well as professional associations and standards bodies like the Institute of Electrical and Electronics Engineers (IEEE) to i) disseminate tailored education materials and engagement activities to technical professionals; ii) support positive uses of AI for peace and security; and iii) facilitate dialogue and information sharing between experts from academia, the private sector and government on how the risk of the diversion and misuse of civilian AI research and innovation by irresponsible actors can be mitigated; and
  3. engage with educators– work with selected educators and developers of academic curricula on the development and promotion of educational materials that can be used to mainstream consideration of the peace and security risks that flow from the diversion and misuse of civilian AI research and innovation by irresponsible actors in the training of future AI practitioners (e.g. in courses on AI ethics and responsible innovation).

Such an approach allows the project to reach the AI community at all levels, including not only current practitioners but also future generations. It also enables engagement across academic, industry and other silos, and supports the sustainability of future efforts by establishing networks that cross these boundaries. It employs the convening power and experience of UNODA and SIPRI to impact the AI community globally, facilitating engagement between AI actors from across Africa, Asia-Pacific, Europe, and North and South America. In-person, virtual and hybrid capacity building and dissemination elements introduce participants not-traditionally exposed to disarmament issues to the key concepts in responsible innovation of AI, and fill a gap in existing efforts to promote responsible development and use of AI, the majority of which pay little to no attention to the impact of AI research and innovation on the military sphere, or international peace and security. It also allows for participants to recognize more granular issues, like bias and inclusion, and consider their implications for peace, security, and disarmament. In addition to SDGs 4, 5 and 16, the project responds to action 28 of the Secretary-General's Disarmament Agenda.

- Project Type/Output: Capacity building and Outreach

- Project Status: Ongoing
- Project Domain: Peace and security
- Related Sustainable Development Goals (SDGs): SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 16 – Peace, Justice, and Strong Institutions.
- Partnership(s)/Collaborator(s)(s): Stockholm International Peace Research Institute (SIPRI), Federal University of Rio Grande do Sul, Malmö University New York University, Sorbonne University, Tallinn University of Technology Umeå University, Institute of Electrical and Electronics Engineers (IEEE) (made possible thanks to generous support from the European Union)
- Reported as part of 2022 Compendium on UN AI Activities? No
- Relevant Links and Multimedia: <https://disarmament.unoda.org/responsible-innovation-ai/about>
- Contact Information: Charles Ovink ([charles.ovink@un.org](mailto:charles.ovink@un.org)) ; Gaston Collazo ([collazog@un.org](mailto:collazog@un.org))

#### Project 4: Outreach on Autonomous Weapons and Artificial Intelligence

- Project Description: The Secretary-General, the High Representative and Under-Secretary-General for Disarmament Affairs and other ODA officials have sought to raise awareness of the possible implications of autonomous weapons and the weaponization of artificial intelligence.
- Project Type/Output: Outreach
- Project Status: Ongoing
- Project Domain: Peace and security
- Related Sustainable Development Goals (SDGs): SDG 16 – Peace, Justice, and Strong Institutions.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Relevant Links and Multimedia: <https://www.un.org/disarmament/hrstatement/>
- Contact Information: Beyza Unal ([beyza.unal@un.org](mailto:beyza.unal@un.org)), Charles Ovink ([charles.ovink@un.org](mailto:charles.ovink@un.org)), Tania Banuelos Mejia ([tania.banuelos@un.org](mailto:tania.banuelos@un.org)), Juliana Helou van der Berg ([juliana.helou@un.org](mailto:juliana.helou@un.org)),

#### Project 5: Governance of Artificial Intelligence in the Military Domain

- Project Description: The Office for Disarmament Affairs and the Republic of Korea held a project on governance of artificial intelligence in the military domain. The project provided an opportunity for diplomatic community to come together with the expert community, including academia, civil society, and private sector. The project involved exchanging views around responsible design, development, and use of artificial intelligence in the military domain, assessed the impact of artificial intelligence on the future of warfare, and provided potential recommendations in the governance realm.
- Project Type/Output: Capacity-building and Outreach
- Project Status: Closed
- Project Domain: Peace and Security
- Related Sustainable Development Goals (SDGs): SDG 16 – Peace, Justice and Strong Institutions
- Reported as part of 2022 Compendium on UN AI Activities? No
- Relevant Links and Multimedia:
- Contact Information: Beyza Unal ([beyza.unal@un.org](mailto:beyza.unal@un.org)) ; Aaron Junhoung Yoo ([yoo2@un.org](mailto:yoo2@un.org))

## Project 6: Artificial Intelligence Tipping Points in the Context of International Peace and Security

- Project Description: Advancements in artificial intelligence and their potential to cause extreme impact events, either due to their integration into weapons systems or due to their potential to reach and/or suppress human level intelligence, require specific attention for multilateral governance. Another area of concern for extreme risks is the increased resource needs (i.e., energy, minerals, semi-conductors, data, water) and the potential direct and indirect impacts of AI on the planet. This project aims to examine the extreme risks artificial intelligence pose in the areas of international peace and security and explore ways to mitigate such risks by promoting multilateral governance at the auspices of the United Nations. As part of this project, ODA is identifying specific tipping points (such as critical safety and security thresholds) for advanced AI systems, with the assumption that crossing those tipping points might result in irreversible consequences for the humanity. The project commenced at the end of 2023.
- Project Type/Output: Research
- Project Status: Ongoing
- Project Domain: Peace and Security
- Related Sustainable Development Goals (SDGs): SDG 16 – Peace, Justice and Strong Institutions, SDG 13 – Climate Action (\*due to links with tipping points in relation to climate risks)
- Reported as part of 2022 Compendium on UN AI Activities? No
- Relevant Links and Multimedia: None
- Contact Information: Beyza Unal ([beyza.unal@un.org](mailto:beyza.unal@un.org)); Ulysse Richard ([ulyse.richard1@un.org](mailto:ulyse.richard1@un.org))

## 2. Related Sustainable Development Goals

SDG 4, 5, 16

## 3. Related Links

<https://www.un.org/disarmament/>

Contact Information

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## United Nations Office on Drugs and Crime



# UNODC

United Nations Office on Drugs and Crime

### 1. Description of Activities on AI

#### Project 1: Improving the monitoring of illicit crop cultivation and drug production by using artificial intelligence

- Project Description: Jointly with the main drug-growing countries in the world - Colombia, Peru and the Plurinational State of Bolivia for coca, Afghanistan, Lao PDR, Mexico and Myanmar for opium - the UNODC Illicit Crop Monitoring Programme (ICMP) uses GIS and geospatial analysis, satellite imagery and field surveys to monitor the extent and evolution of illicit crop cultivation and production, as well as the factors driving illicit cultivation. The crop and socio-economic surveys help Governments in their policy development and in planning how to tackle illicit drug production.

UNODC cooperates with external partners from academia and other research entities to continuously improve and develop the methods used in the surveys.

The present project seeks to research and eventually apply (semi-) automated methods such as deep learning and big data analysis for improving area estimates for illicit crop cultivation, more specifically the identification of illicit crops and spatial information on potential agricultural land and potential risk areas.. Moreover, research is conducted on spectral based yield information, and the early detection of illegal landing runways applying AI techniques. In the Amazon rainforest, illegally built runways facilitate drug trafficking and harm the environment.

- Department/Division (if applicable):
- Project Type/Output: Software tool
- Project Status: Ongoing: Pilot activities have been conducted.
- Project Start Year: 2021
- Project End Year: 2025
- Project Domain: Agriculture and land use (Plant based illicit drug production, such as the cultivation of opium poppy and coca bush)
- Data Source: Satellite data
- Publicly Available Data: No
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 16 - Peace, Justice, and Strong Institutions
- Partnership(s)/Collaborator(s): University of Salzburg, Austria, Digital FAO and Agro-Informatics Division (CSI);
- Contact information: Lorenzo Vita ([Lorenzo.vita@un.org](mailto:Lorenzo.vita@un.org))

## Project 2: Drugs Monitoring Platform

- Project Description:** The UNODC Drugs Monitoring Platform (DMP) is a unique geo-coded system that brings together information for collecting, visualising, and sharing drug seizure data aimed at providing access to near real-time data and insights on drug trafficking trends. It delivers data using interactive analytical visualisations adapted to user-specific needs to improve drug threat identification for law enforcement and analysts. The platform translates qualitative information on individual seizure cases into event-based data records where single seizures are geolocated and described with standardised variables, easy to use for analysis of trafficking patterns and improved understanding of illicit drug markets. The Platform relies on the integration of multi-sourced datasets stemming from data officially reported to UNODC by Member States and open data and information from cooperating partners. These data require rigorous deduplication and quality control procedures prior to data modelling and visualisation. The DMP provides additional geographical insight on current drug trafficking trends, with approximately 656,000 geo-coded drug seizure data points obtained from countries around the world.

More than ever, there is a critical need to enhance capacities to produce rapid pictures of threats related to drug trafficking and build better analytical pictures to guide operational responses and support the development of evidence-based policy. One component of the DMP project aims to collect and enhance capacities to collect real-time information through targeted text mining/text analytics applied to data harvested from the internet. Automation is critical for analysing text-based data efficiently to address the vast quantity of unstructured data that is generated on a daily basis. For UNODC to process large quantities of critical information 'harvested' in the form of external content, a combination of Artificial Intelligence (AI) procedures centred around Machine Learning modelling, the streamlining of data ETL (extract, transform, load) processes together with the implementation of MLOps have been deployed to ensure the delivery of over 18,000 real-time quantitative data points annually. A series of over 10 newly optimised analytical dashboards were launched to enhance the DMP user experience and optimise Platform geospatial content.
- Project Type/Output:** Report, Dataset, Software tool (There are a combination of products for this project which includes a dataset as well as several analytical briefs and software tool development.)
- AI Approach:** Models based on transformers architecture
- Project Status:** Ongoing
- Project Start Year:** October 2019
- Project End Year:** December 2025
- Project Domain:** Drug Trafficking trends
- Data Source:** webscraped open data on individual drug seizure events from media sites and official government websites. Initiating the use of information from select social media sources.
- Publicly Available Data:** Yes (The first ever public environment was launched within the Platform containing a subset of Individual Drug Seizure (IDS) data shared by UN Member States. All other seizure data content is housed within a closed environment requiring login credentials).
- Technology/Platform:** Python (transformers, spacy), Microsoft Azure Cognitive Services and other functions, PowerBI, MLOps, CosmosDB.
- Reported as part of 2022 Compendium on UN AI Activities?** Yes
- Related Sustainable Development Goals (SDGs):** SDG 3 - Good Health and Well-Being; SDG 5 - Gender Equality; SDG 16 - Peace, Justice, and Strong Institutions
- Links and Multimedia:** [dmp.unodc.org](http://dmp.unodc.org)

- Lessons Learned:
  - Improved more timely response between seizure events and data dissemination through the DMP.
  - Increased geographic coverage and timeliness of seizure data.
  - Living process of testing and development. (active learning of machine learning models required). Models are fine tuned based on a rigorous quality control and feedback process.
  - Not all open data is scrapable, due to data privacy issues.
  - Integration of multi-sourced datasets (i.e. open data, officially reported by Member States to UNODC and other data sharing partners) requires rigorous deduplication and quality control procedures.
  - Additional models developed to monitor trends related to other forms of illicit trafficking, specifically on tobacco and firearms with updated ETL pipelines.
- Contact information: Francesca Massanello ([Francesca.massanello@un.org](mailto:Francesca.massanello@un.org))

### Project 3: Earth Observation and Open Source Intelligence for drugs and crime analysis

- Project Description: UNODC collaborates with a consortium comprising European Space Agency, e-GEOS, Dhiria, GAF, Janes and Hensoldt. The partnership (EO4SECURITY) focuses on developing services for UNODC to investigate environmental crimes and illicit trafficking. Utilising AI techniques, the consortium processes Earth Observation and Open-Source Intelligence (OSINT) data gathered from social media, traditional media and others. The goal is to conduct research on illegal activities like drug production, drug trafficking and crimes against the environment.
- Department/Division: Division for Policy Analysis and Public Affairs (DPA)
- Project Type/Output: Analytical report, maps, tools and methods
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Drugs and crime
- Data Source: Open-source data and satellite images from various sensors, including Synthetic-Aperture Radar.
- Data Publicly Available: yes/no, open-source data and commercial satellite imagery.
- Technology/Platform: various
- Reported as part of 2022 Compendium on UN AI Activities? No
- Partnership(s)/Collaborator(s)(s):
  - International organisation: European Space Agency
  - Private Sector: e-geos, Dhiria, GAF, Janes and Hensoldt
- Relevant Links and Multimedia:
  - [EO4Security: from Space, an aid against Environmental Crimes - e-GEOS](#)
- Contact Information: Coen Bussink ([coen.bussink@un.org](mailto:coen.bussink@un.org))

## 2. Related Sustainable Development Goals

SDG 3, 5, 16



### 3. Relevant Links

<https://www.unodc.org/>

Contact Information

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## United Nations Office for Outer Space Affairs



### UNITED NATIONS Office for Outer Space Affairs

## 1. Description of Activities on AI

### Project 1: Access to Space for All Initiative and Artificial Intelligence

- Project Description: Access to Space for All is a joint initiative of UNOOSA and space agencies, research institutions and industry to offer access to space research facilities, infrastructure and information with the aim of developing technical know-how, engineering processes and infrastructure in the areas of hypergravity and microgravity, satellite development and space exploration and promote international cooperation in the peaceful uses of outer space.

Space technologies, data and applications are key enablers for development, in the same way access to internet is an enabler. Access to Space for All provides access to information, educational resources, tools and research infrastructure and facilities thanks to international collaboration.

The partners of the Initiative are space agencies, research institutions and private companies.

In the framework of the Initiative, the Office organized a webinar covering the use of artificial intelligence applications for space technology development. It aimed at providing applicants to the Access to Space for All hands-on opportunities an overview of what technologies can be incorporated in their projects. The webinar covered hardware and software elements. The webinar had speakers from NVIDIA, IBM and the European Space Agency as well as UNOOSA staff. The Office plans to have a follow up of the webinar this year.

We have continued to work with NVIDIA on artificial intelligence matters and, as part of this cooperation, UNOOSA was invited to present Access to Space for All during the Graphics Processing Unit Technology Conference April 2021 (GTC April 2021).

The objective is to raise awareness about how artificial intelligence can be integrated in space-technology projects.

- Project Type/Output: Seminar/meeting
- Project Status: Ongoing
- Project Start Year: 2020
- Project Domain: Outer Space Technology
- Technology/Platform: Webinar conducted in MS Teams and GTC conducted in a separate platform.
- Reported as part of 2022 Compendium on UN AI Activities?: Yes
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education; SDG 9 - Industry, Innovation and Infrastructure; SDG 17 - Partnership for the Goals
- Partnership(s)/Collaborator(s)
  - Private Sector: Nvidia Corporation, International Business Machines (IBM)

- Other: China Manned Space Agency, European Space Agency, German Aerospace Center, Japan Aerospace Exploration Agency, Center of Applied Space Technology and Microgravity, Keldysh Institute of Applied Mathematics (Russian Academy of Science), Kyutech Institute of Technology, Airbus Defence and Space, Avio and Sierra Space.
- Relevant Links and Multimedia:
  - <https://www.unoosa.org/oosa/en/ourwork/access2space4all/index.html>
  - [Access to Space for All and Artificial Intelligence](#)
- Lessons Learned: This webinar was well attended and the participants were very much engaged, demonstrating the interest for the combination of these two topics.
- Contact Information: Jorge Del Rio Vera ([jorge.delriovera@un.org](mailto:jorge.delriovera@un.org))

## Project 2: AI and Climate Action Curriculum

- Project Description: The project consists on the development of a curriculum module on the utilization of space-based datasets for the development of AI applications on climate action, targeting girls in developing countries.
- Project Type/Output: Curriculum module and capacity building implementation
- Project Status: Ongoing
- Project Start Year: 2020
- Project End Year: 2022
- Project Domain: Outer Space and Sustainable Development Goals (SDGs)
- Reported as part of 2022 Compendium on UN AI Activities?: Yes
- Project Updates: A partnership with Technovation (<https://technovation.org/>) was launched in 2021 and several webinars presenting the role of space activities for climate action were organized. Including a Diversity and Inclusion event during the International Joint Conference on Artificial Intelligence (IJCAI 2021).
- Related Sustainable Development Goals (SDGs): SDG 4 – Quality Education; SDG 5 – Gender Equality; SDG 6 – Clean Water and Sanitation; SDG 13 – Climate Action; SDG 15 – Life on Land; SDG 17 – Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - Civil Society: Technovation, implementing through which mentors and girls will use space data and tools to address the SDGs
- Relevant Links and Multimedia:
  - <https://technovation.org/>
  - <https://youtu.be/GbX5QgHQSEQ>
  - <https://www.technovation.org/news-events/ijcai-2021-tech-for-sustainable-development/>
- Lessons Learned: The work is in progress, working to attract women (age 8-18) to STEM careers through the incorporation of space related concepts in the curriculum that is run by Technovation each year. The use of satellite remote sensing data created excitement and engagement in the audiences that participated in the various events organized.
- The use of space data requires dedicated expertise and time is needed to incorporate the expertise and knowledge into an accessible curriculum.
- Contact Information: Jorge Del Rio Vera ([jorge.delriovera@un.org](mailto:jorge.delriovera@un.org))

### Project 3: AI and Climate Action Curriculum

- Project Description: In its [resolution 61/110 of 14 December 2006](#) the United Nations General Assembly agreed to establish the "United Nations Platform for Space-based Information for Disaster Management and Emergency Response - UN-SPIDER" as a new United Nations programme, with the following mission statement: "Ensure that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle".  
A number of initiatives in recent years have contributed in making space technologies available for humanitarian aid and emergency response. Yet, UN-SPIDER is the first to focus on the need to ensure access to and use of such technologies during all phases of the disaster management cycle, including the risk reduction phase which is crucial for reducing the losses of lives and property.  
UN-SPIDER works in delivering resources for Member States to facilitate the acquisition and processing of space remote sensing data.
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2009
- Project Domain: Agriculture, Environment, Weather, Space, Disaster Management, Emergency Response
- Data Source:
  - Sentinels, Aqua/Terra, Landsat and other satellite data,
  - Composite data from other sources developed by the space community (drought indices like NDVI, etc).
  - Additional data, products and services established by the space and geospatial communities
  - See "Data Sources": <https://un-spider.org/links-and-resources/data-sources>
- Data Publicly Available: Yes
- Technology/Platform:
  - Python (Jupyter notebooks) and R Studio SNAP, EsriGIS, Quantum GIS, etc
- Reported as part of 2022 Compendium on UN AI Activities?: Yes
- Project Updates: Continuing the compilation of technical content on data sources, services and products developed by the space community to support disaster management efforts. Continuing to present information on activities carried out by the space and the disaster management communities and technical information on how space-based technologies contribute to efforts in all phases of the disaster management cycle. Continuing with the creation of step-by-step workflows in GIS software, Python (Jupyter notebooks) and R scripts to download, process and visualize Earth observation data for monitoring and assessing droughts, floods, mudslides, burn severity after forest fires
- Related Sustainable Development Goals (SDGs): SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action
- Partnership(s)/Collaborator(s)(s):
  - Other: UN-SPIDER Regional Support Offices <https://www.un-spider.org/network/regional-support-offices>
- Relevant Links and Multimedia: <https://www.un-spider.org/>
- Lessons Learned: The goal of this project is to provide the knowledge, tools, information, and assessments in the hands of those who can action them for the disaster management cycle including emergency response.

- Since its launch at the end of 2009, it has been gaining recognition as a one-stop-shop:
  - to acquire information on what can be done with space technologies to support efforts in all phases of the disaster management cycle, and on the mechanisms, products and services established by the space community to support efforts in all phases of the disaster management cycle,
  - to gain access to data, information and products developed and made available by the space and geospatial communities, information on software packages and tools that can be used to process data and to generate relevant products or information,
  - To gain access to step-by-step procedures developed in open software to process data to generate maps that are relevant in disaster management applications,
  - To find information on upcoming training opportunities (virtual, presential, academic)
  - Nearly a million visits to the tool on an annual basis in the last two years (2020 and 2021)
- Contact Information: Juan Carlos Villagran de Leon ([juan-carlos.villagran@un.org](mailto:juan-carlos.villagran@un.org))

## 2. Related Sustainable Development Goals

SDG 4, 5, 6, 11, 13, 15, 17

## 3. Relevant Links

<https://www.unoosa.org/>

Contact Information

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Markus Woltran ([Markus.woltran@un.org](mailto:Markus.woltran@un.org))

## United Nations Research Institute for Social Development



### 1. Description of Activities on AI

UNRISD has completed a think-piece series on new technology and human rights (More details [here](#))

#### Project: Think Piece Series

UNRISD has completed a Think Piece Series which invited experts from academia, think tanks and civil society to engage with the topic of linking technology and human rights, and to share their experience at the front lines of policy-driven research and advocacy aimed at leaving no one behind in an increasingly digital, automated world.

This Series aimed to provide perspectives on the intersections between new technology and various dimensions of civil and political rights and economic, social and cultural rights, including the right to health, work, social protection, freedom of expression and more. It also presents reflections on how we conceptualize and practice human rights in the face of technology-driven change on a global scale.

The Series was launched to coincide with the 37th Session of the UN Human Rights Council, as part of UNRISD's commitment to promote socially just and sustainable development within and beyond the UN system. It is also part of the UN system's celebration of the 70th anniversary of the Universal Declaration of Human Rights.

- First Edition: From Disruption to Transformation
  - [Tech for Transformative Change? Looking beyond Disruption](#)—Kelly Stetter
  - [Time for a Fourth Generation of Human Rights?](#)—Changrok Soh, Daniel Connolly and Seunghyun Nam
  - [Embracing Human Diversity: Policies and Enabling Factors for Accessible Technologies](#)—Alejandro Moledo
  - [Data Frameworks for a Right to Development](#)—Anita Gurumurthy and Nandini Chami
  - [Big Data and Monitoring Sustainable Development Goal 3: Not Counting Those Left Behind?](#)—Carmel Williams
  - [Accounting for the Most Vulnerable: Ensuring Big Data Works for Sustainable and Inclusive Development](#)—Sabrina Rau and Sheldon Leader
  - [How IT Threatens Democracy](#)—Kofi Annan
  - [Technology and Freedom of Expression: Opportunities and Threats through the Journalist's Lens](#)—Mariateresa Garrido
  - [A Feminist Interrogation of Autonomy on the Internet](#)—Jac sm Kee

- Second Edition: Tools for Transformation

The second edition of this think piece series on new technologies and human rights focuses more on responses and possible solutions to issues sketched out in the first edition. The authors were speakers at our [official side event of the 39th session of the United Nations Human Rights Council](#) on new technologies and human rights held in September 2018.

- [Profiling and Automated Decision Making: Is Artificial Intelligence Violating Your Right to Privacy?](#)—Tomaso Falchetta
- [Legal Literacy: An Essential Complement to Digital and Scientific Literacy](#)—Thérèse Murphy
- [Human Rights and New Technologies: Setting the Agenda for Human Rights-Centred Innovation](#)—Molly K. Land

UNRISD held an event on **new technologies and human rights**, co-sponsored by Austria and Denmark, at the 39<sup>th</sup> session of the UN Human Rights Council. More detail [here](#).

## 2. Challenges and Opportunities

Great interest in the topic, but difficult to convert into solid funding for holistic and critical research enquiries.

## 3. Relevant Links

Contact Information

Paul Ladd, Director ([paul.ladd@un.org](mailto:paul.ladd@un.org))

## United Nations University



**UNITED NATIONS  
UNIVERSITY**

### 1. Description of Activities on AI

#### Project 1: UNU-EGOV and ISSA joint webinar series on Artificial Intelligence dedicated to the social security agencies and government services

- Project Description: This is part of a series of webinars on Artificial Intelligence collaboration between UNU-EGOV and International Social Security Agency (ISSA) University with whom we are also preparing a report on the use of Artificial Intelligence in Social Security.

The plan for the webinar is to have an initial 20-minute presentation to researchers and academics as a framing “academic” presentation. Then multiple practitioners from well-known international agencies, technology focus on their experience and approaches in implementing AI and data driven interventions, it can also be of about 20 minutes. Finally, we will have a 30-minute Questions and Answers discussion session. The audience is very varied. It will very likely attract CIOs and ICT managers from social security institutions wanting to understand more about what various issues on AI ranging from AI in healthcare, Conversational Agents, Explainability, Risk, Information protection. On average about 200-300 people remain online during the webinar, mostly concentrated in Europe, Africa and Americas and some from Asia region. The webinars are recorded for later viewing for those who could not connect on the spot.

- Division/Department: UNU EGOV under general ISSA - UNU-EGOV partnership on digital transformation and capacity development
- Project Type/Output:
- Project Status: On going
- Project Start Year: 2022
- Project End Year: 2024
- Project Domain: Social Security Agencies, Government Agencies
- Data Source: N/A
- Data Publicly Available: N/A
- Technology/Platform: Webinar via zoom
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 1-12, 16, 17
- Partnership(s)/Collaborator(s):
- Relevant Links and Multimedia: A few recent links
  - <https://www.issa.int/events/webinar-2024-01-18>
  - <https://www.issa.int/events/webinar-2023-06-29>
  - <https://www.issa.org/event/risk-management-in-the-age-of-ai/>
- Contact Information: Moinul Zaber ([zaber@unu.edu](mailto:zaber@unu.edu))



## Project 2: Understanding the urban space for better governance: use of non-traditional data for real-time disaggregated decision-making

- **Project Description:** Local governments around the world need well-curated data on the urban spaces to monitor their inhabitants and to understand the impact of policy interventions. Urbanization plays a critical role in changing the urban environment. Most developed countries have almost completed urbanization. However, with more and more people moving to cities, the urban environment in developing countries is undergoing significant changes. Sustainable development cannot be achieved without significant changes in building, managing, and responding to changes in the urban environment. The scarcity of well-curated Spatio-temporal data of urban spaces gives the AI engines the fuel to build machine learning and data science tools for the policymakers to make decisions based on evidence of the present. Understanding the issues, visualizing the challenges, and monitoring progress are keys to achieving SDG goals. However, collecting traditional data from urban spaces is expensive and therefore not easily replicable. Hence, by the time the data are prepared, the reality of the decision-making space changes. Moreover, data collected in most cases are not usable for decision-making. With the advent of computational capacity, and advances in knowledge streams such as machine learning, data mining, and statistical inference it is possible to harness data from heterogeneous sources, organize them in conjunction with the traditional data, and visualize them in various ways. One such data comes in abundance from the satellites. These data help monitor the urban spaces' changes in real-time. This project uses satellite data and computational mechanisms to understand the socio-economic condition of urban spaces.

The primary focus of this project is the cities in the developing world. The first part of the project is focused on developing a novel method to classify urban spaces based on the buildings and their surroundings. The novel method is designed to help prepare the datasets for state-of-the-art deep learning mechanisms. The second part of the project focuses on training and designing a novel deep learning mechanism that is suitable for the urban categorization process. The resulting automated method can detect the socio-economic condition of urban spaces of the cities in the developing world by detecting highly formal to highly informal zones with very high accuracy. The ease in data curation and scalability make the model useful for city planners and policymakers in the developing world at almost no cost compared with traditional survey-based methods. The third part of the project is now focusing on including various other data features such as road conditions, green spaces, urban air and temperature, water bodies, etc. to build more robust categories.

- **Department/Division:** United Nations University Operating Unit on Policy-Driven Electronic Governance (UNU-EGOV)
- **Project Type/Output:** Academic paper/ Dataset/Policy Framework / Software tool
- **Project Status:** Ongoing
- **Project Start Year:** 2020
- **Project End Year:** Ongoing
- **Reported as part of 2022 Compendium on UN AI Activities?** Yes
- **Project Domain:** Sustainable cities and communities
- **Data Source:** Satellite, Census, and survey data
- **Publicly Available Data:** Yes
- **Technology/Platform:** R, Python, PHP, JavaScript, FCN-8, U-Net, DeepLabv3+
- **Related SDGs:** SDG 11 - Sustainable cities and communities; SDG 10 - Reduced Inequality; SDG 8 - Decent Work and Economic growth; SDG 1- No Poverty.
- **Partnership(s)/Collaborator(s):**  
Academia: University of Tokyo, Japan; University of Dhaka, Bangladesh; Independent University of Bangladesh, Bangladesh.

- Lessons Learned: Satellite data with usable socio-economic categorization methods and computational models can help categorize urban spaces in real time. This can complement the traditional survey and census-based data sources that are expensive and time-consuming. The categorization method helps categorize the city spaces into sixteen subcategories based on building conditions and surrounding environments. The subcategories are then clustered to find four socioeconomic categories ranging from highly formal to highly informal spaces. After training the deep learning module detects these spaces with over 90% accuracy. The final model can segment the test part with an average accuracy of 90.0% for Dhaka, 91.5% for Nairobi, 94.75% for Jakarta, 82.0% for Guangzhou city, 94.25% for Mumbai, 91.75% for Cairo, and 96.75% for Lima. The methods are novel, rapid, and scalable for the public policy practitioners relying mostly on traditional survey and census data for their decision-making purposes. Multiple publications to understand various aspects of urban environment such as movement, energy use and habitat were also published that indicated the importance of heterogenous data and machine learning for public policy.
- Links:
  - <https://www.mdpi.com/1424-8220/21/22/7469>
  - <https://www.mdpi.com/2071-1050/14/7/4336>
  - Understanding the Urban Environment from Satellite Images with New Classification Method–Focusing on Formality and Informality. Sustainability 2022, 14, 4336. <https://doi.org/10.3390/su14074336> <https://www.mdpi.com/2071-1050/14/7/4336>
  - Applying State-of-the-Art Deep-Learning Methods to Classify Urban Cities of the Developing World. Sensors 2021, 21, 7469. MDPI publications, <https://doi.org/10.3390/s21227469> <https://www.mdpi.com/1424-8220/21/22/7469>
  - Seasonal, Temporal and Spatial Variation of Particulate Matter Concentration in Bangladesh: A Longitudinal Analysis, 2021 IEEE Region 10 Symposium (TENSYP), Jeju, Korea, Republic of, 2021, pp. 1-8, doi: 10.1109/TENSYP52854.2021.9550877.
  - "A Novel Disaster Image Data-set and Characteristics Analysis using Attention Model," in 2020 25th International Conference on Pattern Recognition (ICPR), Milan, Italy, 2021 doi: 10.1109/ICPR48806.2021.9412504.Cheng, Q.; Zaber, M.; Rahman, A.M.; Zhang, H.; Guo, Z.; Okabe, A.; Shibasaki, R. Understanding the Urban Environment from Satellite Images with New Classification Method–Focusing on Formality and Informality. Sustainability 2022, 14, 4336. <https://doi.org/10.3390/su14074336>
  - Rahman, A., Zaber, M., Cheng, Q., Nayem, A., Sarker, A., Paul, O., Shibasaki, R., Applying State-of-the-Art Deep-Learning Methods to Classify Urban Cities of the Developing World. Sensors 2021, 21, 7469. MDPI publications, <https://doi.org/10.3390/s21227469>
  - Cheng, Q., Rahman, A., Sarker, A., Nayem, A., Paul, O., Ali, A., Amin, M., Shibasaki, R. & Zaber, M., (2021). Deep learning coupled with novel classification method to classify the urban environment of the developing world. In SIGML 2020. Proceedings of the 2nd International Conference on Signal Processing and Machine Learning , Zurich, Switzerland, January 23-24 and In Computer Science & Information Technology (CS & IT) 2021, pp 37-56, DOI : 10.5121/csit2021.110103
  - Rizvee R.A., Zaber M. (2021) How Newspapers Portrayed COVID-19. In: Byrski A., Czachórski T., Gelenbe E., Grochla K., Murayama Y. (eds) Computer Science Protecting Human Society Against Epidemics. ANTICOID 2021. IFIP Advances in Information and Communication Technology, vol 616. Springer, Cham. [https://doi.org/10.1007/978-3-030-86582-5\\_5](https://doi.org/10.1007/978-3-030-86582-5_5)
  - A. Zaman, S. B. Rabbani, R. Ridwanul Haque and M. Zaber, "Seasonal, Temporal and Spatial Variation of Particulate Matter Concentration in Bangladesh: A Longitudinal Analysis," 2021 IEEE Region 10 Symposium (TENSYP), 2021, pp. 1-8, doi: 10.1109/TENSYP52854.2021.9550877.
  - Niloy. A., Arif. M, Nayem. A., Sarker. A., Paul. O., Amin. M., Ali. A., Zaber M. & Rahman. A. (2021). "A Novel Disaster Image Data-set and Characteristics Analysis using Attention

Model," 2020 25th International Conference on Pattern Recognition (ICPR), 2021, pp. 6116-6122, doi: 10.1109/ICPR48806.2021.9412504

- F. Tabassum, H. Islam, A. A. Ali and M. Zaber, "A Complex Network Analysis of Inland Waterways Port Connectivity of Bangladesh," in IEEE Region 10 Symposium (TENSYP), Dhaka, June, 2020. , 10.1109/TENSYP50017.2020.9230896
- M. Wahed, R. A. Rizvee, R. R. Haque, A. M. Ali, M. Zaber and A. A. Ali, "What Can Nighttime Lights Tell Us about Bangladesh?," in IEEE Region 10 Symposium (TENSYP), Dhaka, June, 2020. DOI : 10.1109/TENSYP50017.2020.9230806
- S. B. Rabbani, A. A. Ali and M. Zaber, "Does Electric Prepaid Meters Decrease Payment Delinquency? Evidence from Data Centric Analysis of Electricity Consumption in Dhaka, Bangladesh," in IEEE Region 10 Symposium (TENSYP), Dhaka, June, 2020. DOI : 10.1109/TENSYP50017.2020.9230814
- Contact information: Moinul Zaber ([zaber@unu.edu](mailto:zaber@unu.edu))

### Project 3: Digital Transformation for the Implementation of BMZ Flagship Projects on Digitalisation - Lot 3 AI Expertise

- Project Description: Consultancy for GIZ and its partners on the following topics:
  - a. The application of artificial intelligence (AI) and machine learning (ML) in a sustainable development context (e.g. in agriculture, mobility, urban development, energy, financial inclusion and the wider financial system and the public sector), including the development, deployment and integration of ML systems with other software.
  - b. Explanations of artificial intelligence and machine learning systems including the current status and potential of AI and ML that are accessible for a non-expert audience, in particular in GIZ's partner countries.
  - c. Risk assessments of the use of AI and ML in a sustainable development context, following international best practices and GIZs standards and focussing on issues including potential discrimination, especially of disadvantages groups, in training datasets and by AI/ML models, as well as mitigation measures for these identified risks, including approaches for de-biasing of training data.
  - d. Sustainability assessments for AI and ML deployments following GIZs the following three good practice standards 1) Principles for Digital Development 2) criteria for ML projects and 3) "Self-sustaining Open AI cycle in nine steps".
  - e. Analyses of the ecosystems of AI and ML including the mapping and assessment of stakeholders and analysis of framework conditions in partner countries of German Development Cooperation, nationally, regionally or globally.
  - f. Contributions from a technical point of view to policy discussion around artificial intelligence e.g. data governance, local hosting requirements, data flows etc.
  - g. Creation of material for and implementation of capacity building measures in GIZ's partner countries, especially India, in the cross-section of AI and cyber security, especially on secure AI systems, the relationship between AI and cyber security and open AI training data and AI-based cybersecurity.
  - h. The creation of training datasets for AI and ML in a sustainable development context, especially the creation of openly available datasets in a manner that ensures the sustainable maintenance and extension of such datasets.
- Division/Department: UNU-EGOV, United Nations University Operating Unit on Policy-Driven Electronic Governance
- Project Type/Output: Consulting
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2024

- Project Domain: Public Administration, e-Government
- Data Source: Participation in calls and other off-site activities like virtual working group meetings, coaching and mentoring of GLZ's partners, desk research and drafting of factsheets and practical reports, on-site consulting
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? No
- Partnership(s)/Collaborator(s): GFA Consulting Group GmbH
- Contact Information: Delfina Soares ([soares@unu.edu](mailto:soares@unu.edu))

#### **Project 4: AI4PA Portugal Artificial Intelligence & Data Science for Public Administration Portugal Innovation Hub**

- Project Description: The AI4PA aims to support the digital transition of public administration by introducing Artificial Intelligence and other technologies (technically adequate and socially responsible and oriented towards the common good) to increase the effectiveness of public policies, as well as capacitating relevant stakeholders at the central, regional and local public administration and SMEs that offer digital solutions suited to the needs of the State.
- Division/Department: UNU-EGOV, United Nations University Operating Unit on Policy-Driven Electronic Governance
- Project Type/Output: Collaborative network, Testing, Experimentation, Training, Consulting
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: -
- Project Domain: Public Administration, e-Government
- Data Source: public policies
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): 11
- Partnership(s)/Collaborator(s): AMA – Agência para a Modernização Administrativa, CVTT-Iscte - Associação Iscte Conhecimento e Inovação - Centro de Valorização e Transferência de Tecnologias, AESINTRA - Associação Empresarial de Sintra, AIP - CCI - Associação Industrial Portuguesa - Câmara de Comércio e Indústria, ANPME - Associação Nacional Pequenas Médias Empresas, Associação Laboratório Colaborativo para o Trabalho, Emprego e Proteção Social - LCTEPS (CoLABOR), AUDAX - Centro de Inovação e Empreendedorismo, Cisco International Limited, Sucursal em Portugal, Comunidade Intermunicipal do Oeste (OESTECIM), Direção-Geral de Estatísticas da Educação e Ciência (DGEEC), Esri Portugal - Sistemas e Informação Geográfica, S.A, GEP/MTSSS - Gabinete de Estratégia e Planeamento, INDEG - Iscte Executive Education, IPPS - Instituto para as Políticas Públicas e Sociais, MORE CoLAB - Laboratório Colaborativo Montanhas de Investigação, Município de Sintra, Município de Viseu, UGT -União Geral de Trabalhadores, UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias
- Contact Information: Delfina Soares ([soares@unu.edu](mailto:soares@unu.edu))

#### **Project 5: Global assessment of responsible AI in cities (AI4Cities)**

- Project Description: Provide technical support to develop a thorough assessment of the opportunities and constraints for local government development to responsibly implement, use and govern Artificial Intelligence (AI) technologies in cities. The following activities are included:
  - designing and analysing a global survey for cities,

- performing desk-based research to capture case studies on the use and governance of AI in cities,
- drafting a research paper with findings and policy recommendations to address capacity gaps.
- Division/Department: UNU-EGOV, United Nations University Operating Unit on Policy-Driven Electronic Governance
- Project Type/Output: Consulting
- Project Status: Ongoing
- Project Start Year: 2022
- Project End Year: 2023
- Project Domain: Local government
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): 11
- Partnership(s)/Collaborator: International Development Research Centre (IDRC), UN HABITAT
- Contact Information: Delfina Soares ([soares@unu.edu](mailto:soares@unu.edu))

**Project 6: 16th International Conference on Theory and Practice of Electronic Governance (ICEGOV), TRACK 1: Emerging and disruptive technologies for digital governance**

- Project Description: New technologies emerge continuously, with promises of new affordances and opportunities for digital governance. Emerging technologies are still under development and, therefore, not fully formed and matured. These are often associated with disruption, meaning that, if applied, they carry the potential to fundamentally change the way digital governance is carried out. Such a change could alter the nature of the public sector organisations and citizen-government relationships altogether. Artificial Intelligence, robotisation, data analytics, blockchain, and open data are only a few examples of technologies that can be considered emerging and potentially disruptive. This Track invites papers that deal with issues related to emerging and potentially disruptive technologies for digital governance. The track welcomes empirical studies of government organisations’ work and experimentation with new technologies, such as machine learning, algorithmic decision-making, face recognition, new forms of automation and robotisation, blockchain, and more. The Track also welcomes conceptually oriented papers that further the field’s understanding of emerging technologies and disruption for digital governance. Papers that critically discuss the role of emerging technologies for digital governance and their potential impact on public sector organisations are particularly welcome.
- Division/Department: UNU-EGOV, United Nations University Operating Unit on Policy-Driven Electronic Governance
- Project Type/Output: Conference Session
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Emerging and disruptive technologies for digital governance
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? No
- Relevant Links and Multimedia: <https://www.icegov.org>
- Contact Information: Delfina Soares ([soares@unu.edu](mailto:soares@unu.edu))

### **Project 7: AI capacity needs in cities: insights for strengthening local governments' AI governance, Roundtable Session**

- Project Description: ICEGOV 2023 Roundtable Session
- Division/Department: UNU-EGOV, United Nations University Operating Unit on Policy-Driven Electronic Governance
- Project Type/Output: Conference session
- Project Status: Completed
- Project Start Year: 2023
- Project End Year: 2023
- Project Domain: Local government
- Data Publicly Available: No
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): 11
- Partnership(s)/Collaborator : International Development Research Centre (IDRC), Canada, UN HABITAT
- Contact Information: Delfina Soares ([soares@unu.edu](mailto:soares@unu.edu))

### **Project 8: Gender-sensitive AI policy in Southeast Asia**

- Project Description: This is a research project conducted in Thailand, Indonesia, Malaysia and the Philippines, which aims to understand gender and societal risks in AI in the focus countries, with a focus on critical technologies. The outputs of this research include a policy report, which makes recommendations to include consideration on gender discrimination, stereotyping and exclusion in future AI legislation, as well as a training programme for policymakers in the four countries.
- Division/Department: United Nations University Institute in Macau
- Project Type/Output: Policy research project and training programme
- Project Status: Closed
- Project Start Year: 2022
- Project Domain: Women's rights
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 5: Gender Equality
- Relevant Links and Multimedia: <https://unu.edu/macau/blog-post/developing-inclusive-ai-policy-southeast-asia>
- Contact Information: Eleonore Fournier-Tombs ([fourniertombs@unu.edu](mailto:fourniertombs@unu.edu))

### **Project 9: Gendered implications of Artificial Intelligence on the implementation of the Women, Peace and Security agenda in Southeast Asia**

- Project Description: The mainstreaming of artificial intelligence technologies (AI) globally has had an important impact on the security of women. While AI can be used for peacebuilding purposes, it is used unequally across genders, with women much more impacted than men by the digital divide. At the same time, AI systems have been shown to pose security risks to women, particularly with relation to online harms (such as cyberbullying, cyberstalking, doxing, misogynistic hate-speech and other forms of harassment), dis- and misinformation, and privacy. Finally, as Southeast Asian countries begin to develop strategies and regulations for AI, they often have not taken into consideration gender risks in AI, which can be obfuscated under the projected economic potential of the technologies.

Investment in AI technologies is increasing in the Southeast Asian region, although at an uneven pace, with some countries positioning themselves as global leaders in AI,

while others having a much more limited capacity. It is projected, however, that AI will add 1 trillion dollars to the GDP of Southeast Asian countries by 2030. In this context, understanding the impact of these technologies on the Women, Peace and Security agenda (WPS) is critical to supporting Southeast Asian countries to regulate the technologies and mitigate their risks.

This research examined the opportunities and risks of AI from a WPS lens in Southeast Asia, with a focus on four types of gender biases in AI which will need to be addressed before the region can fully benefit from new technological developments; discrimination, stereotyping, exclusion, and insecurity. Understanding these and mitigating them is an important step in developing a safe and trustworthy AI ecosystem. The research included interviews with relevant stakeholders to understand the relationship between AI and WPS as well as a social media analysis of women civil society organisations in the region. Findings highlight three types of AI and its applications: AI for Peace, Neutral AI, and AI for Conflict. In each category, there are favourable and unfavourable effects of AI for gender-responsive peace and women's agency in peace efforts. These findings were used to inform an e-learning module on AI and the WPS agenda for women civil society in Southeast Asia and two critical recommendations are made; mitigating the risks of AI systems to advancing the WPS agenda and fostering the development of AI tools built explicitly to support gender-responsive peace in line with WPS commitments.

- Division/Department: United Nations University Institute in Macau
- Project Type/Output: Policy research project and training programme
- Project Status: Ongoing
- Project Start Year: 2021
- Project End Year: 2024
- Project Domain: Women's rights
- Data Source: Primary data collected via interviews
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 5
- Partnership(s)/Collaborator(s): UN Women Regional Office for Asia and the Pacific
- Relevant Links and Multimedia: N/A
- Contact Information: Jaimee Stuart ([stuart@unu.edu](mailto:stuart@unu.edu))

### Project 10: Generative AI, Anxiety, and Hope for the Future Among Young Adults

- Project Description: Generative Artificial Intelligence (Gen AI) is rapidly becoming part of our everyday digital experiences, it is not only embedded in apps in our smartphones but also in virtual assistants, software, chatbots and within search engines. Research has shown that young people are already using Gen AI in a variety of ways, and this technology provides many new and emerging risks and opportunities. For instance, it can be used as a means of enhancing creativity, with platforms and tools offering the opportunity to generate artwork, stories, and music. It can also help create personalized learning systems, tailoring help to young people's specific learning style and needs. Similarly, for young people with learning disabilities, Gen AI can enhance the accessibility of digital platforms, making them easier to use for more individuals. However, Gen AI is not without its potential risks and research shows that young people are aware of this. Their key concerns center around Gen AI's ability to spread misinformation and the potential for job displacement. Youth also have concerns that society may become overly reliant on Gen AI technology, the potential privacy concerns it poses and how it can be misused to cheat within an academic context or by governments and corporations.
- Overall, while young people accept that Gen AI is here to stay and will inevitably impact their future, they may face anxiety in response to concerns over the way AI is changing

their future careers and educational opportunities, otherwise known as “AI-anxiety”. Such impacts highlight the need for greater attention to be given to how generative AI is impacting young people’s wellbeing, and whether helping them learn how to use these platforms can prevent their fear and anxiety surrounding it. The aim of this project, therefore, is to understand young adults’ experiences of Gen AI – specifically examining motivations for using Gen AI technologies, what perceived risks and opportunities youth believe it poses to their futures, and the association (if any) between perceptions of Gen AI developmental outcomes. This project is made up of two complementary among young adults (aged 18 - 25 years old), a survey with youth from a range of countries ranging from LMIC to HIC, and a series of interviews with young people in the United States. As such, the research used a mixed methods approach incorporating both quantitative and qualitative data collection. This approach will enable a deeper understanding of the topic and more complete evidence.

- Division/Department: United Nations University Institute in Macau
- Project Type/Output: Policy brief, journal article, report
- Project Status: Ongoing
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Youth wellbeing
- Data Source: Primary data via surveys
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 3, SDG 4
- Partnership(s)/Collaborator(s): N/A
- Relevant Links and Multimedia: N/A
- Contact Information: Jaimee Stuart ([stuart@unu.edu](mailto:stuart@unu.edu))

### Project 11: UNU Generative AI Monthly Series of Webinars

- Project Description: An in-depth exploration into ChatGPT and Generative Artificial Intelligence (AI) is a new monthly series of webinars that, recognizing the rapid advancements and transformative potential of Artificial Intelligence, aims to cultivate a comprehensive understanding and foster informed and responsible engagement with these emerging technologies. United Nations University Institute in Macau (UNU Macau) will be leading this programme, inviting distinguished scholars and researchers from the UNU system and an extensive network in academia and broader field, to deliver presentations on topics related to generative AI. The discussions will encompass a wide array of themes, from technical advancements to the ethical implications, societal impacts, and policy considerations surrounding the advanced technology. This series is aiming at presenting diverse perspectives on how generative AI will impact our collective future on health, education, environment, climate, UN peacekeeping, and humanitarian work.
- Division/Department: UNU-IIST Macau
- Project Type/Output: Seminar/meeting
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Education, Responsible AI, Law, Computer Science
- Data Source: N/A
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No



- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure
- Relevant Links and Multimedia: <https://unu.edu/macau/unu-generative-ai-series>
- Contact Information: Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))

### Project 12: UNU-UNESCO-UM Workshop: Ethical AI - Pioneering Progress in the Asia-Pacific

- Project Description: In the unfolding era of Artificial Intelligence (AI), marked by the broader Fourth Industrial Revolution (Industry 4.0), intricate questions emerge at the intersections of ethics, politics, law, and economics. The transformative impact of AI, particularly generative models like ChatGPT, is automating tasks and generating content, promising substantial economic gains. Yet, this innovation brings ethical challenges, from data bias to misinformation. Recognizing the urgency for ethical oversight, UNU-IIST, in collaboration with UNESCO and the University of Macau, is delighted to host the international workshop titled "Ethical AI: Pioneering Progress in the Asia-Pacific". This workshop aims to facilitate multi-stakeholder dialogue, uniting experts, policymakers, and stakeholders to explore the ethical dimensions of AI and seeks to catalyze collective efforts toward responsible AI development and deployment in the region.
- Division/Department: UNU-IIST Macau
- Project Type/Output: seminar/meeting
- Project Status: Closed
- Project Start Year: 2023
- Project Domain: Ethics of Artificial Intelligence
- Data Source: N/A
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 4 - Quality Education, SDG 9 - Industry, SDG 17 Partnerships for the Goals,
- Relevant Links and Multimedia: <https://unu.edu/macau/event/international-workshop-ethical-ai-pioneering-progress-asia-pacific>
- Contact Information: Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))

### Project 13: Baseline assessment of the Artificial Intelligence landscape in Mongolia

- Project Description: The project aims to do a baseline assessment of the AI landscape in Mongolia to develop AI standards, frameworks, policies, and initiatives at the national level. Desk research has been conducted covering existing policies and uses of AI in Mongolia. Following the AI readiness methodology for the UNESCO Recommendations for the Ethics of AI (2021), the project develop a pilot AI readiness assessment that will help Mongolia to develop the complete methodology in the future and prepare for the national AI roadmap. The work has been conducted by UNESCO and the United Nations University Institute in Macau to develop a research project analyzing the current state of AI readiness in Mongolia. The project will inform the Mongolian National commission of UNESCO.
- Division/Department: UNU-IIST Macau
- Project Type/Output: Policy research project
- Project Status: closed
- Project Start Year: 2023
- Project Domain: Ethics of AI
- Data Source: Primary data collected via interviews

- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation and Infrastructure, SDG 17 Partnerships for the Goals
- Relevant Links and Multimedia: N/A
- Contact Information: Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))

#### **Project 14: The Use of Synthetic Data to Train AI Models: Opportunities and Risks for Sustainable Development**

- **Project Description:** Using synthetic or artificially generated data in training AI algorithms is a burgeoning practice with significant potential. It can address data scarcity, privacy, and bias issues and raise concerns about data quality, security, and ethical implications. This issue is heightened in the Global South, where data scarcity is much more severe than in the Global North. Synthetic data, therefore, addresses the problem of missing data, leading, in the best case, to better representation of populations in datasets and more equitable outcomes. However, we cannot consider synthetic data to be better or even equivalent to actual data from the physical world. In fact, there are many risks to using synthetic data, including cybersecurity risks, bias propagation, and simply an increase in model error. This technology brief proposes recommendations for the responsible use of synthetic data in AI training and the associated guidelines to regulate the use of synthetic data.
- Division/Department: UNU Centre, UNU-CPR and UNU-IIST Macau
- Project Type/Output: Policy brief
- Project Status: Closed
- Project Start Year: 2023
- Project Domain: All
- Data Source: N/A
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs):
- Relevant Links and Multimedia: <https://unu.edu/publication/use-synthetic-data-train-ai-models-opportunities-and-risks-sustainable-development>
- Contact Information: Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))

#### **Project 15: Building Citizen Science Intelligence for Pandemic Preparedness and Response: Needs Assessment and Pilot Implementation**

- **Project Description:** No more pandemics – this is the ambitious goal set by the Independent Panel for Pandemic Preparedness and Response, whose report reviews the international community's response to COVID-19 and identifies lessons learned. COVID-19 has shown that our lack of globally accurate, real-time data on outbreaks is a matter of life and death. A leading group of scientists and experts, from every part of the world, must come together urgently to create a new, neutral, and trusted digital system that can revolutionise how data is gathered and used globally. This project involving participatory modelling and Artificial Intelligence based simulation, funded by I-DAIR, the International Digital Health and AI Research Collaborative, is based on the premise that, to contain the pandemic through accurate, real-time and data-driven measures, it is urgent to establish collective intelligence capabilities that involve all stakeholders. UNU Macau is currently involved in a pilot study focusing on Vietnam, Kenya and Brazil and aimed at

addressing how to effectively manage patients and resources available in a hospital and its surrounding communities such that citizens can play an active role in the response and develop broad disaster resilience in the context of a pandemic crisis. In partnership with local communities in these three countries, two artefacts has been developed: one role playing game and a participatory agent-based simulation.

- Division/Department: UNU-IIST Macau
- Project Type/Output: Policy research project, software development
- Project Status: Closed
- Project Start Year: 2023
- Project Domain: Public Health, AI
- Data Source: data collected during FGD and workshops
- Data Publicly Available: No
- Technology/Platform: N/A
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 3 - Good Health and Wellbeing
- Relevant Links and Multimedia: <https://unu.edu/macau/project/building-citizen-science-intelligence-pandemic-preparedness-and-response-needs>
- Contact Information: Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))

### **Project 16: Disinformation and Peacebuilding in Sub-Saharan Africa: Security Implications of AI-Altered Environments**

- Project Description: This research project examines the effects of new AI technologies, namely generative AI, on peacebuilding and conflict in Sub-Saharan Africa, namely in DRC, Kenya, and Côte d'Ivoire. In this context, this report aims to further explore the way in which AI technologies as they currently stand impact peace and conflict, and what methods might be used to mitigate their adverse effects - through the development of better tools and the inclusion of peace and conflict considerations in AI governance frameworks.
- Division/Department: UNU Centre for Policy Research
- Project Type/Output: Report and Seminar
- Project Status: Complete, pending publication
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: AI Policy, Disinformation, Peace and Security
- Data Source: Interviews
- Data Publicly Available: Interview summaries to be published in report
- Technology/Platform: NA
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 16
- Partnership(s)/Collaborator(s): Interpeace
- Relevant Links and Multimedia: NA
- Contact Information: Eleonore Fournier-Tombs ([fourniertombs@unu.edu](mailto:fourniertombs@unu.edu))

### **Project 17: Towards a Peacekeeper Diversity Index: Evaluating the Relative Effectiveness of Peace Support Personnel Gender, Origin, and Status**

- Project Description: This study aims to cover a critical methodological gap by testing the utility of machine learning in identifying potential correlations between UN PSO demographics and conflict in four case studies: the Central African Republic, the

Democratic Republic of Congo, Mali, and South Sudan. Quantitative data relating to the PSO personnel characteristics was sourced from the UN Peace and Security Data Hub. The conflict location/intensity information was sourced from the Armed Conflict Location and Event Data Project (ACLED).

- Division/Department: UNU Centre for Policy Research
- Project Type/Output: Report and Seminar
- Project Status: In progress
- Project Start Year: 2023
- Project End Year: 2024
- Project Domain: Peacekeeping, Diversity
- Data Source: Peace Security Data Hub
- Data Publicly Available: Yes
- Technology/Platform: <https://psdata.un.org/>
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 16
- Partnership(s)/Collaborator(s): XCEPT
- Relevant Links and Multimedia: NA
- Contact Information: Eduardo Albrecht ([albrecht@unu.edu](mailto:albrecht@unu.edu))

## 2. Related Sustainable Development Goals

SDG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

## 3. Relevant Link

<https://unu.edu/>

Contact Information

Serge Stinckwich ([stinckwich@unu.edu](mailto:stinckwich@unu.edu))



## 1. Description of Activities on AI

### Project 1: State of the Postal Sector Report

- Project Description: Artificial intelligence (AI) is at the forefront of revolutionizing the next wave of postal services. The "State of the Postal Sector" report, UPU's flagship publication, delves into AI's transformative role in fostering enhanced collaboration among postal sector stakeholders worldwide. Spanning two dedicated chapters, the report explores the vast, yet to be fully realized, potential of AI within the sector and among UPU member states. It outlines a strategic roadmap to capitalize on AI, detailing pivotal use cases that could significantly elevate the efficiency and innovation of postal services at all development levels.
- Project Type: Report
- Project Status: Published
- Project Start Year: 2023
- Reported as Part of 2022 Compendium on AI Activities? No
- Partnership: postal services, regulators and governmental authorities in UPU member states
- Project Website (link):
  - State of the Postal Sector 2023 <https://www.upu.int/en/publications/2ipd/state-of-the-postal-sector-2023>
- Contact Information: José Anson ([jose.anson@upu.int](mailto:jose.anson@upu.int))

### Project 2: Prediction of postal item delivery day on the UPU global track and trace system

- Project Description: The UPU's global postal supply chain consists of almost 700,000 postal access points and reaches 95% of the world's population for the delivery of postal items; mail, parcels and postal payments.  
In the delivery process to the addressee, the provision of reliable information on the expected delivery date of the postal item is a challenge, especially so for postal operations in least developing, developing countries and small island developing states.  
Using machine learning models trained on postal big data, the UPU's global track and trace solution (<https://globaltracktrace.ptc.post/>) which provides international routing information of the postal item, now includes a prediction engine for the estimated delivery day. It achieves up to 67% accuracy from posting and up to 87% accuracy on the delivery leg.
- Project Type: AI Big Data Platform
- Project Status: Active
- Project Start Year: 2023
- Project Domain: Postal logistics

- Technology Platform: Hadoop cluster
- Reported as Part of 2022 Compendium on AI Activities? No
- Project Website (link): <https://globaltracktrace.ptc.post/>
- Contact Information: [PTC.PostInfo@upu.int](mailto:PTC.PostInfo@upu.int), [external.relations@upu.int](mailto:external.relations@upu.int)

## 2. Related Sustainable Development Goals

SDGs 8, 9, 13 and 17

## 3. Relevant Links

FAQ: <https://www.upu.int/en/Contact-us/Postal-shipments>

Product: <https://globaltracktrace.ptc.post/>

State of the Postal Sector 2023 <https://www.upu.int/en/publications/2ipd/state-of-the-postal-sector-2023>

## World Bank Group



### 1. Description of Activities on AI

#### Project 1: Natural Language Processing (NLP) to evaluate the presence of gender biases in the written decisions of judges

- Project/initiative description: Natural Language Processing (NLP) to evaluate the presence of gender biases in the written decisions of judges
  - [Do Judges Favor their Own Ethnicity and Gender? Evidence from Kenya](#): Leveraging publicly available information on hundredths of thousands of judicial decisions in Kenya, the team uses NLP to measure gender attitudes in the language of decisions and evaluate the presence of gender biases. The paper finds that the written judgments are on average shorter and less likely to be cited when defendants who are of the same gender or ethnicity as the judge win their case. This is consistent with in-group biased decisions being of lower quality. In addition, the findings show that female defendants are less likely to win the case if the judge exhibits stereotypical or negative attitudes towards women in their writings.
  - [Gender Attitudes in the Judiciary: Evidence from U.S. Circuit Courts](#): this is earlier work by some of the team members using the same method for the US. The paper proposes a novel judge-specific measure of gender attitudes based on use of gender-stereotyped language in the judge's authored opinions. The authors find that slanted judges vote more conservatively in gender-related cases. Slant influences interactions with female colleagues: slanted judges are more likely to reverse lower-court decisions if the lower-court judge is a woman than a man, are less likely to assign opinions to female judges, and cite fewer female-authored opinions.
- Department/Division: Development Impact Evaluation (DIME)
- Project type: Research Report
- Project status: completed
- Project start year: 2019
- Project end year: 2022
- Related SDGs: SDG 16 on Peace, justice, and strong institutions
- Partners: none
- Any publicly available URL links/multimedia: <https://openknowledge.worldbank.org/handle/10986/37108;;;>; <https://ideas.repec.org/p/cge/wacage/462.html>
- Project lead contact: Daniel Chen ([dchen9@worldbank.org](mailto:dchen9@worldbank.org)); Manuel Ramos-Maqueda ([mramosmaqueda@worldbank.org](mailto:mramosmaqueda@worldbank.org))

#### Project 2: Transmitting AI Training: Evidence from Policymakers in Pakistan

- Project/initiative description: Transmitting AI Training: Evidence from Policymakers in Pakistan

- How does AI training impact policymaking? We randomly assign a rigorous “AI for policy” workshop to deputy ministers in Pakistan and find that deputy ministers shift their attitudes towards AI and increase funding for digitization, a precursor to AI. During this randomized evaluation of the training program, we then cross-randomized ministers to receive AI fairness activism that emphasizes the inescapability of algorithmic bias. AI fairness activism causes policymakers to report greater costs associated with AI in policymaking and decrease funding for digitization. Both interventions transmit from the deputy ministers to their subordinate staff and impact the population. Amid land record digitization efforts, treated ministers’ jurisdictions reduced delays in handling land disputes by 33%. AI training increases downstream support for AI in policy making while AI fairness activism reduces the effect of the training.
- Department/Division: Department/Division: Development Impact Evaluation (DIME)
- Project type: Development Research Report
- Project status: Working paper draft
- Project start year: 2020
- Project end year: 2022 (Expected)
- Related SDGs: SDG 16: Peace, Justice and Strong Institutions
- Partners: Pakistan National Institute for Public Policy
- Any publicly available URL links/multimedia: [http://users.nber.org/~dlchen/papers/Transmitting\\_AI\\_Training.pdf](http://users.nber.org/~dlchen/papers/Transmitting_AI_Training.pdf)
- Project lead contact: Daniel Chen ([dchen9@worldbank.org](mailto:dchen9@worldbank.org) ); Sultan Mehmood ([smehmood@nes.ru](mailto:smehmood@nes.ru) )

### Project 3: Transport Systems Improvement Project (TRANSIP) in Ethiopia using AI

- Project/initiative description: As a subcomponent of the Transport Systems Improvement Project (TRANSIP) in Ethiopia impact evaluation component, we have developed a video analysis tool using open-source AI and computer vision algorithms to produce data on incidents, such as near collisions, that are not normally captured by traditional road safety data, which tends to focus on accidents and fatalities. Using CCTV footage of over 200,000 minutes from surveillance cameras located around Addis Ababa, we employ AI to detect different types of objects, such as cars, buses and pedestrians. Furthermore, we assemble the objects’ trajectories, assign them to location specific movements (such as jaywalking, east-left-turn, etc.), compute their speed and develop a granular measure of near collisions between objects. This data will be used to evaluate the road safety related impact of different road improvements across the city and improve the targeting of interventions.
- Department/Division: Department/Division: Development Impact Evaluation (DIME) and the Transport Global Practice Unit
- Project type: Development Research Report
- Project status: ongoing
- Project start year: 2018
- Project end year: 2024 (expected)
- Related SDGs: 3.6
- Partners:
- Any publicly available URL links/multimedia:
- Project lead contact: Nino Pkhikidze ([npkhikidze@worldbank.org](mailto:npkhikidze@worldbank.org) ), Girija Borker ([gborker@worldbank.org](mailto:gborker@worldbank.org) )



#### Project 4: Using AI to Analyze Road Traffic Crash Data in Kenya

- Project/initiative description: Data on road traffic crashes is lacking in low-income countries with official data estimated to capture only 17% of road traffic deaths. Missing data largely results from poorly developed administrative data systems that often rely on paper records where data is not up to date. This project investigates whether data generated from smartphones and social media usage can help fill gaps in administrative records. Specifically, the project creates road traffic crash location data from crowdsourced crash reports posted on Twitter in Nairobi, Kenya. The project scraped 874,588 traffic related tweets from Nairobi and applied a machine learning model to capture the occurrence of a crash and developed an improved geoparsing algorithm to identify its location. We geolocate 32,991 crash reports from Twitter for 2012-2020, clustering them into 22,872 unique crashes. For a subset of crashes reported on Twitter, a motorcycle delivery service was dispatched in real-time to verify the crash and its location; the results show 92% accuracy.
- Department/Division: Department/Division: Development Impact Evaluation (DIME)
- Project type: Development Research Report
- Project status: completed
- Project start year: 2018
- Project end year: 2021
- Related SDGs: 3.6
- Partners: MIT Civic Data Design Lab
- Any publicly available URL links/multimedia:
  - [Academic Paper] <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0244317>
  - [Brief] <https://documents1.worldbank.org/curated/en/609971608546546068/pdf/Urban-Planning-I-Spy-Crashes.pdf>
  - [Blog] <https://blogs.worldbank.org/opendata/finding-missing-data-creating-actionable-information-solving-development-problems>
- Project lead contact: Sveta Milusheva ([smilusheva@worldbank.org](mailto:smilusheva@worldbank.org)); Guadalupe Bedoya ([gbedoya@worldbank.org](mailto:gbedoya@worldbank.org)); Arianna Legovini ([alegovini@worldbank.org](mailto:alegovini@worldbank.org))

#### Project 5 : Predictive Performance of household poverty models using Machine Learning

- Project/initiative description: Household surveys give a precise estimate of poverty; however, surveys are costly and can only be fielded infrequently. This project aims at comparing the predictive performance of models based on globally available, spatially referenced public and private sector data sources that have been used to estimate poverty. We include daytime and nighttime satellite imagery, Facebook marketing data, OpenStreetMap data, among other sources. The project trains a machine learning model to predict levels and changes in poverty relying on ground truth poverty data across 82,000 villages and 59 countries, spanning Africa, Asia, the Americas, and Europe. Globally, the model explains over 60% of the variation of an asset-based poverty index at the village level and over 70% of the variation at the district level; in some countries, the model explains over 90% of the variation in poverty at the district level. Features from OpenStreetMaps, nighttime lights, and daytime imagery are most important in explaining poverty, where some features from Facebook Marketing data—such as the proportion of active Facebook users with interests in restaurants and luxury goods—are highly (negatively) correlated with poverty across most countries. Accuracy for predicting changes in poverty is lower, but the model explains above 25% of the variation in poverty in some countries. The model performs best in lower income countries and in countries with more variation in levels/changes in poverty.

- Department/Division: Department/Division: Development Impact Evaluation (DIME)
- Project type: Development Research Reports
- Project status: ongoing
- Project start year: 2019
- Project end year: 2022 (expected)
- Related SDGs: 1.1
- Partners (internal and external to WBG)
- Any publicly available URL links/multimedia
- Project lead contact: Rob Marty ([rmarty@worldbank.org](mailto:rmarty@worldbank.org)); Alice Duhaut ([aduhaut@worldbank.org](mailto:aduhaut@worldbank.org))

### Project 6: Fostering Long-term Savings linked to the Zambia Financial Inclusion Country Support Program

- **Project/initiative description:** The project used a novel AI-based text-messaging-based intervention to: i) identify the behavioral barriers that lead to low engagement with formal financial services amongst those using the services; and ii) test strategies to help people overcome those barriers to increase engagement and financial security. Additionally, it provides the first evidence (that the team is aware of) on the impact of conversational machine-learning based, two-way text messaging designed to encourage savings and improve loan repayment behaviors through Q&A capabilities and efforts to enhance trust in formal financial products.
- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit and Development Economics Research Unit
- **Project type:** Impact Evaluation Report
- **Project status:** Completed. The academic paper is in the process of being finalized.
- Project start year: 2015
- Project end year: 2020
- **Related SDGs:** The project had a strong focus on financial inclusion which is positioned prominently as an enabler of other developmental goals in the 2030 Sustainable Development Goals, where it is featured as a target in eight of the seventeen goals. These include:
  - SDG 1, on eradicating poverty;
  - SDG 2 on ending hunger, achieving food security and promoting sustainable agriculture; SDG 3 on promoting health and well-being;
  - SDG 5 on achieving gender equality and economic empowerment of women; SDG 8 on promoting economic growth and jobs;
  - SDG 9 on supporting industry, innovation, and infrastructure; and SDG 10 on reducing inequality.
  - Additionally, in SDG 17 on strengthening the means of implementation there is an implicit role for greater financial inclusion through greater savings mobilization for investment and consumption that can spur growth.
- **Partners (internal and external to WBG):** Natsave, Junto Finanzas (acquired by Nubank), Trinity College Dublin, Swarthmore
- Any publicly available URL links/multimedia
- **Project lead contact:** Siegfried Zottel ([szottel@worldbank.org](mailto:szottel@worldbank.org))

## Project 7: Croatia Business Environment Reform with applied AI

- **Project/initiative description:** The World Bank has been supporting the Ministry of Economy and Sustainable Development (MoESD) of Croatia in digitalizing Government to Business (G2B) service delivery for business registration and business licensing. This advisory work is carried out by the Bank at the request of the Government, with funding by the European Union, and in cooperation with the European Commission's DG REFORM. The work involved piloting an innovative approach for mapping business administrative procedures that involved the application of AI/Machine Learning (ML) and Natural Language Processing (NLP). The developed digital algorithm processed 110 laws and 1,204 bylaws from the registry of regulations to identify more than 9,000 potential regulatory requirements in 33 administrative areas, including business authorizations (permits, licenses, etc.), and minimum conditions. Further, the data cleansing resulted in a mapping database of ~1,500 business-related administrative procedures. The Bank also produced a report on recommendations for publishing the mapping online and on a mechanism to keep the mapping data updated following regulatory changes, and a roadmap for modernization and digitalization of Government to Business (G2B) service delivery.
- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit
- **Project type:** Advisory Services
- Project status: Active
- Project start year: 2019
- Project end year: 2023
- Related SDGs:
  - SDG8 (Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all) and
  - SDG 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels)
- **Partners (internal and external to WBG):** European Union and Ministry of Economy and Sustainable Development (MoESD) of Croatia
- **Any publicly available URL links/multimedia:** [Assessment of Digital Government to Business Services Business Environment Reform II Croatia](#)
- **Project lead contact:** Goran Vranic ([gvranic@worldbank.org](mailto:gvranic@worldbank.org))

## Project 8: Croatia Innovation and Digital Economy

- **Project/initiative description:** The World Bank is supporting the government of Croatia by informing strategies for the improvement of the innovation performance of firms, and supporting the promotion of firm digitalization, as is set out in the sub-component C1.1.2. Resilient, Green and Digital Economy of the Croatian EU National Recovery and Resilience Plan ("NRRP"). The relevant sub-objective is the third sub-objective which is to provide technical input for the design and implementation of a national plan for digitalization and artificial intelligence.
- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit
- Project type (operation, ASA, guidance note, something else): Advisory Services
- Project status: Pipeline
- Project start year: 2022
- Project end year: 2026
- **Related SDGs:** SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- Partners (internal and external to WBG): TBD

- Any publicly available URL links/multimedia: NA
- Project lead contact: Anita Okemini ([aokemini@worldbank.org](mailto:aokemini@worldbank.org))

### Project 9: Disruptive Technologies for Agile Business Regulation

- **Project/initiative description:** The Disruptive Technologies for Agile Business Regulation (Agile & RegTech KPD) was implemented from April 2019 through May 2021 to develop and pilot agile regulation approaches to unlock investments and enable regulatory service delivery while safeguarding public policy concerns and mitigating risks. The main result is introducing a new solution area/workstream within the World Bank Group – Regulatory Technology (RegTech). The project supported organizing one of the first workshops on Agile Regulation in cooperation with OECD, European Commission, UK Government Better Regulation Executive (BRE), and Massachusetts Institute of Technology Internet Policy Research Initiative (MIT-IPRI). For the agile regulation component, on the onset of the COVID-19 pandemic in March and April 2020, the project produced an internal white paper co-authored with OECD on AI and other emerging technologies to inform regulatory and non-regulatory measures to fight COVID-19. For the integrated regulatory delivery, the project developed research and publication on the New Technologies for Regulatory Delivery under the Donor Committee for Enterprise Development (DCED)
- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit
- Project type: Report
- Project status: Closed
- Project start year: 2019
- Project end year: 2021
- Related SDGs:
  - SDG8 (Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all) and
  - SDG 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels)
- Partners:
  - Internal WBG partners: IFC
  - External partners: OECD, European Commission, UK Government Better Regulation Executive (BRE), and Massachusetts Institute of Technology (MIT)
- Any publicly available URL links/multimedia:
  - Use of New Technologies for Regulatory Delivery, available at: <https://www.enterprise-development.org/wp-content/uploads/DCED-BEWG-Use-of-New-Technologies-in-Regulatory-Delivery.pdf>
  - Blog and database: Technology helps strengthen countries' regulatory capacity to respond to COVID-19, available at: <https://blogs.worldbank.org/psd/technology-helps-strengthen-countries-regulatory-capacity-respond-covid-19>
- **Project lead contact:** Goran Vranic ([gvranic@worldbank.org](mailto:gvranic@worldbank.org))

### Project 10: Business environment guide and diagnostics

- **Project/initiative description:** This project developed a business environment operational guide for project teams and a framework for a business regulation diagnostic framework to inform WBG analytics and facilitate the design of business environment reform programs. The business environment operational guide provides the overall framework and chapters for various business environment topics (entry and exit, operations,

regulatory technology, informality, gender). The other deliverables (diagnostic framework, policy note on data-driven business registries, deliver framework for licensing and inspections, and the determinants of informality note) complement the operational guide by developing further the topic presented in the guide and providing more detailed toolkits. The guidance note on Data Driven Company Registry takes a deep dive into the frontier developments in the use of data, AI and other emerging technologies for company and business registration. The note summarizes key regulatory policies, presents an initial maturity model, and an implementation approach with a high-level roadmap. The note benefits from lessons learned from successful pilot projects (Denmark and Greece). It explores AI-augmented real-time company registration and the use of AI for the prevention of fraudulent behavior. It complements the chapter on Regulatory Technology Data and G2B in the Business Environment Operational Guide.

- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit
- Project type: Report
- Project status: Closed
- Project start year: 2020
- Project end year: 2022
- Related SDGs:
  - SDG8 (Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all) and
  - SDG 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels)
- Partners
- Any publicly available URL links/multimedia
- Project lead contact: Sylvia Solf ([ssolf@worldbank.org](mailto:ssolf@worldbank.org))

### Project 11: Logistics performance index

- **Project/initiative description:** Logistics Performance Index 2022: The objective of this activity is to produce a new version of the Logistics Performance Index (LPI; a biennial index established by the World Bank in 2007) and its component indicators, using Machine Learning and Big Data techniques, to make sense of large supply chain tracking data. This dataset will help policymakers to benchmark a country's logistics performance and to develop informed policies and interventions in trade- and transport-related infrastructure, border management, and logistics services delivery. The project relies on Machine Learning for two components:
  - Deriving country indicators mimicking the scale of the survey bases LPI, using the information from a large number of supply chain tracking variables.
  - In the future, derive logistics related indicators from GIS information (E.g. density of logistics) or social network data (Twitter, LinkedIn). Research in this area is postponed until delivery of the main indicator in late 2022.
- **Department/Division:** Finance, Competitiveness, and Innovation Practice Unit
- Project type (operation, ASA, guidance note, something else): ASA, data
- Project status: Ongoing
- Project start year: 2019
- Project end year: 2022
- Related SDGs:
  - SDG 8 - Decent work and economic growth;

- SDG 9 – Industry, Innovation, and Infrastructure
- Partners (internal and external to WBG):
  - WBG-internal (all in advisory role): Transport Global Practice Unit, Development Economics Unit (DEC)
  - WBG-external (data partners): Universal Postal Union (UPU); TradeLens; IATA CargoIQ; MDS Transmodal
  - WBG-external (advisory role): UNCTAD
- Any publicly available URL links/multimedia: Publication planned for December 2022)
- **Project lead contacts:** Christina Wiederer ([cwiederer@worldbank.org](mailto:cwiederer@worldbank.org)); Jean-Francois Arvis([jarvis1@worldbank.org](mailto:jarvis1@worldbank.org))

### Project 12: Economic networks

- **Project/initiative description:** This project takes stock of existing leads and POC before proposing a concept note to propose applying ML-inspired methodology to improved trade costs and trade composition/complexity databases. The concept is to exploit the low effective dimensionality of actual trade networks and identify with ML the latent features. This applies to trade composition and trade costs. ML algorithms identify latent geometry consistently with known elementary economic mechanisms (productivity, gravity).
- Unit/GP leading: Finance, Competitiveness, and Innovation Practice Unit (Trade and Competitiveness)
- Project type: ASA, data
- Project status: Ongoing
- Project start year: 2022
- Project end year: 2023
- Related SDGs
- Partners (internal and external to WBG): TBD , potentially WTO
- Any publicly available: internal presentation available, earlier research working papers
- Project lead contacts: Jean-François Arvis ([jarvis1@worldbank.org](mailto:jarvis1@worldbank.org))

### Project 13: Fraud analytics in Algeria

- **Project/initiative description:** This multidimensional project provides technical support to Algeria’s Customs Services as part of a broader project regarding barriers to exports in Algeria. One of the activities consist in developing a machine learning model to predict the probability that a new-submission is fraudulent. Algerian Customs has shared its historical database with the Bank to facilitate this activity.
- Department/Division: Finance, Competitiveness, and Innovation Practice Unit and Middle East / North Africa Regional Unit
- Project type (operation, ASA, guidance note, something else): Technical Assistance
- Project status: Ongoing
- Project start year: 2019
- Project end year: 2023
- Related SDGs
- Partners (internal and external to WBG):
  - WBG-internal: Development Economics Unit
- Any publicly available: internal presentation available, working papers summarizing experimentation in preparation

- Project lead contacts: Jean-François Arvis([jarvis1@worldbank.org](mailto:jarvis1@worldbank.org))

#### Project 14: Fraud analytics Kenya

- Project/initiative description: This project aims at helping the Kenyan Revenue authority implement tools to better target fraud of corruption, including AI application similar.
- Unit/GP leading it: Macroeconomics, Trade, and Investment Practice Unit
- Project type: Technical Assistance
- Project status: Proof of concept stage; data acquisition pending.
- Project start year: 2020
- Project end year: 2023
- Related SDGs
- Partners (internal and external to WBG):
  - WBG-internal, Development Economics Unit
- Any publicly available: internal presentation available
- Project lead contacts: Jean-François Arvis ([jarvis1@worldbank.org](mailto:jarvis1@worldbank.org))

#### Project 15: Fraud analytics Armenia aka smart risk management

- Project/initiative description: This project helps the Armenian revenue authority implement a fraud targeting tool based on AI.
- Unit/GP leading it: Finance, Competitiveness, and Innovation Unit
- Project type: Technical assistance as part of a large EU-funded program on tax reform.
- Project status: Not yet started
- Project start year: 2022-23
- Project end year: 2023
- Related SDGs
- Partners (internal and external to WBG):
  - WBG-internal: Macroeconomics, Trade, and Investment Practice Unit; Development Economics Unit
- Any publicly available: None yet
- Project lead contacts: Jean-François Arvis([jarvis1@worldbank.org](mailto:jarvis1@worldbank.org))

#### Project 16: Using remote sensing and artificial intelligence to measure trade node activity

- Project/initiative description: The objective of this project is to demonstrate the use of alternative tools based on artificial intelligence and remote sensing of domestic and international trade nodes and corridors, based on quantitative, objective metrics, to inform policy and country interventions.
- Unit/GP leading it: Trade and Regional Integration Unit; Macroeconomics, Trade, and Investment Unit
- Project type: Research report
- Project status: Active
- Project start year: 2022
- Project end year: 2023
- Related SDGs
- Partners (internal and external to WBG): DEVELOPMENT DATA GROUP

- Any publicly available URL links/multimedia: N/A
- Project lead contact: Daniel Saslavsky ([dsaslavsky@worldbank.org](mailto:dsaslavsky@worldbank.org)); Satya Prasad Sahu ([ssahu8@worldbank.org](mailto:ssahu8@worldbank.org))

### Project 17: Monitoring hate speech and misinformation on social media in Nigeria

- **Project/initiative description:** The World Bank Development Impact Evaluation Department (DIME) and the Nigeria team of the UK Foreign, Commonwealth and Development Office (FCDO) have launched a collaboration to track and understand the spread and impact of misinformation, fake news, hate speech and divisive narratives in Nigeria. This interactive dashboard highlights trends in the proliferation of hate speech and fake news on Twitter and patterns of internet searches containing references to ethnic or religious groups and general terms associated with politics and potential conflict.
- **Department/Division:** Development Impact Evaluation Unit (DIME) and Data Analytics and Tools Unit (DECAT)
- **Project type:** Research report and national dashboard
- **Project status:** Ongoing
- **Project start year:** September 2021
- **Project end year:** September 2023
- **Related SDGs:** 11/16
- **Partners (internal and external to WBG):** UK Foreign, Commonwealth and Development Office (FCDO)
- **Any publicly available URL links/multimedia:** <https://datanalytics.worldbank.org/ng-social-media-analytics/>
- **Project lead contact:** Sam Fraiberger ([sfraiberger@worldbank.org](mailto:sfraiberger@worldbank.org)); Victor Orozco ([voroazco@worldbank.org](mailto:voroazco@worldbank.org))

### Project 18: Impact of artificial intelligence in developing countries

- **Project/initiative description:** The objective of this report is to inform the policy debate around AI in developing countries and help them prepare for the future. The first part of this report will provide an overview of the technology, the AI value-chain, and the supporting infrastructure needed to enable AI applications and solutions. The second part of the report will explore AI applications in developing countries, including a review of economic opportunities and risks as well as opportunities and risks in social development. The third part of this report will present an overview of AI policy options and different approaches to governance models in a selection of leading AI countries. The final part of this report will present an approach to support the design of policy responses in developing countries.
- **Unit/GP leading:** Digital Development Unit
- **Project type:** Research Report
- **Project status:** Ongoing
- **Project start year:** 2021
- **Project end year:** 2023
- **Related SDGs:** SDG 8, 9, 10
- **Partners:** Jain Family Institute
- **Any publicly available URL links/multimedia**
- **Project lead contact:** Rong Chen ([rchen5@worldbank.org](mailto:rchen5@worldbank.org))



### Project 19: Artificial Intelligence in the Public Sector: Maximizing Opportunities, Managing Risks

- **Project/initiative description:** This report provides a preliminary synthesis of the existing opportunities, risks, and building blocks required for implementing and integrating AI in government operations. The report also highlights policy, governance, and people aspects necessary for AI implementation. It draws on the accumulated literature, case studies, and emerging trends to provide guidance to World Bank teams working in this field.
- Unit/GP leading: Equitable Growth, Finance, and Institutions (Governance Unit)
- Project type: Research Report
- Project status: Completed
- Project start year: 2019
- Project end year: 2020
- Related SDGs: 16
- Partners: GovTech Global Partnership
- Any publicly available URL links/multimedia: <https://documents1.worldbank.org/curated/en/809611616042736565/pdf/Artificial-Intelligence-in-the-Public-Sector-Maximizing-Opportunities-Managing-Risks.pdf>
- Project lead contact: Khuram Farooq ([kfarooq@worldbank.org](mailto:kfarooq@worldbank.org))

### Project 20: Risk Assessment Framework to Identify and Classify Ethical Risks from AI use in World Bank Projects

- **Project/initiative description:** This initiative aims to develop a risk assessment framework to identify and classify ethical risks that might be present in World Bank projects, using the OECD Framework for the Classification of AI Systems as a basis for AI tasks classification. Approaches to AI risk assessment frameworks by other multi-lateral development banks and related institutions will also be reviewed.
- Unit/GP leading: Digital Development
- Project type: Research Report
- Project status: Ongoing
- Project start year: 2021
- Project end year: 2024
- Related SDGs:
- Partners: Jain Family Institute
- Any publicly available URL links/multimedia
- Project lead contact: Rami Amin ([ramin3@worldbank.org](mailto:ramin3@worldbank.org))

### Project 21: Starting Points for Trustworthy AI at the World Bank, using the WBG's Environmental and Social Framework (ESF)

- **Project/initiative description:** This report explores artificial intelligence in the context of the Bank's Environmental and Social Framework (ESF), which has emerged as the primary lens through which the Bank assesses risks and social impacts. The purpose of this report is to identify key ethical commitments relating specifically to artificial intelligence within the ESF and related frameworks at the Bank. Approaches by other multi-lateral development banks and related institutions to develop trustworthy AI will also be reviewed.
- Unit/GP leading: Digital Development
- Project type: Research Report
- Project status: Ongoing

- Project start year: 2021
- Project end year: 2024
- Related SDGs:
- Partners: Jain Family Institute
- Any publicly available URL links/multimedia
- Project lead contact: Rami Amin ([ramin3@worldbank.org](mailto:ramin3@worldbank.org))

### Project 22: Tools for Identifying Human Rights Impact and Ensuring Algorithmic Accountability in World Bank Operations Using Artificial Intelligence and Big Data Analytics

- **Project/initiative description:** Building on the rights-based trust framework proposed by the WDR and based on the experiences of COVID-19 operations, this proposal is aimed at ensuring that staff working on World Bank operations have the tools to (i) identify when AI elements of components might impact human rights, and (ii) ensure that appropriate and proportionate rights-ensuring “algorithmic accountability” elements are included in such operations.
- Unit/GP leading: Digital Development Unit; Legal Unit (LEGOP)
- Project type: Research Report
- Project status: Ongoing
- Project start year: 2022
- Project end year: 2024
- Related SDGs: 16
- Partners (internal and external to WBG)
- Any publicly available URL links/multimedia
- Project lead contact: Rami Amin ([ramin3@worldbank.org](mailto:ramin3@worldbank.org))

## 2. Related Sustainable Development Goals

SDGs 1, 2, 3, 4, 5, 8, 9, 10, 13, 16, 17

## 3. Related Links

<https://www.worldbank.org/en/home>

## World Food Programme



### 1. Description of Activities on AI

#### Project 1: SKAI

- **Project Description:** A lack of on-the-ground information at the start of a humanitarian crisis is a major obstacle to a quick, effective response. Following disasters, WFP works to assess the magnitude of damage, the needs of local communities, and its humanitarian intervention plans to mobilize resources and coordinate emergency response efficiently. As part of its frontier innovations portfolio, WFP has been exploring new technologies that can automate this process and speed up response times. WFP partnered with Google Research to set up SKAI, a humanitarian response mapping project powered by artificial intelligence – an approach that combines statistical methods, data and modern computing techniques to automate specific tasks. SKAI assesses damage to buildings by applying computer vision – computer algorithms that can interpret information extracted from visual materials such as, in this case, satellite images of areas impacted by conflict, climate events, or other disasters. The key to this process is a machine learning model developed specifically for SKAI, which detects damaged buildings by comparing imagery of the same buildings before and after the disaster. SKAI aims to leverage the power of artificial intelligence and remote sensing to assess damage within 24 hours after disasters take place.
- **Department/Division:** INKA
- **Project Type/Output:** Software tool
- **Project Status:** Ongoing
- **Project Start Year:** 2018
- **Reported as part of [2022 Compendium on UN AI Activities](#)?** Yes
- **Project updates:** Since its June 2022 open-sourcing on [Github](#) with user-friendly Colab materials, SKAI has proven its effectiveness in multiple disaster responses. Notably, GiveDirectly leveraged SKAI to expedite cash assistance to Florida households after Hurricane Ian in 2022. It also supported post-flooding efforts in Pakistan with the Khyber Pakhtunkhwa government and CrisisReady in Libya. In 2023, SKAI provided crucial damage assessments to Mercy Corps in Myanmar after Cyclone Mocha and internally to the World Food Programme following the Turkey-Syria earthquakes. SKAI continues to expand its reach, empowering governmental and humanitarian organizations to build and strengthen disaster management capabilities.
- **Project Domain:** Emergency, Rehabilitation
- **Data Source:** Satellite data
- **Publicly Available Data :** Yes
- **Technology/Platform:** Deep neural network machine learning model, Google Earth Engine APP, and Google Cloud Platform.
- **Related Sustainable Development Goals (SDGs):** SDG 2 - Zero Hunger

- Partnership(s)/Collaborator(s):
  - UN Partners: WFP
  - Private Sector: Google Research
- Lessons Learned: Main challenges were twofold. First, the model did not generalize well for new types of disasters in new geographical areas. This challenge was addressed by developing the machine learning model that would be trained for a new disaster using a small number of labelled images. The new SKAI model uses a semi-supervised learning technique that reduces the required number of labeled examples. As such, SKAI typically only needs 200 to 500 labeled examples to achieve high accuracy, significantly improving the speed at which accurate results can be obtained. The ambition for SKAI is to optimize its platform to function across a variety of geographic locations, disasters, and damage types.

Second, we need to research more into the ways how artificial intelligence-powered damage assessment platforms like SKAI can be operationalized at scale in humanitarian response. .

To address this challenge, the SKAI team has developed a cloud-based platform that streamlines the loop of image labelling, model training, model validation and fine-tuning. This can potentially turn SKAI into a self-service damage assessment platform that can be used by humanitarian practitioners who have little knowledge of machine learning, improving the user experience and performance of SKAI.
- Links and Multimedia:
  - [GitHub - google-research/skai: SKAI is a machine learning based tool for performing automatic building damage assessments on aerial imagery of disaster sites.](#)
  - [SKAI | WFP Innovation](#)
  - [How AI helped 6x our disaster response speed | GiveDirectly](#)
  - [Tropical Storm Daniel Causes Mass Flooding in Libya • CrisisReady](#)
  - [\[1910.06444\] Building Damage Detection in Satellite Imagery Using Convolutional Neural Networks \(arxiv.org\)](#)
  - [\[2011.14004\] Assessing Post-Disaster Damage from Satellite Imagery using Semi-Supervised Learning Techniques \(arxiv.org\)](#)
  - [The SKAI isn't the limit: How WFP uses satellite imagery and machine learning in emergencies | by WFP Innovation Accelerator | Medium](#)
  - [Machine Learning-based Damage Assessment for Disaster Relief - Google Research Blog](#)
- Contact Information: [Amine Baha \(amine.baha@wfp.org\)](mailto:amine.baha@wfp.org)

## Project 2: HungerMap LIVE

- Project Description: Understanding the food security situation requires a thorough analysis of data that are scattered across different data sources and platforms. HungerMapLIVE brings together different streams of publicly available information on food security, nutrition, conflict, weather and a variety of macro-economic data – including from WFP – all in one place to provide a holistic overview of the food security situation at global, country and sub-national levels. The resulting analysis is displayed on an interactive map using advanced data visualization tools. As WFP's global food security monitoring system, the HungerMap LIVE:
  - enhances operational effectiveness by identifying areas that are sliding towards food insecurity, providing information on shocks, hazards and other drivers of hunger in real-time, ensuring more informed and timely response to food crises;
  - maximises efficiency by providing continuously updated data at a lower cost and in less time, compared to traditional food security monitoring systems alone;

ensures continuously updated information in countries of interest, regardless of accessibility issues and the scale of WFP's operational presence.

- Department/Division: Research, Assessment and Monitoring Division
- Project Type/Output: Integrated food security information system
- Project Status: Ongoing
- Project Start Year: 2019
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project updates: Since 2020, the HungerMap LIVE has been upgraded in several aspects. Firstly, near real-time food security monitoring systems were scaled up from 15 to over 30 countries to provide continuous updates on the food security situation in countries in or at risk of food crises.

Secondly, the HungerMap LIVE has been improved by applying a new machine learning-based predictive model, which has been trained using a much broader set of data and a refined methodology. The new model provides more precise estimates of the number of people with insufficient food consumption. A technical paper on the predictive model has been submitted for publication (currently under peer review, please see the link below).

Furthermore, WFP has been working on new predictive models to forecast food security indicators up to 1 month in advance, in addition to nowcasting. A technical paper about the forecastability of food insecurity has been submitted for peer review (please see link below).

Thirdly, an alerting system has been integrated into the HungerMap LIVE, which signals a marked deterioration in food intake, in COVID-19 cases, in conflict-related fatalities, and in vegetation anomaly. These new features aim to capture the impact of key drivers of hunger and signal improving or deteriorating circumstances in near-real time.

Finally, a new risk classification framework has been developed using key food security indicators. All data and country classifications are made available through the HungerMap LIVE platform. In addition, a range of new resources including Global, Regional and Country Insights and Key Trends are available and updated daily on the platform (please see the links below).

- Project Domain: Hunger and food security
- Data Source: The HungerMap LIVE combines key metrics from various data sources – such as food security information, weather, population size, conflict, hazards, nutrition information and macro-economic data – to help assess, monitor and predict the magnitude and severity of hunger in near real-time. The HungerMap LIVE system comprises:

Remote, near real-time food security monitoring systems, collecting data on key IPC/CH indicators every day in over 30 countries experiencing acute food crises and those where WFP has the largest operations.

Machine learning-based predictive models, providing estimates of the prevalence of acute food insecurity in countries and areas that are stable and where near real-time data is not active yet.

The HungerMap LIVE global platform, where users can access the food security information to monitor areas at risk or deteriorating across a range of indicators. Related resources include Global, Regional and Country Insights and Key Trends.

- Link to data: <https://hungermap.wfp.org/>
- Publicly Available Data : Yes
- Predictive model: Python, Docker.

HungerMap frontend systems: AlibabaCloud (FunctionCompute (serverless APIs), API Gateway (REST APIs), Elastic Compute Service (computing), OSS (object storage), RDS (relational DB), Elastic Container Instance (managed serverless Docker), cloud CDN, DataWorks (data integration)), Azure DevOps (automation), React (frontend)

- Data backends: RedHat OpenShift (k8s-based running environment), MSSQL (relational DB)

- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG - 17 Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: Food Security Information Network
  - Government: USAID, DEVCO, DLR
  - Academia: Institute for Scientific Interchange Foundation
- Lessons Learned: Despite the challenges posed by the COVID-19 pandemic, WFP has successfully leveraged the existing remote, near real-time food security monitoring systems to collect data from new sectors such as school-feeding and plans to expand data collection to other sectors, which will be integrated into the HungerMap LIVE.
 

For example, WFP is currently working on the integration of gender-disaggregated data and gender-sensitive data. To this end, questionnaires have been adjusted to collect more gender-sensitive data. This information will be displayed in the HungerMap LIVE, along with gender-disaggregated results to better understand intra-household differences in vulnerability.

In addition, the HungerMap LIVE team is working with relevant WFP units to integrate climate-related metrics such as data on climate shocks as well as nutrition data (e.g., micronutrients, acute malnutrition) to the system.
- Links and Multimedia:
  - HungerMap LIVE: <https://hungermap.wfp.org/>
  - Global Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/global-summary.pdf>
  - Middle East and Northern Africa Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbc-summary.pdf>
  - Southern Africa Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbj-summary.pdf>
  - Eastern Africa Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbn-summary.pdf>
  - Western Africa Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbd-summary.pdf>
  - Asia and the Pacific Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbb-summary.pdf>
  - Latin America and the Caribbean Insights and Key Trends: <https://static.hungermapdata.org/insight-reports/latest/rbp-summary.pdf>
  - Country Insights and Key Trends: accessible through the HungerMap LIVE country pages
  - 'Nowcasting food insecurity on a global scale' paper: <https://www.medrxiv.org/content/10.1101/2021.06.23.21259419v1>
  - 'On the forecastability of food security' paper: <https://www.medrxiv.org/content/10.1101/2021.07.09.21260276v1>
  - WFP Hunger Monitoring Unit's blog: <https://mvam.org/>
  - WFP Hunger Monitoring Unit's twitter account: <https://twitter.com/mobileVAM>
  - HungerMap Launch WFP Insight: <https://www.wfp.org/stories/wfp-launches-hungermap-live>
  - HungerMap LIVE mock-up: <https://docs.wfp.org/api/documents/WFP-0000131795/download/>
  - HungerMap LIVE & products mock-up: <https://docs.wfp.org/api/documents/WFP-0000131794/download/>
- Contact Information: Jonathan Rivers ([jonathan.rivers@wfp.org](mailto:jonathan.rivers@wfp.org))

**Project 3: MEZA (an Optical Character Recognition system that uses Artificial Intelligence to digitize handwritten records, speeding up data collection and analysis processes and allowing decision makers make data-based decisions in a timely manner.**

- Project Description: Nutrition records for millions of malnourished children lie in remote health clinics around the world. Many of these clinics record patient data using paper-based booklets, which may be easily lost or destroyed. Different stakeholders involved in the fight against malnutrition in affected countries acknowledge that the digitization of these conventional paper-based systems would increase the efficiency and effectiveness of malnutrition management efforts.

Meza is a tool powered by artificial intelligence, developed by Charitable Analytics International to help digitize handwritten data from the deep field. MEZA uses an Optical Character Recognition technology to rapidly collect nutrition and related health data from remote, low-resource health clinics, enabling WFP and governments to have the information they need to provide high-quality, context-specific, and timely nutrition support. Following a WFP Innovation Bootcamp in June 2018, WFP's Nutrition Division of WFP and WFP's Country Office in the Republic of Congo identified Meza as a potential solution that could enhance the digitization of beneficiary management systems in the Republic of Congo.

From November 2018 to December 2022, the tool was tested across 70 clinics supported by WFP in the Republic of Congo and Rwanda through three pilots funded by the WFP Innovation Accelerator. The third pilot in Rwanda validated the main key hypotheses of Meza as it had a high accuracy level, over 96 percent, and had validated its ease of use by clinic health workers. Since the successful completion of the Meza pilot, it has expanded to Kenya through a collaboration between WFP Kenya Country Office (CO) and the government of Kenya. Meza is currently used in 79 health facilities in Kenya, ensuring accurate and timely reporting on health treatments, actively monitoring over 200,000 health indicators.

- Entity Name: Innovation Accelerator
- Department/Division: Innovation and Knowledge Management
- Project Type/Output: Software tool
- Project Status: Graduated
- Project Start Year: 2018
- Project End Year: The project has graduated from the portfolio of WFP Innovation Accelerator after a successful pilot that allowed its adoption in Kenya and made it ready for use in other Countries where WFP would find it relevant
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project Domain: Agriculture; Education; Health
- Data Source: MEZA uses nutrition data to refine the services offered to people benefiting from various interventions implemented by WFP. These data include, for example: nutrition status of children under 5; nutrition status of pregnant and lactating women and school feeding programme-related data such as information on student attendance.
- Publicly Available Data : No
- Technology/Platform: The tech used is CAI's own software.
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG 3 - Good Health and Well-Being; SDG 4 - Quality Education; SDG 17 - Partnerships for the Goals
- Partnership(s)/ Collaborator(s):
  - UN Partners: Indirect collaboration with UNICEF & UNHCR during the Proof of Concept currently tested
  - Private Sector: Charitable Analytics International

- Lessons Learned: WFP conducted a performance review in the summer of 2020 and below are the main lessons learned from the two pilots that were conducted in the Republic of Congo and which are still relevant to date.

1. Facilitate access to mobile network or internet connectivity:

Clinic workers cited connectivity as one of the key challenges they faced. For instance, one clinic worker had to travel 10 km to access the network and submit photos of the logbooks. A potential solution to mitigate connectivity limitations could include ICT assessments carried out before deploying a digital solution to ensure selected sites have adequate network connectivity to sync data. If the deployment sites are found to lack connectivity, one of the below models could be used to ensure regular data synchronization:

Bringing mobile devices with adequate internet or 3G connectivity to a central location (for instance, nearby cities or towns) on a weekly or bi-weekly basis; or

Deploying district health officials or WFP staff from field offices as roving agents to visit sites at regular intervals to take photos and sync data with the Meza server once back to base with connectivity.

2. Invest in digital literacy and capacity building for frontline health workers:

Health workers at remote locations in the Republic of Congo have rather limited exposure to mobile technologies. For instance, out of the five clinic workers interviewed in the post-pilot review, two reported that they had never used smartphones before participating in Meza. While the training before deployment helped introduce health workers to smartphones, the volume of submissions and the quality of photos suggest that some frontline workers need more training than others. Introductory training needs to be tailored to match health workers' capabilities and experience using mobile devices, and follow-up training should be organized at regular intervals to reinforce learning. Health workers' capacity to record information in the Meza logbook will contribute to the overall effectiveness of nutrition programmes by minimizing the risk of human error and enhancing data collection to guide effective decision-making.

3. Build confidence in the data extracted from Meza:

The OCR performed well during the first implementation phase of the Meza pilot as the logbook template was simpler and offered the space required for health workers to write using a large and clear script. The logbooks had to be redesigned during phase two as the CO project leads noticed that the P1 templates only covered 70 percent of the programmatic data needed to produce a meaningful analysis. The P2 logbooks were designed to meet nutrition reporting requirements. However, the OCR performed poorly because of the P2 templates' compact structure as well as data contents (e.g. words and dates) which were beyond the technology's decoding capabilities.

Subsequently, the data extracted from the tool was not adequately analyzed or utilized in order to determine if it could provide actionable insights - the core value proposition of the project. During phase one, the Meza project managers from the CO M&E unit fed data from the OCR into a Tableau dashboard in order to test if it was possible to derive useful insights. However, staff turnover in the M&E team and the logbook template re-design during phase two meant that the link with Tableau was broken. Additionally, no one at the CO had access to the Tableau dashboards or the technical skills necessary to extract data from the Meza web platform and ingest it into another analytics platform. As the business had no visibility of the data resting in Meza in order to share feedback with external stakeholders, there was scepticism towards the project.

Going forward, this project should consider the following factors to build a high level of confidence in the data extracted from the tool:

1. Clear specification of the capabilities and limitations of the OCR technology (including but not limited to the type of characters the OCR can or cannot recognize, types of



template that the OCR can read without excessive customizations to the template or the technology, prediction accuracy rate and the conditions required for the tool to perform optimally).

2. Close collaboration between the team designing the data collection template and CAI, including adequate time to test before deploying to the field.
3. Determination of an acceptable data accuracy threshold by the business in line with their analytical requirements. This entails close collaboration with and frequent consultations with the end-users of the data (for example Nutritionists at the CO or HQ-levels), to understand their data needs and minimum acceptable data quality to inform programmatic decision-making.
4. Continuous monitoring of data extracted from the Meza web platform vis-à-vis paper records to identify and rectify any discrepancies. Constant and timely feedback to the Meza developers will be valuable in enabling them to improve the tool's performance and data quality.
5. Identification of a data focal point at the CO-level, alongside training geared towards building data literacy for all relevant decision-makers involved in the programme. Alternatively, if capacity at CO is limited, business stakeholders at the HQ or RB-levels should identify and dedicate the resources required to optimally consume data for informing decisions.
6. Regular communication and dissemination of reports using data received through Meza to relevant external stakeholders, including health clinics, to demonstrate the tool's value in supporting programme efficiency.

Thanks to these learnings, we have decided to test Meza's proof of concept in a controlled environment in collaboration with WFP's technology division. If the concept is proved, the solution will be re-deployed to WFP Country Offices again.

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#### Project 4: Optimus

- Project Description: WFP staff face complex, cross-functional challenges every day, often with many possible solutions. Whether it's funding shortfalls, access restrictions due to rainy seasons, new import regulations, or operational scale-ups, every day it's something new. To properly manage the complexity and to enable an agile comparison of potential alternatives, it is critical to use data and optimization to find the right solutions. Optimus is a web application that looks at WFP operations end-to-end to support better planning, helping users identify the most cost-effective solutions using advanced mathematics. It pulls together a wide variety of data—from beneficiary numbers to sourcing options and from transport routes to nutritional values. Users can create their own scenarios or ask Optimus to find optimal plans, taking into account operational restrictions such as lead times and funding and preferences such as nutritional value targets and local procurement targets. A user-friendly interface allows users from any functional area to quickly explore and compare different scenarios.
- Department/Division: Supply Chain/Planning Service
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2015
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project updates: Improved user experience: The tool has been refactored, thus becoming increasingly user-friendly.
- Project Domain: Supply Chain
- Data Source: End-to-end Supply chain data
- Publicly Available Data : No

- Technology/Platform:
  - Back End: Django 2.x + Django REST Framework DRF 3.x + Python 3.x, optimization solver: COIN-OR
  - Front End: react.js + Redux
  - Team development: Microsoft Azure
  - Hosting server: AWS
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Partnership(s)/ Collaborator(s):
  - Private Sector: UPS
  - Academia: The Georgia Institute of Technology (USA), Tilburg University (Netherlands)
  - Lessons Learned: It is crucial to develop the new tool together with the corporate IT team to ensure smooth adoption, integration, and implementation of the best corporate human-centered design practices.
- Links and Multimedia:
  - [https://optimus.wfp.org/login/?next=/%3F\\_ga%3D2.212128916.1670390044.1631111249-1871728533.1615974575](https://optimus.wfp.org/login/?next=/%3F_ga%3D2.212128916.1670390044.1631111249-1871728533.1615974575)
  - <https://innovation.wfp.org/project/optimus>
  - <https://www.youtube.com/watch?v=wdEcVj5LTGg>
- Contact Information: Koen Peters ([koen.peters@wfp.org](mailto:koen.peters@wfp.org))

## Project 5: Humanitarian Chatbots

- Project Description: In emergency and development contexts, communication with affected communities is crucial. Having access to accurate, tailored information and engaging in a dialogue contributes to the resilience and ability of people to cope with a crisis. Since 2016, WFP has been working on the development and rollout of humanitarian chatbots to help deliver vital information to the people in urgent need. This technology improves WFP's outreach to populations in hard-to-reach areas using a mobile device or a computer and complementing existing communication channels and WFP's food security monitoring systems. This technology has proven to be particularly useful during COVID-19, as communication with affected communities has become even more crucial in times of unprecedented uncertainty.
 

Chatbots are highly customizable. For example, chatbots can be deployed as part of an assets creation programme to provide information about the use of assets as well as to collect feedback from the users. As part of Complaint Feedback and Mechanism (CFM) systems, chatbots have been useful in offering access to information 24/7. Moreover, the analytics produced by chatbots can inform further interactions; WFP staffs can monitor errors and improve the technology and user experience over time. As such, chatbots are highly user-friendly and do not require a high level of computer literacy, making them accessible to large segments of the population.
- Department/Division: Research, Assessment and Monitoring Division
- Project Type/Output: Software tool
- Project Status: Ongoing
- Project Start Year: 2016
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project Updates: In response to the challenges posed by COVID-19 in the Latin America and Caribbean region, WFP rapidly scaled up humanitarian chatbots to provide critical information to vulnerable populations on COVID-19 measures, WFP assistance, and 1 health-related tips on breastfeeding, nutrition, anemia, among others. Harnessing the

ChitChat technology and building on the best practices from previous pilots, WFP has thus provided easy access to accurate health and safety information for affected communities. Chatbots have been an integral part of WFP's humanitarian response in Peru, Colombia, Nicaragua, and Guatemala during the COVID-19 pandemic outbreak and in the face of increasing migration from Venezuela to Peru and Colombia. Chatbots were integrated into the current Complaint Feedback and Mechanism (CFM) systems. In addition to the helpline which receives the high volume of calls, chatbots powered by artificial intelligence can answer the most frequently asked questions and are available 24/7. Users can navigate the chatbot to find information, for example, about WFP, different social protection programs and selection criteria, and cooperating partners on the ground. This builds trust, enhances transparency and counters misinformation, improving the way WFP serves communities facing hunger.

- Project Domain: Agriculture, Health, Weather, Other: Hunger and food security
- Data Source: The data source for the chatbots are stored in the chitchat main site and all differ in content. No personal information is shared, currently only informational material is included. Configuration based chat system. No additional data source consumed or produced.
- Technology/Platform: Chitchat technology - Java, PostgreSQL
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG 17 - Partnerships for the Goals
- Partnership(s)/ Collaborator(s):
  - Government: Government of Peru, Government of Nicaragua, Government of Guatemala
  - Academia: Centre for Innovation of Leiden University
- Lessons Learned: Moving forward, WFP will optimize the chatbot builder interface to allow the development of more sophisticated chatbots, to support WFP's global field operations as well as the wider humanitarian and development community.
 

WFP will continue developing ad-hoc chatbot scripts leveraging existing key features such as voice recognition, languages settings, channel integration, adapted to particular country and operational contexts. Building on lessons learned from previous pilots, WFP will continue exploring platforms which are more familiar to and widely used by local communities such as WhatsApp.
- Links and Multimedia:
  - Infochatea (Peru): <https://infochatea.per.wfp.org/>
  - Nutrechatea (Peru): <https://nutrechatea.per.wfp.org/>
  - Lineachatea (Colombia): <https://lineachatea.col.wfp.org>
  - Bonochatea (Nicaragua): <https://bonochatea.nic.wfp.org/>
  - Misegurochatea.(Guatemala): <https://misegurochatea.gtm.wfp.org/>
  - [INFOchatea dashboard: INFOchatea dashboard - Tableau Server \(wfp.org\)](#)
  - [Bonochatea dashboard final: Bonochatea Dashboard - Tableau Server \(wfp.org\)](#)
  - WFP Hunger Monitoring Unit's blog: <https://mvam.org/>
  - WFP Hunger Monitoring Unit's twitter account: <https://twitter.com/mobileVAM>
  - Humanitarian Chatbots video: <https://docs.wfp.org/api/documents/WFP-0000131792/download/>
  - Humanitarian Chatbots photo: <https://docs.wfp.org/api/documents/WFP-0000131793/download/>
  - Humanitarian Chatbots: Kenya Pilot <https://www.youtube.com/watch?v=ASHROjd008s>
- Contact information: Rossella Bottone ([rossella.bottone@wfp.org](mailto:rossella.bottone@wfp.org))

### Project 6: Voice-to-text AI phone survey tool

- Project Description: WFP's field numerators may not be able to conduct face-to-face household nutrition surveys due to the COVID-19 restrictions. In addition, it is costly to conduct surveys through alternative means like call centres. We wish to use an artificial intelligence-powered IVR solution to automate the beneficiary surveying process. The project is set up to (1) test the commercially viable IVR service embedded with AI-powered speech recognition technology; (2) fine-tune open-sourced speech recognition models using audio training data from populations that best represent the demography of WFP beneficiaries in terms of age, gender, region, accent, dining behaviours, and etc.; and (3) compare the performance of the two technologies. Shall the technologies be proven effective, the project will aim for a corporate-wide adoption before scaling to the wider humanitarian and development sector.
- Department/Division: Ethiopia Country Office, Nutrition Division
- Project Type/Output: Software tool
- Project Status: Development
- Project Start Year: 2020
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project Updates: The project team is currently collecting, transcribing and verifying audio data from native Amharic speakers based in the Amhara region.
- Project Domain: Nutrition, but with possibility to expand to other Project Domains
- Data Source: Proprietary audio data that is transcribed into text.
- Link to data: No
- Technology/Platform: Python
- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger
- Lessons Learned: Strong data protection provisions will need to be implemented in the future, as the project may need to use personal identifiable information such as audio data from users to enhance its functionalities based on historical data.
- Contact Information: Filippo Dibari ([filippo.dibari@wfp.org](mailto:filippo.dibari@wfp.org))

### Project 7: Child Growth Monitor

- Project Description: Malnutrition is a global health crisis and the leading cause of death among children under five. To be able to efficiently treat malnutrition, it must first be detected. This detection requires anthropometric measurements of weight, height, and middle-upper arm circumference. However, measuring children accurately is a challenge, especially in the Global South, due to limited resources, unreliable, bulky traditional measurement hardware and/or lack of trained enumerators. Child Growth Monitor (CGM), an AI-powered smartphone app launched by the German non-profit organization Welthungerhilfe, was created to overcome these issues. With CGM, we aim at developing a non-profit, open-source, mobile solution that leverages artificial intelligence, especially computer vision machine learning technology, to enable frontline-healthcare workers to quickly and accurately measure children under five years, using a smartphone. Our measurements will be used to support the diagnosis of malnutrition of children according to the WHO growth standards and provide quick and accurate data in the most ethical way to organizations working on the UN SDGs and in public health.
- Project Type/Output: Academic paper, Dataset, Software tool
- Project Status: Ongoing
- Project Start Year: 2018
- Project End Year: Founding of a non-profit open-source software business in 2022 for sustainable providing the software and services.
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes

- Project Updates:
  - CGM was re-positioned as a COVID-19 pandemic response tool;
  - 04/2020 Data tagging tool;
  - 05/2020 App runs on three additional devices;
  - 08/2020 Results are now delivered in just 6 minutes, down from 30 minutes and the application started measuring reliability of measurements;
  - 01/2021 Minimum-viable product was rolled out;
  - 03/2021 Assessment carried out by the Boston Consulting Group confirmed the feasibility of the solution, business model and the ability of the project team to create the product as planned (BCG Gamma 06/2021);
  - Plans of testing CGM in further counties: Nepal, Bangladesh, Uganda and Zimbabwe with BMZ, field test in Namibia with UNAM and UNICEF;
  - First discussions conducted with partners for validation study;
  - Studies on Racial Bias in artificial intelligence and COVID-19 are being conducted in collaboration with Microsoft;
  - We were able to build up a solid team and restructure the development team into 3 different units.
- Project Domain: Health
- Data Source: All the present data was collected from two states of India, Rajasthan (Baran district) and Madhya Pradesh.

(Chatarpur and Sheopur districts), during 2017-2019, using the Child Growth Monitor phone app developed by Welthungerhilfe. We focus on data collected for children who can stand (usually two-five years of age) for this work. The data was collected in the regional Anganwadi centers, which are a type of rural child care center in India. The data collectors were mostly young adults (20-30 years old) and received a four-day data collection training.

After receiving consent from their legal guardians, children were asked to stand in front of a solid-colored wall. If needed, a white banner was placed behind the child to replicate a wall. All the videos were recorded using the Lenovo Phab 2 Pro phone, which has a time-of-flight sensor to capture point cloud data at 1920x1080 resolution with three frames/second. The point cloud videos were converted into depth images in the data processing stage. For each child, the data collector used the phone app to collect three point cloud videos: (a) front video: where the child is facing the camera, (b) back video: where the child's back is facing the camera (Figure 1a), and (c) 360 video: where the child was asked to spin slowly to capture a 360-degree view of the child. The data collector decided the length of these videos; usually, the front and back videos were 2-4 seconds long, while the 360 videos were 5-8 seconds. (Note: For front and back data, a single image would have sufficed, however as children move frequently, we opted for videos.) The data collector ensured that the child's head to toe was fully visible in each video. Next, manual measurements of the ground truth weight, height, and mid-upper arm circumference (MUAC) were taken, using the standardized weight machine, height board, and MUAC tape, respectively. On average, it took 15-20 mins to collect data for a child, involving consent forms, digital videos, and manual measurements. In case the child did not co-operate, they move to the next child. The child and/or guardian did not receive any incentive for participation. Overall, data was collected for 3887 children, and the age-wise distribution of the point cloud video dataset is shown in Table I.

TABLE I - AGE-WISE DISTRIBUTION OF TRAINING AND TEST VIDEOS

Age	Total	Training	Test
2-3	1030	712	318
3-4	1370	895	475
4-5	1487	974	513
Total	3887	2581	1306

- Publicly Available Data : No
- Technology/Platform:
  - Lenovo Phab 2 Pro / Huawei P30 Pro Android Smartphones
  - Microsoft Azure
  - Python
  - Tensorflow
  - Jupyter Notebooks
  - More details can be found in the cgm-\* GitHub repositories <https://github.com/orgs/Welthungerhilfe/repositories>
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 2 - Zero Hunger; SDG 3 - Good Health and Well-Being; SDG 17 - Partnerships for the Goals
- Partnership(s)/ Collaborator(s):
  - Partners in Measurement Prediction (AI and ML) (Support with research and development of the approach to measurement prediction): Technische Hochschule Ingolstadt, Leipzig Research Center for Civilization Diseases, Tilburg University, Microsoft, Open Sorce Community
  - Partners in Implementation in the Field (Distribution of mobile application on commodity smartphones to field workers, as well as further IT Integration and support): UNICEF, Government of Madhya Pradesh, Action Contre La Faim, Fight Against Hunger Foundation, Clifford Chance, Msg Advisors, Global Nutrition Cluster, University of Namibia, SMART
  - Partners in Tech (Collaboration with partners to bring the solution from specific IR phones to commodity smartphones): Microsoft, SONY, PHAT Consulting
  - Partners is Endorsement & Funding (Endorsement of mobile application in the field, dissemination of data, demonstration of usage benefits and rewards): WFP, Deutsche Telekom, Microsoft, GSMA ,Boston Consulting Group, Tereska Foundation, Happel Stiftung, Government of Madhya Pradesh, Munich RE, Federal Ministry for Economic Cooperation and Development (BMZ) ,Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ)
- Links and Multimedia:
  - <https://arxiv.org/abs/2105.01688>
  - <https://childgrowthmonitor.org/>
  - <http://github.com/Welthungerhilfe/>
  - <https://twitter.com/ChildGrowthMon>
  - <https://www.youtube.com/watch?v=f2doV43jdwg>
  - <https://www.youtube.com/watch?v=PAvGwHqgr8k>
  - <https://www.youtube.com/watch?v=Ni9PIO00cZ0>
  - [https://www.youtube.com/watch?v=FfYxlkp\\_vw4](https://www.youtube.com/watch?v=FfYxlkp_vw4)

- o <https://www.youtube.com/watch?v=RuluVPJLTEA>
- o <https://www.itu.int/en/ITU-T/AI/2018/Documents/Presentations/Jochen%20Moninger.pdf>

- Lessons Learned:

1. Well-aligned partnerships are essential to driving the innovation process.
2. A stage-gate project approach with well-defined milestones can minimize risks and is key to funding a complex and long-term innovation.
3. Ensuring funding for Software and Machine Learning Engineers, Data Scientists and Software Development may be challenging in the current system that tends to prioritize emergency response and short-term impact over driving game-changing innovations involving a higher risk and uncertainty.

User-centric design and agile organizations and processes are required to achieve long-term sustainable solutions.

- Contact Information: Markus Pohl (Head of Project) / Markus Matiaschek (Head of Tech) ([Markus.Pohl@welthungerhilfe.de](mailto:Markus.Pohl@welthungerhilfe.de) / [mmatiaschek@childgrowthmonitor.org](mailto:mmatiaschek@childgrowthmonitor.org)),

### Project 8: Combination of Drone and Sentinel-2 data for crop type mapping over areas of resilience interventions

- Project Description: Crop land and type mapping is crucial in the assessment of agricultural production of a country. It is also a critical prerequisite for the monitoring and assessment of changes in agricultural livelihood resources, which is particularly important in areas affected by conflict, natural disasters and other disruptions, allowing staff to timely allocate resources and deliver food assistance. However, the collection of ground data tends to take considerable time and may be particularly expensive and hard to carry out in emergency contexts.

The current project explores innovative methodologies for making the crop type mapping process more efficient and cost-effective. A combination of images from drones and satellites such as Sentinel-2 open up new possibilities for obtaining accurate data from the ground. WFP is testing the use of drones to capture images from much larger areas, compared to conventional data collection methods which use enumerators or smartphone applications which lead to relatively small sample sizes. The drone images are then classified into different crop types with high or sufficient accuracy. The ultimate goal is to use the drone data to train the Sentinel-2's machine learning model to recognise different types of crops over larger unsampled areas. As a result, this new process combining artificial intelligence with drone and satellite imagery data will substantially reduce field work and automate the process of crop type mapping.

- Department/Division Research, Assessment and Monitoring Division
- Project Type/Output: Academic paper, Software tool
- Project Status: Ongoing
- Project Start Year: 2018
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project updates: A new ground data capture experiment using drones was carried out in Mozambique in 2021, which resulted in a more extensive field data collection.
- Project Domain: Agriculture
- Data Source: Sets of drone images covering about 0.5Km<sup>2</sup> each, coupled with smartphone acquired samples of labelled field perimeters. Sentinel-2 data covering the sampled areas.
- Publicly Available Data : No
- Technology/Platform: The main technology used to develop the project is a Jupyter Notebook containing Python code. Keras and TensorFlow libraries power the artificial

intelligence behind the project. Finally, the technology includes convolutional neural networks pre-trained on computer vision datasets such as ImageNet, among others, to transfer knowledge applicable to classification of drone data.

- Related Sustainable Development Goals (SDGs): SDG 2 - Zero Hunger; SDG - 17 Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - UN Partners: World Food Program
  - Government: National Disaster Management Institute, Ministry of Agriculture, Mozambique
- Lessons Learned: It is important to collaborate with the local government when deploying new technologies. Since the early-phase, the project has been implemented in collaboration with the Government of Mozambique and the Mozambique National Disaster Management Institute, which have contributed to a safe and effective deployment of drone technology. Currently, drones are helping local authorities in different activities including crop mapping, flood modelling, and damage assessments).
- Contact Information- Artur Nowakowski, Rogerio Bonifacio ([artur.nowakowski@wfp.org](mailto:artur.nowakowski@wfp.org), [rogerio.bonifacio@wfp.org](mailto:rogerio.bonifacio@wfp.org))

### Project 9: AI4Human - AI for Humanitarian Applications (DLRR and WFP)

#### Project 9A: AI for Human

- Project Description: AI for Human is an artificial-intelligence-assisted building damage detection and classification tool used in the aftermath of natural disasters such as floods, cyclones and earthquakes. The project was focused on the development of methods and processing environments to detect changes in infrastructure and buildings by using machine learning techniques. The main focus is on the demand-driven development of existing deep learning methods and the provision of software for humanitarian organisations, to speed up response times in emergencies. WFP is particularly interested in exploring and testing the use of artificial intelligence-enabled procedures, for instance, for detecting infrastructure damages caused by natural disasters. WFP will provide the datasets used for the case study. The project will also evaluate and illustrate the opportunities and limitations pertaining to the machine learning methods in this specific technology.

#### Project 9B: Fusion of Remote Sensing and Web-based data sources

- Project Description: This project explores the systematic development and evaluation of national and global data and metadata published on the Internet to assess its usability for the derivation of crisis-related information. National and global databases published on the Internet and blogs, newsfeeds and social media contributions are a complementary source of information on satellite imagery and derived products. Therefore, the acquisition and aggregation of such data and the integrated presentation of these two sources of information (e.g. in mapping products of the ZKI or web-based services) can greatly contribute to an overall analysis. The fusion techniques will be developed and tested grounded on past or ongoing crisis situations. For example, humanitarian emergencies such as floods in Mozambique in 2019 can be included in the model (from M1). Data on refugee camps and their dynamic developments will also be added systematically (from M13). Finally, analyses of food security issues such as post harvest loss estimation in Africa can also potentially enhance the model.
- Department/Division: Emergency Operations Division
- Project Type/Output: Dataset/Software tool
- Project Status: Completed
- Project Duration: 2019- 2021



- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project updates: Currently developing algorithm for building damage detection and classification including road damage assessment.
- Project Domain: Environment, Human Rights, Telecommunications, Weather, Humanitarian Emergencies related to natural disaster and/or conflict
- Data Source: Satellite data, labelled training datasets for damaged (and undamaged) buildings, road, other infrastructure, Twitter data related to crisis information.
- Publicly Available Data : No
- Technology/Platform: Python, Jupyter Notebook, Linux, TensorFlow, NLP
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 2 - Zero Hunger; SDG 13 - Climate Action
- Partnership(s)/ Collaborator(s):
  - Private Sector: DLR – German Aerospace Center
- Contact Information: Michael Andrew Manalili ([michael.manalili@wfp.org](mailto:michael.manalili@wfp.org))

### Project 10: FamPred

- Project Description: FamPred project is complementary to WFP’s HungerMap LIVE humanitarian mapping project (<https://hungermap.wfp.org>). FamPred expands the HungerMap LIVE’s capabilities to forecast food crises by adding projections on insufficient food consumption. Artificial intelligence offers new opportunities for forecasting food insecurity in complex systems, where an approach known as “reservoir computing” is among the most promising. The project aims to develop a reservoir-computing-based prediction model using relevant datasets for the identified geographies in HungerMap LIVE. This model would strengthen WFP’s and national governments’ capacities to predict crises, deploy resources and prevent food crises outbreaks, ensuring communities at risk of hunger continue to get the support they need, when they need it.
- Department/Division): INKA
- Project Type/Output: Software tool
- Project Status: Completed
- Project Start Year: 2021
- End Year: 2021
- Reported as part of [2022 compendium on UN AI Activities](#)? Yes
- Project Updates: Refined monthly 30-day provincial and provided 60-day national forecasts to five countries: Yemen, Syria, Nigeria, Cameroon, and Haiti. The solution expanded its horizons with new use cases like scenario testing, seasonal forecasts, and national forecasts.
- Project Domain: Hunger and food security
- Data Source: Satellite data, Economic data, Conflict data
- Publicly Available Data : No
- Technology/Platform: A reservoir computing-based prediction model using well-suited data sets for the identified geographies
- Related Sustainable Development Goals (SDGs): SDG 1 - No Poverty; SDG 2 - Zero Hunger
- Partnership(s)/Collaborator(s):
  - UN Partners: WFP
  - Government: DLR
- Links and Multimedia: [\[2312.00626\] Forecasting Trends in Food Security: a Reservoir Computing Approach \(arxiv.org\)](#)

- Contact Information: Duccio Piovani ([duccio.piovani@wfp.org](mailto:duccio.piovani@wfp.org)), Amine Baha ([amine.baha@wfp.org](mailto:amine.baha@wfp.org))

### Project 11: AI Sandbox

- Project Description: WFP's Artificial Intelligence (AI) Sandbox initiative aims to create a collaborative environment that provides WFP colleagues and partners with a platform to experiment, innovate, pilot and scale AI models and AI use cases. As the need for data-driven solutions to combat hunger grows and AI technology evolves rapidly, the AI sandbox becomes a crucial tool. It allows us to quickly test and deploy AI systems, giving WFP teams the power to work more efficiently and make a significant impact on a large scale.

WFP's Technology Division (TEC), Innovation and Knowledge Management Division (INK), and Research Assessment and Monitoring Division (RAM) are collaborating to enable the scale-up of AI in the organization. Through this collaboration, we strive to pilot impactful AI use cases that can scale. It encompasses investing in talent by upskilling and attracting expertise, building a strong foundation to establish an ethical governance framework, and providing a roadmap for a responsible use. In this direction, we set up a Responsible AI Task Force to oversee and monitor the implementation of AI initiatives, ensuring they deliver on their and organization's goals. On top of that, to ensure we foster experimentation in AI, a dedicated technology platform and environment, to support AI pilots, encouraging innovation and exploration in a responsible and safe manner.

- Department/Division: INKA, TEC, RAM
- Project Type/Output: Development Platform
- Project Status: Ongoing
- Project Start Year: 2024
- Reported as part of [2022 compendium on UN AI Activities](#)? No
- Project Domain: Humanitarian AI innovation
- Technology/Platform: Cloud environment
- Related Sustainable Development Goals (SDGs): Any SDG
- Partnership(s)/Collaborator(s):
  - UN Partners: WFP
- Links and Multimedia: [\(1\) Publier | Fil d'actualité | LinkedIn](#)
- Contact Information: Jorge Fernandes ([jorge.fernandes@wfp.org](mailto:jorge.fernandes@wfp.org)), Amine Baha ([amine.baha@wfp.org](mailto:amine.baha@wfp.org)), Erich Natsubori Sato ([erich.natsuborisato@wfp.org](mailto:erich.natsuborisato@wfp.org))

## 2. Related Sustainable Development Goals

SDG 1, 2, 3, 4, 13, 17

## 3. Relevant Link

<https://www.wfp.org/>

Contact Information

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## World Health Organization



### 1. Description of Activities on AI

In recognition of the growing importance of digital health technologies—including AI—the WHO Member States unanimously adopted the resolution on Digital Health during the 71st World Health Assembly on 26 May 2018 in Geneva, Switzerland (WHO, 2018). Following this MS agreed on the Global strategy on digital health 2020-2025 ([www.who.int/dhstrategy](http://www.who.int/dhstrategy)) which highlights the importance of artificial intelligence. It is deeply embedded in the 172 implementation actions endorsed by Member States, with specific focus under digital health governance and human-centred health system. During the opening speech of the 144th session of the WHO Executive Board on 24 January 2020 in Geneva, Switzerland, the importance of digital health (and, particularly, AI for health) was reinforced: “the future of health will be influenced by digital health significantly [and WHO must] embrace it, but at the same time, WHO should be ahead of the curve in digital health, in order to contribute to global health [...] working with the International Telecommunications Union to find new ways of using artificial intelligence to get care to remote communities” (WHO, 2020)

#### 1.1 Background and inception

In response to the accelerating advancements in artificial intelligence (AI) and its potential impact on healthcare, the World Health Organization (WHO) took an early step, together with the International Telecommunication Unit (ITU), by establishing the Focus Group on AI for Health (FG-AI4H) in 2018. This strategic move represented a steppingstone in the intersection of technology and global health policy to advance in (1) the efforts of benchmarking applications of AI in health, and (2) to advance the development of guidance documents on ethical, regulatory, and clinical considerations of development and deployment of AI in health.

The experiences, insights, and collaborative efforts within the FG-AI4H across its 10 pillars and 25 topic groups set up a positive example that transcended the boundaries of Member States and united key stakeholders on a shared vision. The FG-AI4H was to serve as pioneering dedicated to the exploration of AI’s untapped potential within the healthcare landscape. Hence it was recognized the transformative force AI could exert on healthcare delivery, diagnosis, and overall efficiency. The FG-AI4H also acknowledged the potential risks associated with the use of AI in health, including issues of equity, privacy, and the digital divide. As such, the group set out to not only explore the technical capabilities of AI but also to champion ethical advancements. Two publications are paramount:

- [Ethics and governance of AI for health](#). WHO's commitment to ethical and responsible AI in health is manifested in this guidance document. This comprehensive resource provides consensus principles tailored for AI developers, Ministries of Health, and clinicians.

Through interactive workshops and training courses, WHO has actively promoted the implementation of these guidelines, emphasizing the pivotal role of ethics in the successful deployment of AI in healthcare.

- [Generating evidence for AI-based medical devices](#). The framework is a pioneering initiative by WHO intersecting a whole AI lifecycle approach in medical devices. Tailored for developers, researchers, and policymakers, this framework offers comprehensive guidance on evidence generation specific to health areas like cervical cancer screening. By setting clear standards, this framework lays the groundwork for the responsible introduction of new and emerging AI technologies in the healthcare landscape.

The establishment of the FG-AI4H underscored WHO's commitment to staying at the forefront of technological advancements, ensuring that Member States were equipped to harness the potential benefits of AI while navigating its complexities. This forward-looking move signaled a broader shift in global health policy, recognizing the need to adapt rapidly in the landscape of healthcare technology. The establishment of the FG-AI4H laid the essential groundwork for the subsequent formation of the Global Initiative on AI for Health (GI-AI4H) in 2023.

## 1.2 The Global Initiative on AI for Health (GI-AI4H)

The launch of the GI-AI4H is a landmark moment of harnessing the potential of AI in health. This transition was and is possible thanks to the commitment of three key United Nations agencies, the World Health Organization (WHO), the International Telecommunication Union (ITU), and the World Intellectual Property Organization (WIPO) to enable, facilitate and implement the adoption of AI-based technologies for health.

The setting up of the GI-AI4H moves beyond the traditional boundaries of individual organizations. It is a testament to the recognition that addressing the complex challenges and opportunities presented by AI in health requires a multidimensional and collaborative approach. By pooling their joint expertise and resources the initiative aims at becoming a powerful force aligned to two core objectives:

- Firstly, the GI-AI4H is dedicated to ensuring innovation and global accessibility to AI solutions across healthcare services. In leveraging AI, WHO envisions a future where innovative technologies bridge gaps in healthcare delivery, making essential services accessible to everyone, especially in low- and middle-income countries (LMIC).
- Secondly, the promotion of ethical and equitable advancements in health AI technology. Recognizing the potential risks and disparities associated with AI from its inception in policymaking to the implementation on the ground, the initiative places a strong emphasis on ensuring that technological progress is accompanied by principles of fairness, inclusivity, and ethical considerations. This commitment underscores the intention to create a healthcare landscape where the benefits of AI are equitably distributed, leaving no one behind.

## 1.3 Governance structure of the GI-AI4H

The GI-AI4H aims to create a harmonized ecosystem and avoid the vertical fanged approach. The governance structure includes a Steering Committee (with equal representation of the founding UN partners and will be the final decision-making authority); Secretariat (as the functional and operational team cross-cutting across the founding organizations with devoted resources and structure); Partners (who are donors and champion countries who will bring resources to support the three key functions); and Informal Expert Groups (entail screened individuals with expertise in the relevant topic areas).

### GI-AI4H governance structure



#### Roles and Responsibilities

To support the management of the Steering Committee and Secretariat, under the GI-AI4H governance structure, the founding partners' roles and responsibilities are:

- WHO: Leads in normative technical guidance, policies, and standards; facilitates resource and knowledge sharing; and supports through collaborative research.
- ITU: Facilitates resource and knowledge sharing; strengthens knowledge sharing on AI, health and ICT policy; supports collaborative research.
- WIPO: Focuses on policies around intellectual property (IP) and AI for health; facilitates knowledge sharing advocates for ethical AI implementation.

### 1.4 Three pillars of work at a glance

The GI-AI4H is structured around the three key functions, namely, Enable, Facilitate, and Implement:

- 1) The Enable function focuses on developing policy, guidance, legislations, norms and standards, and the benchmarking framework along with the evidence to support Member States in utilizing AI for health care systems and services.
  - Guidance on the use of AI in crosscutting topics and governance areas.
  - Policy + briefs on application of AI for health in thematic areas.
  - Toolkits and handbooks for implementation and technical support.
- 2) The Facilitate function promotes knowledge sharing between countries and partners, fostering a community of practice.
  - Resource mobilization and funding partnership development.
  - Knowledge mobilization and communities of practice (global registry of networks for knowledge sharing of academics, AI in health experts, policymakers, designers and more).
- 3) The Implement function supports countries in taking evidence-based AI for health programs to strengthen health systems and services. This function supports and emphasizes the creation of sustainable implementation models.

- Technical assistance and implementation of toolkits, policies guidance, handbooks and use cases on AI for health.
- Workshop + curriculums on AI for health.

### Three key functions of the GI-AI4H



## 1.5 Unwrapping each pillar of work

The Enablement pillar serves as cornerstone of the GI-AI4H

Development and release of several technical guidance and policy briefs addressing pressing global health needs, research gaps and governance challenges in the use of AI for health. These normative technical products can serve as an overarching guide for Member States and partners to design, develop, regulate, and deploy AI solutions that bring health benefits to everyone, everywhere. This involves enabling the formulation of policies that navigate the complex landscape of AI, ensuring alignment with global health standards and ethical considerations. Two publications are paramount of the enabling function:

- [Regulatory considerations on AI for health](#): launched in October 2023 and articulating non-binding recommendations for the health ecosystem, including Ministries of Health (MoH), developers, manufacturers, and the whole tech industry. The document clusters eighteen recommendations for regulatory considerations in six topic areas: 1) documentation and transparency; 2) risk management and AI systems development lifecycle approaches; 3) analytical and clinical validation; 4) data quality; 5) engagement and collaboration; 6) privacy and data protection. Addressing crucial aspects of AI implementation, the document on “Regulatory Considerations in AI for health” covers key topics including documentation, transparency, total product lifecycle approach, intended use, analytical & clinical validation, privacy, and data protection. Serving as a comprehensive resource, this document is intended for all stakeholders involved in AI solutions in the health sector.
- [Ethics and governance of AI for health - Large Multi-Modal Models \(LMMs\)](#): The guidance outlines recommendations for assisting Member States and tech developers in sharing the benefits and challenges associated with using LMMs for health. The publication provides a good overview of tailored risks and challenges in various uses of LMMs in healthcare: 5 broad applications - 1) diagnosis and clinical care, 2) patient-guided use, 3) clerical and administrative tasks, 4) medical and nursing education, 5) scientific research and drug development.; Tailored risks to health systems: these are risks associated with the use of LMMs in healthcare; LMM life cycle approach: finely details the governance behind the development, provision and deployment of LMMs as a basis for enshrining ethical principles and human rights obligations through laws, policies and regulation. Finally, it provides a visually-sound "checklist" as a summary of the three points above in which it frames the actions of both developers and governments across each development, provision or deployment phases considering their own set of risks to be assessed during and thereafter.



The **Facilitation pillar** emerges as the dynamic and collaborative force within the GI-AI4H.

Convene experts to establish informal expert groups and lead technical global consultations to assess and analyze current uses of AI for health and advise or recommend actions or steps to ensure the use of AI for health benefits healthy living and well-being in all countries and at all ages. Through establishing a global network of experts, the GI-AI4H will promote the development of normative guidance around governance and policy, foster the development of an implementation toolkit of AI for health, and support key. By cultivating a dynamic community, this pillar contributes to the collective effort of advancing health AI on a global scale. This pillar places Member States and all stakeholders of the health community to facilitate and accelerate the seamless implementation of the normative technical products. This involves

creating platforms for the dissemination of insights, best practices, and lessons learned in the field of health AI.

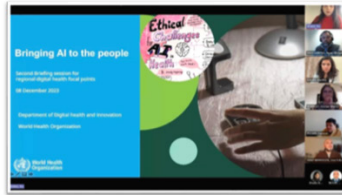
## Facilitate shaping key areas of work



### Technical consultations for specific topic areas



Technical Consultation: SRHR



2nd Meeting: December 07, 2023

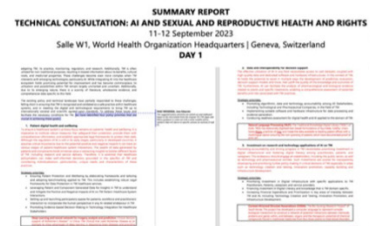


1st Meeting: September 19, 2023



Regional AI-Activities Briefing Session

- 1 Regional briefing sessions on ongoing AI-related activities
- 2 Technical Consultations for Sexual and Reproductive Health and Research
- 3 Series of Technical consultations on Tuberculosis



## Facilitate shaping key areas of work



### AI & digital frontiers @ Traditional Medicine Global Summit, 2023

#### Futurism



The futuristic dome titled as the “Galaxy of the Unknown” mimicking an artificial brain.

#### Engagement



Global partners commit to advance evidence-based TCM and to incorporate AI as key enabler

#### Media



- UN Tech Envoy’s statement on AI in TCM
- DHI Director & AI Lead Media approach in India

The **Implementation Pillar** embodies the practical application of AI advancements and recommendations across Member States.

Support guidance implementation by piloting the implementation concept of “AI for Public Health” in countries and relevant stakeholders, to accelerate countries’ good governance of digital health, and the appropriate use of AI and other frontier technologies for health.



## Implement sustainable models of AI programs at the country level



WHO Online introductory course on Ethics and governance of AI for health



Regional workshops on the ethics and governance of AI for health delivered in PAHO, EMRO, EURO and AFRO between Nov 22-July 23, with nearly 100 participants from 30+ countries.

Upcoming workshop in SEARO and WPRO.



Country governance and program implementation

Implement

### 1.6 First meeting of the GI-AI4H in Riyadh

The first workshop and (inaugural) meeting of the ITU/WHO/WIPO Global Initiative on AI for Health (GI-AI4H) were held from 30 October 2023 until 2 November 2023 in Riyadh, Saudi Arabia, at the premises of the King Abdulaziz City for Science and Technology (in the building "The Garage" on 30 Oct., and in "The Innovation Tower" on the remaining days).

The meeting welcomed in total nearly 400 people coming from 42 countries across 6 regions, with an adequately large number of attendees (42%) joining virtually. The participants and speakers consist of a variety of the portfolios e.g., researchers, policy makers and health practitioners. In addition, more than 100 participants expressed interests in the Ideathon, an independent session running in parallel to the 4-day meeting agenda.

The four-day meeting featured more than dozens of insightful presentations, four multi-disciplinary panels, two breakout working sessions as well as a persona role play case study loaded with valuable information and innovative ideas for GI-AI4H's future. The meeting was key in identifying collaborative opportunities and strategies for advancing AI in health within the GI-AI4H framework. In conclusion, the Global Initiative on AI for Health stands as a pioneering force in the responsible and collaborative use of AI.

## 2. Related Sustainable Development Goals

All SDGs.

## 3. Relevant Link

WHO documents

- Guidance: Ethics and governance of artificial intelligence for health
  - Full document <https://apps.who.int/iris/handle/10665/341996>
  - Executive summary <https://apps.who.int/iris/handle/10665/350567>

- Guidance: Generating evidence for artificial intelligence-based medical devices: a framework for training, validation and evaluation. <https://apps.who.int/iris/handle/10665/349093>
- Guidance: Regulatory considerations on artificial intelligence for health. <https://iris.who.int/handle/10665/373421>
- Policy brief: Ageism in artificial intelligence for health. <https://apps.who.int/iris/handle/10665/351503>
- Press release: WHO calls for safe and ethical AI for health. <https://www.who.int/news/item/16-05-2023-who-calls-for-safe-and-ethical-ai-for-health>
- Ethics and governance of AI in health - guidance for large multi-modal models: <https://www.who.int/publications/i/item/9789240084759>
- Press release: WHO releases AI ethics and governance guidance for large multi-modal models: <https://www.who.int/news/item/18-01-2024-who-releases-ai-ethics-and-governance-guidance-for-large-multi-modal-models>
- Press release: WHO outlines considerations for regulation of artificial intelligence for health. <https://www.who.int/news/item/19-10-2023-who-outlines-considerations-for-regulation-of-artificial-intelligence-for-health>

#### Global strategy on digital health

- English: <https://apps.who.int/iris/bitstream/handle/10665/344249/9789240020924-eng.pdf>

#### WHO online course

- Introduction: Ethics and governance of artificial intelligence for health (based on the ethics guidance). <https://openwho.org/courses/ethics-ai>

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## World Intellectual Property Organization



### 1. Description of Activities on AI

#### Project 1: WIPO Translate

- Project Description: "WIPO Translate is a market-leading translation software for specialized text. Originally created to translate patent documents, WIPO Translate can also be adapted and customized to other technical Project Domains. Once trained in a specific subject area, WIPO Translate has been shown to out-perform other paid and free translation tools."
- Project Type/Output: Software tool
- Project Status: Full fledged development
- Project Domain: Intellectual Property
- Data Source: Translation database
- Technology/Platform: Supervised learning and Natural Language Processing (NLP)
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: <https://www.wipo.int/wipo-translate/en/>
- Lessons Learned: Project Domain adaptation (we need different models for different Project Domain). E.g. patent translation is totally different than conference translation.
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

#### Project 2: WIPO Speech-to-Text

- Project Description: WIPO speech-to-text (S2T) is a homemade transcription tool for conferences. It generates an automatic transcript, which becomes available a few minutes after the meeting. This transcript can be further cascaded through WIPO Translate in order to generate UN-6 language reports (always synchronized with the original video). It has been successfully used in other organizations.
- Project Type/Output: Software tool
- Project Status: Full fledged development
- Project Domain: Intellectual Property
- Data Source: Conferences
- Technology/Platform: Supervised learning for automatic speech recognition
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure

- Relevant Links and Multimedia: <https://www.wipo.int/s2t/>
- Lessons Learned: Adapt to various speakers: in international conferences native and non-native accents is a challenge.
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

### Project 3: WIPO Brand Image Search

- Project Description: Perform a trademark search by text or image in brand data from multiple national and international sources, including trademarks, appellations of origin and official emblems.
- Project Type/Output: Software tool
- Project Status: Full-fledged development
- Project Domain: Intellectual Property
- Data Source: Global Brand Database
- Technology/Platform: Computer Vision
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 – Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: <https://www3.wipo.int/branddb/en/>
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

### Project 4: International Patent Classification (IPC)

- Project Description: The International Patent Classification (IPC) provides for a hierarchical system of language independent symbols for the classification of patents and utility models according to the different areas of technology to which they pertain.
- Project Type/Output: Software tool
- Project Status: Full-fledged development
- Project Domain: Intellectual Property
- Data Source: Patents
- Technology/Platform: Classification and machine learning.
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 – Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: <https://www.wipo.int/classifications/ipc/en/>
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

### Project 5 : [WIPO Goods & Services Terms Explorer](#)

- Project Description: A tool designed to provide assistance to trademark applicants when selecting appropriate Goods and Services terms and their associated Nice classification in different languages during the filing process. This tool also provides support to trademark examiners in IP offices in their validation of trademark applications.
- Project Type/Output: Software tool
- Project Status: Full fledged development
- Project Domain: Intellectual Property
- Data Source: Conferences
- Technology/Platform: Supervised learning for automatic speech recognition
- Reported as part of 2022 Compendium on UN AI Activities? No

- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: [Global Goods & Services Terms Explorer](#)
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

### Project 6: Vienna Classification Assistant

- Project Description: The Vienna Classification Assistant is an AI-driven tool developed by WIPO to support the use of the Vienna Classification system. This system helps classify figurative elements of trademarks by automatically suggesting appropriate Vienna Classification codes. The Vienna Classification Assistant enhances the accuracy and efficiency of trademark classification processes.
- Project Type/Output: Software tool
- Project Status: Full fledged development
- Project Domain: Intellectual Property
- Data Source: Conferences
- Technology/Platform: Supervised learning for automatic speech recognition
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: [Vienna Classification Assistant](#)
- Contact Information: Sandrine Ammann ([sandrine.ammann@wipo.int](mailto:sandrine.ammann@wipo.int))

### Project 7: WIPO Conversation on IP and Frontier Technologies

- Project Description: The objective of the WIPO Conversation is to provide Member States with an opportunity to exchange views on various topics regarding frontier technologies, including AI, and to formulate questions with respect to the possible impact of frontier technologies on the IP system.
- Project Type/Output: Conference
- Project Status: Ongoing
- Project Start Year: 2019
- Project Domain: Intellectual Property
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Project Updates: WIPO has expanded the scope of the Conversation to cover frontier technologies as a whole. While AI remains an important component of our work, it will not be its sole focus either. WIPO will also ensure that these sessions have a practical, as well as conceptual emphasis - reflecting the fact that frontier technologies are piecing together a new kind of global economy. The 2022 sessions of the WIPO Conversation covered the Metaverse and Generative AI.
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure
- Relevant Links and Multimedia: [https://www.wipo.int/about-ip/en/frontier\\_technologies/frontier\\_conversation.html](https://www.wipo.int/about-ip/en/frontier_technologies/frontier_conversation.html)
- Contact Information: Alica Daly ([alica.daly@wipo.int](mailto:alica.daly@wipo.int))

### Project 8: AI and IP Strategy Clearing House

- Project Type/Output: Clearing House
- Project Status: Ongoing
- Project Start Year: 2020

- Project Domain: Intellectual Property
- Reported as part of 2022 Compendium on UN AI Activities? Yes
- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 17 - Partnerships for the Goals
- Relevant Links and Multimedia: [https://www.wipo.int/about-ip/en/artificial\\_intelligence/policy.html#clearing\\_house](https://www.wipo.int/about-ip/en/artificial_intelligence/policy.html#clearing_house)
- Contact Information: Alica Daly ([alica.daly@wipo.int](mailto:alica.daly@wipo.int))

### Project 9: ITU, WHO, WIPO Global Initiative on AI for Health

- Project Type/Output: Interagency cooperation to develop tools and resources to support the use of AI for health
- Project Status: Ongoing
- Project Start Year: 2023
- Project Domain: Intellectual Property
- Reported as part of 2022 Compendium on UN AI Activities? No
- Related Sustainable Development Goals (SDGs): SDG 3- Good Health and Well-being; SDG 9 - Industry, Innovation, and Infrastructure; SDG 17 - Partnerships for the Goals
- Relevant links and multimedia: <https://www.itu.int/en/ITU-T/focusgroups/ai4h/Pages/default.aspx>
- Contact Information: Nancy Pignataro ([nancy.pignataro@wipo.int](mailto:nancy.pignataro@wipo.int))

## 2. Related Sustainable Development Goals

SDG 3, 9, 17

## 3. Relevant Links

<https://www.wipo.int/portal/en/index.html>

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## World Meteorological Organization



### 1. Description of Activities on AI

#### Project 1: WMO RA VI-led event on Artificial Intelligence to support EW4All

- **Project Description:** The WMO RA VI-led event on Artificial Intelligence to support EW4All on May 27, 2023, focused on integrating AI and machine learning in meteorology to improve early warnings and tackle climate change. It featured notable speakers from ECMWF, EUMETSAT, and tech giants, discussed WMO's AI initiatives, insights from the European Meteorological Infrastructure, and relevant case studies. The agenda included machine learning's application and impact on observation and weather forecasting, highlighting a collaborative approach in the meteorological community to leverage new technologies.
- **Department/Division:** WMO Regional Office for Europe
- **Project Type/Output:** meeting
- **Project Status:** Finished
- **Project Start Year:** 2023
- **Project End Year:** 2023
- **Project Domain:** Environment, Early warning
- **Reported as part of 2022 Compendium on UN AI Activities?** No
- **Project Updates:**  
The ITU/WMO/UNEP Focus Group on AI and Natural Disaster stresses the importance of adapting to evolving technologies to meet the shifting needs and priorities in the field of natural disaster management. The European Centre for Medium-Range Weather Forecasts (ECMWF) notes substantial involvement from commercial sectors in advancing machine learning. EUMETSAT is committed to delivering the highest quality of data and adopts a proactive stance in anticipating and understanding future requirements. The significant role of AI and machine learning is acknowledged, with their development shaping our strategic choices. Machine learning is crucial for enhancing nowcasting and short-term weather predictions, offering capabilities like automatic feature detection and a variety of applications including air quality assessments. Huawei and Google DeepMind presented their data-driven weather forecast models, showcasing the remarkable potential of AI in weather forecasting.
- **Related Sustainable Development Goals (SDGs):** sSDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- **Partnership(s)/Collaborator(s):**
  - ITU/WMO/UNEP Focus Group on AI and Natural Disaster Management
  - ECMWF
  - EUMETSAT
  - Meteo-France
  - Huawei Inc

- DeepMind, Google
- Microsoft
- UK Met Office
- Nvidia
- Relevant Links and Multimedia: <https://wmo.int/news/media-centre/big-tech-and-artificial-intelligence-can-support-early-warnings-all>
- Lessons Learned: .Artificial Intelligence (AI) has the potential to significantly enhance weather observation, forecasting, and the dissemination of early warnings, thereby effectively supporting early warning services. The private sector plays a pivotal role in realizing the goal of achieving 'Early Warnings for All.' This can be achieved by harnessing the extensive reach of major technology companies and the capabilities of Artificial Intelligence..
- Contact Information: Natalia Berghi ([nberghi@wmo.int](mailto:nberghi@wmo.int)), Kanghui Zhou ([kzhou@wmo.int](mailto:kzhou@wmo.int))

**Project 2: The Mediterranean and Pan-European Forecast and Early Warning System against Natural Hazards (MedEWSa) project (Horizon Europe project funded by the European Commission**

- Project Description:  
MedEWSa is an Innovation action (IA) project led by the World Meteorological Organisation (WMO) and a consortium of 30 partners. Building on existing tools, MedEWSa will develop a fully integrated impact-based multi-hazard early warning system (EWS). It will achieve advances beyond the state-of-the-art in the areas of AI-based decision support solutions for improved impact prediction, methods for impact prediction and early warnings, modelling and prediction of multiple hazard dynamics and their interdependencies. MedEWSa will explore hybrid methods combining data-driven approaches and the laws of physics, using tools learned from observations and physics-based model results. Ultimately, it will deploy an analysis to provide integrated, accurate, and rapid early warnings for the pan-European-Mediterranean-African region. MedEWSa will directly contribute to the United Nations’ Sustainable Development Goals and align with the UN’s Early Warnings for All initiative. The project will also develop innovative financial solutions through risk transfer to capital markets. MedEWSa will also set out a roadmap for contributing to different standardisation activities to identify significant opportunities to push contributions into future standards, pre-normative activities, and open collaborative development environments. In that sense, MedEWSa will benefit from the participation of academia such as the Justus Liebig University of Giessen (JLU), WMO, SMEs, national meteorological and hydrological services, national ministries, first responders and HHI, who actively participate in international standardisation activities, such as the ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management.
- Department/Division: WMO Science and Innovation Department
- Project Type/Output: research project
- Project Status: ongoing
- Project Start Year: 2023
- Project End Year: 2026
- Project Domain: Weather, Environment, natural disaster
- Reported as part of 2022 Compendium on UN AI Activities? No
- Project Updates: The MedEWSa was launched in Athens, Greece in November 2023. The kick-off meeting was hosted by the Ministry of Digital Governance of Greece, the event not only served as a collaborative platform but also underscored the significant role played by the WMO Regional Office for Europe in steering the project's implementation. The meeting structure featured four specialized groups led by experts in disaster risk knowledge, hazard monitoring, warning dissemination, and response capabilities, collectively aiming to align MedEWSa's scientific and techno-economic developments



with the overarching goals of the WMO's EW4All Initiative. This event facilitated comprehensive discussions, reinforcing the integration of MedEWSa's goals with the broader vision of the EW4All Initiative, while also exploring synergies with SEE-MHEWS..

- Related Sustainable Development Goals (SDGs): SDG 9 - Industry, Innovation, and Infrastructure; SDG 11 - Sustainable Cities and Communities; SDG 13 - Climate Action; SDG 17 - Partnerships for the Goals
- Partnership(s)/Collaborator(s):
  - National Observatory of Athens
  - Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici
  - Sveriges Meteorologiska och Hydrologiska Institut
  - Slovak Hydrometeorological Institute
  - European Centre for Medium Range Weather Forecasts
  - Hellenic Ministry of Defence
  - Centro Internazionale Di Monitoraggio Ambientale - Fondazione
  - Institut National de Recherche pour l'Agriculture, l'alimentation et l'Environnement
  - International Red Cross/Red Crescent Centre on Climate Change and Disaster Preparedness
  - Justus-Liebig-Universitaet Giessen
  - Barcelona Supercomputing Center-Centro Nacional de Supercomputación
  - Fraunhofer Heinrich-Hertz-Institut - Fraunhofer HHI
  - GeoSphere Austria
  - Mitiga Solutions
  - Internet of Things applications and Multi-Layer development
  - Kajo s. r. o.
  - Convergence
  - Ministry of Digital Governance (associated)
  - GRNET
  - Georgia National Environmental Agency
  - Region of Attica Civil Protection Department
  - European Central Bank (associated)
  - Centro Previsione e Segnalazione Maree del Comune di Venezia
  - Egyptian Meteorological Authority
  - Italian Meteo Agency
  - Department of Interior of Generalitat de Catalunya
  - Ethiopian Forestry Development
  - Pau Costa Foundation
  - South-East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) represented by the Israel Meteorological Service (associated)
- Relevant Links and Multimedia:
  - <https://wmo.int/media/news/wmo-leads-new-research-project-early-warning-systems-mediterranean>
- Lessons Learned: The MedEWSa was launched in November 2023. The MedEWSa project emphasizes the importance of research and multi-stakeholder collaboration in enhancing Mediterranean and European countries' operational EWS capabilities. It aims to enhance collaboration, research, innovation, and the dissemination of knowledge and technologies in support of EU policies addressing global challenges.
- Contact Information: Jon Cox ([jcox@wmo.int](mailto:jcox@wmo.int)), Jürg Luterbacher([jluterbacher@wmo.int](mailto:jluterbacher@wmo.int))

## 2. Related Sustainable Development Goals

SDG 9, SDG 11, SDG 13, SDG 17

## 3. Related Links

<https://public.wmo.int/en>

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