



# **WSIS+20 Review Action Lines Milestones, Challenges and Emerging Trends beyond 2025**

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**C2 Information and Communication Infrastructure**

# The Evolution of Context

## Key Drivers of Evolution (2004 to 2024)

- From the humble beginnings of 2G the rise of **3G/4G** and now **5G** mobile networks made internet access possible in regions where fixed broadband infrastructure was lacking.
- The increasing availability of **smartphones** enables billions of people to go online, particularly in developing countries.
- Investment in broadband infrastructure, including **fiber-optic networks, undersea cables**, and **satellite internet** brings more people online, especially in rural and remote areas.
- **Global Initiatives** from organizations like the **ITU** and governments around the world reduce the digital divide and provide affordable, accessible internet for all.

## ITU Priorities

- [Affordable connectivity](#)
- [Digital transformation](#)
- [Enabling policy and regulatory environment](#)
- [Resource mobilization and international cooperation](#)
- [Inclusive and secure telecommunications/ICTs for sustainable development](#)

# Key Milestones: 20 years of Achievements

## 2004-2010

- **World Summit on the Information Society (WSIS) Follow-up (2005):** ITU played a crucial role in the WSIS, promoting the vision of an inclusive information society and continuing efforts to implement the outcomes, including the Geneva Plan of Action.
- **Establishment of the Broadband Commission for Digital Development (2010):** In partnership with UNESCO, this commission was set up to address the global broadband gap and promote the importance of broadband for sustainable development.
- **Launch of the ICT Development Index (IDI) (2009):** A composite index measuring the level of ICT development across countries, helping to assess progress in bridging the digital divide.
- **Adoption of the ITU's Strategic Plan (2010):** The plan outlined strategic objectives for the organization, focusing on connectivity, access, and the use of ICTs to improve people's lives.
- **World Telecommunication Development Conference (WTDC) (2010):** Held in Hyderabad, India, this conference aimed to address the challenges of ICT development, with a focus on developing countries and the role of telecommunications in achieving the Millennium Development Goals (MDGs).
- **Implementation of the International Telecommunication Regulations (ITRs) (2010):** Following the World Conference on International Telecommunications (WCIT) in Dubai, ITU adopted revisions to the ITRs, addressing global telecommunication issues and promoting international cooperation.

## 2011-2015

- **ITU IoT Framework Adoption (2012):** Developed to tackle IoT challenges, emphasizing standardized protocols and regulatory frameworks for deployment.
- **World Telecommunication Development Conference (WTDC) (2014):** Focused on telecommunications' role in sustainable development and strategies to improve connectivity in developing countries.
- **ITU Connect 2020 Agenda (2014):** Set goals for universal broadband access by 2020, highlighting connectivity's importance for social and economic development.
- **Establishment of ITU-T Study Group on Future Networks (2014):** Created to explore future network technologies and address emerging telecommunications challenges.
- **World Telecommunication Standardization Assembly (WTSA) (2012):** Focused on developing interoperability standards for efficient telecommunication systems and fostering international cooperation.
- **Resolution on Telecommunications in Disaster Risk Reduction (2013):** Highlighted telecommunications' critical role in disaster preparedness, urging enhanced telecom infrastructure for resilience.
- **Launch of ITU Smart Sustainable Cities Initiative (2015):** Aimed to leverage ICTs for improving urban living, promoting environmental sustainability, and supporting economic growth.

# Key Milestones: 20 years of Achievements

## 2016-2020

- **World Telecommunication Development Conference (WTDC) (2017):** Held in Buenos Aires, Argentina, this conference focused on promoting connectivity, digital transformation, and the role of ICTs in achieving the Sustainable Development Goals (SDGs).
- **Launch of the ITU Digital Transformation Initiative (2019):** This initiative aimed to guide Member States in leveraging ICTs for comprehensive digital transformation, enhancing efficiency and innovation across sectors.
- **Adoption of the ITU's AI for Good Global Summit (2017):** This summit brought together stakeholders to explore how artificial intelligence can advance the SDGs, promoting international cooperation in AI development.
- **Launch of the ITU's Global Broadband Report (2018):** This annual report provided insights into global broadband trends, challenges, and opportunities, helping to inform policy and investment decisions.
- **Establishment of the ITU's Focus Group on AI for Health (2019):** Created to explore the applications of AI in healthcare, this group aimed to improve health services and outcomes through innovative ICT solutions.
- **World Radio Communication Conference (WRC-19) (2019):** This conference addressed global spectrum management and allocation, focusing on emerging technologies like 5G, satellite communications, and the Internet of Things (IoT).
- **ITU's Strategy for the Internet of Things (IoT) (2020):** The strategy aimed to promote IoT development and interoperability, providing guidelines for member states to implement IoT solutions effectively.

## 2021-2024

- **World Telecommunication Development Conference (WTDC) 2021:** This conference focused on the role of telecommunications in achieving the SDGs, digital transformation, and inclusive connectivity.
- **Adoption of the ITU Strategy on Artificial Intelligence (AI) (2022):** The strategy aimed to ensure AI development aligns with global standards and ethical considerations, promoting responsible AI deployment across sectors.
- **Launch of the ITU's Digital Cooperation Initiative (2022):** This initiative aimed to foster international collaboration in the digital space, addressing issues like digital divide, cybersecurity, and digital governance.
- **World Radio Communication Conference (WRC-23):** This conference focused on spectrum management and allocation for emerging technologies, including 6G, satellite communications, and IoT.
- **Establishment of ITU's Focus Group on Environmental Sustainability (2022):** This group was created to address the environmental impact of ICTs and promote sustainable practices within the telecommunications sector.
- **Adoption of ITU's Guidelines for AI and Machine Learning in Telecommunications (2023):** These guidelines aim to assist member states and industry stakeholders in integrating AI responsibly and effectively into telecommunication networks.
- **Launch of the ITU's Report on Digital Trends (2024):** This report highlighted emerging digital trends and challenges, providing recommendations for policymakers to promote digital inclusion and innovation.

# Key Milestones: Resolutions

•**Resolution 10 (2010):** The Role of the Internet and International Cooperation in its Governance

•**Resolution 57 (2010):** Accessibility to Telecommunication Services for Persons with Disabilities

•**Resolution 70 (2012):** Broadband Access and Services

•**Resolution 100 (2012):** Accessibility of Telecommunication Services for People with Disabilities

•**Resolution 175 (2015):** Telecommunications for Disaster Risk Reduction

•**Resolution 1 (2017):** Effective Policies and Regulations for Universal Broadband Access

•**Resolution 3 (2017):** Telecommunications and the Sustainable Development Goals (SDGs)

•**Resolution 14 (2018):** Cybersecurity and International Cooperation

•**Resolution 20 (2019):** Telecommunications in Climate Change Adaptation and Mitigation

•**Resolution 48 (2022):** Framework for Digital Cooperation

•**Resolution 61 (2022):** Resilience of Telecommunications Networks in Natural Disasters

•**Resolution 75 (2023):** Use of Artificial Intelligence in Telecommunications

•**Resolution 79 (2024):** Addressing the Digital Divide and Promoting Inclusive Connectivity

•**Kigali Resolution (2022):** Emphasizing the Importance of Broadband Connectivity and Digital Transformation for Sustainable Development (Adopted at WTDC in Kigali, Rwanda)

2004 to 2010

2011 to 2015

2016 to 2020

2021 to 2024

# Key Milestones: Major Events

## 2021 - 2024

- **World Telecommunication Standardization Assembly (WTSA)** (2022) - Brought together experts to develop global standards for emerging ICT technologies.
- **World Radiocommunication Conference (WRC-23)** - Ongoing efforts to allocate spectrum for new communication technologies and services.
- **Plenipotentiary Conference** (2022) - Held in Bucharest, Romania, determining the ITU's policies and financial plans for the next four years.
- **World Telecommunication Development Conference (WTDC)** (2022) - Focused on achieving universal connectivity and addressing the global digital divide.
- **AI for Good Global Summit** (Annual) - Continued focus on the role of artificial intelligence in addressing global challenges.

## 2016 - 2020

- **World Radiocommunication Conference (WRC-19)** (2019) - Addressed global spectrum management for emerging technologies such as 5G, satellite communications, and IoT.
- **World Telecommunication Standardization Assembly (WTSA)** (2016) - Focused on developing international telecommunication standards.
- **AI for Good Global Summit** (2017) - Launched as an initiative to explore the role of AI in achieving the Sustainable Development Goals (SDGs).
- **World Telecommunication Development Conference (WTDC)** (2017) - Focused on digital transformation and connectivity for sustainable development.
- **Plenipotentiary Conference** (2018) - The ITU's highest policy-making body setting the strategic agenda for 2019-2022.

## 2011 - 2015

- **World Radiocommunication Conference (WRC-12)** (2012) - Addressed spectrum management and regulatory issues, particularly for mobile broadband.
- **World Telecommunication Development Conference (WTDC)** (2014) - Focused on achieving sustainable development through improved global connectivity.
- **Plenipotentiary Conference** (2014) - Held in Busan, South Korea, the conference set policies and strategies for the ITU for the 2015-2018 cycle.
- **World Summit on the Information Society (WSIS) +10** (2014) - A high-level event to review the progress of WSIS outcomes and continue the dialogue on ICT for development.

## 2004 - 2010

- **World Summit on the Information Society (WSIS) Phase II** (2005) - Held in Tunis, this summit focused on the digital divide and developing an inclusive Information Society.
- **World Telecommunication Development Conference (WTDC)** (2006) - Aimed at promoting telecommunication development and digital inclusion worldwide.
- **Plenipotentiary Conference** (2006) - The highest policy-making body of the ITU, setting ITU's direction and policies for the next four years.
- **World Radiocommunication Conference (WRC)** (2007) - Focused on the allocation and management of the radio-frequency spectrum.
- **Global Symposium for Regulators (GSR)** (2009) - A forum for global ICT regulators to share best practices and regulatory insights.

# Key Milestones: Major Publications

## 2021 - 2024

- **World Telecommunication Development Report (2021)**: Focused on the impact of COVID-19 on global connectivity and the digital divide.
- **Digital Transformation Reports (2022)**: Series of publications on leveraging ICTs for digital transformation across various sectors.
- **Global Broadband Report (2023)**: Analyzed the state of broadband access and provided recommendations for enhancing connectivity.
- **ITU's Strategy for the Internet of Things (IoT) (2020)**: Outlined guidelines for IoT development and interoperability among member states

## 2016 - 2020

- **ITU Global Cybersecurity Index (GCI) (2017)**: Assessed the cybersecurity readiness of countries and highlighted best practices.
- **AI for Good Global Summit Outcomes Report (2018)**: Summarized discussions on the role of AI in achieving the Sustainable Development Goals (SDGs).
- **Measuring the Information Society Report (2020)**: Provided an analysis of ICT development and progress toward the SDGs.

## 2011 - 2015

- **Broadband: A Global Perspective (2012)**: Provided insights into global broadband trends and their implications for development.
- **ICT Facts and Figures** : Offered statistical data on the global ICT landscape, including access, use, and connectivity trends.
- **World Telecommunication Development Report (2014)**: Addressed the role of telecommunications in sustainable development, particularly in developing countries.

## 2004 - 2010

- **World Telecommunication Development Report (2006)**: Focused on the role of telecommunications in achieving the Millennium Development Goals (MDGs).
- **Global Information Society Report (2007)**: Analysed the global state of ICT development, emphasizing digital divides and policy responses.
- **Trends in Telecommunication Reform (2010)**: Discussed regulatory developments and challenges in the telecommunications sector.

# Challenges in implementing the Action Line



**Data:** Ensuring that stakeholders have access to timely and relevant data is crucial for informed decision-making and effective planning. However, disparities in data availability and quality can impede efforts to develop and maintain robust ICT infrastructure.



**Resource and Funding Constraints:** Developing and maintaining information and communication infrastructure requires substantial resource and financial investment. Securing adequate and sustainable funding for these initiatives can be a major challenge.



**Coordination and Collaboration:** Effectively engaging a diverse range of stakeholders, including government entities, private sector players, and civil society, presents challenges due to differing priorities and interests.



**Digital Divide:** A primary goal of this action line is to enhance access to information and communication infrastructure. However, the existing digital divide remains a significant barrier.



**Sustainability:** Ensuring that information and communication infrastructure initiatives are sustainable in the long term is a critical challenge. This requires ongoing support, maintenance, and continuous capacity building to keep the infrastructure relevant and effective.



**Privacy and Security Concerns:** The expansion of information and communication infrastructure raises significant issues related to data privacy and security. It is vital to implement measures that ensure responsible and ethical use of these technologies.



# Trends and Opportunities Beyond 2025



## 5G/6G Networks

As **5G networks** mature, their global deployment will continue to expand, driving faster internet speeds, reduced latency, and new applications. The research and development of **6G technologies** will begin to take shape, promising even greater connectivity, with potential use cases in AI, smart cities, and immersive experiences.



## Fiber Networks

**Fiber-optic infrastructure** will remain essential for high-speed internet access, particularly in urban areas. However, beyond 2025, innovative technologies like **quantum communication and terahertz transmission** could redefine high-speed data transmission.



## Internet of Things 2.0

The **growth of IoT** will expand beyond traditional devices, **enabling interconnected smart infrastructure** ranging from smart cities to intelligent transportation systems and smart homes. The continued development of IoT standards and interoperability will unlock new business models and societal benefits.



## Satellite

**LEO satellite** constellations, will continue to play a key role in providing internet access to remote and underserved regions. This trend will create opportunities for more inclusive global connectivity and help close the digital divide **in rural areas**.



## SDN,NFV,AI

**Software-defined networking (SDN), Network Function Virtualization (NFV) and Artificial Intelligence (AI)** will become more widespread, allowing telecom operators to offer scalable, flexible, and cost-effective infrastructure. Cloud-based infrastructure will further drive **digital transformation** in sectors like healthcare, education, and finance.



## Sustainability

There will be an increased focus on building sustainable and **energy-efficient ICT infrastructure**. This includes adopting renewable energy sources to power data centers, reducing the carbon footprint of network operations, and promoting **circular economy principles in the telecommunications industry**.



# Trends and Opportunities Beyond 2025



## Security

As digital infrastructure becomes more widespread and critical, ensuring the **security and resilience** of networks will remain a top priority. Beyond 2025, emerging technologies like **quantum cryptography and AI-driven security** will offer new tools to protect information and maintain data privacy.



## Partnerships

While connectivity continues to grow, ensuring **universal access** and affordability will remain a challenge. **Governments, international organizations, and private sector partnerships** will need to focus on policies and initiatives that promote affordable access to high-quality internet for all.



## Data and Mapping

**Data collection, visualization, and mapping** will play a pivotal role in addressing the digital divide. Enhanced data analytics and tools for visualizing will help policymakers and stakeholders to better understand connectivity gaps and identify underserved areas.



## Capacity Building

**Capacity Building** will focus on preparing member states for future digital challenges. Tailored programs will ensure member states are ready to leverage emerging technologies and participate in the global digital economy.

**Thank you!**