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| ITU Logo | INTERNATIONAL TELECOMMUNICATION UNION**TELECOMMUNICATIONSTANDARDIZATION SECTOR**STUDY PERIOD 2017-2020 | FG-AI4H-J-047 |
| **ITU-T Focus Group on AI for Health** |
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| **DOCUMENT** |
| **Source:** | Chairman of FG-AI4H |
| **Title:** | FG-AI4H progress report to SG16 for the period from October 2019 to June 2020 (22 June – 3 July 2020) |
| **Purpose:** | Admin |
| **Contact:** | Thomas WiegandFraunhofer HHIGermany | Email: thomas.wiegand@hhi.fraunhofer.de |

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| **Abstract:** | This document contains a copy of the FG-AI4H Progress Report for the period October 2019 to June 2020 that was submitted to the last ITU-T SG16 meeting (22 June-3-July 2020), for information of the FG-AI4H meeting. |

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| **STUDY GROUP 16** |
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| **Source:** | Chairman FG-AI4H |
| **Title:** | FG-AI4H progress report to SG16 for the period from October 2019 to June 2020 (22 June – 3 July 2020) |
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| **Keywords:** | Focus Group; Artificial Intelligence for Health; Progress Report |
| **Abstract:** | Since the last progress report in October 2019 (SG16-TD312/PLEN), the Focus Group on Artificial Intelligence for Health (FG-AI4H) held three meetings. The seventh meeting was held in New Delhi, India; the eighth meeting was held in Brasilia, Brazil; and the ninth meeting was held virtually. Two side meetings were also held, one organized by the FG-AI4H Working Groups on Data and AI solution handling (DASH) and on Data and AI solution assessment methods (DAISAM) and one organized for the Working Group on Regulatory Considerations (RC). The Focus Group is working towards a standardized framework for benchmarking AI solutions for health. A number of draft deliverables are being prepared and are subject to further refinements; see a current snapshot in SG16-TD393/PLEN. These output documents cover topics such as data acceptance and handling as well as data and AI solution assessment. The development of these documents is conducted in close interaction with actual AI for health use cases. Through these interactions, the specifics of various modalities of AI for Health solution are considered. Currently, the Focus Group has in total created 20 AI for health topic groups each containing one or more use cases, which are progressing / maturing at different speeds. This progress report contains an update on the status of the work since the last progress report, an updated work plan including a schedule of future meetings, a summary of contributions considered by the group, information on the Focus Group’s deliverables. More significantly, in view of the good progress and momentum, the FG-AI4H requests an extension of its lifetime for two more years, namely until September 2022, in order to be able to complete its main objectives. |

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Attachments

1. Report of the seventh meeting ("Meeting G") of the Focus Group on Artificial Intelligence for Health (FG-AI4H), New Delhi, 12-15 November 2019: <https://itu.int/md/dologin_md.asp?id=T17-SG16-200622-TD-PLEN-0386!A1!MSW-E&type=mitems> = [FGAI4H-G-101-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-101-R01.docx)
2. Report of the eighth meeting ("Meeting H") of the Focus Group on Artificial Intelligence for Health (FG-AI4H), Brasilia, 21-24 January 2020: <https://itu.int/md/dologin_md.asp?id=T17-SG16-200622-TD-PLEN-0386!A2!MSW-E&type=mitems> = [FGAI4H-H-101-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-101-R01.docx)
3. Draft report of the ninth meeting ("Meeting I") of the Focus Group on Artificial Intelligence for Health (FG-AI4H), virtual meeting, 7-8 May 2020: <https://itu.int/md/dologin_md.asp?id=T17-SG16-200622-TD-PLEN-0386!A3!MSW-E&type=mitems> = [FGAI4H-I-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-101.docx)

# Introduction

The ITU-T Focus Group on Artificial Intelligence for Health (AI4H) was established by ITU-T Study Group 16 at its meeting in Ljubljana, Slovenia, 9-20 July 2018 with the terms of reference found in SG16-R10 Annex F. The Focus Group works in partnership with the World Health Organization (WHO) to establish a standardized framework for benchmarking AI solutions for health. Participation in the FG-AI4H is free of charge and open to all citizens from ITU Member States.

Nine meetings were held since the FG-AI4H was created, three of which took place since the last progress report to SG16. The main outcomes of these last three meetings are summarized in §2. The list of FG-AI4H management is indicated in §3. An overview of the documentation reviewed is found in §4. The progress on deliverables, topic groups and working groups is found in §5, §6 and §7, respectively. The future meeting plans are indicated in §8, followed by funding considerations in §9 and a general outlook and next steps in §10 and §11, respectively.

Annex A contains the list of attendees of all three meetings that the FG held since the previous SG16 meeting in Geneva, in October 2019.

# Meeting outcomes

## Meeting G

The seventh meeting of the FG‑AI4H was held in in New Delhi, 13-15 November 2019, preceded by the seventh ITU-WHO Workshop on Artificial Intelligence for Health on 12 November 2019. About 211 participants attended physically and 40 participants attended remotely. Documentation of the meeting is found at [https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/‌191113.aspx](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/191113.aspx). The report of the meeting is found in document [FGAI4H-G-101-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-101-R01.docx), or Attachment 1 to this TD.

The following were the main results from the meeting.

A list of deliverables was defined for the FG, as found in [FGAI4H-G-200-R02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-200-R02.docx). The editors for the initial draft of those deliverables were identified and tasked with producing an abstract and initial table of contents by 2 December 2019.

Agreed to close the Working Group on Health requirements (WG-HR).

The FG reviewed 41 documents and created three output documents:

* [FGAI4H-G-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-102.docx): Updated call for proposals: use cases, benchmarking, and data

* [FGAI4H-G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx%22%20%5Ct%20%22_blank): Onboarding document for the FG-AI4H
* [FGAI4H-G-200-R02](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-200-R02.docx): List of planned FG-AI4H deliverables

The FG updated its list of topic groups (two new, two renamed, one sub-topic created):

* TG-Dental: Dental diagnostics and digital dentistry: Falk Schwendicke and Joachim Krois (Charité Berlin)
* TG-FakeMed: AI-based detection of falsified medicine: Franck Verzefé (TrueSpec-Africa)
* TG-Cogni (Neuro-cognitive diseases) renamed as TG-Neuro (Neurological diseases)
* TG-Growth (Child growth monitoring) renamed as TG-MCH (Maternal and child health), with Raghu Dharmaraju (Wadhwani AI, India), as TG Driver
* TG-Cogni sub-topic created on AI based Parkinson's disease screening and management: Khondaker Abdullah Al Mamun (AIMS Lab, United International University, Bangladesh)

The FG updated its list of working groups (two new):

* WG-Ethics: Ethical considerations on AI for Health: Andreas Reis (WHO)
* WG-CE: Clinical Evaluation: Naomi Lee (The Lancet)

## WG DASH/DAISAM AI4H workshop

A two-day workshop was organized by the FG-AI4H Working Groups on Data and AI solution handling (DASH) and on Data and AI solution assessment methods (DAISAM) in Berlin, Germany, 8-9 January 2020, hosted by Fraunhofer Heinrich Hertz Institute (HHI). One expert applied and received a travel grant to attend the event, using funds provided by the Fondation Botnar.

This event, entitled Standardized Assessment Framework - Handling and Assessment Methods, was not in the original plan of meetings and it was organized to take the next technical steps in (a) setting up a sandbox for the assessment framework and (b) defining testing procedures for quality assessment of data sets and AI models. Furthermore, the workshop was an opportunity to learn more about FG-AI4H as well as the people and institutions that are involved in its day-to-day work. The event had 70 participants.

The proceedings are found at <https://itu.int/en/ITU-T/focusgroups/ai4h/Pages/ws/2001.aspx>.

## Meeting H

The eighth meeting of the FG‑AI4H was held in Brasilia, Brazil, 22-24 January 2020, preceded by the eighth ITU/WHO Workshop on Artificial Intelligence for Health on 21 January 2020. The meeting had 99 participants over the various days. Documentation of the meeting is found at: <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/200122.aspx>. Report of the meeting is found in document [FGAI4H-F-101-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-101-R01.docx), or Attachment 2 to this TD.

The following were the main results from the meeting.

The FG reviewed 44 documents (not including attachments) and updated the following output documents:

* [H-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-102.docx): Updated call for proposals: use cases, benchmarking, and data
* [H-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-200.docx): Updated list of FG-AI4H deliverables

The following two outgoing reply liaison statements were prepared:

* SC42 ([FGAI4H-LS-003](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22583)) and SG13 ([FGAI4H-LS-004](https://www.itu.int/net/itu-t/ls/ls.aspx?isn=22592))

The following documents were reconfirmed:

* [FG-AI4H Whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf),
* [D-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-D-103.docx): Updated FG-AI4H data acceptance and handling policy
* [C-104](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-104.docx): Thematic classification scheme
* [F-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-105.docx): ToRs for the WG-Experts and call for experts
* [F-106](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-106.docx): Guidelines on FG-AI4H online collaboration tools
* [G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding document
* Templates: TDD ([C-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-105.docx)), CfTGP ([F-004](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-004.docx))

The FG updated its list of topic groups (one new, two renamed, one sub-topic created, one TG driver added):

– TG-Diabetes: Primary and secondary diabetes prediction: Andrés Valdivieso (Anastasia.ai, Chile)

* TG-Radiotherapy rescoped and renamed as TG-Radiology (AI for radiology), with Darlington Ahiale Akogo (minoHealth AI Labs, Ghana) as the topic driver
* TG-Cardio renamed as "*Use of AI in cardiovascular disease management*" to better reflect the sub-topics
* TG-Malaria sub-topic created on Malaria surveillance and detection: Helmi Zakariah (AIME, Malaysia). Work will be coordinated with relevant activities within TG-Outbreaks.
* TG-MCH (maternal and child health) received co-topic driver Alexandre Chiavegatto Filho (University of São Paulo, Brazil) to work with co-topic driver Raghu Dharmaraju (Wadhwani AI, India).

The FG updated its list of working groups (two new):

* WG-Ethics on ethical considerations on AI for health established with ToR in [H-039-R01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-H-039-R01.docx) and with Andreas Reis (WHO) as chairman.
* WG-Operations received co-chair Monique Kuglitsch (Fraunhofer HHI, Germany) to work alongside Markus Wenzel (Fraunhofer HHI, Germany).

## Working Group on Regulatory Considerations (WG-RC)

The WG-RC held its first meeting virtually, 4-5 May 2020 with approximately 60 participants from different stakeholder communities. WHO provides secretariat for this WG, which aims to provide reports to guide the development of future WHO Guidelines in the area of software as a medical device (SaMD) regulations. The discussions included the outline for the deliverables and topic areas for key regulatory considerations. They had planned a next e-meeting in July 2020 (as reported in [FGAI4H-I-038-A01](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-038-A01.pptx)), however later developments indicate a preference to let their sub-groups further progress work and have a virtual meeting in the September 2020 timeframe.

## Meeting I

Due to COVID-19, the ninth meeting of the FG was held as a virtual meeting, 7-8 May 2020. On this occasion, no preceding workshop was held. The meeting had 132 participants over the two days and examined 51 documents (not counting attachments). Documentation of the meeting is found at: [https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/‌docs/Forms/200507.aspx](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/Forms/200507.aspx). The draft report of the meeting will be soon published as document [FGAI4H-I-101](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-101.docx), or Attachment 3 to this TD.

The following were the main results from the meeting.

Working group updates:

* Agreed to create the **WG on Clinical Evaluation**, subject to the clarification of its terms of reference and approval by the remote consensus via the FG-AI4H mailing list. Naomi Lee (Lancet, UK) will lead the group
* Agreed to launch an **ad hoc group ad-hoc group on digital technologies for COVID health emergency**, coordinated by Shan Xu (CAICT, China) and Ana Rivière Cinnamond, PAHO/WHO. The ToR will be circulated for remote consensus two-week consultation and approval via the FG-AI4H mailing list.

Topic group updates:

* New TG on Endoscopy (**TG-Endoscopy**) with Jianrong Wu (Tencent Healthcare, China) as Topic Driver. The collaboration site for the new TG is <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/tg/SitePages/TG-Endoscopy.aspx>.

Deliverables update:

* All available deliverables were reviewed; see §3 for details. The latest version of the deliverables is found in the [FG-AI4H collaboration site](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/SitePages/Deliverables.aspx).

Agreed to prepare this report to ITU-T SG16 (Virtual, 22 June – 3 July 2020) including:

* Most recent results (New Delhi, Brasilia and Virtual FG-AI4H meetings), including a snapshot of the current deliverables and the updated FG-AI4H whitepaper
* Request to renew the lifetime of the FG-AI4H for another two years (until September 2022)

It was agreed to update the following output documents, after an editing period after the meeting:

* [I-102](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-102.docx): Updated call for proposals: use cases, benchmarking, and data (to be published once the final dates of the next FG-AI4H meeting are defined)
* [I-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-004.docx): Updated TDD Template
* [I-200](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-I-200.docx): Updated list of FG-AI4H deliverables
* [FG-AI4H whitepaper](https://www.itu.int/en/ITU-T/focusgroups/ai4h/Documents/FG-AI4H_Whitepaper.pdf)

The following documents were reconfirmed:

* [F-103](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-103.docx): Updated FG-AI4H data acceptance and handling policy
* [C-104](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-C-104.docx): Thematic classification scheme
* [F-105](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-105.docx): ToRs for the WG-Experts and call for experts
* [F-106](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-F-106.docx): Guidelines on FG-AI4H online collaboration tools
* [G-107](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs/FGAI4H-G-107.docx): Onboarding document

The next meeting of the FG-AI4H will be in held virtually in September 2020, dates TBD.

# Focus group management updates

There have been no updates to the FG management since the October meeting of SG16. The current FG management is as follows:

Chairman:

* Thomas Wiegand (Fraunhofer HHI, Germany)

Vice-Chairmen

* Stephen Ibaraki (ACM and REDDS Capital, USA), nominated at meeting A
* Ramesh Krishnamurthy (WHO/Health Metrics and Measurement Cluster)
* Naomi Lee (The Lancet, UK), nominated at meeting B
* Sameer Pujari (Be Healthy Be Mobile Initiative and WHO/Non-communicable Diseases Cluster), nominated at meeting A
* Manjula Singh (ICMR, India), nominated at meeting F
* Shan Xu (CAICT, China), nominated at meeting C to replace Mr Min Dong (Ljubljana)

# Summary of Contributions considered by the focus group at the last three meetings

At meeting G (New Delhi) the FG reviewed 41 input documents.

At meeting H (Brasilia) the FG reviewed 44 input documents.

At meeting I (virtual) the FG reviewed 51 input documents.

All documentation is found per meeting as indicated in §2 above, or as a complete collection at: <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/docs>.

# Deliverables

During meeting G, a list of deliverables for the FG-AI4H was planned and corresponding research groups (or conference calls) was established, with nine deliverables focusing on generalized specifications including ethics, regulatory, requirement, data, training, evaluation, application, etc., and 20 focusing on use cases within specific health domains with corresponding AI/ML tasks. Initial editors were assigned to each deliverable to create initial drafts of the documents. Experts were also encouraged to contact the editors if they were interested in contributing. At meetings H and I, updates on the deliverables were presented. SG16-TD393/PLEN contains the current version of the draft deliverables for information to SG16.

See Figure 1 below to see the relationship between the different deliverables. According to different characteristics, the planned deliverables are divided into two groups:

* Generalized specifications (DEL 1-9): focus on generalized specifications including ethics, regulatory, requirement, data, training, evaluation, application, etc. Each part is interconnected and complement each other, for a holistic view of the AI for health problem space. The arrows in the figure are intended to indicate sequential connections from the perspective of software development and implementation.
* Topic groups (DEL 10.1-10.20): focus on use cases in specific health domains with corresponding AI/ML tasks. Each case could be seen as an example of a whole process recommended by generalized specifications (DEL 1-9), and also adapt to some specific application scenarios.



Figure 1 – Deliverables structure and relationship

A table for document links and contacts information is given as below, hopefully makes it easy for collaboration and dialogues between different deliverables.

During each meeting, updates on the various deliverables are presented and are stored in the FG-AI4H Deliverables collaboration site [https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/SitePages/‌Deliverables.aspx](https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/SitePages/Deliverables.aspx).

# Topic areas & use cases

Eight topic groups were created in Meeting B. Three additional topic groups were established at meeting C. At meeting D, one TG was merged, three new TGs were created. At meeting E, one topic group was created. At meeting F, three TGs were created. At meeting G, 2 TGs were created and 1 sub-topic group was created. At meeting H, one TG was created and one sub-topic group was created. At meeting I, on topic group was added.

After the discussions at past meetings, it was decided to name the existing and new topic areas as shown in Table 1.

Table 1 – Topic areas

| Topic group | Leader |
| --- | --- |
| 1. Cardiovascular disease management (TG-Cardio), including *risk prediction* and *clinical prediction* sub-topics
 | Benjamin Muthambi |
| 1. Dermatology
 | Maria Vasconcelos |
| 1. Diagnoses of bacterial infection and anti-microbial resistance
 | Nada Malou |
| 1. Falls among the elderly
 | Inês Sousa  |
| 1. Histopathology
 | Frederick Klauschen |
| 1. Malaria
 | Rose Nakasi |
| 1. Maternal and child health
 | Raghu Dharmaraju; Alexandre Chiavegatto |
| 1. Neurological disorders
 | Marc Lecoultre |
| 1. Ophthalmology (retinal imaging diagnostics)
 | Arun Shroff |
| 1. Outbreak detection
 | Auss Abbood |
| 1. Psychiatry
 | Nicholas Langer |
| 1. Radiology
 | Darlington Ahiale Akogo |
| 1. Snakebite and snake identification
 | Rafael Ruiz de Castañeda |
| 1. Symptom assessment
 | Henry Hoffmann |
| 1. Tuberculosis
 | Manjula Singh |
| 1. Volumetric chest computed tomography
 | Kuan Chen |
| 1. Dental diagnostics and digital dentistry
 | Falk Schwendicke; Joachim Krois; Tarry Singh  |
| 1. Falsified Medicine
 | Franck Verzefé |
| 1. Primary and secondary diabetes prediction
 | Andrés Valdivieso |
| 1. Endoscopy
 | Jianrong Wu |

# Working groups

Currently, after the closure of the Working Group on Health requirements (WG-HR) and the creation of the WG on Ethics at Meeting G, and of the WG on Clinical Evaluation at meeting I, the FG has six working groups, which cover issues horizontally across the various topic groups. The names and leadership are listed in Table 2, and the ToR of each WG is found online at <https://itu.int/en/ITU-T/focusgroups/ai4h/Pages/wg.aspx>.

Table 2 – Working Groups

| Working Group | Leadership |
| --- | --- |
| Data and AI solution assessment methods (WG-DAISAM) | Chair: Pat Baird (Philips)Vice-chair: Luis Oala (Fraunhofer HHI, DE) |
| Data and AI solution handling (WG-DASH) | Chair: Marc Lecoultre (MLlab.AI, CH)Vice chair: Ferath Kherif (CHUV, CH) |
| Operations (WG-O) | Chair: Markus Wenzel (Fraunhofer HHI, Germany) |
| Regulatory considerations on AI for health (WG-RC) | Chair: Naomi Lee (The Lancet, UK)Vice-chairs:* Paolo Alcini (European Medicines Agency, EU)
* Chandrashekar Ranga (CDSCO, India)
* Khair ElZarrad (FDA, USA)
* Wolfgang Lauer (Federal Institute for Drugs and Medical Devices, Germany)
* Peng Liang (National Medical Products Administration, China)
 |
| Ethics (WG-Ethics) | Chair: Andreas Reis (WHO) |
| Clinical Evaluation (WG-CE) | Chair: Naomi Lee (The Lancet, UK) |

# Work Plan

Uncertainties due to the COVID-19 pandemic makes it difficult to foresee when the next physical meeting of the FG-AI4H would be. After discussions, it is expected that the meetings until the end of September 2020 would be virtual.

There is a standing invitation for a meeting in Montreal, Canada, in early November 2020. Feasibility of the meeting will be closely monitored and the group will be kept informed through the FG-AI4H main mailing list and webpage, <https://itu.int/go/fgai4h>.

All online activities planned are to be documented in the FG-AI4H collaboration site calendar, <https://extranet.itu.int/sites/itu-t/focusgroups/ai4h/Lists/Calendar/calendar.aspx>, especially the TG and WG e-meetings.

# Funding

## General activities

The FG-AI4H activities were able to secure funding from the Botnar Foundation (Switzerland), which pledged CHF 274'000 to assist with travel grants for medical and AI experts from LMIC countries, and some operational expenses. These funds became effective in July 2019 and were used to fund nine experts to travel to the meeting in Zanzibar, six experts to travel to the meeting in New Delhi, one expert to travel to the WG DASH/DASIAM workshop in Berlin, and 15 experts to travel to the meeting in Brasilia, plus travel cost of ITU staff providing secretariat services to each of those meetings.

## WG-RC

The FG-AI4H has created a Working Group on Regulatory Considerations with vice-chairs from regulatory bodies of USA, China, India, Europe and Germany. More vice-chair positions to be filled by regulatory bodies of other countries are currently being discussed. The working group discusses regulatory implications of AI and on developing key considerations for the regulations of AI-based health applications. To further this activity a more targeted effort to advance the international collective understating of the regulatory framework needed to assess and evaluate AI tools and systems, the U.S. FDA has pledged USD 150,000 in total to support meetings of the working group. The first of such meetings took place as a virtual meeting in May 2020.

# Outlook

After almost two years of operations, the Focus Group on Artificial Intelligence for Health (FG-AI4H) made important progress towards its goals that are stated in its ToR document.

The FG-AI4H is developing into a platform to facilitate a global dialogue for AI for health. Nine meetings have been carried out and an on-line collaboration platform has been established which has brought in several hundreds of participants with a wide range of backgrounds, interests and geographies. In addition to the general varying participants, normally interested in the various workshops organized at the start of the FG-AI4H meetings, we have seen an increase in steady participation, that delineates the formation of a core set of experts. The outreach campaign of the FG-AI4H has reached thousands of readers and awareness has been created through publications such as the FG-AI4H whitepaper (see SG16-TD393/PLEN Att.[1](https://www.itu.int/dms_inf/itu-t/md/17/sg16/td/200622/PLEN/T17-SG16-200622-TD-PLEN-0393%21A1%21MSW-E.zip)) and a paper in The Lancet, one of the most respected peer review publications for the medical sector. To ensure sustainability and cost efficiencies, we have increased use of electronic collaboration mechanisms to foster the work of the topic and working groups. We have also developed [onboarding](https://itu.int/en/ITU-T/focusgroups/ai4h/Documents/ITU_WHO_AI4H_Onboarding.pdf) material that facilitates the recruitment of new experts.

The FG-AI4H is actively working towards a standardized framework for benchmarking AI solutions for health. A number of output documents have been produced and are subject to further refinements. These output documents cover topics such as data acceptance and handling as well as data and AI solution assessment. It is planned to include these documents as part of the standardized framework for benchmarking AI solutions for health that is planned to be delivered and to be provided to ITU and WHO for further consideration. The implementation of the standardized framework through a benchmarking platform is being developed and software tools are being made available to conduct the actual benchmarking of AI solutions for health. Two proof-of concept benchmarks have already been considered.

The development of these output documents for the standardized framework is conducted in close interaction with actual AI for health use cases, a.k.a. topic groups. Through these interactions, the specifics of various modalities of AI for health solution are considered. Currently, the FG-AI4H has in total created 20 AI for health topic groups each containing one or more use cases on cardiovascular disease risk prediction, diagnoses of bacterial infection and anti-microbial resistance (AMR), dermatology, falls among the elderly, histopathology, malaria detection, neurological disorders, outbreak detection, ophthalmology, psychiatry, radiology, snakebite and snake identification, symptom assessment, tuberculosis, maternal and child health, volumetric chest computed tomography, dental diagnostics and digital dentistry, falsified medicine, and primary and secondary diabetes prediction. This number is expected to grow as the number of participants is steadily increasing and awareness is being driven forward. The AI for health topic groups produce topic description documents, which are being refined for all 20 health topic groups in parallel. Not all of them have progressed/‌matured at the same pace, as progress is dependent on the commitment and availability of the interested experts. The current draft of the current deliverables is found in [SG16-TD393/PLEN](https://www.itu.int/md/T17-SG16-200622-TD-PLEN-0393/en) Attachments [2](https://www.itu.int/dms_inf/itu-t/md/17/sg16/td/200622/PLEN/T17-SG16-200622-TD-PLEN-0393%21A2%21ZIP-E.zip) and [3](https://www.itu.int/dms_inf/itu-t/md/17/sg16/td/200622/PLEN/T17-SG16-200622-TD-PLEN-0393%21A3%21ZIP-E.zip). We expect that the earlier deliverables could become technical papers guiding the development of AI benchmarks for particular use cases; as well as a specification describing the framework for benchmarking AI-based health solutions. Moreover, the AI for health solutions in these topic groups are being expected to be the first ones to be benchmarked through our standardized framework. The audience for these deliverables will be, in addition to ITU-T Study Group work, WHO for implementation of its Digital Health Strategy, medical device regulators, medical professionals, and the various communities of machine learning experts and AI-based health solution developers.

The collaboration with WHO in developing appropriate national guidance documents for establishing a policy-enabled environment to ensure the safe and appropriate use of AI in health has been intensified. Moreover, the Working Group on Regulatory Considerations has vice-chairs from regulatory bodies of USA, China, India, Europe and Germany; more vice-chair positions to be filled by regulatory bodies of other countries are currently being discussed. With a donation made by FDA, it held its first meeting in May 2020. It was held as a virtual meeting due to COVID-19. Another meeting is being discussed for September 2020. The agenda items for this meeting of the Working Group on Regulatory Considerations also include the review of the output documents of the FG-AI4H.

All proceedings of the FG-AI4H have been conducted in order to generate a transparent documentation by creating reports and specifications towards enabling external assessment of the benchmarking framework and the benchmarked AI for health methods.

Working groups with FG-AI4H provide cross-group structure, for example by early exposure to regulatory considerations and in developing data acceptance and handling policies. We have established further Working groups on ethical considerations, clinical evaluation and we expect to establish one on public health. These new working groups and additional activities together with the expansion of the number and reach of health topic groups will drive the activity of the FG-AI4H towards achieving its goals.

Overall, we are very satisfied with the progress of the group and expect to start seeing some real advance in the core issues of the focus group, now that work methods and structures are more stable, after this initial term of operations and the level of participation and awareness that has been created.

One issue has become critical for the identification of the key elements needed from the complex AI for health ecosystem, development of a critical mass of experts, external stakeholder support (e.g. foundations and other financing agents), and efficient working of the focus group, and that is that for this work, two years has been too short a time. The focus group estimates that it will require another two years in order to mature a sufficient number of topic groups to validate the scalable framework it is implementing for benchmarking of AI-based health solutions, as currently personified in the various deliverables discussed in §5.

# Next Steps

Accordingly, The FG-AI4H seeks the **extension of the lifetime of the focus group for two additional years**, namely until September 2022.

# Annex A:Lists of attendees at all meetings held since the previous progress report

## A.1 List of attendees at meeting G

| Last Name | First Name | Entity | Country | 12-Nov | 13-Nov | 14-Nov |
| --- | --- | --- | --- | --- | --- | --- |
| AB | Divya | Director, DoT | India | Present | – | – |
| Abbood | Auss | Robert Koch Institute | Germany | Remote | Remote | Remote |
| AC | Chetan | – | India | Remote | – | – |
| Adel | Aminullah | Afghanistan Telecom Regulatory Authority (ATRA) | Afghanistan | Present | Present | Present |
| Agarwal | Shashank | NICF | India | Present | – | – |
| Aggarwal | Anjali | Senior Consultant Radiologist, Teleradiology Solutions | India | Present | – | – |
| Agrawal | Anurag | IGIB | India | Present | – | – |
| Ahmad | Faisal | Tech Corp International Strategist (TCIS) | India | Present | Present | – |
| Ahmadzai | Sher Khan | Afghanistan Telecom Regulatory Authority (ATRA) | Afghanistan | – | Present | Present |
| Akhtar | Furqan | Probationer, IPTAPS | India | Present | – | – |
| Alen Vikas  | A. | ADET ITS | India | Present | – | – |
| Allen | Megan | Inspired Ideas | Tanzania | Present | Present | Present |
| Ana Soloman  | Irin | ICMR | India | Present | – | – |
| Anupriya | S. | Technology Strategist, Start Up India | India | Present | – | – |
| Apte | Neeraj | Avegen India Pvt Ltd | India | Present | – | – |
| Arora | Manish | – | – | Remote | – | – |
| Awladthani | Badar | System Applications | India | Present | – | – |
| Awladthani | Pradeep | MoH&W | India | – | Present | Present |
| Bakshi | Ajay | BuddhiMed Technologies | India | Present | – | – |
| Balachandran | Pradeep | Guest | Switzerland | Present | Present | Present |
| Banzal | Preeti | Ministry of Communications | India | Present | Present | Present |
| Barandas | Marilia | Start-up/individual | – | – | – | Remote |
| Berger | Rainer | AI Singapore | Singapore | Present | Present | Present |
| Bhardwaj | Shshank | Probationer, IPTAPS | India | Present | – | – |
| Brahmachari | Sk | Former DG (CSIR) and Secretary GOI | India | Present | – | – |
| Chronaki | Catherine | HL7 Foundation | Belgium | Remote | – | – |
| Cuenat | Alexandre | Wellcome Trust | United Kingdom | Remote | Remote | Remote |
| Dabiri | Ayda | ITU | Switzerland | Remote | – | – |
| Dagur | Brahamanad | Programmer | India | Present | – | – |
| De | Aveek | Catalyst Foundation | India | Present | Present | – |
| De Campos Neto | Simão Ferraz | ITU | Switzerland | Present | Present | Present |
| Dharmaraju | Raghu | Wadhwani AI | India | Present | – | – |
| Dhingra Khurana | Sonal | ICMR | India | Present | – | – |
| Diwakar | Ashutosh | ADET | India | Present | – | – |
| Durani | Sandeep | Senior Manager, HPE | India | Present | – | – |
| Durso | Andrew | Université de Genève  | Switzerland | – | – | Remote |
| Ferrante Di Ruffano | Lavinia | Start-up/individual | – | Remote | – | – |
| Gautam | Piyush | ICMR | India | Present | – | – |
| Guilford | Matthew | Common Health | Malaysia | Present | – | – |
| Gunda | Srinivas | M - Fine | India | Present | – | – |
| Gupta | Manish Kumar | Ministry of Communications | India | Present | – | – |
| Gupta | Saurabh Kumar | Ministry of Communications | India | Present | Present | Present |
| Hoffmann | Henry | Ada Health GmbH | Germany | Present | Present | Present |
| Iqbal | Zafar | Probationer, IPTAPS NICF | India | Present | – | – |
| Jadeja | Dushyantsinh | Google | India | Present | Present | Present |
| Jain | Neeraj | PATH | India | Present | – | – |
| Jayakody | Harsha | MyDoctor | Sri Lanka | Present | Present | Present |
| John | Oommen | The George Institute for Global Health | India | Present | – | – |
| John | Sheila | Sankara Nethralaya | India | Remote | Remote | Remote |
| Johri | Saurabh | Start-up/individual | United Kingdom | – | Present | Present |
| Jr Salim  | Ally | CEO, Inspired Ideas | Tanzania | Present | – | – |
| Kadam | Rigveda | Foundation for Innovative New Diagnostic | Switzerland | Remote | – | – |
| Kannan | Nandini | Indo - U.S. Science & Technology Forum (IUSSTF) | India | Present | – | – |
| Kapoor | Mudit | Associate Professor, Indian Statistical Institute | India | Present | – | – |
| Kherif | Ferath | CHUV | Switzerland | Remote | Remote | Remote |
| Kodan | Parul | Ministry of Communications | India | – | Present | Present |
| Krois | Joachim | Charité - Universitätsmedizin Berlin | Germany | Present | Present | Present |
| Kuglitsch | Monique | Fraunhofer HHI | Germany | Remote | Remote | Remote |
| Kumar | Sushil | Ministry of Communications | India | Present | Present | Present |
| Kumar | Ashwani | DoT | India | Present | – | – |
| Kumar | Jitendra | Senior Programmer | India | Present | – | – |
| Kumar | Rohit | Student | India | Present | Present | Present |
| Kumar | Sarvijit | Probationer, IPTAPS | India | Present | – | – |
| Kumar | Sumit | Probationer, IPTAPS | India | Present | – | – |
| Kumar | Vijay | Head BMS, ICMR | India | Present | – | – |
| Kumar Gupta  | Sanjeev | Technician C, ICMR - NIMR | India | Present | – | – |
| Kumar Kadel | Ajay | Nepal Telecom (Nepal Doorsanchar Company Limited) | Nepal | Remote | – | – |
| Kundu | Indra | Start-up/individual | – | Remote | – | – |
| Langer | Nicolas | University of Zurich  | Switzerland | – | – | Remote |
| Lecoultre | Marc | Business Investigation SA | Switzerland | Present | Present | Present |
| Lee | Naomi | The Lancet | United Kingdom | Present | Present | Present |
| Lingappa | Rakesh | Jain Institute of Technology | India | – | Remote | Remote |
| Lynn | Andrew | Professor, JNU | India | Present | – | – |
| Ma | Jackie | Fraunhofer HHI | Germany | Present | Present | Present |
| Mahajan | Vidur | Head R&D, Caring | India | Present | – | – |
| Mamun | Khondaker Abdhullah Al | CMED Health | Bangladesh | Present | Present | Present |
| Mathur | Roli | Indian Council of Medical Research | India | Present | – | – |
| Mc | Sathish Kumar | Ministry of Communications | India | Remote | Remote | Remote |
| Meena | Rajmohan | Ministry of Communications | India | Present | Present | Present |
| Mitra | Urvashi | Population Foundation of India | India | Present | – | – |
| Mohapatra | Julia | NICF | India | – | Present | Present |
| Mrinal | Mayank | Ministry of Communications | India | – | Present | Present |
| Mukherjee | Shoma | Assistant Professor | India | Present | – | – |
| Muthambi | Benjamin  | IEPH (Consultant to WatifHealth)  | United States | – | – | Remote |
| Muthuswamy | Vasantha | FERCI(Forum for Ethics Review Committees | India | Present | – | – |
| Nakasi | Rose | Makerere University | Uganda | Remote | Remote | Remote |
| Negi | Mayank | IPTAPS | India | Present | – | – |
| Neumark | Tom | University of Oslo  | Norway | Remote | Remote | Remote |
| Nim | Devendra Kumar | Ministry of Communications | India | – | Present | – |
| Oala | Luis | Fraunhofer HHI | Germany | Present | Present | Present |
| Pal | B.G. | Dure Technologies | India | Present | – | – |
| Palumbo | Pierpaolo | University of Bologna | Italy | – | Remote | Remote |
| Parshad | Mahabir | Ministry of Communications | India | Present | – | – |
| Parvez | Aazam | HPE | India | Present | – | – |
| Pathak | Shantanu | CareMother | India | Present | – | – |
| Paul | V.K. | NITI Aayog | India | Present | – | – |
| Paul | Rohan | Professor, IIT Delhi | India | Present | – | – |
| Perov | Yura | Babylon Health | United Kingdom | Present | Present | Present |
| Porwal | Surbhi | Start-up/individual | – | Remote | – | – |
| Potocanac | Zrinka | Ericsson Nikola Tesla d.d. | Croatia | Remote | – | – |
| Prasad Shah  | Arvind | Assistant (ITRC), ICMR | India | Present | – | – |
| Prasam Kumari  | Maddipatta | Probationer (NICF) | India | Present | – | – |
| Priya | S. Anu | Tech Corp International Strategist | India | – | Present | – |
| Pujari | Sameer | WHO HQ | Switzerland | Present | Present | Present |
| Quaiser | Raunaque | STMicroelectronics | India | Present | – | – |
| Quast | Bastiaan | ITU | Switzerland | Present | Present | Present |
| Rai | Ayush | Probationer, IPTAPS | India | Present | – | – |
| Raj | Divya | International Institute of Information Technology, Bangalore | India | Remote | – | – |
| Ram | Parvathi | St John's Medical College | India | Present | Present | Present |
| Ram Omanakutty Amma Vijayaraghavan Nair | Vishnu  | Start-up/individual | India | Present | Present | Present |
| Ramakrishnan | Srinivaran | CDAC | India | Present | – | – |
| Ranjan | Manish | Ministry of Communications | India | Present | – | Present |
| Ranjan | Dhananjay | Director, DoT | India | Present | – | – |
| Rao | Sriganesh | Calligo Technologies Private Limited | India | – | Present | Present |
| Rao | Anjali | SRA | India | Present | – | – |
| Rao | Jyoti | HR Head, HM Clause | India | Present | – | – |
| Rao | Krishtive | Consultant | India | Present | – | – |
| Rao | Narayana | CEO, Salcit Technologies | India | Present | – | – |
| Rao | Pooja | Head R&D, Qure AI | India | Present | – | – |
| Rao | Songesh | MD | India | Present | – | – |
| Rao | Vishnu | NIMS | India | Present | – | – |
| Rasaily | Reeta | Scientist F, ICMR | India | Present | – | – |
| Rigzin | Wangda | – | – | Remote | – | – |
| Romsha | Romsha | Tech Corp International Strategist | India | Present | – | – |
| Roy | Debanshu | University of Chicago trust | India | Present | – | – |
| Roy | Rajeev | Indian Council of Medical Research | India | Present | – | Present |
| Roy | Debanshu | University of Chicago | United States | Present | – | – |
| Salim | Ally Jr | Inspired Ideas | Tanzania | – | Present | Present |
| Sarker | Azadur | Bangladesh Telecommunication Regulatory Commission (BTRC) | Bangladesh | Remote | Remote | Remote |
| Schwendicke | Falk | Charité – Universitätsmedizin Berlin | Germany | – | Remote | – |
| Sen | Nidhi | Nivi | India | Present | – | – |
| Sethi | Tavpritesh | Assistant Professor, IIT Delhi | India | Present | – | – |
| Shaikh | Rizwan | Population Foundation Of India | India | Present | – | – |
| Shariff | A. | Professor | India | Present | – | – |
| Sharma | R.S | Indian Council of Medical Research | India | Present | – | – |
| Sharma | Shailendra K | Ministry of Communications | India | – | Present | – |
| Sharma | Vishwakirti | Trackmybeat Healthcare I Pvt. Ltd. | India | – | Remote | – |
| Sharma | Yukti | University of Chicago Trust | India | Present | – | – |
| Sharma | Bhavesh | Officer Trainer, IPTAPS | India | Present | – | – |
| Sharma | Sk | DDG (SM) | India | Present | – | – |
| Sharma | Vk | - | India | Present | – | – |
| Sherkhan | – | IT Admin | India | Present | – | – |
| Shivesh | Sanjeev | Founder and CEO, Entrepreneurship School | India | Present | – | – |
| Shokeen | Pooja | IPTAPS | India | Present | – | – |
| Shroff | Arun | Xtend.AI | United States | – | – | Remote |
| Shuaib | Haris | – | – | – | Remote | Remote |
| Sijwan | Muthu | CEO, IIT(Madras) | India | Present | – | – |
| Singaram | Muthu | IIT Madars | India | – | Present | – |
| Singh | Mandeep | Ministry of Communications | India | – | Present | – |
| Singh | Namrata | Ministry of Communications | India | – | Present | Present |
| Singh | Prashant | LIG LLC | United States | Present | – | – |
| Singh | Shekhar | Ministry of Communications | India | – | Present | – |
| Singh | Sumit | Ministry of Communications | India | Present | – | – |
| Singh | Arpita | Co-Founder and CEO, Docturnal | India | Present | – | – |
| Singh | Harpreet | Head ISRM, ICMR | India | Present | – | – |
| Singh | Manjula | Scientist E, ICMR | India | Present | Present | Present |
| Singh Chalga | Amanpreet | Student | India | Present | Present | Present |
| Singh Chalga  | Manjeet | Scientist C, ICMR | India | Present | Present | Present |
| Singh Negi  | Deepak | ICMR | India | Present | – | – |
| Sinha | Manish | NICF | India | Present | Present | Present |
| Sinha | Chaitali | Psychologist | India | Present | – | – |
| Sinha | P.K. | Member (Finance) | India | Present | Present | – |
| Sipula | Nao | Watif Health IIC  | South Africa | – | – | Remote |
| Sousa | Ines | Associação Fraunhofer Portugal Research  | Portugal | – | Remote | Remote |
| Srivastava | Anurag | NICF | India | – | Present | Present |
| Srivastava | Ashish | Advisor, Evaluation and Research Jhpiego | India | Present | – | – |
| Subodh | Swati | India Health Fund | India | Present | Remote | – |
| Subramanian | Rajaraman | Calligo Technologies Private Limited | India | Present | Present | Present |
| Suvrankar | Datta | JIPMER | India | Remote | – | – |
| Swaminathan | Soumya | World Health Organization | Switzerland | Remote | – | – |
| Tak | Amanullah | Ministry of Communications | India | Present | – | – |
| Talwar | Deepak | National Security Officer, Microsoft | India | Present | – | – |
| Taneja | Neha | ICMR | India | Present | – | – |
| Thakur | Ratna | Ministry of Communications | India | Present | Present | Remote |
| Tikrewal | Mukund | NICF | India | Present | – | – |
| Tiwari | Saurabh | Joint Secretary (Cabinet Secretariat) | India | Present | – | – |
| Toteja | G.S. | Additional DG & Head Nutrition, ICMR | India | Present | – | – |
| Tripathy | Srikanth | Director, ICMR – NIRT Chennai | India | Present | – | – |
| Turuk | Alka | Project Coordinator (NTBPS), ICMR | India | Present | Present | Present |
| Tyagi | Deepa | Ministry of Communications | India | Present | – | Present |
| Tyagi | Rajeev Kumar | Ministry of Communications | India | – | Present | – |
| Unger | Banappa S | – | – | Remote | – | – |
| Upadhyay | Shubhanan | Ada Health GmbH | Germany | Present | Present | Present |
| Vasconcelos  | Maria | Associação Fraunhofer Portugal Research  | Portugal | – | – | Remote |
| Velpandian | Banusri | Legal Advisor (ITRC), ICMR | India | Present | – | – |
| Venugopal | Vastna | Head Imaging Research, Caring | India | Present | Present | – |
| Verma | Abhinav | University of Chicago Trust | India | Present | – | – |
| Verzefé | Franck  | TrueSpec Africa  | DR Congo | – | – | Remote |
| Vivekanand Reddy  | C | CTO | India | Present | – | – |
| Weicken | Eva | Fraunhofer HHI | Germany | Present | Present | Present |
| Wenzel | Markus | Fraunhofer HHI | Germany | Present | Present | Present |
| Wiegand | Thomas | Fraunhofer HHI | Germany | Present | Present | Present |
| Yadav | Vivek | Jhpiego | India | Present | – | – |
| Zakariah | Mohd Helmi Bin | AIME Healthcare | Malaysia | Present | Present | – |

NOTE – Additional 16 remote participants were only partially identifiable:

| Last Name | First Name | Entity | Country | 12-Nov | 13-Nov | 14-Nov |
| --- | --- | --- | --- | --- | --- | --- |
|   | Abhilash | Probationer, IPTAPS | India | Present |   |   |
|   | Deepanshu | Probationer, IPTAPS | India | Present |   |   |
|   | Jitendra | ADET ITS | India | Present |   |   |
|   | Naveen | ADET ITS | India | Present |   |   |
|   | Neeru | Probationer (NICF) | India | Present |   |   |
|   | Nishta | Researcher | India | Present |   |   |
|   | Rashi | Patent Associate, TCIS | India | Present |   |   |
|   | Sherkhan | IT Admin | India | Present |   |   |
|   | Shivam | NICF | India | Present |   |   |
|   | Anirudha |   | India | Remote |   |   |
|   | Redmi |   | India | Remote |   |   |
|   | Satisha |   | India | Remote |   |   |
|   | Subhajit |   | India | Remote |   |   |
|   | Anushikha |   |   |   |   | Remote |
|   | Vasanth |   |   |   | Remote |   |
|   | Vishnu |   |   |   | Remote | Remote |

## A.2 List of attendees at meeting H

| Given name | Family name | Entity | Country | 21-Jan | 22-Jan | 23-Jan |
| --- | --- | --- | --- | --- | --- | --- |
| Adla | Marques | Health Ministry | Brazil | Remote |  |  |
| Adriana | da Silva e Sousa | Health Ministry | Brazil | X |  |  |
| Alberto | Pomaz | Health Ministry | Brazil | X |  |  |
| Alberto | Tomasi Diniz Tiefensee | Ministry of Health | Brazil | X |  |  |
| Alejandro | Lopez Osornio | University of Buenos Aires | Argentina | X | X | X |
| Alexandre | Chiavegatto Filho | University of Sao Paulo | Brazil | X | X | X |
| Alexandre | Cuenat | Wellcome Trust | United Kingdom | Remote | Remote | Remote |
| Ally | Salim Abdulla | Inspired Ideas | Tanzania |  | Remote | Remote |
| Ana | Riviere Cinnamond | PAHO | United States | X | X | X |
| Andrea | Romaoli Garcia | Consultant | United States | Remote |  | Remote |
| Andreas | Reis | World Health Organization (WHO) | – | X | X | X |
| Andrés | Valdivieso | Anastasia | Chile | X | X | X |
| Arun | Shroff | Xtend.AI | United States |  | Remote | Remote |
| Atila | Rodrigues | Health Ministry | Brazil | X |  |  |
| Auss | Abbood | Robert Koch Institute | Germany | X | X | X |
| Ayda | Dabiri | International Telecommunication Union (ITU) | – | Remote |  |  |
| Bastiaan | Quast | International Telecommunication Union (ITU) | – | X | X | X |
| Benjamin | Muthambi | IEPH (Consultant to WatifHealth) | United States |  | Remote |  |
| Carmen | Mota | Health Ministry | Brazil | X |  |  |
| Carolina | Carvalho | PAHO | Brazil | X |  |  |
| Celia | Ralha | Telecom Research and Development Center (CPqD) | Brazil | X | X | X |
| Christian | Johner | Johner Institut | Germany |  |  | Remote |
| Darlington | Akogo | minoHealth AI Labs | Ghana | X | X | X |
| Edson | Hung | University of Brasilia | Brazil | X | X | X |
| Enrique | Perez | PAHO | USA | Remote |  |  |
| Erica | Mallmann | Health Ministry | Brazil | X |  |  |
| Eva | Weicken | Fraunhofer HHI | Germany | X | X | X |
| Ferath | Kherif | CHUV | Switzerland | X | X | X |
| Fernando | Gebara Filho | Agência Nacional de Telecomunicações - ANATEL | Brazil | X |  |  |
| Foti | Sofiadellis | Royal Australasian College of Surgeons | United Kingdom |  |  | Remote |
| Francisco Iran | Barbosa | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X | X |
| Gitau | Eric | Development Dynamics Consultancy | Kenya | Remote |  |  |
| Harsha | Jayakody | MyDoctor | Sri Lanka | X | X | X |
| Hélio | Macêdo | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X |  |  |
| Henrique | Nixon | DATASUS/Ministry of Health | Brazil | X |  |  |
| Henry | Hoffmann | Ada Health GmbH | Germany | X | X | X |
| Ianna Karlla | Andrade | Ministério do Saúde | Brazil | X |  |  |
| Inês | Sousa | Associação Fraunhofer Portugal Research | Portugal |  | Remote |  |
| Jackie | Ma | Fraunhofer HHI | Germany |  |  | Remote |
| Jhonatan | Tirado | Universidad Nacional Mayor de San Marcos | Peru | X | X | X |
| Joachim | Krois | Charité - Universitätsmedizin Berlin | Germany |  | Remote |  |
| Jose Luis | Nuño Ayala | Unima | Mexico | X | X | X |
| Juan Sebastian | Beleño Diaz | 1DOC3 | Colombia | Remote | Remote | Remote |
| Juliana | Pereira de Souza Zinader | Health Ministry | Brazil | X |  |  |
| Juliano | Tesser | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X |  |  |
| Kaoru | Mizuno | International Telecommunication Union | Switzerland | Remote | Remote | Remote |
| Karina | Vidal | Ministry of Science, Technology, Innovation and Communications (MCTIC) | Brazil | X |  |  |
| Karla | Ferreira | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X | X |
| Kester | Quist-Aphetsi | CRITAC | Ghana | Remote | Remote | Remote |
| Lara Alonso | da Silva | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X |  |
| Leonardo Euler | de Morais | Telecommunications National Agency (ANATEL) | Brazil | X |  |  |
| Lina Elizabeth | Porras Santana | 1DOC3 SAS | Colombia | X | X | X |
| Luana | Gelves | Health Ministry | Brazil | X |  |  |
| Lucas | Moura Gomes | University of Brasilia | Brazil | X | X |  |
| Luis | Oala | Fraunhofer HHI | Germany | X | X | X |
| Luiz Fernando | Ferreira da Silva | ICT & IR Consulting | Brazil | X | X | X |
| Marc | Lecoultre | Business Investigation SA | Switzerland | Remote | Remote | Remote |
| Marcelo | d'Agostino | World Health Organization | Switzerland | Remote |  |  |
| Marcos | Lacayo | Estacion Vital | Nicaragua | X | X | X |
| Maria | Almiron | PAHO | Brazil | X |  |  |
| Maria Claudia | Castro | MCTIC | Brazil | X |  |  |
| Maria Claudia | Ferrari de Castro | Ministry of Science, Technology, Innovation and Communications (MCTIC) | Brazil | X |  |  |
| Maria Fernanda | Gonzalez Alvarez | 1DOC3 | Mexico | Remote | Remote | Remote |
| Marilia | Barandas | Fraunhofer Portugal | Portugal | X | X | X |
| Mario | Barbe Abrigo | Clínica Alemana de Santiago | Chile | X | X | X |
| Martina | Fischer | Ada Health GmbH | Germany | X | X | X |
| Mauricio | Farez | Entelai | Argentina | X |  |  |
| Mauricio | Novelo | CREN | Brazil | X | X | X |
| Maximiliano | Martinhao | MCTIC | Brazil | X |  |  |
| Mazharul | Islam | United Nations Institute for Training and Research | Switzerland | Remote |  |  |
| Milan | Didara | Eniax | Chile | X | X | X |
| Mohd Helmi bin | Zakariah | Aime Healthcare | Malaysia | X | X | X |
| Monique | Kuglitsch | Fraunhofer HHI | Germany | X | X | X |
| Naomi | Lee | The Lancet | UK |  |  | Remote |
| Nevena | Didara | Eniax | Chile | X |  |  |
| Nicolas | Langer | University of Zurich | Switzerland |  |  | Remote |
| Nicolás | Durán | 1DOC3 | Colombia | Remote |  |  |
| Odnaime | Sousa | Health Ministry | Brazil | X |  |  |
| Pat | Baird | Philips | USA | Remote |  |  |
| Patrick Newton | Bondo | Outreach Social Care Project (OSCAR) | South Africa | X | X | X |
| Pierpaolo | Palumbo | University of Bologna | Italy | Remote | Remote |  |
| Pradeep | Balachandran | Consultant | India | Remote | Remote | Remote |
| Prata | Lucas | Health Ministry | Brazil | X | X |  |
| Rachel | Lowe | London School of Hygiene and Tropical Medicine | UK | Remote |  |  |
| Ricardo | Vianna | Health Ministry | Brazil | X | X |  |
| Rose | Nakasi | Makerere University | Uganda | X | X | X |
| Sandro | Dolghi | Brazilian Health Regulatory Agency (ANVISA) | Brazil | X | X |  |
| Santoyo | Renata | Telecommunications National Agency (ANATEL) | Brazil | X |  |  |
| Saul | Calderon Ramirez | Instituto Tecnológico de Costa Rica | Costa Rica | X |  |  |
| Selma | Sollero | Health Ministry | Brazil | X |  |  |
| Sendy | Rojas Silva | Universidad Enrique Guzman y Valle | Peru | X | X |  |
| Shan | Xu | Ministry of Industry and Information Technology (MIIT) | China | Remote | Remote |  |
| Simão Ferraz | de Campos Neto | International Telecommunication Union (ITU) | – | X | X | X |
| Stephane | Ghozzi | Robert Koch Institute | Germany |  | Remote | Remote |
| Thiago | Rocha | PAHO | Brazil | X | X | X |
| Tiago | Segato | Telecom Research and Development Center (CPqD) | Brazil | X | X | X |
| Vasili | Sofiadellis | Visions 2 Ventures | South Africa |  |  | Remote |
| Wiegand | Thomas | Fraunhofer HHI | Germany | X | X | X |
| Zdenek | Gütter | Ministry of Industry and Trade | Czech Republic |  | Remote |  |

## A.3 List of attendees at meeting I

The list below identifies 132 participants. Some participants joined remotely.

| First Name | Last Name | Entity | Country | 7 May | 8 May |
| --- | --- | --- | --- | --- | --- |
| Auss | Abbood | Robert Koch Institute | Germany | X | X |
| Sarah | Abo Alasrar | Medical graduate | Switzerland | X | X |
| Hassan | Abo Seida | National Authority for Remote Sensing and Space Sciences | Egypt | X |  |
| Osama | AbouElkhir | TachyHealth | UAE | X | X |
| Amr | Ahmed | TachyHealth | Egypt | X | X |
| Sangyoung | AHN | Kyung Hee University | Korea | X |  |
| Darlington | Akogo | minoHealth AI Labs | Ghana | X | X |
| Xiaomi | An | Expert | China | X | X |
| Opeoluwa | Ashimi | Promane and Promade Limited | Nigeria | X |  |
| Badar | Awladthani | Ministry of Health | OMA |  | X |
| Pat | Baird | Philips | USA | X | X |
| Pradeep | Balachandran | Expert | India | X | X |
| Covadonga | Bascaran | London School Hygiene Tropical Medicine | UK | X |  |
| Thomas | Basikolo | ITU | – | X |  |
| Patrick Newton | Bondo | Outreach Social Care Project | South Africa | X | X |
| Saul | Calderon Ramirez | Instituto Tecnológico de Costa Rica | Costa Rica | X | X |
| Thaddeus | Carvajal | Ehime University | Japan | X |  |
| Manjeet | Chalga | Indian council of medical research | India | X | X |
| Shih-Fang | Chang | ITRI International Inc. | USA | X |  |
| Prashant | Chugh | Centre for Development of Telematics | India | X | X |
| Koen | Cobbaert | Philips | Belgium | X |  |
| Nelson | Connio | Salud.uy | URG |  | X |
| Alexandre | Cuenat | Wellcome Trust | UK | X | X |
| Ayda | Dabiri | ITU | – | X | X |
| Simão Ferraz | de Campos Neto | ITU | – | X | X |
| Joao | Dias | GeekVision | Brazil | X |  |
| hui | duan | 7layers | China | X |  |
| Okechukwu | Effoduh | Praxis & Gnosis Law | Nigeria | X |  |
| M Khair | ElZarrad | U.S. Food and Drug Administration | USA | X | X |
| Jana | Fehr | Digital Health Center, Hasso Plattner In | Germany | X | X |
| Ananya | Gangavarapu | ethicallyai | USA | X | X |
| Stephane | Ghozzi | Robert Koch Institute | Germany | X |  |
| Nicolas | Goeldel | Hello Tomorrow | France | X | X |
| Maria Fernanda | Gonzalez Alvarez | 1DOC3 | Mexico | X | X |
| Jun | Gu | Infervision | China | X | X |
| Jiaying | Guo | CAICT | CHN |  | X |
| Zdenek | Gütter | Ministry of Industry and Trade | Czech Republic | X |  |
| Ilana | Harrus | AAAS | USA | X | X |
| Henry | Hoffmann | Ada Health GmbH | Germany | X | X |
| Mao | Huan | 7layers | China | X |  |
| Edson Mintsu | Hung | ANATEL | Brazil | X | X |
| Bilel | Jamoussi | ITU | – | X | X |
| Jonghong | Jeon | ETRI | Korea | X |  |
| Christian | Johner | Johner Institute | Germany |  | X |
| SAURABH | JOHRI | miss | UK | X |  |
| Rigveda | Kadam | Foundation for Innovative New Diagnostic | Switzerland | X | X |
| Ferath | Kherif | CHUV | Switzerland | X | X |
| Frederick | Klauschen | TU Berlin | Germany | X |  |
| Joachim | Krois | Charité - Universitätsmedizin Berlin | Germany | X |  |
| Monique | Kuglitsch | Fraunhofer HHI & IIS | Germany | X | X |
| Marcos | Lacayo Bosche | Estacion Vital | Nicaragua | X |  |
| Nicolas | Langer | University of Zurich | Switzerland | X |  |
| Marc | Lecoultre | MLLab.ai | Switzerland | X | X |
| Naomi | Lee | The Lancet | UK |  | X |
| Alixandro | Leite | LAMFO | Brazil | X | X |
| Yun | LI | Tencent Technology (Shenzhen) Company Limited | China | X | X |
| Yue | Lin | Ora | New Zealand | X | X |
| Dash | Liu | Huawei Technologies Co., Ltd. | China | X |  |
| LIMING | LIU | Ministry of Industry and Information Technology (MIIT) | China | X | X |
| Xiaoxuan | Liu | University of Birmingham, UK | UK | X |  |
| Xiaoyin | Liu | National Medical Products Administration | China | X | X |
| Li | Lu | VoxelCloud | China | X | X |
| Zhong (Noah) | Luo | Huawei Technologies Co., Ltd. | China | X |  |
| Jackie | Ma | Fraunhofer HHI & IIS | Germany | X | X |
| Khondaker Abdhullah Al | Mamun | Ministry of Posts, Telecoms and Information Technology | Bangladesh | X | X |
| Kirmene | Marzouki | SPIKE-X | Tunisia | X |  |
| Christian | Matek | TU Berlin | Germany | X | X |
| Viktor | Matyas | TU Berlin | Germany | X |  |
| Johannes | Mehrer | Johannes Mehrer | Germany | X |  |
| Audrey | Menezes | Department for Digital, Culture, Media and Sport (DCMS) | UK | X |  |
| Kaoru | Mizuno | ITU | – | X | X |
| Andrew | Murchison | John Radcliffe Hospital | UK | X | X |
| Joel | Myhre | Oslo Metropolitan University | Norway | X |  |
| Rose | Nakasi | Makerere University | Uganda | X | X |
| Tom | Neumark | University of Oslo | Norway | X | X |
| Weiqing | NIE | Tencent Technology (Shenzhen) Company Limited | China | X |  |
| Luis | Oala | Fraunhofer HHI & IIS | Germany | X | X |
| Pablo | Orefice | Salud.uy | URG |  | X |
| Maimouna Lydia | Ouedraogo | Ministère du Développement de l'Economie numérique et des Postes | Burkina Faso | X |  |
| Vishnu Ram | Ov | Expert | India | X |  |
| Pierpaolo | Palumbo | University of Bologna | Italy | X |  |
| Natalie | Pankova | Metadvice | Germany |  | X |
| Lukas | Picek | Université de Genève | Switzerland | X |  |
| Lina Elizabeth | Porras Santana | 1DOC3 SAS | Colombia | X | X |
| Jiangbo | Pu | IBME, Chinese Academy of Medical Sciences | China | X | X |
| Sameer | Pujari | WHO | ­ | X | X |
| Rose | Purcell | Food and Drug Administration | USA | X | X |
| Bastiaan | QUAST | ITU | – | X | X |
| Kester | Quist-Aphetsi | CRITAC | Ghana | X | X |
| Herilalaina | Rakotoarison | INRIA | France | X |  |
| Parvathi | Ram | St John's Medical College | India | X |  |
| Anne | Reijns | Avegen Pvt Ltd | UK | X |  |
| Andreas | Reis | WHO | ­ |  | X |
| Ana | Riviere Cinnamond | Pan-American Health Organization | ­ | X | X |
| Bill | Roger | Stanford University | USA | X | X |
| Rafael | Ruiz de Castaneda | Université de Genève | Switzerland | X |  |
| Dominik | Schneider | Merck KGaA | Germany | X |  |
| Reinhard | Scholl | ITU | – | X | X |
| Falk | Schwendicke | Charité Dental/Craniofacial Sciences | Germany | X |  |
| Sheikh Mohammed | Shariful Islam | RMIT University | Australia | X | X |
| Yu | Shi | 7layers | China | X |  |
| Arun | Shroff | Xtend.AI | USA | X |  |
| Xinming | Sim | AI Singapore | Singapore | X | X |
| Manjula | Singh | Ministry of Communications | India | X | X |
| Tarry | Singh | deepkapha.ai | Netherlands | X |  |
| Margarita | Sordo | Brigham & Women's Hospital, Harvard Medi | USA | X | X |
| Karthik | Srinivasan | Aravind Eye Hospital | India | X |  |
| Rajaraman | Subramanian | Calligo Technologies Private Limited | India | X | X |
| yishan | teng | China Information and Communication Research Institute | China | X |  |
| Shubhanan | Upadhyay | Ada Health GmbH | Germany | X | X |
| Andrés | Valdivieso | Anastasia | Chile | X |  |
| Judith | van Andel | WHO | ­ | X | X |
| Huogen | Wang | Hithink RoyalFlush Information Network | China | X | X |
| Victoria | Wang | IEEE | USA | X | X |
| Eva | Weicken | Fraunhofer HHI | Germany | X | X |
| Markus | Wenzel | Fraunhofer HHI & IIS | Germany | X | X |
| Thomas | Wiegand | Fraunhofer HHI & IIS | Germany | X | X |
| Stefan | Winkler | AI Singapore | Singapore | X | X |
| Jianrong | Wu | Tencent Technology (Shenzhen) Company Limited | China | X |  |
| Sheng | Wu | WHO | ­ | X | X |
| Chengjie | Xie | Huawei Technologies Co., Ltd. | China | X |  |
| Hui | Xing | CuraCloud | China | X |  |
| Xiaoyan | Xing | Tsinghua University | China | X | X |
| Shan | Xu | Ministry of Industry and Information Technology (MIIT) | China | X | X |
| Yue | Xu | Zhejiang University | China | X | X |
| Xin-Xin | Yan | Fu Wai Hospital | China | X | X |
| Ruijie | Yang | Ministry of Industry and Information Technology (MIIT) | China | X | X |
| Mohd Helmi bin | Zakariah | AIME HEALTHCARE SDN BHD | Malaysia | X | X |
| Jing | Zhang | ritt7layers | China | X |  |
| Siyao | Zhang | Haohan Data | China | X |  |
| Yajun | Zhang | Tencent Technology (Shenzhen) Company Limited | China | X | X |
| Yanchun | Zhu | Tencent Technology (Shenzhen) Company Limited | China | X |  |

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