

# The International Digital Health & AI Research Collaborative (I-DAIR)

## Submission to the Global Digital Compact 2023

#### Methodology for consultation

During the Science Summit at UNGA77 on the 22<sup>nd</sup> September 2022, I-DAIR and its global partners from the United Nations University Institute in Macau (UNU Macau), Indraprastha Institute of Information Technology Delhi (IIIT-Delhi), Universidade Federal do Rio Grande do Sul (UFRGS), the Africa-Canada AI and & Data Innovation Consortium (ACADIC) led by York University and the University of the Witwatersrand, and the City University of New York (CUNY) conducted a hybrid (both online and in-person) session to explore how collaborative research in AI for health can be established and sustained, as well as how technology can help to achieve the Sustainable Development Goals (SDGs), in particular overcome pressing global health challenges to achieve healthy lives and well-being for all.

The session was divided into two discussions. The first panel "Promoting collaborative research in AI for health" looked at means to level the playing field so as to promote collaboration, inclusivity and transdisciplinarity in research to foster responsible development and deployment of AI in health with contextualized and unbiased technology that can ensure human agency over AI in the long run. The second panel "State of the art in AI for health" explored how to leverage technology to overcome pressing global health challenges, namely anti-microbial resistance, outbreaks of emerging infectious diseases, cardiovascular diseases, and environmental changes. This panel also examined how AI can help cut across scientific silos to promote a holistic approach to solving these challenges.

Each panel discussion was preceded by short presentations from invited experts on the topic to be discussed, and followed by a question-and-answer session with interactive polls. The list of invited experts included: 1) Dr. Christoph Benn – Chair, I-DAIR Board (Switzerland); 2) USG Amandeep Singh Gill – Secretary-General's Envoy on Technology (United Nations); 3) Prof. Anurag Agrawal – Dean, Biosciences and Health Research, Trivedi School of Biosciences, Ashoka University (India); 4) Dr. Sathy Rajasekharan – Co-Executive Director, Jacaranda Health (Kenya); 5) Dr. Dominique Charron – Vice-President, Programs and Partnerships, IDRC (Canada); 6) Dr. Soumya Swaminathan – Chief Scientist, World Health Organization (Switzerland); 7) Mr. Jake Okechukwu Effoduh – Chief Counsel, ACADIC (Canada/Nigeria); 8) Prof. Bruce Mellado – University of the Witwatersrand (South Africa); 9) Prof. Bruce Lee – Executive Director, Center for Advanced Technology and Communication in Health (CATCH), CUNY School of Public Health (USA); 10) Prof. Carisi Polanczyk – Professor of Medicine, UFRGS (Brazil); 11) Dr. Serge Stinckwich – Head of Research, UNU-Macau (United Nations); 12) Dr. Peiling Yap – Chief Scientist, I-DAIR (Switzerland); and 13) Dr. Stefan Germann – CEO, Fondation Botnar (Switzerland).

The session was attended by about 115 people either in-person or online, and about 80 entities were represented. Stakeholder groups present included representatives from government international organizations, research and academia, as well as civil society, resulting in a rich dialogue reflecting diverse perspectives. The in-person session was audio recorded and



transcribed, while online exchanges were also noted. With this submission to the Global Digital Compact, I-DAIR is sharing key highlights and collective views put forth during the session for the thematic areas of digital commons as a global public good and advancing responsible AI in health research.

## Thematic areas

### Digital commons as a global public good

Core principles that all governments, companies, civil society organizations, and other stakeholders should adhere to:

- In order to solve global challenges, namely in health, climate change and food security, that no single country can tackle alone, we need coalitions of the willing so that countries can pool resources and investments to maximize opportunities and address significant risks collectively.
- Digital technologies, including AI, have been seen as potential solutions for global challenges but they have to be utilized in a thoughtful manner and be seen as enablers rather than taking over the agency of humans.
- The development of digital commons has to be underpinned by science and done through a multi-stakeholder collaboration involving governments, philanthropic foundations, academia, private sector, international organizations and civil society.
- Development of digital commons should focus on leveling the playing field and not leaving any country behind, in particular, ensure access and usage of these public goods by low-and-middle income countries (LMICs) and not further widen the current digital divide.
- Value derived from the digital commons should be brought back to all countries in a fair and equitable manner.

Key commitments, pledges or actions to be taken to bring about the core principles:

- Urgent need for countries to invest in digital public infrastructure, not just in the hardware and software but also in the governance of these infrastructures.
- Governments and the private sector should invest in providing network access to their citizens regardless of where they live.
- Efforts should be made to ensure robust data systems exist in LMICs so that their needs and challenges can be captured and addressed through the digital commons.
- By ensuring transition from connectivity to digital public goods, to digital public infrastructure and finally to unbiased as well as trusted data systems and AI commons, where governance is there by design, we lay the ground responsibly for AI to benefit a wider population.
- Establishing a solidarity of purpose, trust and transparency between all stakeholders, who are contributing and accessing the digital commons, to encourage global collaboration and breaking of silos across disciplines and sectors.
- Expertise from LMICs is currently insufficiently represented at global decision-making processes and more commitments should be made to increase capacity and opportunities for them to be at the table and create change.



## Advancing responsible AI in health research

Core principles that all governments, companies, civil society organizations, and other stakeholders should adhere to:

- Tackling global health challenges as one requires transdisciplinary collaboration across research domains as well as between health and non-health sectors. It also requires systems thinking and for researchers, citizens and policy makers to have the SDGs as their common agenda.
- It is essential for decision-makers, be they individual citizens or governments, to have agency and be significantly participating and engaged in AI in health research so that the research can be trusted and better positioned to address societal needs and challenges.
- To encourage citizen science in AI in health research, there has to be bi-directional exchanges, transparency and communication on what the research and algorithms are doing in laymen terms. Researchers have to go beyond simply asking for data from citizens.
- Key ethical principles around AI in health research include fairness, accountability, legal responsibility, privacy and transparency,
- Ethical guidelines should be implementable and be viewed as the starting point where responsible AI research has to be built up on, and not as the endpoint.
- For LMICs to build on and benefit from the tools and technologies developed by global AI research ecosystems, there is a need for a paradigm shift from "adaptation" to "local production".

Key commitments, pledges or actions to be taken to bring about the core principles:

- Current capacities to conduct AI in health research is uneven across the globe and investments should be made to allow researchers in LMICs to gain capacity, resources and networks to lead global collaborations.
- In order to overcome the huge global divide, in terms of resources, capabilities and research outputs, in AI in health research, it is important to invest and build hyperlocal AI research capabilities and infrastructure so that the data curated and models developed and implemented are attuned to local contexts.
- In order to reduce social biases existing in current datasets and algorithms, it is essential for multidisciplinary/transdisciplinary collaboration to take place between science and humanities, with social sciences being a critical part in developing the data systems and AI we use for health.
- Newer architectures of machine learning, such as federated systems, hold promise for multi-system stakeholders to collaborate together while preserving data privacy by linking algorithms as well as parameters and not data.
- Integration of machine learning approaches with traditional modeling approaches, such as epidemiological models, would embrace the complementary strengths of both approaches and there is a need to train researchers who are fluent in both.
- Given that health issues are composed of complex systems, ranging from biological, behavioral, environmental to economic, it is essential to adopt the system approach



and develop models, such as agent-based and network models, that incorporate all these factors to truly simulate what is happening in our societies.

• Participatory approaches that are useful for AI research should be developed to allow for non-technical individuals, including marginalized populations, to be engaged throughout the research lifecycle.