

Addressing the Fundamentals of Equity, Solidarity, Democracy and Human Rights

Investing in the SDGs to address the social, commercial and environmental determinants of health:

Focus:

Investing in the future of work through the reduction of inequality, and anything else about climate. Highlighting the governance initiatives that show the interlinkage of environment and health: i.e. protecting biodiversity to avert pandemics, pollution and health, these types of things. This is more about the rhetoric of global governance and ideals.

Key Points:

- Importantly, policies for strengthening the health workforce stresses training the health workforce for context appropriate needs, of which digital can then play a facilitatory role but rarely a central role.
- Policies on the intersections of environment, health, and digital are few; however, there are some concrete examples of interventions and proposed guidelines from academia available.

1. G7 Innovation Minister's Statement on Artificial Intelligence. 2018. Source

Key Topics: Training the health workforce; Inequality; Equity

Source Type: Global governance (G7) recommendation

Focus: Worldwide

Case Made:

The Minister's Statement specifically focused on the necessity of developing trust to realize the full potential of AI. In relation to the SDGs, the Statement detailed that for trust to be developed within AI it is important that there is equitable representation of perspectives.

Solution Suggested or Implemented:

The Statement detailed that it is important to have an increased presence of women in the health care workforce to be able to build trust in AI. Specifically: "G7 members recognize that trust and adoption can be encouraged through a robust multi-stakeholder approach involving: ... *increasing the participation of women in the workforce.*"

2. Global Strategy on Human Resources for Health: workforce 2030. WHO. 2016. Source.

Key Topics: Training the health workforce

Source Type: WHO strategy

Focus: Worldwide

Case Made: The strategy states that it is i) important to increase health worker capacity and literacy in digital health, and ii) that digital technologies can also be used to further improve the efficacy and efficiency of health care worker training.

Solutions Suggested or Implemented:

- i) "Harness – where feasible and cost-effective – information and communication technology opportunities:" Specifically, utilize ICT tools not only to benefit direct (clinical) health outcomes, but utilize ICT tools as well to benefit e-learning for digital enabled health care.
- ii) "Align incentives for health workforce education and health-care provision with public health goals and population needs:" Specifically, this recommendation suggests "balancing the growing needs of the ageing population and new and ever more expensive health technologies with a realistic forecast of the available resource envelope."

3. High Level Commission on Health Employment and Economic Growth. WHO. 2016. **Source.**

Key Topics: Training the health workforce; Inequality; Equity; Gender; Youth

Source Type: High level commission

Focus: Worldwide

Case Made: The health sector itself works to perpetuate inequality through power structures between genders. This increases economic inequity between genders. These inequities are also reflected in health inequalities which may be able to be addressed by digital health technologies if a wider range of perspectives are considered in their design and implementation

Solutions Suggested or Implemented:

- i) Job creation: "Stimulate investments in creating decent health sector jobs, particularly for women and youth, with the right skills, in the right numbers and in the right places"
- ii) Gender and Women's Rights: "Maximize women's economic participation and foster their empowerment through institutionalizing their leadership"
- iii) Education, training and skills: "There is a need to relax unnecessary barriers to entry. Addressing geographical inequities is a priority and demographic transitions present opportunities to strengthen youth education for employment in the health sector."

4. Future Skills and Competence of the Health Workforce in Europe. Centre for Workforce Intelligence EU. 2016. Source.

Key Topics: Training the health workforce; inequality

Source Type: Private think tank funded by EU

Focus: EU

Case Made:

The EU sees a changing burden of disease, increase in the use of technology in the provision of health care, and the increasingly informed patient because of access to digital health and education.

Solutions Suggested or Implemented:

With these factors in mind, the report suggests that future health care workers will need to be trained to:

- i) Work in a multidisciplinary team environment.
- ii) Understanding how algorithms and other technologies stratify populations in ways which can further increase inequity.
- iii) The report stresses that the governance of health care worker training should not focus exclusively on the number of health care workers, but the appropriate allocation and efficient training of health care workers.

5. Extreme Heat Risk Map. Source.

Key Topics: Digital health technology; Climate Change and Warming; Environment

Source Type: Digital health intervention

Focus: M/HICs; Older demographics

Case Made:

Heat waves cause deaths amongst those with comorbidities and older populations.

Solutions Suggested or Implemented:

Digital maps using meteorological data enable governments to plan ahead of heat waves and target specific areas, enabling increased health care capacity and warnings to populations.

6. Digital Health Smart Inhaler. Source. [For more examples, see: [here](#)]

Key Topics: Digital health technology; Pollution; Environment

Source Type: Digital health intervention

Focus: M/HICs

Case Made:

Patients requiring inhalers often have worsened conditions due to air pollutants.

Solutions Suggested or Implemented:

Companies have started producing, and governments started approving, inhalers which measure air quality as well as administer treatment.

7. Governing Digital Health and ICT Greenhouse Gas Emissions: “Digital Health at the Age of the Anthropocene.” 2020. Source.

Key Topics: Environment; Addressing the climate harms of digital health; ICT

Source Type: Lancet policy review and recommendations

Focus: Worldwide

Case Made:

While many highlight the benefits that come from digital health, few have addressed how digital can increase greenhouse gas emissions and further the environmental determinants of health. Specifically, these determinants are strengthened through digital health due to increased energy usage and data storage.

Solutions Suggested or Implemented:

To mitigate these harms, this paper suggests three governance principles when considering the intersections of the environmental determinants of health and the benefits digital health can bring.

- i) “Digital temperance instead of overconsumption and overpromotion: exercising restraint in production, use, and promotion of digital technologies, whenever possible.”
- ii) “Lifecycles instead of waste: sustainable products are defined by the low-tech movement as repairable, recyclable, and designed to have minimum ecological effect across the design, creation, production, storage, and reuse, recycle, or destruction of the device.”
- iii) “Complex systems approach instead of reductivism: interdisciplinary and cross-sector collaboration is needed to estimate the state and future trends of the digitalisation of the health sector and its direct and indirect environmental effects.” In other words, to understand the environmental effects of digital health technologies it is necessary to

consider how these technologies intersect with the larger ICT infrastructure beyond the health perspective.

8. Urban Environments, Digital Infrastructures, and COVID-19. Source.

Key Topics: Environment; Urban; Mental health; COVID-19

Source Type: Panel event hosted by Geneva Global Cities Hub

Focus: Cities Worldwide

Case Made:

The event discussed how cities have managed the COVID-19 pandemic while maintaining mental health.

Solutions Suggested or Implemented:

The use of digital infrastructure enabled the ability of cities to make more specific, nuanced decisions due to data aggregation and analysis. For example, because of contact tracing digital infrastructures complete lockdowns were able to be avoided in some cities (i.e. Geneva). Further, this helped to identify vulnerable groups and provide appropriate support services (i.e. Reykjavik providing transportation to older people).

Bridging the digital and health divide:

Focus:

Some UNESCO and joint ITU WHO initiatives, GIGA, and some agendas, and regional strategies about digital connectivity. There is a whole new agenda of the African Union for the digital transformation of Africa that we can use. We can build upon them to provide a recommendation to implement them as fast as possible. Innovation is not an explicit category because it fits in with the larger regulation picture. Also, in the part on ICT and digital connectivity there are examples that have not to do with innovation and digital health, but with infrastructure, connectivity, innovative ways to deploy ICT infrastructure in remote areas, and those types of things. This can be the perspective of addressing market failures that prevent private sector from deploying in regions; or, whether it is about the government taking an active role through strong government led policies, PPPs, these types of things. Things that are ultimately more related to the ICT component rather than digital health technologies

Key Takeaways:

- Policies and programs which approach this from a health perspective generally focus on strengthening ICT capacity, both for the health care workforce as well as the health care recipient. In doing so, this both helps to reduce the digital divide as well as the health divide.
- There is generally few explicit policies on reducing the digital divide. Most of these efforts are contextualized into larger goals including using the digital to strengthen the economy and or using digital to strengthen the health sector.
- Many of the policies implemented or solutions proposed here seem to be more abstract versions of what is seen within other governance categories. I would suggest that this is good, and demonstrates a degree of potential commensurability between this governance category and others.

1. Digital Implementation Investment Guide. WHO. 2020. Source. Summary available as NFF.

Key Topics: ICT; Enterprise architecture

Source Type: WHO report

Focus: Worldwide

Case Made:

Solutions and Examples of Digital Health Governance

This chapter focuses on how to transition from a plan for a single digital health intervention to an intervention that considers the larger digital infrastructure; in other words, transitioning from a siloed digital health implementation to an exchanged digital health system architecture.

Solutions Suggested or Implemented:

The Report suggests that adherence to appropriate health data and ICT standards becomes the critical link for interoperability. For countries which struggle to accomplish this architecture, the report suggests consulting the TOGAF and OpenHIE Framework.

When considering digital health technology integration to the enterprise architecture, it is important to consider this in terms of a whole-system behaviours rather than specific technologies.

- i) Collect data as quickly as possible and as closely integrated into the workflow as possible.
- ii) Data collected should support multiple work-flows.
- iii) Participants must have access to actionable, readily understandable data.
- iv) To accomplish interoperability adopt existing standards whenever possible and when necessary.
- v) Prioritize simple, stable, readily adoptable solutions over technologically sophisticated ones that would be difficult to deploy and navigate.
- vi) Identify digital components that are unique to the health intervention, as well as components that can be generalized for other health programmes. The later are termed reusable components. Reusable components hold potential for opportunities for joint investments.
- vii) The collective of common components is known as the digital health platform and can be subdivided into shared services and enabling components.
- viii) Identify common and enabling components of shared services.

2. The State of Broadband: Broadband as a foundation for sustainable development. ITU-UNESCO. 2019. Source.

Key Topics: Connectivity; Equity; Inequality

Source Type: Report

Focus: Worldwide

Case Made:

The report suggests that, while connectivity is important, it has a number of positive *and* negative effects. In other words, rather than focusing on building connectivity and laying fiber, it is also important to consider what these connectivity sources do to people's social worlds.

Solutions Suggested or Implemented:

In response to this, the report suggests the concept of 'meaningful connectivity.' That is, when attempting to increase connectivity, it is important to ask the questions of connectivity for whom, at what cost, and for what benefits.

[NB: On the topic of the digital divide more broadly as referenced in this case, also *see* ITU's '[From the Digital Divide to Digital Opportunities \(2005\)](#) and [OECD's Understanding the Digital Divide \(2001\)](#); I have not detailed these here as upon reading they seem fairly outdated. If anything this may indicate a needed renewed focus paid to the digital divide to understand its contemporary forms. A more recent source on this topic is an [event from the WB](#) which in part highlights how COVID has exacerbated the inequalities which drive the digital divide.]

3. Closing the Digital Divide: A Briefing Note. World Wide Web Foundation. 2016.
Source.

Key Topics: Governance; Increasing Internet Access

Source: World Wide Web Foundation Briefing Note

Focus: Worldwide

Case Made:

The main aim of the foundation is to bring as many people online as possible. The Foundation highlights ongoing initiatives which are funding the implementation of digital infrastructures and suggests broad principles for best governance practices to ensure access to the internet.

Solutions Suggested or Implemented:

The briefing note highlights the following initiatives provided support and funding for governments building internet infrastructures: i) The [Global Connect Initiative](#) by the US State Department and the World Bank bringing 1.5 billion people online by 2020; ii) the [WEF's Internet for All Initiative](#) helping to mobilize "excited" investors in technology such as 'internet balloons;' The [Smart Africa Alliance](#) which aims to accelerate socio-economic development through ICTs.

The Briefing Note makes five key recommendations:

- i) Both donors and governments must step up to the plate: governments should not wait for donors; Establish a clear roadmap and timeline, roughly 10 billion USD is needed annually to achieve universal broadband access; Promote and regulate the private sector; Governments should engage civil society; The international community must rapidly increase financial and practical support to close the digital divide, including increased aid, technology transfer, building institutional capacity, and reducing tax avoidance in the digital economy.

Solutions and Examples of Digital Health Governance

- ii) Make digital gender equality a top priority. Governments must set concrete targets on digital gender equality and regularly report on progress. Businesses and investors should adopt and report on targets. The international community must lead by example.
- iii) Access to internet must be universal. This includes reducing import and sales taxes that inhibit Internet use, scaling up public access facilities and programmes, and investing in user empowerment.
- iv) Overhaul analogue laws for the digital era. Specifically, the African Union and member states should adopt and implement the African Declaration of Internet Rights and Freedoms; donors should assess human rights impacts prior to funding connectivity projects; tech companies should take steps to safeguard human rights of the Internet; aid and lending used to increase internet access should be decoupled from cybersecurity negotiations.
- v) Update business models in ways which allow companies to achieve SDGs by allowing competitors access, enhancing transparency, and guaranteeing pricing transparency.

4. The Digital Transformation Strategy for Africa 2020-2030. African Union. 2020. Source.

Key Topics: ICT; Funding; Coordination; Human resources

Source Type: Regional strategy

Focus: Regional

Case Made:

The AU says that there are three main challenges for the digital transformation of health in Africa including:

- i) "Weak infrastructure and device access, including reliable electricity and affordable high-speed broadband connectivity, especially in rural areas."
- ii) "A lack of sufficient and consistent funding for digital health programs"
- iii) "Limited human resource capacity and digital skills"

Solutions Suggested or Implemented:

In response to these key challenges the AU suggests the following solutions:

- i) To ensure the prerequisite elements of digital health, it is necessary to have strong leadership, national and regional digital health strategies, and an M and E framework.
- ii) Regulations for the protection of patients' personal data.
- iii) Ensure interoperability by the establishment of a taskforce and continental standards for the portability and accessibility of medical information.

5. Assessing the Enabling Environment for ICTs for Health in Nigeria: A Landscape and Inventory. 2014. Source.

Key Topics: ICT; Coordination; Interoperability

Source Type: Review of Nigerian policy program titled ICT4SOML

Focus: Nigeria

Case Made:

"There is no harmonized policy for ICT for health resulting in limited guidance to implements in terms of architecture, standards, integration, scale-up, financing or capacity." The lack of governance furthers the digital and health divide.

Solutions Suggested or Implemented:

The report suggests three policy areas to strengthen to further the impacts of ICT in bridging health and digital divides. This includes:

- i) "Client/patient security and privacy, especially for organizations handling large quantities of patient data. Adequate system security is also needed for mCCT and other mobile money supported initiatives, which can be particularly vulnerable to fraud."
- ii) "Standards and interoperability permitting various platforms and databases to feed into a central repository, such as the NHMIS, for improved decision-making capacity."
- iii) "Coordination to improve the integration and harmonization oof ICT initiatives to avoid duplication and waste of available resources."

6. Interview. Africa10 Countries: US CDC Uganda. 2020.

Key Topics: Development funding; Basic digital infrastructure; Funding gaps

Source Type: Interview

Focus: Uganda

Case Made:

For this interviewee, the largest barriers for bridging the digital and health divide comes from basic infrastructural challenges. These often occur because of funding gaps between international organization programs as well as infrastructural gaps thought to be beyond health care. In respect to the former, the interviewee references who amongst IOs is expected to pay for electricity, data storage, wifi, etc. In respect to the later, the interviewee references how IOs do not see it as their responsibility to fund basic infrastructures such as roads, laying of fiber, etc.

Solutions Suggested or Implemented:

The interviewee suggests moving away from vertical funding structures to horizontal funding structures. The interviewee also suggests that, especially for digital health, IOs need to shift their perspective from short term (2-5 years) to long term (10-20 years) to both ensure horizontal building of digital infrastructure as well as creating sustainable maintenance of that infrastructure.

7. Interview. Africa 10 Countries: Ethiopia USAID. 2020.

Key Topics: Public Private Partnership (PPP); Connectivity and data

Source Type: Interview

Focus: Ethiopia

Case Made:

The country has implemented a number of actions to increase access to data, connect health facilities, but still struggles with basic infrastructure.

Solutions Suggested or Implemented:

Mobile coverage has been able to increase in Ethiopia because the government was able to negotiate with Ethio Telecom to receive an 80% reduction on some goods such as VPNs. Further, because the government has opened up the telecommunications market to competition, recently prices for data have dropped quite significantly. There is a need to identify market opportunities for basic infrastructure to rural areas, such as electricity, either through the public, private, not-for-profit, or a combination approach.

8. Interview. Africa 10 Countries: Mali Government Representative. 2020.

Key Topics: Basic digital infrastructure; National strategies

Source Type: Interview

Focus: Mali

Case Made:

In response to a lack of digital infrastructure and digital coordination, the government decided to establish a government body for the purpose.

Solutions Suggested:

In 2013 the Government of Mali created the Ministry of Digital Economy, Information and Communication. This Ministry was in charge of supporting the development and democratization of broadband internet. This included the development of a national strategy for the digital economy titled "Digital Mali 2020" launched in 2014.

Ensuring health and digital rights:

Focus:

These are also for global debates. What are the principles of the ethics of AI? Some activities at the UN level, reports of Office of High Commissioner on Human Rights, human rights online. Whether it is multilateral or whether it is partnerships, or institutions advancing these principles.

Key Points:

- Most approaches to this topic are multilateral, with some examples of regional (EU) regulation. There are calls from some multilateral bodies to embrace the private sector to allow them to define ethics and standards in response to a shortage of governance capacity and understanding on this topic (G7), but it is unclear what this would look like in practice.
- The Partnership on AI has useful resources on how to build in equitable approaches to the development of AI, including useful concepts such as 'affirmative algorithms' and 'responsible data sourcing.'

1. G7 Innovation Minister's Statement on Artificial Intelligence. 2018. Source.

Key Topics: AI; Safety; Private sector; Diversity and inclusion

Source Type: Global governance recommendation

Focus: Worldwide

Case Made:

The recommendations by the G7 stress i) the role that industry-led processes can play in the design and implementation of safe AI, and ii) ensuring inclusion in technological development to consider a range of perspectives to be able to develop AI that takes into consideration the safety needs of specific groups.

Solutions Suggested or Implemented:

"G7 members recognize that trust and adoption can be encouraged through a robust multistakeholder approach involving: education initiatives and public awareness of the benefits of AI technologies; increasing the participation of women in the workforce; promoting safe and reliable AI applications in the marketplace; giving early considerations to impacts on citizens, including through respecting privacy as a fundamental value and respecting applicable frameworks for privacy and data protection; mechanisms to ensure the accountability of AI systems; enabling industry-led processes to promote safety and vigilance in design and implementation of AI systems; efforts to prevent the misuse of AI applications that could cause

harm; initiatives, notably those led by industry, that promote guidance on human intervention in AI decision-making processes, among others.

Promoting inclusivity in AI development and deployment is critical to ensuring broad public support for AI adoption and ensuring all members of society can benefit from this technology. G7 members endorse efforts, notably those led by industry, towards multi-stakeholder engagement on AI technologies by bringing together industry, governments, academia and civil society, including social groups representing diverse, traditionally underrepresented populations such as women, LGBTQ, ethnic and religious groups, persons with disabilities, seniors and youth, and indigenous persons. These types of engagements can help to create more representative and useful AI systems that will be relevant and responsive to society as a whole, and fuel innovation from all parts of the citizenry.”

2. Recommendation of the Council on Artificial Intelligence. OECD. 2019. Source.

Key Topics: AI; Rights; COVID-19

Source Type: Global governance recommendations

Focus: Global

Case Made:

AI is a multifaceted issue and needs recommendations to ensure its safety. The below recommendations are the high level recommendations, of which each contains sub-recommendations. Further, an update of the group in AI’s relation to COVID-19 is included below.

Solution Suggested or Implemented:

“Principles for responsible stewardship of trustworthy AI: the first section sets out five complementary principles relevant to all stakeholders: i) inclusive growth, sustainable development and well-being; ii) human-centred values and fairness; iii) transparency and explainability; iv) robustness, security and safety; and v) accountability. This section further calls on AI actors to promote and implement these principles according to their roles. Collectively, these are extremely high-level and are hard to place anywhere with any concreteness.

National policies and international co-operation for trustworthy AI: consistent with the five aforementioned principles, this section provides five recommendations to Members and non-Members having adhered to the draft Recommendation (hereafter the “Adherents”) to implement in their national policies and international co-operation: i) investing in AI research and development; ii) fostering a digital ecosystem for AI; iii) shaping an enabling policy environment for AI; iv) building human capacity and preparing for labour market transformation; and v) international co-operation for trustworthy AI.

Artificial Intelligence (AI) tools and systems can support countries in their response to the COVID-19 crisis. For example, AI can help policymakers and the medical community understand the COVID-19 virus and accelerate research on treatments by rapidly analysing large volumes of research data. It can also be employed to help detect, diagnose and prevent the spread of the virus. Conversational and interactive AI systems help respond to the health crisis through personalised information, advice and treatment. Finally, AI tools can help monitor the economic crisis and the recovery – for example, via satellite, social networking and other data (e.g. Google’s Community Mobility Reports) – and can help learn from the crisis and build early warning system for future outbreaks. However, in order to make the most of these innovative solutions, AI systems need to be designed, developed and deployed in a trustworthy manner, consistent with the Recommendation: they should respect human rights and privacy; be transparent, explainable, robust, secure and safe; and actors involved in their development and use should remain accountable.”

3. Global Diffusion of eHealth: Making Universal Health Coverage Achievable. 2016. Source.

Key Topics: Data governance; LMICs; Governance tools; National strategies

Source Type: WHO Report

Focus: Worldwide

Case Made:

Compared to HICs, LMICs often have less legislation surrounding eHealth data because they do not have capacity to engage in the legislative process alongside the implementation of eHealth interventions.

Solutions Suggested or Implemented:

To protect populations from the harms of data and digital more broadly, it is important to have legislative provisions built into policies and national digital health strategies. In addition, it should be considered including safety considerations in funding for digital health, including M and E.

4. UN: Report of the UN Secretary-General’s High-Level Panel on Digital Cooperation: the age of digital interdependence. 2019. Source.

Key Topics: Inclusion and diversity; Equity; Inequality; Metrics; Standard

Source Type: UN Report on HLP

Focus: Worldwide

Case Made:

The plethora of ways in which data can be harmful require a large amount of governance capacity and if inclusion in governance representation is not present the perspectives of some vulnerable groups may go unheard.

Solutions Suggested or Implemented:

“We believe that a set of metrics for digital inclusiveness should be urgently agreed, measured worldwide and detailed with sex disaggregated data in the annual reports of institutions such as the UN, the International Monetary Fund, the World Bank, other multilateral development banks and the OECD. From this, strategies and plans of action could be developed.”

5. UN Roadmap for Digital Cooperation. 2020. Source.

Key Topics: AI; Content governance; Privacy

Source Type: UN Roadmap

Focus: Worldwide

Case Made:

The emerging role of digital in societies demands a new consideration of how it should be governed to ensure digital rights.

Solutions Suggested or Implemented:

The roadmap details the following areas to be considered from a rights perspective when administering governance:

- i) Data protection and privacy.
- ii) Digital ID.
- iii) Surveillance technologies, including facial recognition.
- iv) Online harassment and violence and the need for content regulation.
- v) Artificial intelligence.

6. Global Partnership on Artificial Intelligence. 2020. Source.

Key Topics: AI; Working group

Source Type: Report

Focus: Global

Case Made:

This working group has been established to investigate governance issues surrounding AI as the first of its kind, beyond OECD and G7 recommendations. The working group began working in June of 2020, and is actively investigating the following areas.

Solution Suggested or Implemented:

- “WG should work to shape best practices and standards for data governance with the aim to drive access to good quality data for AI projects and systems.”
- “Create guidelines around data management for AI projects and systems, which take all steps of the AI development process into account, from data creation and collection through to preservation and deletion.”
- Underpin the creation of good quality and accessible data sources to fill data gaps in priority fields, in line with the UN Sustainable Development Goals, through targeted research and collaboration with initiatives in this field.
- “Undertake research into how to improve cross border data sharing and write guidelines for organisations on how to address current barriers.”
- “Undertake targeted research into the broad topic of data injustice and harms that arise from data practices around the world and identify pathways to counteract current problems.”

7. From Affirmative Action to Affirmative Algorithms: the legal challenges threatening progress on algorithmic fairness. Partnership on AI. 2020. [Source](#).

Key Topics: AI; Rights; Inclusion;

Source Type: Opinion

Focus: Country (USA)

Case Made:

AI algorithms come with a large amount of bias which reproduces inequity by engraining these biased perspectives into the coding of the system. Further, US law states that affirmative action on the basis of specific groups is against the law. There needs to be ways for AI developers to address inequity. Further, their solution below, when applied with health data, would be very productive (many health data approaches are siloed within technology and do not consider these issues, similar to the way this article does not consider health equity; GHF2030 can play a productive bridging goal here in the recommendations.

Solution Suggested or Implemented:

The piece proposes the idea of Affirmative Algorithms, building off of ideas of affirmative action. While there are court precedents on this topic, they identify one particular loophole which might be considered for AI developers when building code: “the current case law permits government

classifications by race to improve the share of contracts awarded to minorities under certain conditions. The critical limitation is that government must have played a role in generating outcome disparities and the program must be narrowly tailored to benefit victims of discrimination while minimizing adverse effects on others.”

Within this specificity of the law, they then advocate for affirmative algorithms, defined as: “bias mitigation.” Examples of this include:

- “One leading approach utilizing protected attributes uses different thresholds for loan approvals for White and Black applicants to, for instance, equalize repayment rates.”
- “Another normalizes features across protected groups, such as by transforming test scores so that gender differences disappear.”

Finally, to realize these goals, the authors issue the following statement for necessity of affirmative algorithms and interdisciplinary collaborations:

“The future of algorithmic fairness lies in tying bias mitigation to historical discrimination that can be empirically documented and attributable to the deploying entity. This requires a closer collaboration with social scientists to understand institutional sources of bias and with lawyers to align solutions with legal precedent. If such work is not conducted, algorithmic fairness may reach a legal dead end.”

8. Developing Guidance for Responsible Data Enrichment Sourcing. Partnership on AI. 2020. Source.

Key Topics: AI; Rights; Inclusion;

Source Type: Opinion

Focus: Country (USA)

Case Made:

To reduce bias in AI algorithms, it is important to ensure that developers have access to a diverse array of data sources.

Also see their [project on responsible data sourcing](#) which will produce guidelines in the future.

Solution Suggested or Implemented:

The diversity of approaches which were discussed in a workshop hosted with developers revealed that what is “currently used to source data enrichment services. In-house workforces, automated annotation software, managed services, and crowdsourcing platforms were just some of the solutions mentioned by practitioners. Most often, AI developers use a hybrid approach, relying on more than one of these models depending on the project constraints and resources available.”

Enfranchising and including every citizen:

Focus:

This part is about both participation and sort of co-design and defining strategies at the local level of the governance for the digital transformation of health, examples of civic tech, and so on. It tries separating a bit what has to do with involvement of citizens which goes here, and things in terms of participation and civic tech which goes in the next one. This part is a lot about young people. Key topics include: Citizen participation: Youth; Use of civic tech (implementation in below section).

Key Takeaways:

- Many of the forms in which youth are systematically engaged seem to be occurring amongst IOs, whereas the public sector and private sector listen to and engage youth a bit more selectively (policy specific or marketing specific).
- Although IOs are providing pathways for youth perspectives to be heard, some are still critical that what is heard from youth does not always translate into practice because the capacity to listen to these voices is interrupted by political and commercial determinants.

1. Youth Centred Digital Health Interventions. 2020. WHO Coauthored with UNFPA, UNICEF, UNESCO. Source.

Key Topics: Youth; Inclusion; Governance participation; Tokenism; Governance Tools

Source Type: WHO Report

Focus: Worldwide

Case Made:

Despite youth being the most competent and most impacted by digital health in the present and the future, there is little engagement of youth in digital health care governance. This report lays guidelines on how youth engagement can take place. Further, the report highlights how it is important to be more proactive in this process noting that the history of youth engagement in health care began with the HIV/AIDS crisis. The report uses this historical context to make the point that i) youth engagement has a historical power dynamic which must be unlearned and undone, and ii) if youth are not engaged from the start they will likely only be consulted once it is 'too late.'

Solutions Suggested or Implemented:

The report states that to include young people, this must go beyond tokenism and ensure decision making authority in interventions, as well as including an M and E process which ensures inclusion.

It also draws attention to the fact that young people know and understand both technology as well as their specific digital health needs better than existing policy makers.

When designing the implementation digital health interventions, the report suggests the consultation of young people to i) identify non-traditional sources of information for intervention design, ii) identifying non-traditional stakeholders during the intervention which are relevant for young people, and iii) identify key messages for behavior change for youth groups. One recommended mechanism to accomplish this is focus groups with young people.

During the implementation of the intervention, young people can play a role in determining how to market the intervention appropriately to their peers by identifying content that is relevant to youth and better ensure user uptake.

2. Case Studies from Youth Centred Digital Health Interventions. 2020. WHO Coauthored with UNFPA, UNICEF, UNESCO. Source.

Key Topics: Youth; Case study; Inclusion; Governance tools; Youth participation

Source Type: WHO report

Focus: Worldwide

Case Made:

The report outlines a total of 33 case studies and interviews. For the interest of enfranchisement, I have divided these into four categories. *I would strongly suggest revisiting the document to read some of these in full.*

Solutions Suggested or Implemented:

- i) Example of enabling young people to be a part of the decision making process:
Listening and creating environments to be heard.

“Involving young people at every phase of the development process helps ensure that the intervention will be valued and sustainable. To ensure authentic engagement and create a safe space for young people, Youth Development Labs (YLabs) recommends emphasizing two areas: safety and fun. **Safety.** Creating an environment that is safe and feels safe is critical. YLabs works to ensure this by developing, practicing and implementing “safeguarding protocols.” For example, one safeguarding protocol is beginning each session by explaining that participation is always voluntary. Because of the sensitive nature of the topics and the power dynamics between the adult developers and young participants, it is important to let the participants know that there are no right or wrong answers, they can decline to answer any question and they can stop the session if they feel uncomfortable. Another example of a safeguarding protocol is working with local implementing partners to provide access to counselors and resources after the sessions,

Solutions and Examples of Digital Health Governance

in case participants need additional health information or support. **Fun.** YLabs begins workshops with warm-up games, drawing and other activities that help young participants relax. Young people are often bored by long presentations, so YLabs uses activities that include more “showing” activities to keep young people engaged. Role-playing games are particularly useful because they provide young people with an energizing and enjoyable opportunity to share their own stories and provide the development team with rich data and nuances. Other engaging activities include mapping and card sorting, which are helpful for understanding how young people relate to their friends, family and community. Bold colors, visual designs, costumes and music can help make the session feel more like a party than a formal interview.”

- ii) How to build solutions for young people: Appropriate to social, economic, and demographic context.

“Love Matters is a global program that provides information to young people on relationships, sex and love. One feature of the program is a discussion board where users can post questions and comments on SRH topics. The Love Matters India (LMI) program employs well-trained “sexperts” and moderators who respond to the posts on the discussion board with timely, quality information, personalized answers and emotional support. The discussion board also provides insights into the SRH topics young people are talking about and interested in. LMI uses these insights to guide ongoing market research and focus group discussions. The LMI team is on the ground talking to young people across India to understand their different perspectives across different regions of the country and different demographic groups. This information helps them create and update user personas and helps them determine the content of posts on the LMI bilingual website and social media platforms and in digital toolkits.”

- iii) How to gauge perspectives of people: focus groups; featured elsewhere in report is workshops.

“The London School of Hygiene and Tropical Medicine (LSHTM) partnered with the International Planned Parenthood Federation (IPPF) Member Associations in Tajikistan, Bolivia and Palestine to develop digital health interventions on contraception for delivery by mobile phone to young people. LSHTM provided expertise in conducting needs assessments, and the IPPF Member Associations contributed local expertise in implementing SRHR programming and strong community relationships that provided context and access to the implementing environments. Focus group discussions and interviews with young people were led by researchers who were native speakers of the local language. The focus group discussions were divided by gender and led by a facilitator of the same gender as the participants. All youth participants were over the age of informed consent—age 14 in Tajikistan and age 18 in Bolivia and Palestine. Involving younger adolescents would have required obtaining parental consent, which would not have been appropriate because of the stigma around sexual activity among young people

in all three countries. Despite the stigma, the young people were willing participants in the focus groups and interviews. They engaged in lively discussions about contraception and sexual health and provided insights into their beliefs about contraception, the stigmatizing environment and their fears of being judged for seeking SRHR information and services.”

3. Guidance on Enhancing Youth Participation. UNFPA. 2018. Source.

Key Topics: Youth; M and E; Social media; Organizational management; Governance tools

Source Type: UNFPA guidelines

Focus: Worldwide/development

Case Made:

UNFPA has produced this document specific to their experience in engaging youth in their work. The reason, in the eyes of UNFPA, to engage youth beyond the fact that youth are the object of their study and intervention is to ultimately increase the efficacy of their interventions. Engaging youth allows the UNFPA to i) address a core focus, ii) position youth as agents of change, iii) increase the likelihood of acceptance, iv) deliver more effective and targeted action, v) achieve more positive outcomes, vi) foster active citizenship, vii) reach a diverse range of people, and viii) build youth skills and competencies.

Solutions Suggested or Implemented:

These guidelines recommend the following principles in youth engagement:

Table 2: UNFPA’s Approach to Youth Leadership and Participation

Core Activities	Engaging	Prioritizing	Delivering
<ul style="list-style-type: none"> • Consult youth; • Advocate for youth participation in fora that will affect their lives, and help youth gain access; • Skills training and other support for youth advocates; • Technical and financial support for youth organizing and advocacy. 	<ul style="list-style-type: none"> • Local, national, regional and global youth leaders, especially for SRHR including HIV prevention, treatment and care; • NGOs; • Governments, the UN, and other stakeholders. 	<ul style="list-style-type: none"> • Skills building; • Access and opportunities for youth. 	<ul style="list-style-type: none"> • Gender-balanced and diverse groups of youth able to advocate effectively for their generation and the future, at community, national, regional and global levels.

Beyond these tools for youth engagement, the report also highlights the importance of and provides (albeit slightly vague) suggestions on how create an organizational management structure which makes room for youth. This includes:

- i) Including you in short and long term organizational strategies.
- ii) Having senior management investment.
- iii) Mapping youth organizations to identify organizations of interest.
- iv) Consider and involve youth in intervention planning.
- v) Leverage social media to amplify youth led voices.
- vi) Involve youth in the M and E of an intervention both as direct objects of study as well as leaders of the study.

4. U-Report Empowering and connecting young people around the world to engage with and speak out on issues that matter to them. UNICEF. Ongoing Intervention. Source.

Key Topics: Civic tech; Youth

Source Type: Ongoing intervention

Focus: Worldwide

Case Made:

Young people live in a world of mass connectivity, which gives many a chance to express themselves but often little opportunity to be heard. Others less fortunate may not have internet connectivity so even have less chance, or in some cases no other chance to express themselves at all. Technology has become and will continue to be a driving force in the lives of adolescents and youth across the world where more than four billion¹ of us now have access to the internet and five billion of us have mobile phones. Social media platforms offer a public sphere in which to express and opinion but that comes with a risk of judgment, crowd-sourced humiliation or bullying with sometimes disastrous consequences and at the same time offers only limited options to youth groups, development agencies and governments to understand the driving forces of the sentiment of posts in detail, which is what is really required to inform decisions. Aside from traditional participatory methods young people still find themselves excluded from the development processes designed to improve their lives; recipients of aid rather of their own development. To add another layer of complexity, as general information and news becomes more accessible through the use of technology, it is not always clear, specifically to young people, what information is accurate and can be trusted. The issue is one of digital citizenship, first access to it and then how to use it to improve ones life.

Solutions Suggested or Implemented:

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U-Report is a messaging tool that empowers young people around the world to engage with and speak out on issues that matter to them.

It works by gathering opinions and information from young people on topics they care about – ranging from employment to discrimination and child marriage, and health. U-Reporters respond to polls, report issues and support child rights. The data and insights are shared back with communities and connected to policy makers who make decisions that affect young people.

U-Report is now active in 68 countries, benefiting over 11 million users all over the world. Country U-Reports are run by UNICEF and partners on the ground, including local government, non-governmental organizations and young people themselves. U-Report is available via numerous messaging, social media and SMS channels, and even works on a basic mobile phone. It is free, anonymous and easy to use.

[The U-Report Dossier](#) explains the issues U-Report addresses, its alignment with UNICEF's programme priorities, and the strategy and pathway to scale.

5. Demand for Health Services Field Guide. A Guideline produce by U-Report. UNICEF. 2018. [Source](#).

Key Topics: Civic tech; Inclusion; Governance

Source Type: International Organization Guideline

Focus: Worldwide/Development

Case Made:

The U-Report 'innovation' includes as part of its program engagement with governments on how to use the citizen-reported insights. They produced this document as a guide on gauging health demands and implementing policy based upon these demands when working with governments.

Solutions Suggested or Implemented:

Rather than a reductive surface level explanation, please see their model of change and logic of implementation in the image below. Please keep in mind that the 'data' and 'engagement' from citizens is often coming from their U-Report software:



6. Civic Tech in the Global South: assessing technology for the public good. Tiago Peixoto and Micah L. Sifry. [In some capacity supported by world bank, see link]. 2017. Source.

Key Topics: Civic Tech; Political and commercial determinants

Source Type: Book [edited]

Focus: Intervention analysis

Case Made:

One chapter in this book focuses on the implementation of U-Report in Uganda. This is important because it makes the point that, both in general and specifically here, while civic tech may crowdsource citizens' opinions that would otherwise likely go unheard, the information gathered from civic tech often falls short of being able to overcome the political and commercial determinants of policy and health more broadly. This ultimately is sensible in the sense that civic tech is attempting to hear unheard voices in the first place, which are not unheard voices by choice or chance. The following model is how this book describes U-Report's model of change in Uganda and what it does and does not do.

Solutions Suggested or Implemented:

Figure 1. U-Report's logic of intervention

GOALS	MEANS			CHANGE
Amplify voices of the youth	Create a medium that is widely accessible, especially amongst the youth	Recruit Widely	Use partners to reach marginalised groups	Ugandan youth express their opinions on critical issues
Inform public debate	Results are aggregated and made available to the public through different media			Results and issues raised are discussed in the media and amongst Ugandans
Raise Awareness and provide valuable information	Valuable information is broadcast on health, education, children's wellbeing			
Forge closer relationships between U-Reporters and decision makers	Decision makers use analyses for planning and eliciting feedback	U-Reporters see the effects of reporting on the ground		A more transparent and responsive relationship is established between U-Reporters and decision makers, and duty bearers
Support Citizen Accountability	U-Reporters send unsolicited and solicited messages about the progress/outcomes of different initiatives	UNICEF aggregates results and depending on the assessment confirms positive change or asks for steps to improve initiative from duty bearers	Duty bearers adjust their strategy	

Governing the digital transformation of health with cities and communities

Focus:

City networks that are dealing with digital governance issues from the perspective of data sovereignty, open source software and so on. Governance of citizen participation and community/city specific strategies and policies for digital health which are locally appropriate.

Key Takeaways:

- Several hard and soft tools are detailed here to incorporate citizen perspectives through governance methodology including health technology assessments and the necessity of trust, respectively.
- DIIG stresses the point that it is important to use M and E as a mechanism for adaptable governance, have the governance capacity to adapt, and think long term about M and E (10 years) to reflect the changing roles of technologies and their maintenance.

1. Digital Implementation Investment Guide. WHO. 2020. Source. Summary available as NFF.

Key Topics: Health workforce; Data culture; Implementation; Feedback; Adaptive management

Source Type: WHO report

Focus: Worldwide

Case Made:

As part of the M and E process of a digital health intervention, the DIIG has embedded within this process attention being paid to local feedback of the digital health intervention, mechanisms to create cultures which generate feedback, and further mechanisms to scale this feedback.

Solutions Suggested or Implemented:

M and E should track: i) performance, ii) changes in processes, iii) health outcomes, iv) end-user satisfaction with health system, v) cost-effectiveness, vi) shifts in knowledge and attitude. It is critical that M and E focuses on creating a culture of data use and fostering adaptive management. This helps to also identify issues in software through feedback mechanisms. Evaluation within digital health is also important to harmonize and learn from various deployments, shifting from small-scale pilots to the broader institutionalization of digital health. M and E for digital health can focus on specific aspects such as: i) effect on health practices, ii) improving workers' adherence to protocols or increasing timelines of services, iii) later in the intervention shift to economic assessments, iv) explore issues of scale, sustainability, and changes in policy and practices. The Report suggests to think in line with a maturity model of the digital health services to decide on

the indicators of progress over time. Establish a culture of data use a. A culture should be established that values the collection of high-quality data, as well as the actions taken as a result of that information. To do this keep in mind: i) quality does not guarantee data use at the individual or facility level, ii) data must meet the requirements of multiple end-users, iii) data must be translated into information at the right level of detail to inform multiple stakeholders. Adaptive management: use data to optimize interventions. Throughout M and E, adaptive management should be employed to keep up with the speed of digital interventions. This may include adjusting interventions, trying out new workflows, retiring unsuccessful processes or scaling approaches that have demonstrated value.

2. Human Rights and Digital Health Technologies. 2020. Source.

Key Topics: Governance tools; Methodological tool for policy; Inclusion

Source Type: Academic. Journal of Health and Human Rights

Focus: Global

Case Made:

An HTA (further defined below) is a governance process which takes into consideration economic cost-effectiveness, political and commercial priorities and determinants, and the views of citizens' needs. This methodology is meant to push health systems to go beyond exclusively using cost-effective analyses to set priorities in health systems funding. Doing so allows for greater consideration of complex systems dynamics and citizens' needs in the decision making process. While the above guidelines on rights, principles of best practice and more may be useful, this is a concrete methodology for policy makers to implement.

Solutions Suggested or Implemented:

"One strategy for preventing rights violations arising from data breaches, biases, and function creep is the requirement for a robust system of HTA prior to the authorization for use of a new (or updated) digital health technology. An HTA is a multidisciplinary process that evaluates the "value of health technology at different points in its lifecycle" (including the technology's properties, effects, and impacts).[46] It aims to inform policy makers and influence decision-making in health care, with a focus on how best to allocate funding for health programs and technologies. Components of such an assessment include the validation of technical aspects (for example, the accuracy of the product or system), clinical considerations (for example, contribution toward improving or maintaining a specific health condition), and systems compatibility (for example, connection with or integration into patients' lives, health service provision, and health systems, including medical records).[47] It can be applied to different types of interventions, such as piloting tests, medicines, vaccines, procedures, and programs. Applying HTAs to digital

technologies provides an opportunity for governments to assess the ethical and human rights risks of these technologies, including considerations related to equity.”

3. Consulting the Public in Health Data Governance. World Health Summit 2020.

Source: [NFF](#).

Key Topics: Trust; Governance tools; Public opinion

Source Type: Event (WHS 2020)

Focus: National examples

Case Made:

In conversations about establishing trust between citizens and governments regarding health data, Switzerland and Sweden referenced the public consultations they performed for COVID tracing applications.

Solutions Suggested or Implemented:

These countries surveyed the public during the legislative process to gather opinions on if and how the public would have trust in the government to use a contact tracing phone application. Questions ranged from if this should be compulsory and how data should be stored.