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Digital Health
in
International Cooperation
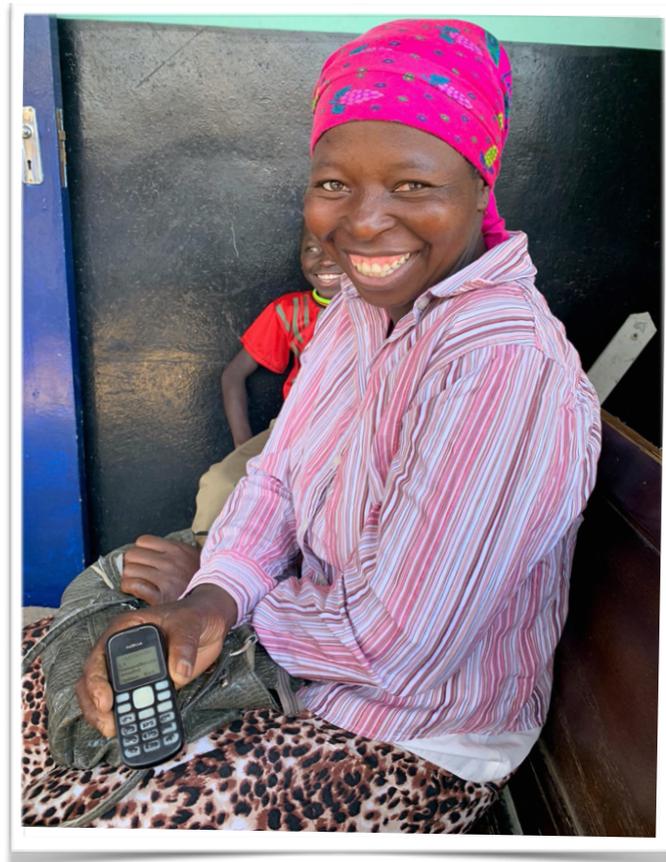
A Transnational Framework

Imprint

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Contents

Acknowledgement

This transnational framework is the result of contributions from experts, institutions, workshop participants, practitioners and knowledge specialists, guided by a steering committee in Bern, Switzerland. It was first envisioned when 33 participants gathered for a workshop in Switzerland's capital on 20 January 2020. They represented universities, the government (Swiss Agency for Development and Cooperation), and many non-governmental organisations. The workshop participants developed a long list of issues in digital health that are in need of guidance. Thus, the setting for the development of the framework and its direction were established.

The following Swiss organisations participated in the transdisciplinary process (in alphabetical order): Bern University, D-tree International, Enfants du Monde, FAIRMED, Fondation Botnar, Foraus Moritz, Geneva Health Forum, Geneva University Hospitals, Handicap International, Medicus Mundi International, Schweizer Partnerschaft HAS Haiti, SolidarMed, Swiss Agency for Development Cooperation, Swiss Malaria Group, Swiss Red Cross, Swiss TPH, Terre des Hommes, University of Geneva, University of Zurich, and Verein Support. Experts from other countries in Europe, namely, France, Spain, and the Netherlands, also participated.

Voices from the South contributed from the start. They also provided input to draft versions of the framework. Contributions came from experts, practitioners, and government officials in Bangladesh, Burkina Faso, the Dominican Republic, India, Kenya, Mozambique, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. Together with the Swiss partners, they moulded – and thus co-developed – this framework.

Introduction

Implementing Digital Health in Collaboration

This transnational[1] framework for 'Digital Health in International Cooperation' relates to the development and sustaining of digital health within so-called 'Southern countries'.[2] It provides actors in international cooperation with an inclusive, transdisciplinary language for the programming and assessment of digital health, as well as guidance on how to approach and effectively implement digital health interventions in non-Euromerican environments. These actors include, among others, non-governmental organisations (NGOs), governments and government agencies, universities, and enterprises.

> Digital health incorporates eHealth and mHealth, as well as other areas such as advanced computing sciences.

The goal of the document is to establish a practice for the development of digital health interventions. From this base, the framework provides guidance for developing digital health strategies and programmes in a responsible way.[3] The overall aim is to describe and harmonise the practicalities involved in connecting[4] and mobilising people to co-develop digital health interventions within international cooperation.

International development cooperation (aid) has its share of proponents and critics. While some see it as part of the solution to advancing the right to health, others regard such endeavours as part of the problem.[5] Admitting this tension, this framework is grounded in fundamental and ethical proposals about what digital health in transnational development cooperation could be and provides practical advice for policy and strategic development.

Saving lives brings people together in a fight against inequality, insufficiency, and adverse inclusion[6] – a fight in which all need to be heard and participate, including, and most importantly, those who are supposed to benefit. Therefore, digital health is approached from the core theme of *de-centring*, shifting the power balance away from historic centres of power in the North to the more balanced inclusion of voices and decisions from the South. The framework then considers *ethical concerns* in digital health, cognisant of political and practical aspects, and the *environment* (see Part 1). After this positioning of the approach underpinning the framework (as decentred) and defining what is considered acceptable (ethical) and environmentally sound, the framework presents the method: what are known as 'The Big Five': *being together, conversing, sharing, alignment* and *respect*. The Big Five can be considered the 'rules of engagement' and guide a way of approaching international cooperation for digital health. Finally, Part 3 sets out the three main components for action: *community engagement*, *workforce enhancement*, and *thought leadership*, all of which lead to *systems conciliation* for digital health interventions.

How to Use this Framework

This framework proposes to be a compass, not a GPS, to guide interactions in the field of international cooperation on digital health, allowing for the negotiation of routes in the development of digital health interventions, in contrast to exactly prescribing each move to reach a destination. It addresses the 'why?' through a discussion of ethics and politics; the 'where?' by being sensitive to which institutions and communities are involved; and the 'who?' in relation to the human actors benefiting from, as well as deciding on, digital health strategies. The 'what and when' – the actual digital health interventions – this is where the rubber meets the road.

Some of the applications of this framework are as:

> *Guidance for non-governmental organisations* on how to approach digital health and its activities when mainstreaming digital health in their organisation; on how to align digital health in international cooperation, as well as ensure that interventions serve people's needs; and how to conduct reality checks

> *Strategic input for governments* for digital health policy development and the assessment of digital health intervention proposals

> A rationale and *guidance for donors* assessing resource requests pertaining to digital health in international cooperation

> A reference for academic pursuits and a basis for the development of aspect-specific roadmaps

The sections that follow each contain a general explanation of the subject, followed by a page ('How') that is designed as a strategic check list to inform policy, and a follow-up page ('Action'), that talks to practitioners to inform operational manuals, among other things.

Part 1. Setting the Approach

De-centring

"Digital technologies play a potentially fundamental role in facilitating timely availability of quality health information for provision of better-quality health care."
Ministry of Health and Social Welfare, Tanzania[7]

This framework aims to bring balance to the way we approach digital health in international development by looking at the leadership and decision making that goes into creating and implementing digital health interventions. The first step to achieving this is 'de-centring' digital health, away from the hegemonic centres of power that claim universal knowledge, to the places where digital health interventions are being implemented and beneficiaries live. De-centring international cooperation in digital health respects local authorities, policies, regulations and requirements related to integrating digital technologies in health systems, acknowledging sovereignty and the right to steer ones development.[8] The aim is to work to local objectives and utilise local agency and capacity to design, produce, install, and maintain digital health systems in a sustainable way, while all the time being guided in our interactions by *the Big Five* (Part 2).[9] This is done through *community engagement*, *workforce enhancement*, and *thought leadership* (see Part 3).

> Understanding is irreducibly connected to viewpoints, interactions, histories, and experiences: knowledge is ambiguous and located.

But the development of digital health also needs cross-pollination, and much can be gained from shared values, principles, understandings. The report of the UN Secretary-General's High-level Panel on Digital Cooperation includes a statement about digital interdependence, within which it notes:

> *We believe that our aspirations and vulnerabilities are deeply interconnected and interdependent; that no one individual, institution, corporation or government alone can or should manage digital developments; and that it is essential that we work through our differences in order to shape our common digital future.*[10]

Promoting and implementing digital health in an interdependent and decentred way[11] means:
- Building on local knowledge and capacities
- Focusing on people, communities and their demands, resources and agency
- Respecting local authority
- Aligning with national and international policies, standards and regulations
- Being inclusive and leaving no one behind
- Adopting a human rights-based approach

The implementation of digital health in international cooperation often unknowingly replicates colonial conduct.[12] Digital health holds significant promises, but also poses significant threats for people and national security.[13] Digitalisation can open doors for recolonisation,[14] as data is easily extracted using technologies that negate borders and hierarchies.[15] In addition, power distances often leave recipients unable to withstand foreign expropriation and pressure,[16] reproducing demands for kickbacks, allowances, and complementary travel, among other things.[17]

De-centring, on the other hand, counters data-extraction and the threat of surveillance and economic exploitation. It protects against never-ending pilots, lock-in technologies, extortive licences, and dependencies. It involves a recalibration of contemporary paradigms in international cooperation, as well as a change in practices and orientations – from us-we-know to both-we-know.[18]

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HOW?

→ Accommodate all voices locally, nationally and globally, including those nearby and in the diaspora.[19]

→ Mainstream justice, human rights, and human responsibilities.

→ Resist Eurocentric statements and 'solutionism'[20]; allow for multiple perspectives and different ways of understanding.[21]

→ Gauge power, privilege and risk by analysing intersectionality[22] and taking a transdisciplinary approach.[23]

→ Consider the unequal geographical distribution of digital resources like infrastructure and devices.[24]

→ Respect and support data and technological sovereignty.[25]

→ Provide open data for public resources[26] and demand confidentiality when data can be traced to individuals, persons or groups.

→ Reflect on one's own role, enshrined inequalities and the base of contemporary geo-political powers.

→ Work towards Sustainable Development Goal 10: to reduce inequality between and within countries, also in digital realms.

→ Work with and through local talent, especially in management and research.[27]

Action

The following actions should be taken to de-centre digital health:

- Be inclusive and reconcile various ways of knowing,[28] leaving no-one behind.

- Embrace different ways of understanding health and technology, according to the cultural context.[29]

- Use digital health for inclusion, human growth, justice, equality, peace, and wellbeing.

- Engage with communities and stakeholders in a timely way, at all stages of co-development of a digital health intervention: from the moment of conceptualisation, through to deployment, analysis, and improvement.

- Disclose and navigate power-differentials, deny undeserved privileges or use of power imbalances in favour of the elite as a way to persuade, coerce, or influence participation.

- Don't exploit people to achieve a digital health intervention goal.

- Solicit constant feedback from all involved and be willing to change practice to align with *meaning* and embodied knowledge (knowledge that is accumulated through the experience of the 'knower').

- Recognise that technology is a construct, embedded in a societal substratum conveying history, values, and power interest, thus not politically neutral nor a-historical.[30]

- Reimagine digital solutions and engender counter narratives that go beyond a few dominant digital platforms and telecommunications industries.[31]

- Respect data and technology sovereignty in which 'the people' control digital platforms within their sovereign territory.

Ethical Concerns

"Ethics is about respecting each other, being honest, being transparent."
Fred Mweetwa[32]

In this framework, international cooperation involves language and views from at least two perspectives: normative and dynamic/integrative (Figure 1).[33] Examples of normative guidance are contained in Switzerland's Constitution, government policies, and bilateral and other agreements. Dynamic and integrative guidance is set in a variety of local, national, regional and other communities, including so-called traditional entities.

Any particular understanding of *meaning* depends on the interlocutor's worldview, culture, and positionality. Language and culture are two sides of the same coin, implicitly and explicitly influencing value and agency.[34] Language can mask (geo)politicking[35] and translation out of context can make 'others' look incoherent, inferior and incapable.

Figure 1. The multiplicity of perspectives that interact in digital health
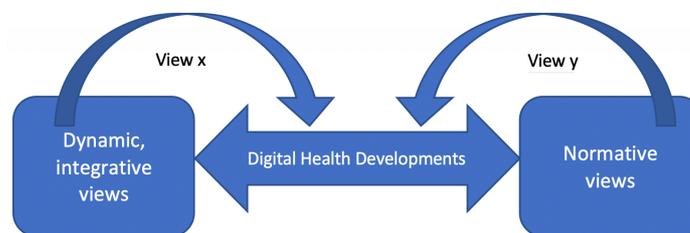
HOW?

→ Be inclusive, respectful, honest, and ethical – do not reap what you did not sow or take credit for what you did not do.

→ Submit to just and ethical governing authorities[36], stay within registered purposes, and treat everybody with dignity and respect.

→ Provide choice and do not pursue digital health interventions that have been refused.

→ Appraise whether or not digital health interventions are necessary, proportional, useful, respectful, trustworthy, and cost-effective.

→ Align digital health with the context, societal systems (informal and formal) and fundamental rights, plights, and freedoms.

→ Situate digital health interventions in authoritative sovereignties.

→ Seek input from a wide range of stewards and experts, not only those working in digital technology or health sciences.

→ Refuse to offer, elicit, or accept bribes and encourage others to do the same.

→ Design and conduct evaluations in a participatory manner.

→ Provide all local, national, and international stakeholders with timely, authorised, accessible and accurate information.

→ Utilise funds received and income generated according to the stated intent, in line with the purposes of the organisations involved.

→ Be entirely truthful with communities and institutions about activities and in communications intended to raise funds.

→ Remunerate reasonably and demand reasonable working hours.

Action

The following actions should be taken to promote ethics in digital health:

- Improve and strengthen what is being done well and avoid adding to the burden of operational health systems and health workers.

- Avoid harm from incorrect assumptions and inappropriate design choices, by co-designing interventions with intended users.[37]

- Collaborate with integrity and wisdom and establish all agreements with the utmost integrity.

- Avoid digitalisation that amplifies vulnerabilities or reinforces social structures of oppression[38] through digital traces[39] and by data aggregation or combination, especially for non-dominant, underserved, and oppressed people or groups.

- Realise that privacy issues go beyond individual and personal data protection and anonymity and can be an elusive concept at the margins;[40] hence, review technologies from local and communal perspectives and with moral integrity.

- Prioritise and verify user comprehension of informed consent and enable users to make decisions about their protection and self-interest.

- Ensure full compliance with national and international laws on handling data and adhere to guidelines specific to digital health information activities.

- Exercise prudence in relation to data security when sharing data (among ethical peers) and practice non-discrimination.[41]

- Ensure that digital health interventions are reliable – avoid 'false security'.

- Aim for open source digital health applications and open algorithms for public scrutiny and the commons.

- Recognise that digital health is an interdisciplinary field with its own practices, professionals, certifications, and bodies of knowledge.

- Ensure the existence of facilities for those not using technology.

- Ensure that the needs or pressures of Northern partners are not dominant in the development of digital health services, projects, or research in the South.

- Avoid inequitable cooperation, e.g., where Southern partners implement the goals of, or 'hunt' for data for, Northern partners only.[42]

- Foster inclusive systems catering to all, including persons with disabilities.

The Environment

In addition, and related, to ethical concerns, are the following environmental considerations:[43]

Action

- Give environmental concerns prime importance in the development of digital health technologies, services and interventions.

- Support multi-sectoral approaches to address digital health issues and involve all stakeholders to ensure that digital technology is developed wisely and environmentally responsibly.

- Employ a holistic approach to the environmental impact of technologies.

- Incorporate energy efficiencies and account for the power consumption of digital health interventions (including, for instance, mobile base stations,[44] server farms, and air conditioners) and the replacement of batteries.

- Control electronic waste[45], for instance, by prioritising repair over replacement and aiming for circularity in digital health apparatus.

- Avoid constant equipment upgrades and accelerating hardware-software cycles; challenge related unsustainable business models and practices.

- Limit the need for air travel by project members.

- Assess the impacts of digital health on the environment (not only on climate) in relation to government action and international agreements.

Part 2. Method: The Big Five

"[T]he first laws of nature are the same for all peoples […] Not to offend anyone, to grant each man his due." Albert von Haller[46]

To develop this framework, a method aligned with a highly diverse world was used. This method recognises that views on the fundamental nature of knowledge, reality, and existence – in other words, philosophies – vary. It also acknowledges that shared concepts and categories, their properties and the relations between them – ontologies – depend on the physical and social features of the locale. In addition, it realises that language *is* culture: it indicates what is valued, what is of beauty, and frames communication. In doing so, it defines realities. Understanding (and judging) value and meaning depends on the theory of knowledge – epistemology – used. In international cooperation, such diversities and different views of reality come to a head.[47] For cooperation to be effective, such diversities and views need to be reconciled – we need to find common ground.

Switzerland has much experience with diversity and finding common ground. It has a history of de-centred governance through federalism and devolution. This framework draws on this history. It also gleans common values from the African concept of *ubuntu* (communal love)[48] and the Latin American concept of *buen vivir* (good life).[49] In addition, it relies on what are known as 'the Big Five' – being together, conversing, sharing, alignment and respect – which were developed to guide interactions, research and development in the South.[50] The Big Five, which are elaborated below, guide all components for action in Part 3.

Figure 2. Value components

Being Together

*Emphasise the worth of a community, group or team.*
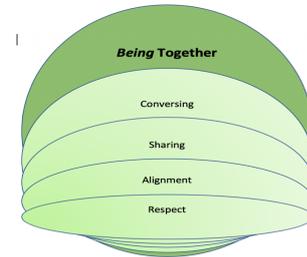
Figure 3. The Big Five

→ Approach situations with goodwill and affirm the other person's humanity.

→ Seek understanding of different concepts of good behaviour.

→ Value those who went before and those who are yet to be born.

→ Strive for affirmation, compassion, solidarity, wholeness, harmony, cohesion, unity and peace.

→ Balance rights and duties in embodied action.

→ Display care and unselfishness, and take a long-term view.

→ Behave with empathy, in 'the right manner', in connection with people.

→ Seek unity with otherness.

→ Ensure restorative justice by recognising both rationalities (e.g., action and effect) and relationalities (e.g., the health of the community and the influence of new technologies).

→ Seek dialogue in friendly (loving) relationships in the understanding that '*I* am more complete when knowing *you'*.

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Conversing

Recognise various forms of information exchange, especially those based in orality, and actively include all persons in the vicinity.

HOW?

→ Approach each other in a friendly way.

→ Aim to come closer to each other through dialogue and inclusion.

→ Seek and engage with a variety of voices and views, and consider them all a contribution.

→ Include multiple worldviews.

→ Assess the whole context of communication.

→ Recognise the rich content and cultural depth of all languages involved.

→ Engage in knowledge processing through discussion and debate.

→ Allow for surprises about the richness of local capacity and agency.

→ Avoid judgements about behaviour and conflicts.

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Sharing

Provide space for others to contribute, participate and enjoy.

HOW?

→ Understand that relationships constitute value.

→ Recognise that transactions serve to establish and maintain relationships.

→ Engage in relational resource allocation.

→ Focus on complementarity and integration.

→ Believe in sufficiency and abundance.

Alignment

Tune into the contextual rhythms of life.

HOW?

→ Seek connectedness through the material and immaterial worlds.

→ Seek belonging.

→ Aim for equilibrium.

→ Honour birth connections with family, community, the land and humanity at large.

→ Celebrate achievements and significant events.

→ Integrate artistic expressions.

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Respect

Synchronise both relational and rational conveyances.

HOW?

→ Seek the reconciliation of realities and local meaning.

→ Regard the *continuous present moment*, where history, present and future are interrelated.

→ Respect (local) authorities.

→ Move forward together, with timely relations.

→ Deal with the past through forgiveness and the future through covenants.

→ Synergise personal and communal aspects.

→ Allow for the influx of new culture elements and alteration of existing ones.

Part 3. Components for Action

Community Engagement

Ubuntu ungamntu ngabanye abantu. Xhosa proverb
(A person is made a person by other persons.)

Inclusion and participation are essential elements of community engagement, which is **the political dimension of de-centring**. Engagement thrives on inclusion, shared values, and shared purpose.[51] Some commonly revered maxims are: 'do not impose on others what you do not wish for yourself' and 'do unto others as you would have them do unto you'.

In digital health, community engagement enables co-development and is a hallmark of sustainability and human rights.[52] Community[53] members are the channels through which development is achieved, harnessing local resources from conceptualisation through to the moment of realisation. In communities, local agendas are pointers,[54] ideas and 'how to do it' spread,[55] and ownership is anchored and shared. Equality seeks consensus and prevents paternalism and elitism.[56] 'Handing over projects' becomes needless when ideas, designs, and implementation are already socially embedded in communities.

Community engagement involves dynamic and integrative approaches, focuses on local agency, seeks reciprocity, and needs a healthy dose of goodwill and stamina. It requires the pragmatic inclusion of different ways of knowing, conceptualisation, and meaning-making. This involves looking beyond what is assumed to be universally known and beyond the written word, and reading all verbal and non-verbal clues.

Engaged and entrusted communities disempower token cooperation (in which plans are forced onto beneficiaries and local researchers are mere providers of raw data).[57] Community engagement replaces a 'mirror' (in which benefits are reflected towards the patron) with a 'window' (through which people see, engage, and collaborate with each other).

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HOW?

→ Respect and submit to (local) authorities, including national governments and traditional leaders.

→ Respond to the needs and actions – what happens when and where – set by communities, which invite cooperation when necessary.

→ Gauge the social utility, necessity and feasibility of digital health interventions.

→ Solicit guidance and allow communities to veto any communication, process or development.

→ Co-create concepts and designs and jointly carry out production, implementation and maintenance in line with the formal and customary laws of the host country.

→ Acknowledge that continuous, participatory evaluation and the disclosure of lessons and knowledge learnt emerge from a shared knowledge base.

→ Recognise that local community members are knowledgeable in local development and ensure that benefits accrue to communities in the host country.[58]

Action

The following actions should be taken to ensure community engagement in digital health:

- Adhere to cultural rituals of engagement, in a timely way[59] and through orality[60] when appropriate.

- Disempower *domination* resulting from prolonged power struggles, *silencing* by extraneous ideologies, *objectification* by 'othering', and *normalisation* by reduction into categories.[61]

- Be willing to continuously discover what is important to each stakeholder and ready to invest time in mutual learning and discussion.

- Refrain from setting the local agenda by speaking first or sitting upfront in community meetings when not born or living in the community.

- Appreciate that most people live in close proximity to each other, function in informal economies, and toil for little money.

- Realise that regular utilities like water, electricity and transport are the exception and their supply is often non-standard and erratic, while the cost of investing in alternatives such as solar is high.

- Recognise that the sole use of Eurocentric theories, methods and designs often result in near-sightedness and failure to appreciate multiple realities.

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Figure 4. Composing the narrative

1 = **Community:** local health institutes, local businesses, local government, community based organisations, local schools, local knowledge, local agency: *Where the actions is*

2 = **Engagement organisations:** national governments, NGOs, technology partners, universities, professional organisations, national infrastructures: *Where the aggregation happens*

3 = **Transnational organisations:** national and international governments, international NGOs, expert groupings, international funding agencies: *Where the support is*

Workforce Enhancement

"People are not developed by others, they develop themselves." Joseph Ki-Zerbo[62]

Knowledge and expertise are often readily available within people and communities.[63] Workforce enhancement, **the practical dimension of de-centring**, recognises and nurtures local capacity for the development of digital health. Such enhancement thrives on respect for humanity and commitment to dialogue, as well as empathy and alignment with local meaning making, norms and values.

Enhancing the local workforce builds on what is going well and expands on existing capacity and agency. It crosses disciplinary boundaries, includes diverse voices and multiple perspectives, and facilitates indigenous ways of approaching digital health. It acknowledges and uses local workforce structures, which integrate knowledge and knowing set in local cultures and languages, often articulated orally, and set in the particular time and place of their dissemination.

Development is complex and located[64] – there is no one-size-fits-all solution. Progress requires sensitivity to historical power distances.[65] Single-focus (e.g., Eurocentric) concepts and imported categorisations are inadequate. Space and time must be allowed for 'capacity to grow'. This requires the reconciliation of ways-of-knowing and the balancing of oral and textual communication and cultures, among other things. It calls for putting the 'who' in front of the 'what'.[66] In digital health, this means respecting sovereignty, both in technology development and data-handling, as well as the way that these are designed to benefit people.

HOW?

→ Inspire and empower youth and local talent to achieve their collective and individual potential.

→ Address self-identified needs to build capacity in communities.

→ Challenge understanding of the unfamiliar in terms of the familiar.

→ Focus training on communities and persons; involve all and leave no-one behind.

→ Frame learning in the present cultural, political, technical, economic, and social context.

→ Decolonise education and training materials, avoid bifurcations and withstand framings in racist identity categories,[67] seek alignment with local methods, theories and concepts of success.

→ Seek balance in local/national/international references and citations.

→ Synthesise reflections and actions through dialogue, respect for humanity, and respectful questioning and international praxis.

→ Build using local resources, supplies, and engineering; source capacity locally.

→ Emancipate all stakeholders and anyone involved.

Action

The following actions should be taken towards workforce enhancement in digital health:

- Aim for consensus, subsidiary, inclusive, equitable and open cooperation, and put theories and methods of engagement up for discussion and review by partners.[68]

- Work together in solidarity and mutuality.

- Focus on video and audio to bring about interpretive understanding in orality.

- Aim for clear, shared and reciprocal benefits, in line with local definitions of success.

- Work within existing structures.

- Formulate communication clearly and unambiguously, sensitive to cross-cultural international cooperation.

- Strive for orthopraxis: 'acting in the right way'.

- Be sensitive to power distances and their side-effects for people in cross-cultural interactions or interventions.

- Use everyday life as a starting point and the lived environment as a classroom; enhance local agency and seek restorative justice.[69]

- Resist shifting power from social structures embedded in communities to digital platforms, especially when such platforms are located in foreign lands.

Thought Leadership

"You cannot measure [our] success with a European ruler." Alik Shahadah

Thought leadership represents **the ethical dimension of de-centring**. It puts on display what is *known* and how it is enshrined in embodied knowledge. Through thought leadership, communities of practice contribute to conversations in international cooperation, influence public policy, and use relevant experience to complement the skills of professionals. Thought leaders express and act locally, and then further afield, when properly authorised. Thought leadership is the key to social innovation. It puts local capacity on display.

The exposure of local talent and disclosure of local practice support regional and global integration. Thought leadership champions indigenous human capital and empowers local institutions. It strengthens existing relationships and opens up ways to establish new ones. It brings to the fore local and shared visions, values, motivations, and experiences. It results in the establishment of local authorities in digital health that are able to elucidate local policy and provide answers to the questions raised. Through thought leadership, communities of practice are recognised as part of interventions and conversations, boosting their involvement in governance, education, research and development.

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HOW?

→ Agree on the explicit values and acceptable behaviour guiding technology and governance choices in multicultural environments.

→ Empower delegated persons and authorised communicators who represent and are accountable to affected constituencies.

→ Reconcile global constraints with narratives from local experience and embodied knowledge.

→ Obtain explicit permission from communities for the dissemination of any information emerging about or from cooperation.

→ Only use one's influence upon explicit, local request and upon receiving the delegated authority to do so.

→ Acknowledge and connect regional thought leaders; strengthen the awareness of local developments among stakeholders.

→ Aim for sustainable achievements.

Action

The following actions should be taken to ensure local thought leadership in digital health:

- Ensure that the authoritative voices of the people directly affected are heard.

- Align with local governance and communication conventions.

- Co-develop respectful communications from within communities and involve and include relevant persons from all strata of society.

- Actively identify opportunities for the engagement of and leadership by local experts.

- Stimulate and facilitate consensus among key players to foster their engagement and the inclusion of all.

- Engage local capacity and local methods to establish digital health interventions.

- Sustain harmonious alliances for social innovation.

- Synthesise new and preserve existing endowments, and facilitate the dissemination of locally-generated content.

- Position thought leaders to engage with all stakeholders (e.g., the government, industry, academia, NGOs, foundations, social entrepreneurs, philanthropists, and professional bodies).

- Prioritise dissemination by local thought leaders in relevant and influential transnational forums.

- Allow established theories, existing standards and categorisations to be challenged and changed.

- Sustain embedded and indigenous knowledge infrastructures to facilitate social innovation.

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Figure 5. Thought leadership

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Systems Conciliation

"We are created to live in a delicate network of interdependence." Desmond Tutu[70]

Digital health interventions are produced through integrated systems. Systems exist everywhere. They are the product – the embodiment – of human thought and choices. Societies are held up by systems that align with the needs, available infrastructure and measures of success in the local domain. Technical and regulatory infrastructures set the scene for digital health interventions. Digital health interventions – as critical health infrastructure – rely on both communications and cybersecurity.

However, when systems are imported from other places, or are dominated by digital oligopolies (like Google, Facebook etc.),[71] there are significant risks of adverse integration.[72] The foundations of systems like 5G, the Internet of Things, clouds, digital platforms and artificial intelligence are firmly rooted in unequal global power dynamics.[73] These systems reflect and reinforce colonial legacies – they promote the interests of international actors. Resources, scientific expertise and decision making power accrue to the powerful.

De-centring alters the centre of gravity. It empowers local specialists to lead in complex system integrations, incorporating local needs and using local resources. Systems conciliation creates stability, inspires synergy and trust, and brings various perspectives together. It opens up opportunities for redemption and the use of local capacity, rather than the imposition of systems by the powerful. Regardless of where they are established, systems materialise from embedded research and development. From such a base, digital health systems can bolster health services and bring us closer to universal health coverage,[74] tapping into good practices in local, national and international cooperation.

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HOW?

→ Acknowledge and identify with reality(s) in other environments, in line with existing infrastructure and societal purpose.

→ Respect national strategies and policies, and authoritative guidance.

→ Strengthen *the commons* and the communal embedding of systems.

→ Support systems that can withstand systemic (e.g., economic and resource) shocks in challenging contexts.

→ Review the influence of digital health interventions on local (social) systems and patterns of behaviour, including social-psychological, legal, medical, and governance aspects.

→ Realise that most people do not have a smart phone, computer (either fixed or portable), or high-speed Internet connection.

→ Support measures against structural inequalities, discrimination, and under-representation.[75]

→ Integrate lateral partnerships driven by the needs of communities.

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Action

The following actions should be taken to promote systems reconciliation in digital health:

- Acknowledge that technical integration is a social action that is in need of empathy and the incorporation of all views from the beginning.

- Recognise that system experiences and standards in affluent settings are not necessarily useful to guide systems elsewhere.

- Appreciate that solutions proposed by exogenous industries present technical and political challenges for local communities and national governments.

- Take community statements about what works in highly complex contexts with low levels of predictability seriously.

- Use locally available machinery and practices that can be certified by peers in the region.

- Prioritise open standards and open systems.

- Mainstream local expertise, technical and research capacity, and data processing within the host nation.

- Do not import or develop isolated digital solutions that are misaligned with existing infrastructure, or create hardware or software lock-ins or dependencies.

- Reclaim systems from colonial legacies and domination that channel benefits unequally to the privileged.

- Stand against discrimination, structural racism, and systematic injustices that treat non-Western standards as inferior.

- Respect data sovereignty in a country regardless of where such data is located.

- Gain generalised and systemic trust by ensuring data protection and security in the system's design.

- Leave data at the source, store it within the host nation and, when it happens, provide fair compensation for any extracted data and derived knowledge.

- Subject data scoring-algorithms to scrutiny and public oversight.

- Involve communities and co-design systems for functionality, cultural appropriateness, and feasibility in the given context.

Endnotes

[1] Transnationality in human computer integration concerns the ways that "social and cultural interconnectedness and mobility across space, time and geography" impact on technology use and design, see Shklovski, I., Lindtner, S., Vertesi, J., & Dourish, P. (2010). *Transnational times: Locality, globality and mobility in technology design and use*. UbiComp'10 – Proceedings of the 2010 ACM Conference on Ubiquitous Computing, 515–517. Furthermore, transnationalism links in with governability, with the increased influence of global governance and "active social and political connectedness of apparently different scales", see Gupta, A., & Ferguson, J. (2002). 'Spatialising states: Towards an ethnography of neoliberal governmentality'. *American Ethnologist*, 29(4), 981–1002.

[2] In this framework, the imaginary designation of a South and North is sparsely used to indicate distinct variety in experiences. Of course, the term 'South' covers a set of highly-diverse realities. In his study of geographic labels, Thaddeus Metz argues that geographical labels refer "to features that are salient in a locale, at least over a substantial amount of time. [Geographical labels] pick out properties that have for a long while been recurrent in a place in a way they have tended not to be elsewhere. They denote fairly long-standing characteristics in a region that differentiate it from many other regions", see page 1176: Metz, T. (2015). 'How the West was one: The Western as individualist, the African as communitarian'. *Educational Philosophy and Theory*, 47(11), 1175–1184. Mahmood Mamdani shows how any designation has been used for subjecting power, in Mamdani, M. (2012). *Define and rule: Native as political identity*. Cambridge: Harvard University Press.

[3] This structure aligns with priority 5A on 'global digital cooperation', as suggested in the report of the UN Secretary-General's High-Level Panel on Digital Cooperation, *The Age of Digital Interdependence*, which states: "We suggest […] a "Global Commitment for Digital Cooperation" to enshrine shared values, principles, understandings and objectives for an improved global digital cooperation architecture" (see United Nations (2020). *The age of digital interdependence*. Report of the UN Secretary-General's High-Level Panel on Digital Cooperation. New York: United Nations, page 5).

[4] The lack of infrastructure, the so-called digital divide, or affordable access, so-called digital exclusion, are among the most pressing issue on the agenda for digitalisation, see Broadband Commission. (2019). *State of Broadband Report 2019*. Broadband Commission for Digital Development. Geneva: ITU/UNESCO, and van Stam, G. (2020). *Voices from the South*. Available from: https://www.medicusmundi.ch/de/bulletin/mms-bulletin/palliative-care/magazin/voices-from-the-south (accessed 8 July 2020).

[5] For more on the power dynamics and narratives at play, see the *Kampala Declaration on cooperation and solidarity for health equity within and beyond aid* (2020). Available from: https://www.medicusmundi.org/kampaladeclaration/ (accessed 12 September 2020).

[6] Adverse inclusion is the notion of adverse incorporation upon 'solving exclusion'. It operates when "when powerful, connected people command resources from which they draw significantly increased returns by coordinating the effort of outsiders whom they exclude from the full value added by that effort", page 10, Tilly, C. (1999). *Durable inequality*. Berkeley: University of California Press.

[7] Watts, G. (2020). 'The Tanzanian digital health agenda'. *The Lancet Digital Health*, 2(2), e62–e63.

[8] From her experience in Australia and Southern Africa, Nicola Bidwell (2016) shows how culture, location and intervention are part of technical performance when designing and implementing digital interventions (see Bidwell, N. (2016). 'Moving the centre to design social media in rural Africa'. *AI & SOCIETY, Journal of Knowledge, Culture and Communication*, 31[1], 51–77).

[9] For more on this see Metz, T. (2014). 'Ubuntu: The good life'. In A. C. Michalos (ed), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 6761–6765). Dordrecht: Springer Science and Business Media.

[10] United Nations (2019). *The Age of Digital Interdependence.* Report of the UN Secretary-General's High-level Panel on Digital Cooperation. New York: United Nations, p. 8.

[11] De-centring in this document is countering the narrative of 'centre' and 'periphery', as coined by Johan Galtung, J. (1971). 'A Structural Theory of Imperialism'. *Journal of Peace Research*, 8(2), 81–117. In a sense, de-centring expands on the term 'polycentric' that is positioned as one of the key principles of digital cooperation, see *Ibid*., United Nations (2020), page 39.

[12] van Stam, G. (2017). 'The coming-of-age of super-colonialism'. In M. Mawere & T. R. Mubaya (eds.), *African studies in the academy. The cornucopia of theory, praxis and transformation in Africa?* (pp. 13–40). Bamenda: Langaa RPCIG.

[13] Among many others, Philip Alston, the United Nations' special rapporteur on extreme poverty and human rights, provides ominous warnings for the threat of a digital dystopia (see Alston, P. (2019). *Report of the special rapporteur on extreme poverty and human rights*. United Nations General Assembly, 74th session. United Nations). The Lancet Digital Health does likewise in "An app a day is only a framework away." *Lancet Digital Health*, 2019;1(2): e45.

[14] Couldry, N., & Mejias, U. (2018). 'Data colonialism: Rethinking big data's relation to the contemporary subject'. *Television and New Media*, 20(4), 336–349.

[15] Smart, C., Donner, J., & Graham, M. (2016). *"Connecting the world from the sky": Spatial discourses around Internet access in the developing world*. Proceedings of the Eighth International Conference on Information and Communication Technologies and Development.

[16] Eubanks V. (2018). *Automating Inequality. How High-Tech Tools Profile, Police, and Punish the Poor*. New York: St. Martin's Press.

[17] African Development Bank researchers Guy Nkamleu and Bernadette Kamgnia in *Uses and Abuses of Per-Diems in Africa: A Political Economy of Travel Allowances* (2014), show that, often, per-diem practices influence project designs, management decision, distort development impacts, decrease intrinsic motivation, and crowds out suitable participants. Compare Vian T, Miller C, Themba Z, Bukuluki P. (2013). 'Perceptions of per diems in the health sector: Evidence and implications'. *Health Policy Plan*, 28, 237–246.

[18] This shift involves shifting from perspectives based on me and us, to being together; shifting from the dichotomy on North and South, to living together; shifting from narratives on success and deficiencies, to working together; shifting from action towards solutions and systems, to the commons; and shifting from benefactors as individuals and conglomerates, to communities.

[19] Soliciting all contributions prioritising those 'close to the intervention' is crucial for acceptance, legitimacy, and sustainability of projects and links in with ownership and inclusiveness, see Ong'ayo, A. O. (2019). *Diaspora organisations, transnational practices and development: Ghanaians in the Netherlands*. Tilburg: Tilburg University.

[20] Solutionism is the belief that every problem has a solution based in technology, see Morozov, E. (2014). *To save everything, click here: Technology, solutionism, and the urge to fix problems that don't exist*. London: Penguin, and by the former director of Microsoft Research in India: Toyama, K. (2015). *Geek heresy: Rescuing social change from the cult of technology*. New York: Public Affairs.

[21] For example, Eurocentric normative meaning making (epistemology) regards *knowledge* as 1) certain, 2) objective, 3) universal, 4) an accurate representation of 'real' world and dichotomises thinking and doing. Dynamic, integrative epistemology, which can be recognised in collectivistic orientations focusses on *knowing* that is 1) an accumulation of insights, 2) an activity of knower by experiencing, understanding, judging and acting, and 3) involves whole organisms, not isolated minds. Here, a quadrichotomy of emotions, intellect, evaluation and pragmatism is at play. See Bigirimana, S. S. J. (2017). 'Beyond the thinking and doing dichotomy: Integrating individual and institutional rationality'. *Kybernetes*, 46(9), 1597–1610.

[22] See: Quijano, P. R. (2019). Data epistemologies, the coloniality of power, and resistance. *Television & New Media;* Aldrich, R. J., & Karatzogianni, A. (2020). Postdigital war beneath the sea? The Stack's underwater cable insecurity. *Digital War*; Web Foundation. (2019). *Contract for the Web*. Web Foundation.

[23] See Du Plessis, H., Sehume, J., & Martin, L. (2013). *The concept and application of transdisciplinarity in intellectual discourse and research*. Johannesburg: Mapungubwe Institute for Strategic Reflection.

[24] Digital geographies address the geographies of information and how they imbricate power relationships, see Graham, M., De Sabbata, S., Straumann, R., & Ojanperä, S. (2018). Uneven digital geographies ... and why they matter. In *Counter Cartographies as Critique*. Bielefeld: Transcript Verlag, pp. 282–287.

[25] Wholesome data extraction by commercial, opaque transnational companies and non-accountable institutions threatening sovereignties in the South. Digitisation allows for network effects, where the value of a network grows quadratically with the number of participants (Metcalfe's law). Subsequently, some digital platforms acquire state-like characteristics. They govern their digital domain through state-like means of punishment and reward, adjudication of disputes, and moderation of content. Subsequently, these digital platforms engage in state-like negotiations (e.g., Facebook's proposed introduction of Libra currency). These positions are based upon the privatisation of semi-automatically captured data. This capturing is negotiated, executed and monitored for contractual and legal compliance that is based upon norms and values mostly foreign to many Southern communities, see Mawere, M., & van Stam, G. (2020). Data sovereignty, a perspective from Zimbabwe. In *WebSci'20 Companion: 12th ACM Conference on Web Science Proceedings,* pp. 13–19.

[26] Jha, V. S., & Germann, S. (2019). How can we make health data a global public good? *Medicus Mundi Bulletin,* (148).

[27] The Lancet Digital Health. (2019). Africa: Opportunities for growth. *The Lancet Digital Health*, 1(5), e193.

[28] Multiple ways of understanding (epistemology) and communicating realties include dynamic-integrative understanding (see Bigirimana, S. S. J. (2011). *Patterns of Human Knowing in the Information Society. A Philosophical Study of the Epistemological Implications of the Information Revolution*. Ruprecht-Karls University.), embodied knowledge (see Mawere, M., & van Stam, G. (2017). Oratio: A framing of knowledge in the context of technology and academia. In M. Mawere & T. R. Mubaya (eds), *African studies in the academy. The cornucopia of theory, praxis and transformation in Africa?* Bamenda: Langaa RPCIG, pp. 251–264), and subjective knowledge (see du Toit, C. W. (2007). The restoration of subjectivity in science, rationality and knowledge systems as a precondition for scientific integrity. *Journal for Interdisciplinary Research on Religion and Science*, 1(1), 163–185.).

[29] Marsden, G., Maunder, A., & Parker, M. (2008). *People are people, but technology is not technology*. Philosophical Transactions of the Royal Society.

[30] Existing technologies, and their possibilities, are the products of their designers' values, as well as choices in political, economic, and international relations, see Irani, L., Vertesi, J., & Dourish, P. (2010). *Postcolonial computing: a lens on design and development*. CHI'10 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 1311–1320.

[31] The global digital economy is heavily concentrated in two countries. US Internet giants and China have a market share of around 90% in the global market capitalisation of digital platforms, Europe and Africa combined with Latin America's share of the platform economy is 3% and 2% respectively, see UNCTAD. (2019). *Digital economy report 2019: Value creation and capture – implications for developing countries*. New York: United Nations.

[32] van Stam, G. (2020). *Voices from the South*. Available from: https://www.medicusmundi.ch/de/bulletin/mms-bulletin/palliative-care/magazin/voices-from-the-south (accessed 8 July 2020).

[33] Although the framework does not aim to reify artificial dichotomies leading to 'us' and 'them', and acknowledges diversity, there are difference in perception of power differences and a need to acknowledge the suffering inflicted by historical and contemporary practice of judging and treating 'others' less or better than 'ourselves'. Also, there are distinct variations in philosophies, ontologies and their categorisations, and epistemologies and a universal truth, 'a right way' of acting in digital eHealth, or 'one-size-fits-all' does not exist.

[34] Ahearn, L. M. (2001). 'Language and Agency'. *Annual Review of Anthropology*, 30(1), 109–137; Chumbow, B. S. (2005). The language question and national development in Africa. In T. Mkandawire (ed.), *African Intellectuals: Rethinking Politics, Language, Gender and Development*. Zed Books.

[35] Mawere, M., van Reisen, M., & van Stam, G. (2019). Language dominance in the framing of problems and solutions: The language of mobility. In M. van Reisen, M. Mawere, M. Stokmans, & K. A. Gebre-Egziabher (eds), *Mobile Africa: Human Trafficking and the Digital Divide*. Bamenda: Langaa RPCIG, pp. 527–558.

[36] Ways to do so are to follow local leadership and prioritise requests initiated and authorised from within the context of deployment.

[37] Alston, P. (2019). *Report of the special rapporteur on extreme poverty and human rights*. United Nations General Assembly, 74th session. United Nations.

[38] Eubanks, V. (2018). *Automating inequality. How high-tech tools profile, police, and punish the poor*. New York: St. Martin's Press.

[39] Sandvik, K. B., & Raymond, N. A. (2017). 'Beyond the protective effect: Towards a theory of harm for information communication technologies in mass atrocity response'. *Genocide Studies and Prevention: An International Journal*, 11(1), 9–24.

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[41] Vannini, S., Gomez, R., & Clayton, B. (2019). '"Mind the five": Guidelines for data privacy and security in humanitarian work with undocumented migrants and other vulnerable populations'. *Journal of the Association for Information Science and Technology*, 1–12.

[42] Lopsided relationships have been reported by many, among which Holm, J. D., & Malete, L. (2010). *The asymmetries of university partnerships between Africa and the developed world: Our experience in Botswana*. In Going Global 4 – The British Council's International Education Conference, 24–26 March 2010, London, UK.

[43] Unwin T. (2020). *Digital technologies and climate change (part I, II, and III)*. Tim Unwin's Blog. https://unwin.wordpress.com/author/unwin/ (accessed 17 February 2020).

[44] Smil, V. (2016). 'Your phone costs energy – even before you turn it on'. *IEEE Spectrum*, (5).

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[48] Mawere, M., & van Stam, G. (2016). 'Ubuntu/unhu as communal love: critical reflections on the sociology of ubuntu and communal life in sub-Saharan Africa'. In M. Mawere & N. Marongwe (eds), *Violence, Politics and Conflict Management in Africa: Envisioning Transformation, Peace and Unity in the Twenty-First Century*. Bamenda: Langaa RPCIG, pp. 287–304.

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[51] Irani, L., Vertesi, J., & Dourish, P. (2010). *Postcolonial computing: a lens on design and development*. CHI'10 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 1311–1320.

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[53] In the framework, community is defined as a gathering of persons who subscribe to shared set of values. Persons, in this definition, are human being that exists as part of a social network (of relationships), see van Stam, G., *What is a community? The mismatch between dominant categorisations and observed realities* (forthcoming), in conjunction with Metz, T. (2015). 'How the West was one: The Western as individualist, the African as communitarian'. *Educational Philosophy and Theory*, 47(11), 1175–1184.

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[72] Heeks, R. (2020). *From the digital divide to digital justice in the global South*. In WebSci'20 Companion: 12th ACM Conference on Web Science Proceedings, pp. 10–11.

[73] Dourish, P., & Mainwaring, S. D. (2012). *Ubicomp's colonial impulse*. In UbiComp'12, 5–8 Sep 2012, Pittsburgh, USA.

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