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Chapter

A “Futures Literacy” Framework for Understanding the Future of Mobile Health Development in Africa

Ismaila Ouedraogo, Roland Benedikter, Borlli Michel Jonas Some and Gayo Diallo

Abstract

Sub-Saharan Africa is known to feature some of the weakest healthcare systems in the world. The expanding field of mobile technology in healthcare over the past years, commonly known as mHealth, has been considered to have potential leverage for supporting and improving healthcare systems, especially in the disadvantaged areas, if people are literate enough to autonomously use them. However, implementing new technologies in African healthcare systems has not always considered local realities. Many African countries are facing challenges to capitalize on these opportunities. For instance, the lack of planning, foresight, and anticipation may affect the resources available for the implementation of mHealth. This chapter argues that exploring future scenarios can be a key point to successfully designing and implementing Health Literacy Mobile technologies for a sustainable healthcare system in Africa. The UNESCO Futures Literacy (FL) approach can contribute as a valuable foresight tool to anticipate “the future” of mobile health in Africa. Being “future literate” empowers the imagination and enhances the ability of African peoples and countries to prepare and co-invent inclusive health technologies that contribute to achieving both the agenda 2063 of the Africa Union and the UNESCOs 2022-2029 strategy. Overall, FL could become a catalyst to make new technologies tools of “liberation technology” and “justice technology” for Africa.

Keywords: Africa, anticipation, digital health technology, decentralization, Futures Literacy, mHealth

1. Introduction

The weakness of healthcare systems is one of the urgent challenges for Africa in the twenty-first century. The challenge in its developing countries is access to healthcare, which can be problematic due to many factors such as lack of transport, long

travel distances, etc. Less than half of Africans today have access to well-being facilities in general, and numerous African nations spend less than 10% of their GDP on medical services [1]. Fortunately, mHealth Technology can be a huge asset to alleviate these handicaps. Over the past two decades, a variety of mobile-phone-based initiatives have emerged to address these challenges. In the Sub-Saharan Africa region, much attention has been given to the use of mobile health to improve (1) education and awareness, (2) remote assistance, (3) diagnosis and supportive treatment, (4) communication and training for healthcare professionals, (5) disease and epidemic monitoring, and (6) remote monitoring and data collection [2].

Despite the advantages that mobile technology offers in the healthcare sector, many obstacles and challenges still limit the transformation of these potentialities into realities. Policymakers who take key decisions on mHealth implementation are often not informed about the positive and negative impacts of mHealth at different levels, such as the individual (e.g., patient care) and the organizational (e.g., productivity of hospitals) [3]. Also, they are rarely made aware of potential obstacles to implementation procedures and realistic timelines. Given the financial implications and systemic ramifications of mHealth, it is essential that policymakers and healthcare organizations rigorously examine potential problems about future use [4]. To study these questions, future studies, which provide different scenarios, are often used to help decision-makers choose and design the most desirable future. In the same way, technology foresight is used to support the prioritization of science and technology for promising investments regarding the future; the coherence and efficiency of innovation systems; and to create a common vision for the future of technologies, opportunities, and strategies in a more integrative view [3]. Given that complexity, diversity, and uncertainty challenge the mobile health sector in Africa, the more it is expanding, creative ways to engage with the future and to bring about change are required for the sustainable and future-ready implementation of mHealth projects.

In recent years, UNESCO has developed an encompassing contemporary approach to work with futures, as well as with future expectations and particularly with future-relevant imaginaries in specific contexts on the ground – an approach that is called “Futures Literacy” (FL). FL is a foresight and anticipation approach dedicated to enabling the capacity of individuals and organizations to become more “future literate.” The FL approach has been instrumental in co-creating the new UNESCO 2022–2029 Strategy [5], which presents a long-term double focus on Africa and gender equality. It also coincides with – and is part of – the UNESCO Strategy for Youth and Adult Literacy 2020–2025 [6]. Although its practical value, to our knowledge, few studies have explored the use of this new approach in the healthcare sector and the context of Africa in particular [7].

In this paper, we present a visionary process in which participatory approaches and tools from the fields of futures studies are integrated into a new way of practical building and transforming the present by working with different futures according to the FL approach. The ultimate aim is to build sustainable healthcare systems to achieve the UN goals of sustainable development by 2030 and to realize the African Union’s Agenda 2063.

2. Objectives

This study is part of a wider research project, which intends to develop a mobile health implementation framework to improve health literacy in rural areas of Africa.

Despite the tremendous opportunities that offer mobile technologies, Sub-Saharan African countries in particular face many challenges to implement mobile phone technology solutions in rural areas [8]. This study aims at describing the futures literacy approach and to show how it can be used as a foresight framework for mhealth in Africa.

The sub-objectives of the study are:

1. To give a general description of the futures literacy approach
2. To describe the environment of mHealth technology and explore the ways the futures literacy approaches can be applied.
3. To highlight some recommendations for using futures literacy in the context of Africa.

3. Description of futures literacy approach

3.1 Theory of FL

The term literacy has long evolved. Beyond the simple meaning of literacy or lettering that some attribute to it [9], we must now recognize that the disruptive advent of new information technologies has profoundly modified the meaning that the word conveys. This is hardly surprising considering that writing technology has always sought to increase communication. It's not easy to pinpoint a subject that is undergoing constant change. After some attempted definitions in 2000 by Organization for Economic Co-operation and Development (OECD) [10] and the Canadian Council on Learning in 2009 [11], which were essentially limited to the social aspects, in 2013, the OECD eventually included “numeracy” in the definition of literacy as the attitude and ability of individuals to use sociocultural tools including information and communication technologies to access, manage, integrate, and evaluate information, to build new knowledge, and to communicate with others to participate effectively in society [12].

In that perspective where the concept of literacy evolves with the advance in science and technology, what should we think of the languages that allow machines to communicate with each other or with other people, or even to intervene in the future? Given that literacy increasingly involves skill-based techniques linked to complex devices. It already seems that the definition is not quite complete. Knowledge also deserves reconsideration [13]. In light of the progress of computational intelligence in particular the ability already to decode and produce both oral language, as well as neuromorphic engineering, there is also a place to review the notion of knowledge [13]. By processing data, machines also synthesize knowledge, all relatively artificial in so far as it is distinct from human knowledge.

From the massification of data and their algorithmic or computational processing, we can see a clear trend from the standardization of information and processes to their personalization. And yet we are only at the stage of weak artificial intelligence, which nevertheless manages to read certain texts more efficiently than humans [14]. This artificial intelligence, which is based on a Gaussian analysis of big data, will inevitably evolve, because the need is too great, toward an intelligence that knows how to process small data or personal data, in particular thanks to microprocessors

with artificial synapses, which are starting to appear. Thus, by pairing it with human intelligence, we quickly tend toward hybrid forms of intelligence [15]. If the notion of communicational functionality has long been associated with the sole ability to process semiotic conventions, it appears that it is evolving toward the material technicality of devices. It is no longer enough to know how to read and write; you still need to know how to interact with devices to access information. Beyond the many ethical questions raised by the interference of technologies in what constitutes the essence of the human being, it is important to consider how the phenomenon risks further transforming the forms of communication [13].

Confronted with all these constantly changing information technologies, R. Miller argues the importance of futures literacy, that is, the ability to anticipate change [16]. This anticipation comes in several modes, for example, the ability to see change coming to prepare for it, and more constructively, the ability to shape or guide this change. It is from this latter perspective that futures literacy intends to explore.

3.2 Bridging the digital gender divide through futures literacy approach in Africa

Many empirical studies clearly show that women in the developing world have significantly lower technology participation rates than men; a result of entrenched sociocultural attitudes about the role of women in society [17]. According to Curtis Kularski [18], “the digital divide is composed of a skill gap and a gap of physical access to Information Technology (IT) and the two gaps often contribute to each other in circular causation. Without access to technology, it is difficult to develop technical skills and it is redundant to have access to technology without first having the skill to utilise it.”

The large majority of women (an estimated four out of five [19]) live in developing countries, and they often suffer even more gender-related discrimination than their counterparts in developed countries; they are more likely to be unemployed and have fewer employment and educational opportunities [20]. These women are trapped in traditional family roles and lack the basic digital literacy skills that could allow them to achieve more of their potential [21]. As such, although it is evident that a gender digital divide exists in developing countries, it is difficult to know exactly how many women are accessing the Internet due to the failure of existing research to distinguish between the opportunity of access and actual use of the Internet; sociocultural factors are not taken into account. According to Moolman, Primo, and Shackleton [22], the gender digital divide is one of the most significant inequalities amplified by the digital revolution. Of the few studies that have sought to address Internet use specifically, most have found that women in developing countries are significantly less likely to use the Internet than men. Women are estimated to constitute 25% or less of Internet users in Africa [17]. In Africa (where the gender digital divide is thought to be the widest), in 11 of the 13 countries, more men than women use the Internet [17]. Controlling for these three variables (literacy, actively working or studying and belonging to the top income group), the gender digital divide disappears in most African countries.

As such, without careful planning, ICTs will likely exacerbate differences between men and women as diffusion and use of ICTs and their benefits tend to follow existing contours of income and economic divides, with the poor being further marginalized or excluded [23]. In that perspective, Futures Literacy as a scenarios building tool could serve as an approach to stimulate discussions around the choices that decision-makers in Africa have to make in responding to forces and uncertainties that bridge the digital gender divide and create a more inclusive digital future.

3.3 UNESCO futures literacy initiatives

As a pioneer since 2012, UNESCO defines futures literacy as a capability or a skill that allows everyone to better understand the future’s role in their perceptions of the present. The term Futures Literacy can be likened to the idea of reading and writing because it is a skill that everyone can and should learn [24].

3.3.1 *Futures literacy laboratory*

UNESCO proposes that individuals can turn out to be more gifted at “utilizing the future,” and more “prospects educated,” on account of two realities. One is that the future does not yet exist, it must be envisioned. Two is that people can envision. Subsequently, people can figure out how to envision the future for various reasons and in an unexpected way. Since 2012, UNESCO has mobilized the latest advances in human thought and created the creation of more than 80 futures literacy laboratories. Participants are from very diverse backgrounds such (as governments, international organizations, and large professional associations). UNESCO has also created a network of University Chairs in Futures Literacy, which is growing rapidly around the world. The impact of these laboratories is direct, immediate, and tangible: the participants improve their ability to “use the future,” It enables participants to make informed decisions for the present and acquire knowledge on a specific subject through practical experimentation. Participants can imagine the future for different reasons, using different methods and in different contexts.

3.3.2 *Practical phase of futures literacy*

3.3.2.1 *In the first phase of FLL: Awareness*

The first level is about developing temporal and situational awareness meaning a greater appreciation that change happens over time and that particular constituency, products, or organizations can be situated in time according to their values and expectations [25]. Participants are divided into small teams (assigned before arrival) in a way that facilitates their state of mind for the exploration of the past, present, and future [26]. In this first step of the phase, discussions are focused on what the participant thinks the next coming years will look like. Then move to what the participants want the next years to look like. They share descriptive portraits of how they probably and preferably imagine futures, without thinking about how we might get there. The objective of this phase 1 is to give participants a chance to say how they think it is and what will be.

3.3.2.2 *The second phase of FLL*

In the second phase, participants play a game that promotes a way of imagining creatively the future. As they invent and tell these stories about the future, participants become more adept at identifying and modifying the assumptions they use to imagine the future that shapes what they see and do in the world. The test for the facilitator is to produce a sort of “sandbox” so members can “play” with the “Learning Intensive model Society” (LIS) model to portray future edges [7]. The objective of stage 2 is to furnish the members with a comprehension of how to “let go” of the prescient and regularizing dreams of things to come off stage I dependent on extrapolation. It is likewise to help members think about past extrapolation and become more

| Futures literacy | Tasks | Technique(s) |
|----------------------|--|--|
| Level 1 Awareness | Temporal awareness, shifting both values and expectations from tacit to explicit all of which builds the capacity of people, teams and leaders to respond and innovate. | A wide range of catalysts and Processes generate the discussion and sharing of stories that elicit people's views on what they want and expect in the future |
| Level 2 Discovery | Rigorous Imagining (R1) involves two distinct challenges imagination and rigor, the former in order to push the boundaries and the latter so that what is imagined is "scientific" and intelligible. | Escaping from the probable and preferable to imagine the possible demands systematic creativity and creating systematically, on-discursive reflection and social science are essential ingredients. |
| Level 3 Choice | Strategic scenarios are aimed at questioning the assumptions used to make decisions in the present, not as targets to plan-by but to provide new insights into the potential of the current world as a way to embrace complexity, heterogeneity and the pertinence of spontaneous actions that put values into practice. | Strategic scenarios are constructed using the capacities and stories acquired in developing Levels 1 and FL, by combining values, expectations and possibilities into scenarios that follow the narrative rules (see Level 1 FL below) and the methods of "history of the future." |

Table 1.
Futures literacy tasks and techniques [27].

mindful of arising elective frameworks and have the option to portray a depiction of what the future may be.

3.3.2.3 In the third and final phase of FLL

In the last part of the session, the team focus on the actions they wish to take to address the challenges. Driven by a more subtle understanding of how the imaginary future participates in today's decision-making, participants are better able to appreciate the opportunities and threats of a changing world in new and unexpected ways. Therefore, participants are in a better position to identify actions and make decisions that they believe can help realize humanity's aspirations for resilience, well-being, and peace. The objective of phase 3 is to connect the discussion and description of Session 2 of the next coming years to our current situation (**Table 1**).

In recent years, several Future literacy labs have emerged in Africa. An FL lab was organized on December 8, 2020, in Gabon. Participants were called to explore the future of cities, youth, and perspectives for "peaceful and sustainable cities by 2050" [28]. A series of Futures Literacy Labs were also organized in South Africa first From September 08, 2020, to September 09, 2020, on the Challenges of African Urban Visions "Using Futures Literacy to Reimagine Our Cities" [29]. And then from March 31, 2021 to April 01, 2021, the University of the Witwatersrand (South Africa) organized another lab on "The Capacity to Decolonize: Developing the Literacy of Futures in Africa" [30].

4. How futures literacy approach can be applied to mobile health projects?

4.1 Overview of e-health and mHealth in Africa

The term e-health has a very broad meaning since it refers to all digital aspects affecting near or far health (see **Figure 1**). This includes in particular different types of digital content related to health, also called digital health or telehealth. More

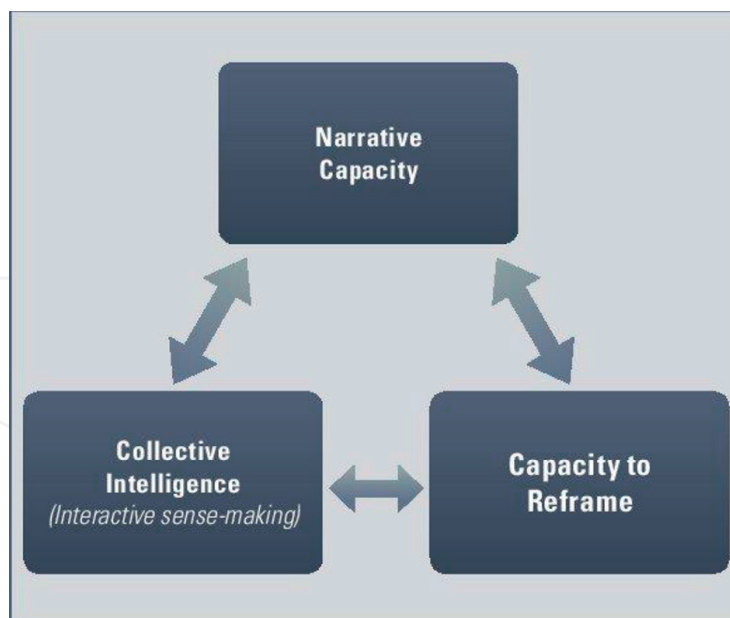


Figure 1.
Futures literacy as a learning process [27].

generally, e-health today encompasses innovations in the use of information and communication technologies in all activities related to health. E-health helps provide answers that will preserve the fundamentals of the healthcare system, while increasing its added value for professionals and patients.

Mobile Health known as “mHealth” refers to “medical and public health practices relying on mobile devices such as cell phones, tablets, patient monitoring systems, personal digital assistants and other wireless devices”. African has shown great interest. Following the worldwide development of cellular telephony, mHealth technologies are seen to be a great opportunity, to improve the access to healthcare services in rural areas of Africa. The digital revolution in healthcare seems to be driven by the large diffusion and access to mobile phones. As indicated by the GSMA assessments Sub-Saharan Africa will stay the quickest developing area, with a CAGR of 4.6% and an extra 167 million supporters over the time frame to 2025 [31]. This will take the absolute supporter base to a little more than 600 million, addressing around a large portion of the populace [31].

Given the potentialities of mobile phones in training healthcare workers, prevention and health information, remote consultations, and patient monitoring are immense and are proving their worth in Africa. It is now a question of moving beyond the “pilots” to scale up projects seen to be effective and replicable. But for this dynamic to be sustainable and equitable, the use of Information and Communications Technology (ICT) for healthcare must be designed for and with caregivers and citizens, in other to respond to the priorities of national health policies and also be developed and financed with a long-term perspective with a sustainable economic model. (ICTs) project for healthcare and mHealth project, in particular, must be driven with a future perspective and strategic planning that involve a strong partnership with African governments and all stakeholders (**Figure 2**).

4.2 Applying a futures literacy approach to mobile health projects

As the National Digital Council of France underlined in 2015, as soon as the question of “health and digital” is raised, the subject becomes difficult to grasp as the expectations

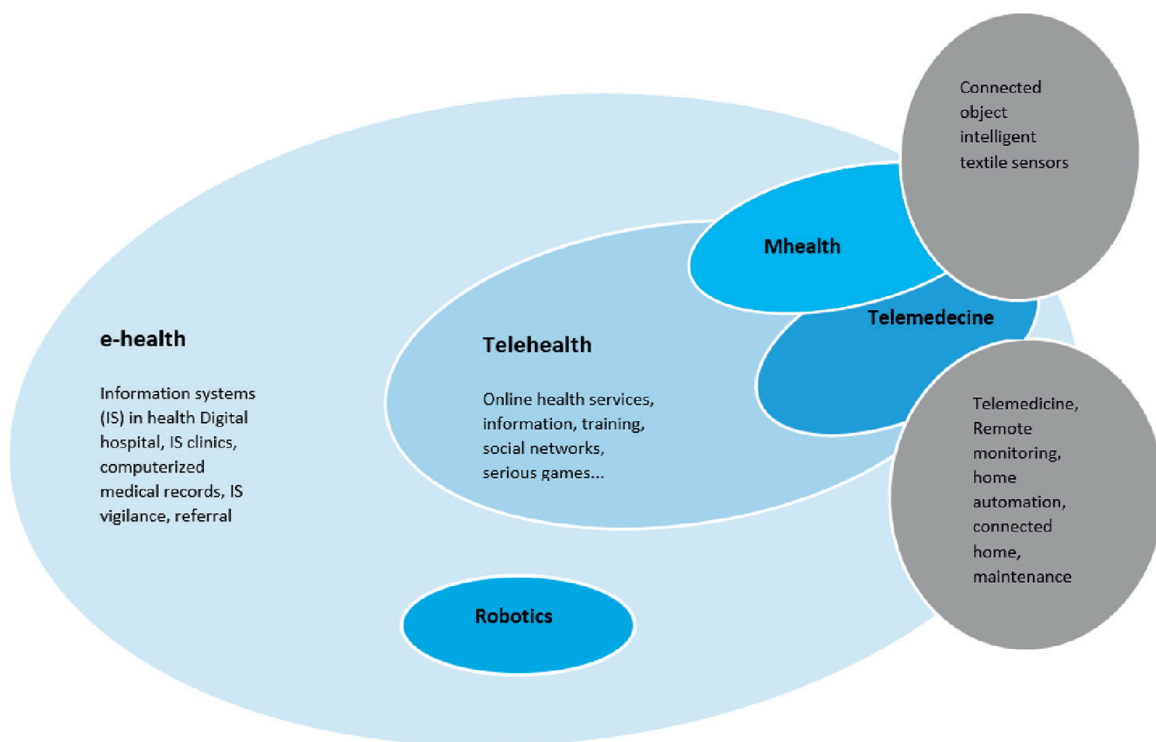


Figure 2.
E-health environnements [32].

and questions raised are numerous, complex, and often new. The profusion of innovations in the field of health that flood our daily news (whether technological, medical, social or of uses) and the variety of technological devices known as “e-health” even as we are in the context of care, make it difficult to know and take ownership of priority issues. E-health is presented by decision-makers or developers as one of the solutions to overcome the difficulties of our healthcare system. Promoting the quality and relevance of care and developing better coordination between actors are part of the ambitions of the reform of the health system and digital technology could participate. In addition, the specific issues related to artificial intelligence, which is increasingly used in several digital technologies in the health field, have been excluded from this note, as they raise new questions for healthcare professionals, but also for society as a whole.

In the context of “market” development, health authorities seek to maintain a balance between facilitating innovation and regulating it ethically. The so-called “e-health” field is very heterogeneous and refers to a multitude of technical devices, whose objectives and functions vary. Evidence of the effectiveness and service provided by these devices depend on many factors, including the pathologies concerned, but above all on the existence of evaluated experience feedback. The implications of the use of these devices for all players in healthcare and society as a whole are still far from clear. In such a complex environment, it is necessary to have strategic pacification tools to anticipate certain challenges and to achieve more successful projects. The futures literacy approach brings participants from diverse backgrounds to a workshop designed to make them think about the future in different scenarios. Using such an approach for projects, healthcare technology helps all stakeholders to get engaged with future perspective. Especially in a context where healthcare authorities are struggling to establish appropriate regulations for the use of mobile technologies and Artificial intelligence in healthcare, the Futures literacy approach can be an appropriate foresight tool to explore scenarios of the future for the integration of national healthcare systems.

4.3 Advantages of the futures literacy approach

The world is facing unprecedented uncertainty as the evolution of the COVID-19 pandemic weighs heavily on the economic outlook, leaders and decision-makers are forced to plan uncertainties and use Forward-Looking Technological analyses (FTAs) approaches. A future literacy approach was already undertaken to explore scenarios for future healthcare in Europe [5]. FL can help decision-makers react to likely directions in technology, manage risk, and shape technology trajectories to improve long-term benefits for healthcare systems in Africa. Analyses of emerging mHealth technologies in Africa and their implications are vital for healthcare systems and especially for rural communities. Today's global trends, uncertainties, and surprises have the potential to radically change the way the world operates tomorrow. This forced governments, businesses, organizations, and citizens to better understand the change and the future because we all live and work in a future world that promises to be different significantly today. Among the advantages of using the FL approach for mHealth projects, the following deserve special consideration [33]:

- It facilitates the ability to think and innovate new mHealth projects. FL makes it easier to take advantage of innovations
- It promotes detection and a sense of novelty, shock and surprise
- It disseminates a sense of initiative and experimentation within the community
- It simplifies (elaboration of various and varied possibilities)
- It helps to see truly differentiated strategic alternatives.

Due to the constantly changing technologies, Miller and Richard Sandford argue that scientific literacy and human is important to explore anticipatory assumptions [34]. This anticipation comes in several modes, for example, the ability to see change coming to prepare for it or, more constructively, the ability to shape our guide said change. It is from this last perspective that I propose to examine some forms that knowledge could take digitally assisted. Therefore, futures literacy can be a suitable approach to drive the implementation process of mHealth projects in Africa.

5. Policy implications and recommendations

To achieve aspiration 1 of the African Union Agenda 2063 “A prosperous Africa based on inclusive growth and sustainable development,” each country must ensure that their citizens are healthy and well-nourished and that adequate levels of investment are made to expand access to quality healthcare services for all people [35]. Africans must also move beyond the trends of the past and go beyond the paths taken by other regions of the world. In that perspective, UNESCO and the OCP Foundation signed an agreement, in October 2017, to implement an innovative project entitled “Imaginer Les Avenirs de l’Afrique/Imagining Africa’s Futures (IAF)” [36]. Futures Literacy (FL) as a foresight approach can significantly contribute to improving the ability of decision-makers to plan and use the future of African healthcare systems. As healthcare stakeholders acquire skills in LF which enable them to understand “the

future” in different forms and perceptions of the present, they will “use these futures scenarios” to deploy “anticipation” strategies to respond to challenges related to healthcare projects. The creation of “future mHealth knowledge” through collective intelligence can be a good way to plan and implement mobile related health projects in Africa, especially within the framework of the UNESCO Global Futures Literacy Network. Opportunities must be given to healthcare stakeholders in Africa through FL labs to think collectively of hypotheses and future scenarios of new solutions of mobile health technologies to improve the accessibility of healthcare systems.

In the twenty-first century, new freedoms for development and advancement will be bounteously accessible in Africa. The landmass is as of now showing the world the path forward in regions like versatile cash applications. It is simpler to pay for a taxi in Nairobi than it is in New York. Stand proprietors in Zambia, not banks or telephone organizations, are spearheading new and safe methods of moving cash across the mainland, into the uttermost spans of the open country. The achievement of M-Pesa, and the broad accessibility of the portable stage, are bringing forth a large group of new businesses in Kenya. M-Pesa itself has ventured into Afghanistan, South Africa, India, Romania, and Albania. Many, if not the majority of these future chances were not accessible in the twentieth century. Quick urbanization, keen uses of mechanical advancement, expanded interest in the worldwide progression of individuals, exchange and cash, and also the constant drop out of environmental change, are molding new improvement real factors for an Emergent Africa. In the twenty-first century, advancement layouts from the nineteenth and twentieth century are quickly losing their importance. These “utilized prospects” address a world that presently does not exist. To understand the twin dreams of Africa 2063 and the 2030 Agenda, and to support the energy of arising Africa, we need to plan. This paper presents the utilization of vital premonition for better prospects in Africa to give nations experiences that will assist them with expecting conceivable future improvements of versatile innovation.

Foreknowledge is a key way in strategy making, as strategy making is regularly about getting ready for what’s to come. The situation-based premonition approach, for example, future education can move expectant strategy making and backing the African readiness for future difficulties and openings identified with long haul patterns in the field of science and innovation as a rule and versatile innovation for wellbeing specifically.

The principal logical prescience pilot project helped the African government and the working gathering on Robotics and Artificial Intelligence to set up an administrative activity goal, received in the EP whole in Strasbourg on 16 February 2017, through which MEPs approached the European Commission to propose rules on mechanical and technology and computerized reasoning. Other than the foreknowledge-based approach, different thoughts motivated by the STOA concentrate on mechanical technology, fuel public discussion, for example, an expense on the additional estimation of robots as pay for conceivable occupation misfortunes, and the calls for moral rules for robot fashioners and clients.

Future proficiency can show us the potential chances and difficulties that might be the outcomes of continuous technological turns of events. It encourages us to feel more good with vulnerability, since we find out about the kinds of outcomes we need to plan for, and how we can pursue attractive fates and dodge unfortunate ones. This instruction clarifies how STOA utilizes the initially planned logical premonition approach practically speaking.

The primary key component of the methodology is picking points that may cause problematic cultural changes later on. We ensure that we have the most exact

and exceptional data on the point. Investigation of potential effects follows—in an encouraging conceptualizing climate from different viewpoints, including specialists from numerous orders, particularly friendly researchers, to examine the cutting edge and potential contacts with specialized specialists, and applicable partners. Various viewpoints are ensured by “Soaks” (Social, Technological, Economic, Environmental, Political, Ethical, and Demographic), a plan that is utilized as an agenda to give seven distinct focal points to a theme, to guarantee that all potential results are investigated. The results of the encouraging meetings to generate new ideas are normally extensive arrangements of expectations and fears, likely proposed and unintended effects of conceivable future advancements of these technological patterns, including delicate effects (those effects that are difficult to quantify—for instance, influencing well-being, climate and security—and for which it is difficult to allot obligation). The distinguished potential results of future innovation improvements are joined in a bunch of different envisioned situations, built with the assistance of expert situation designers. At long last, investigating these envisioned conceivable future situations brings about top-notch chances and difficulties. It is these changes and difficulties that give direction to the African government in expecting conceivable future advancements through the work they do today.

6. Establishing a UNESCO UNITWIN network on digital health and AI for health literacy/education

We recommend an establishment of a UNESCO UNITWIN Network on digital health and AI for Health education. A network of universities in the North (University of Bordeaux, France, EURAC Research, Italy) and Universities in Africa (Nazi Boni University Burkina Faso). These institutions already have strong collaboration through many projects. Given the strategic position of these Nazi Boni University can be a coordinating institution in the South. The university is located in Bobo Dioulasso, the headquarters of the West African regional healthcare institution (West African Health Organization). Establishing AN UNITWIN NETWORK in this university can be an opportunity to strengthen regional collaboration between all the 16 economic communities of West African States. We recommend the establishment of a UNESCO UNITWIN Network on digital health and AI for Health education. A network of universities and research institutions in the North (University of Bordeaux, France, EURAC Research, Italy) and Universities in Africa (Nazi Boni University Burkina Faso) exists already. It will contribute to providing visibility and recognition to the work done by research teams in Africa and Europe in health literacy area. Health and education are both key elements of sustainable development. Within the network of 17 Sustainable Development Goals (SDGs), UNITWIN contributes to building and interpreting the evidence base of SDG 3 (Ensuring healthy living and improving the well-being of all ages for all ages) and SDG 4 (Ensuring inclusive education and quality for all and promoting lifelong learning). This UNITWIN initiative has a unique connection to UN agencies (including UNESCO and WHO) and is heavily focused on existing national networks. It is a source of strategic information production, knowledge transfer, and capacity building at both the national and the international levels. The UNITWIN network will be a “driving force” for networks, providing “think tank,” “information-hub,” and “bridge-building” skills that connect academics in Africa and Europe, global networks, institutions, relevant communities, unions, and local communities; operating at large and small levels of policy and

practice. The network will contribute to the development of policy and practice through international research programs, translate research evidence, strengthen capacity building and provide support to policymakers and healthcare practitioners in Africa. It will also contribute to how the knowledge can be used efficiently and effectively in the health education sector. Finally, the project focuses on AI at the national, and regional levels and will provide evidence and guidance based on AI research methods, case use, deployment, testing, and exploitation.

In addition, the Network will be devoted to promoting the creation of Futures Literacy Labs on healthcare in Africa. The Network will focus on assessing and assisting in situations that allow for the transformation of healthcare systems through new digital health systems and supporting the development of foresight strategies and programs responsible for future health plans.

7. Conclusion

In this paper, we introduced futures literacy as a useful tool for strategic planning of mobile health technology in Africa. We argued that to achieve desirable results in mHealth technology, collective intelligence objectives and other criteria, a careful process must be designed. Futures Literacy as foresight practice brings participants, facilitators, and observers, as well as step-by-step process instructions for each phase together, including guidance on how to manage the dynamics of the foresight. Beyond increasing creativity, it also makes meetings more enjoyable and helps to energize the process of transformation concerning both the way an organization sees itself in the future and the way it conducts its daily activities by such a vision. Finally, some kind of participant debriefing or thank-you process should also be designed and implemented to inform participants of progress and/or to involve them more (e.g., an online network, newsletter, or discussion forum). This is important so that participants can be part of a growing internal and/or external network. Additionally, understanding the overall impact and barriers to implementation will help strategic planning processes be more precise. Successful implementation of mobile technology in the healthcare sector requires wisdom and the capacity to use knowledge, experience, common sense, and the foreknowledge of consequences, both positive and negative, of all the available courses of action to recommend the most advantageous option for the future. Sub-Saharan African countries have failed to prioritize health systems, something keenly felt during epidemics such as Ebola, and now COVID-19. One of the lessons Africa must learn from the COVID-19 pandemic is the need for strengthening its healthcare systems. More research is needed to explore each technology in more detail and assess its level of achievement over time. The project aims to establish closer ties with the existing UNESCO FL initiatives to build future technologies, which include artificial intelligence for access to healthcare for vulnerable communities in Sub-Saharan African countries.

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References

- [1] Clausen LB. Taking on the Challenges of Health Care in Africa. Stanford Graduate School of Business. 2015. Available from: <https://www.gsb.stanford.edu/insights/taking-challenges-health-care-africa> [consulté le: février 2, 2021]
- [2] United Nations Foundation. mHealth for Development. 2009. Available from: http://www.globalproblems-globalsolutions-files.org/unf_website/assets/publications/technology/mhealth/mHealth_for_Development_full.pdf
- [3] Hemmat M, Ayatollahi H, Maleki M, Saghafi F. Health information technology foresight for Iran: A Delphi study of experts' views to inform future policymaking. *The HIM Journal*. 2021;**50**(1-2):76-87. DOI: 10.1177/1833358319868445
- [4] Wyatt JC, Sullivan F. eHealth and the future: Promise or peril? *BMJ*. 2005;**331**(7529):1391-1393
- [5] UNESCO. Draft Medium-Term Strategy for 2022-2029 (41 C/4) and Draft Programme and Budget for 2022-2025 (41 C/5), Part I: Draft Medium Term Strategy for 2022-2029 (41 C/4). France: UNESCO Bibliothèque Numérique; 2021. Available from: https://unesdoc.unesco.org/ark:/48223/pf0000375755_eng [consulté le: juin 2, 2021]
- [6] UNESCO. UNESCO Strategy for Youth and Adult Literacy (2020-2025). Paris, France: UNESCO; 2020. Available from: <https://en.unesco.org/themes/literacy/strategy> [consulté le: Juin 2, 2021]
- [7] Forte P et al. A futures literacy application in health care: The managed outcomes project case study. *Journal of Futures Studies*. Taipei, Taiwan. 2020;**24**(3):51-61. DOI:10.6531/JFS.20200324(3).0004
- [8] Muthiah G, Prashant S, Jhunjhunwala A. A review on challenges in implementing mobile phone-based data collection in developing countries. *The Journal of Health Informatics in Developing Countries*. 2011;**5**:366-374
- [9] Souchier E. La lettre à l'écran. *Communication langages*. 2012;**174**(4):85-108
- [10] OECD. Literacy in the Information Age. 2000. Available from: <http://www.oecd.org/education/skills-beyond-school/41529765.pdf>
- [11] Cathia B et al. Dans Littératie et numératie: Comment enseigner des habiletés liées à la littératie et à la numératie? 2014. Available from: https://www4.ac-nancy-metz.fr/ppem/IMG/pdf/ARTICLE_LITTERATIE_NUMERATIE_Version_definitive_2014.pdf
- [12] OECD. Literacy, Numeracy and Problem-Solving in Technology-Rich Environments: Framework for the OECD Survey of Adult Skills. Paris: OECD Publishing; 2012. pp. 34. DOI: 10.1787/9789264128859-en
- [13] Guité F. Le futur de la littératie. ACTES DU COLLOQUE CIRTA 2018: Présent et futur de l'enseignement et de l'apprentissage numérique, Canada. October 10-11, 2018. Available from: https://cirta2018.teluq.ca/teluqDownload.php?file=2019/03/13_Guite_Francois.pdf
- [14] Pham S. Computers Are Getting Better than Humans at Reading. United States: CNN Money; 2018. Available from: <https://money.cnn.com>

com/2018/01/15/technology/reading-robot-alibaba-microsoft-stanford/index.html [consulté le: mai 26, 2021]

[15] Kamar E. Directions in Hybrid Intelligence: Complementing AI Systems with Human Intelligence. 2016. Available from: <https://www.microsoft.com/en-us/research/publication/directions-hybrid-intelligence-complementing-ai-systems-human-intelligence/> [consulté le: mai 26, 2021]

[16] Miller R. Transforming the Future: Anticipation in the 21st Century. England, UK: Routledge 15 B/W Press; 2018. 276 p. ISBN: 9780367855888. Available from: <https://www.routledge.com/Transforming-the-Future-Anticipation-in-the-21st-Century/Miller/p/book/9780367855888> [consulté le: mai 27, 2021]

[17] Antonio A, Tuffley D. The gender digital divide in developing countries. *Future Internet*. 2014;**6**:673-687. DOI: 10.3390/fi6040673

[18] Kularski CM. The Digital Divide as a Continuation of Traditional Systems of Inequality. 2012. Available from: <https://paper/The-Digital-Divide-as-a-Continuation-of-Traditional-Kularski/bc47c52d12f8e8dfbdaf6fb47488c74dca45ac63> [consulté le: juin 8, 2021]

[19] Hilbert M. Digital gender divide or technologically empowered women in developing countries? A typical case of lies, damned lies, and statistics. *Women's Studies International Forum*. 2011;**34**(6):479-489. DOI: 10.1016/j.wsif.2011.07.001

[20] Chadwick D, Wesson C, Fullwood C. Internet access by people with intellectual disabilities: Inequalities and opportunities. *Future Internet*. 2013;**5**(3):376-397. DOI:10.3390/fi5030376

[21] ITU Telecentre. Global Digital Literacy Campaign for Women. 2011. Available from: https://www.itu.int/net/pressoffice/press_releases/2011/08.aspx [consulté le: Juin 8, 2021]

[22] Moolman J, Primo N, Shackleton S-J. Taking a byte of technology: Women and ICTs. *Agenda*. 2007;**21**(71):4-14. DOI: 10.1080/10130950.2007.9674799

[23] Melhem S, Morrell C, Tandon N. Information Communication Technologies for women's Socioeconomic Empowerment. World Bank Working Paper; 2009. Available from: <https://documents1.worldbank.org/curated/fr/812551468148179172/pdf/518310PUB0REPL101Official0Use0Only1.pdf> [consulté le: Juin 8, 2021]

[24] Miller R. UNESCO Pioneers Futures Literacy. p. 4

[25] Miller R. Futures literacy: A hybrid strategic scenario method. *Futures*. 2007;**39**(4):341-362. ISSN: 0016-3287. DOI: 10.1016/j.futures.2006.12.001

[26] Miller R. From Trends to Futures Literacy: Reclaiming the Future. Victoria, Australia: Centre for Strategic Education; 2006. DOI: 10.13140/2.1.2214.4329

[27] Miller R. Futures Literacy - Embracing Complexity and Using the Future. Vol. 10. Singapore: Ethos Civil Service College. 2010. pp. 23-28

[28] UNESCO. 30 Jeunes Gabonais Formés à la Littérature des Futurs Reçoivent Leur Attestation. Paris, France: UNESCO; 2020. Available from: <https://fr.unesco.org/news/30-jeunes-gabonais-formes-litteratie-futurs-recoivent-leur-attestation> [consulté le: mai 26, 2021]

[29] UNESCO. Challenging African Urban Visions - Using Futures Literacy to Reimagine our Cities 0. 2021. Available from: <https://events.unesco>.

org/event/?id=1171322806&lang=1036
[consulté le: mai 26, 2021]

<https://fr.unesco.org/events/panel-discussion-experts-projet-recherche-imaginer-futurs-africains> [consulté le: janvier 28, 2021]

[30] UNESCO. The Capacity to Decolonise: Building Futures Literacy in Africa. 2021. Available from: <https://events.unesco.org/event/?id=3893985247&lang=1036> [consulté le: mai 26, 2021]

[31] Groupe Speciale Mobile Association (GSMA). The Mobile Economy SubSaharan Africa 2019. SubSaharan Africa: GSMA; 2019. Available from: <https://www.gsma.com/subsaharanafrica/resources/the-mobile-economy-sub-saharan-africa-2019> [consulté le: janvier 29, 2021]

[32] Conseil national de l'ordre des Le livre blanc du CNOM. De la e-santé à la santé connectée. 2015. Available from: <http://affairesjuridiques.aphp.fr/textes/conseil-national-de-lordre-des-le-livre-blanc-du-cnom-de-la-e-sante-a-la-sante-connectee-janvier-2015/> [consulté le: janvier 29, 2021]

[33] UNESCO. Futures Literacy. Paris, France: UNESCO; 2019. Available from: <https://en.unesco.org/futuresliteracy/about> [consulté le: janvier 29, 2021]

[34] Miller R, Sandford R. Futures literacy: The capacity to diversify conscious human anticipation. In: Handbook of Anticipation. Springer; 2018. pp. 73-91. DOI: 10.1007/978-3-319-31737-3_77-1

[35] African Union. Promoting Health & Nutrition. Addis Ababa, Ethiopia: African Union; 2013. Available from: <https://au.int/en/promoting-health-nutrition> [consulté le: Janvier 28, 2021]

[36] UNESCO. Panel de Discussion D'experts sur le Projet de Recherche. Imaginer les Futurs Africains. Paris, France: UNESCO; 2018. Available from: