

Digital health and global health

November 2021 - Note 18

The think tank "Santé mondiale 2030" was founded in October 2016. It brings together individuals involved in global health: Françoise Barré-Sinoussi, Paul Benkimoun, Michel Cot, Sana de Courcelles, François Dabis, Annabel Desgrées du Lou, Jean-François Delfraissy, Eric Fleutelot, Frédéric Goyet, Mathieu Lamiaux, Michel Kazatchkine, Marie-Paule Kieny, Lélio Marmora, Benoît Miribel, Olivier Nay, Louis Pizarro, Anna-Laura Ross. Stéphanie Tchiombiano acts as the coordinator.

The members of the group are independent and do not act on behalf of their respective organizations. This document is the result of collective work within the group. It does not in any way commit, nor does it reflect the individual opinion of the members.

Santé Mondiale 2030 thanks Florence Gaudry-Perkins, with whom this publication has been written.

This note has been enriched by comments from digital health actors, implied at a national, a regional and a global scale. The contributors are Housseynou Ba (Head of Digital Health for WHO Africa – Afrique Francophone and former Minister of Health in Mauritania), Cheikh Oumar Bagayoko (Expert in Digital Health and Health Information Systems, Africa, Director of the Centre for Innovation and Digital Health, USTTB, Mali), Claude Kirchner (Director of Research Emeritus at INRIA, Director of the Comité national Pilote d'Éthique du Numérique), Ousmane Ly (founder and former director of the national telemedicine agency in Mali, digital health expert Africa), Cécile Méadel sociologist, University of Paris 2 Panthéon-Assas, Professor at the École des Mines, associate researcher at the Mines ParisTech - CNRS - PLS centre for the sociology of innovation), Nicolas Meda Special Advisor to the President of Burkina Faso on Human Capital Development, former Minister of Health), Jean Philibert Nsengimana (Director General Africa of the Commons Project, former Minister of Youth and Digital Economy in Rwanda), Vonthanak Saphonn (Professor of Public Health, Cambodia), et Isabelle Zablit (Ministerial Delegation for Digital Health, Ministry of Health, France). The think tank Santé Mondiale 2030 warmly thanks them for their insights.

> <u>Contact</u> : santemondiale2030@gmail.com www.santemondiale2030.fr @Sante2030

Throughout the Covid-19 pandemic, the use of digital technologies has become a continuous and unavoidable phenomenon as a means of staying in touch with loved ones, a way of working, of consuming and using services, especially health services. Digital technologies have taken a leading role in the lives of billions, as individuals were forced to restrict physical movements and social interactions. Within the health sector, the use of digital health tools, which had been expanding for several years, logically underwent a significant explosion - for example with the move to remote medical appointments.

The growth of digital tools was already an underlying shift in healthcare. Indeed, in less than a decade all continents have witnessed growth in digital health. From 2010 and 2019, the share of European citizens seeking health information online increased from 40 to 70%¹. In Africa, the number of start-ups specialized in digital health rose by more than 56% between 2017 and 2020², and in the US, investment in digital health represented more than 31 billion dollars between 2011 and 2018³, a quarter of which occurred in 2018. The emergence of COVID–19 and the announcement a pandemic a few months later quickly accelerated the growth in digital health. In 2020, worldwide investments in digital health increased by 103% compared to 2019, from \$10.6 billion in 2019 to \$21.6 billion in 2020⁴.

Telemedicine is a good illustration of this staggering evolution. In France, India, and the United Kingdom, the number of teleconsultations dramatically increased. Prior to the health crisis, in France 40,000 monthly teleconsultations occurred, by April 2020 alone 4.5 million teleconsultations took place⁵. Teleconsultation allowed patients to continue to obtain medical appointments with their doctors mitigating the risk of becoming infected and spreading the virus. In some countries telemedicine also contributed to the organization of vaccination operations. Nevertheless, telemedicine is far from being the sole area that developed during the crisis. Artificial intelligence and the use of health data suddenly came to the fore, data exchanges developed, while certain administrative or legal barriers lifted which had been blocked for years. These developments came from various actors: public authorities, but also private companies (Doctolib for online vaccination appointments in France) and individuals (Covid Tracker in France). These health technology developments occurred rapidly making it possible to limit the spread of the virus through diagnosis and contact tracing; to monitor and inform people about the evolution of the pandemic in almost real-time. Data dashboards such as that developed by Johns Hopkins University⁶ at the international level, or Covid Tracker⁷ in France, are subsequently used on a large scale. In real-time, these dashboards gather public health data - number of confirmed cases, number of deaths, and number of tests carried out - and make it possible to both inform citizens and influence the decisions of political leaders.

In this note, we recall the conceptual elements of digital health, then present the main opportunities and challenges. With these issues explained, we suggest some proposals to strengthen France's position in the global governance of digital health. With its major assets, France would gain a foothold by structuring its action and taking its place in international bodies in this strategic and rapidly expanding field.

¹ https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-shaping-the-future-ofeuropean-healthcare.pdf

² High Tech Health: Exploring the African E-health Startup Ecosystem Report 2020

³ https://www.accenture.com/_acnmedia/PDF-110/Accenture-2019-Clsa-Digital-Health-Trends-Report.pdf#zoom=50

⁴ https://mercomcapital.com/product/q4-and-annual-2020-digital-health-healthcare-it-funding-and-ma-report/

⁵ https://assurance-maladie.ameli.fr/presse/2020-09-16-cp-teleconsultation-anniversaire

⁶<u>https://coronavirus.jhu.edu/map.html</u>

⁷ https://covidtracker.fr/

Defining the contours of a complex concept

Given the profusion of articles and publications about digital health, it is important to clarify and define the concept. The World Health Organization, defines digital health as "any information and communication technology system used by health systems to contribute to the delivery of quality and affordable health services".

According to the WHO, all digital services are at the service of the social and health well-being of the individual⁸. Digital health encompasses different fields:

- eHealth: health information systems of hospitals, countries, regions, online medical records of patients, etc.
- telehealth: telemedicine, mobile apps, telemonitoring, telecare, connected devices (allowing for . example doctors to monitor patients' blood glucose levels remotely, or to distribute health products thanks to drones);
- The exploitation of health data (big data and data mining) and artificial intelligence for health. •

The think tank chooses here a broad definition, which considers digital health as the use of digital technologies for health purposes.

In France, a 2018 the report 'Digital and health: what challenges for what regulation9' by Comité Consultatif *National d'Éthique* defines the field of digital health as 'the sciences (in, computer science and mathematics), technologies, uses and innovations induced by the study, storage, treatment, reception, or emission of information'.) Thus digital in health refers to all computerized processes in the field of health, whether these processes imply, or not, artificial intelligence or robotics ».

Digital health is hence a vast field that can be represented schematically as follows:



Graph from the white paper on connected health, Ordre des Médecins, 2015

⁸ Broadband Commission for Sustainable Development, "Digital Health: A Call for Government Leadership and Cooperation between ICT and Health", February, 2017 https://broadbandcommission.org/Documents/publications/WorkingGroupHealthReport-2017.pdf ⁹ https://www.ccne-ethique.fr/sites/default/files/publications/rapport_numerique_et_sante_19112018.pdf

Digital health assets in the world

Opportunities

Opportunities created by digital health are particularly widespread in resource-limited countries, where they have been developing for several years thanks to the rapid proliferation of mobile phones.

In these contexts, digital health first allows **for improved access to health services and personalized monitoring of patients**. Chronic diseases can be managed more easily by patients themselves thanks to digital tools¹⁰. In resource-limited countries where chronic diseases are on the rise, hundreds of initiatives exist¹¹ using mobile phones to improve access to care or (and) monitor(s)patients (despite the absence of a directory or catalogue enabling global monitoring of their implementation). In 8 years BIMA, a provider of micro-insurance through mobile phones, provided 26 million disadvantaged patients with access to health insurance in 15 resource-limited countries. The program-m-Diabetes, launched in Senegal in 2014 with the support of the WHO and the International Union of telecommunications, supports patients with diabetes in the day-to-day management of their disease¹², via a simple SMS service. In Sub-Saharan Africa, where the average number of doctors per inhabitant is low (2 doctors for 10 000 inhabitants versus 24 in OECD countries¹³), the use of mobile phones brings patients closer to doctors and other healthcare professionals, especially in rural areas. The program MomConnect®, operating from South Africa, offers millions of women the opportunity to be followed during their pregnancy thanks to a texting service, the use of WhatsApp and more recently through the provision of answers offered by artificial intelligence¹⁴.

Digital health makes it possible to **better inform the population and to better disseminate means of disease prevention**. The m-Diabetes program, for example, promotes healthy habits (diet, exercise...), by text messages, supporting the prevention of type 2 diabetes¹⁵.

Furthermore, digital health can **reduce health costs**. In 2017, Canada estimated a return on investment of around 16 billion Canadian dollars over ten years thanks to the implementation of personalized medical records, telehealth, and health information systems¹⁶. In its latest report The *Institut Montaigne* estimates that the development of digital health would create a market value of 16 to 22 billion euros in France¹⁷. In the United States, the multinational IQVIA¹⁸, in a 2017 study estimated that the savings generated by digital health could reach up to 46 billion dollars per year¹⁹. Finally, the costs of healthcare systems in resource-limited countries can be indirectly reduced through the empowerment of patients using these technologies²⁰.

Additionally, digital health can **improve the management of public health and health monitoring** by, for example, mapping and modelling epidemics to guide public health responses, as demonstrated during the ongoing COVID-19 pandemic. The *Surveillance Outbreak Response Management and Analysis System* (SORMAS) tool, implemented in Nigeria and Ghana before COVID-19, is an open-source digital and mobile system for real-time surveillance and early detection of outbreaks. SORMAS was subsequently adopted during the COVID-19 crisis in Germany, Switzerland, Afghanistan, and some French regions such as Franche-Comté²¹.

This list is not exhaustive. Many opportunities exist in countries with developing health systems which are being seized by others. It sometimes takes the form of adopting original initiatives such as SORMAS, a typical example of "*reverse innovation*" in which high-income countries draw inspiration from limited-resources countries and appropriate technologies or programmes set up in these countries. Another example comes from Rwanda who first introduced the delivery of blood bags and medical supplies by drone to remote areas; this solution was later commercialized by Zipline, a US based company. Innovation in digital health is

- quality access and productivity benefits on a national scale
- ¹⁷ https://www.institutmontaigne.org/publications/e-sante-augmentons-la-dose
- 18 https://www.iqvia.com/about-us

²⁰ https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0176051

¹⁰ https://www.imt-bs.eu/wp-content/uploads/2020/01/2019-02-15 CP-Patient-Connecte ICA IMTBS.pdf

¹¹ Al Dahdah, Desgrées du Loû and Méadel, "Mobile health and maternal care: a winning combination for healthcare in the developing world ?" Health Policy and Technology (2015) 4, 225–231

¹² https://www.researchgate.net/publication/274263813_mDiabete_le_mobile_au_service_de_la_lutte_contre_le_diabete_au_Senegal ¹³ World bank, 2017

¹⁴ <u>https://www.ft.com/content/7d17d354-684e-11ea-a6ac-9122541af204</u>

¹⁵ <u>https://www.researchgate.net/publication/274263813 mDiabete le mobile au service de la lutte contre le diabete au Senegal</u> ¹⁶ <u>https://www.researchgate.net/publication/315800969 Cumulative Benefits of Digital Health Investments in Canada Calculating</u>

¹⁹https://www.iqvia.com/insights/the-iqvia-institute/reports/the-growing-value-of-digital-health

²¹ https://www.atolcd.com/reference/sormas-un-projet-open-source-pour-la-surveillance-epidemique-1

 $[\]frac{https://www.deutschland.de/fr/topic/savoir/la-lutte-contre-le-covid-19-comment-une-idee-pour-lafrique-peut-aider-le-monde-entier}{entier}$

particularly dynamic in countries facing major problems of access to care and telecommunication due to poor infrastructure (e.g telephone wireline coverage). In such contexts governments are generally prone to adopting more flexible and responsive legislative frameworks than in countries with more established health systems.

Challenges

To be able to take full advantage of the numerous opportunities in digital health, challenges remain. These challenges appear to be related to four dimensions: scientific and technical, ethical, human, and governance.

Scientific and technical challenges

The management of the Ebola epidemic in 2012 highlighted the need for integrated information systems. The **interoperability** of different digital subsystems is indeed a major problem²². Many actors had health data but were not able to cross-reference it. However, in the context of an emergency and/or an epidemic, it is vital that this information can be connected in real-time to engage effectively in the response. The Covid-19 pandemic has, in turn, revealed the importance of putting in place international interoperability and exchange frameworks as early as possible²³. In general, the development of interoperability frameworks for countries guarantees the effectiveness of digital health systems. To achieve this, it is essential to adopt **shared standards**. Their use should be regulated to become legally enforceable. In France, for example, the *Agence du numérique en santé* (ANS) set up a framework for the interoperability of health information systems. This will enable data to be integrated into different systems using a common language.

Access to data and sharing it requires common rules: anonymisation and transmission of data follow ethical and legal rules that currently differ from country to country. This becomes problematic when data is transmitted between countries. Furthermore, access to software and digital information is characterized by strong inequalities and requires the construction of new models to ensure access to this knowledge for all (open source and open access).

Access to digital technologies remains highly unequal from one country to another: although mobile telephony has widely expanded, including in countries with limited resources, the transition to digital technology is far from complete. Internet coverage remains very inadequate, particularly in Africa. Data storage capacity is limited forcing most resource-poor countries to rely on servers located in "*Northern*" countries to back up and store their data. Finally, it should be noted that most digital health technologies are mostly developed in high-resource countries²⁴. Low-income countries, therefore, remain on several fronts in a troublesome situation of digital dependence.

Finally, a large amount of new digital applications and tools are not always supported by a scientific assessment of their impact on people's health, the organization of healthcare systems and the quality of care. This is particularly the case in countries with limited resources where these applications abound. More research is needed to evaluate different tools, the conditions of their implementation and the effect of social and health contexts on the transferability of these applications in resource limited settings²⁵.

Ethical challenges

The **protection of health data** is another crucial issue and a serious challenge for digital health. In particular the uses made by several governments (e.g. China, South Korea, Russia, Israel) of smartphones to track and restrict people's movements with COVID-19, to force individuals to communicate their state of health or to identify their contacts without their consent²⁶. Controversies that arose in several Northern countries over individual covid-19 monitoring applications reveal that people are not ready to give up their data protection and right to privacy even in a pandemic situation, and even when public authorities argue that individual

²³ https://www.nature.com/articles/s41591-020-1011-4#Fig1\$

²⁵ Al Dahdah et *al.*, 2015, ibid.

²² https://www.usaid.gov/sites/default/files/documents/15396/FightingEbolaWithInformation.pdf

²⁴ Global Innovation Index, 2019. <u>https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019.pdf</u>

²⁶ Moritz M, The use of mobile phone data in the fight against the epidemic, April 2020, <u>https://theconversation.com/lutilisation-des-donnees-des-telephones-mobiles-dans-la-lutte-contre-lepidemie-136987</u>

health is at stake²⁷. If the processing of personal data is authorized "on grounds of public interest in the field of public health, such as protection against serious cross-border threats to health²⁸", these interventions must be proportionate, reasonable and above all context specific and time limited. to avoid any "*ratchet effect*" of exceptional measures when they are trivialized and incorporated into ordinary law.

Individual monitoring applications related to Covid-19 that have been put in place are very often designed in a top-down perspective, without **prior consultation of the actors involved** (professionals and associations alike) and with a great deal of opacity regarding the technical choices made. On these issues, the present situation offers windows of opportunities: discussions in international bodies on the issues related to cross-border data flows are in full swing (OECD, World Bank, G7, G20 etc.). In this area, the GDPR has certainly made it possible to mesh rules within Europe, but not beyond.

The strong presence of digital giants in the field of digital health makes it essential to devote reflection on the issue of the protection of health data. Google's involvement in the development of a UK National Health Service data platform, and the more recent contracts signed by Google and Palantir for Covid-19 health data have raised concerns about the protection of this data. In France, the government chose to entrust Microsoft to host the Health Data Hub to gather and use French health data for medical research purposes. However, this decision was not unanimous. In July 2020, the European Court of Justice invalidated the "*Privacy Shield*" agreement which constituted the legal basis for the transfer of data between the European Union and the United States. Shortly afterwards, the Secretary of State for Digital Affairs, Cedric O, stated he was working on transferring the Health Data Hub to French or European platforms.

Human and relational challenges

Digital health further raises major challenges in terms of diagnosis, prognosis, and therapy, particularly in the field of personalized medicine, but also concerning the management of hospital flows, patient triage and care decisions, as revealed by the COVID-19 pandemic²⁹.

Digital applications and tools for accompanying care **challenge the care relationship**: to what extent and under what conditions does digital health allow for therapeutic relationship to be maintained, to listen to the concerns of patients and be attentive to the needs of careers? The use of robots or chatbots to accompany (support) patients in the psychiatric field, among others, raises new questions. Digital health thus opens the way to a substantial reconfiguration of care; the associated risks must be the subject of serious analysis and ethical discussion.

When digitalization meets the economy, with the (admittedly legitimate) search for productivity gains, several risks, particularly in terms of 'care' arise. Digitalization and productivity gains can result in the homogenization of tools which poses serious challenges to local adaptation.

Another major human challenge remains the **adoption of new innovations by patients and health professionals**, whose major role is sometimes minimized in the design of digital health projects. This implies, first, a good level of "digital literacy" for all, requiring a certain capacity to grasp and understand digital tools. As a rule, to facilitate the adoption of these tools, the development of projects must be patient-centered and involve a participatory approach by all stakeholders. The development and implementation of change management and support strategies are the keys to success for national projects.

Finally, **training various actors** about the conceptual and methodological issues and the expected benefits of e-health is a major challenge.

Governance challenges

There is a **fragmentation of actors and investments**. The number of digital health actors is increasing rapidly, resulting in a profusion of health applications. In most countries, the ecosystem is hence characterized by great complexity. The lack of centralization results in real wastes of investments. In 2017,

²⁷ Nay O, Viruses and freedoms, AOC 9 April 2020: https://aoc.media/opinion/2020/04/08/virus-et-libertes/

²⁸ Article 9 du code civil.

²⁹ CNPEN : Watch bulletin n°3 - Ethical issues related to digital tools in telemedicine and telecare in the context of COVID-19 (in collaboration with the CCNE for life and health sciences) - 21 July 2020 <u>https://www.ccne-ethique.fr/fr/actualites/comite-national-pilote-dethique-du-numerique-bulletin-de-veille-ndeg3</u>

Mali had 11 mobile health (mHealth) initiatives for maternal health³⁰, each with different standards, and whose data was not fed back to an under-resourced Digital Health Agency. In the UK, in 2020, there were as many as 39 separate Covid-19 symptom detection initiatives, with no centralized data collection agency³¹.

A wide range of players are investing in the field of digital health: telephone operators, companies developing and using digital technology, digital intermediaries, amongst others. However, **these different actors are not coordinated**, neither amongst themselves nor with the traditional public health players: the State, the health system, and patients' associations.

This fragmentation highlights the need, aforementioned about interoperability, to establish digital strategies that are not only national but also international. Digital technology **raises new issues of national and supranational sovereignty**: State sovereignty and European sovereignty in terms of infrastructure, data and science, are both desirable and necessary³².

Global governance and France in the world

For several years, many Anglo-Saxon organizations such as the American development agency USAID, the German Cooperation, the Gates Foundation, or the NGO PATH have been particularly active in developing and financing digital health, especially in Africa. Despite projects supported by the French Development Agency (AFD³³) or the Pierre Fabre Foundation in West Africa ³⁴, France's presence remains limited in terms of both the number of projects and the amounts financed. This is undoubtedly one of the reasons why initiatives have developed more in Anglophone Africa than in Francophone African speaking countries, which are much less advanced in the development of digital health.

International governance in digital health has only really been organized in the last two years with several international bodies and networks. Many of these bodies are devoted primarily to countries with limited resources or emerging countries in the context of achieving universal health coverage (UHC), the target of the third United Nations Sustainable Development Goal. This list of bodies includes, albeit not exhaustive, the WHO's digital health department³⁵, Transform Health³⁶, Digital Connected Care Coalition³⁷, Global Digital Health Partnership³⁸ or Governing Health Futures 2030³⁹ These different entities bring together governments, NGOs, foundations, universities, and development agencies, although it is not yet possible to establish a typology.

The implementation of this coordination at the global level is not limited to countries with limited resources. This is the case of the International Digital Health & AI Research (I-DAIR) Collaborative, an initiative launched in 2019 for better international coordination around artificial intelligence and health data⁴⁰. I-DAIR aims to bring together governments, international institutions, the private sector, and universities from all countries. I-DAIR is in the process of being endorsed by the G7 and G20 and has already established centers in Switzerland, Tunisia, Kenya, India and Singapore. The establishment of a center in West Africa is under discussion. Finland and Germany have positioned themselves in the organization, as has Italy. France is currently absent.

Moreover, French organizations are hardly present in the other bodies mentioned. The Principles of Donor Alignment for Digital Health, defined in 2018 at the international level⁴¹, does not include any French foundations or NGOs among their signatories, whereas the European Union, Germany, England, Sweden, and Norway are present alongside the traditional Anglo-Saxon actors.

Thus, while digital health has become a strategic priority for many countries, France has only very recently begun to formulate its doctrine and communicate on this subject. In December 2020, the French President announced the creation of the *Paris Santé Campus* with 400 million euros of public-private funding. This campus aims to make France one of the world's leaders in digital health research and innovation, and thus

³⁰ https://broadbandcommission.org/Documents/publications/WorkingGroupHealthReport-2017.pdf

³¹ https://www.nature.com/articles/s41591-020-1011-4#Fig1\$

³² Ganascia, Germain, Kirchner, Sovereignty in the Digital Age. Remaining masters of our choices and our values, CERNA, 2018

³³ Examples include support for the development of telemedicine in Tunisia to fill medical deserts, support for the development of the Kenyan health insurance platform M-Tiba, support for GRET's project to promote health through SMS in Burkina Faso, and the #Data4COVID19 challenge launched by AFD, Expertise France and The GovLab to identify innovative projects in Africa.

³⁴ for example, the e-health observatory in southern countries : <u>https://www.odess.io/</u>

³⁵ https://www.who.int/teams/digital-health-and-innovation

³⁶ <u>https://transformhealthcoalition.org/</u>

³⁷ https://www.devex.com/organizations/digital-connected-care-coalition-dccc-159485

³⁸ <u>https://www.gdhp.org/home/index/53</u>

³⁹ https://www.governinghealthfutures2030.org/

⁴⁰ <u>https://i-dair.org/</u>

⁴¹ <u>https://digitalinvestmentprinciples.org/</u>

strengthen the country's sovereignty. This declaration is in line with the *Ségur de la Santé*, organized in July 2020, which foresees, amongst other things, two billion euros of investment in digital health over the next five years. At a national level, France has recently put in place an ambitious national strategy for digital health, led by the *Agence du Numérique en Santé*. France has also invested heavily in the creation of technology clusters and their promotion through the "*French Tech*" programme. There are now dozens of technology clusters, including Station F, the largest start-up campus in the world, which houses 240 incubators, 50 accelerators and 70 competitiveness clusters⁴².

Beyond these developments at the national level, **it is now timely and urgent for France to capitalize on its international position in digital health**. France has many assets: innovations in digital health are flourishing everywhere, the Public Investment Bank (BPI) is considered the largest investor in digital health in Europe, AFD is involved in supporting the international digital transition⁴³, and France has developed a unique ethical framework for digital health ⁴⁴. France also has an organization of care that involves patients and their representative organizations, which is a clear advantage in terms of taking charge of needs and adapting systems. These specificities give France a certain legitimacy about (with?) the major international private players (including foundations) - whose methods of action are not always well perceived by receiving populations - and responsibility in the field of the French-speaking world, which represents a community of several million digital users.

These experiences deserve to be shared more widely on a global scale. However, in the new geostrategic balance of the digital world that is emerging, where the United States and China are heavily present, but France seems to be in the background. Germany has considerably strengthened its influence with the establishment of the WHO's "*Pandemic Intelligence Hub*" in Berlin, in August 2021⁴⁵.

As a trusted leader of French-speaking countries, France has a role to play, particularly in promoting its ethical frameworks. In return, France could also benefit from the expertise of other countries. In parallel with the creation of a new research center (*Paris Santé Campus*) in Paris, **France would therefore benefit from urgently inserting itself into the governance bodies and international initiatives in digital health** to promote its innovation and know-how. This presence on the international scene is not only legitimate but also economically and politically strategic: it is in France's interest to take part as soon as possible in the discussions on the rules, frameworks and standards that will define tomorrow's exchanges of health data on the global stage. This commitment by France is urgent: the window of opportunity that has recently opened will close in the coming months.

⁴² <u>https://www.journaldunet.com/economie/sante/1498047-la-france-et-la-sante-numerique/</u>

⁴³ <u>https://www.afd.fr/fr/ressources/strategie-transition-numerique-2021-2025</u>

⁴⁴ <u>https://esante.gouv.fr/virage-numerique/ethique-et-numerique-en-sante</u>

⁴⁵ <u>https://healthpolicy-watch.news/89862-2/</u>

Key messages

- Digital health is the use of digital technology for health purposes. It encompasses different areas including e-health ⁴⁶, telehealth ⁴⁷, omics ⁴⁸, *deeptech in health* ⁴⁹, m-health ⁵⁰, massive data exploitation and artificial intelligence in health.
- Digital health represents many opportunities to facilitate access to health services, reduce costs, improve the efficiency of health systems, and play a key role in information, prevention, and disease management.
- The issue of interoperability and the fragmentation of initiatives are some major challenges. There is an urgent need for common standards to be adopted and for national digital health strategies to be put in place.
- The Covid-19 pandemic has highlighted the urgent need to accelerate the consolidation of global governance on these issues.
- High-income countries have much to learn from resource-poor countries that are very innovative in the field of digital health. France would benefit from working more with these countries and providing them with more support in their digital transitions.
- France has recently announced major investments in digital health, but its international presence remains modest It is essential and urgent for France to become involved in the emerging global governance bodies, to take part in the decisions that define the rules of the game for digital health on a global scale
- The definition of a national strategy for action with partner countries, which capitalizes on the ethics of digital health *"à la française*", is a priority, by insisting, for example, on the necessary involvement of civil society.

⁴⁶ Health areas that involve new information and communication technologies.

⁴⁷ All activities (care, consultations, etc.) carried out between health professionals and their patients using digital technology. Telehealth includes telemedicine (teleconsultation, tele-expertise, remote monitoring, remote assistance, medical regulation by the Samu) and telecare (remote care)

⁴⁸ The "omics sciences" enable the development and application of new technologies for disease prevention (biosensors, diagnostic tools, new treatments, etc.), such as genomics.

⁴⁹ Startups involved in the development of particularly innovative technological innovations.

⁵⁰ M-health refers to medical and public health practices supported by mobile devices (phones and other wireless devices).

APPENDIX 1 : Santé mondiale 2030

Santé mondiale 2030 is an independent think tank bringing together individuals with a long history of involvement in global health issues since 2016. Santé mondiale places its reflections within the framework of the Sustainable Development Goals.

OUR COMMITMENT

France is one of the largest providers of international health funding, but its influence in international bodies and health partnership platforms remain limited. We are convinced that France can only be heard and listened to in the international arenas of global health when its actors succeed in conveying a strong and coherent message, structured around clear and stable objectives, supported by values that are attached to the history of health in France.

Our objective is to **formulate recommendations** on France's global health policy and to mobilize all stakeholders so that health issues become a strategic focus of French international aid.

OUR PREVIOUS NOTES

- 1 White Paper on Global Health
- 2 Our vision of global health
- 3 Health is a priority for the Sahel
- 4 Breathing new life into the fight against tuberculosis

6 – <u>Contribution to the next Global Fund Replenishment</u> <u>Conference</u>

7- <u>The French institutional framework for global health:</u> <u>reflections and proposals</u>

8 - <u>The existence of a European health commissioner is</u> <u>essential for the health of Europeans</u>

9 - UNAIDS: What stakes, what future?

- 10 Structuring the academic field of global health in France
- 11 The French-German axis, a driving force for global health?

OUR MEMBERS

Santé mondiale 2030 brings together individuals who have long been involved in global health, such as Françoise Barré-Sinoussi, Paul Benkimoun, Sana de Courcelles, François Dabis, Annabel Desgrées du Lou, Jean-François Delfraissy, Éric Fleutelot, Frédéric Goyet, Mathieu Lamiaux, Michel Kazatchkine, Marie-Paule Kieny, Lélio Marmora, Benoît Miribel, Olivier Nay, Louis Pizarro, Agnès Soucat, Benoît Vallet. Stéphanie Tchiombiano acts as the coordinator.

Our vision of global health

Global health is a fundamental human right. It is also a global **common good. Universal access to health** and the construction of sustainable health systems are central to **human development,** the **economy**, and the **fight against poverty**, as well as **security**. They, therefore, make a decisive contribution to the **development of inclusive**, **peaceful societies**.

Health issues are complex and require **long-term strategic visions** to address the challenges posed by globalization, increased trade, demographic transitions and climate change.



Appendix 2 : Sources et documents

AFD. Digital Transition, Strategy 2021 - 2025. https://www.afd.fr/fr/ressources/strategie-transition-numerique-2021-2025

Al Dahdah Marine, Desgrées du Loû Annabel et Méadel Cécile. *Mobile health and maternal care: a winning combination for healthcare in the developing world?* Health Policy and Technology, 2015. <u>Mobile health and maternal care: A winning combination for healthcare in the developing world?</u> - ScienceDirect

Banning – Lover Rachel. *MomConnect lets expectant mothers know what to expect.* Financial Times, May, 17th, 2017. https://www.ft.com/content/7d17d354-684e-11ea-a6ac-9122541af204

Broadband Commission for Sustainable Development. *Digital Health: A Call for Government Leadership and Cooperation between ICT and Health.* Fevruary 2017. <u>https://broadbandcommission.org/Documents/publications/WorkingGroupHealthReport-2017.pdf</u>

Budd Jobie, Miller Benjamin S., Manning Erin M. et al. *Digital technologies in the public-health response to COVID-19*. Nature Medicine, 2020. <u>https://www.nature.com/articles/s41591-020-1011-4#Fig1\$</u>

CCNE et CERNA. *Digital and health: what ethical issues for what regulations*? November 19th, 2018. <u>https://www.ccne-ethique.fr/sites/default/files/publications/rapport numerique et sante 19112018.pdf</u>

CNPEN : Watch bulletin n°3 - Ethical issues related to digital tools in telemedicine and telecare in the context of COVID-19 (in collaboration with the CCNE for life and health sciences) - July 21rst 2020 <u>https://www.ccne-ethique.fr/fr/actualites/comite-national-pilote-dethique-du-numerique-bulletin-de-veille-ndeg3</u>

Cullinan, Kerry. *Collaborative Intelligence: WHO launches Pandemic Surveillance Hub in Berlin Headed by Nigerian Epidemiologist.* Health Policy Watch, September 1rst, 2021. <u>https://healthpolicy-watch.news/89862-2/</u>

Deloitte Centre for Health Solutions. *Digital transformation: Shaping the future of European healthcare. September* 2020: https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/public-sector/deloitte-nl-shaping-the-future-of-european-healthcare.pdf

Fast Larissa and Adele Waugaman. *Fighting Ebola with Information: Learning from Data and Information Flows in the West Africa Ebola Response*. USAID, 2016. <u>https://www.usaid.gov/sites/default/files/documents/15396/FightingEbolaWithInformation.pdf</u>

Ganascia, Germain, Kirchner. La souveraineté à l'ère du numérique. Rester maîtres de nos choix et de nos valeurs. CERNA, 2018

Gheorghiu, Bobby et Hagens, Simon. *Cumulative Benefits of Digital Health Investments in Canada Calculating quality, access and productivity benefits on a national scale*. March 2017 https://www.researchgate.net/publication/315800969 Cumulative Benefits of Digital Health Investments in Canada Calculating quality access and productivity benefits on a national scale

High Tech Health: Exploring the African E-health Startup Ecosystem Report 2020

IQVIA Institute. *The growing value of digital health. Evidence and impact on human health and the healthcare system.* November 7th, 2017. <u>https://www.iqvia.com/insights/the-iqvia-institute/reports/the-growing-value-of-digital-health</u>

Institut Mines Telecom. Patients connectés : oui, mais à quoi ? 2019. <u>https://www.imt-bs.eu/wp-content/uploads/2020/01/2019-02-15 CP-Patient-Connecte ICA IMTBS.pdf</u>

Institut Montaigne. E-Health, Let's increase the dose! Institut Montaigne, June 2020. https://www.institutmontaigne.org/publications/e-sante-augmentons-la-dose

International Communication Union. *Measuring digital development. Facts and figures 2020*. 2020. <u>https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2020.pdf</u>

Krause, Gérard. *The fight against Covid 19. How an idea for Africa can help the whole world. Deutshcland.de, September 15th, 2019.* <u>https://www.deutschland.de/fr/topic/savoir/la-lutte-contre-le-covid-19-comment-une-idee-pour-lafrique-peut-aider-le-monde-entier</u>

Lancet and Financial Times Commission on Governing the Future of Health to 2030: Growing Up in a Digital World, https://www.thelancet.com/commissions/governing-health-futures-2030

Mbaye M., Diop Saïd et al. *mDiabète : Mobile phones in the fight against diabetes in Senegal. Magazine of Metabolic Diseases, March 2015*.<u>https://www.researchgate.net/publication/274263813 mDiabete le mobile au service de la lutte contre le diabete au Senega l</u>

Moritz Marcel et Dequesnes Audrey. *Using mobile phone data to fight the epidemic.* The conversation, April 2020, https://theconversation.com/lutilisation-des-donnees-telephones-mobiles-dans-la-lutte-contre-lepidemie-136987

Nay Olivier. Viruses and freedoms, AOC April 9th 2020: https://aoc.media/opinion/2020/04/08/virus-et-libertes/

Nhavoto José Antonio, Grönlund Ake, Klein Gunar O. *Mobile health treatment support intervention for HIV and tuberculosis in Mozambique: Perspectives of patients and healthcare workers*. April 18th, 2017. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0176051

Complements

Table showing Covid figures worldwide in real time. Coronavirus resource center, By Johns Hopkins University. https://coronavirus.jhu.edu/map.html

Statistics and visualisation of COVID 19 data in France and worldwide. Covid Tracker. https://covidtracker.fr/

The principle of Donor Alignment for Digital Health, par Digital Investment principles. https://digitalinvestmentprinciples.org/

I-DAIR (International Digital Health and AI Research Collaborative): <u>https://i-dair.org/</u>

Observatory of e-health in the South: https://www.odess.io/

Coalition Transform health: <u>https://transformhealthcoalition.org/</u>

WHO page dedicated to digital health and innovation: https://www.who.int/teams/digital-health-and-innovation

Collaboration Global Health Digital Partnership: https://gdhp.nhp.gov.in/home/index/53

P Page of the Government and the Agence du numérique en santé, on the digital shift and ethics in health: <u>https://esante.gouv.fr/virage-numerique/ethique-et-numerique-en-sante</u>