

# An Assessment of the Impact of Digital Financial Services on Health Outcomes and Health Systems in Kenya & Uganda.

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## i. Executive Summary.

The world made a unanimous decision to improve access to quality and affordable healthcare services and expressed that through the Sustainable Development Goal 3.0[1]. The World Health Organization (WHO) was charged with the responsibility for supporting its member states operationalize that declaration. Attainment of SDG 3.0 is anchored on successful implementation of the Universal Health Coverage (UHC) [2] which many WHO member countries have prioritized in their domestic development agenda. In Kenya, the current administration has articulately expressed UHC as a priority by including it in the Big Four agenda [3], a blueprint for socio-economic development for the country. One of the core strategies to achieve 100% UHC in Kenya is to scale up uptake of the National Health Insurance Fund (NHIF) services. Uganda also set out to achieve UHC as envisioned in its Vision 2040.

Kenya is a world leader [3] in digital financial services, mobile money in particular, providing accessible formal financial services for the country's unbanked through M-Pesa services. Uganda has a growing digital financial services sector that is yet to penetrate its population due to infrastructural and regulatory challenges inter alia. In this project, we aim to investigate the impact of digital financial services on the health system in terms of financial protection, service utilization and health system performance. Additionally, we aim to find out the factors that influence the success of digital financial services implementation by gathering data from the key players and consumers of digital financial services. Our team of experts in health informatics, health systems strengthening, and health finance and policy has an outstanding global track record in policy research, technical assistance as well as related project implementation across different settings. This will guarantee competent delivery of the requisite comprehensive landscape report and peer reviewed publications of the findings.

[1] <https://www.un.org/sustainabledevelopment/health/> [2] [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)) [3] <http://www.president.go.ke/>

## ii. Consortium Team

**Hecta Consulting Limited**- [www.hectaconsulting.com](http://www.hectaconsulting.com)- is a health systems consulting firm that was established in 2010. The firm boasts of a rich mix of health systems consultants with expertise across the different building blocks, including leadership and governance of health systems, healthcare financing and health information technology. Hecta has undertaken assignments around financial risk protection and equity in health systems. Recent assignments include doing a process evaluation of the Universal Health Coverage program across four Kenyan pilot counties (project done for the World Bank and Ministry of Health), conducting a socio-economic impact assessment of the government's Managed Equipment Leasing scheme (project done for the Ministry of Health), and examining how poorer groups in Kenya, Uganda, Malawi, Madagascar and Rwanda benefit from various types of interventions aimed at improving access to quality health services (project done for UNICEF, ESARO). **Dr Francis Wafula** leads the health systems component, with **Dr Matiko Riro** leading the healthcare financing component. Hecta will lead the sub-component of work that seeks to examine the impact of DFSs on access and financial protection of poorer groups to healthcare services as well as health system responsiveness.

**IntelliSOFT Consulting Limited** ([www.intellisoftkenya.com](http://www.intellisoftkenya.com)) is a well-established, globally recognized and respected leading digital health technology firm based out of Nairobi, Kenya. IntelliSOFT has focused its work specifically on digital health solutions in terms of research and innovation, implementation and use. Additionally, IntelliSOFT has significantly contributed at local, regional and global level to progression of digital health by supporting countries develop digital health policies and strategies, relevant standards and guidelines, and global digital health goods such as the interoperability maturity model toolkit. IntelliSOFT's direct and hands-on experience and expertise in developing, implementing, and supporting meaningful use of digital health solutions, of which DFS falls within that, makes it an extremely valuable and complementary partner to the prime, Hecta.

The consortium will also engage resource partners as relevant. At this point, we have identified a leading mobile data collection firm Hoji ([www.hoji.co.ke](http://www.hoji.co.ke)) as an important resource partner in the consortium because of the importance of efficient and effective collection and use of the assessment data. Other resource partners will be identified and engaged on a need basis.

In the consortium are also key personnel with extremely relevant and highly useful contributions to make for achievement of the goal and objectives of this assessment;

**Dr. Mike Mulongo** is a medical doctor and Mandela Washington Fellow (Business and Entrepreneurship), currently working as an International Health consultant in Kenya. He has been a technical lead in consultancies for global advocacy, global health and medical device agencies within East Africa and Europe with a keen focus on health financing policy, health systems strengthening and market strategy.

**Dr. Job Nyangena** is a highly trained health informatician and a medical doctor. He is currently actively involved in research, implementation of digital health solutions through Lonius Health Technologies and building capacity of health informatics as a tutorial fellow and researcher at the

Institute of Biomedical Informatics (IBMI), Moi University, Kenya. Moi University is also famous for establishing the Academic Model Providing Access to Healthcare (AMPATH) which brought forth the most globally popular open source medical records system, OpenMRS (<https://openmrs.org/>).

**Dr. Torooti Mwirigi** is a healthcare technology and health financing consultant with ASKADOC ([www.askadoc.co.ke](http://www.askadoc.co.ke) ) and currently the Commercial Director at [M-TIBA](#). [M-TIBA](#) is the fastest growing provider of Digital Health Financial Services in Kenya and Nigeria. Torooti's deep working knowledge of DFS and insights will provide this consortium a distinct advantage in terms of access to resources and experiences that would otherwise be largely inaccessible. He will only be involved in an advisory capacity, as he is engaged on a full-time basis by M-TIBA.

### iii. Project Description

#### 1. Problem statement

##### Background.

East African countries are all aiming to achieve universal access to safe, effective and affordable health services across their respective populations.

The Kenyan government has set as one of its big four priorities, the attainment of universal health coverage (UHC) by 2022. The goal of UHC is to ensure that every citizen has access to quality healthcare services without getting into financial difficulties or being pushed into poverty. Financial protection is at the core of universal health coverage (UHC) and it ensures that the population can access and utilize quality health services without being exposed to financial hardship. This is especially important as health emergencies are the most common cause of households slipping below the poverty line. The recent increased uptake and use of digital technology in Kenya provides an opportunity for policy makers to leverage the technology to aid in promoting financial protection through digital financial services.

Digital finance services are those delivered over digital infrastructure including mobile and internet with low use of cash and traditional bank branches. Mobile phones, computers, or cards used over point-of-sale (POS) devices connect individuals and businesses to a digitized payments infrastructure, enabling seamless transactions across all parties. Digital finance services are an important tool in improving financial inclusion which is the sustainable provision of affordable financial services that bring the poor into the formal economy. Through digital financial services, financial inclusion provides low-income individuals with the capacity to save for the future fostering stability in personal finance, make investments and access to credit.

Kenya is a world leader in digital financial services, mobile money in particular, providing accessible formal financial services for the country's unbanked. Kenya has a population of 47 million people of which 60% are rural and 43% are poor. It has an estimated 95% mobile penetration with more than 79% active DFS users (Mastercard Foundation & International Finance Corporation., 2018). Traditional banking caters to 30% of the population. Its financial inclusion rate is estimated at 82% in 2019 and is largely driven by digital financial services (European Investment Bank & United Nations Capital Development Fund, 2014).

Uganda has a population of 39 million people of which 76% are a rural population and 57% of the entire population live on less than \$2.5 per day. It is estimated to have a 41% mobile penetration rate. It has a growing digital financial service sector with 17 million registered service users as at 2017 but only 28.7% active users (Mastercard Foundation & International Finance Corporation., 2018). The formal financial sector caters to only 33% of the entire population hence a large untapped population.

Its financial inclusion rate is estimated at 46% compared to Kenya's 82%. The lower rates in Uganda can be attributed to poor infrastructure, weak agent networks, weak regulatory policies, high fraud rates, system down times inter alia which weaken user trust. Uganda provides a good comparator to Kenya's DFS ecosystem given that both are East African countries intent on achieving UHC yet have different levels of DFS use and success rates.

Digital financial services, mobile money in particular, have taken a hold in low and middle income countries providing accessible formal financial services for the unbanked. In this project, we aim to investigate the impact of digital financial services on the health systems in Kenya and Uganda in terms of financial protection, service utilization and health system performance. Additionally, we aim to find out the factors that influence the success of digital financial services implementation. We anticipate that the findings of this project will help enrich the DFS ecosystem with a view to improving inclusion, financial protection and health system performance within the two countries and other developing economies.

### Main Objectives.

1. To determine the impact of digital financial services in low resource health systems on financial protection, service utilization and health system performance.
2. To determine the factors that influence digital financial services implementation, adaptability, integration and success.

### Specific Objectives.

1. To determine the impact of Digital Financial Services on financial protection in low resource health systems in Kenya and Uganda and among the vulnerable populations.
2. To assess the impact of Digital Financial Services on service demand and utilization.
3. To assess the impact of Digital Financial Services on health system performance i.e. quality and responsiveness.
4. To determine the challenges and barriers of implementation of DFS.
5. To determine the factors that influence adaptability of DFS during implementation.
6. To determine the factors that engender in successful implementation of DFS.
7. To determine the key considerations for integration of DFS with other digital solutions.
8. To determine the considerations for successful change management in digital transitions in health care.

## 2. Approach

### i. Inception

We will engage with the client at the inception phase to help clarify Terms of References, review of concept, project design and the workplan. However, our proposed methodological approach is guided by our understanding of the objectives outlined in the call.

## ii. Methodological Approach

We propose to apply a mixed-methods approach to examine the landscape. This is because we want a complete picture, including both demand-side and supply-side perspectives.

Our classification of the DFSs will be guided broadly by the WHO framework (see below under analytical approach). However, for purposes of data collection, we plan to design instruments to collect data from the supply side (including both the providers, managers and health system), and the demand side (what we can broadly call consumer-facing DFS solutions).

Our approach will seek to generate information in three key steps. First, a detailed review of documents reporting/examining DFSs. Second, a synthesis of information collected to define a typology that would allow us to collect primary data from selected stakeholders. And finally, primary data collection using a mixed methods approach (qualitative and quantitative data collected from different actors).

## iii. Document review

The team will undertake a document/literature review on DFSs specifically, and tech innovations in health more broadly, with a focus on low and middle-income countries. The consultants are well versed with literature on health management information systems, digital solutions to health systems challenges, and the health system performance more broadly, all of which will allow a detailed exploration of the phenomena. The consultants have a strong network of firms and experts working within the digital health space and have access to a lot of unpublished work done in the area. All these will contribute towards strengthening the review.

Documents obtained from our libraries and networks will be complemented by a detailed literature search. Searches in online databases like PubMed and Web of Science will be further complemented by grey literature searches and snowball searching using references of relevant documents. Websites of organizations whose work touches on digital solutions will be searched. Additional information/data will be sourced from grey literature as well as relevant sources from our (Hecta Consulting) repository. These shall include (and not limited to) government census reports, the District Health Information System (DHIS-2), national and county accounts, County Integrated Development Plans (CIDP)s, selected hospital records and digital financial service sector reports.

The focus will primarily be health systems outputs due to budgetary and time limitations. However, in recognition of blurred boundaries between health systems and social determinants of health, we will examine limited connections to closely related sectors such as logistical support to healthcare services and innovative financing solutions that touch on both health services and closely related markets. Care will be taken to ensure the expansion doesn't result in excessively digressing from the core purposes of the project.



Data will be abstracted using a standard template, and summaries written to reflect emergent issues. A structured narrative synthesis will then be conducted, and findings written up. The output from the component will be a detailed review document.

#### iv. Development of an analytical framework

Synthesis from the review will guide the development of a practical typology of available DFS for health to allow the refinement of data tools for subsequent data collection activities. We will be guided primarily by the WHO classification of digital health interventions (Organization and Others 2018). This classification ties digital health interventions to the health system challenges that they aim to address. Further, it classifies the digital intervention under the target audience it is aimed at i.e. interventions for clients, health providers, health system managers and data services. In this exercise we will focus on cost of healthcare as a health system challenge and we will explore the different digital financial services that have been implemented to address this challenge from the different perspectives of the client, care provider and health system managers. An example of the linkage from the relevant Health System Challenge on Cost to the associated Digital Health Intervention for addressing that specific challenge and the category of the digital health solution is shown in the diagram below;

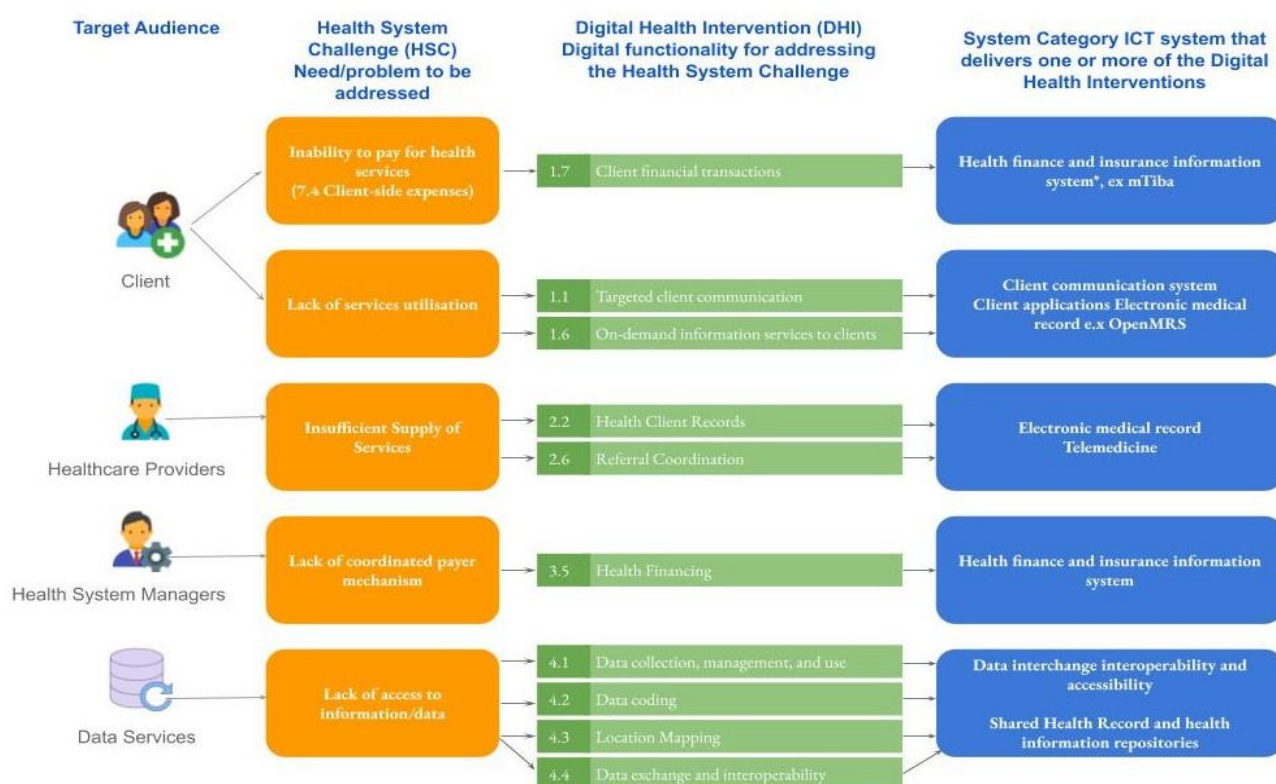


Figure 1: WHO Digital Health Interventions to Health Systems Challenges

Additionally, we will be keen to identify areas that may touch on the DFS solution, but not adequately represented in the WHO framework.

We will adopt the UN CDF Mobile Money for the Poor Honeycomb shown below as a preliminary guiding framework. This will allow us to review the interactions within the current ecosystem considering customers, providers, infrastructure, policy regulation, distribution channels and volumes of users.

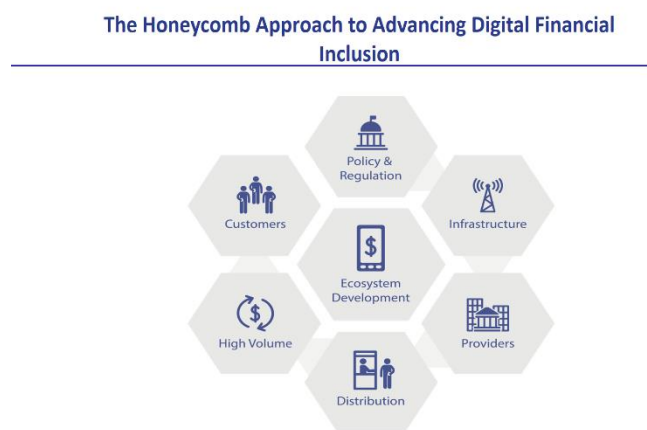


Figure 2: Mobile Money for the poor honeycomb framework.

The output from this component will be a broad framework, mimicking what a theory of change for DFS interventions would typically look like, and what their pathways to impact will be expected to look like. This will be used to draw out specific items for the data collection tools for subsequent data collection activities. This enhanced framework will be a key output from the survey as our contribution to creation of new knowledge for future us.

#### v. Quantitative survey

We propose to design a questionnaire survey targeting primary users (including end-line beneficiaries) of selected DFS interventions (accessed through various forms of mobile electronic devices and electronic cards), based on the typology created in the preceding section. This will include mapping out stakeholders across the 4 overarching groupings that represent primary users of DFS. The survey will seek to examine the impact (and perceived impact) of the DFSs on the multiple primary users. In addition, questions will be asked to understand the demand-side experiences and challenges, particularly in relation to removing barriers to accessing and using various forms of health services.

Depending on discussions with the contractor prior to the start of the assignment, the survey may use a mobile platform (for example Hoji), online platform and/or face to face interviewing. Hecta, one of the partners in the consortium has close working ties with several players working in the digital health space, including Safaricom and the Strathmore University Data Centre. Discussions are presently ongoing among these and other partners on strengthening information management for non-communicable diseases using digital platforms. Dr Wafula, one of the leads on the project, is a senior faculty at Strathmore University, and support both the Data Centre, and the Data Analytics and Risk Group. We expect that these discussions will contribute to the undertaking of this assignment. The

consortium partners also have vast experience implementing surveys using Survey Monkey and other internet-based survey platforms.

#### vi. Qualitative interviews

We plan to conduct in-depth interviews with a wide range of actors within the DFS space. We expect that the interviews will mainly target the supply-side. However as mentioned above, we will also include the demand constituency.

The interviewees will be identified through purposive sampling. We expect to include the following (list not exhaustive): Health insurance providers, selected health facilities administrators, finance, health records, ICT among others, Ministry of Health officials, Ministry of ICT, Regulators: Communications Authority of Kenya (CAK), Uganda Communications Authority, DFS providers (e.g. Telecommunication Companies e.g. Safaricom, MTN, Airtel/Telkom, Equitel, M-Tiba etc.), Bankers Associations, Patient representatives and development partners.

The interviews will be conducted with key stakeholders including (and not limited to) the following: Digital finance service players like telecommunication companies, banking sector representatives, ICT experts, public health insurance and private health insurance representatives, hospital management teams, Govt officials e.g. MOH, Ministry of ICT, regulatory authorities e.g. Communications Authorities, Medical Council, civil society and patient representatives, Persons with disabilities (PWDs), elderly representatives inter alia.

The priority will be given to doing one-on-one interviews with the stakeholders. However, we may consider doing two or three focus group discussions with very select groups of consumers who are intended beneficiaries or have already used a DFS.

#### vii. Workshop(s)

At the end of the data collection exercise, we plan to hold a stakeholder feedback meeting to allow us to bounce of some of the findings and validate major themes emerging from the data. We will use the forum to gather additional data from some of the stakeholders who may have been unable to attend an interview, but who would be happy to contribute at group level.

#### viii. Data Analysis

Information will be entered into a database and prepared for analysis (quantitative survey data), or transcribed (for qualitative data).

Survey data analysis will seek to estimate the impact of the DFSs using appropriate metrics (where applicable). We expect that quantitative estimation of impact or effectiveness may not always be possible and propose to analyze the demand-side survey data to gauge the users' perception of impact based on their personal experiences. Impact will be estimated based on various parameters, including

access to certain services, coverage and utilization/uptake of services across new groups, level of financial risk protection and financial inclusion metrics.

We propose to identify one or two cases of DFS models for a more detailed examination, including exploring the possibility of doing a benefit-incidence analysis (BIA, a technique we use in health economics to assess the utilization of certain services or interventions by individuals in different socio-economic strata). Hecta Consultants have previously conducted a benefit-incidence analysis for UNICEF, looking at the extent to which health services meant equity principles in Uganda, Rwanda, Madagascar and Malawi. The team has the competence to conduct BIA. Alternatively (depending on the completeness of data available), the team could conduct a socio-economic impact assessment, or assess the socio-economic profiles of users benefitting from the DFSs. Hecta consulting has previously used the Progress out of Poverty (PPI) model to examine the socio-economic status of clients using private healthcare providers in Nairobi Kenya.

Besides estimating impact, the team will examine the implementation models for the DFSs, with a specific focus on identifying facilitators and barriers to effective uptake and/or utilization. Qualitative interview data will allow a detailed narrative synthesis of the experiences and challenges of achieving goals set up by the DFS providers across the country.

#### ix. Report Compilation

We shall consolidate our findings and prepare a draft landscape report for validation by client/donor. We shall then prepare a final landscape report incorporating the client input. Further, we shall prepare a concise report drawn from the final landscape report for publication in peer reviewed journals.

### 3. Risk Mitigation

Key risks that may arise and proposed mitigation approach.

#### i. Lack of willingness to share information with third parties or fear that sensitive information may be divulged to third parties

Mitigation approach - we propose to obtain ethics clearance, which will compel us to keep to certain principles. The stakeholders approached will be shown the ethics clearance letter. In addition, we will assure all interviewees that no information about sensitive aspects of their model or business will be published or publicly shared without their direct consent.

#### ii. Interviewee unavailability due to conflicting schedules

Mitigating approach - We propose to engage stakeholders throughout the research process, including early discussions on the project's purposes and potential benefits to them. In addition, we will propose alternative interviewing methods, including telephone interviews if need be.

We recognize that effectively reaching a critical mass of consumer beneficiaries of DFS during the assessment may be a challenge. Enlisting Hoji in this project will help us broaden our reach in data collection as well as bolster the quality and data management capacity.

#### 4. Work Plan.

Figure 3: Proposed Workplan

Phase	Inception	Desk Research	Data Collection	Analysis & Compilation	Report Validation	Final Report Compilation
Period	Week 1	Week 2 - 4	Week 5 -15	Week 16 – 20	Week 21	Week 22 – 25
Activities	Clarify objectives & Methodology.  Clarify roles and expectations with partner(s).	Stakeholder mapping. Desk review of literature. Development of data collection tools. Development of analytic framework.	Conduct expert interviews. Conduct surveys among the stakeholders. Hold Focused Group Discussions. Hold stakeholder workshops.	Analysis of collected data.  Draft report compilation.	Preparation of draft landscape report and project summary report to the client.	Iteration of both reports to incorporate client feedback.
Output	Inception report.	Stakeholder summary. Literature summary. Interview and survey guides. Analytic Framework.	Raw data summaries & Transcripts.	Draft landscape report.  Draft project summary for journal publication.	Client feedback on draft reports.	Final landscape report. Final project summary for journal publication. Summaries for infographics, newsletters, blogs etc.
Actors	Hecta Consortium, Client & Partner (s).	Hecta Consortium.	Hecta Consortium & Stakeholders.	Hecta Consortium.	Hecta Consortium, Client & Partner (s).	Hecta Consortium, Client & Partner (s).

#### 5. Deliverables.

The ultimate project outputs will include the following:

- Landscape report outlining the impact of digital financial services in low resource health systems in Kenya and Uganda on financial protection, service utilization and health system performance as well as the factors that influence implementation, adaptability, integration and success of digital financial services.
- Summary paper (s) for publication in international peer reviewed journals for health equity/policy/digital financial services/ health informatics/ health technology.

- Summary reports for dissemination to stakeholders as infographics, newsletters, blog reports inter alia.

## 6. Budget.

Table 1: High level budget summary

Budget Category	Total Cost (USD)
Personnel (Salaries and Wages)	18,000.00
Fringe Benefits	3,600.00
Consultants	90,000.00
Travel	13,300.00
Supplies	2,000.00
Other Direct Costs	10,000.00
Contractual	35,000.00
Equipment	0.00
<b>Total Direct Costs</b>	<b>171,900.00</b>
Indirect Costs	17,190.00
<b>Total Project Costs</b>	<b>189,090.00</b>

## Referenced Resources

1. <https://www.un.org/sustainabledevelopment/health/>
2. [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))
3. <http://www.president.go.ke/>
4. <https://www.usaid.gov/documents/15396/role-digital-financial-services-accelerating-usaids-health-goals>
5. <https://apps.who.int/iris/bitstream/handle/10665/252183/9789241511766-eng.pdf>
6. European Investment Bank & United Nations Capital Development Fund. (2014). Digital Financial Services in Africa: Beyond the Kenyan Success Story. Brussels: United Nations Capital Development Fund.
7. Mastercard Foundation & International Finance Corporation. (2018). Digital Access: The Future of Financial Inclusion in Africa. Johannesburg: International Finance Corporation.