

How Digital Financial Service innovations supported universal health coverage in Kenya and Rwanda

A TECHNICAL BRIEF ABOUT DIGITAL FINANCIAL SERVICES FOR HEALTH PROGRAM IMPLEMENTATION EXPERIENCES IN KENYA AND RWANDA

Digital Square is a PATH-led initiative funded by the United States Agency for International Development, the Bill & Melinda Gates Foundation, and a consortium of other donors. For more information on Digital Square, please visit our website at www.digitalsquare.org or email digitalsquare@path.org. For more technical information on Digital Square-approved global goods, please visit our wiki at www.wikidigitalsquare.io. This report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of PATH and do not necessarily reflect the views of USAID, the United States Government, or our other funders.

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Recommended Citation: Wilson, D¹, Haas, S², Hitimana R³, Rulisa, A³, Machichi, A⁴. 2022. *How Digital Financial Service innovations supported universal health care in Kenya and Rwanda. Technical Brief*, Arlington, VA: Management Sciences for Health

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BACKGROUND

As countries work toward universal health coverage (UHC) (Sustainable Development Goal 3.8),⁵ digital financial services (DFS) for health can contribute to achievement of this goal. Applications in the context of health include digital health insurance; health savings accounts; credit, transfers, remittances, and loans; vouchers for health care; payments for health care/insurance by beneficiaries; and bulk purchases/payments across the health system, including payments to health workers.

Building on the 2019 publication “The Role of DFS in Accelerating USAID’s Health Goals”,⁶ USAID’s Global Health Bureau, via its Office of Health Systems, commissioned studies on the role of DFS in advancing financial protection and supporting improved health system performance. The studies included 1) this implementation research on two programmatic case studies of DFS for health and 2) a complementary global evidence review of DFS for health that was implemented by Abt Associates through the Local Health Systems Sustainability Project (LHSS).⁷ While the research questions across both studies were similar, the programmatic case studies enabled us to drill down and better understand specific interventions and implementation issues.

Figure 1: Rwanda CBHI section officer checking a client's insurance membership



This technical brief describes research led by Management Sciences for Health (MSH) through Digital Square from June 2020 through August 2021. The brief introduces the problem statement, outlines our study approach, explains the key findings, and closes with lessons learned and recommendations to inform future implementation of DFS for health initiatives. For more detail, the full study report [Digital Financial Services for Health Programmatic Cases Studies: Experience from Rwanda and Kenya](https://digital-square.org/resourcesrepository/2021/9/7/digital-financial-services-for-health-programmatic-case-studies-from-kenya-and-rwanda) is published on the Digital Square website.⁸

⁵ <https://www.who.int/health-topics/sustainable-development-goals>

⁶ https://www.usaid.gov/sites/default/files/documents/15396/DFS_Accelerating_USAID_HealthGoals.pdf

⁷ Mangone, Emily, Pam Riley, and Kenya Datari. 2021. [Digital Financial Services for Health: A Global Evidence Review](https://pdf.usaid.gov/pdf_docs/PA00XDJ7.pdf). Rockville, MD: USAID Local Health System Sustainability Project, Abt Associates Inc., https://pdf.usaid.gov/pdf_docs/PA00XDJ7.pdf

⁸ Wilson, D , Haas, S , Hitimana R , Rulisa, A, Machichi, A . Digital Financial Services for Health Programmatic Cases Studies: Experience from Rwanda and Kenya. Arlington, VA: Management Sciences for Health

<https://digitalsquare.org/resourcesrepository/2021/9/7/digital-financial-services-for-health-programmatic-case-studies-from-kenya-and-rwanda>

Problem Statement/Challenge: WHO data from 2010 noted that about 100 million people were being pushed into “extreme poverty” (living on \$1.90 or less a day) because they have to pay for health care.⁹ Financial protection is achieved when direct payments made to obtain health services do not expose people to financial hardship and do not threaten living standards. A key to protecting people is to ensure prepayment (savings) and pooling of resources (insurance) for health, rather than paying for services out-of-pocket at the time of use. Advances in digital technology have made it more efficient and affordable to reach people with key services but there is little information published about how countries have implemented the linkages between DFS and UHC programs including health insurance. The goals of these programmatic country case studies were to answer the following research questions:

1. What is the experience in implementing the program, specifically:
 - a. facilitators and barriers to successful implementation
 - b. program adaptations
 - c. pandemic-related changes¹⁰
2. How is the program perceived to influence health systems performance?
3. What has been the client/beneficiary experience of the program and with regard to:
 - a. financial protection
 - b. service demand/utilization

METHODS

MSH identified two programmatic case studies to examine the role of DFS in advancing financial protection in accessing health services and supporting improved health system performance. The case studies focused on initiatives that applied digital technology to improve access to, and quality/efficiency of, health insurance schemes designed to cover households in the informal sector who do not benefit from employer-provided health insurance. They were selected because they represent innovative use of DFS to support UHC programs at scale. The case studies are:

<p>Rwanda: Community-based health insurance (CBHI) program</p>	<p>Kenya: Innovative Partnership for Sustainable Universal Health (i-PUSH) program, SafeCare and Medical Credit Fund (MCF)</p>
<p>CBHI is a government-led program to advance UHC and is implemented nationally. This case study focuses on CBHI’s “Mutuelle Membership Management System” (3MS), an</p>	<p>i-PUSH uses mobile technology to connect low-income women of reproductive age and their families to health insurance using the M-TIBA mobile “health wallet” to pay for health services</p>

⁹ World Health Organization: Universal Health Coverage (https://www.who.int/health-topics/universal-health-coverage#tab=tab_1)

¹⁰ The emergence of the COVID 19 pandemic led to the inclusion of the third sub-objective of question 1 about how the experience of the pandemic influenced the implementation of DFS services.

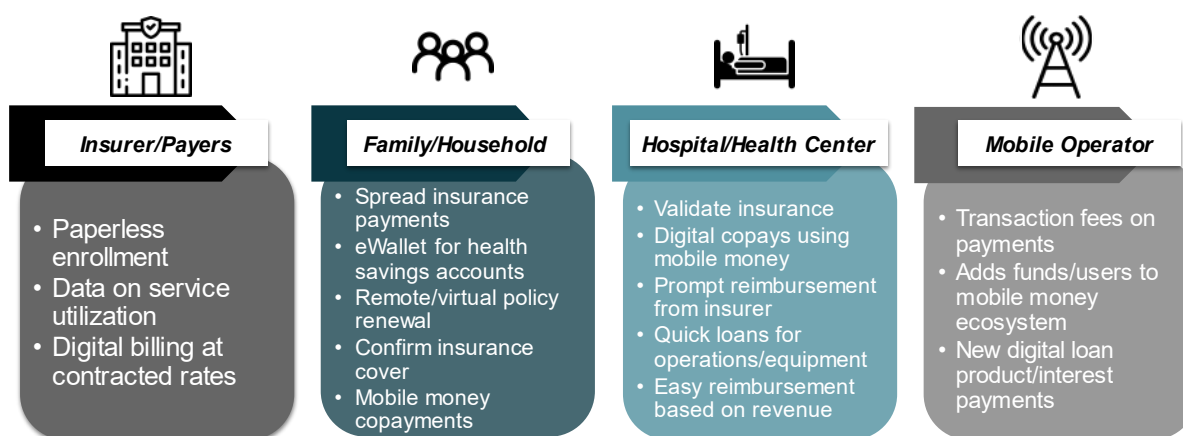
<p>interoperable software platform which supports beneficiary and premium management through online registration, membership validation, and links to electronic payment gateways—including the government’s IREMBO payment gateway—to facilitate mobile money transactions between citizens and service providers.</p>	<p>and insurance premiums. SafeCare leverages the same platform to establish a service quality assessment and improvement system for health facilities. The MCF provides mobile cash advance loans for financing operational costs or medical equipment purchases to health-related small and medium-sized enterprises. The i-PUSH and MCF programs are privately led by the PharmAccess Foundation.</p>
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Data collection methods included qualitative key informant interviews (KIIs) and quantitative analysis of existing secondary data previously collected through the programs. KIIs engaged the wide range of stakeholders in the DFS for health programs, including implementers, developers, and recipients/users. In Kenya, the team conducted a total of 7 KIIs with program implementers and 26 KIIs with program beneficiaries. In Rwanda, the team conducted 9 KIIs with program implementers and 18 KIIs with program beneficiaries.

KEY FINDINGS

As highlighted in Figure 2, participants in these programmatic case studies identified a wide variety of benefits to incorporating DFS in programs that promote UHC.

Figure 2: Perceived benefits of DFS for health programs



Key study findings are discussed in more detail below grouped around the following key themes that emerged from the cases studies about how DFS have shown added value: 1) improving health system performance, 2) increasing access to health insurance, 3) improving quality of data and services, and 4) improving resilience during the COVID pandemic.

1. IMPROVING HEALTH SYSTEM PERFORMANCE

Respondents from both case studies believed that DFS contributed to health system performance by making systems more responsive, enabling programs to quickly implement changes to services based on new laws or client-proposed features. The DFS initiatives supported national eGovernment initiatives to move from manual to automated management for greater efficiency, transparency, equity, and control.

2. INCREASING ACCESS TO HEALTH INSURANCE

With respect to the client/beneficiary experience, the KIIs and secondary data suggested that DFS likely contributed to increasing the number of clients with health insurance coverage in both cases (Figure 3); however, there were also many other changes in market dynamics that also likely influenced health insurance coverage. Respondents (program managers and some users) praised the easy use of digital functions, compared to the paper-

Figure 3: Cumulative recruitment curve for i-PUSH beneficiaries 2018-2020 (Source: i-PUSH)

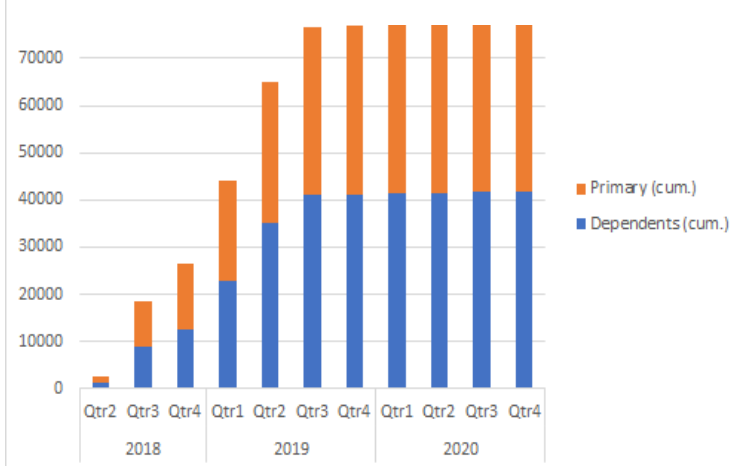
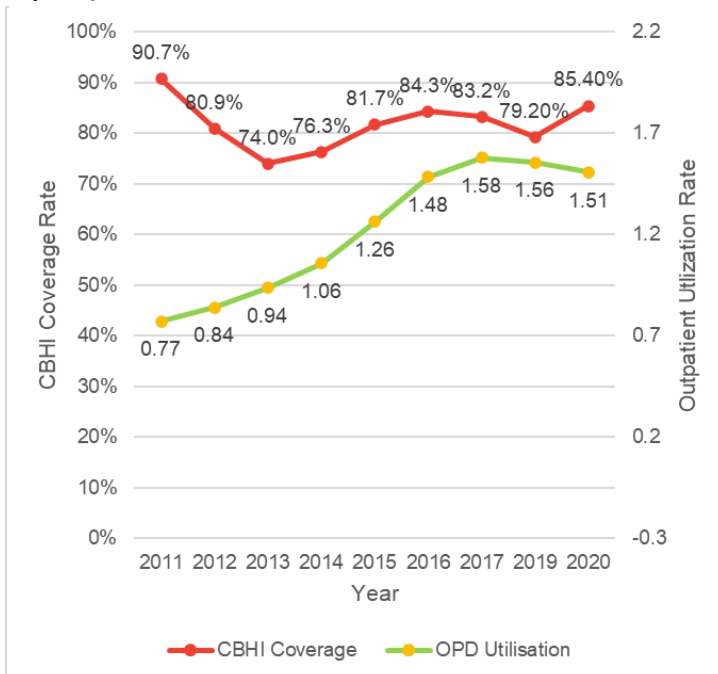


Figure 4: Comparison of CBHI coverage and per capita OPD utilization rates in Rwanda 2011-2020 (Source: RHMIS and CBHI reports)



based systems, and their effect on individual savings behavior to prepare them for health expenditure should their household be hit by a health shock. Users also felt more engaged in the process by being able to pay premiums and check the status of their enrollment in real time using a simple feature phone.

Increasing trends in utilization of health services were also noted by users and service providers as enrollment in formal insurance schemes increased and entitled participants to a wider array of services (Figure 4). However, the extent to which this was influenced by DFS could not be established through these case studies and the i-PUSH experience in Kenya also

found some of these gains to be short-lived. The program was overly ambitious in expecting their target population of low-income women to progressively take on the full costs of insurance premiums after an initial year of fully-subsidized payments. Due to competing demands on their limited household incomes, only 12% of the women who began the program were able to meet their expected contributions and transition into the second year of the program.

3. IMPROVING QUALITY OF DATA AND SERVICES

The findings also suggested a variety of other health system performance gains including improvements in access to better quality data for case management, fraud detection, health facility cash flow management, cost savings, and improved quality of services.

In Kenya, PharmAccess paired the SafeCare program with the MCF program to help drive quality improvement in participating facilities. SafeCare—a digital assessment tool based on a set of internationally accredited clinical quality standards—uses the standards to help providers plan, execute and benchmark their quality improvement plans. Where SafeCare identified quality issues related to lack of equipment, the MCF program enabled the providers to receive loans to purchase new assets to upgrade medical devices or offer new diagnostic services that the traditional banks were unwilling to risk funding without substantial collateral and more extensive data on private health facilities' credit worthiness.

4. IMPROVING RESILIENCE DURING THE COVID PANDEMIC

Use of DFS was perceived to have contributed to health system resilience during the COVID pandemic. As health facilities shifted away from handling cash payments, mobile money payments were perceived to be a much safer option. Similarly, with the option to pay insurance premiums using mobile money, citizens felt safer than when they had to queue up at banks to deposit cash to pay their premiums.

On the provider side, the MCF enabled health-related small and medium-sized enterprises to weather the uncertainties of patients' health seeking behavior through the Mobile Cash Advance system. This enabled providers to apply for and receive collateral free electronic payments to help cover operational costs such as employee salaries and supplies during a period when a large portion of the population avoided coming near a health facility. These loans were then reimbursed automatically through a revenue sharing agreement, not a fixed amount that could have caused undue hardship when patient visits were in decline.

LESSONS LEARNED & RECOMMENDATIONS

IMPLEMENTATION CONSIDERATIONS

The case studies revealed a number of facilitators and barriers to successful implementation of DFS for health. The table below highlights some of the common

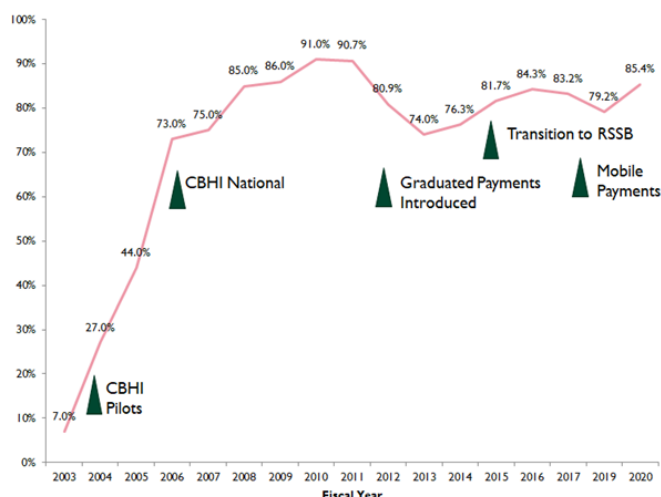
facilitators and barriers reported by study participants (learnings specific to one case study are noted in parentheses):

Facilitators	<ul style="list-style-type: none"> • <i>Mature public insurance schemes and network of health facilities</i> • <i>Existing community-based networks of mobile money agents and community health workers (CHWs) to bridge the digital divide</i> • <i>Effective collaboration among private, public, and NGO sectors</i> • <i>Multisectoral investments in the general information and communication technology (ICT) infrastructure</i> • <i>Government’s digital vision: “Zero paper, zero trips” and high level political support (CBHI)</i> • <i>Strong community of software developers to manage and improve the M-TIBA platform (i-PUSH)</i> • <i>Building trust across institutions to enable interoperability with national population registration systems (CBHI)</i>
Barriers	<ul style="list-style-type: none"> • <i>Old infrastructure not up to peak demand; spotty internet in some remote areas</i> • <i>Low digital literacy at household level</i> • <i>Lack of electronic payment gateways and APIs to reliably connect systems managed by different actors</i> • <i>Inadequate onboarding of CBHI and facility staff using 3MS (CBHI)</i> • <i>I-PUSH target beneficiaries had too many competing demands on their limited income and no experience with savings (i-PUSH)</i> • <i>Poor quality smart phones produced inadequate images of required certificates for registration through i-PUSH (i-PUSH)</i>

The following discussion highlights examples from a selection of the key facilitators (+) and barriers (-):

+ Mature UHC programs: Although the studies could not demonstrate a causal link between the technology investments/uptake and increasing health insurance enrollment, the countries’ commitment to investing in broad-based UHC programs for citizens in the informal sector and for the poor supported a market for DFS. This was especially the case in Rwanda where 86% of the target population was covered by CBHI in 2020 (see Figure 5). This ensured that there were trusted insurance schemes into which citizens, healthcare

Figure 5: Rwanda CBHI coverage % and programmatic milestones



providers and government saw the benefit of contributing.

+ Existing community-based networks of mobile money agents and CHWs: Both programs leveraged broad networks of community-based workers (such as CHWs and mobile money agents) to boost enrollment and to help overcome the digital divide in households where digital literacy was low. Having a direct link to households through community health volunteers (CHVs) and CHWs in Kenya leveraged what already existed—especially in an area where mothers feared going to hospitals but trusted local health workers from their own community. In Rwanda, the network of district- and community-based IREMBO and mobile money agents in remote areas helped less digitally literate citizens complete their transactions.

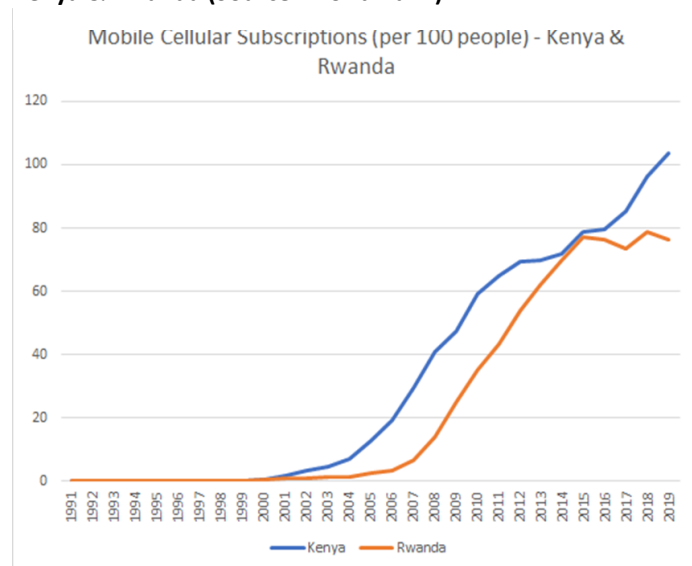
+ ICT infrastructure investments: Mobile cellular subscriptions in Kenya and Rwanda have rapidly increased (Figure 6), reflecting the popularity of mobile phones, as well as multisectoral investments in the general information and communication technology infrastructure, which enable increased access to digital tools and DFS.

+ Multi-sectoral collaboration: Respondents highlighted the importance of multi-sectoral collaboration and the need to develop trust across government agencies and private sector organizations to enable interoperability between systems. This was noted in particular in linking with national population registration systems.

+ Government’s digital vision: The Government of Rwanda embarked on a multi-sectoral initiative to provide key government services digitally. Based upon the slogan “**Zero Paper, Zero Trips**”, all sectors were prompted to make use of the public/private partnership, IREMBO, as a digital payment platform for services. Citizens were encouraged to use convenient digital services to avoid trips to government offices and banks where they would otherwise queue up to enroll in and pay for services. Regulations were also changed to enable paperless processes.

+ Existing DFS platforms: In Kenya, PharmAccess was able to leverage CarePay’s widely used M-TIBA mobile wallet platform to allow participants, payers, and healthcare providers to send, receive and pay healthcare funds to each other quickly and at minimal cost. In Rwanda, the government’s establishment of the IREMBO payment gateway for government services—through a public-private partnership—facilitated mobile money transactions between citizens and service providers; however, the CBHI

Figure 6: Mobile cellular subscriptions (per 100 people) in Kenya & Rwanda (Source: World Bank)



program had yet to be automated, so a local software development firm was contracted to develop the 3MS software and integrate it with IREMBO.

“When someone needs treatment, this person dials into the M-TIBA platform with a mobile phone, selects the appropriate health scheme and location and thereby initiates the process. The healthcare provider then proceeds with diagnosis and treatment and finally submits the claim. If the patient is covered by insurance or via a donor, the clinic digitally sends the information to the payer, who reviews the information and authorizes payment—again, all through M-TIBA.” - *PharmAccess program manager*

- **Low digital literacy:** Despite high mobile phone penetration in both countries, low digital literacy was identified as a barrier to using DFS platforms for some households. To mitigate this issue in the i-PUSH program, PharmAccess relied on CHWs to assist with digital enrollment of targeted beneficiaries, while Rwanda leveraged the extensive network of mobile money agents to assist households with CBHI transactions.

- **Competing demands on targeted households’ limited income:** Programs designed to serve low-income populations need to be realistic about how much they can contribute towards their own premiums. The i-PUSH program saw a sharp drop in second-year enrollment when households had to pay a share of their enrollment premiums. With its broader reach across different income categories, Rwanda’s CBHI instituted progressive premiums so wealthier households pay more, and the government covers the entire premium for around 15% of households in the lowest income category.

Many households targeted by these initiatives face precarious financial situations—amplified because of COVID-19—and competing priorities for their limited budgets “Do I buy food? Do I pay [my] premium? Do I pay school fees?” - *i-PUSH program respondent*

RECOMMENDATIONS FOR DESIGNING AND IMPLEMENTING EFFECTIVE DFS PROGRAMS FOR HEALTH

These case studies led to the development of four recommendations, summarized below, for the design and implementation of health programs incorporating DFS:

1. Use a whole systems approach to assess and build upon the existing digital landscape and engage stakeholders

Well-designed DFS for health should use a whole systems approach to consider the broad environment into which they are introduced. This should include developing trust and engaging multi-sectoral stakeholders from the government (e.g., health, finance, and other ministries), the private sector (e.g., financial technology, banking, mobile industries), and the communities themselves that are the intended users. Stakeholders should jointly assess the maturity of the digital health ecosystem and establish a shared vision for multisectoral ICT investments to strengthen the foundation for DFS tools. Digital Square’s recently released “[Navigator for Digital Health Capability Models](#)”¹¹ can help identify the most appropriate assessment tool for a country’s context.

DFS for health programs should also leverage the existing service delivery ecosystem, for example, community-level agents (such as CHWs, CHVs, and mobile phone agents), to make services accessible at the household level and help bridge the digital divide.

2. Promote opportunities to responsibly use the abundance of detailed transactional data generated by DFS for other purposes

DFS for health generate a wide range of transactional data about the spending patterns—who, where, for what services, how frequently, how much, etc.—that were not available in paper-based systems. By using machine learning and artificial intelligence algorithms for secondary analysis of these data, DFS-enabled programs have the opportunity to gain valuable insights to better focus programs on underserved populations, detect unusual spending patterns that may indicate fraud, and refine service packages to be more responsive to population needs. These analyses must, however, be designed to respect citizens’ privacy in line with general data protection and regulation standards such as the European Union’s [GDPR](#).¹²

3. Use DFS to help expand financial protection based on the financial realities of the target populations served

Initiatives that seek to expand financial protection must be built around the financial realities of the target populations they serve. While DFS for health initiatives may focus on helping households enroll their family members in health insurance schemes, the experiences in both programs highlighted that these systems can also play an important

Recommendations

- Use a whole systems approach to assess and build upon the existing digital landscape and engage stakeholders
- Promote opportunities to responsibly use the abundance of detailed transactional data generated by DFS for other purposes
- Use DFS to help expand financial protection based on the financial realities of the target populations served
- Consider incorporating DFS into health care financing initiatives as part of programs to build resilience

¹¹ Navigator for Digital Health Capability Models, 2021

https://wiki.digitalsquare.io/index.php/Navigator_for_Digital_Health_Capability_Models

¹² European Union’s General Data Protection Regulations (<https://gdpr.eu/tag/gdpr/>)

role in connecting beneficiaries to needed funding streams. In Rwanda, household means testing provided data that enabled the government to fund the health insurance premiums of all households below the designated poverty line. The mobile money payment systems were also designed to make it easy for third parties—such as a wealthy relative, local non-profit organization or small business in the informal sector—to pay health insurance premiums for households so that more economically disadvantaged families can benefit from preventive and curative health services, and countries can advance on the path toward UHC.

Traditionally, many of these insurance premiums were developed in a way that required a single annual payment premium, partly because of the difficulty of monitoring eligibility using paper-based systems when multiple installment payments are made over time. DFS have made it easier to monitor payments when costs are spread out over time, either by paying off the entire premium at the beginning and then offering no- or low-interest loans that are then recovered over the course of the year, or by splitting the total across multiple payments. These types of initiatives facilitate health insurance premium payments to expand risk pooling and remove some financial barriers.

4. Consider incorporating DFS into health care financing initiatives as part of programs to build resilience

This study showed that DFS-enabled systems such as mobile loans, electronic payments, and mobile health wallets helped consumers and providers weather some of the challenges associated with the COVID-19 pandemic and protect their families from other health-related shocks. Health programs that seek to build resilience should consider these experiences and build DFS into their health care financing initiatives to enhance access and efficiency.