

### **Executive Summary**

Utilizing our expertise in Digital Financial Services (DFS), global health, and design and deployment of technologies for emerging markets, University of Washington (UW) in Seattle, Information Technology University (ITU) in Lahore and Medic Mobile will work together to assess the financial protection means available to resource-constrained and vulnerable users of health care systems, as well as the effects of the digitization of financial protection, billing, and payments and the correlation with utilization for such populations in resource-constrained environments. Our previous expertise on health system reporting, immunization logistics, medical record systems, and maternal health give us a holistic lens into global health systems. We have also completed extensive in-depth work to understand the barriers to adoption of DFS, and produced a substantial number of papers that focus on DFS, including DFS and health payments. Our previous work explains the gendered nuances around technology, family, finances, and health as well as the role of gender in technology ownership, access, and use. Along with an exploration of barriers and challenges to DFS adoption with regard to health services, we will articulate the impact of gender on DFS and health services. Thus, based on our extensive work in DFS and digital health implementations and given the context of the locations in question, we propose to emphasize the impact of gendered barriers throughout the landscaping project, particularly in the case of financial protection and implementation considerations of DFS in health care. Our work underscores the importance of the context-based approach, and we study the socio-cultural norms and their role in the financial and health service interaction. The consortium team has expertise in mixed-methods research, fieldwork, technology development and deployment in Kenya, Tanzania, Peru, Mexico, Pakistan, India, Indonesia, and the Philippines. UW will lead this landscaping project, in collaboration with ITU in Pakistan and the Medic Mobile's team in Uganda.

### **Consortium Team**

The work will be conducted at the University of Washington, Seattle, and at the Information Technology University, in Lahore, Pakistan. Medic Mobile will offer their expertise in health payments.

UW has the leading academic research group in Information and Communication Technologies for Development (ICTD), led by professors Richard Anderson and Kurtis Heimerl. The ICTD Lab has a 15-year history of producing top graduates, strong publications, and notable systems including Open Data Kit, Digital StudyHall, Projecting Health, and ReSpeak. The topic of this landscaping project is at the intersection of two of the lab's focus areas: DFS and computing for global health. Under BMGF's Financial Services for the Poor program, our work examined challenges in adopting DFS and included landscaping, literature surveys, and assessment of specific mobile money products, workshops, and country case studies. Among the works was the evaluation of the security of mobile money applications on both smartphones and basic phones, digitization of traditional savings products, and identification of barriers to women's financial and technological inclusion. The DFS project has a geographical focus on Sub-Saharan Africa and South Asia. The ICTD Lab has also done substantial work in computing and global health in collaboration with organizations such as the UW Department of Global Health and PATH, with on-the-ground work in India, Pakistan, Tanzania, Kenya, Laos, and other countries. Our work focused on health system reporting, immunization logistics, medical record systems, and maternal health. The lab's work has led to involvement with multiple global goods software systems including health insurance and case tracking products.

The ICTD Lab has partnered with Information Technology University (ITU) in Lahore, Pakistan to found the ITU FinTech Center with funding from Karandaaz. The ITU FinTech Center, directed by Lubna Razaq, has conducted collaborative research projects with UW and hosted UW fieldwork. The ITU FinTech Center developed strong ties with the Pakistan fintech industry and will be our core collaborator in the landscaping work in Pakistan. The ITU Fintech center has also led an evaluation of a program to promote women mobile money agents in Pakistan, which was completed for Women's World Banking.

Another partner is Medic Mobile, a nonprofit organization founded in 2010 to improve last-mile healthcare. Medic Mobile - which designs, builds, delivers and supports open-source software for frontline health workers and health systems - and UW recently collaborated to study digital payments for community health workers in rural Kenya. This work characterizes the complexities of salary payments through mobile money and bank payments, as well as the relationship between digital payments and health workers' well being.

### **Approach**

**Financial Protection:** First, we will create a *conceptualization and classification of the various tools and means available to and used by people to support medical expenditures or to seek financial protection like remittances, savings, insurances or conditional grants*. We will perform a classification of financial protection mechanisms and establish the various categories of formal and informal instruments (both digital and non-digital) relied upon for financial protection.

Second, we will draw comparisons of the results between using digital and non-digital means to understand the successes and failures for both. To do this, we will review the existing literature on the results achieved. The scope of this review will be global and not tied to a specific country. We will establish our general conclusions and see their application to the individual focus countries. Broad, global work will thus be validated by country-specific case studies.

**Objective:** Developing this framework will allow us to understand the sociotechnical foundation for financial protection that further interventions can build upon.

**Demand and Utilization:** To determine the effects of formal financial protection mechanisms, like universal health coverage initiatives, and utilization of financial services by the poor and vulnerable will require a review of existing surveys that provide statistically significant conclusions about the existence of any correlation between the two or lack of it. We will study formal, non-digital financial protection initiatives and mechanisms. Because the majority of the microfinance-based community insurance schemes, government grants and subsidies geared toward poor and vulnerable populations have been analog in nature, we expect to find data about non-digital products.

**Objective:** Understanding the effectiveness of formal financial protection mechanisms will allow us to understand gaps in this space and what can be improved about both digital and non-digital mechanisms.

**Health Systems Performance:** We will review existing literature to determine if and to what extent digital financial service implementations exist independently or as part of the broader digital health system initiatives. We will explore the range of approaches and scope of digitization efforts in health finance including the government conditional grants for providing financial health protection to populations below the poverty line. After this, we would follow with a review of existing evidence that provides assessment, preferably correlations, of the effects of DFS to the responsiveness of health providers in developing countries across the globe. Where such evidence exists, then gaps in the literature are to be identified.

**Objective:** Reviewing the literature on the connectedness of DFS into global health systems will allow us to understand gaps in this space and how interventions can appropriately integrate into existing systems.

**Implementation Considerations:** We will provide a review of the barriers toward the adoption and use of digital financial services based on our extensive domain experience and formative research in the proposed geographies. Based on these activities, we would have project-based milestones and progress-based evaluations for each milestone.

**Gender:** In this assessment, we will explore the impacts of gender. Women, by and large, have a greater burden to ensure that their families' health needs are met. Women and children are at greater risk to experience poverty, and women often face gendered barriers in accessing and owning technology, accessing finances to cover health services, and accessing information in gender-segregated societies. Our

formative work in Pakistan and India shows that women save without the knowledge of their male relatives in order to address differences in spending priorities. We observed that health-related expenditures differ between men and women. For instance, women can anticipate maternal health expenditures and plan accordingly. Many societies associate the role of caregiver with women, who in turn miss work to care for sick family members, compromising income generation while increasing the burden of medical expenditures.

**Objective:** Exploring the links between gender and DFS will uncover forms of financial inclusion that may benefit women as key decision-makers around health, and characterize the barriers to women's inclusion.

### **Project Description**

The project will deliver a detailed landscape study of the role of DFS in health systems in low and low-middle income countries focusing on both financial protection for individuals and improving health system performance. There will be five components of this project:

- **Formulate a conceptual framework:** A framework will provide a classification of digital financial services, health financial products, and digitalization strategies. This will ensure that the landscaping can build on existing models and scholarships.
- **Literature review:** A review of academic scholarship and gray literature will identify products and services for consideration. Further review of the literature will focus on the evidence base for the impact of digital and traditional financial services on health systems.
- **Stakeholder interviews:** We will converse with a broad range of experts to understand progress in integrating digital financial services into health systems in low and low-middle income countries with a particular focus on health insurance and savings product experts.
- **Country case studies:** Case studies will be conducted in two countries to consider DFS for health services in the context of the specific digital financial services and health financial products available. The work will involve visits to countries and in-person and remotely interviews.
- **Production of the report:** A final report will describe methodology, findings, and conclusions. In addition, a version of the report will be produced that is suitable for peer-reviewed publication. Appendices covering the detailed literature review and the frameworks considered will also be made available.

For country case studies, we will look at Pakistan and Uganda. In each country, we will examine the general questions posed in RFA in the context of the country-specific digital financial services. Uganda and Pakistan present interesting contrasts for this study. Uganda has relatively mature mobile money products based on the 'Telco' model where financial services are linked to phone numbers and accessed by basic mobile phones. Pakistan, on the other hand, has a lower penetration of mobile money and has a DFS ecosystem based on a broader range of digital products. The consortium team is well positioned to work in Uganda and Pakistan. Pakistan study will build on our existing works, conducted by ITU FinTech center and UW graduate student Samia Ibtasam, who took an in-depth look at DFS as well as traditional financial services utilized by low-income women.

### **Risk Mitigation**

Given the team's previous experience in working in emerging economies, conducting field research, barrier analysis and landscaping, the lead organization and collaborators have the ability to deliver on large-scale projects. We do not anticipate any major risks in the progress of the project. Our previous work provides a strong foundation both for understanding how finances and health services are intertwined and for employing sensitivity to the socio-cultural norms that must be considered in this landscaping.

We will follow institutional guidelines, including those set forth by the University of Washington's Institutional Review Board, and the regulations as pronounced by relevant local authorities in our focus countries.