Achieving Universal Health Coverage through Digital Financial Services

How Digital Financial Services can bolster the nascent Zambia National Health Insurance Authority goals of improving the quality of health care services and contribute to universal health coverage

Executive Summary

The introduction of a National Health Insurance Scheme in Zambia is a timely, purposeful and strategic initiative aimed at addressing certain resource deficiencies in the health system, financially protecting and advancing the health of citizens and legal residents of Zambia as well as securing the sustainability of the health system. For Zambia, it addresses concerns over the financial burden and equity in access experienced by a large segment of the population, particularly the vulnerable and indigent in seeking adequate health care services for themselves and their dependents given that approximately 99% of the population has no private health insurance coverage. Current unpublished data from the Zambia National Health Insurance Authority (ZNHIA) show that from the targeted population that is eligible (and mandated) to contribute towards the national health insurance scheme, there are no records, systems or mechanism to identify, enroll and collect premiums from 60% of the targeted contributing population. This is primarily because of the fact the majority of people in actual employment in Zambia are "self-employed" in what is categorized as the informal sector with no traceable income tax records or social security numbers. In the last five years, there has been an exponential growth of Digital Financial Services (DF), particularly Mobile Money Services (MMS) which are used by over 70% of the working age population (15-60 age; both in the informal and formal employment categories). How can this extensively used service be harnessed to identify and possibly be a preferred platform to process enrollment, premium payment, policy administration, and communication of the "unregistered" informally employed" category of contributors to the NHI?

On the other hand, Kenya has the National Hospital Insurance Fund (NHIF), a State Parastatal that was established in 1966 as a department under the Ministry of Health. Over the years, reforms have been undertaken to accommodate the changing healthcare needs of the Kenyan population, employment and restructuring in the health sector. Currently an NHIF Act No 9 of 1998 governs the Fund which transformed the NHIF from a department of the Ministry of Health to a state corporation which aimed at improving effectiveness and efficiency with a core mandate of providing medical insurance cover to all its members and their declared dependents (spouse and children). More recently, the Kenyan government has made a commitment to achieve Universal Health Coverage (UHC) by 2030. A key part of its UHC strategy is to expand coverage of the NHIF, which currently covers approximately 15% of the population. In 2015, the NHIF introduced significant reforms aimed at enrolling more people and expanding the range of services that enrolled members have access to.

The "Achieving UHC through DFS" assessment has a specific aim of gathering and providing detailed information and possible options of how the ZNHIA could collaborate and/or partner with Mobile Network Operators (MNOs) to achieve the NHI goals by increasing the member-contributor base population amongst the informally employed persons who are not captured and processed by the Zambia Revenue Authority (ZRA) for NHI monthly contributions. The assessment will identify the most practical and cost effect solutions of the client-facing interaction processes (enrollment, premium payment, policy administration, and communication) through the use of mobile money services. Furthermore, a country comparison research methodology will be applied to undertake a case study of the how the Kenya NHIF is undertaking its reforms and if some of these interventions can be applied to the nascent ZNHIA plans to increase the coverage of contributors. Our research will be informed by the WHO health financing evaluation framework that considers the feasibility, equity, efficiency, and sustainability of health financing mechanisms.

Consortium Team

Institute for Health Measurement is an African-led and owned for profit organization working primarily to strengthen health systems for public health programs across Africa and has offices in South Africa, Zambia, Swaziland and Lesotho. Since its establishment in 2011, our staff compliment has grown from 5 to a team of over 50, managing development assistance funds from the US Government, the World Bank and the UN Family (including UNFPA, UNICEF and WHO). Our operating budget has increased from approximately $400,000 per annum to approximately to $4,000,000 per annum in 2019. We have implemented health systems and health management information systems projects and undertaken large scale qualitative and quantitative research assignments and program evaluations across East and Southern Africa. IHM has a proven track record of providing high-quality cost-effective program research and evaluations for various health sector clients; health informatics technical assistance; grant funded Strategic Information (SI) and Health Management Information Systems (HMIS) program implementation. IHM comprises a team of experienced and recognized public health experts in health informatics, program monitoring and evaluation, data analytics, quantitative and qualitative researchers and epidemiologist from across the Southern Africa region who have built strong long-term working relationships and networks with key organisations and institutions in the East and Southern Africa region. Through a CDC funded sub-contract, IHM in Zambia is responsible for the deployment of a nationwide roll out of the Electronic Health Records (EHR), which will underpin NHI Information Systems functionality for user (patient) interaction and transactions with the public health providers.

IHM intends to undertake the "Achieving UHC through DFS" assessment in collaboration with the nascent Zambia National Health Insurance Authority (ZNHIA) and Zambia Information Communication Authority (ZICTA) which is the government statutory body responsible for regulation Mobile Network Operators (MNOs) including Mobile Money Services (MMS) providers. While it would be most desirable to include MMS providers as part of the research partners, given the competitive and proprietary nature of the services to assessed, IHM proposes ZICTA as the assessment partner as it is an independent entity that provides the legislative engagement channel through its regulatory mandate that provides for periodic reviews of its Value Addition Services licensing[1] to MNOs and also allows for a neutral and transparent interactive platform with MNOs that will foster access to sensitive information such as MNO client databases.

The research team will be led by Dr Mpuma Kamanga, a well-rounded public health clinician and health economist with over 18 years' experience and lead policy designer of the National Health Insurance Act. Dr Kamanga has extensive experience in developing and implementing health systems projects across Africa with a strong track record in Health Financing. He has led and supported various national and international research projects in health systems strengthening initiatives. He holds a Bachelor of Medicine and Surgery (University of Zambia) and a master's in public health economics University of Cape Town and is currently Director of Special Duties (Health Economics) at the Ministry of Health. The assessment will be co-led by Dr Kamanga and Mr Kunda

Mr William Kunda is an accomplished IT project Manager and Senior Software Engineer. Mr Kunda has extensive hands-on experience in designing and leading Software development projects and has strong competencies in interoperability and integration of software systems. He is the lead architect and Project manager for the recently launching National Health Data Ware House, a first of its kind project that stores multiple data sets from various disparate patient- and aggregate-level systems across the different sub-sectors of the health system. Prior to joining, Mr Kunda was the Software Engineering Manager for Barclays group Africa (ABSA Bank) where he oversaw the design and execution of various new and innovative Digital Financial Services. Contractually, the assessment will be overseen by the CEO of IHM, Mr Kelvin Sikwibele, a public health expert with over 20 years' experience in Health Systems program design and implementation

[1] Mobile money service is categorized as a Value Added Service (VAS) provided by telecommunications operators after the grant of a VAS license by ZICTA. However, the financial transaction itself is regulated by the Bank of Zambia in accordance with the Banking and Financial Services Act.

Project Description

1. Problem statement

The introduction of the Zambia National Health Insurance (NHI) Act in 2018 aims to provide for sound financing for the national health systems as well as provide for universal access to quality insured health care services (NHI Act No. 2 of 2018). The NHI will run on the guiding principles of the "Solidarity Model"[2]- those who contribute to the scheme will cross subsidize the poor, old and vulnerable i.e. based on one's ability to pay. The NHI Act (No. 2 of 2018) and Statutory Instrument (S.I No. 63 of 2019 – NHI General Regulations) outlines that mandatory contributions by citizens and permanent residents in the formal sector "employees and employer" category shall be 1% of the member's basic salary. For those that are self-employed (including the informal sector who are the majority of this category), their contributions shall be "1% of self-declared income (S.I No. 63 of 2019 – NHI General Regulations). With an approximate population of 16.8 million in 2017, Zambia's working age population (15 years or older) is estimated at 9,056,840 with an approximately one-third of this figure (2,971,170) being in actual employment (Central Statistical Office & Ministry of Labour 2018). Of those "actual employed persons", only 1,096,832 are in formal employment while the rest, approximately 60% are self-employed with the 95% of these being in the informal sector.

Other than formal sector employers and employees who are mandatorily registered with national income taxation and pension statutory entities (Zambia Revenue Authority and National Pension Scheme Authority), Zambia has no centralized repository or database to capture details of the informally employed (who constitute the majority of the self-employed category) let alone mechanisms or social security number to identify, track and enforce collection of NHI contributions. This entails that in its current proposed state, the NHI contributions that are only effectively guaranteed to be collected will be made by 5% of the target population while the rest of the eligible proportion that are able to contribute towards NHI are expected to do so at their own accord i.e. report declared income and contribute 1% of this to the NHI. This scenario presents potential challenges that may hinder the success of the NHI in achieving its intended goals on multiple fronts including the sustainability of the NHI financing model premised on the "solidarity model" as is not currently equitable and puts in question the goal of ensuring quality health care service provision in all 2600+ health facilities across the country.

The high proportion of employment informality raises many challenges to engage the informal sector in the rolled out National Health Insurance, as these workers and their dependents are not registered as owning or working in registered enterprises. While this situation presents a great a complexity in collecting contributions from this sector, Digital Financial Services particularly Mobile Money Services offered by Mobile Network Operators have the potential to address this gap. DFS have largely been attributed as the engine for growth in broadening the scope and depth of money services to customers particularly the unbanked and poorer communities. (Luwabelwa; 2017)

DFS have the potential to be the game-changer and play a critical role in capturing and expanding the NHI contributor member-base which has the resultant potential to increase the net revenue collection for the insurance scheme which in turn would impact on the quality to and access of improved health service delivery in public sector health facilities. Of the frequently used DFS, mobile money transactions are the most widely used services and over the past 5 years, these have exponentially increased both in terms of the array of services as well as penetration amongst the general populace, particularly among the informal sector who have traditional remained unbanked with limited. More importantly, DFS have a significant potential to enhance finance protection of the informal sector under which the most vulnerable in society are categorized and also happen to be the largest consumers of MMS.

On the other hand, Kenya has the National Hospital Insurance Fund (NHIF), a State Parastatal that was established in 1966 as a department under the Ministry of Health. Over the years, reforms have been

[2] Defined as outlined in the Statutory Instrument

undertaken to accommodate the changing healthcare needs of the Kenyan population, employment and restructuring in the health sector. Currently an NHIF Act No 9 of 1998 governs the Fund which transformed the NHIF from a department of the Ministry of Health to a state corporation which aimed at improving effectiveness and efficiency with a core mandate of providing medical insurance cover to all its members and their declared dependents (spouse and children). Membership to the NHIF can be through one's employer or on an individual basis and more importantly and critical to the research, the "NHIF registers all eligible members from both the formal and informal sector. For those in the formal sector, it is compulsory to be a member, while those in the informal sector fall under the voluntary category" NHIF states. More recently, the Kenyan government has made a commitment to achieve Universal Health Coverage (UHC) by 2030. A key part of its UHC strategy is to expand coverage of the National Hospital Insurance Fund (NHIF), which currently covers approximately 15% of the population. In 2015, the NHIF introduced significant reforms aimed at enrolling more people and expanding the range of services that enrolled members have access to. The NHIF reforms included:

1. Upward revision of premium contribution rates by **213% for informal sector members** and between 25-431% for formal sector members.
2. Expansion of benefit entitlements to members of the general scheme to include outpatient care and a range of 'specialized packages' including surgical procedures, radiology, chemotherapy, radiotherapy, chronic disease.
3. **Provider payment reforms** including the upward revision of inpatient care per-diem payments, introduction of case-based payments and capitation payment mechanisms.

The research team intends to undertake a detailed assessment of these reforms, particularly the highlighted ones above. Furthermore, in 2017/2018 financial year, NHIF introduced payments through Kenya's largest MMS provider, Safaricom's M-Pesa. It is thus of interest to assess how this option of insurance administration through M-Pesa was structured and its impact on increased membership particularly amongst the informal sector and how if possible, this has contributed towards financial protection of the most vulnerable.

2. Approach

Recent estimates by the health sector cooperating partners suggest that based on the country's GDP PPP of $1,500 from a formally employed workforce of 1 million people, the NHI would only collect approximately $15,000,000 annually while the total national annual health facility operational budget for service delivery including medical commodities is $150 million to $200 million. On the other hand, according to the ministry of Labour, the average income of informally employed persons per month is K2,400 ($184). If this proportion of the population contributes their portion toward NHI, there is a potential to raise and additional $20 million to 40 million dollars in insurance contributions annually. This can be achieved by partnering and collaborating with Mobile Money Service providers who's over 4 million registered subscribes constitute a significant number of informally employed persons using their services for day to day transactions. Furthermore, the assessment will explore the feasibility of collaborating (through Public-Private Partnerships) with MNOs through their extensive network mobile money retail agents to achieve the to enroll the "self-employed" category to process enrollment, premium payment, policy administration, and communication using mobile money services.

The assessment would thus support the ZNHIA to make informed decisions that will contribute towards reaching scale relatively quicker and have a sustainable and equitable financial contribution model by lowering operational costs and reducing inefficiencies of registration and member contributions collection that will make it possible to undertake low-value, high volume transactions in a financial viable way that ensures the majority of the actual employed persons contribute towards the NHI.

In 2015, the Ministry of Health, as part of the preparatory efforts to inform the drafting of the National Health Insurance legislative and statutory framework contracted an independent consultant to undertake a feasibility study of the viability of a partnership with MNOs in NHI administration. While the consultant report outline various aspects relevant to the scope of work then, this assessment will build

on these efforts with the specific goal of providing detailed information and possible options of how to collaborate with MNOs to achieve the NHI goals by increasing the member-contributor base and options for client facing interaction with NHI processes such as enrollment, premium payment, policy administration, and communication using mobile money services.

The Achieving UHC through DFS assessment has a specific goal of gathering and providing detailed information and possible options of how the NHI Authority should collaborate and/or partner with MNOs to achieve the NHI goals by increasing the member-contributor base population amongst the informally employed who are not captured and processed by ZRA for NHI monthly contributions. The assessment will identify the most practical and cost effect solutions of the client-facing interaction processes (enrollment, premium payment, policy administration, and communication) through the use of mobile money services

3. Objectives and Activities

The overall objective of the proposed research to assess how Digital Financial Services (DFS), particularly Mobile Money Services (MMS) can be applied as a tool in administration of health insurance in order to achieve Financial Protection to the Informal Sector in Zambia and Kenya. The following are the proposed activities to be undertaken:

1. Review legislative framework and meet industry players to establish the extent to which the assessment can be undertake without breaching privacy and confidentiality or other statutory regulations[3].
2. Review of the current national ZNHIA membership contributor database to establish critical baseline data that will inform the detailed activity schedule and structure of the assessment’s data elements to consider and be collected[4]
3. Develop algorithm to be applied on the various MNO’s mobile money services to identify and eliminate NHI members who are already enrolled and contributing premiums through ZRA and NAPSA in order to identify mobile money services users
4. Develop protocol and algorithm to run data on mobile money user platforms against the national ZICTA mobile phone registered user database[5] to narrow down the potential new NHI membership base at household level.
5. Develop guidelines and recommendations of further engagement with identified new/potential NHI contributors
6. Undertake a study tour to Kenya to review reforms undertaken by the National Health Insurance Fund (NHIF) that would contribute or guide proposed interventions in Zambia
7. Dependent on guidelines developed in No. 5 above and in collaboration with MNOs, the assessment will develop an NHI mobile administration prototype app to be used for member enrollment, premium payment, policy administration, and communication

IHM proposes an adapted research design that was developed by Mouton et al (2008) that includes eight steps:

Step 1: Clarify the research purpose - A key outcome for this step is a clear statement of the unit of research within the inception report. Many research activities have been noted to suffer from ‘scope creep’. This is a project management term referring to changing project scope as implementation continues due to lack of ‘constraining principles’. Defining the purpose of the research and agreeing on

[3] Each Mobile Money Service provider requires a Value-Added Services License from ZICTA to enable them operate. On the other hand, the financial regulations such as the Insitution’s license for Deposit Taking from the public are managed by the Bank of Zambia.
[4] This will inform the design and implementation of a data collection and data analysis plan
[5] ZICTA has a comprehensive database of all registered mobile telephone users. This information contains indivudal users personal identification details including home addresses. This information is critical and be triangulated to establish mobile users at household level which is critical as NHI premiums are noly applicable at household level .

questions helps to avoid this dilemma. For this proposal, IHM proposes to facilitate group discussions with identified stakeholders for this research using tree diagrams to clearly spell out the intended purpose of the research and agree of final Deliverables and the key research question(s) as will be shown in the initial research inception report.

Step 2: Identifying the Unit of Research - In this step, IHM tentatively proposes a process for determining the unit of research through consultative sessions with research team and partners ZICTA and ZNHIA and Mobile Network Operators (MNOs) to yield the right research. These institutional and administrative layers will be navigated through as part of the process of determining upfront what is feasible and what is not and who is responsible for which information and processes to access this information. This is critical step to arrive at the unit of research using structured consultative processes that include key technical conversations with key stakeholders listed above.

Step 3: Identifying the target group(s) - For the purposes of this proposal, this step has been distinguished from the one above but during implementation, this will be conducted in sequence with the ones above. IHM will establish the target groups that are distinguishable from the others, legislative vis a vis regulatory; National ZICTA Mobile Subscriber database vis a vis ZRA database for currently registered Tax Payers contributing to the NHI; MNO's vis a vis MMS independent agents and citizens already registered under the NHI Act and those that are targeted to be registered as clients. This step and the one above is all part of getting clarity from stakeholders to ensuring the research remains relevant. Sampling frames will be developed and shared with stakeholders for approval. A key outcome of this process is a clear selection of cases to be reviewed as will be indicated in the sampling section of the inception report.

Step 4 – 6 (Select cases and observations; Design instruments and collect data) - These are classic research activities of sampling, design of data collection instruments, collection of data and data analysis. The following are important to note:

- In step 4, case selection differs from identification of the research or unit of research. Depending on the level of aggregation that will be reviewed in step 1, the program will be assessed in its design, delivery, implementation and outcomes.
- However, in order to evaluate these aspects of the program, IHM believes that this research will be of better value in gathering data from various "observation units" i.e. targeted recipients, current contributors/beneficiaries of NHI, ZNHIA staff, review of program documents, etc.
- In step 5, the design of instruments will be based on the choice of qualitative or quantitative approaches to data collection.

Step 6 (Analysis Plan and Research Report writing) - Our experience has shown us that it's important to agree before the data collection even starts, an outline of the research report. Guidelines on the contents of an evaluation report have been suggested by selected research communities of practice. IHM will establish whether Digital Square has a preferred outline already in place. In the event that is not the case, IHM will utilize the current guidance available to reach an agreement of the outline and structure of the report to avoid confusion and frustration in preparing and submitting an acceptable evaluation report.

From previous assignments, we have learned that some of these steps may be combined and some may be deemed unnecessary by the contracting agency. IHM is open to discussing and negotiating these issues to ensure the contractor's concerns are addressed while also not compromising on the fidelity of the exercise.

Sampling Design and Strategy - Dependent of the final agreed methodology and approach and whether all units in the two countries are included, we propose to conduct simple purposive sampling for purposes of this exercise for the sampling units. A full and detailed design will however be availed in the inception report.

Data Collection Tools - The data collection will be based on the final set of questions agreed upon by Digital Square and IHM as previously outlined.

Fieldwork and supervision - The project team leader and his team will work in collaboration with other stakeholders to ensure that stakeholders are informed of the research. This will serve as an advocacy tool which plays a major role towards the success of this research.

4. Data Management

Data entry, Data Cleaning and Analysis: Due to various tools anticipated to be designed and used, IHM will use the CSPro software to develop the data entry screen for all proposed tools. CSPro is versatile data entry and analysis software, and unlike software packages such as EPI info that accepts a maximum of 250-character length, CSPro accepts thousands character length on a single template, CSPro has a very powerful editing component. The data entry templates will be developed using the draft questionnaires and it will be tested with the pre-test completed tools and continue to amend it as the tools are being amended. The final template will be ready as soon as the field data collection commences. All open-ended responses will be coded and typed out in a spread sheet, indicating the question number, the code given, and the response given by the respondent. This code book will be incorporated in the template as a “lookup file” such that by typing in the codes indicated on the questionnaires by the data entry operator, the response value label (that is, the actual statement or word given by the respondent) will be attached to the field using the lookup file.

Work schedule: The final schedule will be developed once contracted and includes the tasks we are expected to perform; their duration as well as the expected number of weeks and days; personnel assigned to the tasks; the number of person – days of engagement in the task; and deliverable(s) expected of each task. The completion time of all elements; interviews and data collection; will be tentatively scheduled as follows commencing March 1,2020;

Task	Lead/Responsible Person	March	April	May	June	July	Aug
Inception report	Principle Researcher	X	X				
Final Research design	Principle Researcher	X	X				
Tool design/Pre-Test	Data Analyst/Statistician	X	X				
Stakeholder engagement-Zambia	Principle Researcher	X	X	X			
Stakeholder engagement- Kenya	Principle Researcher	X	X	X			
Review of MNO Databases	Researcher- Info Systems		X	X			
Data collection- Zambia	Principle Researcher			X	X		
Data collection - Kenya	Principle Researcher			X	X		
Data Cleaning and preliminary analysis	Data Analyst/Statistician/ Researcher- Info Systems				X	X	
Data Analysis	Data Analyst/Statistician				X	X	
Report Writing	ALL				X	X	
Dissemination of Final Report	Principle Researcher						X

5. **Budget Summary**

IHM is pleased to present a budget of $ 17**0**,000 for the proposed concept note submitted to Digital Square entitled Universal Health Coverage through Digital Financial Services Year 2 as summarized below. Throughout the budget, IHM has taken great care in ensuring cost-effective and realistic pricing in addressing Digital Square requirements. IHM's proposed costs are based on its approved personnel policies for labor and competitive market rates for the procurement of goods and services.

Overarching Project Assumptions - The total estimated cost for the Application is $170,000.00 which includes $ 58,298.00 for Research team Salaries and Wages; $ 12,000 for consultancy and $29,500 for travel among other budget line items. The budget notes are organized in parallel to the structure of the budget. IHM's budget assumes an execution period of **5-6 calendar months** from date of award with an assumption of this being anticipated to March 1, 2020 to August, 2020. Unit costs provided are based upon actual costs, where available; historical cost data; or market cost data and are intended to serve solely as an illustrative budget.

Description	**Work Package 1 (USD)**	**Total Cost (USD)**
Personnel (Salaries & Wages)	58,298.00	58,298.00
Fringe Benefits	16,323.44	16,323.44
Travel	29,500.00	29,500.00
Equipment	-	-
Supplies	-	-
Other Direct Costs	39,842.30	39,842.30
Contractual	-	-
Consultants	12,000.00	12,000.00
Total Direct Costs	**155,963.74**	**155,963.74**
Indirect Costs	14,036.74	14,036.74
Total Project Costs	**170,000.48**	**170,000.48**

Risk Mitigation

1. Political interreference of the assessment. This can occur if the objectives are misconstrued and there is need to emphasize the non-political nature of the work with industry players
2. Resistance of the MNOs to reveal confidential information