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Digital Innovations in Health Financing: Experiences from sub-Saharan Africa

Chaired by

Manuela de Allegri & Wilm Quentin

Contributions by

Diana Ratsiambakaina, Abdhalah Ziraba, Daniel Opoku, Inke Mathauer, Eric Nsiah-Boateng

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MiG Technische Universität Berlin

G-WAC German-West African Centre for Global Health and Pandemic Prevention

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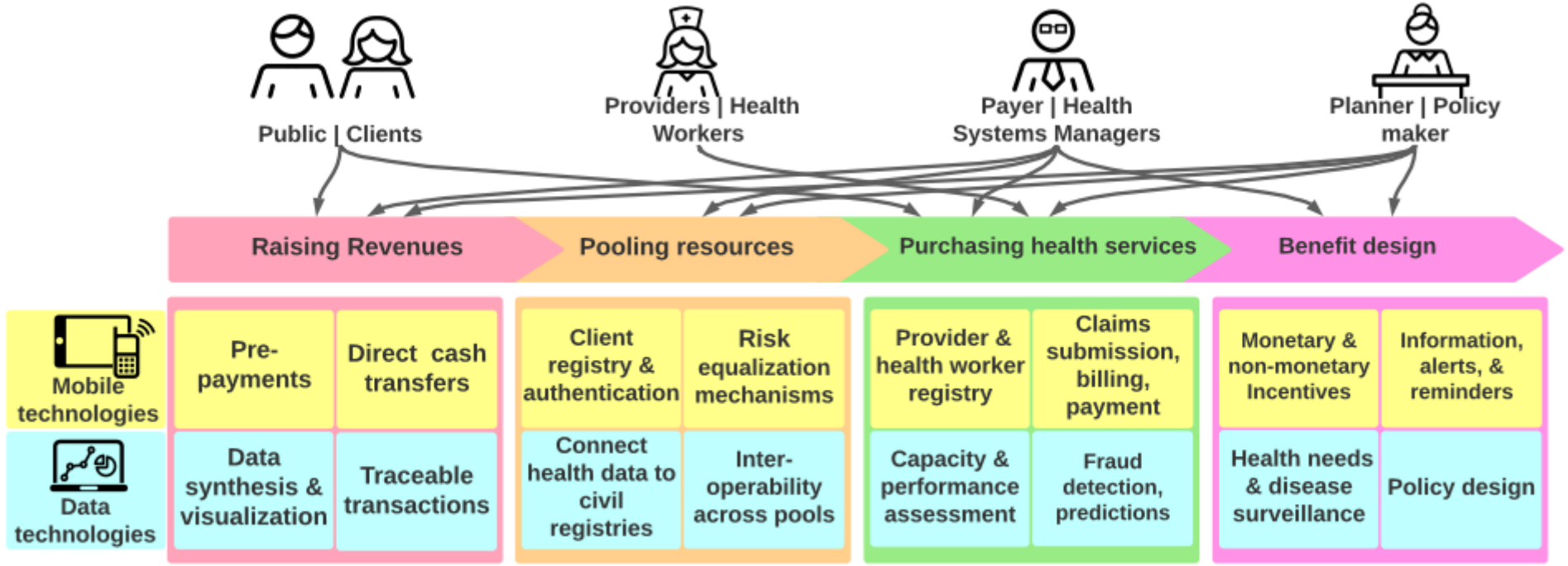
Digital technologies for health financing (DTHF)



Objectives of the session

1. Provide an overview of the potential role of DTHF
2. Discuss country case-studies of DTHF
3. Explore possible risks and challenges
4. Discuss policy options to enable maximising the benefits, while mitigating the risks and challenges
5. Reflect on a way forward and discuss the research agenda ahead

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Do you know any digital technologies for health finacing? If yes, which ones?

Email:
dratsiambakaina@yahoo.fr

Diana RATSIAMBAKAINA

Head of UHC implementaiton unit at MOH in Madagascar

- A public health specialist with approximately 20 years of work experience on health system management.
- Worked at the regional level of the health system where joint operational and strategic management of health activities and programs are carried out.

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Digital Innovations in Health Financing: Experiences from Madagascar

Dr. RATSIAMBAKAINA Diana

Head of UHC Departement

MOH, Madagascar

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Health Financing Context

HIGH COSTS HEALTH EXPENDITURE

Indicators	GHED 2019 (%)
External Health Expenditure (EXT) as % of Current Health Expenditure (CHE)	28
Government schemes and compulsory contributory health care financing schemes	10
Domestic General Government Health Expenditure (GGHE-D) as % General Government Expenditure (GGE)	8
Household out-of-pocket payment as % Current health expenditure (CHE)	33

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→ Low utilization rate of health services (41% population)

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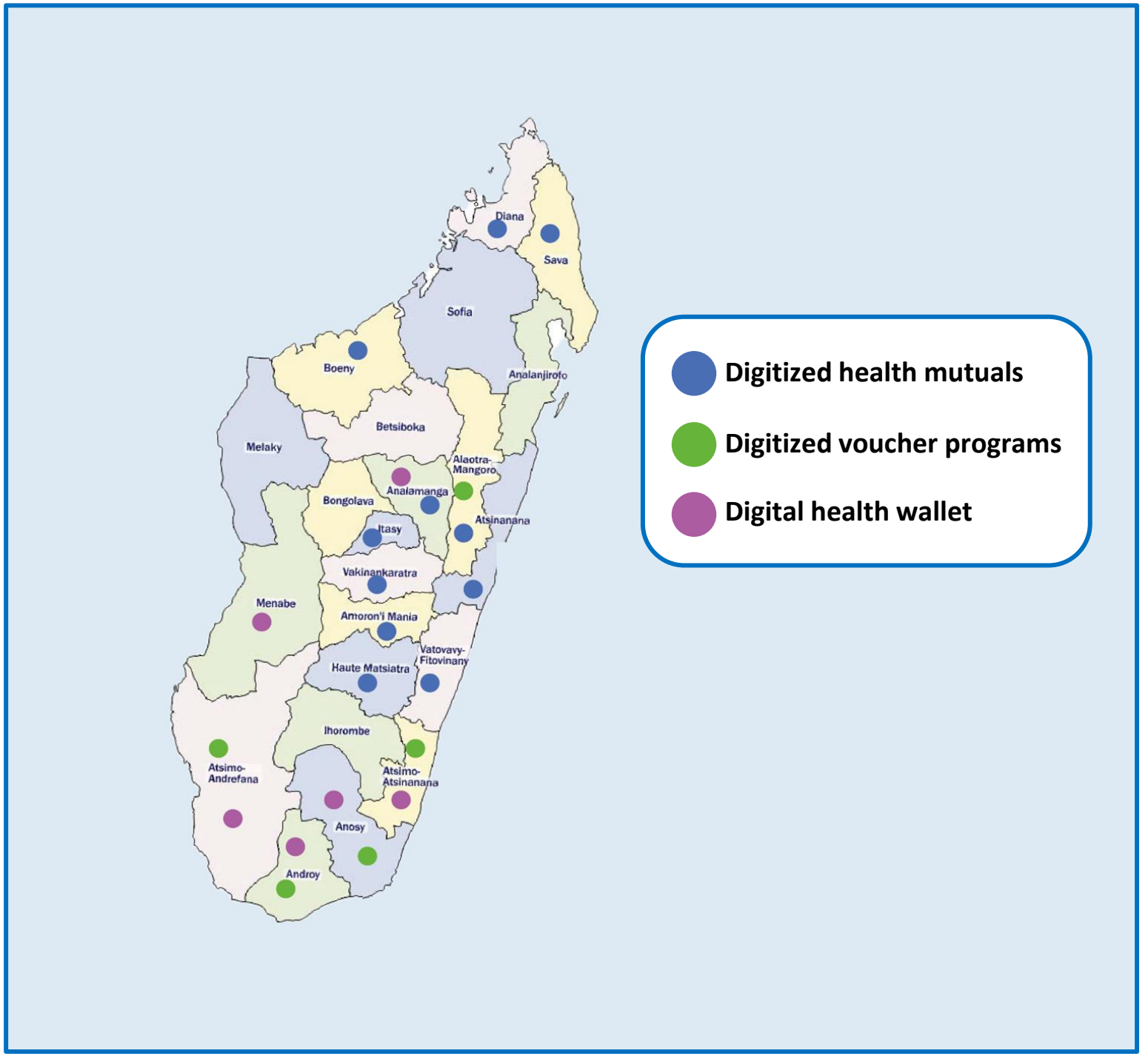
Overview of Digital Health Financing Technologies

Public sector learnings:

- mTOMADY is the largest platform for digital health payments in Madagascar
- + 300,000 total registered beneficiaries,
  + 200 participating healthcare facilities
- Reduction in total time to process a claim from +65 days to up to 20 minutes



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Main Benefits

- GSM network vs internet network
- Secure financing/funds
- Back up of all transactions and activities
- Reduce processing time
- Quick decision making
- Database availability
- National Coverage as DHIS2
- Government policy (e-wallet)
- Health wallet to save for health expenses, opportunity to cover more people

Barriers/Facilitators for Implementation

Barriers

- Lack of culture of change
- Difficulty getting people to adopt new products
- Not immediately affordable (devices, network, training, etc.)
- Lack of adaptation, limited training, and lack of technicians to repair the device

Facilitators for implementation

- Automatically generated reporting
- Extension of network
- Government policy
- Involvement of all Ministries (COVID 19)
- Availability of timely data
- Accessible to the population

→ More expensive to buy, allow gains in efficiency and long-term savings

Risks/Adverse Effects and Regulatory Countermeasures

- Risks:
  - Insufficient network coverage
  - Cost of investment
  - Transparency of management

- Mitigation/Countermeasures:
  - National Health Code update, including the digitalisation in health
  - National Digital Health Strategy, elaboration in progress

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Digital Innovations in Health Financing: Experiences from sub-Saharan Africa

Email: aziraba@aphrc.org

Abdhalah K. Ziraba

Research Scientist, African Population Health Research Council (APHRC), Nairobi Kenya

- Head of the Emerging and Re-emerging Infectious Diseases Research Unit
- Medical doctor with PhD in Epidemiology and Population Health from LSHTM
- Areas of interest:
  - infectious diseases prevention
  - health systems strengthening
  - head of the COVID-19 research response at APHRC

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Digital Innovations in Health Financing: Experiences from Kenya

Dr. Abdhalah K. Ziraba, Research Scientist

African Population and Health Research Center, Nairobi Kenya

APHRC African Population and Health Research Center

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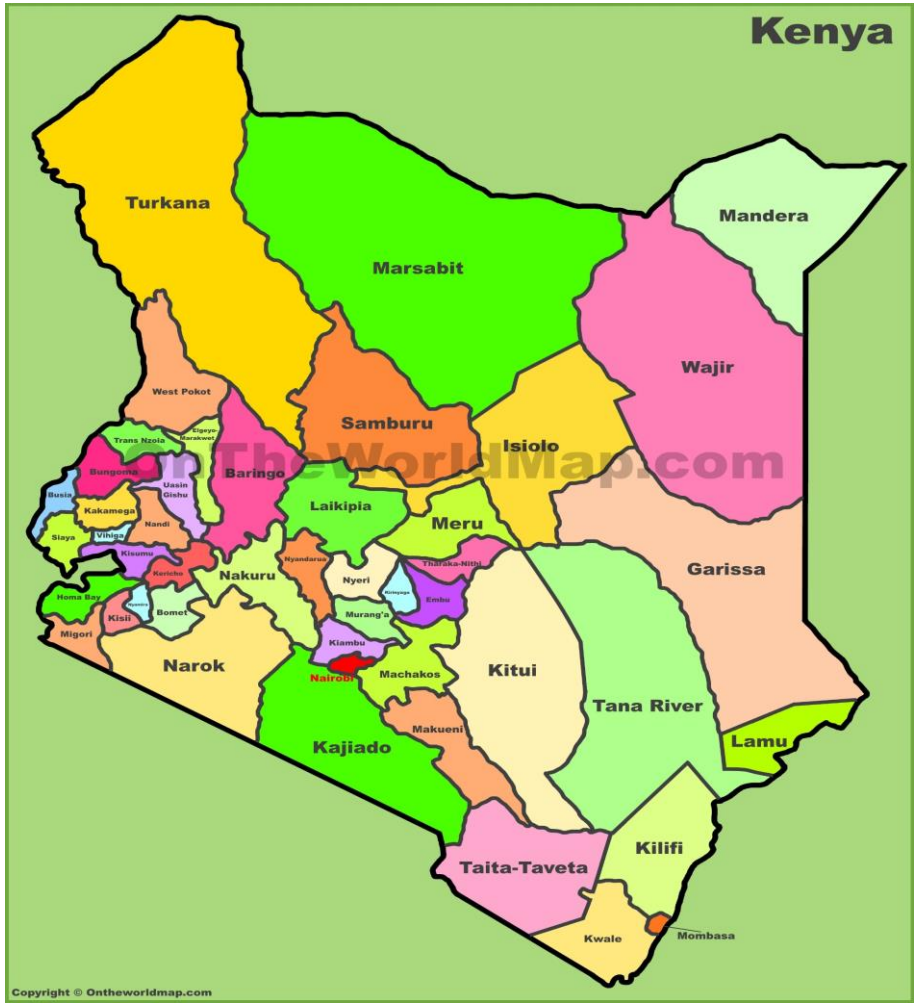
Health Financing Context in Kenya

- Current health expenditure ~ 6.5% of GDP
- % govt budget allocated to health~11%
- Out of pocket ~27%
- % HH enrolled in any insurance~ 19% (2019)
- NHIF cover >80% market share
- Insurance pools are fragmented e.g. disciplined forces, MCH, elderly etc.



Health is a devolved function

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Health Insurance Context in Kenya

- Poor saving culture *(contributions are not compulsory),*
- Substantial dependence on donor funding to help kick start enrolments,
- Limited redistributive capacity due to low numbers,
- Fragmentation of pools even within the public sector
- A huge informal sector not well covered

Overview of digital health financing technologies in Kenya

Innovation	Type/features	Domains			Status
		Raising	Pooling	Purchasing	
M-tiba	Mobile-health wallet application	√	√	√	Active *(Integrating with NHIF)*
MicroEnsure	Insurance intermediary encouraging mobile saving through loyalty program	√		√	Discontinued 2019
Afya Poa/Jawabu Ltd	Mobile insurance, premiums paid through deductions of airtime	√			Discontinued 2018
Mamakiba/ Jacaranda Health	Mobile money-based health savings account scheme	√			Discontinued 2019
Changamka micro-insurance	Electronic healthcare savings card system	√		√	Discontinued
iPUSH	Digital savings wallet enables saving for NHIF premium. *Backend is Mtiba*	√		√	Active- trial phase *(Integrating with NHIF)*
Afya Credit	Mobile loans for healthcare access only			√	Active- trial phase
Lami	Integrated access to insurance			√	Active

M-Tiba Case Study

M-tiba is a partnership between Carepay, PharmAccess and Safaricom telecom

Main Features:

- Integrator platform for consumers, insurers, healthcare providers and government,
- Allows users to send, save and receive funds for healthcare using their mobile phones,
- Savings are ring-fenced for paying for health services,
- Health care providers are pre-qualified (*quality control*),
- Allows users to manage their insurance policy or health payments on their mobile phone,
- Focus on saving, buying insurance and paying for services but not resource pooling,
- Transparent and quick payment of claims (48hrs),
- Providers cannot use patient cover without client approval (*treatment and payment*),
- Donors can put in money to cover target conditions e.g. MNCH -- *matching funds for every saving made.*

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Main Benefits

- Mobile wallet savings are only dedicated to paying for health care,
- Digital saving, borrowing & sharing for healthcare reduces risk of foregone care,
- Allows other entities to contribute and ear mark the use of funds e.g. donors,
- Expanding to onboard informal sector using their phone number and ID,
- Several insurance companies can access data on disease patterns and service provider performance,
- High transparency and accountability- *traceable payments*,
- Mobile subscription and payments saves time and operating costs
- High phone ownership- *potential to expand and reach hard to reach popns*
- New data protection law protects clients (*Data Protection act*).

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Barriers to implementation

- Low customer awareness/ability to use technology,
- While phone ownership is high, the digital divide still exits and the very poor are likely to be left,
- Limited interoperability e.g. with providers, national ID system, CVRS etc.,
- Saved money does not accrue interest→ *disincentive to save*.

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Risks/adverse effects and regulatory countermeasures

	Risk/adverse effects	Potential Countermeasures
1	Potential to alienate those with limited income and access to technology	• Government/donor support to the very poor
2	High reporting burden to health care providers & duplication of efforts due poor integration	• Integrate operations • Increase data sharing
3	Potential for profiling of “high-risk” individuals (defaulters) based on data from interlinked databases	• Improve data protection as per the Data Protection Act, • Capacity building

Active poll

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What do you consider to be the greatest benefits, risks, and challenges of DTHF?

- Accountability
- From a health equity stand point, can digital technologies contribute to widening of health inequalities?
- Benefit: increase in preventitive behavior
- Capacity building
- Tech failure, digital divide,
- Low literacy
- Digital literary
- Benefit: integration in insurance schemes Risk: leaving out the poorest
- Funding and scaling up
- Older vulnerable adults may not have digital literacy skills
- To have introduction of digital financing tools blur the line between essential health services that are global common good vs. those amenable to privatization.
- Scaling up services
- Comparably easy access
- Discontinuation

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Digital Innovations in Health Financing: Experiences from sub-Saharan Africa

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Daniel Opoku, PhD

Lecturer & Research Fellow, School of Public Health, Kwame Nkrumah University of Science and Technology (KNUST), Department of Health Care Management, Berlin University of Technology in Germany

- Head of the eHealth Research Partner Group at KNUST
- Almost 10 years of experience in health systems and policies
- Special interest digital health, health care innovations, evidence-based health policy, health technology assessment (HTA) and Africa.

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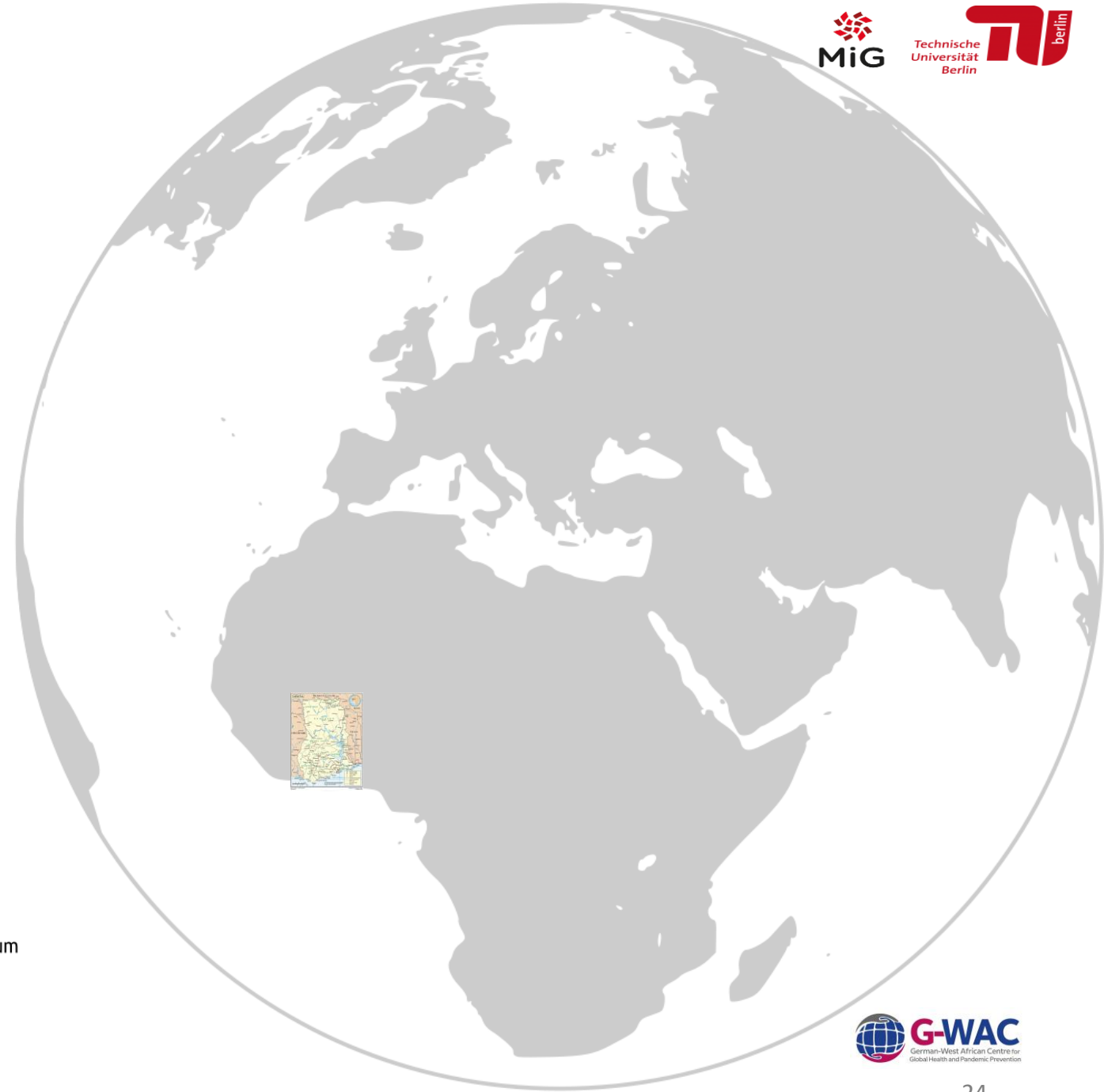
Digital Innovations in Health Financing: Experiences from Ghana

Dr. Daniel Opoku & Dr. Eric Nsiah-Boateng



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Ghana: Health financing context

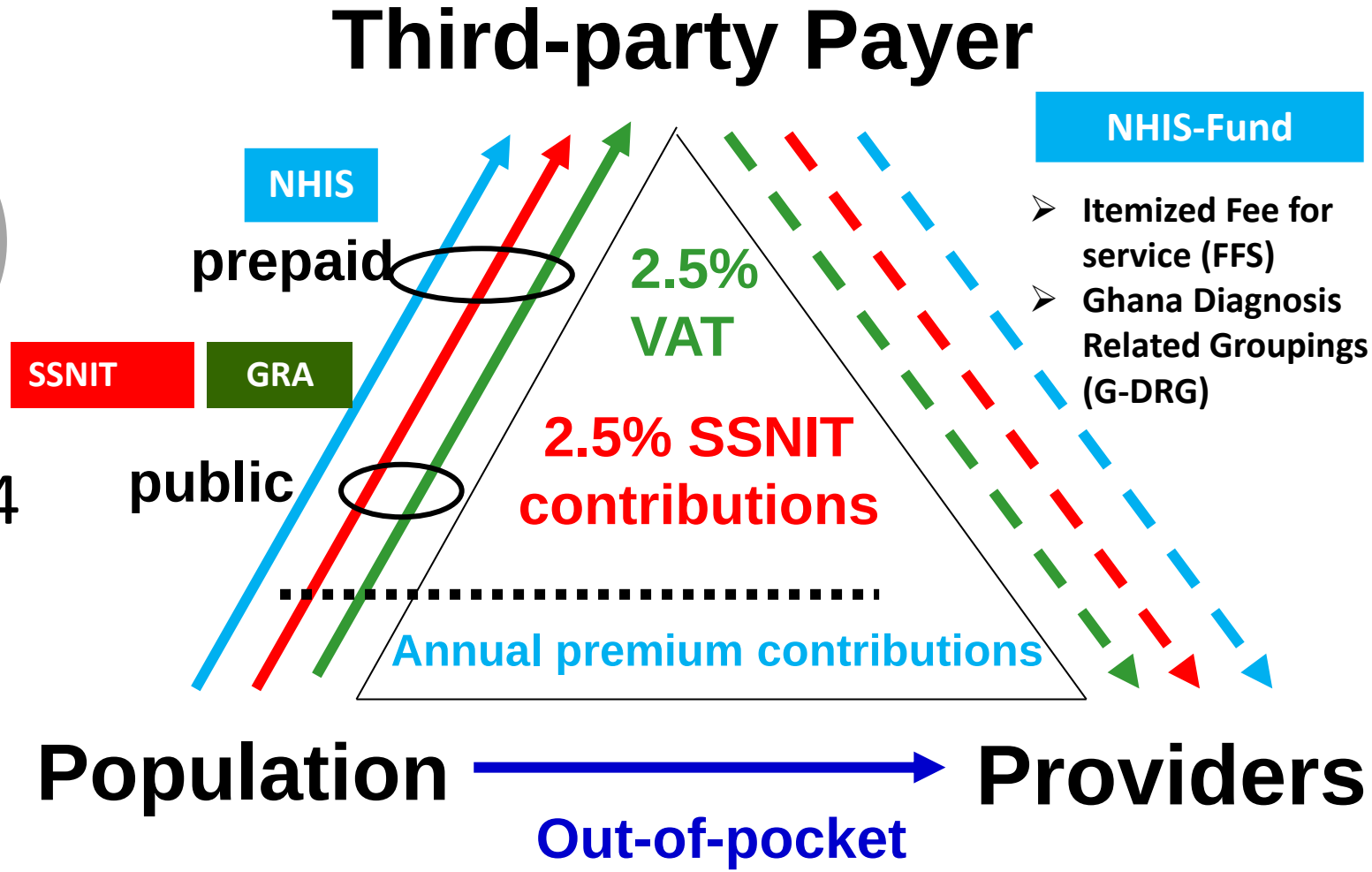
Cash & carry system
(Out-of-pocket)

National Health Insurance Scheme (NHIS)

<2003

>2003/04

NHIS by law is mandatory for all residents



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Mobile Renewal System

Claim management system, Electronic claim (E-claims) §

Overview of digital health financing technologies in Ghana

1. Raising revenue
2. Pooling resources
3. Purchasing health services

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Mobile Renewal System in Ghana

Raising revenue | Pooling resources | Purchasing health services

CATEGORY	ANNUAL PREMIUM	PROCESSING FEE
Informal sector		
Under 18 years		
SSNIT Contributors		
SSNIT pensioners		
Pregnant women		
Indigents		
LEAP beneficiaries		
70 years and above		

Paying

Non-Paying

**LEAP: Livelihood Empowerment Against Poverty*

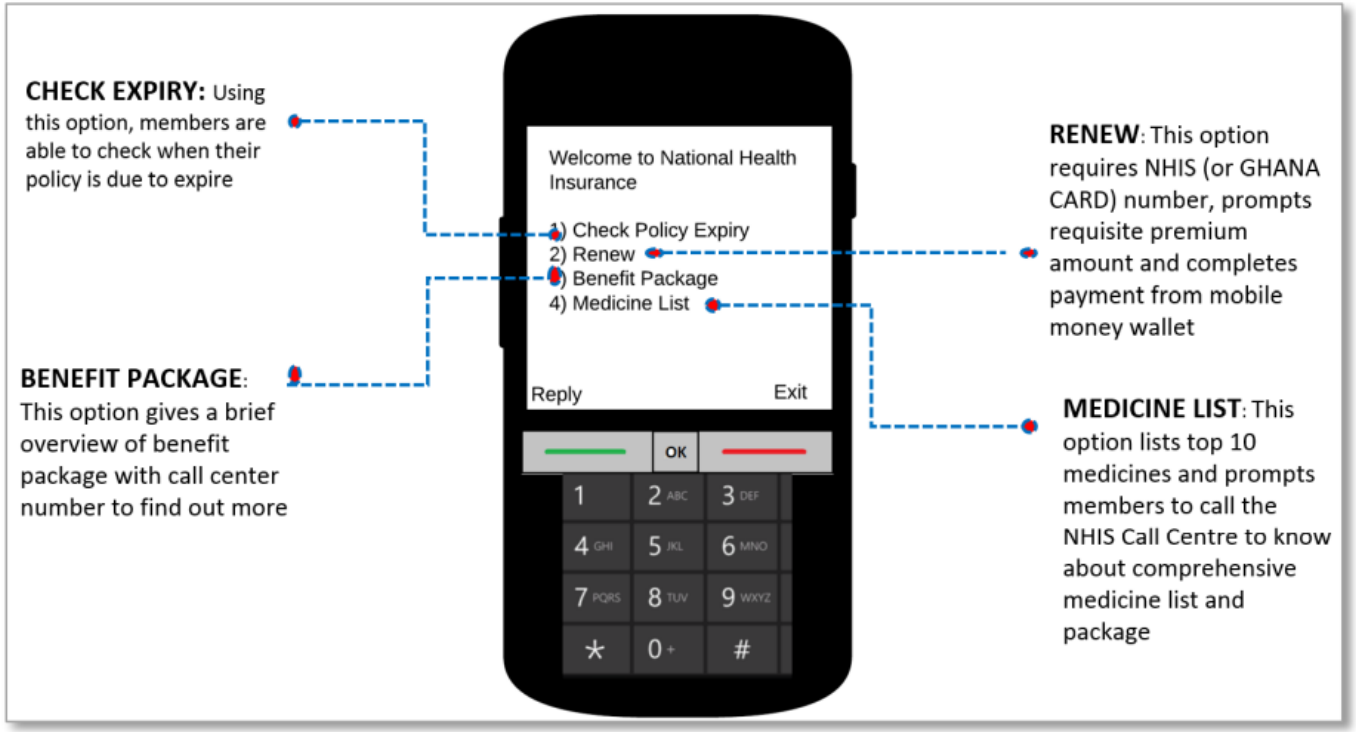

Figure1: Snapshot of the NHIS Mobile Renewal USSD Menu

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Mobile Renewal System: Main benefits

For NHIA

- **Lower operational burden**: Renewals account for 85% of the foot falls in our district office and consumes a lot of staff time. The pilots have shown that channelling a part of the renewals via the mobile channel has drastically cut down on queues at the district offices and enabled our staff to refocus efforts on new member registration.
- **Lower reliance on ICT consumables**: The standard process of renewal at district offices relies on ICT equipment (e.g. printers), services (e.g. network) and consumables (e.g. ribbons) in order to operate efficiently. Managing regular supply of these ICT requirements is expensive in terms of money and time. The mobile renewal service does not require any of these ICT components and has shown to significantly reduce the consumption of such ICT equipment and consumables.
- **Easier accounting of premium**: All collections via the mobile channel are reflected immediately on NHIA's electronic receipting system and all monies are credited to NHIA district office accounts within 24 hours. These allows a transparent and reliable electronic method of accounting which is a significant step forward to the collection and paper accounting of cash based collections.
- **Increased revenue**: The NHIS mobile renewal service mobilises additional collections for NHIA as transactions are now possible away from the district office in the comfort of members' homes.
- Has improved the validity of membership numbers and cost containment in claims payment

For members

- **Additional convenience**: Members can now renew membership from comfort of their home and are not required to travel far to district offices to renew membership.
- **Savings on time**: Travel to district offices, waiting in queues consume a lot of members' time. Recent surveys have shown that, on average, members were spending up to 6 hours trying to renew their membership. This time has now been cut down to minutes.
- **Savings on travel expenses**: Recent survey has shown that, on average, members spend between 6.00 GHS to 9.00 GHS in travel costs to their nearest district office. Now they are able to renew without incurring these travel costs and this directly translates into monetary savings.

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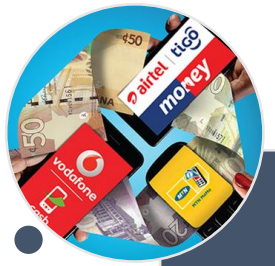
Barriers/facilitators for implementation



Integration of mobile payment system into the Mobile Renewal platform

penetration and use of mobile technology

the normative health-seeking culture in the country supported the need for a digital platform

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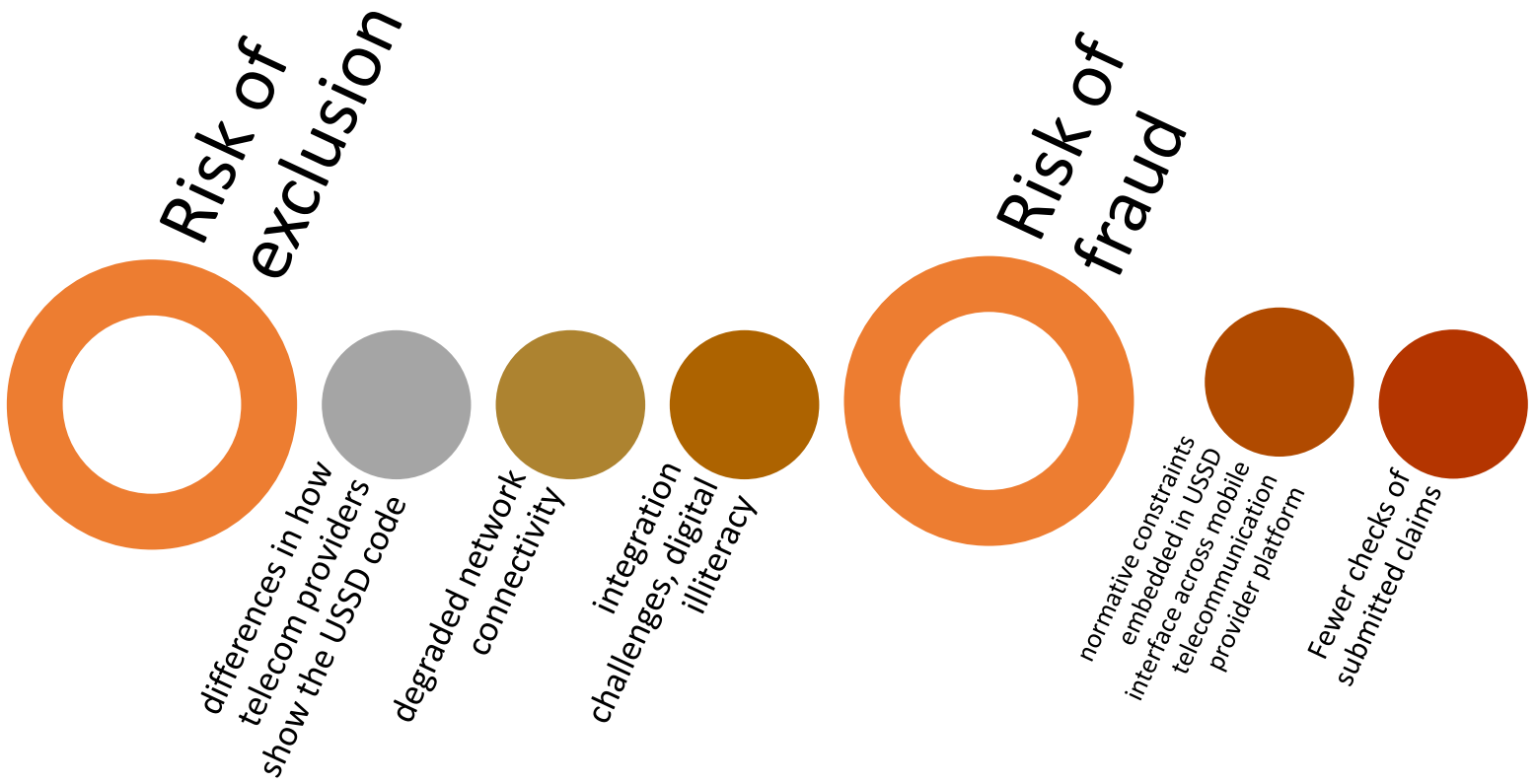
Risks/adverse effects and regulatory countermeasures



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Digital Innovations in Health Financing: Experiences from sub-Saharan Africa

Inke Mathauer

Senior Health Financing Advisor, World Health Organization, Department of Health Systems Governance and Financing

- Leading the global work on strategic purchasing for universal health coverage
- Focus on mixed provider payment systems, governance arrangements for purchasing, and digital technologies for health financing.
- Over 20 years of work experience and holds a MSc and PhD from the London School of Economics.

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Benefits and risks of digital technologies for health financing:

Policy issues and research questions

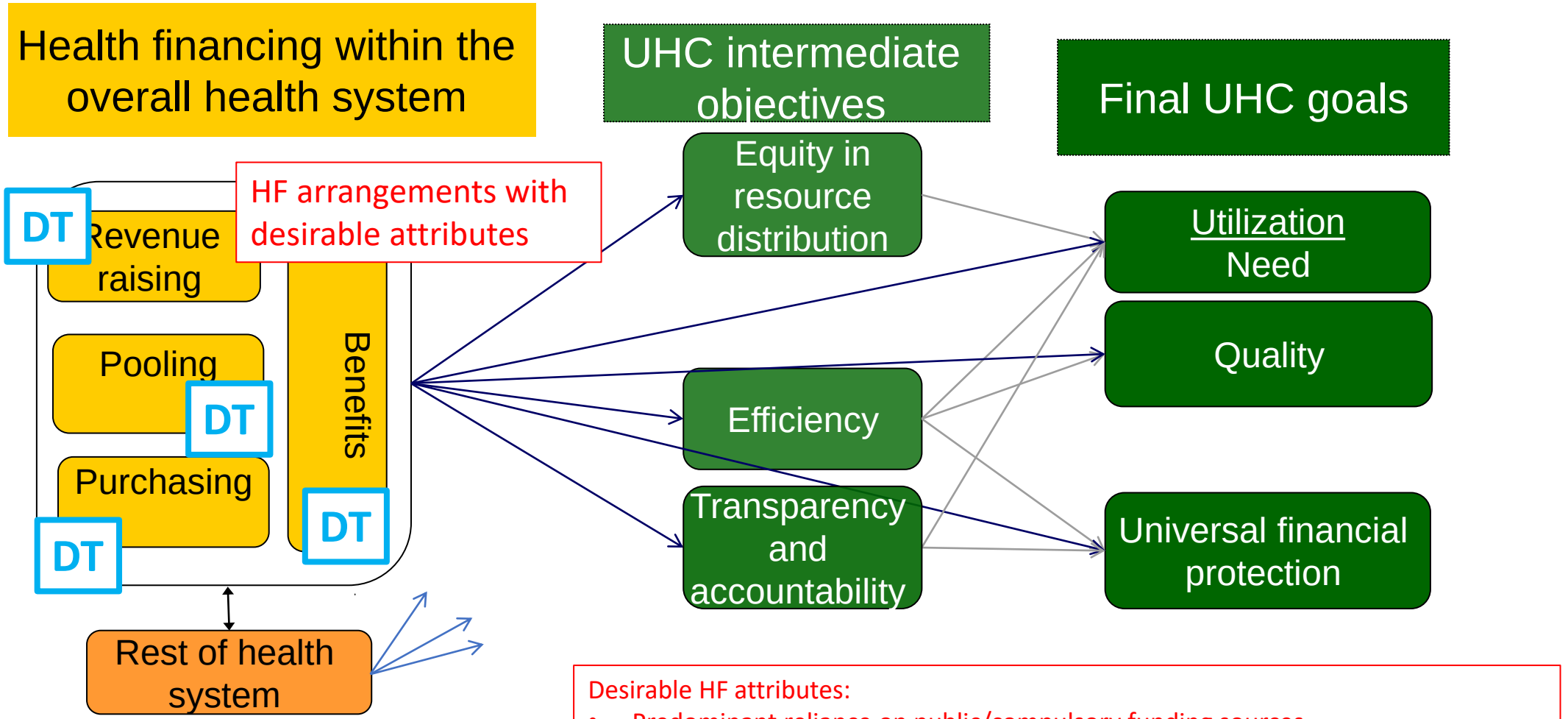
Inke Mathauer, MSc., PhD

WHO, Geneva

11 November 2022

EPHC BErlin

DTs change the way health financing functions/tasks are undertaken and impact (benefits and risks) on desirable HF attributes and UHC objectives



Desirable HF attributes:

- Predominant reliance on public/compulsory funding sources
- Maximising redistributive capacity (by improving pooling, lowering OOPs)
- Resource allocation to providers is based on information and reflects provider performance and/or population needs (shift to strategic purchasing)

Value proposition:
Digital technologies should support, improve and facilitate UHC-conducive health financing arrangements

BUT

- Some may negatively affect UHC-conducive health financing arrangements
  - due to design and/or implementation challenges or wider constraints.

- Big concern when the use of digital technologies facilitate, support or create **health financing arrangements that are not UHC-conducive**.

Example 1: DT for voluntary health insurance (VHI)

- **Mobile enrolment and payment applications can support and simplify the registration with and collection of VHI contributions**;

Benefits:

- Higher enrolment and increased revenue raising

Risks

- This could **lead to**
  - consolidating multiple pools and fragmentation
  - expanding the role of VHI insurance yet with limited redistributive capacity
  - increasing inequities in access to care and financial protection and inefficiencies.
- **National policy makers may find it more difficult to raise support for expanding public health coverage schemes**, when the collection of VHI contributions is simple or even automatically provided (e.g. by bundling with telecom airtime purchases).

- **More evidence is needed to assess the impact of this DT use:**
  How does this affects the share of prepayment and pooling of funds in public versus voluntary health coverage schemes?

Example 2: Artifical intelligence and big data analytics to support health risk identification in claims management

- Claims analysis enhanced by artificial intelligence/ML and big data analytics could make it easier to identify / predict high-risk/high-cost individuals.

Benefits:

- Could be used for risk adjustment/risk equalization to reduce fragmentation and for targeted benefits for specific population groups

Risks:

- Could be used for risk scoring and risk selection
- Potential risk that high-risk persons could be excluded from coverage or be moved into plans with higher insurance premiums
- **This would contradict with the UHC objective of financial protection**.

Some reflections and ideas: What is needed?

- More evidence needed on the use of DT in revenue raising (beyond mobile phone applications) and pooling (e.g., identification of the poor)
- Need for a rigorous analytical framework to assess DT for HF (especially on AI and machine learning) and their impacts (benefits and risks):
  - E.g, rationale, design aspects, implementation, impacts (benefits and risks), etc.
  - Ideally, a community of like-minded researchers and policy analysts use a similar framework for **DT for HF** in order to generate evidence that can be compared and synthesized

=> At the end of the day, collective efforts need to go into good HF policy design - DT and ML are just means, let's not side-track efforts/resources from where they are needed.

=> Put HF and UHC objectives upfront as primary design orientation for DT

Key policy questions to explore further

Do certain DTs imply a change of our thinking on HF principles/attributes?
e.g., with mobile payments, is it more feasible to collect direct contributions from people working in the informal economy? If so, what does this mean for our HF policy guidance?

- **Do AI and ML generate fundamentally new insights?**
- Does the use of AI/ML profoundly change the way health financing actors operate?

What regulatory provisions are needed?
e.g., with respect to the use of artificial intelligence/machine learning for health financing
What kind of DT skills will HF policy makers need?

Thank you very much

Questions? Comments!

Feedback to

mathaueri@who.int
www.who.int/health_financing

Some additional material

Digital technologies for health financing: what are the benefits and risks for UHC? Some initial reflections, Geneva: World Health Organization, 2021.

https://www.who.int/news/item/14-04-2021-digital-technologies-for-health-financing

The use of digital technologies to support the identification of poor and vulnerable population groups for health coverage schemes. Insights from Cambodia, India and Rwanda, Geneva: WHO (forthcoming).

The use of artificial intelligence and machine learning for health financing. Does this support the realization of universal health coverage? Findings and reflections based on a rapid literature review, Geneva: WHO (forthcoming).

Digital Technologies for Health Financing: Exploring their benefits and risks and their contribution to desirable health financing attributes and UHC objectives. An Assessment Guide (DRAFT)

Active poll

4

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What regulations are necessary to maximize the benefits and minimize the risks?

Panel Discussion (20 mins)

- Potential benefits, risks, and challenges
- Necessary regulations to maximize benefits and minimize risk
- Future research agenda

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Digital Innovations in Health Financing: Experiences from sub-Saharan Africa

Email: nsiahboateng@yahoo.com

Eric Nsiah-Boateng

Head, Monitoring & Evaluation, Ministry of Health, Ghana

- 17 years experience as Senior Manager for Policy at the National Health Insurance Authority (NHIA)
- PhD in Public Health from the University of Ghana
- Author of several peer-reviewed articles on health policy evaluation and the mobile renewal system.

Active poll

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What do you consider to be the greatest benefits, risks, and challenges of DTHF?

Anonymous
Tech failure, digital divide,

Anonymous
Low literacy

Anonymous
Digital literary

Anonymous
Benefit: integration in insurance schemes
Risk: leaving out the poorest

Anonymous
Funding and scaling up

Anonymous
Older vulnerable adults may not have digital literacy skills

Active poll

4

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What regulations are necessary to maximize the benefits and minimize the risks?

Clear health financing policy

discrimination

Banning

risk

vision, strategy and plan

based

ppl

high

Mandatory contribution

Active poll

8

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What would you suggest should be the focus of future research on DTHF?

Comparative effectiveness and scalability

Reimbursements for digital healthcare

Users perspective

Implementation research

evaluation

resons for discontinuation

With equity focus

Consolidation

Sustainability

Review experiences for transfer to other countries

How to best use the data generated

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Thank you very much!

Please join us to continue the discussion…!

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