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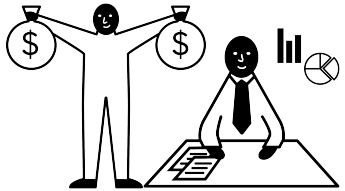
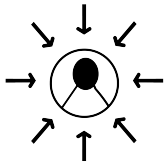
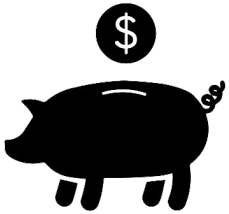
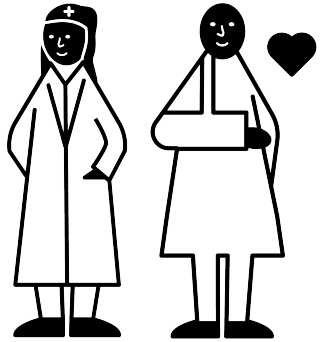
Frugal User Involvement





Opportunities for affordable quality user involvement

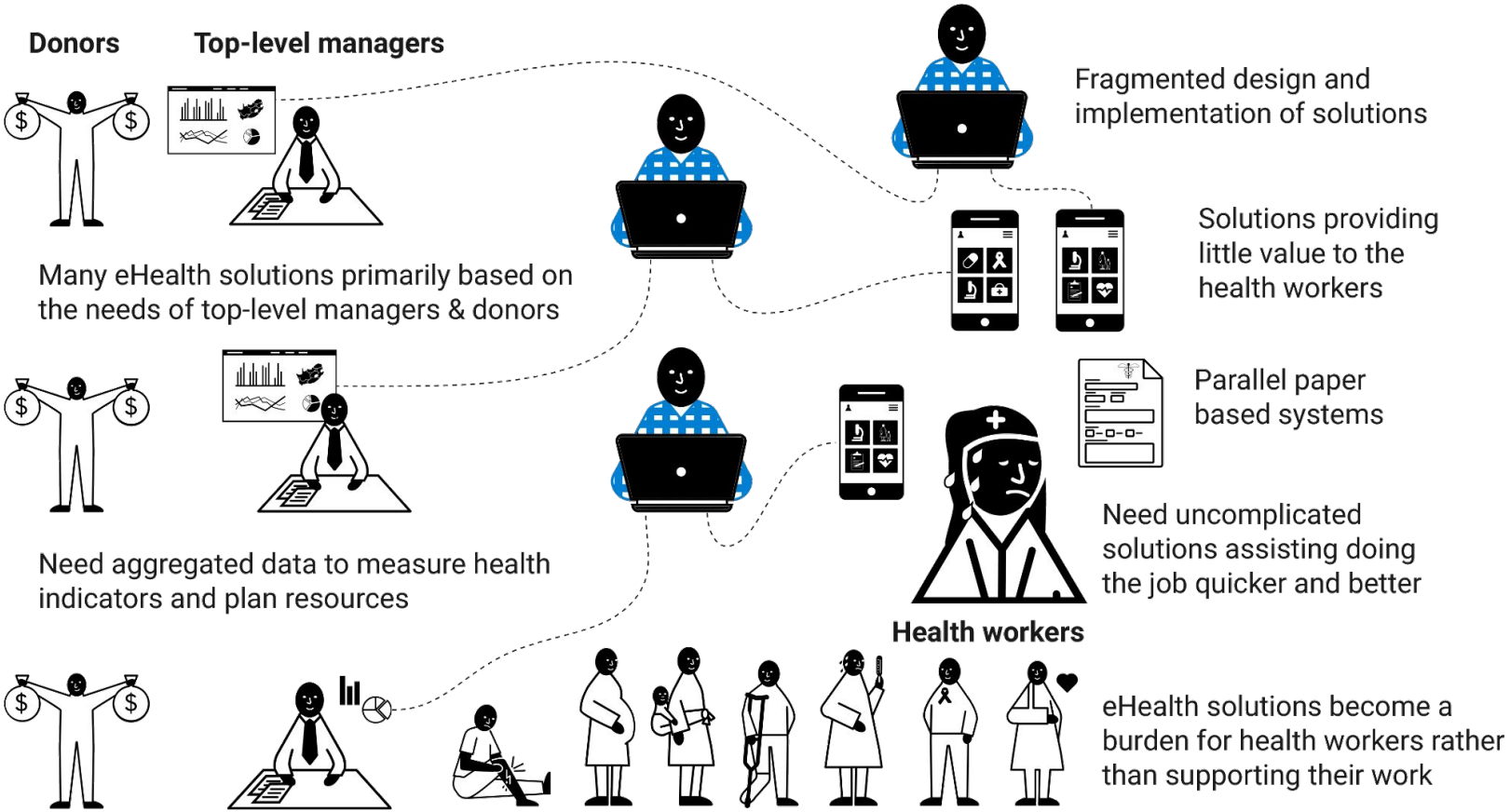




An idékit of opportunities for better involvement of health workers applied and envisaged by eHealth designer in Africa

Mats Blakstad
Master Thesis
Informatics (Design, Use, Interaction)
University of Oslo

Real World Problem



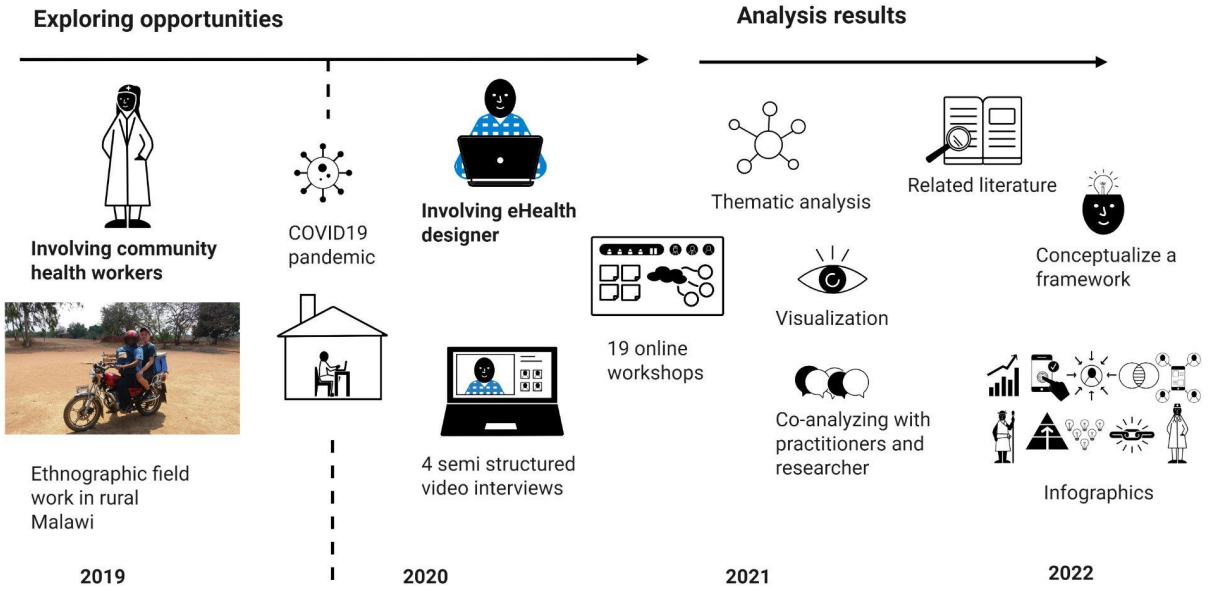
Research question

Which opportunities do eHealth designers in LMICs see for better involvement of healthcare workers during design of eHealth solutions?

Research approach

Engaged Scholarship through exploratory qualitative research

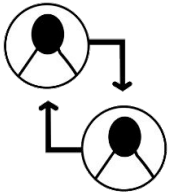
Research process



Principles of user involvement during interaction design

End-users needs

End-users practices



Mutual learning

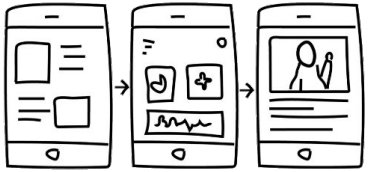
Co-creation with users

Multiple design iterations

Adapt the means of user involvement to context

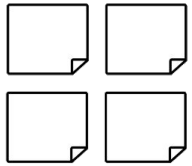
Means of user involvement during design

Conventional means

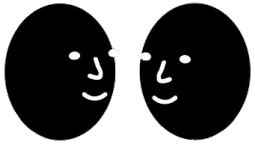


abstract representations

text based



paper based medium

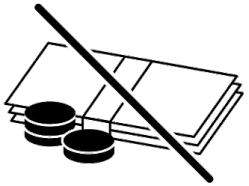


face2face

Challenges identified in LMICs (e.g. Africa):

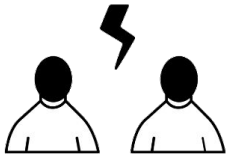
little exposure to technology

prefer verbal & performed communication



Lack of resources to travel and meet users

Users lack time



skewed power relations

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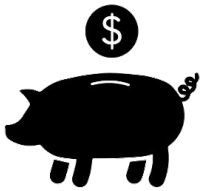
Frugal User Involvement

Providing affordable quality user involvement

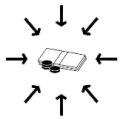


cost efficiency

cost efficient facilitation

long term cost efficiency for sustainability

reduce cost for users



attract resources

attaining quality

enhance product design

empower users

appropriate to the context

illuminate the real-world problem situation

engage user

build user capacity

engage stakeholders

robust

Concepts borrowed from frugal innovation:

Weyrauch, T., Herstatt, C. What is frugal innovation? Three defining criteria. J Frugal Innov 2, 1 (2017). https://doi.org/10.1186/s40669-016-0005-y

BetterHealth

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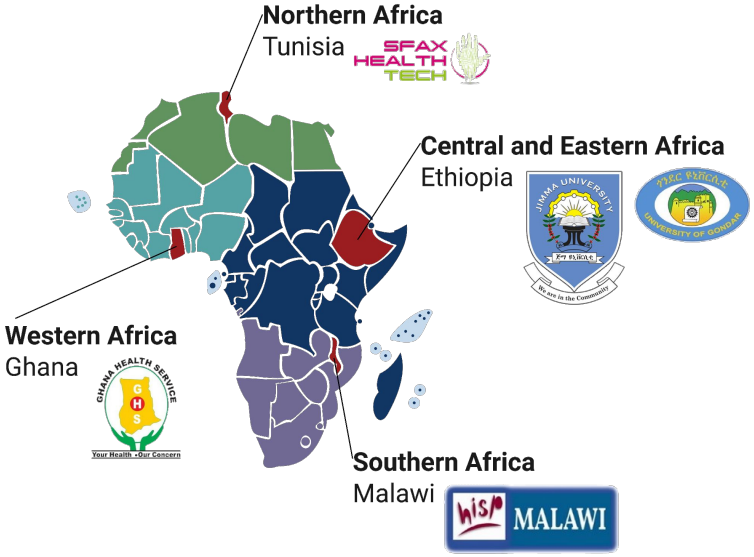
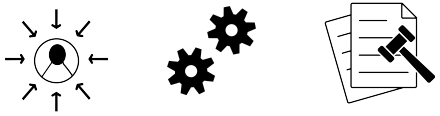
Research projects aiming to boost international cooperation in eHealth

Four Regional Hubs in Africa lead by African research partners

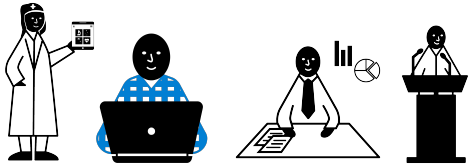


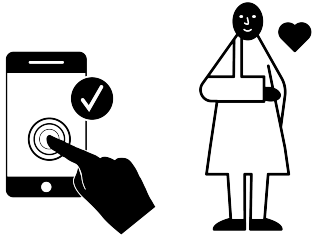
Research on:

Human, **technical** & **political** factors



To inform and strengthen end-user communities and policy makers in making the right decisions





Better health outcomes through better healthcare accessibility and higher quality

In collaboration with European research partners

Norwegian Centre for E-health Research
SINTEF
UiO : University of Oslo
University of South-Eastern Norway
Helder Resultaat

www.betterehealth.eu

The Health Information Systems Programme

UiO : Department of Informatics
University of Oslo

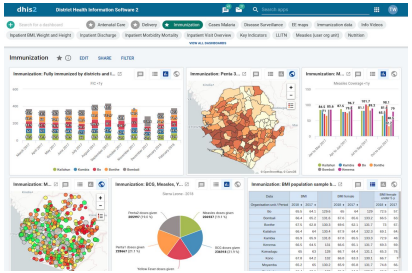
A global action research project coordinated by University of Oslo

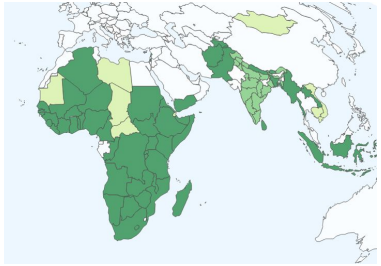
dhis2

Development and implementation of the world's largest health information management system platform used in more than 70 countries

DHIS2 Design Lab

researchers and post-graduate students





research, explore and promote design and innovation within generic enterprise software ecosystems

Platform for collecting, analyzing, visualizing and sharing data

www.dhis2.org

Collaboration with HISP nodes throughout Africa

https://www.mn.uio.no/hisp/english/dhis2-design-lab/

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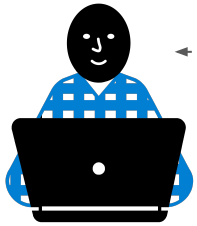
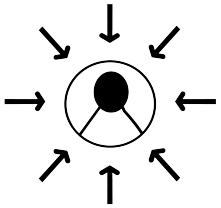
Perspective from eHealth designers in Africa

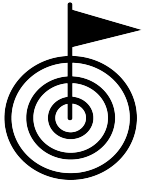


important lessons learned for **frugal user involvement**

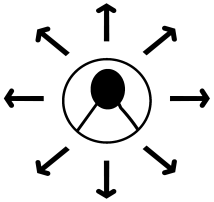
experts on current practises and context



Current work practises

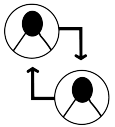


Challenges of involving users



Opportunities for better user involvement

Mutual learning between contexts

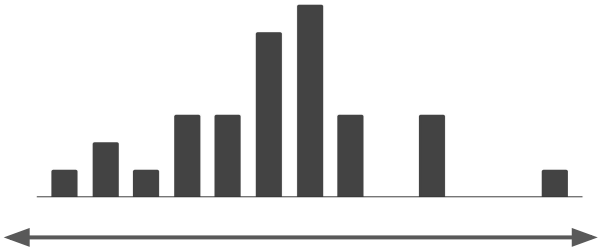


Participants

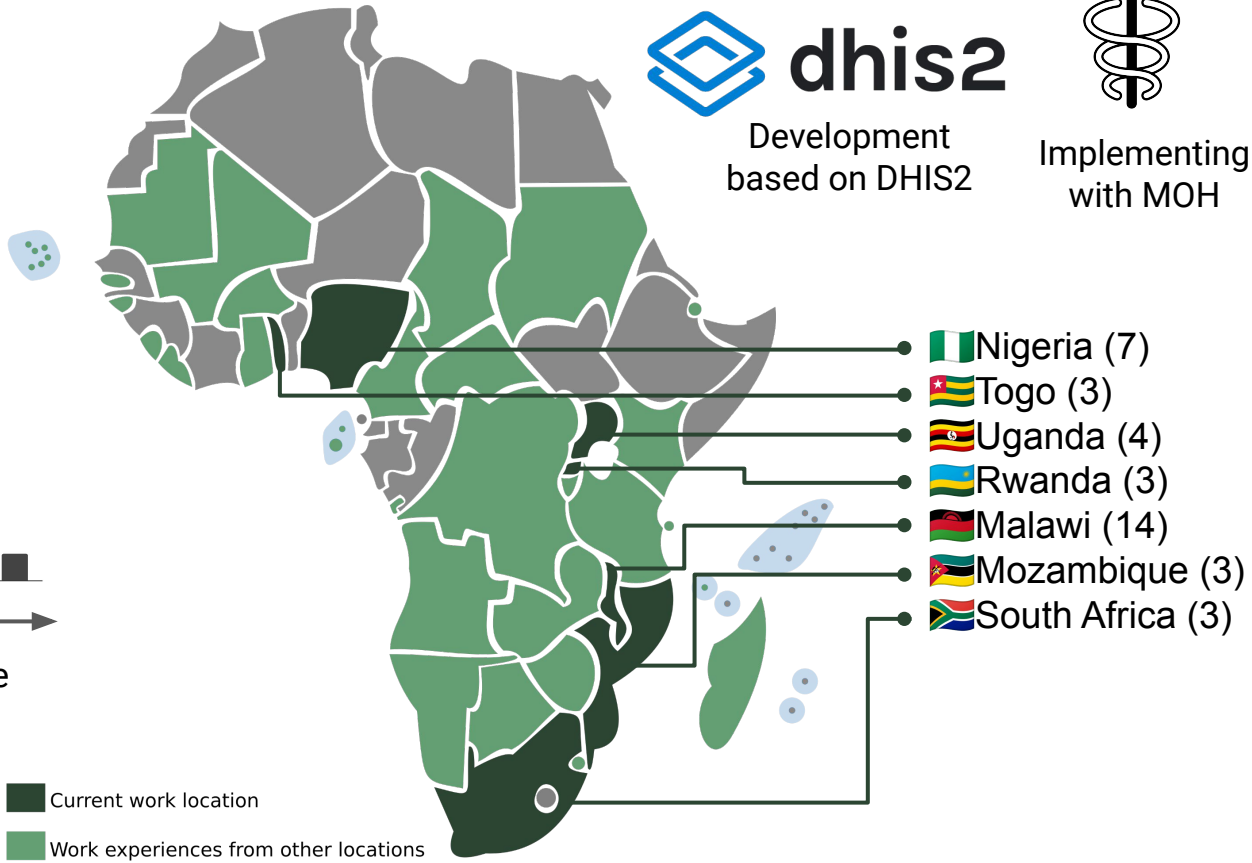
37 eHealth designer in Africa

9 women

28 men

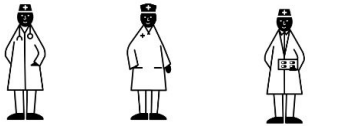


1 to 13 years of work experience
6 years in average



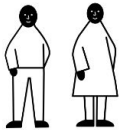
eHealth design in communities

Facility Healthcare Workers



Doctors Nurses Pharmacists

Laboratory staff Data entry clerks



Community volunteers

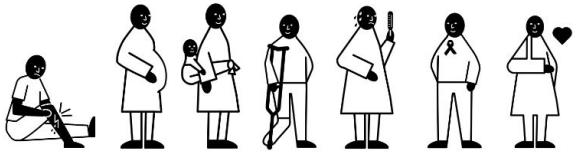
Expert clients

Community Healthcare Workers

- First-line service in the healthcare sector
- Bridge between the facility & the community

Typical tasks:

- basic preventive healthcare
- health education
- referral and follow up
- assist healthcare recipients to navigate the healthcare system



Healthcare recipients

Community health Stakeholders

Religious leaders

Community leaders

Teachers

Farmers

Fishers

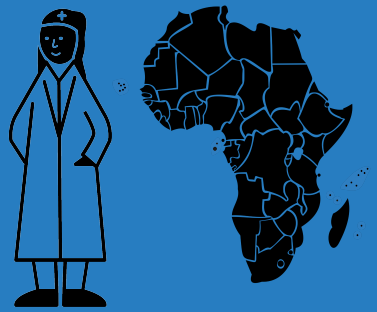
Poverty

Traditional medicine

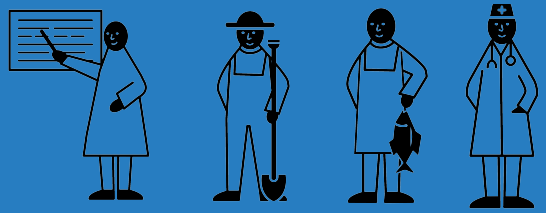
Informal drug outlets

Why explore involvement of community healthcare workers in Africa?

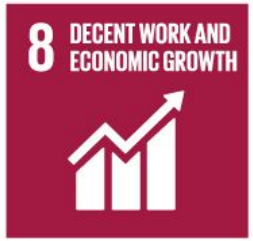
Understanding how to better involve users in communities throughout Africa and LMICs



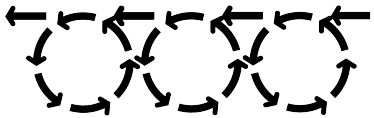
Design4Development - Transformative design



Potential impact

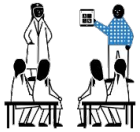


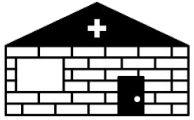
Reverse engineering

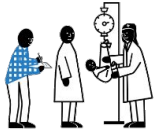


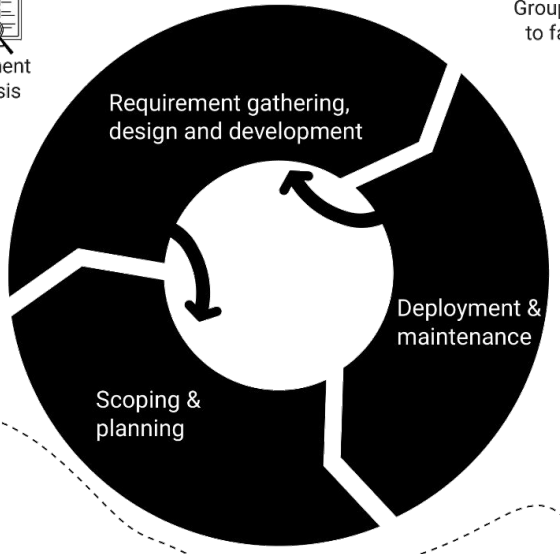
Findings

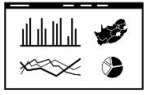
eHealth designers work practices

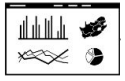


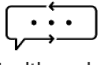












Challenges of involving health workers

Technical limitations with the software

Poor work conditions and lack of work motivation

Health workers unavailable for activities

IT scepticism and resistance

Limited IT literacy

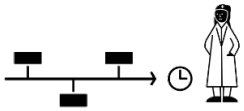
Lack of owernship

Lack of system access

Lack of data and system use

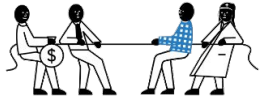
Lack of resources to facilitate for user involvement

Project scope not based on health worker needs

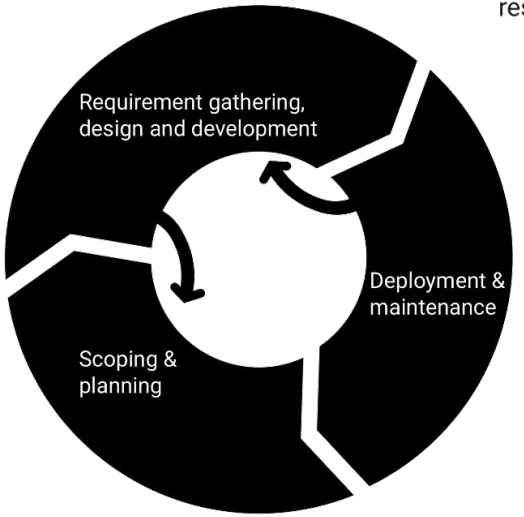


Too short project timeline

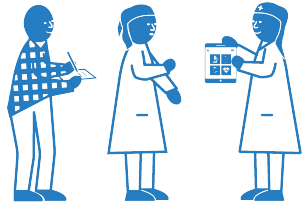
Health workers being involved too late



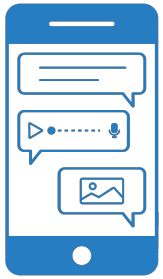
Managing requirements, stakeholders and communication



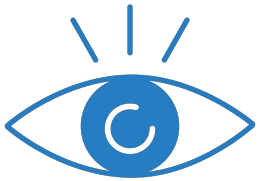
Opportunity for frugal user involvement



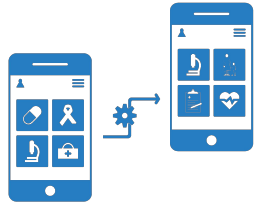
Role play



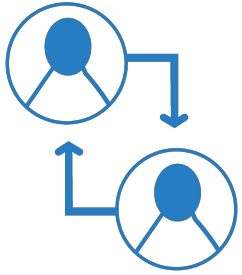
Instant messaging groups



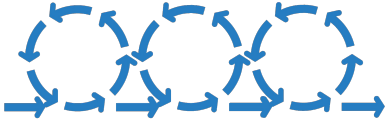
Visual means



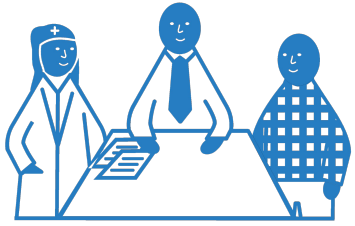
Prototyping with generic software



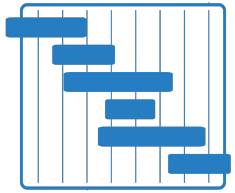
Peer-driven user involvement



Design Thinking

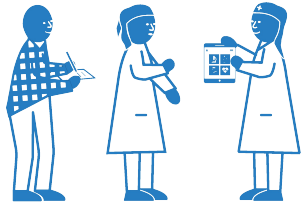


Improved stakeholder feedback mechanisms

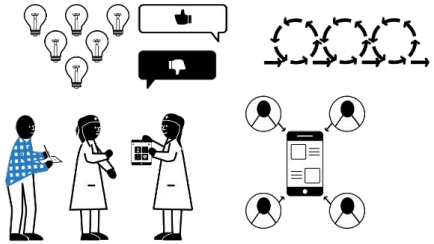


Improved organizing of projects

Opportunity for frugal user involvement

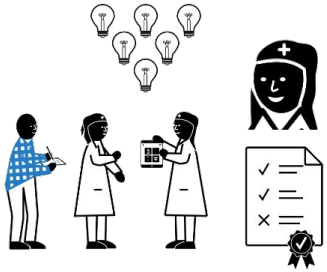


Role play

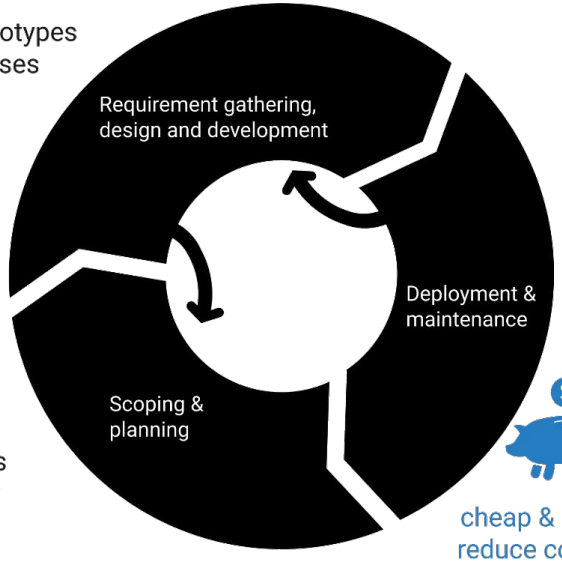


Role play for evaluating prototypes and discover new use cases

Role play for engaging training and eliciting feedbacks



Role play for collecting requirements and exploring ideas in a playful way



cheap & simple, reduce costs for users

let users express needs, understand real use

engaging & fun, users natural language

Opportunity for frugal user involvement

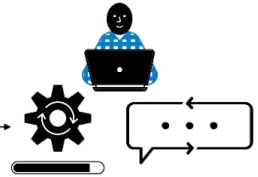
Instant messaging groups

Involving health workers more during system design

Brainstorming

Sharing multimedia expressions

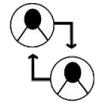
Base project scopes on health workers needs


Software updating instructions, instant feedback on changes

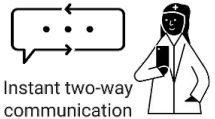
Sharing screenshots

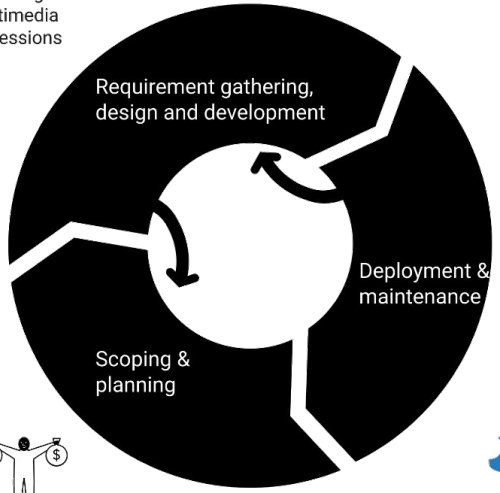
Training & capacity building, video tutorials

Help desk support


Peer to peer assistance

Discussions data use, learn and brainstorm new ideas


Instant two-way communication



Many health workers already uses instant messaging groups

Unlayered communication between stakeholders

WhatsApp

Telegram

Vula

More frequently used after covid-19

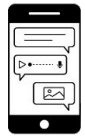
familiar technology, less time consuming, peer-to-peer assistance

give users a stronger voice

high availability, reach more users, build capacity

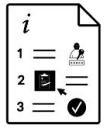
Opportunity for frugal user involvement

Visual means

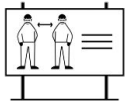


Multimedia expressions in instant messaging groups

Video tutorial

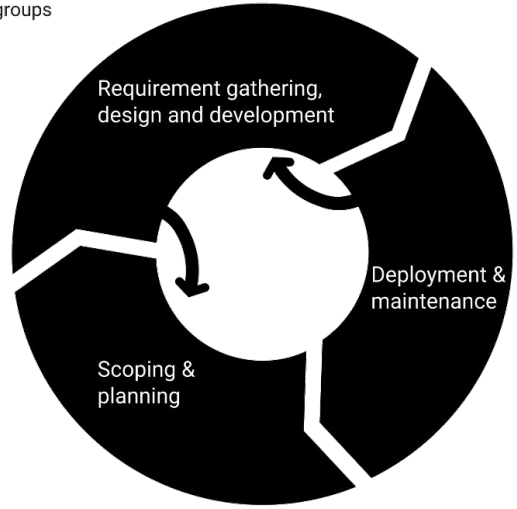


Illustrated single page manuals



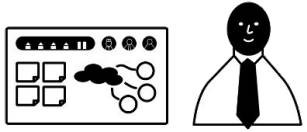
Illustrated public health messages in local languages

Photos & video to document work context



More visual user interfaces

Illustrated posters



More visual reporting to other stakeholders

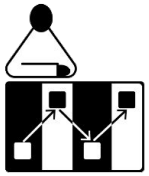
less efforts for users

more impactful messages

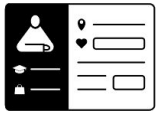
engaging both users and other stakeholders, less ambiguous

Opportunity for frugal user involvement

Design Thinking



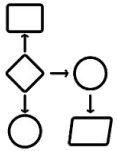
User journey maps: understand better how the health workers operate during a day or a month



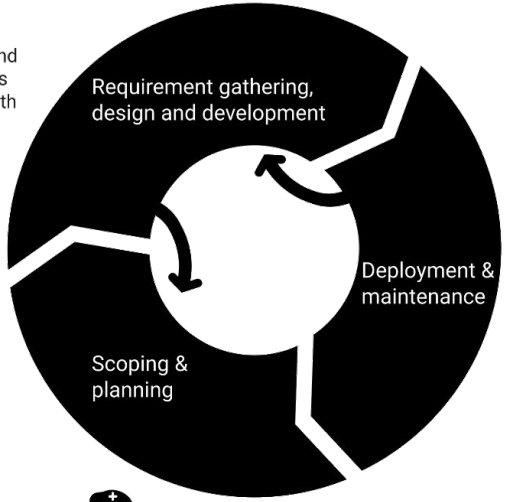
Personas: get a better overview of who the typical health workers are

Brainstorming solutions with health workers

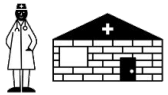
Solve organisational challenges by resolving key issues on the ground



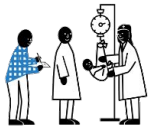
Focus on users workflows



Health workers taking part in deciding which indicators to use and what data to enter



Meet facility leaders and integrate indicators needed locally



More field visits to gain better contextual insights

Provide more relevant and useful solutions

Postpone discussing technology until after pain points are identified

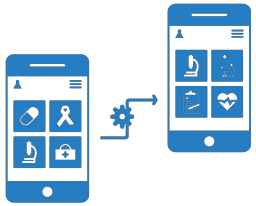
Base project scopes on health workers needs

discover and resolve design gaps early on

users influence more the product design

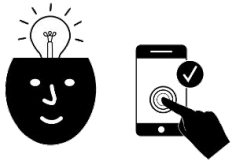
engaging users on key issues, create ownership

Opportunity for frugal user involvement

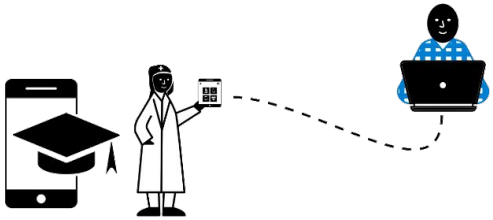


Prototyping with generic software

Co-configuration

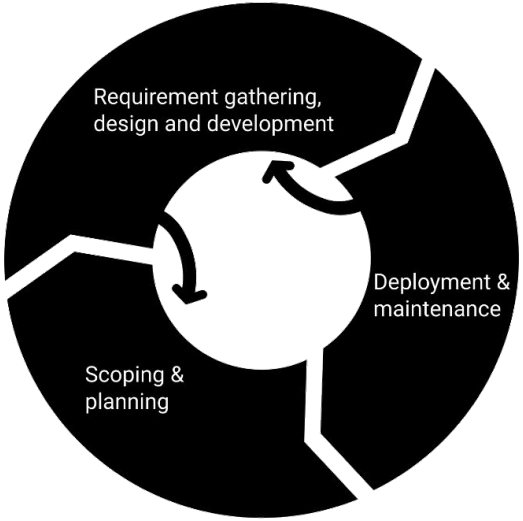


let users select features they like

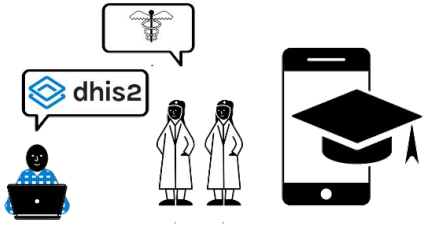


Training in semi-deployed systems

use more prototypes before implementing the system



quickly adjust deployed system based om feedbacks



early IT training of health workers to get more relevant feedback during the design process

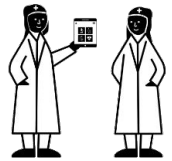
functional prototypes at low costs

faster design iterations

capacitate users to participate

Opportunity for frugal user involvement

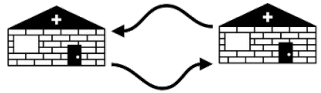
Peer-driven user involvement



Health workers learning about each others work practices

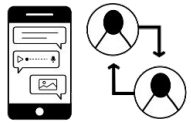
committee of end-users to receive and manage feedback

Peer driven training and activities by health workers

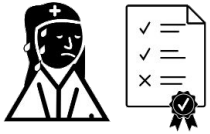


Peer learning between facilities

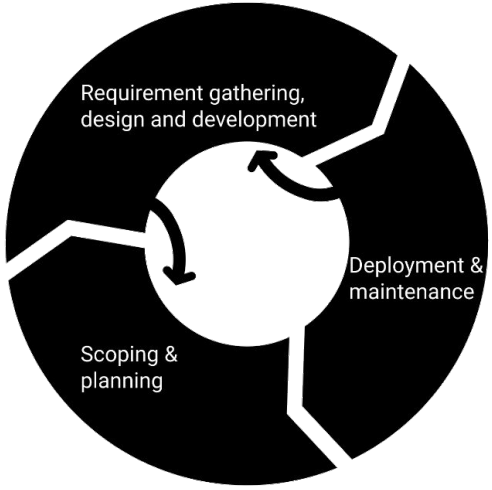
Provide digital career paths



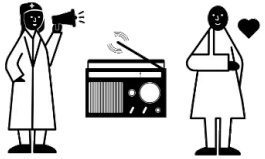
Peer support using instant messaging groups



Health workers being better involved in requirement gathering



Feedback through facility leaders



Health workers assist involving the healthcare recipients

Healthcare workers represented in development team

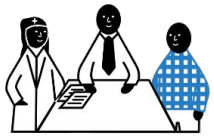
more sustainable impact

capacitate the community level

create ownership of the process

Opportunity for frugal user involvement

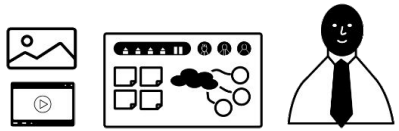
Improved stakeholder feedback mechanisms



Let health workers participate in workshops with other stakeholders

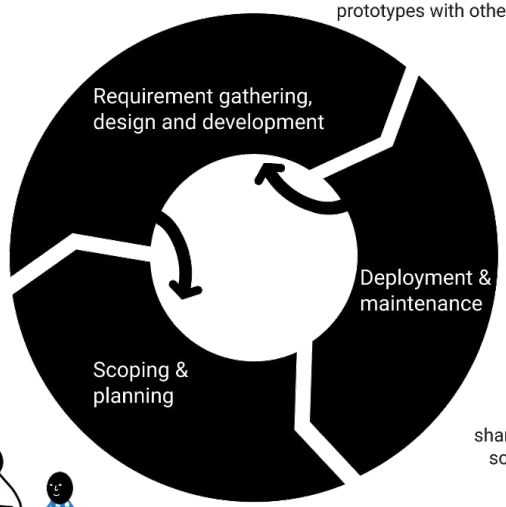
Elicit buy in from key stakeholders

Let health workers evaluate prototypes with other stakeholders



More visual reporting to engage key stakeholders

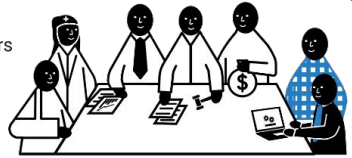
Disseminate understanding of health workers needs



digital health coordinators at district level

Let health workers participate in webinars with other stakeholders

Give the health workers a stronger voice



Improve communication and align all the stakeholders

share use cases with software vendors

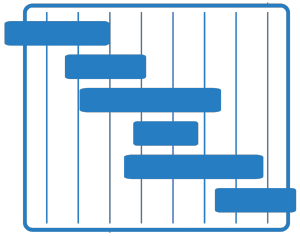
More feedback to the health workers

attract resources

give users a stronger voice

engage key stakeholders

Opportunity for frugal user involvement



Improved organizing of projects

Early involvement of healthcare recipients

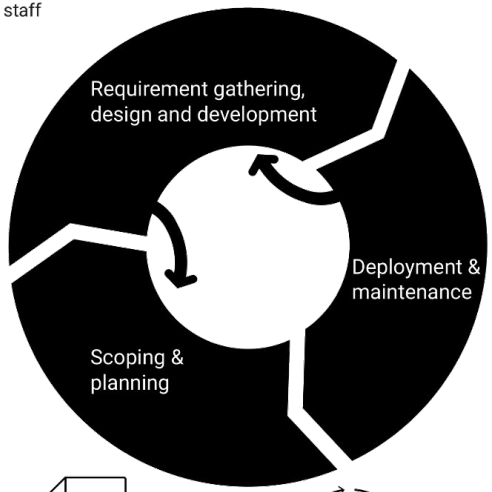
Clear procedures to access information and staff

Select representative users

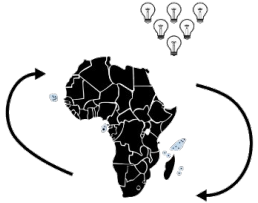
Provide early training for more relevant feedback

Time activities with the health workers work

Evaluate user involvement

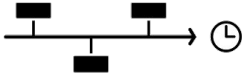


Systematic research on data use at the local level



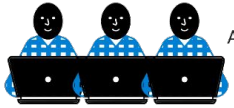
Research network to share experiences between countries

Earlier involvement of the health workers



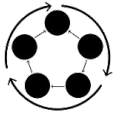
Meaningful timelines

Apply lessons learned



Better alignment between different projects

Template budget for user involvement



Monitoring and evaluation for user involvement

apply lessons learned & manage resources

ensure timely involvement

ensure minimum standard of involvement

Acknowledgement

Infographics
Mats Blakstad, researcher and information designer
Persia Duncan, graphic designer

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HISP Nigeria
Cooper/Smith
HISP West and Central Africa
HISP Malawi
HISP Uganda
University of Malawi
HISP Rwanda
Saudigitus
HISP Health Information Systems Programme - SA
BetterHealth
DHIS2 Design Lab

About me

UiO : University of Oslo

Master student in Informatics
(design, use & interaction)

DHIS2 Design Lab

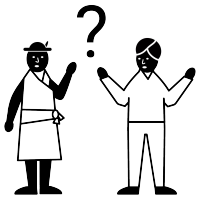
Participant in the
DHIS2 Design Lab

SINTEF

Research assistant at SINTEF

BetterHealth

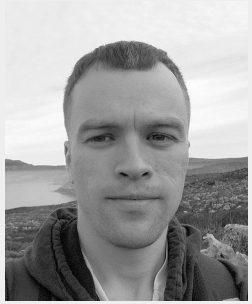
Working in international research project
BETTEReHEALTH with
eHealth partners in Africa



Bachelor in Culture &
Communication

Bachelor in Informatics
(design, use & interaction)

Worked as community
care worker for 7 years



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Feel free to contact me for any
questions or comments!

Thanks for listening!

Any questions or comments?

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