Blockchain Pilot Kano State

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NSCIP

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Speakers of today

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Annette de Nie

Host of today

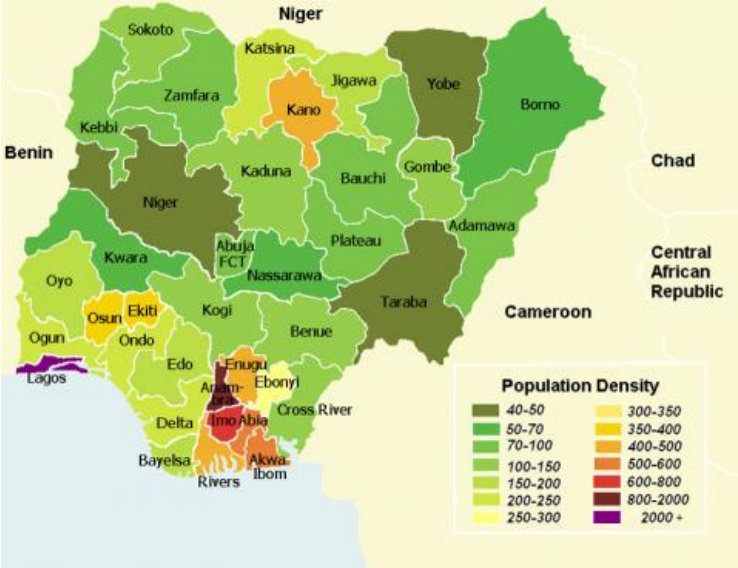
Anouk van Praagh

Co-host of today

The Blockchain pilot

01 Background and goals

Nigeria



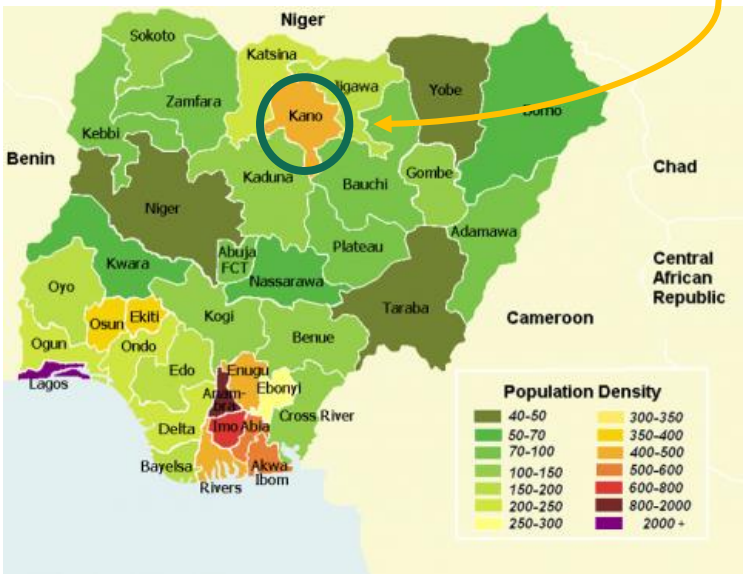
The country

+ ~200 million people
+ 36 federal states
+ 774 Local Government Areas
+ 40,000 primary, secondary and tertiary health facilities

The NSCIP Project

- In 2014, the NPSCMP launched the Nigeria Supply Chain Integration Project (NSCIP) to integrate parallel supply chains of HIV, TB, Malaria, Reproductive Heath & Immunization programs
- The integration process did not include essential medicines and its availability at the last mile
- This necessitated a pilot using blockchain to integrate and provide end-to end visibility for the essential medicine program

Nigeria



Introduction

+ Kano state has one of the most robust Drug Revolving Funds (DRF) in Nigeria
+ Covers over 900 public health facilities
+ Turn over of approximately $6.3 million per year
+ Manage over 1,000 products
+ Kano DRF has been understudied by other states in Nigeria
+ Strong government commitment

Challenges

- Absence of end-to-end real-time data visibility
- Logistical Management Information System (LMIS) is paper based on the level of the health facilities
- Lengthy procurement process
- Payment for products is via bank cheque

History of the pilot

- i+solutions, unchain and National Product Supply Chain Management Program (NPSCMP) piloted blockchain technology in DRF program in Kano State
- The aim was to test the viability of the blockchain technology in medicine supply chain
- The pilot showed that blockchain technology can
  - Link and secure ordering and payment process
  - Shorten procurement process, and provide transparency
  - Integrate parallel systems and provide real time end to end visibility

Key characteristics of blockchain for business

Blockchain technology allows for business networks and value chains to transact in a reliable and trustworthy way based on open source software

+ **Shared Ledger**
  Transactions are recorded in a shared ledger allowing for improved insights, keeping confidentiality and privacy regulations in mind.

+ **Consensus**
  Flexible network governance allows for relevant parties to ‘notarize’ transactions

+ **Immutable chain of transactions**
  Events and their actors, are recorded in order, in a tamperproof manner allowing for the exchange of value

+ **Smart contracts**
  Transactional events can be subjected to a set of business rules and can trigger events, resulting in efficient business processes

Value of Blockchain in Supply Network of Medicines

+ Increased efficiency across the supply chain
  By recording the flow of documents and goods across the supply chain allows for automation based on event triggers. For example: a successful delivery can lead to the automatic payment of the related invoice.

+ Improved auditability and reduced efforts in bookkeeping
  By linking orders, invoices, shipments and payments there is a reduced need for reconciliation between physical goods and transactional data.

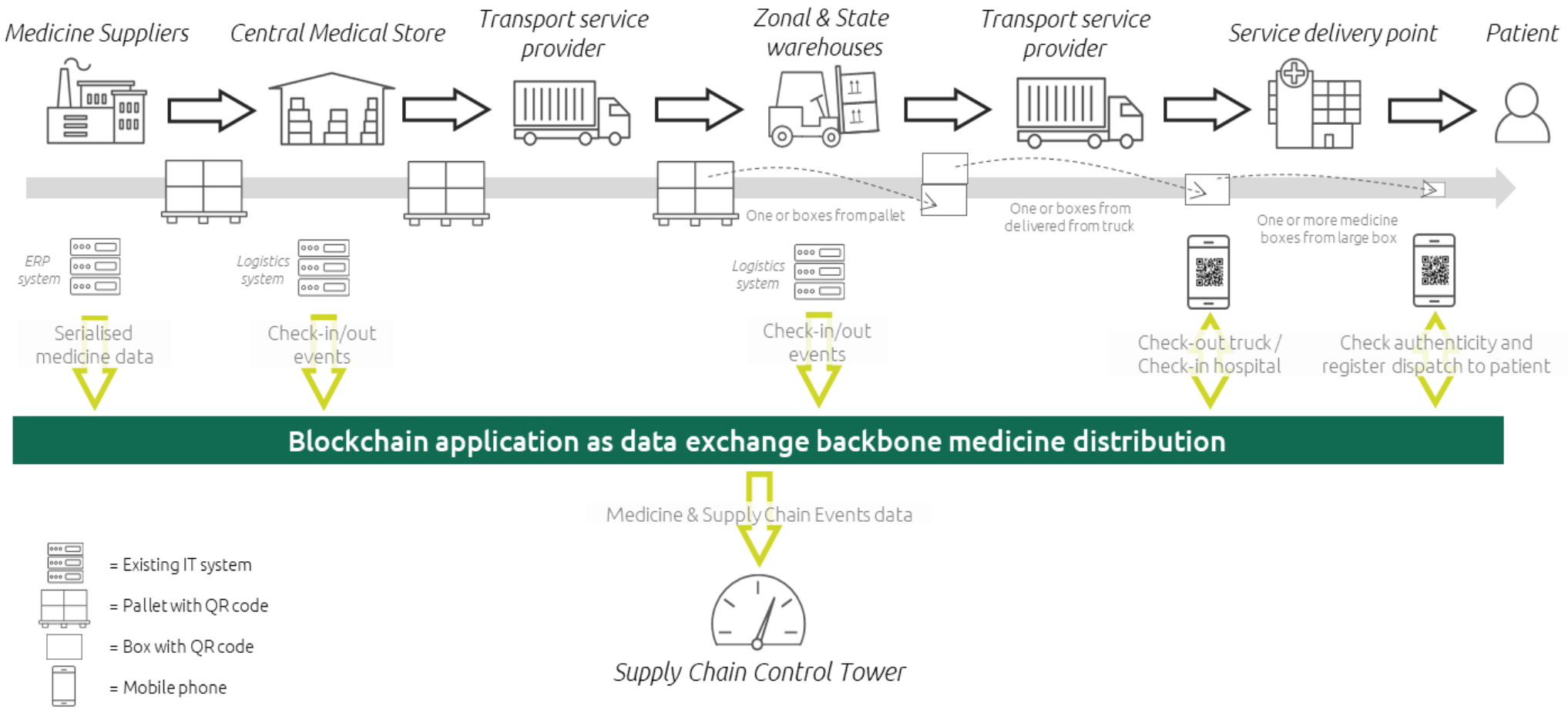
+ Uniform and tamperproof way to exchange data and value in a network allows for reliable insights
  The shared ledger can provide a trustworthy, real-time source of data to perform analytics on. This can result in e.g. improved inventory management and prevent medicine falsification.

+ Non-proprietary technology allows for inexpensive and standardized data sharing across a supply chain
  Because of the open source nature of blockchain protocols, organizations do not have to bilaterally share data but can do this over a backbone for the entire value chain that allows for standardization.

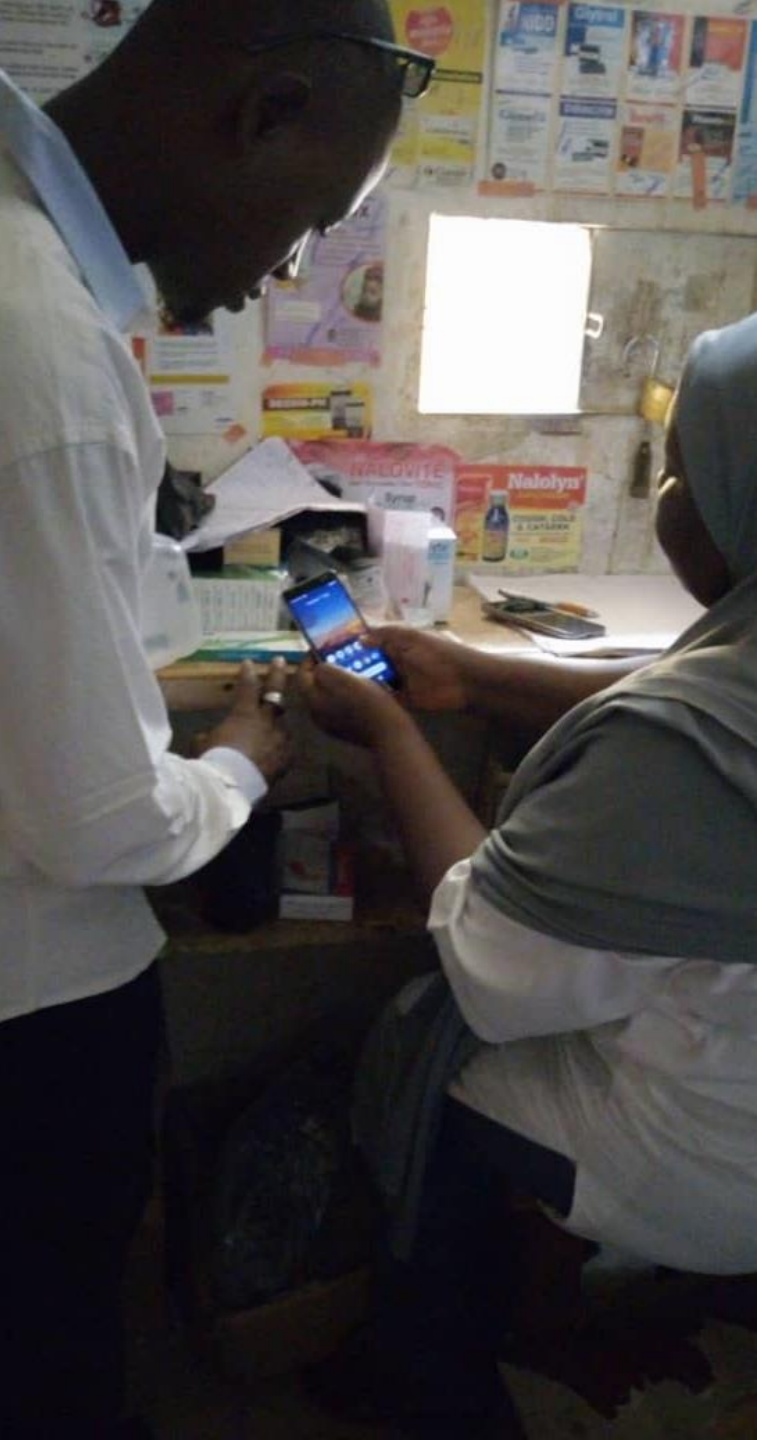
The key reasons to use blockchain in this use case

- Improved inventory management based on real-time data can **prevent over- and understock** at healthcare facilities
- Facilitate **fast and secure payment** for health products based on acceptance of the invoice
- Inexpensive backbone to **connect all relevant parties based on globally accepted data standards** for medicine (GS1)
- Create traceability of medicine from central medical store to the last mile to **prevent falsification and diversion**

Conceptual View on Application of Blockchain in Medicine Supply Network



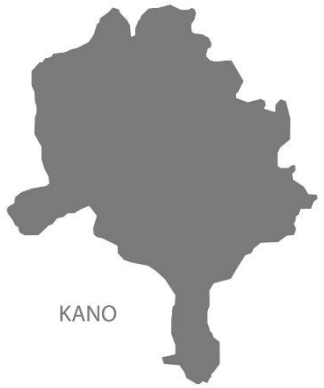
02 The pilot setup



Kano State Pilot-Objectives

- To show end-to-end and real-time visibility
- To show how the blockchain can provide an efficient, secure and fast payment

Setting



+ Kano state

+ Muhammadu Abdullahi Wase Teaching Hospital; (A&E unit)
+ Gwagwargwa Primary Healthcare Centre

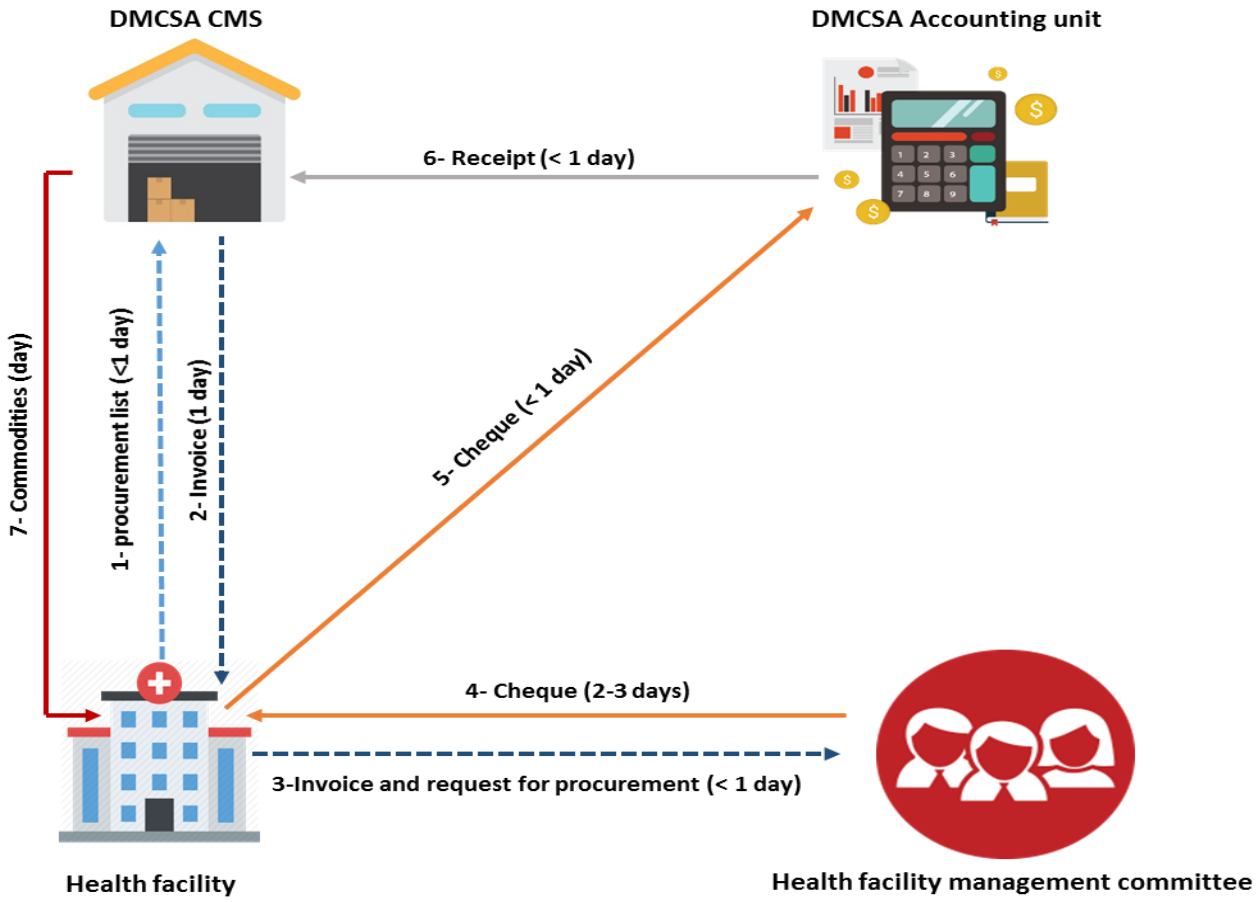
+ Drug and Medical Consumable Supply Agency (DMCSA) Central Medical Store

Medicines in scope

Normal Saline

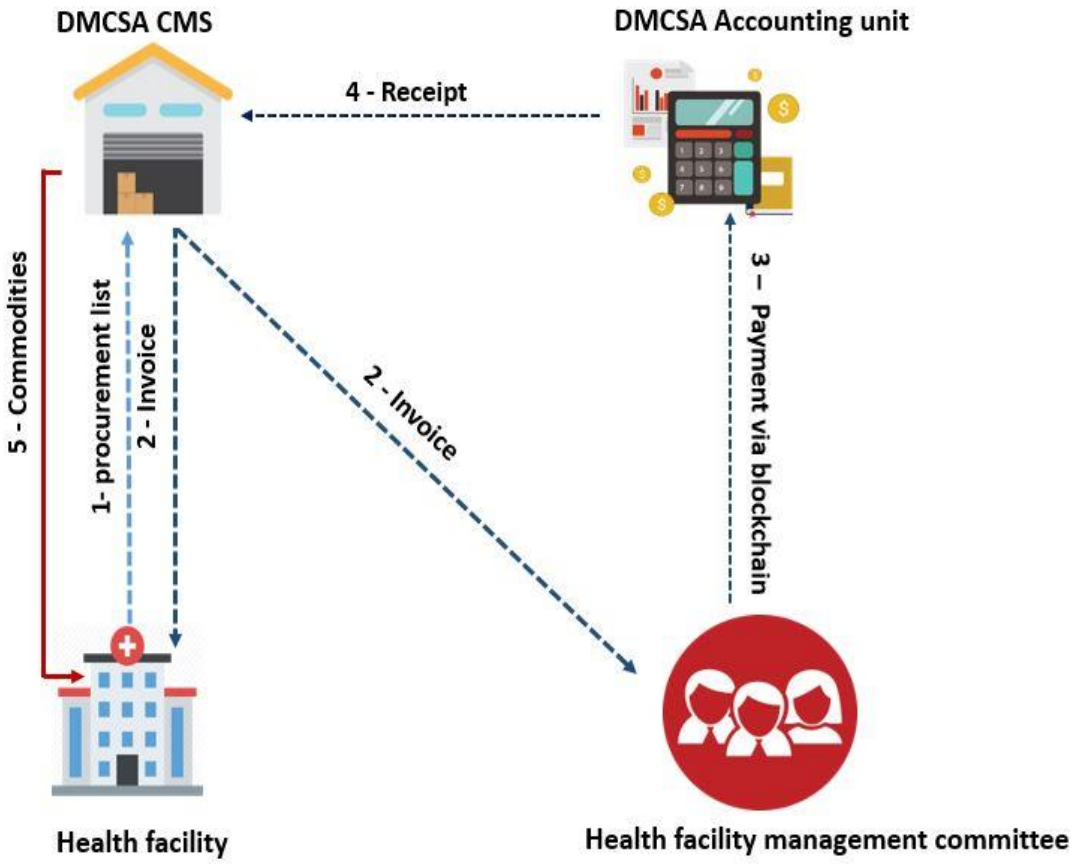
Paracetamol syrup

Overview of procurement process in Kano State DRF



Entire procurement process takes about 3-6 days.
Commodities issued to patients are recorded paper-based tools

Blockchain solution



Entire process occurs in less than 24 hours.

Elimination of the process of issuing and collecting cheques and the risk of bounced cheques.

Key notes

01 An account was created for each participating service delivery point

02 Each account was linked to the blockchain network

03 Payment was automatically initiated when invoice was approved by health facility management committee

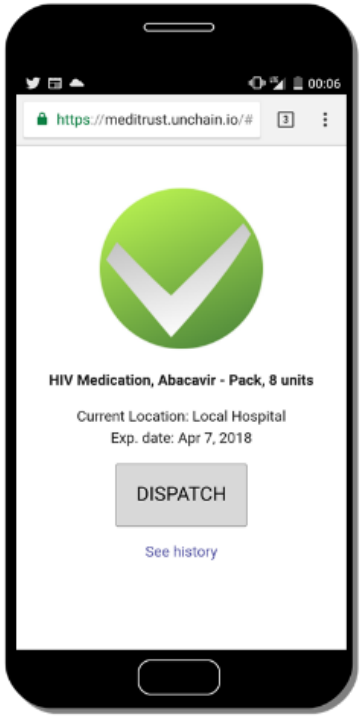
Blockchain Solution – Mobile Application

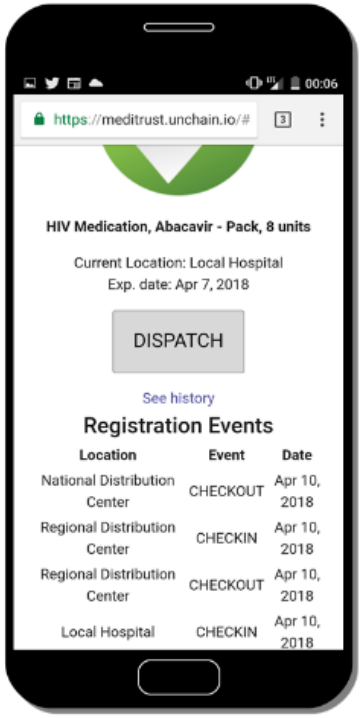
Mobile application shows the invoice from the central store indicating:

- All the commodities in the invoice
- Unit cost of each commodity
- Quantity of each commodity
- Total cost of each commodity
- Total cost of the entire procurement

Mobile application was also used by health facilities to:

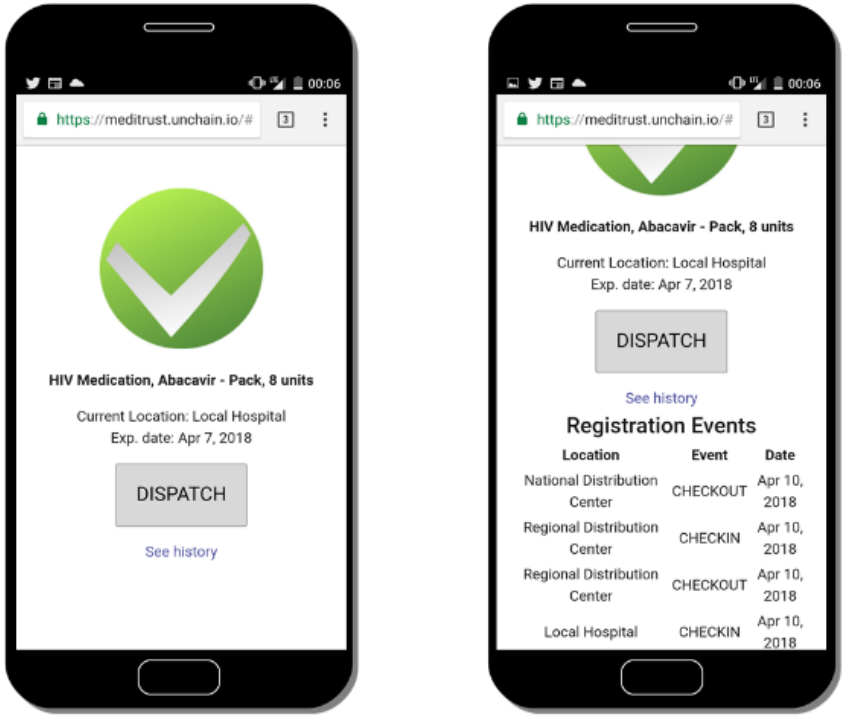
- confirm receipt of commodities
- to enter consumption data in real time





Blockchain Solution – Front end Web application

- Front end web app provided real-time data visibility
- Shows the movement of commodities from one level to another
  - quantity of each commodity received and issued in real time
  - exact time of each transaction

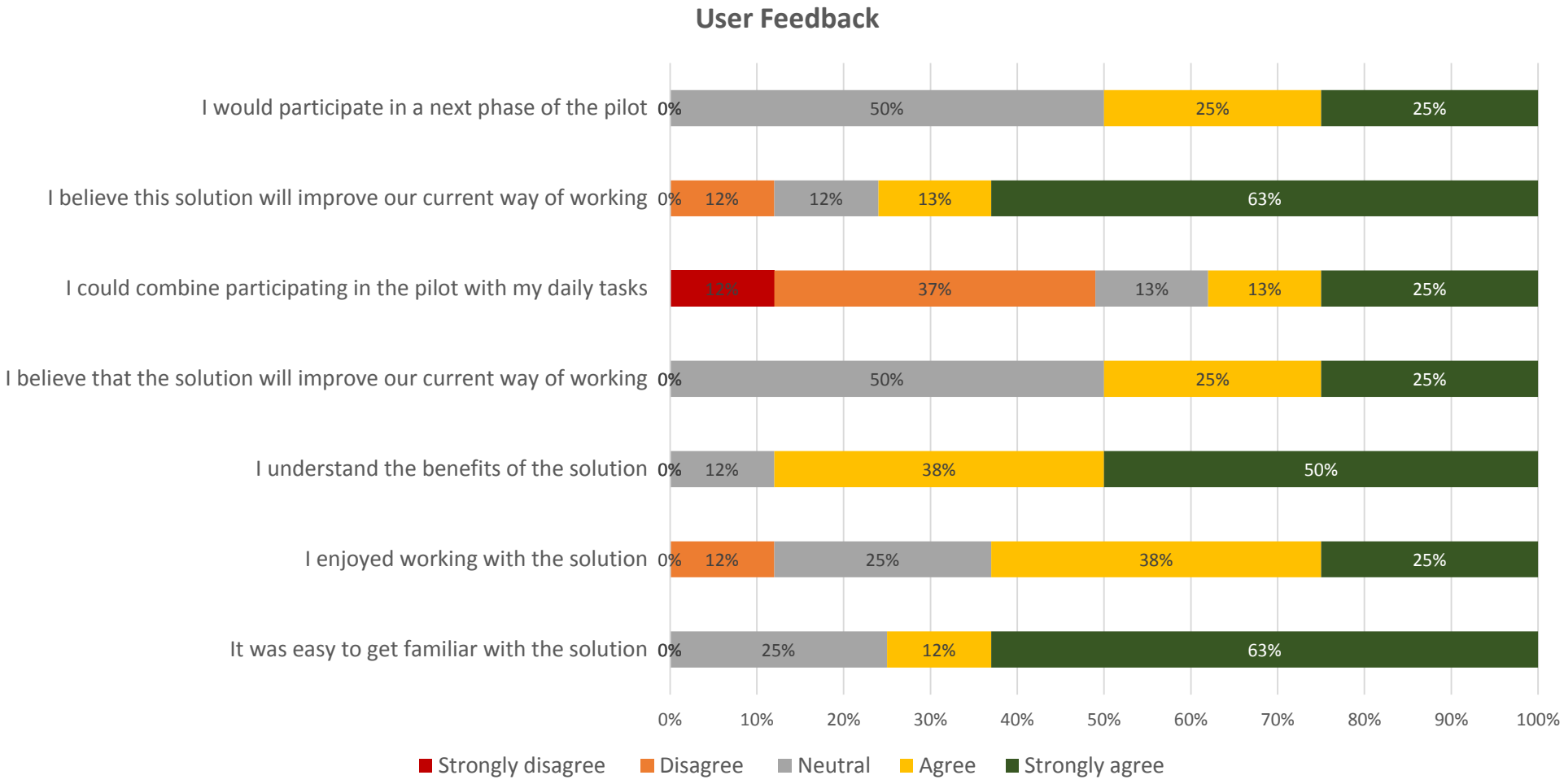


03 The results

Results

- Significantly reduced length of procurement
  - **Procurement occurred within 24 hours**
- Eliminated issue of bounced cheques
- Provided real time end to end data visibility

Users state it will improve their way of working significantly



Conclusion

- Improved tracking and tracing, and real time end to end visibility in the movement of medicines and stock levels across the different levels of the supply chain.
- Capability to seamlessly integrate with other IT solutions
- Can enable overview of the full supply chain

“the solution was very simple to operate, yet highly technical, and will make the procurement process simpler, more precise and less time consuming”

- Deputy Director of Pharmaceutical Services Muhammadu Abdullahi Wase Teaching Hospital

04 Q&A

Thank you!

Contact details

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