Payment systems

Social Safety Nets Core Course 2013

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World Bank, Human Development Network
Social Protection and labor

General Objective

Successfully **distribute**
the **correct amount** of benefits
to the **right people**
at the **right time** and **frequency**
while **minimizing costs** to
both the program and the beneficiary

Specific objectives

- To ensure that the designated amount of benefits are delivered predictably to entitled recipients and on time;
- To reduce administrative program costs and beneficiary transaction costs and to minimize potential errors, fraud, and corruption throughout the payment process.
- An additional program objective is to provide beneficiaries with access to financial services (i.e. savings, loans, remittances, etc) to link them into the wider economy.

What happens when it does not work? An example

- India (Dominique Van de Walle, Manasa Patnam et al)
  - NREGA – NATIONAL RURAL EMPLOYMENT GUARANTEE IN BIHAR
  - HH issued a “job card” on application
  - Adult HH member provided work on demand (s.t. 100 day HH max. limit Unemployment allowance paid if work not provided
  - Wages paid on piece-rate basis as per Schedule of Rates Payment in cash through bank or post office accounts
- Survey (baseline, 3000 hh)
  - Mode of wage payment: 45% in own post office accounts Cash from mates (23%) + contractors (11%):
  - Only about half the time were job card entries & signatures done at time of payment
  - As a result only 40% knew what is the right amount

Challenges

- How to design a system that takes into account:
  - Type of program
  - Current and future needs
  - Different circumstances? (Rural vs. Urban; availability of electricity, telephone network, etc.)?
- How much to invest in administrative capacity and infrastructure? (hardware and software) to lower delivery cost in the future
- How to integrate new designs and hardware into established processes

Type of program: Recurrent vs Emergency

Cash Transfers

- Recurring
- May be conditional
- Recipients unbanked or financially underserved
- Cash/paper based payments – may be costly, inefficient and susceptible to fraud

- Card based products
- EFT Credit Transfers

Emergency Relief Assistance

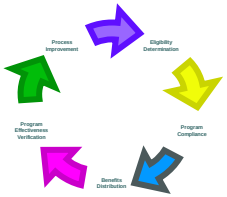
- One time
- Recipients unbanked or lack of access to bank acct
- Cash/paper based payments –may be costly, inefficient and susceptible to fraud

- Single use prepaid cards
- Mobile/wireless ATMs to supplement card usage

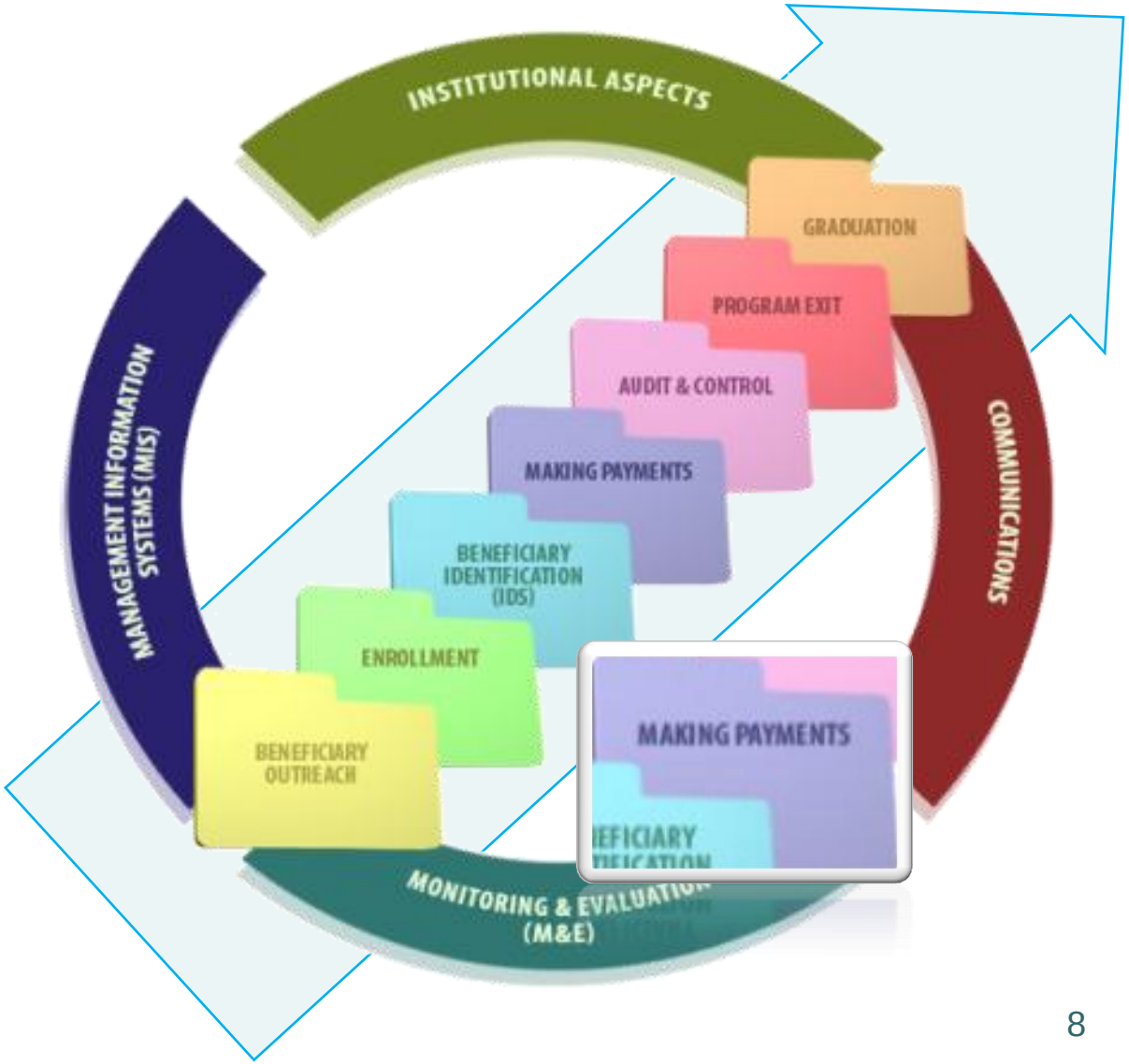
How do we design a system that ensures

- Reliability and frequency of payment/distribution
- Accountability and transparency
  - Reduce fraud and errors
- Accessibility and Security
  - Reducing costs for the beneficiary
  - Ensure that the right types of safeguards are in place while delivering the benefits to the beneficiaries
- Affordability and Efficiency (minimizing the cost of delivery)
  - Lower costs in the medium and long run
  - Reduce the time for delivery of benefits

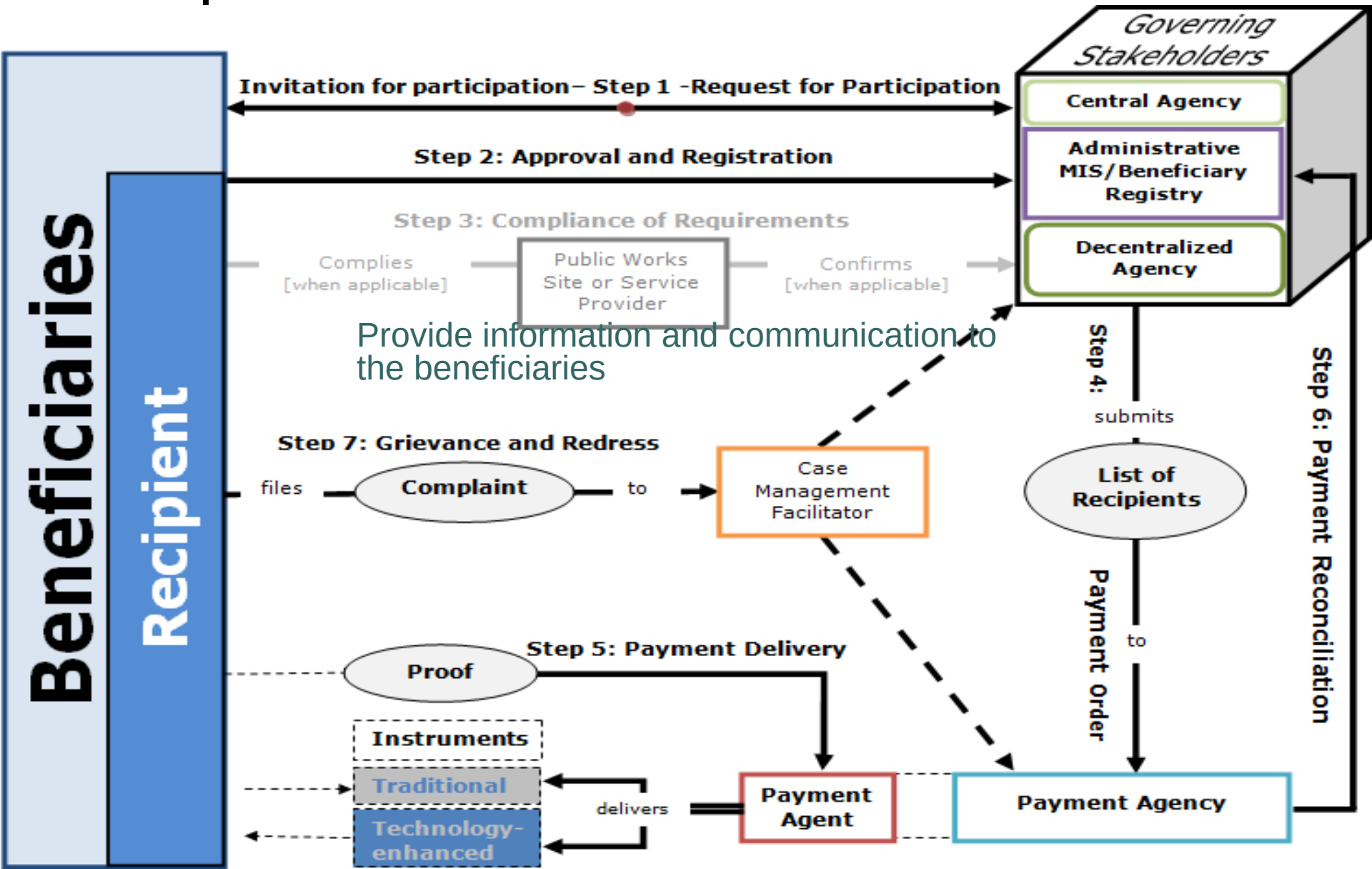
Payment process



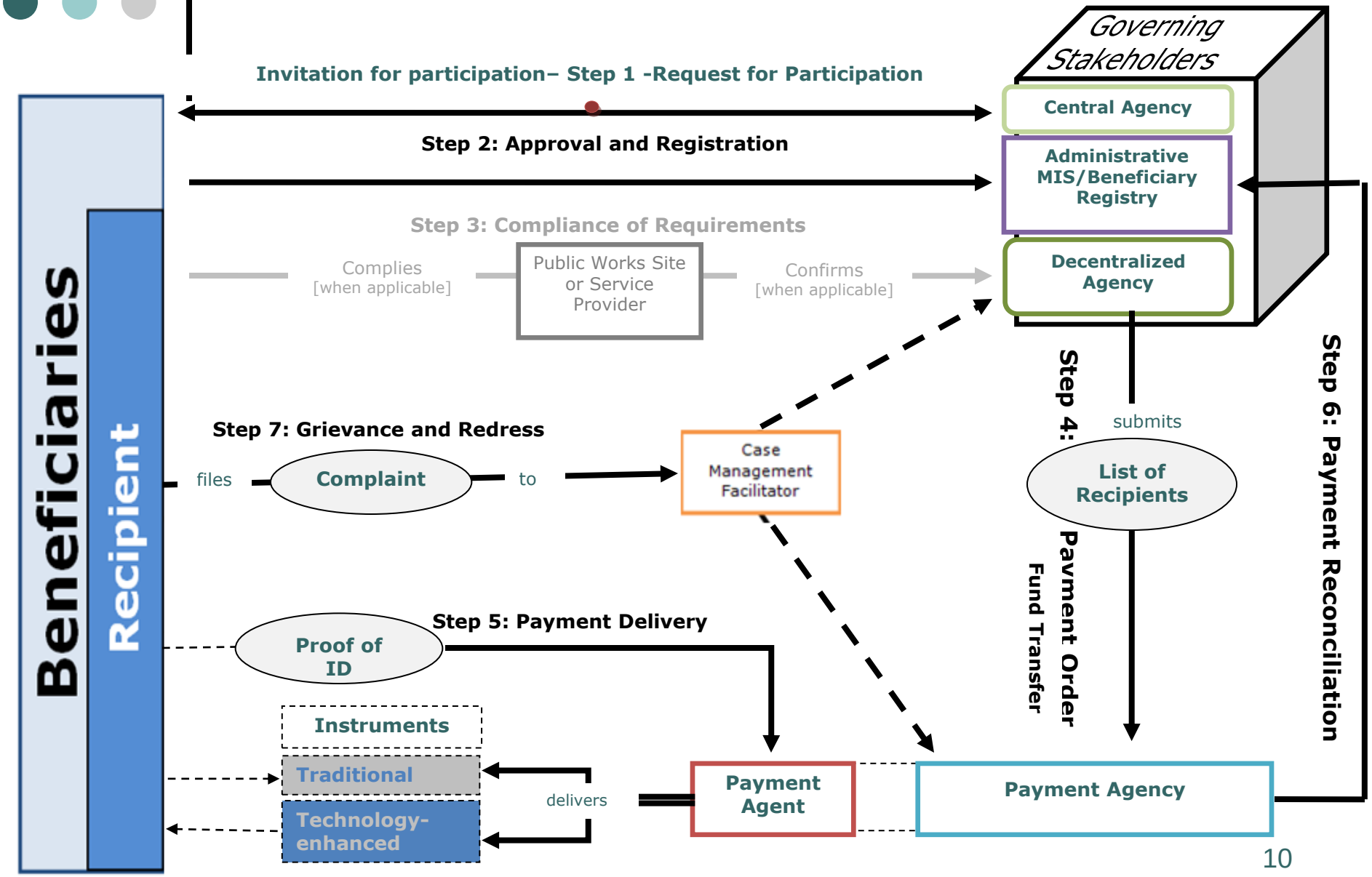
Payment is part of the overall operational cycle



Basic payment flow



The Seven Steps involved



Various Payment Agencies, Agents and Instruments and Costs

Agencies Responsible	Agents Intermediary	Instruments
• State and Private Banks • Public Agencies • Private Vendors • Microfianance institutions	• State and private branches • Mobile Banks • ATMs • Agents with POS • Agents with cell phones	• Cash notes • Checks/Vouchers • Bank Accounts • Debit cards • Smart cards • Cell phones

ALWAYS PROS AND CONS TO CONSIDER

Banks, mobile banks and ATM: retail banking

Banks, either private or public, can be used to deliver safety net benefits

- Distribute cash to beneficiaries against a list of individuals or families
- Cash checks and vouchers distributed to the beneficiaries

Banks, mobile banks and ATM : retail banking

- Maintain funds in the accounts in the name of beneficiaries in which cash can be deposited by welfare agencies or project
- NOTE: Difference between individual and group accounts

Mobile or traveling banks

- Bank employees travel with the cash to areas where there are no branches, thus achieving a greater coverage
- Lower transportation costs to the beneficiaries who would otherwise have to travel to the nearest branch.

Automated Teller Machines (ATMs)

- Offer all the advantages of direct payment + opportunities for discretion and rent seeking are minimized.
- Accountability, automaticity, and the potential for low operation costs, as well as the added feature of increased coverage and mobility

- Suitability determined by a combination of the state of infrastructure (especially electricity) in the targeted area, security considerations and costs (10,000 to 40,000 USD + 6,000 a year)

Usage of Business Correspondents

- Expanding the coverage for retail payment instruments is key. Business correspondents and agents can play an important role in promoting access of payments by
  - ✓ Improving the means through which payment instruments can be channeled to the traditionally un-served populations
  - ✓ Promoting technological and institutional innovation to reduce the cost of access and improve the availability of payment instrument
  - ✓ Ensuring a reliable customer interface that promotes faster adoption of payment instruments

Business Correspondents-Brazil

- The Caixa has created an impressive network of **banking correspondents** present in all of the country 5,500 municipalities.
- In 2007, Caixa operated 20,000 to 23,000 banking correspondents made of
  - Lottery agencies, petrol stations, supermarkets, etc., and reach customers in virtually every district of the country
  - Include: 16,281 self service cash tellers, over 32,000 points were benefits may be withdrawn
  - Maximum distance between a customer and a correspondent two to three kilometers

Microfinance institutions - Mobile Agents - Niger

- Microfinance institutions can provide a good alternative to mobile banking
  - Are financially reliable
  - Have extensive experience in going with cash into rural areas
- May provide additional services to beneficiaries

Retail stores

- This is the case of the food stamp (SNAP) program in US and the Public Distribution System (PDS) in India
- When cards are used, stores can authorize or record the transactions using Points of Sales Terminals (POS)
- In the US it is the EBT system

Example of a POS Terminal

They cost between US$ 300 to $700 each, depending of the model, characteristics and so on

Other payment sites

- Public agencies can also be used as a place where benefits are distributed.
  - Must be experienced in making cash payments and handling the accounting associated with payments
- Other pay points
  - Armored trucks
  - Lottery shops
  - Schools and NGOs
  - Ad hoc – using POS Cell phones, etc

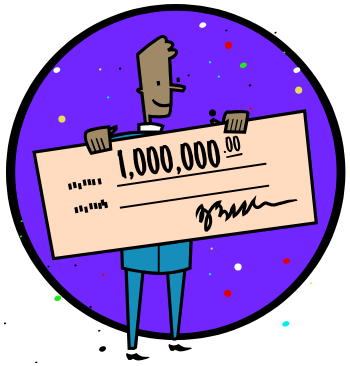
Creating a Payment Network

- Payment networks help achieving the critical success factors for adoption of a payment mechanism
  - ✓ Meet the needs of both program and beneficiary effectively and efficiently
  - ✓ Alternatives for program management
  - ✓ Wide users for payment mechanism offered to beneficiaries
- De-linking of payment service from payment infrastructure
  - ✓ Fosters competition in provision of payment service
  - ✓ Lowers cost, due to efficiencies arising from scale and competition
  - ✓ Easier to integrate new payment mechanisms
- Challenges in developing payment networks
  - ✓ Need for consensus amongst participants, resistance from incumbents
  - ✓ Finding the right business model
- Role of Government
  - ✓ Address market failures
  - ✓ Ensure equitable access to payment networks

Instruments – Cash

- The direct distribution of cash (common in lower income countries)
  - E.g. cash for work projects or emergency intervention.
- The only thing needed is a list of beneficiaries or a muster roll.
  - People line up, present some form of identification, a passbook or a checkbook to record the transactions, then they sign some papers and get the cash
- Payments can take place in a variety of places including banks, public offices, or project worksites.

Checks and Vouchers



- Checks and vouchers can be exchanged for cash or they can be exchanged for goods at designated business establishments
- They require a good system of banks and/or post offices in which to redeem the cash or local stores in which to redeem the food.
- The lack of an efficient reclamation chain for vouchers can undermine the success of the distribution system

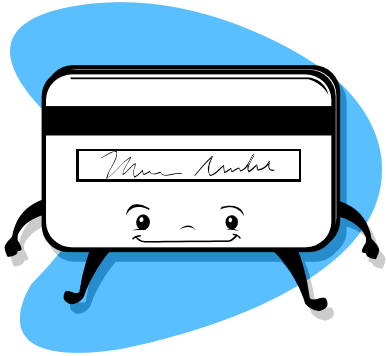
Checks and Vouchers

- Almost as good as cash.
  - Banknotes are special forms of checks
- Same problem too: Security
- Other issues:
  - More expensive – have to print them
  - Possible fraud
  - Stigma
  - Charge for reclamation
  - Parallel market
    - US food stamp – market price changed at time of the month

Direct (electronic) transfer of Cash

- Transfer the cash directly into the bank account of the individual beneficiaries
- Beneficiaries can keep the money or take it out.
- Good:
  - They eliminate intermediaries, fast, secure
- Issues
  - Cost may be high – Have to negotiate the fees. May use not individual, but group accounts

Electronic payments



- **WHY?**
  - Better beneficiary identification
  - Operational savings – In the medium long run
  - Value resides at host
  - No prior banking relationship needed
- **WHERE?**
  - Wide range of applications

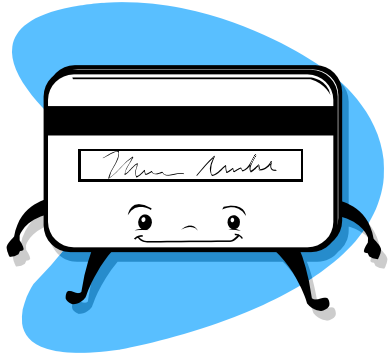
Electronic Payment – CALP Study

	Pre-paid card	Smart card	Mobile money	Mobile voucher
Description	Debit card read in any valid ATM or POS	Plastic card with chip, read in any valid Point of Sale machine	Cash transferred between 'mobile wallets' on mobile phone via sms	Voucher code and unique ID sent via sms
Initiatives included	Philippines Chile **Pakistan**	**Kenya** Zimbabwe Malawi Niger DR Congo (under development)	Kenya Niger Philippines Cote d'Ivoire Haiti	Syria Zambia Zimbabwe Kenya (under development)
Context	Flood response	Social Protection Food insecurity Displacement	Displacement Early recovery Food insecurity Livelihoods	Food insecurity Displacement
	Urban, Rural	Urban, Rural	Urban, Rural	Urban
Scale (HH)	300 <> **1.3m**	1000 <>**60,000**	100<>8,000	1000<>20,000

Debit Cards

- Magnetic strip which contains information about the beneficiary's account.
- They can be used to withdraw cash from ATMs or to process a purchase from a POS connected to the phone lines
- Each time the card is used, the amount is deducted from the card holder's bank account.
- System may not provide adequate geographic coverage

Prepaid Debit Cards



- Similar to regular debit cards
- They come with a preloaded value and when they are used at ATMs or POS terminals, the charge is made directly from a central account. Individual accounts are not necessary
- Good
  - These cards carry less risk for the banks
  - Any ATM or POS within the network can be used
  - Security is enhanced because a personal identification number or password is required

Smart Cards

- Contain an electronic chip which can hold a large amount of information.
- The information needed (Name, Photo, amount received, etc.) is embedded in the card, a bank account is not required.
- No need for the POS to connect to the bank to complete the transaction
- Can be used in terminals, ATM, Stand alone POS or any other interface with Tablets, Laptops, PDA
- Transactions are recorded on the card and on another device (Tablet, PDA, Ect) and at a later stage by the agent
- Transaction costs are lower than those of the prepaid debit cards – Cost of the card is higher

Cell phones and Mobile money

- Phones contain a smart card and can be easily connected over the network to other telephones or POS remote devices
- Can be used to transfer money between mobile wallets via SMS
- Can be used to send an electronic Voucher with unique ID send by SMS
- Many examples: Kenya, Niger, Philippines, Haiti, … Etc.

Some options: Agent with a cell phone

- Recipients visit a local payment agent, provide an ID and/or account number, and request the payment. After verification (via SMS). The agent hands cash to recipient using its own money and keeps additional record of transaction for reimbursement, reconciliation, etc.
- The recipient deposits the requested amount from its virtual account into the agent's account via SMS. After confirming the deposit, the vendor hands cash to the recipient.
- POS device or card reader slot is attached to handset. In this case, the steps in 'Agent with POS device' are followed.

Cash Points

- Small booths with a person sitting inside with a cellphone and a cash box, known here as "human teller machines."
  - The beneficiaries provides the government ID to the person at the cash point.
  - The person in the booth entered his ID number into the cell phone and sent a text message to the central financial database operated by Celtel.
  - Ten seconds later the response came back with the information about his entitlement that promptly handed over to him.

Zap Money in Niger – An experiment - 2011

- Beneficiaries were entitled to receive unconditional cash transfers of 22,000 CFA per month (approximately $US45) for 5 months.
- After receiving the electronic transfer, recipients had to take the mobile phone to an m-transfer agent located in their village, a nearby village or a nearby market to obtain their cash.
- Less than 30 percent of households in the region owned mobile phones prior to the program, Concern also provided program recipients with mobile phones equipped with a Zap account, and paid for the transfer charges

Zap Money in Niger – An experiment - 2011

- Overall, program participants in zap villages incurred significantly fewer costs for obtaining the cash transfer
  - Beneficiaries travelled shorter distances and, besides the cost of the phone, the variable costs were very low
- Those on the ZAP program spent more money on diversified food products
- More likely to migrate
- Less likely to share with spouse. the zap transfer mechanism made it more difficult for program recipients' spouses to observe the arrival of the transfer

Summing up Electronic Payment Instruments

Payment Instruments	Payment Needs Satisfied	Required Industry Infrastructure	Required Institutional capabilities
Debit cards	Real-time payments, Face to face , online and remote transactions; recurring bill payments	ATM and EFT POS networks. Credit bureaus. Rules and standards for inter-operability, dispute resolution and consumer protection	Centralized account management. Access to ATM and POS networks.
Prepaid/Stored value cards	Real-time payments, Face to face , online and remote transactions; recurring bill payments;	ATM and EFT POS networks. Rules and standards for inter-operability, dispute resolution and consumer protection	Access to ATM and POS networks. Real-time transaction authorization and monitoring systems
Smart Card	Real-time payments, Face to face, online and remote transactions;	POS and agent network	Centralized account management. Access to POS networks Real-time transaction authorization and monitoring systems
Mobile payments and e-commerce (virtual wallets)	Real-time payments, Person to person including cross border remittances, utility bill payment, micro-payments and purchase transaction capability	Enabling legal framework. Merchant / Agent network Linkages with existing inter-bank and payment card networks.	Interface mobile payment infrastructure with banking accounts (savings or credit) or create a prepaid product. Ability to service far-flung merchant/agent network

Challenges remain

- Still some potential for corruption/deception
- Literacy is a barrier to full usage (Security is linked to PIN number)
- Access and coverage of agents may still lead to delays in cash flow or long distance due to lack of integration with business processes
- Barriers to access: Lack of formal ID, political environment
- Initial set up costs can be high
- Quality of legal and regulatory framework for electronic payments
- Data protection issues

KENYA:

An example of evolving system

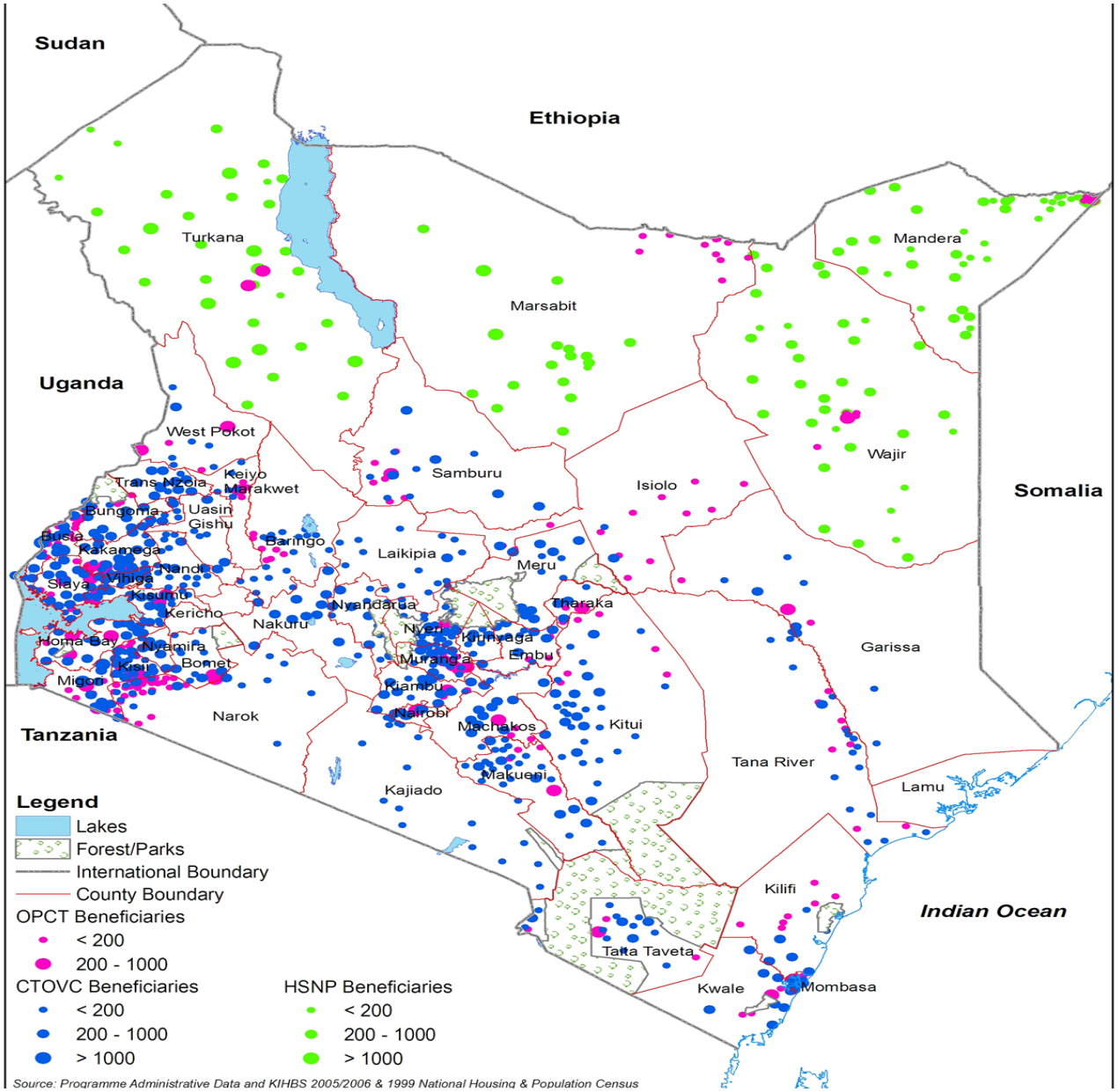
SOCIAL CASH TRANSFERS IN KENYA

PROGRAMMES	COVERAGE	FUNDING AGENCIES
CT-OVC	150,000 HH	GOK/DFID/WB/UNICEF
HNSP	69,000HH	DFID
OPCT	36,036HH	GOK
CT Programme to Pers. with Severe Disabilities (CT-PWD)	14,700 HH	GOK
URBAN FOOD SUBSIDY	10,000 HH	GOK

SOCIAL CASH TRANSFERS/ Payment Systems KENYA

PROGRAMMES	PAYMENTS AGENCIES	TRANSFER METHOD
CT-OVC	TREASURIES,PCK,BANK/AGENCY	CASH ,BIOMETRIC
HNSP	BANK/AGENCIES (Equity Bank)	BIOMETRIC
OPCT	TREASURIES/PCK	CASH
CT-PWD	Postal Corporation of Kenya	CASH
URBAN FOOD SUBSIDY	Postal Corporation of Kenya	CASH

Coverage


Sudan
Ethiopia
Uganda
Tanzania
Somalia
Indian Ocean
Turkana
Marsabit
Mandera
Wajir
West Pokot
Samburu
Isiolo
Trans Nzoia
Keiyo
Marakwet
Bungoma
Uasin Gishu
Busia
Baringo
Laikipia
Meru
Tharaka
Kakamega
Nandi
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Vihiga
Kisumu
Kericho
Nyandarua
Nakuru
Nyeri
Kirinyaga
Embu
Garissa
Homa Bay
Nyamira
Bomet
Kisii
Murang'a
Migori
Kiambu
Narok
Nairobi
Machakos
Kitui
Tana River
Makueni
Kajiado
Lamu
Kilifi
Taita Taveta
Kwale
Mombasa
Legend
Lakes
Forest/Parks
International Boundary
County Boundary
OPCT Beneficiaries
< 200
200 - 1000
CTOVC Beneficiaries
< 200
200 - 1000
> 1000
HSNP Beneficiaries
< 200
200 - 1000
> 1000
Source: Programme Administrative Data and KIHBS 2005/2006 & 1999 National Housing & Population Census

POST OFFICE MODEL

Payment process

- The MGCSD deposits money in post office account at least five (5) days prior to the payment period.
- MIS prepares payrolls in soft and hard copies and sends to PCK headquarters .
- Central post office sends the funds and payrolls to their regional post offices to effect payment for two weeks.
- Payment takes place in the last two weeks of even month (Feb, April, etc.)
- **T**he cashier at the payment agency requests the caregiver or alternative caregiver to identify themselves through national identification card (ID) and programme identification for payment
- Within fifteen (15) days of the close of the payment period PCK submits the reconciled payments and balances to the Ministry's Account.

Payroll and Cash (Postal Corporation of Kenya)

Advantages

- Low payment cost
  - (2% of transfer value for two payment cycles)
- Easy access to beneficiaries given low literacy
- Clearly inserted in the Programme's Manage information System at GOK
- Transparent pay and reconciliation processess

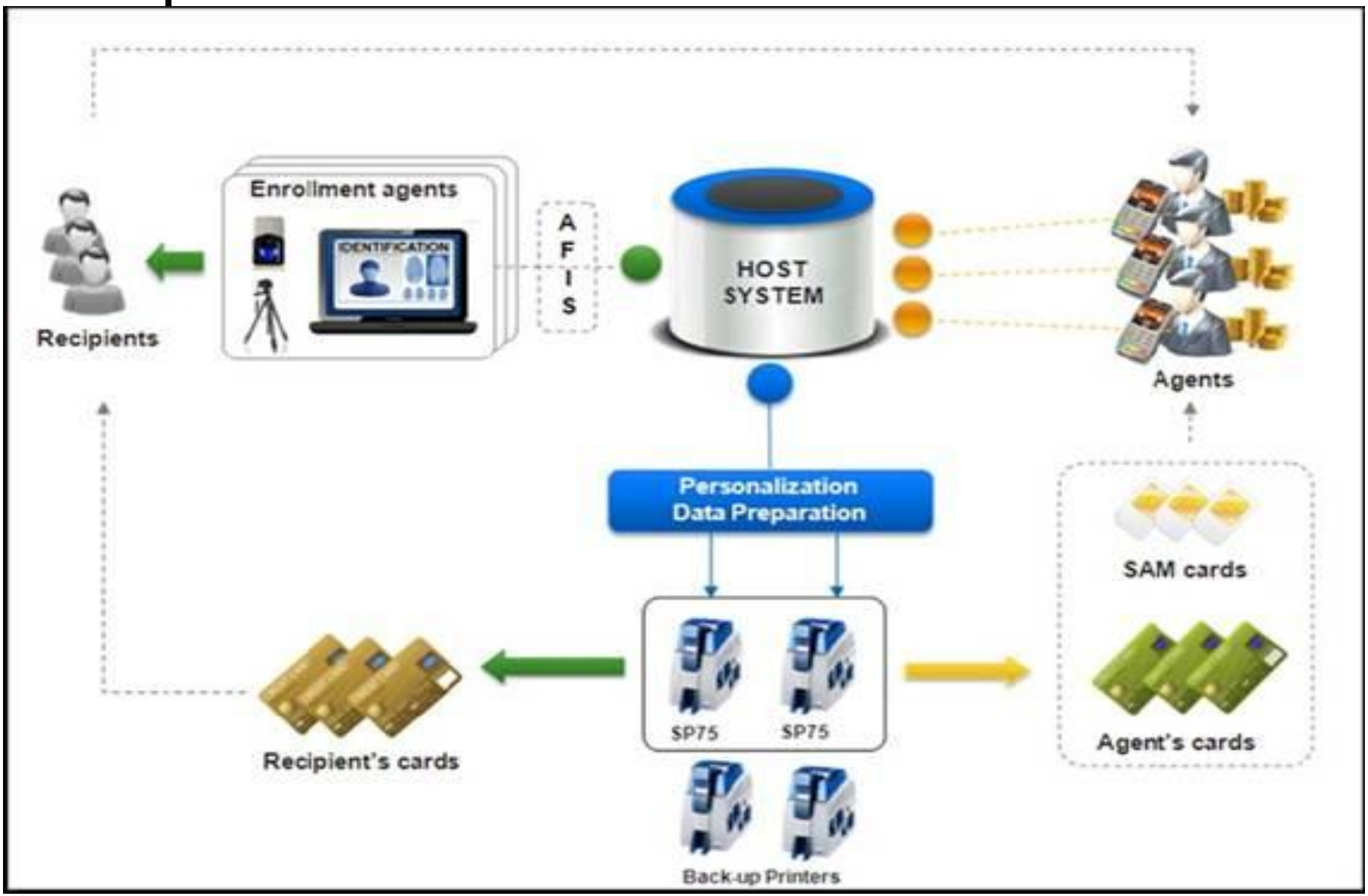
Challenges

- High beneficiaries transport cost in some areas (Distance to pay-points)
- All payments must be done within a specific timeframe
- Fiduciary risks / beneficiary identification
- No Flexible to withdraw different amounts

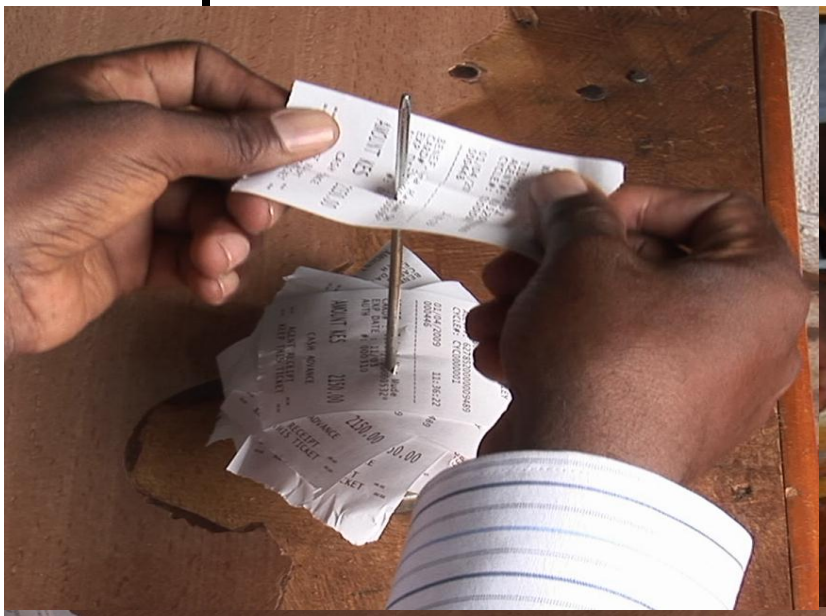
Smart Card (Equity Bank)

Efficient
paymen

SOLUTION ACHITECTURE



In practice

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Smart Card (Equity Bank)

Advantages

- No transporting of cash (sec. risks)
- Safest identification process
- Payment made closer to recipients through Agents.
- Faster transfer of cash to beneficiaries – cash electronically loaded into beneficiaries' smartcards.
- Service from members of the community (Payment Agents)
- Cash circulates to help develop the local economy - increased stock levels.

Challenges

- Very poor infrastructural network in remote places
- Insecurity along international borders.
- Poorly developed cash economy
- Some difficult for beneficiaries given low literacy levels
- Technological skills – requires training of implementation staff
- Poor civil registration – lack of identity cards in the area (NORTH EASTERN)

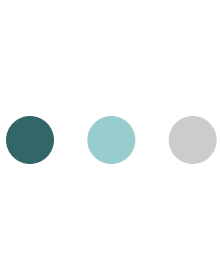
Using Cellphone Network (M-Pesa)

Advantages

- Security of staff and recipients was key given the slum context
- Low cost of delivery in comparison to other methods e.g. vouchers, envelope (when you factor in the security risk)
- Good network and agent coverage
- Was the cheapest option in the market at the time
- Secrecy provided by the M-Pesa mechanism-since only the beneficiary knows when the transfer is to be done
- Flexibility of withdrawing
- Has other benefits other than provision of the transfers - it give beneficiaries access to communication services

Challenges

- Difficult for old and illiterate beneficiaries (use of Cell phones and SIM cards)
- Some risk at the Identification of beneficiaries



Wrapping it up

How do you design a payment systems?

- Select a system that takes into account country specific financial and technological infrastructure. NEED:
  - An assessment of the *financial infrastructure* to verify the geographical coverage and efficiency of the public and private banking sector (cost of individual and group accounts) and of the postal system.
  - An assessment of the *communication infrastructure:* electricity and the frequency of power failures, availability and reliability of phone lines and the use of cell phones as well as the cost of using those systems
  - An assessment of the *retail stores* for the redemption of in-kind vouchers and stamps

How do you design a payment systems?

- Understand the objectives of the agencies involved and by providing the right incentives
- Provide information and communication to the beneficiaries
- Assessing *the cost of delivering transfers* is complicated and care is needed to compare the cost of alternative methods of delivery
  - Frequency matters
- *Political economy considerations* should not be ignored in the selection set up or modernization of existing delivery mechanisms.
  - Reforming current delivery systems might not be easy because of the resistance from interest groups (those currently engaged in the system)

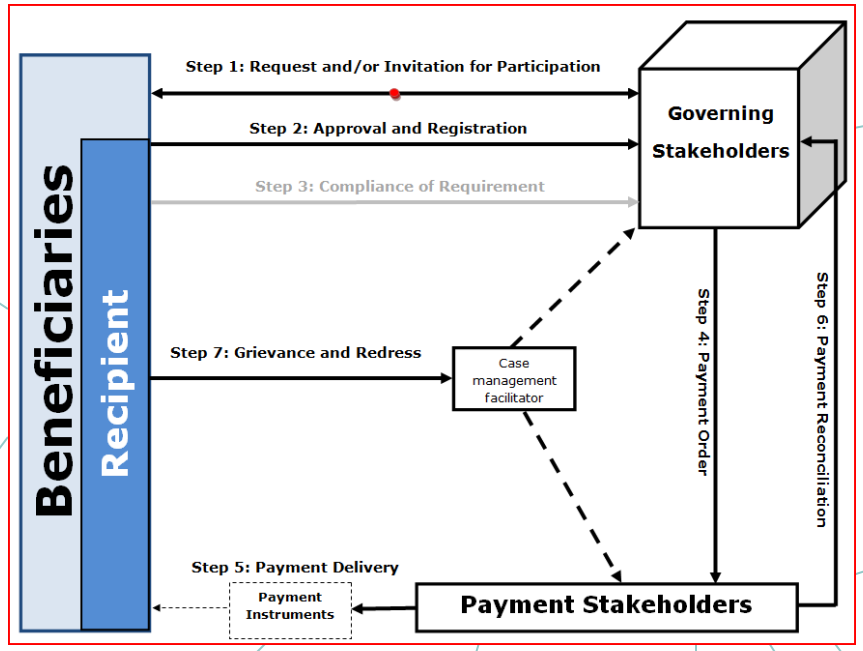
How to assess cost- effectiveness?

Example of How to Evaluate Payment Mechanisms			
Proposed Solutions	**Cost**	**Time**	**Remarks**
Proposed Payment Agency & Agent			
Option 1: [ex: Commercial bank]	Per payment transaction	Average travel time for payment withdrawal	Does it Increase Flexibility?
	Opportunity Cost to Beneficiaries		Does it Increase Coverage?
	For account creation	Average time to transfer cash from payment agency to payment agent	Does it Increase Security?
	Monthly maintenance fee		
	Payment site & cash transportation security &derived costs (i.e. food)		Does provide access to financial services?
Proposed Payment Instrument			
Option 1: [ex: Smart Card]	Per unit	For payment withdrawal	What are the EFC savings?
		To produce	
		To distribute	

Final suggestions

- Separate payment delivery (contracted out) from Program delivery
- Make use of any pre-existing delivery systems and local infrastructure, including bank accounts, databases and national identity systems
- Be aware of the tradeoffs among the alternative options
  - Cost and efficiency on the one hand and accountability and frequency of payments on the other
- Select a disbursement system that makes use of locations that are accessible to most beneficiaries
- Experiment with new available technologies and introduce them gradually – Test and test

Improving Payment Mechanism in Safety Net Programs



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