

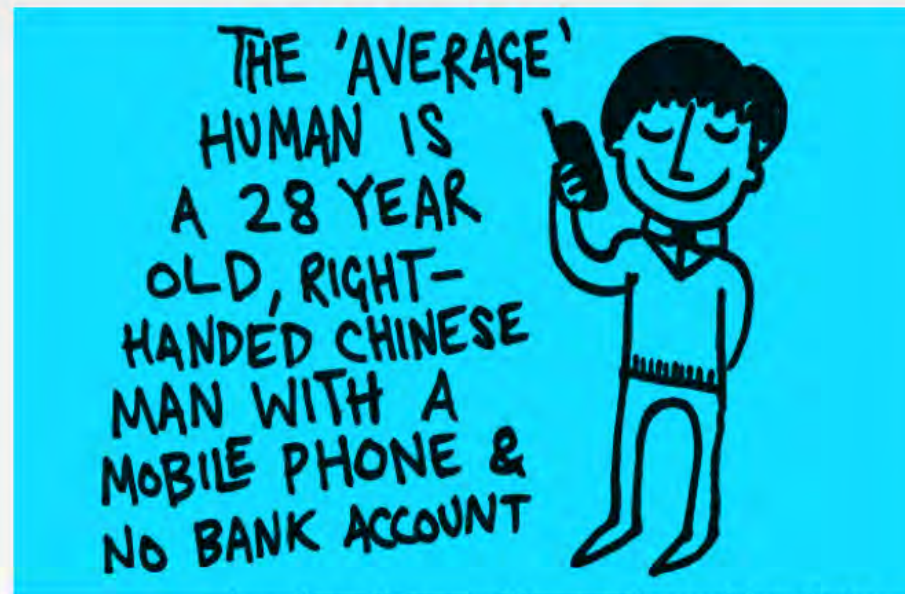
From Cash and Coin to e-Wallets:  
Challenges for Mobile Money Regulation in Developing World  
Contexts

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## The core issue, simplified



<http://www.learnsomethingeveryday.co.uk/2011/04/04>

Why harness mobile?

ubiquity


access

security

infrastructural leapfrogging

regulatory leapfrogging?



A photograph of a dry, eroded landscape. The foreground is dominated by a large, deep, winding gully that has formed in the soil. The soil is light brown and appears to be composed of sand or silt. In the background, there is a large, flat, brownish area that could be a field or a construction site. A wooden pallet is visible in the distance. The overall scene suggests a dry, arid environment where erosion is a significant concern.

regulatory leapfrogging?

financial inclusion goals

underserved populations

willingness to experiment and borrow

low capacity

# mobile phone crash course

USSD



SIM and STK  
SMS



[WAP]



HTML/XHTML on  
mobile device

# the modal mobile



the modal mobile



simple feature phone  
prepaid topup, not subscription-based

why USSD or SMS/STK application  
basic feature phones in the hands of millions

*business realities*

why SMS/STK for M-PESA  
(and others...)

- maintain control over the customer
- carrier dependency - reduce churn
- security



the "secure element"



- the digital ID of the user
- SIM: Subscriber Identity Module
- "A SIM card contains its unique serial number, internationally unique number of the mobile user (IMSI), security authentication and ciphering information, temporary information related to the local network, a list of the services the user has access to and two passwords (PIN for usual use and PUK for unlocking)." Wikipedia

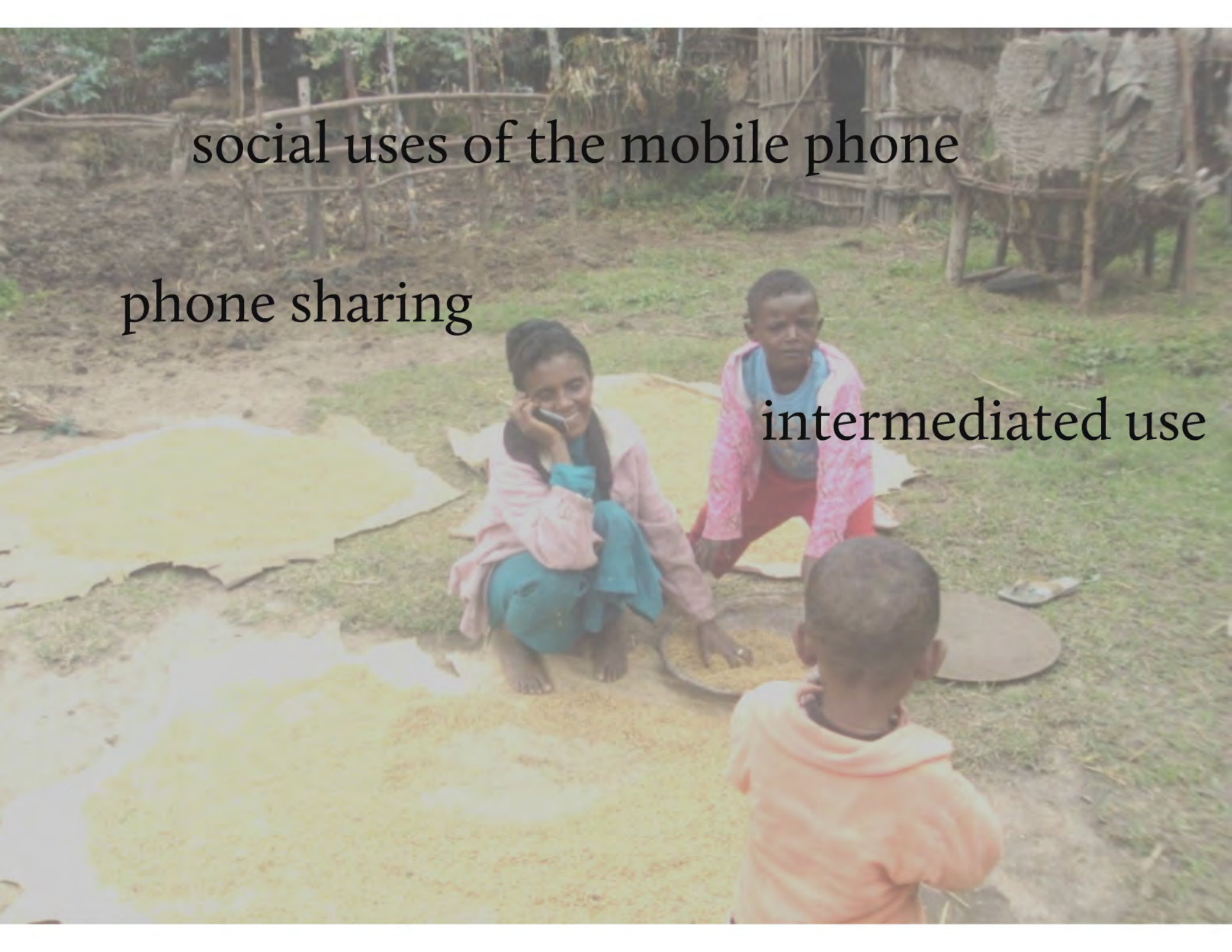


"It seems like such an inconvenience that language is spoken by human beings" - attributed to linguist Robin Lakoff

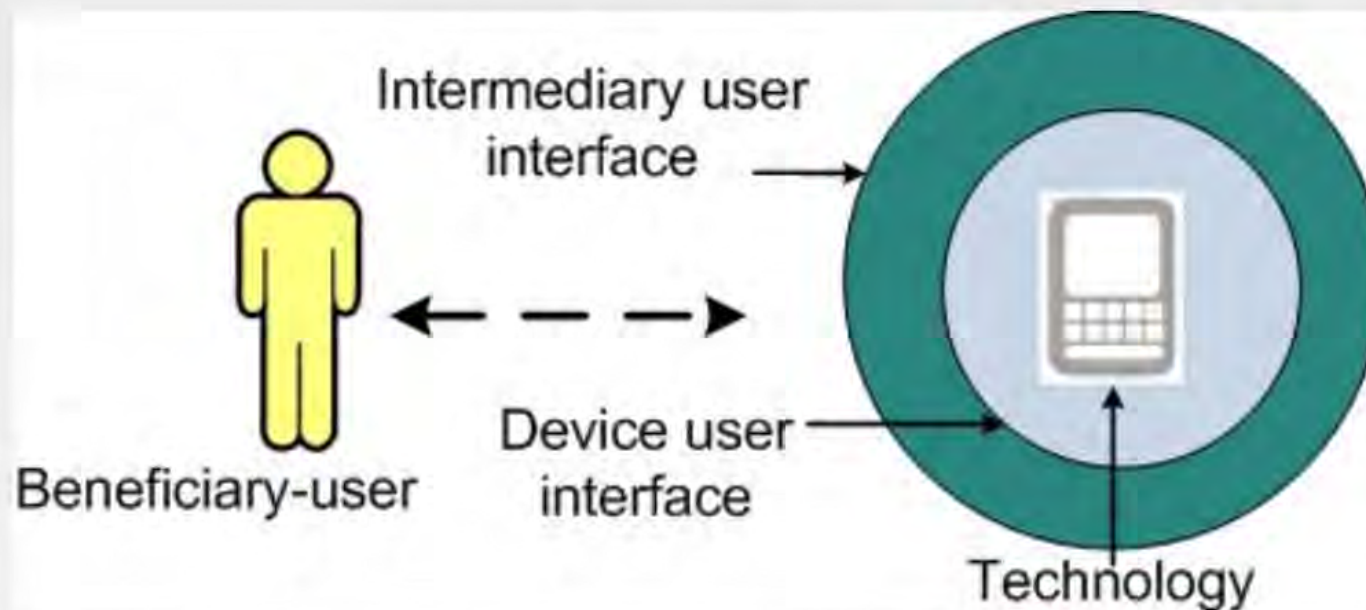
social uses of the mobile phone

phone sharing

intermediated use



# use $\neq$ ownership!



Intermediated Technology Use in Developing Communities, by  
Nithya Sambasivan, Ed Cutrell, Kentaro Toyama, and Bonnie Nardi  
[http://www.ics.uci.edu/~nsambasi/CHI10\\_IntermediatedInteractions.pdf](http://www.ics.uci.edu/~nsambasi/CHI10_IntermediatedInteractions.pdf)



multiple users, one phone  
SIM swapping

multiple SIMS, one user

SIM  $\neq$  individual person!



Jan Chipchase, IMTFI Flickr



Younghee Jung, <http://younghee.com/category/work/>



social courtesy

saving money

personal security

what does this do  
to the idea of a  
secure element?



# money crash course

## conventional view

- means of exchange
- store of value
- method of payment
- measure of value
- unit of account
- promise or claim

## anthropological view

- money as a social currency
- religion and ritual
- magic
- earmarking
- sequestering
- "special moneys"



### money crash course

#### conventional view

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- "special moneys"

different objects for different  
functions of money



MINISTRY OF FINANCE

PATERO

ASAKA A

GUCCI  
ROY  
OPTI PRO  
NEW AUTO









sequestering





# special moneys for special purposes



## modifications and wrappers



social and ritual practices



what does this  
do to the idea of  
money itself?

# use-cases for money

money is a designed object,  
a set of designed systems,  
which can be repurposed by its "users"

not a universal equivalent, a "flat wash,"  
or a neutral medium



fraud prevention  
definition of "agent"

Means

# Money's classic functions

Method of pay

possible design princi



structur  
calendar

separ

separate kitties  
separate currencies

Promise or claim

**possible design principles**



**use social networks and social intermediaries**

**for shared or pooled accounts**

**for identity verification**

Regulatory issues:

KYC, AML

fraud prevention

definition of "agent"

Means of exchange

# functions

## Regulatory issues

consumer protection and deposit insurance

AML/CFT

status of the float?

## Method of payment

### possible design principles



structured accounts tied to ritual and temporal cycles (e.g., ritual calendar, MFI repayment schedule, income from sale of surplus)

### separate kitties for ritual expenditures (perhaps like an annuity)

#### separate currencies for ritual expenditures

if people are already collecting "dead" coins or bills, or special wealth items, create a way for them to do so virtually



lue

money service to operate in different currencies or to



use or hide  
of the funds

[mobile money services]

, AML



if people are already collecting "dead" coin  
wealth items, create a way for them to do s

# Measure of value

possible design principles

**allow a mobile money service to operate in different currencies or to calculate exchanges to take advantage of the spread**



[ps: people already use mobile money services to help them manage informal forex]

how about notional currencies, in "cows" or "forests?"



Regulatory issues  
capital flight  
monetary policy issues  
AML/CFT  
"deposit" insurance

# Store of value

possible design principles



**allow for separate kitties  
maybe in separate currencies  
and allow people to disclose or hide  
depending on the purpose of the funds**



[ps: people are already doing this with mobile money services]

Regulatory issues: taxation, AML



# Unit of account

## possible design principles

allow volumetric measures for very low value



cups of coins

keep the change

Regulatory issues:

national currency as standard?

integrity/trust of national currency?

# Money

# The "story arc" of mobile money regulation thus far



# branchless banking

CDD

KYC

AML/CFT

mobile

client identity requirements

banking regs

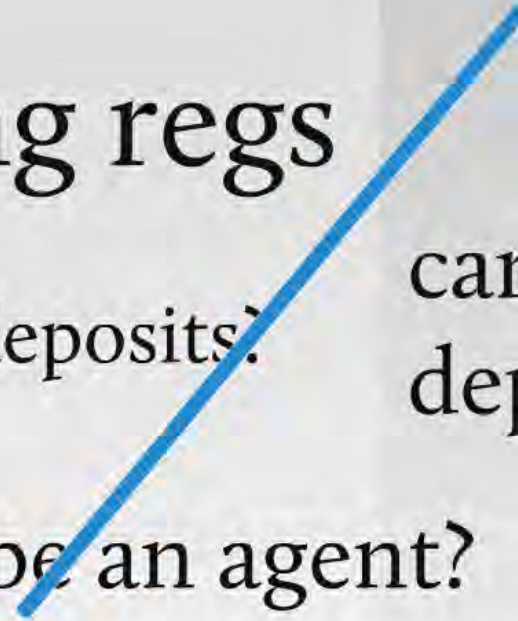
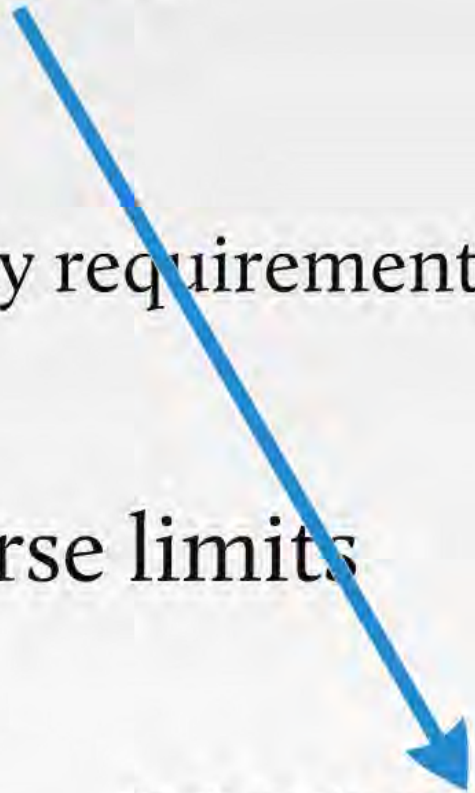
purse limits

who can take deposits?

can  
dep

who can be an agent?

proportionate due diligence



banking

payments

# mobile money

AML/CFT

banking regs

status of e-fl

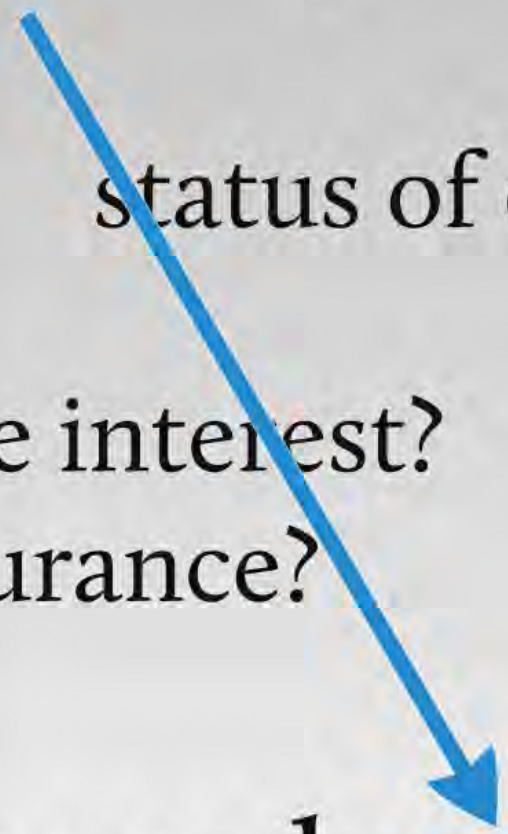
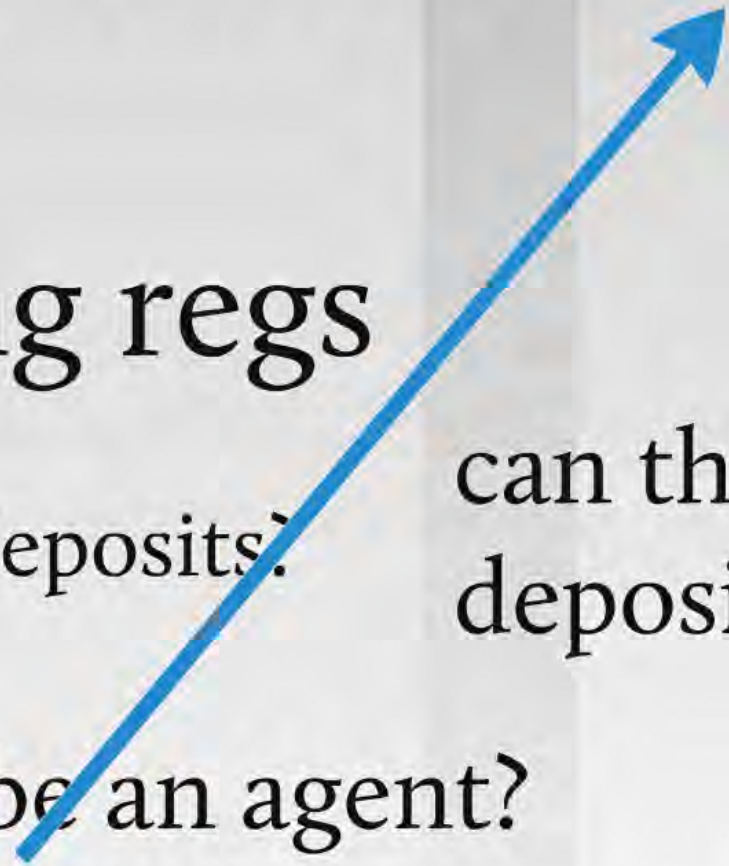
who can take deposits?

can there be interest?  
deposit insurance?

who can be an agent?

confront due diligence

non-bank



# payments systems

money

prepaid

priv

status of e-float

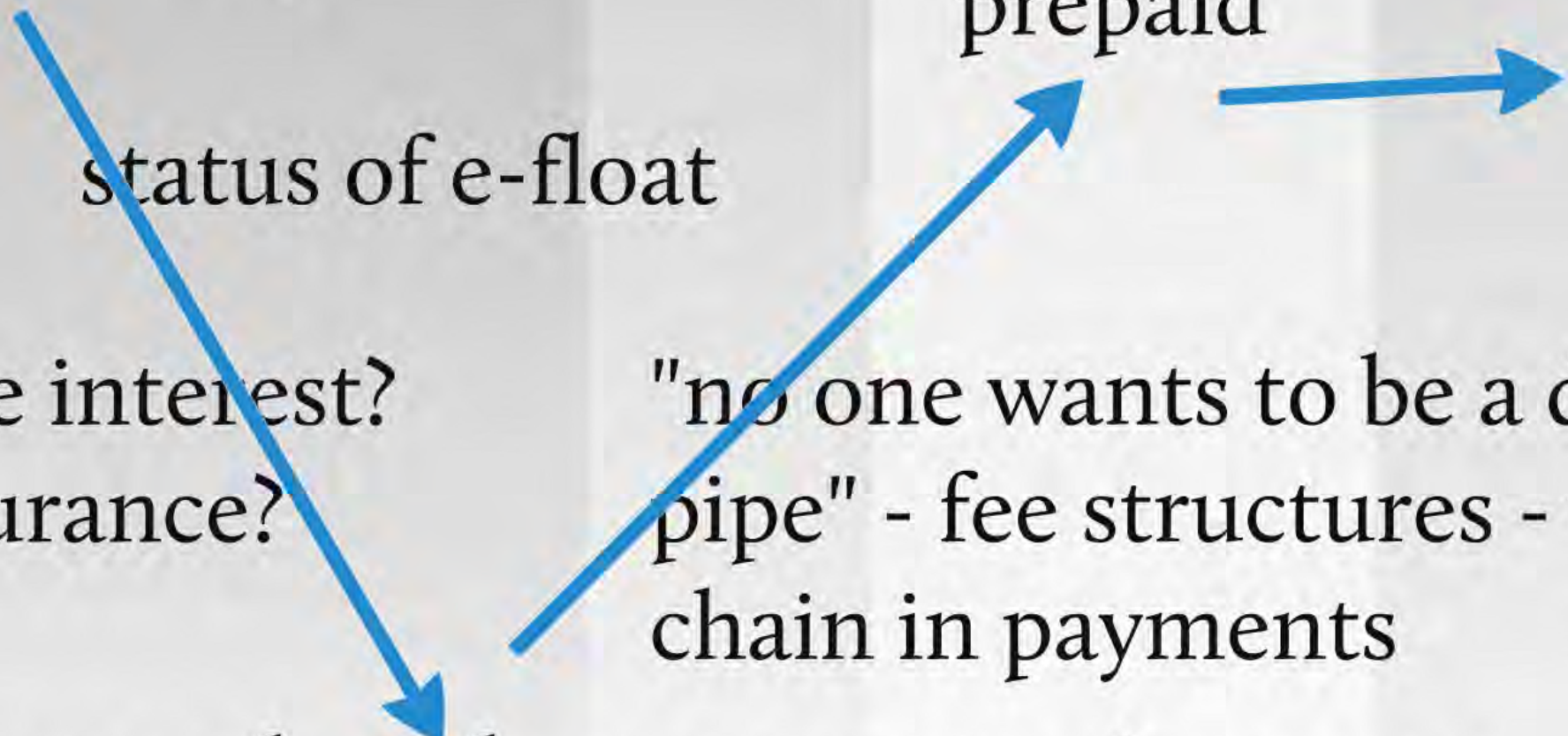
the interest?

insurance?

"no one wants to be a dumb pipe" - fee structures - value chain in payments

non-bank e-money issuers

int



tems

→ private network rules

antitrust

be a dumb  
res - value

are payments a public good?

ers

interoperability



more players in the ecosystem:

device manufacturers

card networks

database management systems

third party app developers

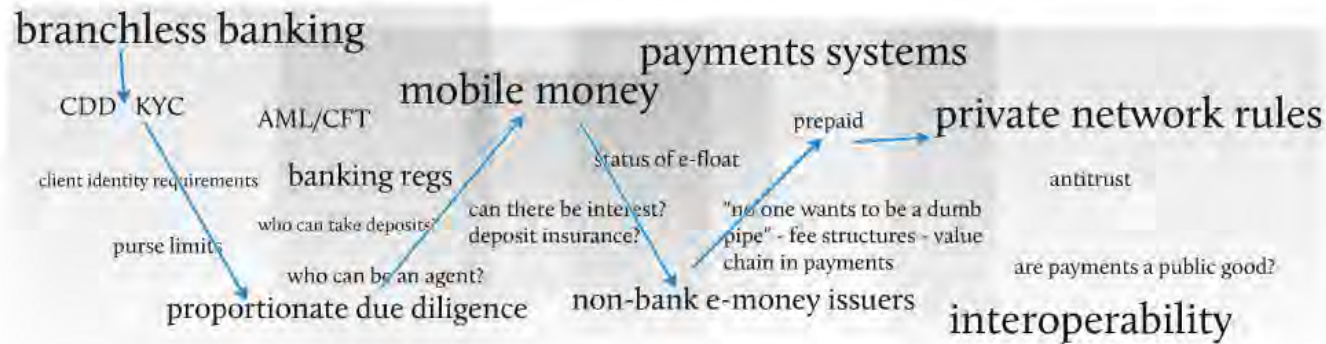
scale your agent network

or

"the disappearing agent"

"cash in and never cash out"

The "story arc" of mobile money regulation thus far



scale your agent network

or

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"cash in and never cash out"

more players in the ecosystem:

- device manufacturers
- card networks
- database management systems
- third party app developers

## One key lesson:

The focus on regs from the get-go - spurred by MFIs - has meant regs and innovation have gone hand in hand

.....in the developing world, at least

In the US, by contrast: "I have a regulator?" "Yes, meet your regulator!"

so, e.g.: The Fed and Reg E on prepaid

## Another key lesson



is it money transfer, banking, or payments?

the regs, the tech and business models may determine a lot....

but the things people do with these systems will drive change

financial inclusion and financial integrity

informal and formal

public and private

## how it works *GiveDirectly leverages mobile money systems to make direct transfers to poor households at the lowest possible cost.*



**(1) You donate through our webpage.** Your donation moves through a payment-processing service to our bank account.



**(2) We locate poor households in Kenya.** We do this in three steps. We first select regions of Kenya with high poverty rates using census data. We then identify villages with low-quality housing and access to an agent providing mobile-phone-based payment services. Finally, we identify the poorest households in these villages using simple, transparent criteria: we target all households living in homes made out of mud, wood, and grass. These criteria effectively identify relatively poor households and are generally perceived by the community as fair. We record eligible households' phone numbers or, for those that do not have a phone, provide them with a SIM card. We follow up initial identification with a rigorous process of audits to prevent mistakes or fraud. ([Learn more about targeting.](#))



**(3) We transfer money electronically to the recipient's SIM card.** We move the money from our US bank to our account with [Safaricom's M-PESA mobile payment system](#), and then from our M-PESA account to the recipient's M-PESA account. The recipient gets an SMS text message reminding them of the transfer.



2006

