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USING BIG DATA TO EXPAND MOBILE MONEY SERVICES

A FOCUS ON THE HOW

M360 Africa – Cape Town – 7 October 2015





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1. **Transforming data into impact**
2. Case Study - How to deploy agents based on science
3. Lessons learnt



Mobile Money operators are sitting on a gold mine…

CDR, **transactional** data, **agent registration** forms and **KYC** users forms are extremely valuable data that can be analysed to gain granular market knowledge

… that can be leveraged to grow

Using data to expand mobile money services:

- Commercial strategy - where to grow?
- Agent management – how to win?
- Fraud / risk – what suspicious transaction exist?

1. Transforming data into impact

2. **Case Study - How to deploy agents based on science**
   2.1 What is it and how is it structured?
   2.2 How to build it

3. Lessons learnt

The go-to-market tool has initially been developed to help mobile money operator design successful agent network. The methodology can be used to answer several other questions

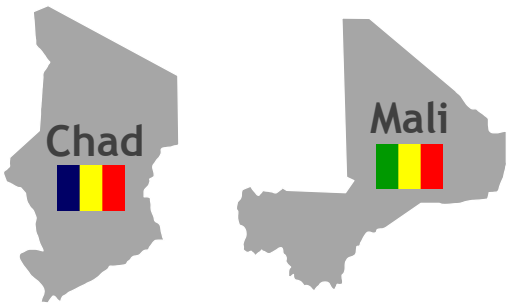
1 What?

How to design a successful agent network?

How many agents are required by BTS

2 Where?

The project was conducted in two countries:



3 How?

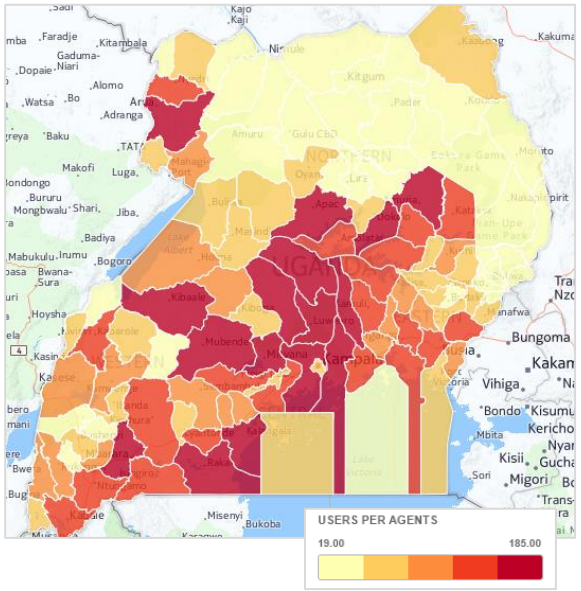
Developed a geo-marketing go-to-market tool, based on data-analytics
The output of the project is a tool that can be developed by non-specialist, which is easy to use, flexible, software agnostic

The output of the project is an easy to use, flexible, software agnostic tool that can be developed by non-specialist

The same data can be analysed on maps or on an Excel tool

Interactive maps

CARTODB
Geospatial on the cloud



Data file

	D	E	F	G	H	I	J	K	L	M	N
1											
2				Demographics					Indicators		
3	Region	Department		Population	Registered Users	Active Users	Agents		Penetration Rate Figure	Active/Registered	Competition Intensity Indicator
4											
5	Country			1,066,883	70,334	22,979	453		2.2%	32.7%	51
6											
7	Region 1			488,458	27,463	9,394	149		1.9%	34.2%	63
8	Region 1	Department 1.1		197,712	13,309	5,043	74		2.6%	37.9%	69
9	Region 1	Department 1.2		180,343	6,034	2,256	35		1.3%	37.4%	65
10	Region 1	Department 1.3		110,403	8,120	2,096	41		1.9%	25.8%	52
11											
12	Region 2			578,425	42,871	13,585	304		2.3%	31.7%	45
13	Region 2	Department 2.1		209,721	12,065	3,428	29		1.6%	28.4%	118
14	Region 2	Department 2.2		182,903	20,444	6,835	180		3.7%	33.4%	38
15	Region 2	Department 2.3		185,801	10,362	3,322	95		1.8%	32.1%	35
16	-	-		-	-	-	-		-	-	-
17	-	-		-	-	-	-		-	-	-
18	-	-		-	-	-	-		-	-	-
19	-	-		-	-	-	-		-	-	-
20	-	-		-	-	-	-		-	-	-
21	-	-		-	-	-	-		-	-	-
22	-	-		-	-	-	-		-	-	-

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The Go-to-market tool can be developed using internal & open-source external data, by a small team, in 2-3 weeks and at an affordable cost



Data

Mix of internal & open-source external data

Country macro-data,
Transactional data,
Telco CDR,
BTS location,
Agent's profile,
Etc.



Team & Skills

Team
1 business / marketing
1 technical / Bus. Intell.

Skills
Basic/intermediate
Python, SQL, GIS



Time

2-3 weeks of work

by the dedicated team can be enough to develop the tool



Cost

Affordable cost

- CartoDB account: 149$ / month
- Powerful computer
- Team salary

Four steps are required to develop the go-to-market tool: collect, format, analyse and visualise the data

1 Collect data

- 1.1 Transactional data
- 1.2 Agent & users registration
- 1.3 Telco CDR
- 1.4 BTS location
- 1.5 Country macro-data

2 Format data

- 2.1 Value segmentation
- 2.2 Location segmentation

3 Analyse data

- 3.1 Market penetration
- 3.2 Competitive environment
- 3.3 Usage

4 Visualise data

- 4.1 Excel files
- 4.2 Interactive maps

xx Done by technical

xx Done by business

Internal data is the baseline of the work. It can be collected easily within the company

	Data
Internal data	Transactional data
	Registration data
	Master agents / agent structure
	CDR data
	BTS/CellID coordinates
External data	Administrative Area shapes & Population data
	NASA Night Light Maps
	Macro-economical data

- Cash-in
- Cash-out
- P2P
- Merchant
- Bill payment
- Voice ARPU
- SMS ARPU
- Data ARPU
- Registration date information
- Link between each agent and his master agent
- BTS GPS coordinates

Administrative Area shapes & road shapes are used to compute data at specific levels

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Source:
The Humanitarian Data Exchange
https://data.hdx.rwlabs.org/

In our case study, we needed to collect NASA maps to define urban & rural boundaries

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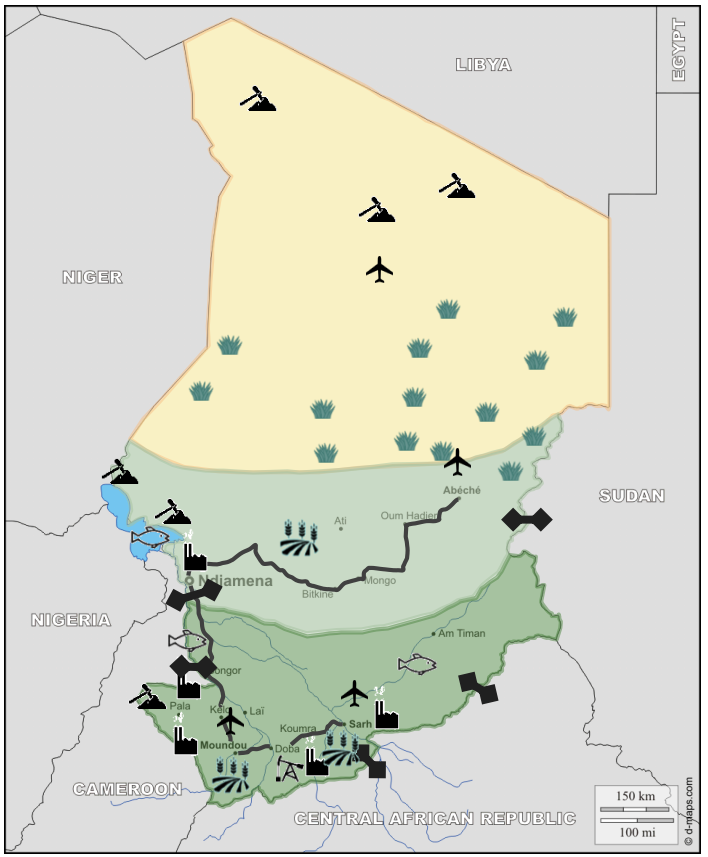


http://sedac.ciesin.columbia.edu/data/collection/grump-v1

Macro data can be collected from various sources to ensure a good knowledge of the country economy

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	Macro-economical data

Example of macro-data in Chad



Source: Altai Consulting Analysis

Legend: Mines, Industries, Oil, Agriculture, Trade Border Crossing

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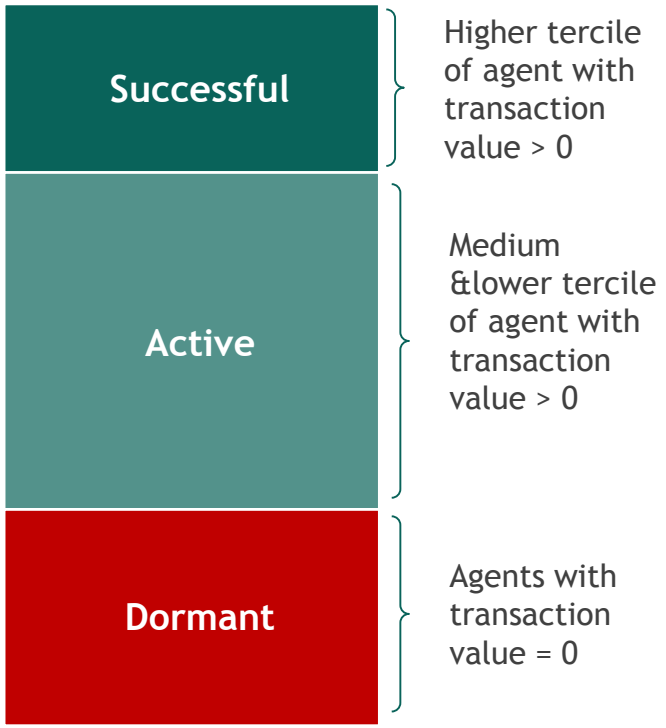
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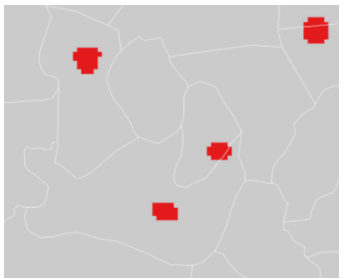
Agents are segmented based on their monthly cash-in and cash-out transaction value

Value segmentation output



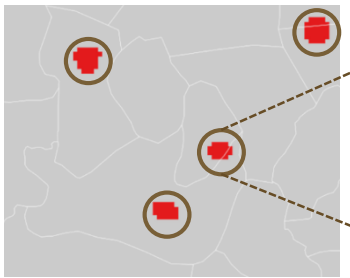
Four steps are required to assign each agent as urban or rural

Define urban settlements based on night lights



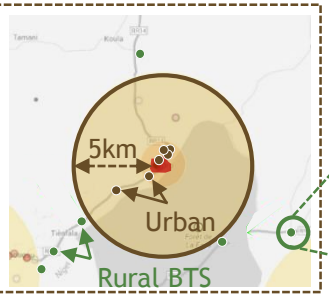
Source: NASA GRUMP

Define the influence circle of each urban settlement



5km radius circle
(10km for capital)

Geo-localise each BTS



Source: internal

Geo-localise each agent



MSISDN is connected to a main BTS

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A very large range of KPI can be calculated, based on the team's need

$$\textbf{Market penetration} = \frac{\text{Number of active mobile money users in an administrative area}}{\text{Official population in the same administrative area}}$$

$$\textbf{Competition intensity} = \frac{\text{Number of active mobile money users in an administrative area}}{\text{Number of mobile money agents in the same administrative areas}}$$

Usage = By **cross-referencing** cash-in, cash-out, P2P, merchant payment, etc.

with context-specific figures, such as the presence of economic hotspots, mines, oil fields, migration routes, distance to main cities, border crossings, etc.,

Others = The range of KPI that can be calculated is very wide

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1. No need to be Google to do data analytics
2. Start with asking what are the key strategic questions, not what could be the best tool to use
3. Big data analytics should be lead by the business, not the opposite
4. It doesn’t require strong investments nor top level specialists
5. As the business and KPIs evolve quickly, your approach must remain flexible



Thank you