

## ➤ Disruptive technologies – an innovations system approach

Thursday 12<sup>th</sup> September 2019



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The Donor Committee for Enterprise Development



# Disruptive Technology for Private Sector Development

A Rapid Assessment Study for DFID DRC

BEAM Exchange Webinar, 12 September 2019

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# The study's main message

If you want to support a country's technological development in a systemic and long-term way, do not just transfer new technologies, **build the capabilities that enable the society to learn about new technologies, adopt and use them, and adapt them to their needs.**

**Build technological capabilities.**

# Disruptive technologies to tackle development challenges

Manufacturing  
and consumption



Connectivity



Transportation  
and logistics



Fresh water



Clean energy  
and air



Source: Ramalingam, B., Hernandez, K., Prieto-Martin, P. & Faith, B. 2016. Ten Frontier Technologies for International Development. Brighton: IDS.

# The challenges with promoting specific technologies

- Technological changes and innovations are **embedded in political, institutional and social structures**
- Understanding of **pathways** and **barriers** is crucial
- **'Demand-side' factors** need to be considered
- **Make the technology fit the problem**, rather than the other way around

# The unclear effects of technology on economic growth

- **Technological change is the single most important force driving the process of growth**
- It predominantly happens through **innovation or imitation**

Yet<sup>1</sup>:

- **No one has yet resolved causality**
- There is **no clear evidence** that developing countries are disproportionately gaining from ICT investments or ‘leapfrogging’

<sup>1</sup> Hernandez, K., Faith, B., Prieto-Martin, P. & Ramalingam, B. 2016. The Impact of Digital Technology on Economic Growth and Productivity, and its Implications for Employment and Equality: An Evidence Review. Brighton: IDS.

# But wait: What do we mean by technology?

# Elements of Technology



**Knowledge:** scientific and technical knowledge, including both formal qualifications and tacit knowledge.

**Hardware:** a specific configuration of machines and equipment used to produce a good or to provide a service.



**Organisation:** managerial methods used to link hardware and know-how.

Source: Meyer-Stamer, J. (1997) 'Technology, competitiveness and radical policy change: the case of Brazil', Frank Cass in association with the German Development Institute, London. Photos from unsplash.com.

## Elements of Technology

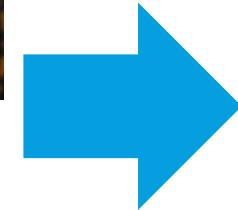


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**Organisation:** managerial methods used to link hardware and know-how.



**Product:** the good or service as an outcome of the production **process**.

Source: Meyer-Stamer, J. (1997) 'Technology, competitiveness and radical policy change: the case of Brazil', Frank Cass in association with the German Development Institute, London. Photos from unsplash.com.

# The shape of technological change

- Most **technological change** is incremental, working from current practice, favouring incumbents
- **Disruption** is when something unexpected challenges incumbents
- To enable technological change requires an **ecology** of actors, organisations, institutions and regulations
- When a new technology emerges, **new institutions** are needed to develop it, adapt it to the local context, and develop complimentary capabilities

# Alternative to tech transfer: innovation systems approach

- Goes **beyond specific technologies** and looks at the wider system
- Aims to build **technological capability**
- Considers **incentives and social infrastructure**
- Focuses on adaptive **social technologies**
- Is a critical element of the Agenda 2030 because it equips local stakeholders and draws them in as partners

# The four pillars of technological capabilities

- Skill of producers to imitate/innovate
- The economic, political, administrative and legal framework
- **Direct support** to private sector by technology-oriented state institutions or knowledge intensive service providers
- **Indirect support** by the public and private education systems, including technical training at secondary schools and in the universities

Source: Hillebrand, W., Messner, D. and Meyer-Stamer, J. (1994) 'Strengthening Technological Capacity in Developing Countries. Lessons from German Technical Cooperation', Reports and Working Papers 12/1994, German Development Institute (GDI).

# Recommendations for DFID DRC

- Be very **careful** when transferring specific technologies – consider the pitfalls of technology transfer and adopt a demand-led approach.
- Better, **focus on building technological capability** through strengthening the innovation system.
- Consider investing in technologies that overcome market/government failures, particularly **coordination failures**.
- Open channels to **equipment suppliers** using known instruments such as business linkages, access to trade fairs, trade linkages, etc.
- Leverage **regional programmes** and organisations for synergies.



## BEAM EXCHANGE WEBINAR ELAN RDC SOLAR INTERVENTION



My presentation today will look at...

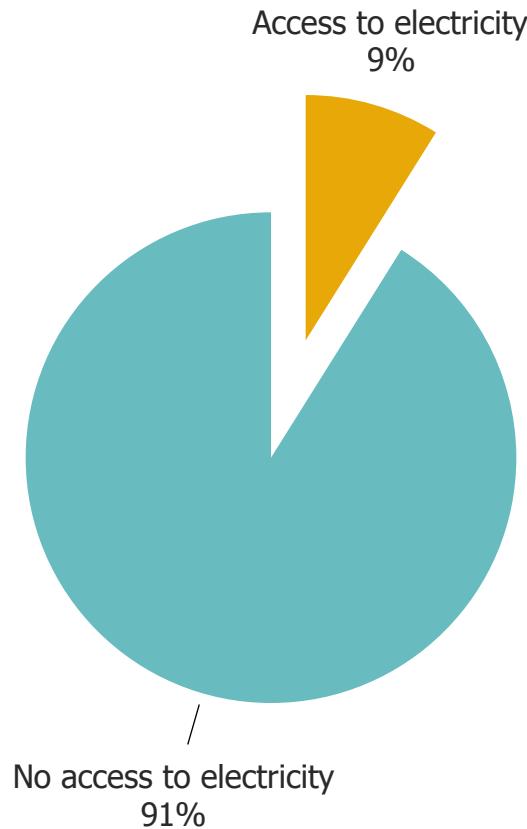
1. What was the context we worked in?
2. What was the aim of our solar lamps intervention?
3. What was the technology/innovation that we were supporting?
4. What other factors beyond the technology itself needed to be taken into account to ensure the market was developed?
5. What were the results?

# MARKET OVERVIEW

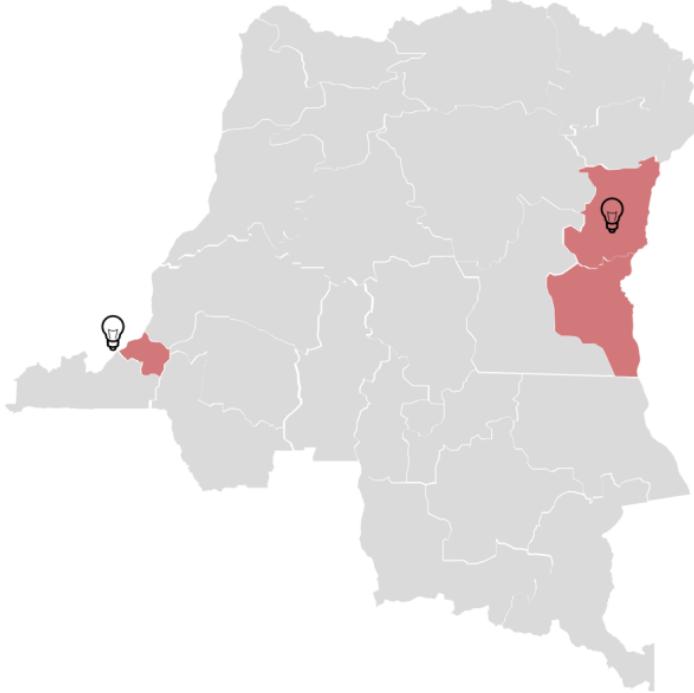
## CONSTRAINTS

- Primary constraints identified:
- Poor access to on-grid power/electricity
- Lack of solar actors in the local market
- Households' low purchasing power
- Lack of information and education on solar products
- High import taxes for the sector

### Access to electricity in DRC

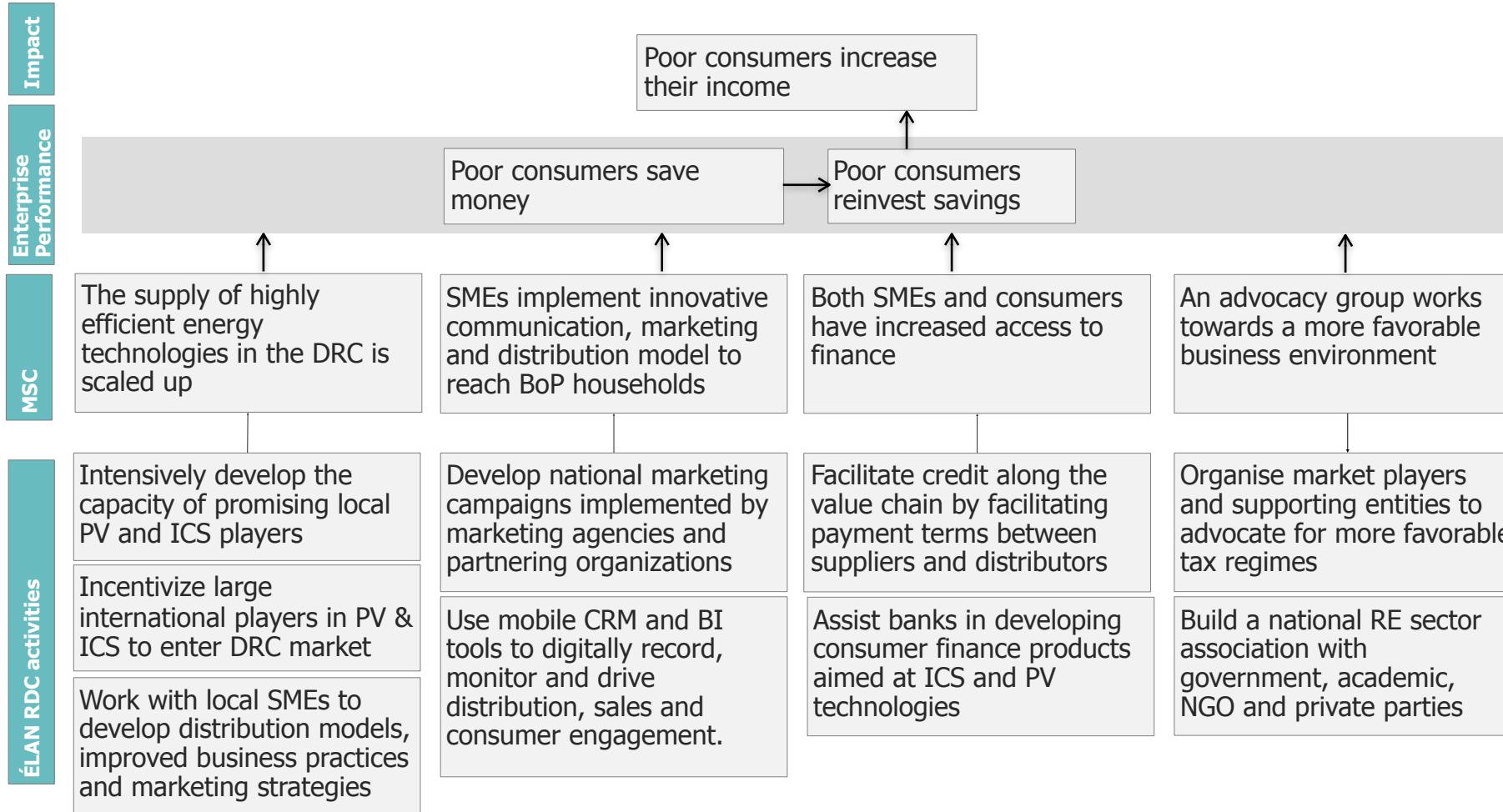


### Solar lamp and ICS markets in 2015



# Aim of ÉLAN RDC solar lamps intervention?

ÉLAN develops the RE market in the DRC by increasing the supply of products, consumers' awareness of their benefits, improving access to finance for both consumer and SME's and the enabling environment for private parties.



## 2.3 RENEWABLE ENERGY

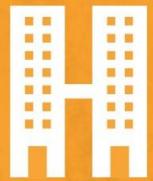
### KEY RESULTS



**129,800**  
PEOPLE REACHED



**£9.2M**  
TOTAL NET POSITIVE  
INCOME CHANGE



**147,900**  
PEOPLE IMPROVING EN-  
TERPRISE PERFORMANCE



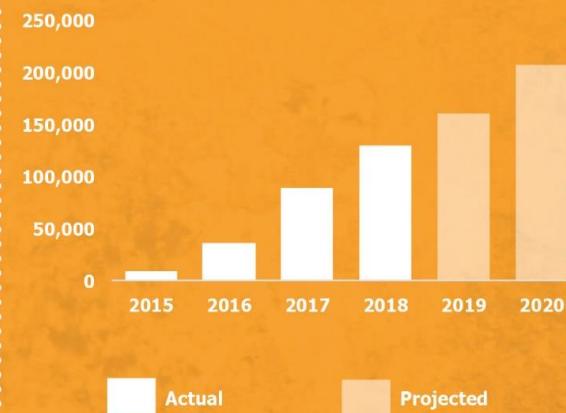
**147,400**  
PEOPLE IMPROVING  
BUSINESS PRACTICES

### OUR PRESENCE



### IN NUMBERS:

PEOPLE EXPERIENCING INCOME CHANGE



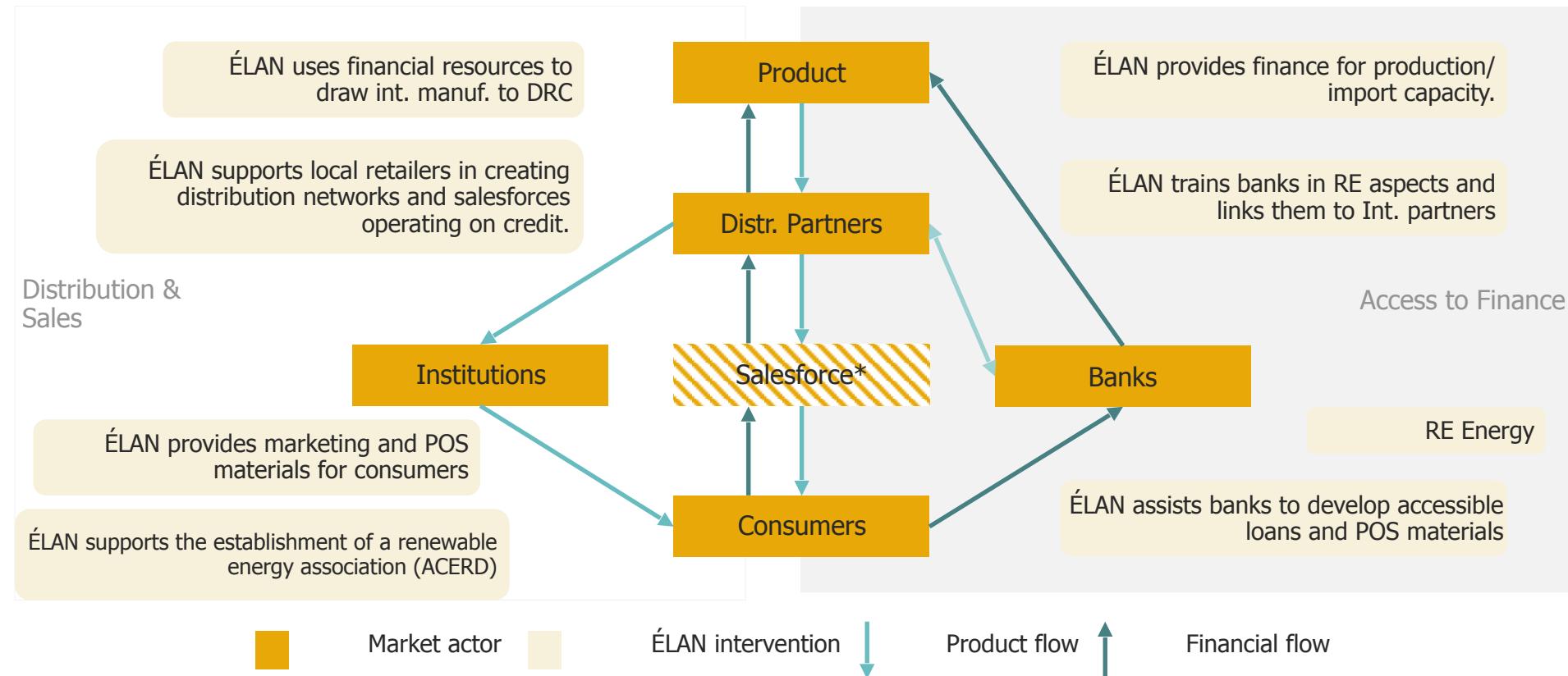
### CONSTRAINTS

- Poor access to on-grid power/electricity
- Expensive and toxic lighting and cooking technologies
- Lack of solar and improved cook stove actors in the local market
- Households' low purchasing power
- Lack of information and education
- High import taxes for the sector

### INTERVENTIONS

- Support SMEs to produce or import highly efficient energy technology
- Support SMEs to implement communication, marketing and distribution models to reach BOP households
- Support SMEs and consumers to increase access to finance
- Support private-sector advocacy for a more favourable tax regime

# CURRENT SITUATION: INTERVENTION TYPES



ÉLAN's interventions focused on:

1. Grow supply of energy efficient technologies
2. Improve marketing and distribution
3. SMEs and consumers access finance
4. Improve business environment

# Mobile Tech for Private Sector Development in the DRC

September 2019

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**Country Director DRC**  
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a global social enterprise improving lives via mobile | Viamo.io



# What do we do?

Using an old technology in new ways

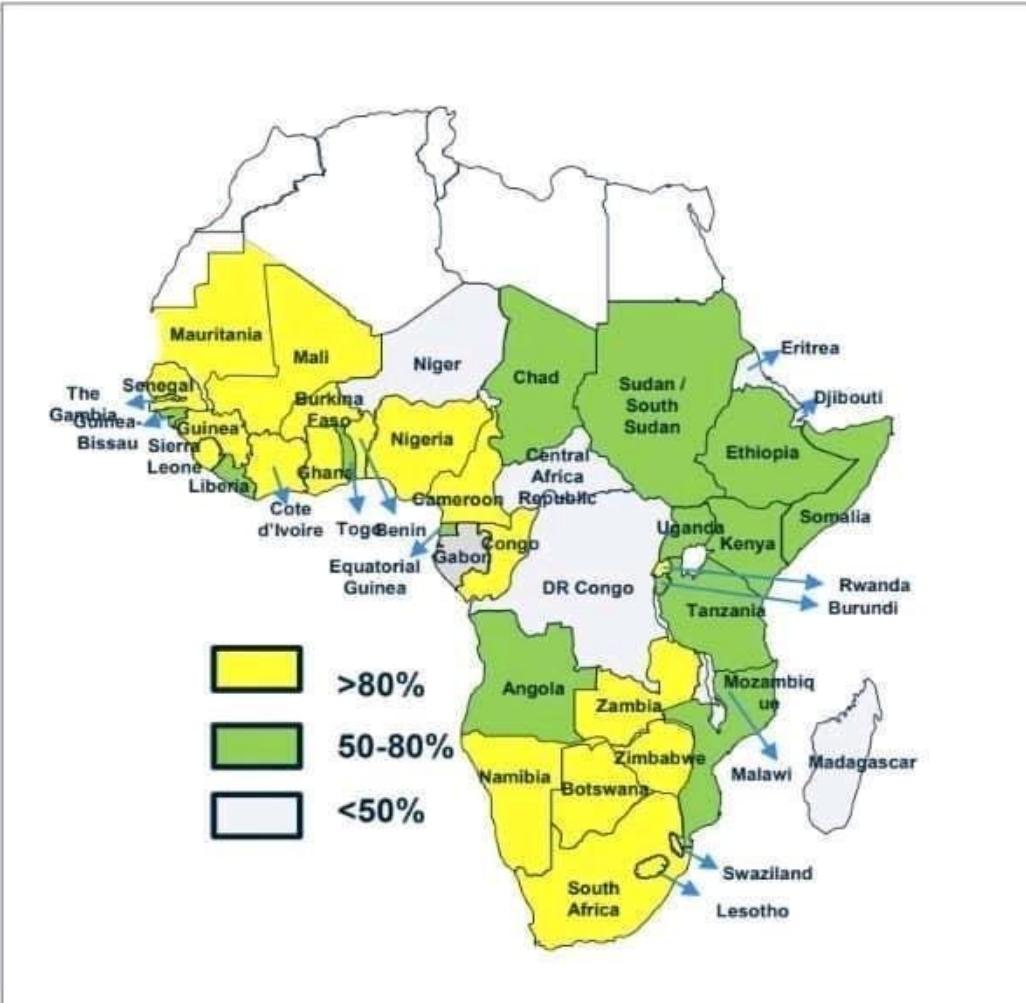
Access to knowledge, behavior change  
communication



Collection of feedback, impact and insights

a global social enterprise improving lives via mobile | Viamo.io

## Mobile Penetration in Africa (% of population)



# DRC in Context

- Mobile Penetration in DRC is about 39% (TV and Radio penetration are 46% and 43% respectively).
- 14% of households nationwide being connected to the electricity grid

# What mobile channel to use?

**Key factors: Context of your key users and your program objectives**

	<b>SMS + USSD:</b> offering simple reminders, nudges or alerts to a literate group
	<b>IVR (interactive voice response):</b> two-way communication, particularly with traditionally difficult to reach populations (rural areas, low literacy, longer messages/surveys)
	<b>Mobile Apps + ChatBots:</b> advanced engagement with staff and users who own and can operate a smartphone

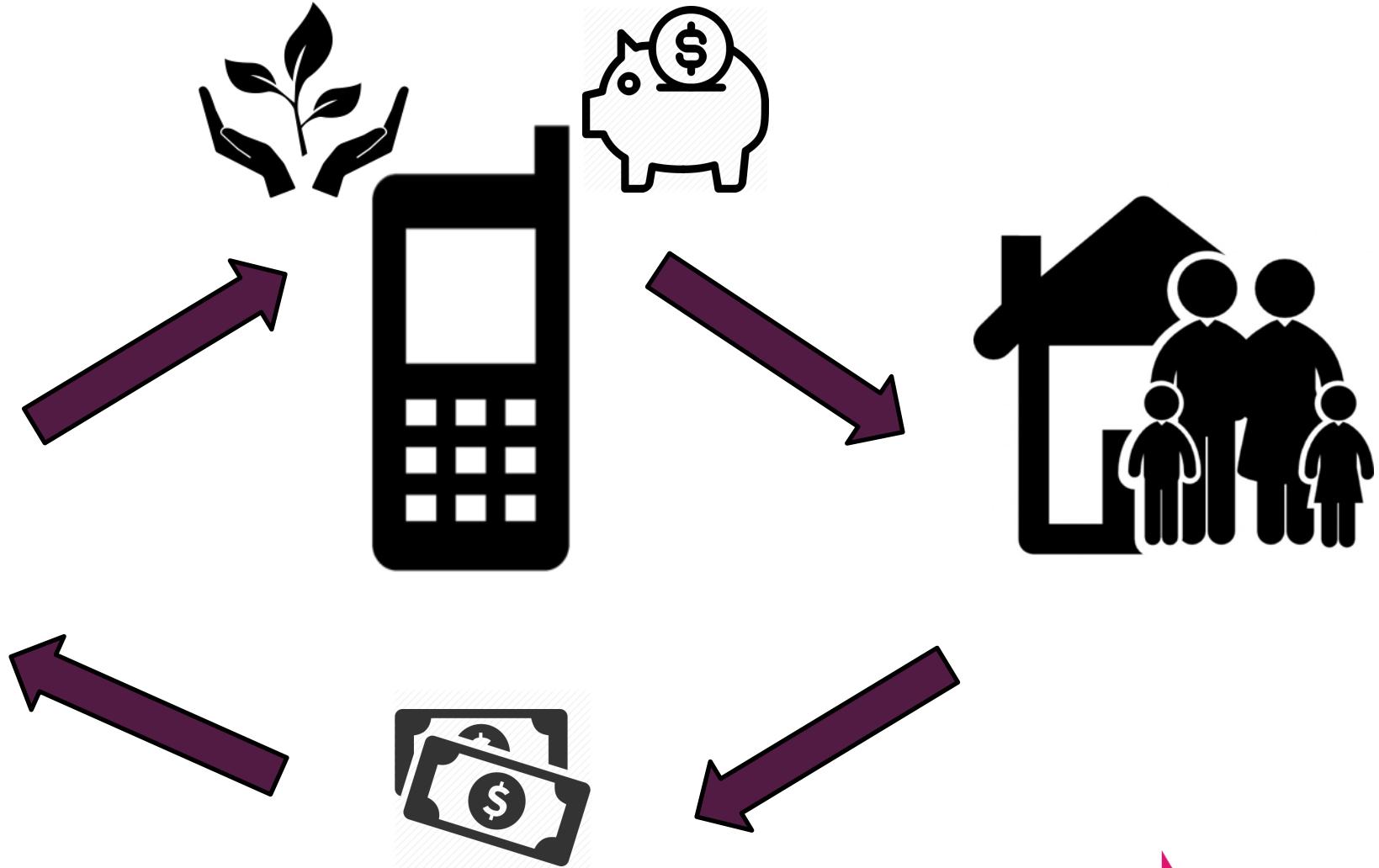
# Simple Advice on Any Device

Callers dial 3-2-1 (42502 in the DRC) and listen to public service information in the local language anytime, anywhere, free of charge in Voice, SMS, and USSD!



- 1 
- 2 
- 3 
- 4 

# 3-2-1 and the Private Sector



a global social enterprise improving lives via mobile | [Viamo.io](http://Viamo.io)



# Sponsored Content 42502

## Attempt #1

### Key Features

- 3 Banks provided cost-share for pack of key messages
- Each bank created 1 advertising message. Messages rotated around behind key messages every month
- Success measured in content listened to and “impressions” for advertising

### Results

- **781,426 listeners** accessed financial education content since the launch in June 2017 (**565,182** heard advertisements)
- 40% of the caller have listened “How to manage your funds”
- 21% listened to “Savings”
- 14% listened to “Credit”



BANQUE COMMERCIALE DU CONGO  
*Bâtisseurs d'Avenir*



## Sponsored Content on 42502 Attempt # 2



### Key Features

- Key messages sponsored by ELAN RDC and other partners
- SeedCo advertising message placed behind all maize messages
- Listeners would hear the advertisement, then ask to **double opt-in**
- Potential customers were divided between target province and those outside
- Success measured in sales tracked

### Results

- **6637** callers opted-in from outside of the province in two months.
- **4350** callers opted-in from within the province in two months.
- Thousands of potential clients. **NO SALES.**



# Key Takeaways

- Mobile tech (321) can create lead generation an interest in products
  - Targeted exposure for businesses
  - Opt-in for follow up to better track sales
- Have not yet equated interest to sales
  - Difficulting targeting correct regions
  - Perhaps not generating the right leads
- Considerations for future PS partnerships
  - Infrastructure and capacity challenges for local and small businesses
  - How to better inform consumers about choices available to them in the market

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