# Global landscape of innovations in digital finance

March 2015

# Introduction and objectives

More than half of the world's adult population, nearly 2.5 billion people, remain unbanked. Technology – particularly the mobile phone – has been used in recent years to extend financial services past the limits of bank branches and reach new consumers in traditionally underserved segments. Initial efforts focused on payments but have now grown to include insurance and credit products delivered by digital channels, known as "products beyond payments." Despite a dramatic expansion in the number of digital financial service deployments, the offering of these financial services are not new services. Rather, they are existing services migrated to a lower-cost digital channel, therefore offering greater scale potential. And even then, use of these channels currently remain low.

This research seeks to accomplish four objectives:

1. Catalog the ways in which technology, especially mobile, can enhance access or use of financial services
2. Provide a comprehensive landscape of the latest innovations in digital finance
3. Consider the current and potential impact of these innovations on financial inclusion
4. Identify enabling conditions and investments needed to unlock the potential of the sector

CGAP's Digital Finance Frontiers Initiative sponsored this study, which was conducted by Dalberg Global Development Advisors during September – December 2014.

**CGAP**

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# Scope

This study specifically seeks to surface **innovative approaches, features and products** that could open new opportunities for digital financial services that reach the poor.

We believe there are features - what we call “digital attributes” - that help enable altogether new solutions for digital financial services. Our goal was to scan the landscape in order to:

1. Validate these attributes
2. Identify where the attributes are being used to deliver new digital financial services today

To define the “territory” being explored by existing innovators and specifically differentiate from “traditional” financial services being delivered on a mobile channel, we defined the project scope as:

| What | How | Who |
|---|---|---|
| **Financial products, services or tools** | **Delivered or deliverable through digital channels** | **Reach or could reach underserved segments** |
| • Savings<br>• Loans<br>• Insurance<br>• Financial management<br>• Security | • Mobile phones<br>• ATMs<br>• Point-of-sale (PoS) devices | • Unbanked<br>• Underbanked |

Throughout this study, we readily acknowledge that the landscape captured here is a snapshot of a point in time. This space is nascent and rapidly evolving. We look forward to continuing to chart its progress.

# Methodology

**Defined innovation landscape**

- Collaborated with CGAP on definitions and initial framing for the landscape of the latest innovations in digital finance
- Validated and refined initial framing based on 19 interviews with industry experts (incl. those in the tech. start up space)[1]

**Conducted global scan for deployments**

- Conducted a global scan for deployments meeting selection criteria based on:
  - Desk research
  - Internal CGAP documentation and CGAP crowdsourcing
  - Consultations with industry experts
- Updated definitions based on expert interviews and landscape review

**Validated findings based on deployment interviews**

- Conducted 34 telephone interviews with selected enterprises to understand business models, customer value proposition, sector-wide trends and challenges and potential for financial inclusion impact
- Collaborated with CGAP to consider how the sector could evolve in the future
- Further validated findings with follow-up interviews conducted in the final two weeks of the study

**Developed outputs**

- A **summary report** detailing the industry landscape in 2014
- **Seven detailed profiles of representative businesses that**:
  - Cover leading players in the sector
  - Are representative of overall trends
  - Ensure regional coverage
- **A database of active deployments**

**We identified and analyzed over 300 deployments and used our selection criteria to identify ~110 as in scope.**

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Notes: (1) Includes thought leaders, researchers, investors, early stage incubators, accelerators and fintech conference organizers

# Executive summary

- **Digital channels are enabling distinctive new ways of engaging with customers – and their data, but these innovations are just beginning to be explored**. Through a scan of over 300 deployments across the globe, our study identified over 100 cutting-edge deployments using six unique "digital attributes" (such as digital data trails) made possible through capabilities of the mobile phone. As is expected for a nascent and rapidly evolving sector, we found a high degree of experimentation and signs of early failures; a majority of players identify as being start-ups still refining their business models. Entrepreneurs ascribed the challenges to a range of factors from a lack of a proven business case (e.g. in the use of data) to difficulties in consumer acquisition, and broader commercial and regulatory enabling environment itself.
- **Benefits to financial inclusion from these new services are not immediate.** Many innovations do not yet target low income individuals, require capabilities mostly found in smartphones, and often require a bank account, making it difficult for the poor to take advantage of these innovations in their current form. Specifically, we found that the vast majority of products are based in Western markets and tend to reach not un-banked individuals. In addition, given the nascent stage of the sector, products are still limited in scope, with an emphasis on providing credit, and do not yet meet the range of customers' financial needs.
- **However, there is a compelling future vision for how these innovations could benefit the financial lives of the poor.** Current innovation is driving down transaction costs, expands customer choice, increases customer engagement and helping financial service providers better understand the behavior, and therefore, risk profile of potential customers. All of these features can help increase the attractiveness of previously un / underserved customers as potential customers.
- **Changes in the ecosystem – and particularly to smartphone penetration rates – could be promoted today to help these products proliferate more quickly.** Estimated smartphone growth rates and maturing mobile money infrastructure makes us believe that these products could reach the poor in developing economies in the near term. Accelerating this vision requires increased stakeholder commitment (e.g., increased MNO interoperability and commitment to sharing data), new partnership models, deeper customer understanding and improved regulatory environments supporting mobile money platforms and the use of new technologies.

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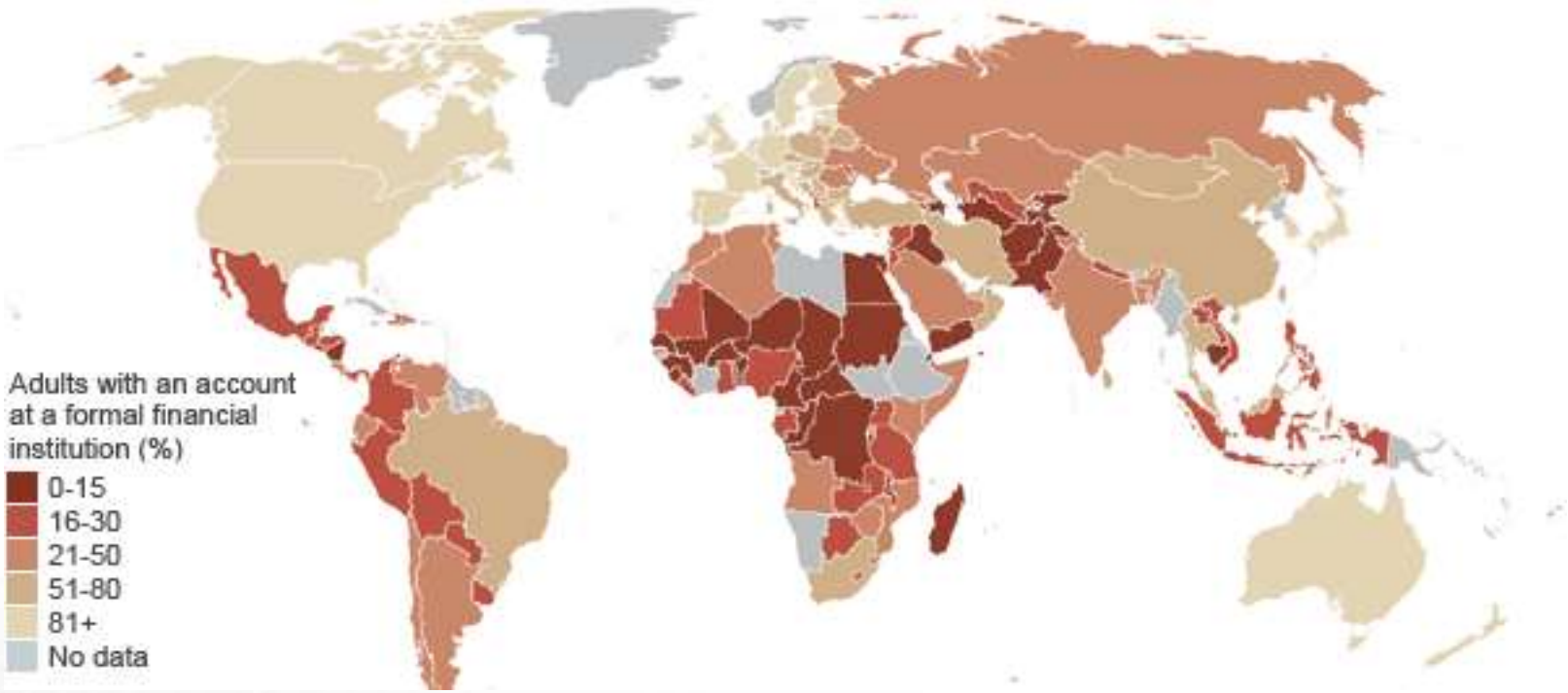
# More than 50% of the world's adult population, ~2.5 billion individuals, remains unbanked; there are several barriers to financial inclusion

**Adults with an account at a formal financial institution**
*(%)*




## Key barriers to financial inclusion

- Lack of financial literacy
- Gender and age discrimination
- Low income levels / erratic cash flow
- Lack of digital payments ecosystems
- Long geographic distances
- Low population density
- Mistrust of banking institutions
- Lack of appropriate products
- Poor regulatory policies
- High cost to serve
- Entrenched cash-based behavior

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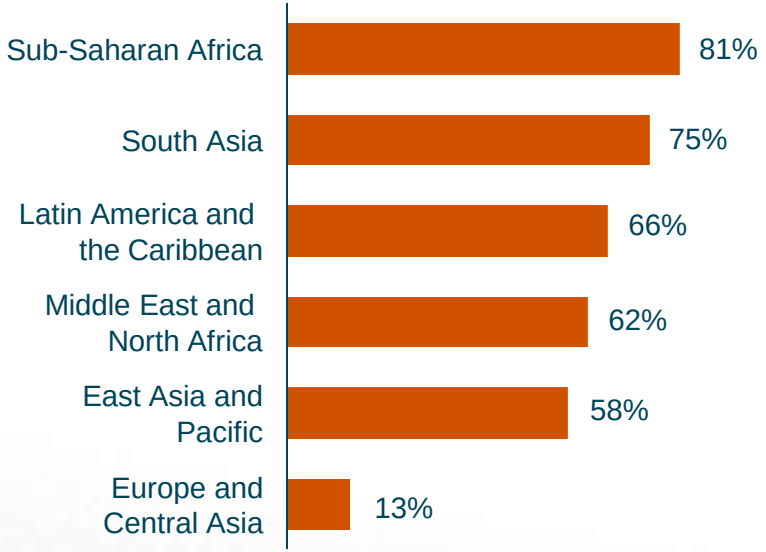
Source: "Banking on Change: Breaking the Barriers to Financial Inclusion", Demirguc-Kunt and Klapper (2012), Care

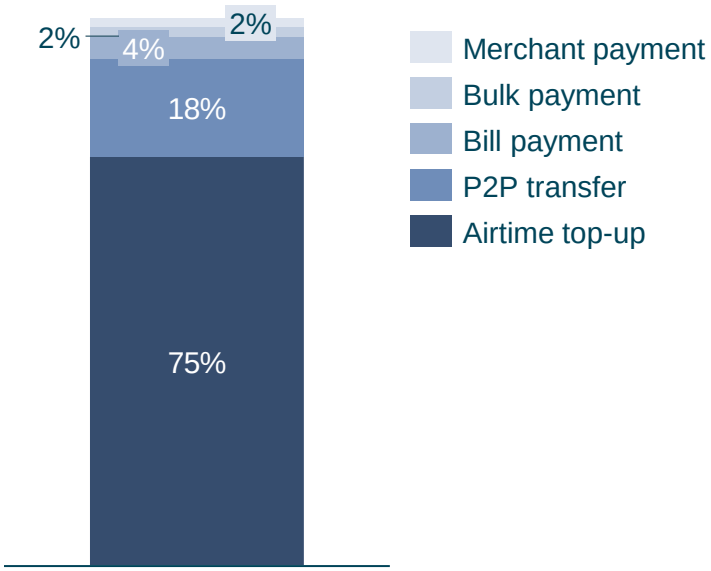
# The extensive reach of mobile money today hints at the potential for the mobile platform to increase access to financial services more broadly

**Availability of mobile money**
(% of developing markets in region w/mobile money, 2014)




- According to the GSMA, mobile money services are now available in 60% of developing countries (88 out of 145)
- There are now more mobile money accounts than bank accounts in 11 countries

**Mobile money product mix**
(% of total mobile money transactions by volume, 2013)




- 326 million transfers and payments worth USD 3.2 billion were processed in June 2013 alone

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Source: GSMA Preliminary Insights from the State of the Industry Report (2014); GSMA State of the Industry Report (2013)

# Mobile phones offer a wide range of capabilities that can be applied to financial services

## Mobile phone capabilities[1]

1. Biometrics[2]
2. Record of call history
3. Camera
4. Communication through texting / messaging
5. Communication through voice
6. Graphical interface
7. Internet access
8. Location ID
9. Near Field Communications (NFC)[3]
10. Remote monitoring
11. Touch screen
12. Unique ID[4]
13. USSD menu[5]

**These capabilities can be used to provide new types of financial products, services and tools.**

**For example, biometrics and camera capabilities can be used to verify customer identity as part of a bank's KYC processes.**

**Many of these features (e.g. biometrics, camera) require or are significantly enhanced on a smartphone.**

Source: Dalberg analysis

Notes: (1) Some features require or are significantly enhanced on a smartphone (2) Hardware or software designed to identify individuals based on unique characteristics (e.g., voice); (3) Wireless technology that allows two devices (e.g. mobile phones and POS devices) to communicate with each other; (4) SIM cards are associated with individual customers; (5) Interactive menus which allow for two-way exchange of information between customer and service provider

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# Mobile phone capabilities can be used in combination to produce six unique “digital attributes” with application to financial services

| Digital attribute | Definition | Examples of capabilities used |
|---|---|---|
| **Digital data trail** | Using advanced data analytics on individual mobile call / money patterns and other transactional data to tailor service offerings and / or segment customers | • Call history<br>• Location ID<br>• Internet access<br>• USSD menu |
| **P2P social connections** | Leveraging social networks and P2P platforms to increase access to financial services and customer choice | • Communication<br>• NFC<br>• Internet access<br>• USSD menu |
| **Smart and rich user interface** | Using an intuitive front end interface for customers to enhance user experience , effectively communicate relevant data and influence behavior | • Touch screen<br>• Graphical interface<br>• Camera |
| **Real-time customer interaction** | Using customized, customer triggered, two-way, real-time communication to influence customers’ behavior | • Communication<br>• Graphical interface<br>• Camera<br>• Biometrics |
| **Instant verification** | Using GPS, cell tower triangulation, camera or biometric data to verify identity or location | • Internet access<br>• Location ID<br>• Camera<br>• Biometrics |
| **Remote sensing** | Using embedded GSM technology to control, or track movement and usage of movable assets, to increase customer access to and offer tailored financial services | • Remote monitoring<br>• Location ID |

**Some attributes are also present in other digital channels; for example, an ATM also enables a smart and rich user interface and can interact with customers in real-time.**

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Source: Interviews with experts; Dalberg analysis

# The digital attributes address a range of barriers to financial inclusion, from expanding financial literacy to building formal financial records

| | How barriers are addressed | Illustrative example |
|---|---|---|
| **Digital data trail** | • Increases financial institutions' understanding of customers<br>• Increases customers' eligibility for financial products / services | • *In the absence of formal credit history, a bank uses mobile call data to understand a customer's risk profile and offer credit* |
| **P2P social connections** | • Expands the network of people with whom customers can have financial relationships<br>• Provides customers with tailored products<br>• Helps build a formal financial record | • *A farmer creates a money pool with family members who are scattered across Kenya; borrows money at 0% interest from someone in the United States* |
| **Smart and rich user interface** | • Helps tackle issues related to financial literacy<br>• Encourages money management / savings | • *An individual can quickly and intuitively use her phone to put away a small amount of money each day for the purchase of a cow* |
| **Real-time customer interaction** | • Helps tackle issues related to financial capability<br>• Reduces the need for live interactions with bank agents (cuts costs, reduces distance) | • *Student avails of automated, intelligent, two-way text message conversations so she and her bank can offer each other instant, personalized feedback for tailored loan terms and excellent repayment rates* |
| **Instant verification** | • Increases financial institutions' understanding of customers<br>• Increases security of transactions | • *An individual takes pictures of documentation and sends to a bank electronically via phone in order to open a bank account* |
| **Remote sensing** | • Increases customer eligibility for financial products / services<br>• Provides customers with tailored products | • *Insurance is offered to a customer based on behavioral patterns (e.g. driving speed) which are tracked through his mobile phone* |

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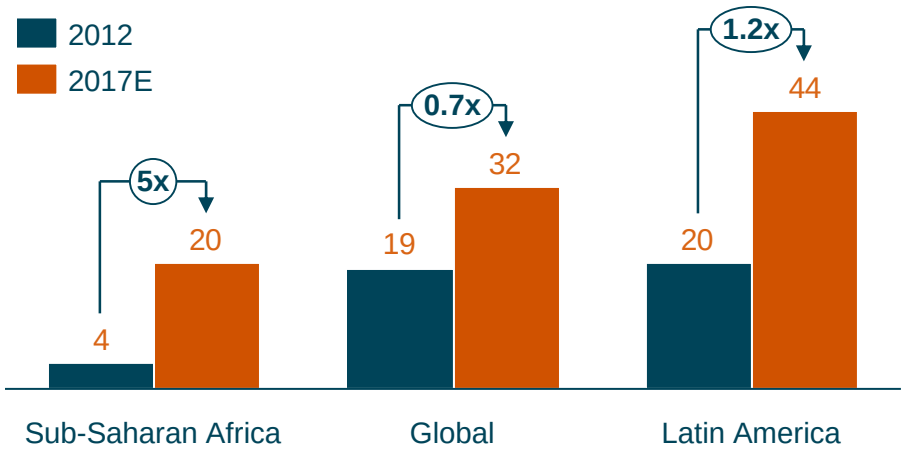
Source: Dalberg analysis

# Growth in smartphone penetration will increase the ability of low-income consumers to take advantage of these capabilities

**Smartphone penetration by region**
*(% of population)*




**Cheaper smartphones.** The average price of smartphones fell by 16% from over 2011-2013[1]; Mozilla has developed the world's cheapest smartphone at USD 25

**Zero-rated data content.** Initiatives by Internet.org and Bando Bradesco (Brazil) enable access to free mobile data.

**Shared usage of smartphones.** For example, households in Myanmar often share a single smartphone among multiple family members

**Examples of how smartphones enhance digital attributes**

- **Enable user friendly internet use** allowing consumers to access websites and applications required for many of the products highlighted in this study, e.g. websites enabling P2P lending
- **Have advanced features, such as cameras and biometric readers** needed for identity verification and that can support remote sensing
- **Allow for GPS tracking,** enhancing accuracy of identity verification
- **Capture more data** about consumer behavior patterns than basic feature phones (e.g. through internet use)
- **Have intuitive, visual screens** enabling customers to interact with their phone in new ways (e.g. through touch and graphics)

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Source: Dalberg :analysis "Smartphones and Mobile Money, The Next Generation of Digital Financial Inclusion", GSMA MMU (2014)
Notes: (1) According to estimates by International Data Corp (IDC); (2) "The State of Broadband 2014: Broadband for all", Broadband Commission (2014)

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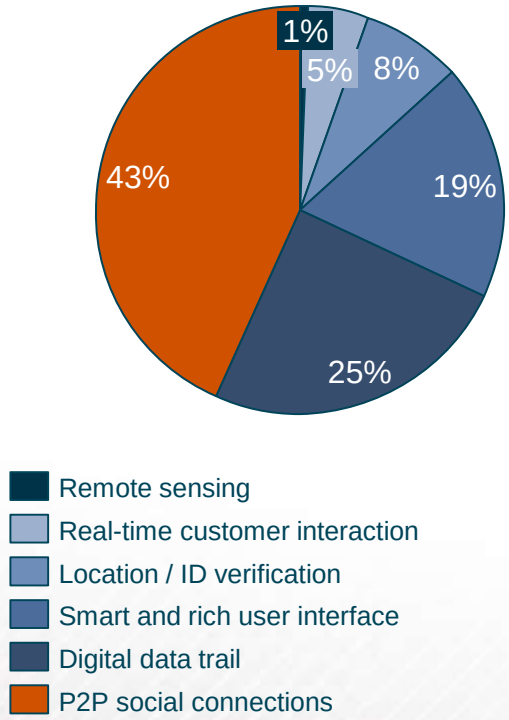
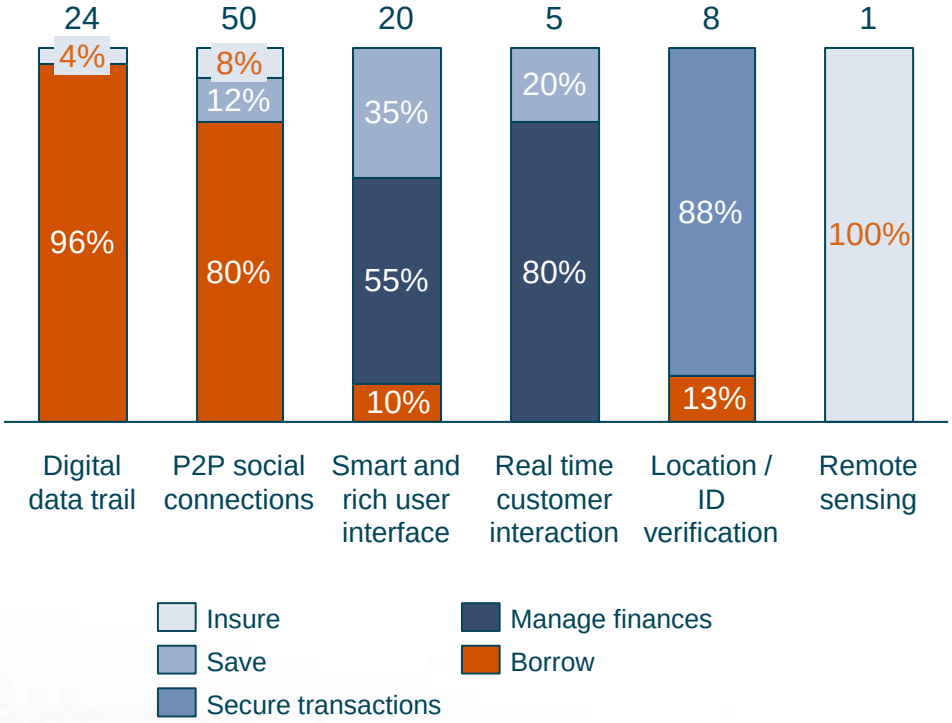
# A comprehensive review of the PBP landscape identified ~110 deployments; nearly 70% use digital data trails or P2P social connections

**Breakdown of deployments by primary attribute (n=108)**
*(% of deployments)*




**Breakdown of deployments by primary financial need addressed (n=108)**
*(% of deployments)*

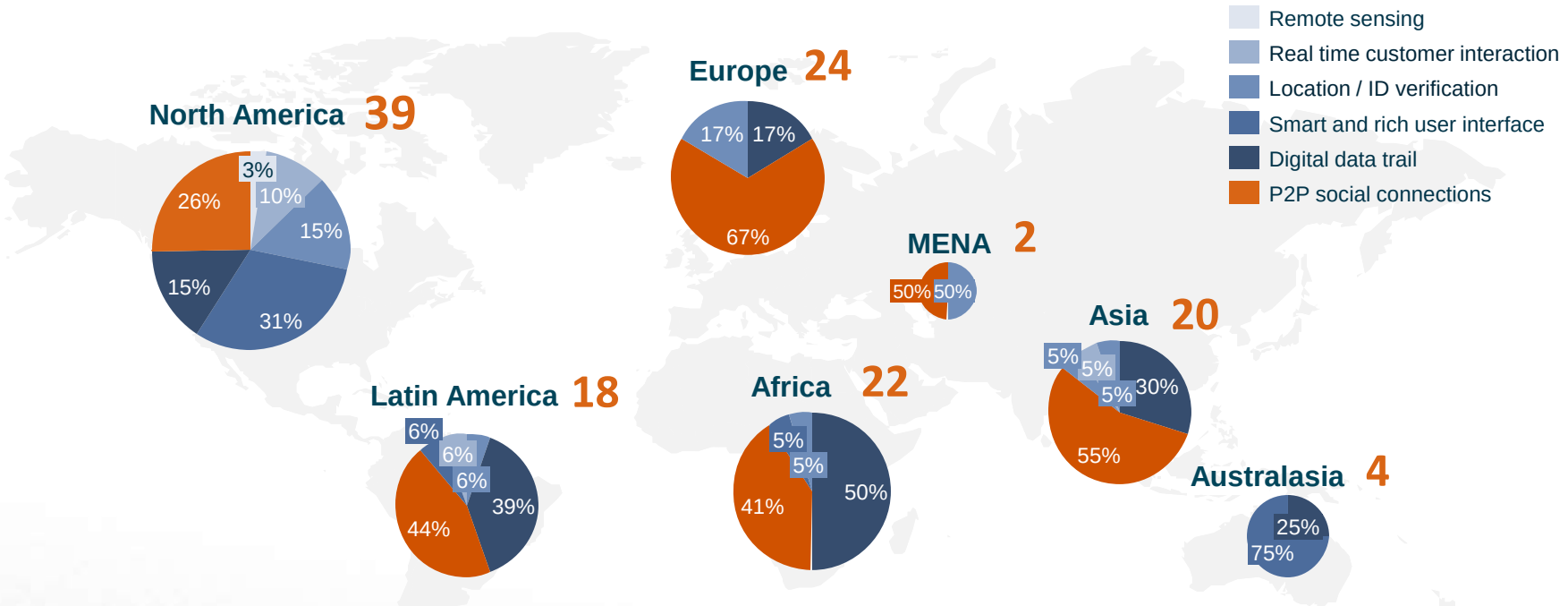



**This data indicates a high level of entrepreneurial activity in P2P social connections and digital data trails vis-à-vis other digital attributes and a strong focus on providing credit.**

Source: CGAP PBP deployment database; Dalberg analysis
Notes: We have allocated one primary digital attribute and financial need served to each deployment that is fundamental to their value proposition, although some might leverage secondary digital attributes and/or address secondary financial needs; for e.g. P2P credit marketplaces are considered to address the need to borrow (and not to invest), for the purpose of this study

# While the majority of overall activity is concentrated in North America and Europe, P2P platforms have spread across the globe

## Number and breakdown of deployments by region[1]




- **North America, Europe and Australasia** are dominated by products using digital data trails, P2P social connections and smart and rich user interface, but there are signs of innovation across attributes, especially in the United States
- **In Africa**, the proliferation of digital data trails using mobile money / call data is likely due to the relatively high levels of mobile money penetration in certain markets; relatively lower levels in **Asia** where mobile money has had less uptake
- **In middle income markets in LAC,** digital data trails and P2P social connections are possible because of high levels of internet connectivity; overall volume of activity seems to be low, however, and experts cite cultural preference for in-person transactions
- Relatively low levels of innovation in **MENA,** due to traditionally conservative lending practices by banking institutions

Source: CGAP deployment database; Interviews with experts; Dalberg analysis
Notes: (1) Shows geographic breakdown of 108 identified deployments. However, the sum across regions is 129 as there are some deployments that are active in multiple regions; North America includes US and Canada; Mexico is included under Latin America

# Enterprises and experts agree that while it holds promise, the sector is still at a very early stage

| | |
|---|---|
| **Digital data trail** | "They're small…players are still trying to figure out **how to bring them [data-based lending products] to market, get them to scale**." – *Thought leader* |
| **P2P social connections** | "Volume is growing, but players are still trying to figure out **how to lend intelligently on P2P platforms**." – *Impact investor* |
| **Smart and rich user interface** | "Tailoring products for poor people will require **creating tools allowing for mass customization**…you need to be able to drag and drop payments to a person, event, etc." – *Thought leader* |
| **Real time customer interaction** | "There are **only a few financial institutions** that are **willing to try something that is innovative in a field they are uncomfortable with**. This is our biggest barrier to growth." – *Deployment using real time customer interaction* |
| **Instant verification** | "We've seen the wave of biometrics startups beginning two years ago…it's going to be **multiple years of due diligence and testing before they establish accuracy and usage**." – *Conference organizer* |
| **Remote sensing** | "The provision of credit isn't happening because **pay-as-you-go energy companies are still early stage. They need to first prove their business model, before they can think of expanding to other products**." – *Deployment with pay-as-you go model* |

**The majority of organizations we spoke with were founded in the last 2-3 years and self-identify as start-ups still refining their business models.**

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Source: Interviews with experts; Interviews with deployments

# A number of factors keep the sector from notably influencing financial inclusion today

| | |
|---|---|
| **Underbanked, not unbanked** | • Many deployments explicitly target underbanked individuals or those who don't have a formal credit history, but very rarely target the completely unbanked<br>• Customers benefitting from P2P transactions, savings/money management tools and digital data trails utilizing big data usually need to have bank accounts |
| **Limited product range** | • Nearly 65% of identified deployments are focused on providing consumers with access to credit; this figure is even higher in developing countries, where there is limited activity outside of P2P social connections and digital data trails |
| **Small customer base** | • Interviewed companies stated customer acquisition is one of their biggest challenges<br>• Beyond customer acquisition, entrepreneurs indicated that they are still experimenting with ways to increase overall customer usage of products |
| **Dependence on smartphones** | • Most products require web-connectivity in their current form or their functionality is significantly enhanced by smartphone (smart and rich UI, P2P platforms)<br>• This limits the ability of products to reach the majority of low-income individuals who do not currently use a smartphone |
| **Limited adoption of mobile money** | • In the absence of bank accounts, some products work on or require mobile payment platforms (e.g. products providing loans over mobile money platforms, some P2P platforms)<br>• However, low customer activation rates of mobile money accounts in most countries makes wide-spread proliferation difficult |
| **Challenges in the enabling environment** | • Entrepreneurs frequently cited regulatory challenges (e.g., allowing consumers to earn interest on mobile money savings accounts) that limited the scope of their activities as well as their potential to expand to other countries<br>• Financial institutions and MNOs seen to be slow to adopt new technology |

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Source: Interviews with deployments; CGAP deployment database; Dalberg analysis

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# 1 Digital data trails are largely being used to provide customers, even those without formal histories, with credit

**Developing markets: Mobile call and money data**

- Such deployments are concentrated in Africa due to the relative proliferation of mobile money, though we have also seen a couple of models in Latin America and Asia
- We have seen two partnership models prevalent in the market:
  - A partnership between an MNO and financial service provider (FSP)[1]
  - A partnership between a specialized data analytics firm and a financial service provider
- Six distinct data categories used to assess risk (demographics, geography, call data, mobile money transactions, e-wallet savings and loan repayment)
- Most businesses are still refining their model; some have seen early signs of success
  - Relatively low proportion of non-performing loans: M-PAWA has 3% non-performing loans
  - Repeat usage: Airtel Kopa Kash has 90% repeat customers
  - High uptake – M-PAWA has provided 350,000 loans in the 6 months it has been operational
- Growing interest in the model: Four major MNOs, with vast operations across Sub-Saharan Africa, Vodacom, Airtel, MTN and Econet, have launched deployments

**Developed markets: Online footprint data**

- Deployments are often partnerships between data analytics firms (e.g. Zest Finance) and banks and use data analytics to specifically understand risk of underbanked customers
- Data is seen to be supplemental to traditional methods of risk assessment, not a replacement
  - The role big data plays in credit decisions is often on the margin – for potential borrowers that would be denied not because of a poor credit history, but because of insufficient data on the individual

**There has been much less activity in the insurance sector, as players believe that education and awareness are much more important than additional data.**

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Source: CGAP deployment database; Dalberg analysis

Notes: (1) Financial Services Provider (FSP) refers to a private or public sector bank, co-operative bank, or microfinance institution

# 1 In developing markets, mobile call and money data is key, while in developed markets, data from customers' online footprint is more relevant

| | Developing markets – data from mobile use | Developed markets – data from online footprint |
|---|---|---|
| **Description** | • Providers are leveraging data available from mobile phone usage to predict credit risk for under- and unbanked individuals | • Providers are leveraging data available from online footprints to predict credit risk for underbanked individuals |
| **Data used** | • Financial – airtime/data plan purchase, frequency of mobile money payments, amount in m-wallet savings account<br>• Social network – frequency of calls with same number<br>• Geographic – location<br>• Demographic – age etc. | • Online ratings<br>• Validated contact methods<br>• Social media connections<br>• Utility payments<br>• Government statistics |
| **Region** | • Primarily Sub-Saharan Africa and Latin America | • Primarily North America & Europe |
| **Typical loan size** | • Can range from USD 1-500 for 15-90 days; average is often from ~USD 5-10 | • ~USD 100-100,000, depending on the nature of the financial institution |
| **Examples** | M-Shwari, EC CASHLOANS, tiaka | zestfinance, demyst.data, Lenddo |

**Increased smartphone usage in developing countries means companies will increasingly be able to use data from customers' online footprints, offering greater illustration/detail of customer behavior**

Source: CGAP deployment database; Taylor, Diana and Michael Schlein, "How Big Data Can Expand Financial Opportunities for the World's Poor", Forbes (25th April, 2014); Browdie, Brian. "First Access, Cignifi Use Big Data to Bring Economic Security to the Unbanked, American Banker (23 December, 2013); "Cell-phone" icon designed by Marwa Boukarim from the Noun Project; "Smartphone" icon designed by Lorena Salagre from the Noun Project; Dalberg analysis

# 1 Several types of data are used to assess customer risk and make credit decisions

| | Data categories | Overview |
|---|---|---|
| Mobile data | Demographics | • Data mobile subscribers fill out during mobile registration, such as age and profession |
| | Geography | • Location of subscriber available through cell tower triangulation |
| | Call data | • Includes air-time top-up history, call volume, call duration, number of contacts dialed, etc. |
| | Mobile money transactions | • Frequency and amount of payments through mobile payment channels |
| | Mobile savings | • Savings amount deposited in m-Wallet account |
| | Loan repayment | • Track record of loan repayment for repeat customers |
| Online footprint | Social media | • Activity and frequency of social media use, word associations, repayment behavior of social connections |
| | Online financial transactions | • Frequency and amount of payments made through online payment channels |
| | Utility payments | • Track record of payments to utilities and other service providers |
| | Government statistics | • Publicly available digitized government records |

**It is the combination of data, not an individual data point alone, that is informative in segmenting and assessing consumers' creditworthiness**

**This data is often used to help make decisions about first-time borrowers, especially in cases where there is otherwise insufficient data**

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Source: Interviews with deployments; "Use Data to Fix the Small Business Lending Gap", Mills, Karen, Harvard Business Review (September 16, 2014); "Crunching the numbers", The Economist (May 19th, 2012); Dalberg analysis

# 1 We have seen two partnership models to deliver consumer credit based on digital data

| | MNO + FSP *Seen in developing markets only* | | FSP + data analytics firm *Seen in developing and developed markets* | |
|---|---|---|---|---|
| | **MNO** | **FSP** | **FSP** | **Data analytics firm** |
| **Role** | • Provides customer data<br>• Serves as the distribution channel<br>• May undertake credit scoring | • Provides credit from their balance sheet<br>• Analyzes data to make credit decisions | • Provides credit from balance sheet<br>• Provides distribution channel for credit provision | • Conducts data analytics to support credit decisions<br>• Reduces operational costs for partner |
| **Value proposition** | • Increases customer loyalty<br>• Increases mobile money transactions<br>• Earns revenue from interest / fees charged | • Gains access to previously untapped customer base<br>• Earns revenue from interest / fees charged | • Improved understanding of consumer enables FSP to make better loan decisions<br>• Operational costs reduced | • Receives share of revenue from interest / fees charged |
| **Examples** | vodacom, MTN, airtel | cba, afb | *Unable to identify specific financial institutions due to confidentiality requests* | first access, cignifi, zest finance, Lenddo, demyst.data |

Source: Interviews with deployments; “Phone-call” icon designed by Tommy Lau from the Noun Project; “Radio-tower” icon designed by Pedro Nakazato from the Noun Project; “Data” icon designed by Yamini Chandra from the Noun Project; “Bank” icon designed by iconsmind.com the Noun Project; Dalberg analysis

# 1 Players are beginning to see early signs of operational success, including low rates of non-repayment and high numbers of repeat customers

## Early metrics of success

*Given their early stage nature, most deployments were not comfortable sharing operational data; however, initial metrics from a few deployments can illustrate the basis on which these deployments can be judged in the future*

- **Broad customer base:** More than 60% of the loans provided by Airtel Kopa Cash in Tanzania are outside urban areas
- **Repeat usage:** Airtel Kopa Cash has 90% repeat customers
- **Proportion of non-performing loans:** Only 3% of MPAWA's loans are non-performing
- **Reduction in loan delinquency for partner banks:** Lenddo believes its partners have reduced delinquent loans by 12%
- **Increase in loan approvals for partner banks:** Lenddo believes its partners have increased their loan approvals on average by 50%

## Expected growth and impact

- Currently, deployments are using mobile data for the provision of credit in 8 different developing markets across Africa, Latin America and Asia; conversations with players indicate active expansion plans to additional countries, given their start-up nature
- In Sub-Saharan Africa, four major MNOs (Vodacom, Airtel, MTN and Econet) are involved in credit provision using mobile data
  - With almost 600 million mobile connections in Africa, we can expect access to credit to exponentially increase in the region

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Source: Interviews with deployments; AFB documentation; Dalberg analysis

# 1 Beyond credit, there is an ecosystem of actors working together to offer mobile micro-insurance to low income customers

**Insurance company**

**Micro-insurance specialist**

**MNO**

**Customer-facing product**

| | | | | |
|---|---|---|---|---|
| **Value proposition** | • Gain access to previously untapped customer base<br>• Gain mobile channel for distribution and payment that reduces operational costs | • Gain revenue source<br>• Expand access to insurance | • Increased customer loyalty | Depending on the region, mobile subscribers can receive health coverage of ~USD 250-550 paying a monthly premium of ~USD 1-10 |
| **Role** | • Provide and under-write insurance using necessary in-country licenses | • Determine pricing through customer segmentation based on predicted ability to pay<br>• Manage insurance platform | • Provide untapped customer base and distribution channel | |
| **Example 1** | Britam | Changamka HEALTH INNOVATIONS | Safaricom | |
| **Example 2** | PRAGATI LIFE INSURANCE LIMITED | MICROENSURE | | NIRVOY |

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Source: Interviews with experts; Interviews with deployments; “Radio-tower” icon designed by Pedro Nakazato from the Noun Project; “Data” icon designed by Yamini Chandra from the Noun Project; “People” designed by Wilson Joseph of the Noun Project; Dalberg analysis

# 1 While some mobile insurance deployments leverage mobile data for basic segmentation, there is skepticism about other benefits

## We identified two notable examples of providers leveraging mobile data to provide micro-insurance

NIRVOY

Launched in January 2014 in Bangladesh through partnership between MicroEnsure, GrameenPhone and Pragati Life
- Segments level of coverage based on airtime
- Uses location verification and 'friends and family' feature on mobile to validate information submitted by insurance subscriber

cignifi

In the process of launching a mobile micro-insurance deployment
- Uses mobile data to predict which customers are likely to subscribe for paid insurance

**Validation of the value of using such mobile data is not yet possible given the early-stage nature of these deployments**

## The use of more complex mobile data is not a priority among actors in the ecosystem

"The data that an MNO holds isn't as valuable for us, since to provide insurance we don't really need to conduct a credit appraisal"

*- Mobile micro-insurance provider*

"I don't believe technology is going to solve the main challenge of insurance provision – which is creating awareness and education about the value of insurance"

*- Mobile micro-insurance provider*

"In many low income markets, insurance products have a negative connotation and a low level of understanding – direct-to-customer marketing efforts are extremely important"

*- Mobile micro-insurance provider*

CGAP

Source: Interviews with experts; Interviews with deployments; Dalberg analysis

# 1 There has also been significant excitement for using digital data trails to provide merchant credit

**Challenge addressed**

**MSMEs find it difficult to access working capital debt**, especially in developing countries; this is due to both demand and supply side factors: for e.g. a lack of collateral and stringent requirements of financial institutions

**Solution**

Deployments leverage a digital data trail created by payments made to the merchant by customers through:

- **PoS devices** (e.g. Scanntech)
- **Online market-place** (e.g. Ali Finance)
- **Mobile money** (e.g. Kopo Kopo)

**Sales data can lead to integrated value-added services** such as improved inventory management, invoicing, B2B transactions, and the provision of store credit to customers

**Examples of data points**

- **Electronic transaction data**: cash flows, credit card payment activity; receivables receipts; sales growth etc.
- **Others**: online ratings of seller, number of repeat buyers, etc.

**Regions**

- This phenomenon is not local to a specific region – deployments have launched across the globe, in North America, Latin America, Asia and Africa

**Examples**

AMP, scanntech, Kopo Kopo, AliFinance, Finance, PayPal

**Case Study**

scanntech

**Description**

**Scanntech,** in a number of Latin American countries, offers a solution that allows independent grocery stores to process transactions, run inventory management and sell financial services

**Business model**

- Provide "iPoS" device to mom and pop shop
- Monitor a digital data trail
- Sell information to FMCG[1] companies and financial institutions, so that these companies can tailor product promotions
- Facilitate provision of micro credit through financial institutions to mom and pop shops

**Emerging metrics of success**

- Significant increases in store revenues
- Has brought multiple mom and pop shops into the formal economy

Source: Interviews with experts; CGAP deployment database; Simon Rabinovitch, "Alibaba digs deep for Chinese banking treasure", Financial Times (25th August, 2013); Scanntech website; IFC website; Dalberg analysis

Notes: (1) FMCG: fast moving consumer goods; the deployments shown on this slide have not been included as part of the deployments database given their focus on businesses and not the end consumer

CGAP

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# 2 P2P activity will become more relevant in developing countries as smartphone and mobile money penetration increase

| | |
|---|---|
| **Rapid growth in lending platforms** | • Early deployments in the UK (Zopa) and the USA (Prosper, Lending Club) began in 2005-2006. We estimate that there are now close to 40 P2P marketplaces across the globe<br>• Top three players have originated nearly USD 8 billion in loans to date and default rates have fallen significantly, from 15% in 2008 to 5% in 2010 in the case of Lending Club |
| **New savings and insurance models emerging** | • Bring back traditional elements of saving and insurance by allowing individuals to pool funds / share risk with friends and family<br>• Increase security and convenience and allow consumers to connect with individuals outside their immediate networks (e.g. friendsurance allows customers to choose from a list) |
| **Web connectivity required** | • Several deployments have stated that an increasing amount of activity is occurring over smartphones / tablets (quoted figures ranged from 40-80% in 2014) and expect this trend to continue<br>• Will be more pertinent in developing countries as smartphone penetration increases<br>• Cost of data for customers may remain a challenge; however, integration with social media networks experimenting with free data access (e.g. Facebook) could help cut costs |
| **Reliant on bank accounts** | • With a few exceptions (e.g. Zidisha), most products require a bank account<br>• Integration with mobile payment platforms could accelerate proliferation of products in certain countries (e.g. Kenya), especially given P2P models are common in many low income countries |
| **Will build credit** | • Repayment history is tracked and can help build or act as a proxy for traditional credit scores<br>• Some models explicitly help individuals connect with banks (e.g. eMoneyPool) for access to credit through financial institutions |
| **Regulatory challenges** | • In most countries, non-bank institutions are not allowed to collect deposits, often putting P2P platforms in grey areas with the regulators<br>• Some countries allow for companies to act as “banking agents” but this would require companies to partner with banks who would need to be convinced of the commercial viability of the model |

CGAP

Source: interviews with deployments; Company websites; Dalberg analysis

# 2 We identified five distinct business models in the P2P space; of 50 deployments, nearly 90% are credit focused

## Business models

**Credit**. Facilitating credit transactions through an online platform. Three types:

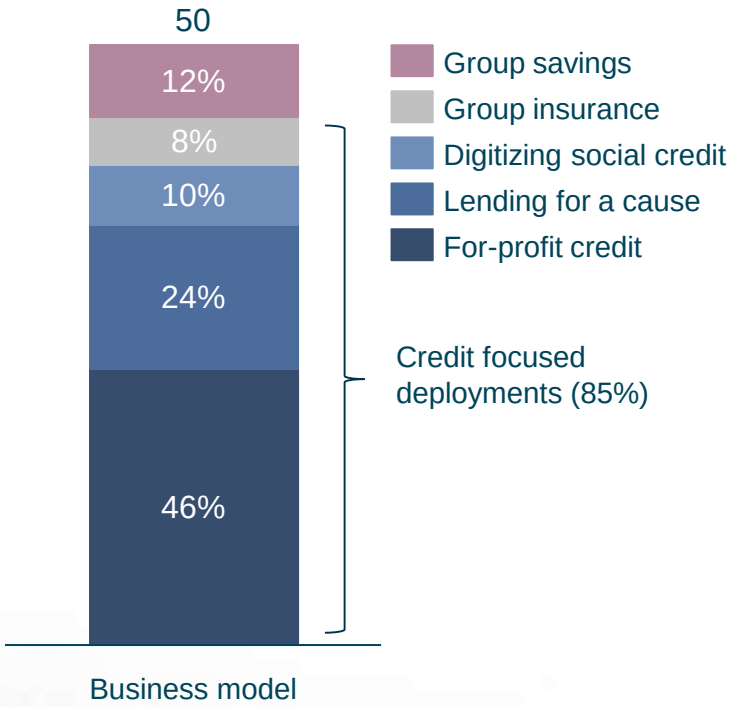
- **For profit.** For-profit borrowing and lending (investing) between individuals or individuals and institutional investors
- **Lending for a cause.** Connects philanthropic middle-high income lenders to BoP borrowers
- **Digitizing social credit.** Formalizes informal lending and borrowing between family and friends and at the workplace

**Group insurance.** Creates "social" insurance by having individuals, not insurance companies, cover smaller claims

**Group savings.** Formalizes informal Rotating Savings and Credit Associations (ROSCAs), sometimes with innovative modifications to the model

## Breakdown of P2P deployments by business model

*(% of deployments)*




Source: Interviews with deployments; CGAP PBP database; Dalberg analysis

Notes: E-Jameya is a P2P credit marketplace in Palestine using the principles of Islamic lending (i.e. interest-free lending); it has been classified under 'lending for a cause'

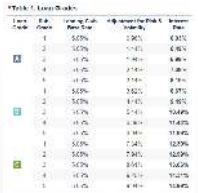
# 2 **For-profit credit:** By replacing traditional intermediaries, lending marketplaces are cutting the cost of accessing credit

## How it works

1

- Borrowers apply for a loan, listing the amount, purpose and duration
- They are screened and if deemed creditworthy, listed on the platform

2



- Interests rates are set in one of two ways:
  - Reverse auction: Lenders bid for borrowers, given a suggested interest rate; lowest bids selected; e.g., Faircent, Cumplo
  - Fixed through algorithm: Lenders choose from risk categories with fixed interest rates, e.g. LendingClub, Kubo Financiero

3

- Investors chose borrowers and the amount of investment; multiple investors can lend to one borrower
- Borrowers make fixed monthly payments with interest

## Observations

- Emerging in developing countries since 2010-11 as availability of public data and risk algorithms of established players improved
- Developing country deployments target underbanked individuals, ineligible for a loan from a financial institution, or who would be offered a prohibitively high interest rate; developed country deployments target prime borrowers, offer them lower rates and higher convenience. Top examples:

Zopa, FAIRCENT, i-Lend.in, cumplo, LendingClub, afluenta, kubo financiero

- Trend towards greater institutional investor lending, especially on established platforms; this dilutes the social element of P2P lending

CGAP

Source: Interviews with deployments; Company websites; "The Disappearance of Peer-To-Peer Lending", Forbes (10th Oct, 2014); Dalberg analysis

# 2 **Lending for a cause:** Some BOP focused-companies are using a direct P2P model, which allows them to dramatically reduce interest rates

## How it works

1

- BoP individuals request a loan, listing the amount, purpose and duration
- Applicants are screened for fraud using on-ground individuals, data science, and other techniques

2

**MFI intermediary model**

- Loan and repayments channeled through on-ground field partners, usually MFIs, who charge an interest rate to consumers; e.g. Kiva.org, Rang De, Milaap

**Direct P2P model**

- Direct loan and repayments; interests rates are set in one of two ways:
  - Reverse auction: Lenders bid to lend to borrowers, given a ceiling interest rate set by the borrower; the lowest bids are selected; e.g. Zidisha
  - Fixed at 0%: e.g. KivaZip

3

- Investors chose borrowers and the amount of investment; multiple investors can lend to one borrower
- Borrowers make periodic repayments

## Observations

- High and growing repayments rate: increased from ~50% in 2009 to ~85% for Zidisha, partly due to improvements in fraud detection
- The direct P2P model is being proven: Repayment rates are comparable to the MFI intermediary model; however, loan volumes still small (~USD 4 million in US and Kenya for Kiva Zip)
- Interest rates much lower for the direct P2P model: an average of 35% for Kiva.org[1], compared to 0% for KivaZip, and 7% for Zidisha
- This model is the only type of P2P deployment that reaches the unbanked BoP in Africa, Latin America and Asia. Top examples:

Kiva Zip zidisha myC4 Rang De

*Some players like KivaZip are considering buliding SMS-based functionality to reach borrowers without internet access*

CGAP

Source: Interviews with deployments; Company websites; "Kiva responds", Next Billion (12th February, 2014); Dalberg analysis
Notes: (1) The average portfolio yield of Kiva's microfinance partners is ~35%. In addition, their Field Partners' average return on assets is negative, without grants and other subsidies

# 2 **Digitizing social credit:** Makes informal credit activities between family and friends and at the workplace legally binding

## How it works

1

Loan terms and repayment schedule entered online by borrower and proposed to friends, family or their employer

2

A digital promissory note is signed, which makes the loan legally binding; collateral could be added

3

Repayments are made as per the decided schedule, and can be made through Paypal; both parties can view a summary sheet of the loan online

## Observations

- Most deployments operate in North America; there is potential for these services in developing countries where informal transactions are large in volume
- Some for-profit lending marketplaces like i-lend and Faircent are attempting to replicate this service by adding a groups feature to their models; they also believe that such activity already takes place on their platforms
- Top examples:

lendfriend

LendingKarma

**Note: customer research is required to determine feasibility in developing country contexts**

CGAP

Source: Interviews with deployments; Lendfriend website; LendingKarma website; Dalberg analysis

# 2 **Savings:** Digitization increases convenience and safety of the traditional money pool model; expands network

## How it works

1. 

   Individual has a savings goal but does not have upfront cash to make purchase

2. 

   Individual creates and joins 5-10 member groups using their own contacts (Facebook or other social media contacts)

3. 

   Individuals contribute a fixed sum of money regularly (e.g. USD 100 / month) over a set time period + service fee to provider

4. 


   Members of the circle receive the whole pot on a rotating basis, until everyone gets a payout

## Observations

- Using technology for money pools has some benefits over the traditional model (i.e., tandas in Mexico, susus in W. Africa, etc.):
  - Adds security and convenience
  - Expands social networks (individuals can also connect with those outside their direct networks)
  - Eliminates need for proximity to members in group
  - Allows visible, social "scoring" of individuals
- Six deployments that focus on creating money pools, all in the United States. Some examples:

eMoneyPool ChamaPesa

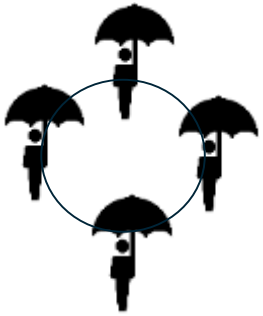
- eMoneyPool has so far transacted over USD 750k on through its service in the last two years
- Some variation in how the deployments work e.g. in Puddle, members borrow from a group savings pool to which they contribute.

CGAP

Source: Interviews with deployments; "In Lending Circles, a Roundabout Way to a Higher Credit Score", New York Times (10 October, 2014); eMoneyPool website; Dalberg analysis

# 2 **Insurance:** Creates “social” insurance by having individuals, not insurance companies, cover smaller claims

## How it works



- Individual connects with others (people they know or selected from a list) to form an insurance pool
- All members pay an upfront premium

**If claims are less than pooled premiums**

- Small claims paid through individual contributions
- Members receive money back at year end

**If claims are greater than pooled premiums**

- Claim paid by insurance company

## Observations

- Allows individuals to connect with people from their social networks or others who have a similar profile based on data available through social networks
- friendsurance pioneered the model in Germany in 2013; since then a few others have arisen in Europe; some examples:

friendsurance GUEVARA jFloat insPeer

- In the US, 2013 startup Peercover tried to launch a product where the insurance intermediary was eliminated altogether, but shut down in 2014

CGAP

Source: Interviews with deployments; “People” designed by Wilson Joseph from the Noun Project; Dalberg analysis

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# 3 Smart and rich user interfaces have largely been used in developed markets to increase customer engagement with their finances

| | |
|---|---|
| **Most deployments in developed markets** | • Of 20 deployments identified in scope, 18 were in developed markets<br>• Target audience tends to be young, tech-savvy customers who are between ages 20-45 |
| **Make financial management intuitive** | • Features range from automated tracking and categorization of expenses based on card swipes to showing simple graphics tracking performance against goals<br>• Many businesses are focused on providing a full financial picture, instead of focusing on activity in one account |
| **Increase customer engagement** | • Products are designed for use on smartphones; for many deployments, mobile is the most important channel for the use of their tool<br>• Encourages savings behavior (e.g. through nudges, posting goals on social networks, etc.) |
| **Deployments still in early stages** | • Most deployments have limited customer bases given high cost of customer acquisition; some companies are instead white-labeling their products and sell to banks (e.g., Ferocia)<br>• Limited proof points, though one organization mentioned they had seen 30% reduction in volatility between average balance and daily spend |
| **Financial literacy required** | • Products often require customers to understand complex charts and figures<br>• In order to deal with financial literacy issues, these tools will need to be better tailored for target audiences |

CGAP

Source: Interviews with deployments; CGAP deployment database; Dalberg analysis

# 3 Specifically, smartphone-based applications have been designed to make savings and financial management more intuitive for customers

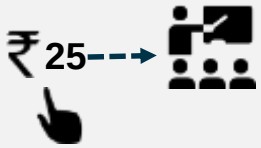
| | Intuitive interface presenting a full financial picture | Intuitive interface using behavioral nudges leading to increased savings |
|---|---|---|
| **Features** | **Customer-friendly data analytics (e.g. bar chart segmenting expenditure by category)** *Enables evidence-based and immediate financial decision-making*<br><br>**Convenient touch interface: (e.g. interface enabling dragging of payment from account to merchant using finger)** *Increases frequency and level of customer use* | **Visually displayed savings goals (e.g. bar chart illustrating amount required for car purchase, and progress to date)** *Motivates customers to increase savings*<br><br>**Convenient touch interface (e.g. red button which when pressed transfers pre-determined amount to savings account)** *Enables spontaneous saving* |
| **Examples** | mint.com, FEROCIA, SIMPLE | smartypig, impulsesave, pocketbook |

**Mobile is becoming increasingly important in financial management. One deployment said that within 9 months of introducing their app, 50% of the bank's transactions were happening over mobile.**

CGAP

Source: Interviews with deployments; Ferocia website; Smartypig website; Dalberg analysis

# 3 Deployments would need adaptation to be suitable for developing country contexts

| | Intuitive interface presenting a full financial picture | Intuitive interface using behavioral nudges leading to increased savings |
|---|---|---|
| **Relevance to developing markets** | • Poor levels of financial literacy among low and middle income populations<br>• Intuitiveness places responsibility for tackling illiteracy on financial service provider, rather than customer | • Low income populations often need to save to invest in income-generating assets but face liquidity constraints<br>• A combination of behavioral nudges and mobile money make it possible to save small amounts more often |
| **Illustrative example** | • User drags money from her checking account to a payment purpose represented by an icon, e.g. school fees,   | • User receives weekly text with a 'yes' or 'no' multi-choice menu to transfer USD 2 via mobile money to her mWallet 'cow' account, that can be built up over a period of 3 months for the purchase of a cow   |
| **Target audience** | **Underbanked and emerging middle class using smartphones**<br>• Given smartphones are necessary to take advantage of features | **Unbanked or underbanked low-income populations using mobile money**<br>• Since savings goals and spontaneous savings features can be adapted to feature phone interfaces |

**Note: customer research might inform design of such tools**

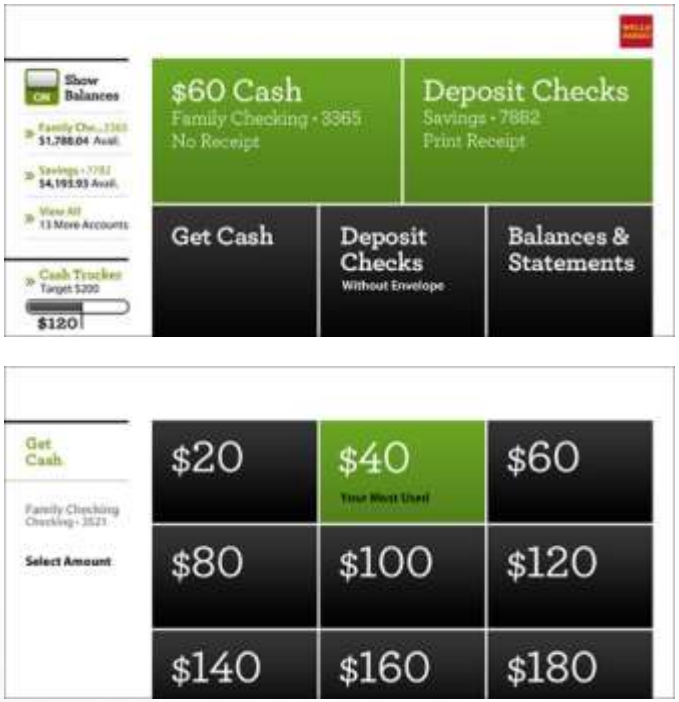
**Very few deployments are currently leveraging a smart and rich user interface for financial inclusion in developing countries. A notable example is m-Ledger in Kenya.**

CGAP

Source: Xu, Lisa and Bilal Zia, 'Financial Literacy around the World', World Bank Policy Research Working Paper (2012); Interviews with deployments in Oct/Nov 2014; Dalberg analysis; Touch designed by Jakob Vogel from the Noun Project; school designed by Ricardo Augusto Cherem from the Noun Project

# 3 Some banks are also experimenting with ATM interfaces to simplify and customize user experiences

## Illustrative example: Wells Fargo (12,000 ATMs as of 2013)




### Key features

- Personalized touchscreen highlights the features a customer frequently uses
- Interface reduces text with icons and visual tools
- Includes tool for expense management, helping users set targets and track withdrawals
- Receipts can be received over SMS
- Enables withdrawal of small-value currency

**Such simple, intuitive interfaces could enable increased usage of ATMs by less literate populations and expense management features could encourage increased savings.**

Source: IDEO website (www.ideo.com/work/atm-interface); Wells Fargo website; Dalberg analysis
Notes: A video demo for the Wells Fargo ATM can be found here; *Other examples of smart and rich UI ATMs are NFC-enabled ATMs, described in the section on Instant verification*

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# 4 Products are using text and voice to support savings and expense management

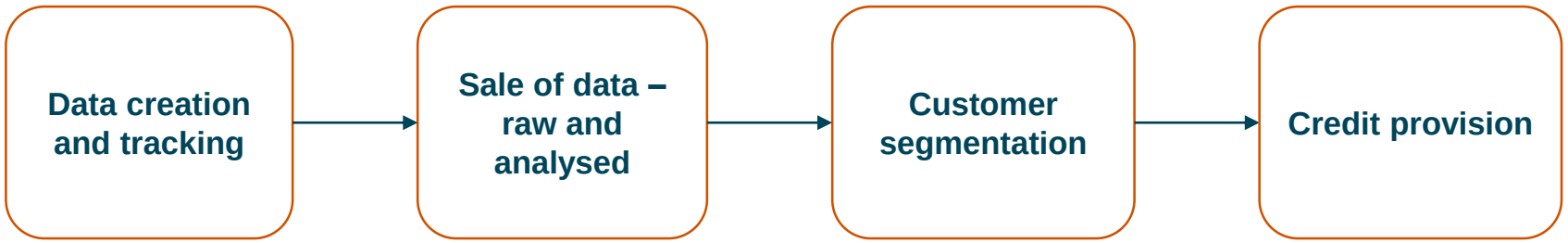
| | JUNTOS FINANZAS | inVenture | KASISTO |
|---|---|---|---|
| **Description** | Encourages saving by tracking expenses and setting savings goals; targeted at low-income, unbanked and underbanked Hispanic populations in USA | Enables effective money management by stabilizing expenditure cycles, and encouraging saving; targeted at the BoP in India | Helps track expenses and manage finances through intelligent conversation with virtual personal assistants |
| **Platform** | Feature phone | Feature phone | Smartphone |
| **How it works** | • SMS-based platform; feature phone compatible<br>• Users text Juntos with each expense –amount and type; e.g. "COMIDA 10," i.e., USD 10 spent on food<br>• Juntos provides monthly snapshots of how money was spent<br>• Users can set savings goals, receive reminders against goals | • Interactive Voice Response (IVR) and SMS platform; feature phone compatible<br>• User receive a daily IVR call at a set time<br>• Users enter in their mobile keypad amount and type of expense made<br>• The information is automatically captured in a template database<br>• InVenture provides regular snapshots of cash flow and reminders to save via SMS | • Links to bank accounts of customers to track cash flow<br>• A customer can, using voice, text or touch:<br>(i) Ask questions about specific expenses, account balance etc.<br>(ii) Make payments<br>(iii) Receive relevant reminders<br>The app replies intelligently via text or speech |
| **Track record** | In the deployment trial, the difference in account balance in the treatment group was 50% more than the control group | To date, users have recorded over 300,000 transactions with this InVenture product | *NA (still very early stage)* |

CGAP

Source: Interviews with experts; CGAP deployment database; Deployment profiles on CrunchBase website; Dalberg analysis

# 4 Some deployments using real-time customer interaction are planning to use / sell data to provide credit to customers

*Example of current inVenture pilot*




InSight tracks individual/ household savings behavior – i.e. amount and consistency of savings

InSight then sells this data and their risk assessment to MFIs and is exploring selling to banks

MFIs use the analyzed data to tailor their products to individuals; banks potentially would further analyze this data to segment customers and make lending decisions

MFIs and banks are able to provide tailored loans to those who might have been earlier ineligible or charged prohibitively high rates

**By creating a financial profile for BoP individuals, InVenture plans to support their entry into the formal financial economy.**

Source: Interview with inVenture; Dalberg analysis

# 4 Some financial service providers are piloting smart ATMs that allow video chats with tellers; helps financial institutions cut transaction costs


**Smart ATMs, largely in the USA, offer customers access to live bank tellers via webcam during extended business hours; 95% of teller services can be delivered from an ATM branch**

| | | | | | |
|---|---|---|---|---|---|
| **Example US-based organizations** | Dollar Bank | PCSB Putnam County Savings Bank | usbank | Bank of America | The Family Credit Union |
| **Stage** | • Pilot begun in 2012 | • Pilot launched in 2014 | • Pilot launched in 2014 | • Pilot launched in 2013 | • Pilot launched in 2014 |

**Lack of infrastructure, higher ATM maintenance needs and low penetration of bank accounts could make rollout of such ATMs difficult in remote areas in developing countries.**

Source: "Banks start to roll out ATMs with human teller video chat option", digitaltrends.com (August 6th, 2013); "Video teller machines: The future of community banking?", atmmarketplace.com (June 26th, 2014); Dalberg analysis

Notes: Adapting the service to serve the BoP would be challenging due to (i) a lack of infrastructure and higher ATM maintenance, diminishing the likelihood of expanding to truly remote areas, (ii) low penetration of bank accounts among the BoP

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# 5 Mobile phone features, such as GPS, cameras and biometric readers, can be used to track location, capture documentation and verify ID

| | Track location | Capture documentation | Verify identity |
|---|---|---|---|
| **How it works** | • **Feature phones:** Cell tower triangulation<br>• **Smart phone:** GPS | • Cell phone camera | • Touch and voice recognition and camera capabilities allow various types of biometrics (finger, voice, face, eye) |
| **Application to financial services** | • Registration for financial services without the need for burdensome documentation<br>• Identification of fraud<br>• Additional data point for credit / insurance decisions[1] | • Remote registration for financial services | • Ensures security<br>• Provision of financial services without the need for burdensome documentation (possible with national biometric database) |

Source: Interviews with deployments; Phone Camera designed by Blaise Sewell from the Noun Project; Location designed by Daniele Marucci from the Noun Project; Surveillance designed by Luis Prado from the Noun Project; Dalberg analysis
Notes: (1) As explored in digital data trail section

# 5 A few early stage deployments have started leveraging these capabilities for fraud prevention and improved KYC processes

| | XYVERIFY | EyeVerify | Linda Jamii | mToolkit |
|---|---|---|---|---|
| **Phone capability used** |  |  |  |  |
| **Year launched** | 2013/2014 | 2014 | 2014 | Not available |
| **Description** | Conducts real-time location authentication during internet / smartphone transactions to prevent fraud | Uses phone camera to image and pattern match the blood vessels in the whites of the eye, to verify identity before providing access to applications | During registration for micro-insurance, agents use feature phone camera to capture documentation and pictures of customers | During registration for bank account, agent uses mobile phone camera to capture documentation, and GPS data to verify location |
| **Region** | USA | USA, Africa | Kenya | India |

Source: Interviews with deployments; CGAP internal documentation; Documentation provided by EyeVerify; XYVerify website; Phone Camera designed by Blaise Sewell from the Noun Project; Location designed by Daniele Marucci from the Noun Project; Surveillance designed by Luis Prado from the Noun Project; Dalberg analysis

# 5 Further proliferation depends on enabling regulation and smartphone proliferation

## Requirements for scale

**The government plays an enabling role**

- **Modified KYC regulations:** Will allow banks/ financial institutions to accept digital forms of verification
- **National biometric ID database (e.g. Unique Identification Authority of India):** Would enable financial service provision (and other services) to all sections of the population

**Security measures are set in place**

- **Privacy**: Checks and balances ensuring customer awareness and permission for personal information
- **Safety**: Necessary infrastructure for safe data storage
- **Redressal**: Effective mechanisms to prevent cumbersome processes if customers lose their phone

**Proliferation of smartphones**

- **Camera**: Smartphones tend to have higher quality cameras, enabling more reliable documentation of certain biometrics (e.g. eye or face), and documentation
- **GPS**: GPS location verification is far more accurate than cell tower triangulation available for feature phones
- **Touch sensitivity and voice recognition:** Smartphone devices can read a larger variety of biometrics than feature phones

CGAP

Source: Interviews with deployments; Dalberg analysis

# 5 In addition to phone-based technology, a few financial institutions are piloting ATMs enabling cardless authentication

| | Biometric palm reader | NFC technology | Facial recognition |
|---|---|---|---|
| |  |  |  |
| **Examples** | CHASE | CITY NATIONAL BANK; WINTRUST; ANZ | Itautec |
| **Features** | • Security verification through biometric palm reader | • Transactions set up on a smartphone<br>• User scans a QR code on the ATM screen using a smartphone<br>• It syncs with the mobile device through the cloud<br>• Unique code sent to the phone by SMS<br>• Customer enters code in ATM to verify | • Security verification through facial recognition<br>• Automatically ends ATM session if customer walk away<br>• Ends the session if another person is too close |
| **Stage** | • Under development | • Piloted by WinTrust and City National Bank in 2013 | • Introduced by Itautec in 2011<br>• Technology is being refined |
| **Region** | • USA | • USA, Australia | • Brazil |

**Cardless, pin-free transactions could be suitable to less literate populations, and enhanced security could help support the transition from cash-based to electronic transactions.**

Source: “Five futuristic ATM features we can’t wait to check out”, Yahoo Finance (2014); “ANZ Bank Has A Contactless Payment App For Android, But You're Not Getting It Just Yet”, Gizmodo (2012); Dalberg analysis

Notes: Diebold discusses other potential biometric authentication for ATM, such as fingerprint scanners and voice recognition, see here; Bank of Baroda in India has launched ATMs with biometric verification in India, more details here

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**Selected profiles**

# 6 Remote sensing technology is currently being used to enable consumer finance and car insurance

**Using embedded mobile technology, assets can be tracked and controlled remotely**

## Consumer finance (Africa, S. Asia)

Energy service providers are embedding mobile GSM technology in solar home systems and other devices to enable consumer finance

The model has started to achieve some scale, for example M-Kopa has sold 100,000 solar home systems

- Customer purchases a solar home system with an embedded mobile GSM chip
- Customer pays for the device over a pro-longed period of time, often in micro-installments through mobile payment channels or agents
- Energy service can switch off solar home system remotely if payments are not completed

## Car insurance (United States)

Car insurance companies are providing onboard diagnostic devices for cars to calibrate insurance premiums based on driver behavior

Progressive Insurance's Snapshot product in the US has 2 million subscribers and accounts for ~15% of Progressive's car insurance revenues

- Customer places device in the onboard diagnostics port in his/her car
- Device tracks braking and accelerating patterns, resulting in overall driving scorecard
- Drivers receive up to a 30% discount on premium, depending on driving patterns

**Research underway to replace device with a smartphone application using accelerometer and GPS capabilities**

CGAP

Source: Interviews with deployments; M-Kopa website; Progressive Snapshot website; Dalberg analysis

# 6 This technology could be leveraged to provide credit and insurance in developing markets, though no live examples identified

| | Credit | Insurance |
|---|---|---|
| **Challenge** | Banks are often unwilling to lend to low income individuals either due to the lack of collateral, or because of seizure of collateral is too costly (e.g. in rural areas) | Insurance providers often use generalized risk proxies (e.g. age, income) which frequently disadvantage low income populations |
| **How remote sensing *could* be used** | Financial institutions could make loans on the basis of their ability to control relevant assets remotely (i.e. turn off products in the event of non-repayment) | Insurance companies could track actual behavioral data to supplement existing data and make more informed decisions on insurance premiums |
| **Illustrative example** | Unrestricted credit is provided to a customer in exchange for remote control of his/her refrigerator or solar lantern | Health premiums is calibrated based on customer use of clean cookstoves or water filtration systems |

*"Using household assets greatly reduces the chance of default, as the borrower has a clear incentive to repay the loan, even past the due date"*

- CEO of energy service provider

*"Insurance providers would need to be convinced that the revenue gained is sufficient to warrant investment in a remote sensing database"*

- CEO of energy service provider

CGAP

Source: Interviews with deployments; Dalberg analysis

# Contents

**The role of mobile in financial inclusion**

**Analysis of the latest innovations in digital finance**

**The future evolution of digital finance**

**Selected profiles**

# Envisioning the future of products beyond payments

- Despite the level of market activity demonstrated, we believe **much more can be done through these six digital attributes** to extend the reach and benefits of financial services

- The following section proposes four illustrative and intentionally provocative **visions for the future of financial inclusion**, in order to:
  - Suggest new ways in which particular digital attributes could be stretched further
  - Demonstrate how digital attributes can work together to support a customer's financial journey
  - Clarify specific enabling conditions required for these visions to be realized

- We also hope these visions **highlight the potential opportunity** and **catalyze even further innovation**

# Using digital attributes to their full potential could transform how the poor access and use financial services

| A few inspirational visions for the future | How digital attributes are used |
|---|---|
| Everybody: | |
| A Can open a bank account without leaving their home | *By leveraging the mobile phone's capabilities for location and identity verification* |
| B Can access a full suite of financial services | *By enabling financial transactions through P2P networks and digital data trails* |
| C Can use financial services that are uniquely tailored to their needs | *By tracking behavioral patterns through remote sensing of assets and digital data trails* |
| D Is empowered to live a full financial life; lack of literacy and trust are no longer barriers | *By developing extremely intuitive interfaces and interacting with customers real-time* |

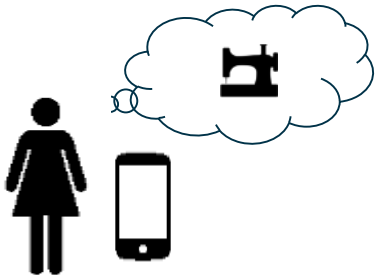
CGAP

Source: Dalberg analysis

# KYC processes can become dramatically simplified using ID verifications on a mobile phone

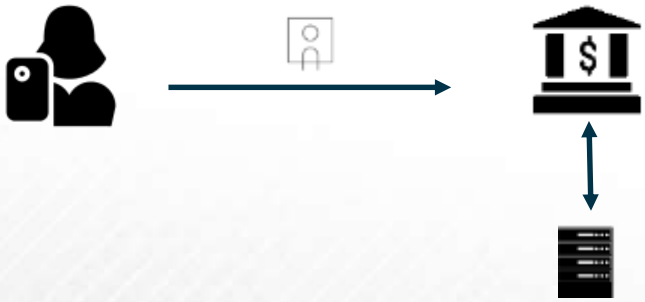
A

Linda is an aspiring seamstress living in a rural area who owns a USD 40 smartphone and does not have a bank account



1

- Linda uses her phone camera to take a picture of her face and send it to the bank
- The bank verifies her identity by accessing the national biometrics database that provides every citizen with a unique identity marker based on the whites of their eyes



2

- As a secondary proof of her identity and to eliminate any possibility for fraud, Linda uses her phone camera to capture her relevant documentation and text it to the bank.
- The bank reviews and approves her registration within a few minutes

**Rather than having to make multiple trips to the nearest bank branch, with the associated expenses and opportunity cost, she can get banked in a matter of days.**

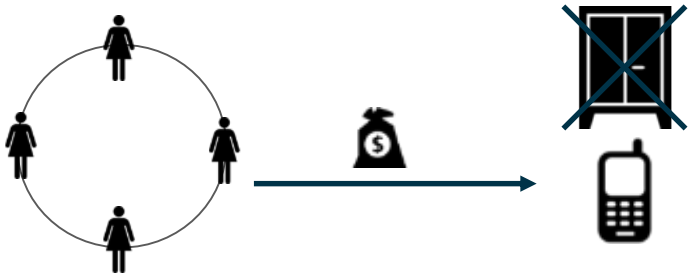
CGAP

Source: Selfie designed by iconsmind.com from the Noun Project; Photo designed by Alex Fuller from the Noun Project; Server designed by Dalpat Prajapati from the Noun Project; Documents designed by Alex Auda Samora from the Noun Project; Identification designed by Stefan Spieler from the Noun Project; Bank designed by iconsmind.com from the Noun Project;

# Increased digitization of social connections will make a variety of financial services more accessible

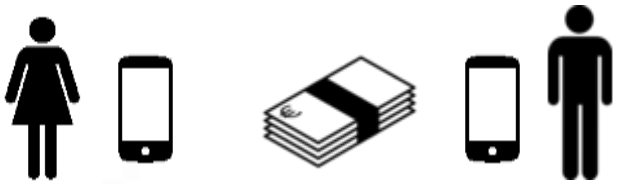
B

1
- Linda has been a regular member of her village savings group
- Rather than storing cash in a group member's personal closet, each member contributes their share through mobile money to a mobile wallet account belonging to the group
- This money earns a monthly interest rate, the proceeds of which are distributed to each group member



2
- When Linda applies for a loan for a sewing machine, her bank can access records of her digitized group savings activities over the last three years from her telecom provider
- It provides her with a loan because she has consistently demonstrated her credit-worthiness through her community activities

3
- The retailer selling the sewing machine only accepts cash
- In the absence of an ATM in her village, Linda uses the banking app on her phone to identify and communicate with someone living a street away also using the same application
- He has cash available, and provides it to her as she transfers the equivalent money to his mobile money account



**Linda is able to earn interest on her savings, cash-out more easily and qualify for and receive credit; she would not have access to these financial services in most countries today.**

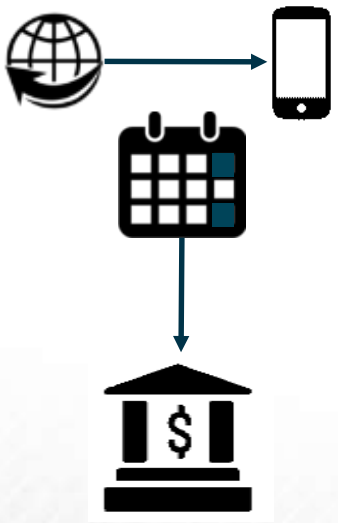
CGAP

Source: Cell phone designed by Marwa Boukarim from the Noun Project; Cupboard by Anjan Srestha from the Noun Project; Cash designed by Tony Michiels from the Noun Project; Bank designed by iconsmind.com from the Noun Project

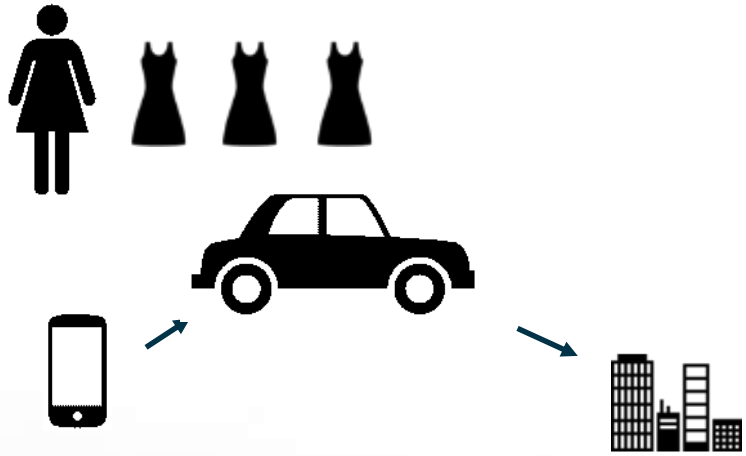
# Tracking behavioral patterns using technology will lead to increased customization of financial services

C

1
- Linda receives remittances in her mobile wallet every two weeks from her brother who lives abroad
- Her bank identifies this pattern from her mobile money account, and designs her loan to include bi-weekly repayments that are a small proportion of the remittance she receives



2
- Linda uses her savings to purchase a second-hand car so that she can drive to the nearest town to sell her wares
- She downloads a car insurance mobile application, which tracks her driving habits and enables a reduced car insurance premium over time
- Without such affordable insurance, she would have not risked putting all her savings into a car



**Such customization is what enables Linda to access more advanced financial services that she otherwise would not be able to access.**

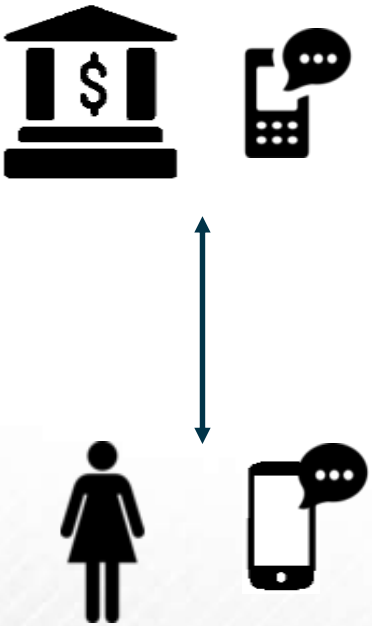
CGAP

Source: Calendar designed by John Caserta from the Noun Project; Sim Card designed by Rohan Gupta from the Noun Project; Dress designed by Desbenoit from the Noun Project; City designed by inna belenkey from the Noun Project; Bank designed by iconsmind.com from the Noun Project; Dalberg analysis

# Real-time interaction and increasing intuitiveness of interfaces will lead to customer empowerment

D

1 • Linda is kept abreast of the financial tools at her disposal through an automated and customized text messaging exchange with her bank



2 • She is able to keep track of her new financial responsibilities, as she receives alerts on her phone about upcoming loan repayments and reductions in her insurance premiums by using an intuitive smartphone app


**Linda develops comfort and trust with financial services, a very different experience compared to that of her parents, who faced chronic financial insecurity due to limited financial options.**

CGAP

Source: Smartphone designed by Lorena Salagre from the Noun Project; Cell phone designed by Marwa Boukarim from the Noun Project; Bank designed by iconsmind.com from the Noun Project; Dalberg analysis

# This vision can be accelerated through four key enablers and investments

**Stakeholder buy-in**

**New business models and partnerships**

**Customer-focused research**

**Changes in regulatory environment**

# Given their vast reach, there is an opportunity for MNOs and financial service providers to increase their involvement in the space

***Below are illustrative ways financial service providers and MNOs could increase internal capacity and better reach customers***

| |  **Financial services providers** |  **Mobile network operators** |
|---|---|---|
| **Internal processes** | • Integrating new types of data into processes, such as virtual documentation, or digitized mobile group savings data | • Increasing flexibility in mobile money products (e.g., allowing group ownership of mobile wallets) |
| **Organizational structure** | • Closely integrating teams responsible for design of financial products and design of user interfaces to provide a seamless customer experience | • Creating independent departments focusing on long-term data strategy that do not report to staff responsible for quarterly voice and data profits |
| **Staff** | • Hiring data analysts with expertise in mobile data | • Hiring staff with specialization in financial services |

CGAP

Source: Interviews with deployments and experts; Radio-tower" icon designed by Pedro Nakazato from the Noun Project; "Mouse" icon designed by Jon Testa from the Noun Project; "Bank" icon designed by iconsmind.com from the Noun Project; Dalberg analysis

# New types of partnerships could enable some of the more aspirational visions

## Non-traditional partnerships between various actors have resulted in innovative products

- Partnerships between financial institutions, MNOs and specialized data analytics firms have provided previously unbanked individuals with credit using mobile money


- Partnerships between Facebook and MNOs have resulted in the provision of social networking services to low income populations


## More such innovation required

For example:

- Banks and insurance companies could partner with consumer product companies and use remote sensing to collateralize loans and customize premiums

- P2P lending platforms could partner with specialized data analytics firms to enable lending to a wider user base

- There could be more instances of mobile device manufacturers actively working with biometrics firms to improve security provisions

- Increased MNO interoperability can support product uptake

CGAP

Source: Interviews with experts; Interviews with deployments; Dalberg analysis

# Deeper understanding of customer perspectives can help further prove the impact and scalability of these products

There are currently gaps in understanding how customers discover, adopt, use and promote the financial services and products we have highlighted in our report. For example:

- How do intuitive interfaces and real-time interaction communication increase customer engagement?
- Which biometric options on mobile phones are customers most likely to adopt?
- In which environments are deployments digitizing informal transactions most likely to succeed?
- To what extent do mobile nano-loan products increase financial engagement?

A customer-centric design process can help increase our understanding by uncovering behaviors, needs and motivations across the financial service and product experience, and translating these insights into a variety of actionable solutions. This can help practitioners better adapt and scale products in local contexts.

## Three ways customer centric design can help fill this evidence gap

### Providers design and develop new product and service innovations

- Product and service prototypes
- Rapid evaluation and refinement cycles
- Hypothesis-testing and piloting

### Field builders contribute to the ecosystem to elevate overall knowledge and practice

- Playbooks of product and service concepts
- Toolkits codifying innovation processes and analytical models
- Agenda-setting through provocations

### Entrepreneurs understand and participate in this design process

- Co-design and conduct participatory sessions with users
- Multi-stakeholder partnerships
- Incubation of new initiatives

CGAP

Source: Interviews with deployments and experts Oct/Nov 2014; Dalberg/DIG analysis

# Regulators have an important role to play in enabling the introduction of new products while simultaneously protecting customer interests

## Examples of relevant regulatory changes needed

### Regulations

- Allowing individuals to earn interest on mobile money savings accounts
- Allowing banks to accept pictures of documentation for KYC purposes and implement tiered KYC processes
- Mandating one unique identity system (as in Kenya)
- Developing a national biometric database (as in India)
- Enabling start-ups to play a role in financial services (even if they cannot hold money)

### Customer protection

- Creating clarity around when explicit customer permission is required for data collection
- Instituting clear guidelines around data ownership
- Developing processes enabling customer redressal in instances of incorrect data collection
- Developing a framework around minimum data management requirements for companies that store customer data
- Transparency around how consumer data is being used
- Safeguarding customer funds

CGAP

Source: Interviews with experts; Interviews with deployments; Dalberg analysis

# Contents

**The need for “products beyond payments”**

**Analysis of the “products beyond payments” landscape**

**The future evolution of "products beyond payments"**

**Selected profiles**

# Selected profiles provide coverage across digital attributes and geography, are representative of sector trends and show emerging metrics of success

| | Deployment | Digital attribute | Countries/ Regions | Year of launch | Rationale for case study | Slides |
|---|---|---|---|---|---|---|
| 1 | M-Pawa | Digital data trail | Tanzania | 2014 | Example of MNO and bank partnership using mobile data for credit | 66-67 |
| 2 | Cignifi | Digital data trail | Africa, Latin America, Asia | 2011 | Premier specialized analytics firms using mobile data for credit | 68-69 |
| 3 | eMoneyPool | P2P social connections | USA, expanding to Latin America | 2013 | Leading deployment digitizing savings money pools | 70-71 |
| 4 | Friendsurance | P2P social connections | Germany | 2010 | Leading deployment digitizing social insurance | 72-73 |
| 5 | Ferocia | Smart and rich UI | Australia | 2014 | Developed highly intuitive interface leading to enhanced financial management | 74-76 |
| 6 | Juntos Finanzas | Real time customer interaction | Colombia, launching in East Africa | 2011 | Use feature phones for two-way, customized, real-time interaction to influence customer's behavior | 77-78 |
| 7 | EyeVerify | Instant verification | USA, launching in Nigeria, exploring China | 2014 | Increases security of financial transactions through innovative eye verification technology | 79-80 |

# Digital data trails: M-PAWA (1/2)

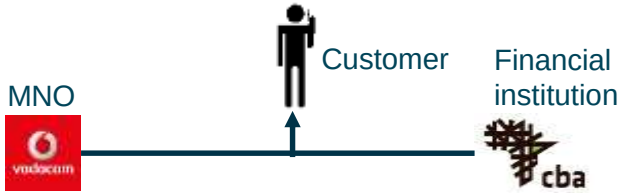
## Overview of the model

- **Year launched:** 2014
- **Geographic focus:** Tanzania
- **Financial need met:** Borrowing
- **Device required:** Feature phone

*M-Pawa is a credit and savings product provided through a partnership between Vodacom and Commercial Bank of Africa.*

*It allows Vodacom subscribers that meet a certain set of criteria to receive loans between ~USD 1 and ~USD 300 for a period of 30 days using mobile money*

## Business model and operations




- Serves as the initial source of data
- Provides the distribution channel for credit provision
- Conducts data analytics to make credit decisions
- Undertakes risk to provide credit from their balance sheet

**Data used to inform credit decisions**

- Key data points used include level and frequency of mobile money transactions and loan repayment for repeat users
- Call data and demographics do not play as important a role

## Customer value proposition

**Target customer segment**

Customers that
- Have used M-Pesa for 6 months
- Have transacted on average TZS 2,000 per month using M-Pesa

**Customer need addressed**

- Short-term liquidity challenges accompanied by the lack of a track record in formal financial services

**Positioning relative to competitors**

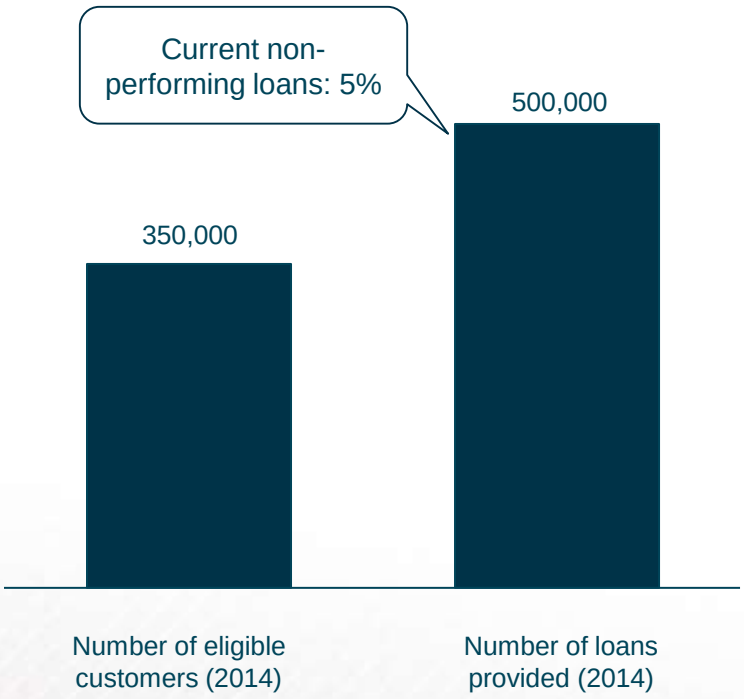
- Provides smaller loans (avg. USD 6) for shorter duration (30 days) compared to competitors like Airtel
- Charges a one-time 9% fee, unlike monthly interest rates charged by some competitors

CGAP

Source: Interviews with representatives of Vodacom and CBA; Dalberg analysis

# Digital data trails: M-PAWA (2/2)

## Emerging metrics of success




## Key challenges

**Absence of unique Tanzanian national ID**

- Currently, customers can sign-up for multiple mobile subscriptions using different IDs
- This leads to moral hazard when it comes to defaulting on loans

**Lack of internal CBA capacity to conduct advanced mobile data analytics**

- CBA is still developing internal capacity to draw relationships between data points coming from Vodacom's database and customer's repayment potential

## Looking forward

**Potential future applications of credit platform:**

- Linking credit to specific consumer products (e.g. solar home systems)
- Creating group accounts to digitize the traditional ROSCA system

"The sky is the limit – we have the platform, we need to consolidate and then we can build on it by providing additional products needed by customers."

– CBA official

Source: Interviews with representatives of Vodacom and CBA; Dalberg analysis

# Digital data trails: Cignifi (1/2)

## Overview of the model

- **Year launched:** 2011
- **Geographic focus:** Latin America, Africa, Asia
- **Financial need met:** Borrowing and saving
- **Device required:** Feature phone

*Cignifi is a behavior-based consumer data and analytics company. It aims to create a bridge between mobile phone customers and the market of financial service providers, by using mobile phone data to assess customer risk.*

*Past engagements have included working with a credit card company in Brazil, telecom providers in Mexico and Ghana, and an airtime financing company in Philippines*

## Business model


Cignifi helps clients achieve two primary objectives:

- **Underwrite thin/no file borrowers,** by focusing on those with acceptable default risk and introducing tiered products
- **Reduce customer acquisition cost,** by enabling lenders to measure the probability that a consumer will acquire and utilize a specific product, improving acceptance and activation rates

**Revenue model**

- **Credit scoring**: Cignifi provides a price per score that is tiered by volume
- **Lead generation:** Cignifi prices by product and applies a CPA/success based fee

## Customer value proposition

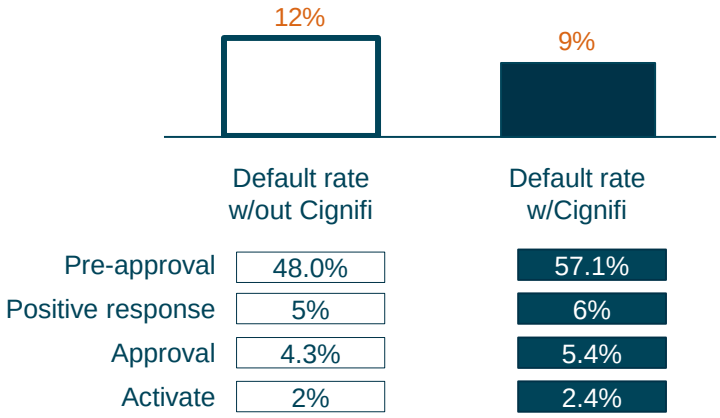
| | |
|---|---|
| **Target customer segment** | • Unbanked and under-banked mobile subscribers in developing markets |
| **Customer need addressed** | • Short-term and long-term liquidity challenges accompanied by the lack of a track record in formal financial services |
| **Positioning relative to competitors** | • Cignifi's key differentiation is an integrated big data platform and proprietary analytics engine specialized for the analysis of mobile usage data |

Source: Interview with Cignifi; Cignifi White Paper – Building the Bridge to New Customers in Brazil; Cignifi internal documentation; Dalberg analysis

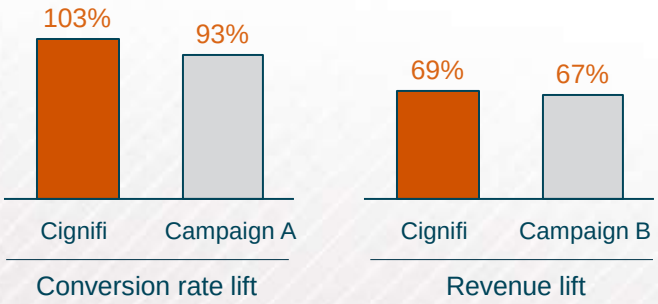
# Digital data trails: Cignifi (2/2)

## Emerging metrics of success

### Credit under-writing[1]




### Lead generation[2]




## Key challenges

### Variation in privacy and data security rules

- Privacy and data security rules vary for different MNOs, for different countries and is normally an initial barrier that needs to be addressed by all parties.

### Long and complex selling cycle

- Due to the nature of working with large, regulated organizations like MNOs and financial institutions

## Looking forward

### Integrating additional data sources beyond mobile

- Given the increasing penetration of smartphones in developing markets, Cignifi is working toward integrating social media and other data that is created through web-enabled devices into its predictive models

### Serving clients in the insurance space

- Cignifi's predictive analytics for customer identification are equally relevant in the growing micro-insurance space as they are in the credit provision space

Source: Interview with Cignifi; Cignifi White Paper – Building the Bridge to New Customers in Brazil; Dalberg analysis

Notes: (1) From Cignifi's pilot with Oi Telecom in Brazil to assess customer risk for its Oi Paggo credit 'card' product); (2) From Cignifi's pilot with Telecom partner in Mexico to identify customers to convert from prepaid plans to postpaid accounts

# P2P social connections: eMoneyPool (1/2)

eMoneyPool

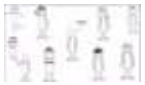
## Overview of the model

- **Year launched:** 2013
- **Geographic focus:** USA
- **Financial need met:** Informal savings and credit
- **Device required:** Web-enabled device

*eMoney Pool is a group savings product that formalizes the Rotating Savings and Credit Association (ROSCA) model.*

*It makes managing the ROSCA more convenient, and connects financially disciplined customers to lending partners to access formal credit.*

## Business model and operations

1. 
   - Individual has a savings goal but does not have upfront cash to make purchase
2. 
   - Individual creates and joins 5-10 member groups using their own contacts
3. 
   - Individuals contribute a fixed sum of money regularly (e.g. USD 100 / month) over a set time period + 3%-6% service fee
4. 
   - Members of the circle receive the whole pot on a rotating basis, until everyone gets a payout

## Customer value proposition

**Target customer segment**

- Minority populations aged 24-44 living on pay check to pay check, with annual income under USD 60k
- Users of informal savings circles

**Customer need addressed**

- Improves the functioning of informal savings pools:
  - Extends geographic reach of pool
  - Ensures timely payments by members

**Positioning relative to competitors**

- Informal, non-digitized savings pools are their largest competitors
- Only provider that links individuals to formal service providers based on performance history

CGAP

Source: Interview with eMoneyPool; eMoney Pool website; "Accion Venture Lab Invests in eMoneyPool", Accion.org (March 4th, 2014); Dalberg analysis

# P2P social connections: eMoneyPool (2/2)

## Emerging metrics of success

99%

**Repayment rate**
almost identical to non-digitized informal savings pools (99.2%)

USD 760,000

**Volume of funds** transacted over platform since November 2012

## Key challenges

### Customer acquisition
- eMoneyPool relies on marketing through existing users spreading the word. As brand awareness increases they will transition to traditional marketing

### Developing trust in the business model
- Like traditional ROSCAs, there is difficulty in establishing trust between the members and the members and provider

## Looking forward

### Growing customer base
- Recently launched a referral program that provides monetary incentives for existing users who successfully bring new users to the platform
- They are optimistic about the shared economy market trend helping establish trust in the platform and attract new users

### Accelerating uptake of lending partners
- Improving the rate of acquisition of these partners till they have one lender partner in every major metropolitan city in the USA

### Geographic expansion to Latin America
- Targeting 2015 Q4 to enter into high potential markets in Latin America

Source: Interview with eMoneyPool; eMoney Pool website; "Accion Venture Lab Invests in eMoneyPool", Accion.org (March 4th, 2014); Dalberg analysis

# P2P social connections: Friendsurance (1/2)

## Overview of the model

- **Year launched:** 2010
- **Geographic focus:** Germany
- **Financial need met:** Insurance
- **Device required:** Web-enabled device

*Friendsurance facilitates the provision of affordable insurance to individuals in a group*

*It creates "social" insurance by having individuals, not insurance companies, cover smaller claims*

## Business model and operations


Insurance pool

Insurance providers

- Friendsurance helps individuals choose suitable insurance policies from a range of providers
- Individuals form insurance pools with friends and/or family on their own, or based on suggestions by friendsurance; members can leave or join groups
- A large premium pool is formed by each member co-paying a small premium amount
- If claims are less than pooled premiums: small claims paid through the pool; the remaining pool funds are paid back at year end
- If claims are greater than pooled premiums: the insurance company covers the claims

## Customer value proposition

**Target customer segment**

- University students
- Individuals entering their first job (aged 25-30)
- Middle-aged individuals (aged 40-50)

**Customer need addressed**

- Affordable insurance
- Better customized insurance product

**Positioning relative to competitors**

- Similar models have emerged in the UK (HeyGuevera) and France (InspeerMe), but friendsurance is seen to be the leader in the space

Source: Interview with Friendsurance; "Home insurance" designed by Matt Scribner from the Noun Project; "People" designed by Wilson Joseph from the Noun Project; Dalberg analysis

# P2P social connections: Friendsurance (2/2)

## Emerging metrics of success

*Founders believe that it is too early stage to discuss metrics of success; most data is confidential; however, there are a few promising trends:*

**1) 25% growth customer base per month since 2011**

**2) Significantly lower claims ratio than the average customer in Germany**

## Key challenges

### Model still being proven

- Friendsurance was the first P2P insurance company, and the viability and scalability of the model is still to be proven, especially outside Germany

### Degree of associated behavior change still to be determined

- Currently testing model to determine degree of behavior change caused by the pooling feature; this could determine success in other markets

## Looking forward

### Geographic expansion

- Currently evaluating potential to expand to certain developing country markets
- Set to launch in Australia in 2015

### Strategic analysis of data

- Building historical data to help predict customer trends, and refine the business model

"Currently, our primary goal is not earning money; we have investors on board and want to grow as quickly as possible"
– Friendsurance official

Source: Interview with Friendsurance; Dalberg analysis

# Smart and rich user interface: Ferocia (1/3)

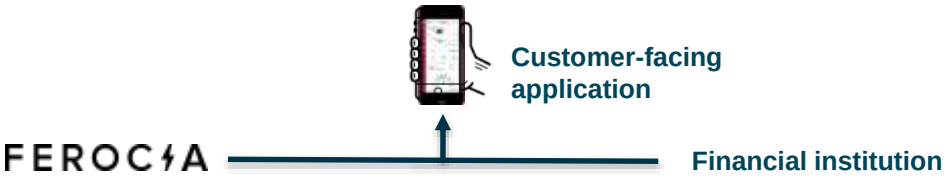
FEROCIA

## Overview of the model

- **Year launched:** 2014[1]
- **Geographic focus:** Australia
- **Financial need met:** Banking and financial management
- **Device required:** Web-enabled device

*Ferocia is a software company that has created a personalized banking and financial management platform for financial institution clients. Through the provision of user-friendly information and interaction, Ferocia makes the use of financial services more intuitive for customers.*
*Ferocia currently works with Bendigo and Adelaide Banking Group, the fifth largest retail bank in Australia.*

## Business model and application features




Ferocia delivers a personalized banking and financial management platform through licensing to financial institutions.

### Some of the features available to customers today

- Timeline including all expenditure and income from all accounts and non-financial activities
- Automated identification of merchants
- Financial insights, with interactive charts for each account type
- Organization of financial obligations, with prompts for scheduled payments and transfers
- Billers and payee information in one place, with payment history for each contact

## Customer value proposition

**Target customer segment**

- Anyone using financial services

**Customer need addressed**

- Immediate access to broad range of financial services
- Intuitive understanding of full financial picture, updated in real-time

**Positioning relative to similar players**

- Features offered by Ferocia are most similar to those offered by Simple's user interface
- However, Ferocia offers a full service banking platform, unlike other financial disruptors focused on single products such as Moven and Simple

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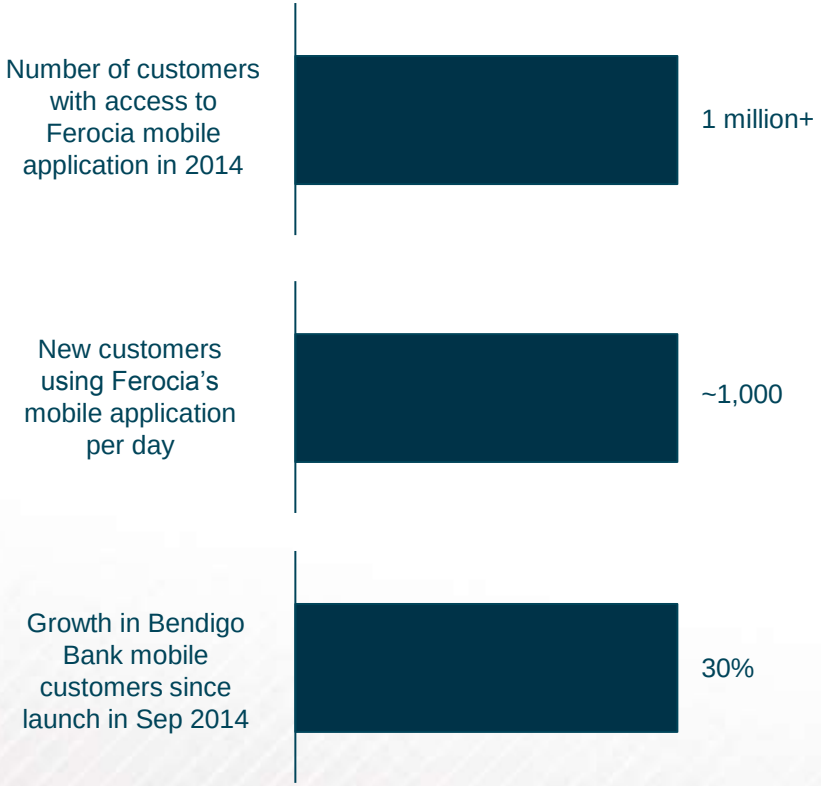
Note: (1) Although Ferocia as a company was launched earlier, the mobile phone application with Bendigo Bank launched in 2014
Source: Interview with Ferocia; Ferocia website; Dalberg analysis

# Smart and rich user interface: Ferocia (2/3)

FEROCIA

## Emerging metrics of success




## Key challenges

- Accelerating innovation at large financial institutions
- Integration of new technologies into established enterprise environments
- Data model remediation in established core banking systems
- Compliance with information security, privacy, accessibility and other financial services regulation

## Looking forward

**Customer insights through value-added data analytics**

- With access to significant amounts of data, Ferocia and their banking partners could conduct data analytics that could be useful for providing cross-selling of financial products to financial institution clients, or market research by retailers and other vendors

**Expanding client base**

- Continued improvement and focus on their intuitive customer experience means Ferocia could reach many more banking customers through partnerships with other banks both in Australia and abroad

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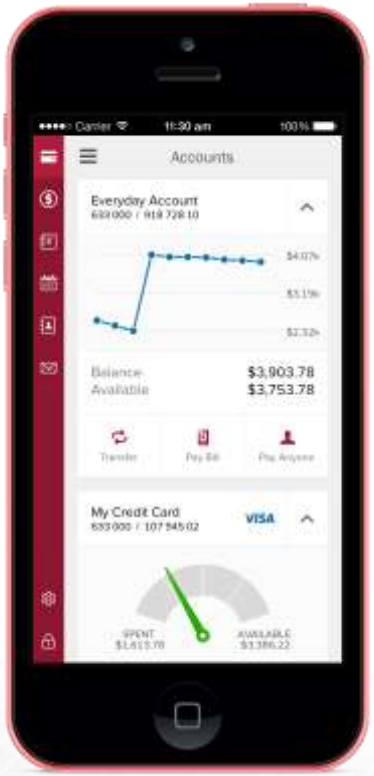
Source: Interview with Ferocia; Ferocia website; Dalberg analysis

# **Smart and rich user interface:** Ferocia (3/3)

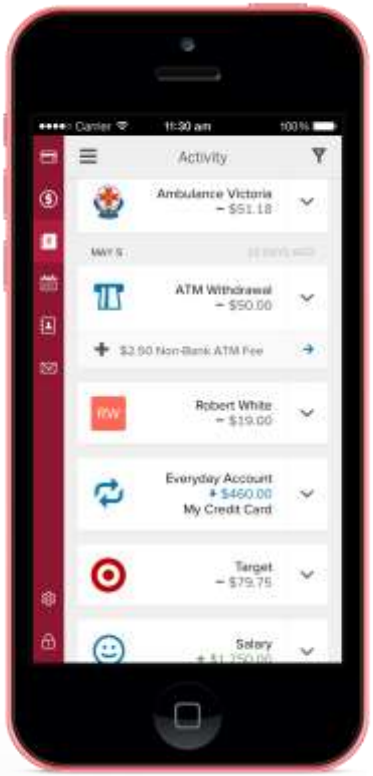
FEROCIA

### Full Financial Picture




Customized for a range of account types, Ferocia's animated visualizations provide customers with at-a-glance insight into the recent activity and current position of their accounts, without needing to navigate complex menus

### Activity




Ferocia's Activity Feed presents a simple, readable overview of a customer's banking activity in a single place – it provides simplicity by reducing transfers between accounts into a single entry and intuitiveness by visualizing icons of logos and trading names provided by supported merchants

### Payments


Making payments is made hassle-free and intuitive. Most frequently-used payees are highlighted automatically. Payment history with each payee is provided contextually. Payments can be initiated from either the Move Money landing page, or contextually throughout the app.

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Source: Ferocia website; Apple Store

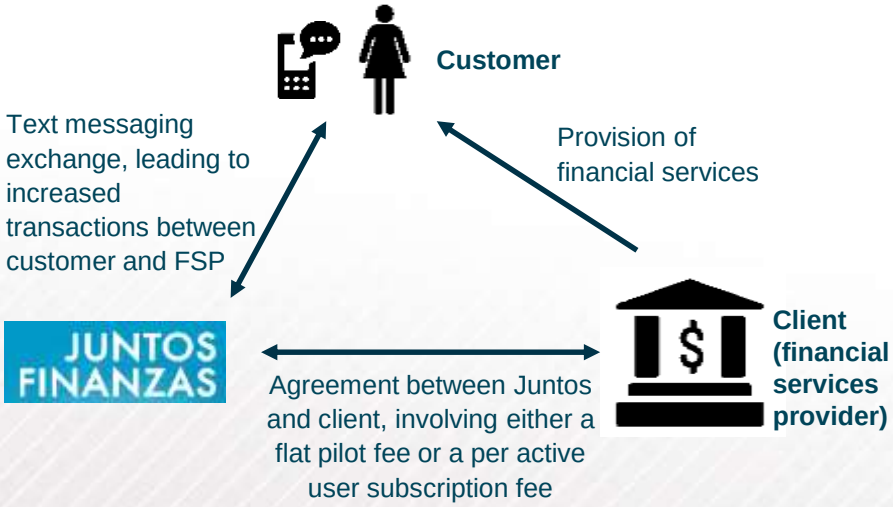
# Real-time customer interaction: Juntos Finanzas (1/2)

## Overview of the model

- **Year launched:** 2011
- **Geographic focus:** Latin America and Africa
- **Financial need met:** Expense management, saving
- **Device required:** Feature phone

*Juntos Finanzas provides a personalized and automated two way triggered text messaging platform for customers of financial service providers that helps them feel financial confidence and control.*
*Juntos has worked with financial institutions in the US, Colombia, and Mexico, and is in talks to launch engagements in East Africa and Mexico.*

## Business model and operations




## Customer value proposition

| | |
|---|---|
| **Target customer segment** | • Underbanked individuals with low levels of prior exposure to financial services |
| **Customer need addressed** | • Helps customers better understand and engage with financial services through two way, personalized automated text messages |
| **Positioning relative to competitors** | • No competition at present; only deployment of its kind |

Source: Interview with Juntos Finanzas; Juntos Finanzas website; "Juntos Finanzas Announced as Winner of The Second Annual Core Underbanked Innovators Challenge", Reuters (June 15th, 2012) Cell phone designed by Marwa Boukarim from the Noun Project; Bank designed by iconsmind.com from the Noun Project; Dalberg analysis

# Real-time customer interaction: Juntos Finanzas (2/2)

## Emerging metrics of success

*From Juntos' pilot with a bank in Colombia*

50%

**Difference in account balance between treatment and control group**

33%

**Difference in active client rate between treatment and control group**

## Key challenges

**Overcoming institutional conservatism among financial service providers**

- The texting platform provided by Juntos is unconventional, and requires investment on the part of the financial service provider. High degrees of risk aversion among FSPs often make it difficult for Juntos to finalize deals

**Inefficient procurement processes among potential clients**

- Legal hurdles and bureaucratic decision-making processes among potential client organizations delay deals and slow growth

## Looking forward

**Continued growth, focusing on Latin America and Sub-Saharan Africa**

- Juntos plans on expanding in multiple regions to mitigate risk and develop a track record in different conditions

**Involvement in credit sphere**

- Juntos is currently in conversations with financial service providers on how it can enhance their credit provision

Source: Interview with Juntos Finanzas; Juntos Finanzas website; "Juntos Finanzas Announced as Winner of The Second Annual Core Underbanked Innovators Challenge", Reuters (June 15th, 2012); Dalberg analysis

# Instant verification: EyeVerify (1/2)

## Overview of the model

- **Year launched:** 2012
- **Geographic focus:** USA, China, Europe, Australia, Nigeria
- **Financial need met:** Secure transactions
- **Device required:** Mobile phone with camera

*EyeVerify is a technology firm that has developed a mobile authentication software using eye vein biometrics*

*The software enables quick password/ pin-free authentication for accessing apps with confidential data and mobile payments*

## How it works

- **The customer takes a selfie**
- **The eye print is verified**
  This works through image and pattern matching the blood vessels in the whites of the eye

- **The customer gains access to the data**
- **For more information, see company video**

**Note**: The technology does not require internet connectivity and is compatible with phones with 1 megapixel or better cameras

## Customer value proposition

**Target customer segment**

- Large financial service companies, such as banks
- Mobile Payment Networks
- Healthcare institutions

**Customer need addressed**

- Eliminates security risks of hackers who target customer/ employee accounts by discovering their password/ PIN

**Positioning relative to competitors**

- Claims to be more accurate, reliable and robust than “software based” mobile authentication techniques; and comparable to iris and fingerprint
- Easily compatible: does not require the extra hardware that iris and fingerprint scanners do

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Source: Interview with EyeVerify; EyeVerify website; Dalberg analysis

# **Instant verification:** EyeVerify (2/2)

## Emerging metrics of success

*The company is still in a very early stage of operation; however, there are certain indicators of future success.*

**3+**

- Secure smartphone OEM contracts with manufacturers to ship millions of devices in 2015
- Use cases include phone unlock and mobile payments

**10+**

- Banks and financial services with which EyeVerify has deployed its product
- Use cases include mobile banking, mobile payments and BYOD

**99.99%**

- Software accuracy target

**1 second**

- Software execution target

## Key challenges

**Remaining technologically relevant**

- Many new technologies for authentication are emerging (E.g. body odor, gestures, gait) and old technologies are being improved on
- EyeVerify will need to continue R&D and business development to stay ahead of the curve

## Looking forward

**Potential future applications for financial inclusion**

- Securing financial transaction over mobile, such as payments, receiving and providing credit

This will require higher smartphone penetration and large scale adoption by companies and institutions;

*"In emerging markets, there is a tremendous level of smartphone penetration, and it is increasing dramatically. We see a lot of potential there."*

– EyeVerify official

CGAP

Source: Interview with EyeVerify; EyeVerify website; Dalberg analysis

# ANNEX

# **Interview tracker** – 19 interviews were conducted with experts in the space

| # | Name | Affiliation | Title |
|---|---|---|---|
| 1 | Adam Sorensen | Bill & Melinda Gates Foundation | Program Officer, Innovative Finance |
| 2 | Arjuna Costa | Omidyar Network | Investment Partner |
| 3 | Arunjay Katakam<br>Chris Williamson | GSMA | Market Intelligence Analyst, Mobile Money Programme<br>Senior Commercial Manager, GSMA Mobile Money Programme |
| 4 | Ash Kirvan | Polymath Ventures | Partner |
| 5 | Camilo Tellez Merchan | CGAP | Financial Sector Specialist |
| 6 | Diego Penuela | Connect Bogota | Entrepreneurship Project Coordinator |
| 7 | Ignacio Mas | Said Business School | Senior Research Fellow |
| 8 | Jacob Winiecki | CGAP | Consultant |
| 9 | Jim Bruene | Finovate | Co-founder |
| 10 | Kay McGowan | USAID Digital Development | Mobile Money Director |
| 11 | Marcia Parada | Credit Suisse, previously IFC | VP - Group Finance, Analytics and Strategy |
| 12 | Mark Straub | Khosla Impact | Venture Assistant |
| 13 | Mark Wensley | MasterCard Foundation | Program Manager |
| 14 | Michel Hanouch | CGAP | Financial Sector Specialist |
| 15 | Nathan Gonzales | PayPal | Senior Solutions Manager |
| 16 | Paul Breloff | Accion Venture Lab | Managing Director |
| 17 | Peter Wrede | World Bank | Senior Insurance Specialist |
| 18 | Richard Zulu | Outbox | Founder |
| 19 | Peter Graves<br>Saul Wolf | WOCCU | Donor Relations<br>Remittances Manager |

# **Interview tracker** – 34 interviews were conducted with deployments (1/2)

| # | Organization | Name | Title |
|---|---|---|---|
| 1 | AFB | Johan Bosini | Managing Director |
| 2 | Afluenta | Alejandro Cosentino | Founder |
| 3 | Akengo | Craig Heintzman | Founder |
| 4 | Bima | Mathilda Strom | Deputy CEO / Head of Business Development |
| 5 | Changamka | Zack Oloo | Director |
| 6 | Cignifi | Jojo Malolos | CEO/ Managing Director |
| 7 | Commercial Bank of Africa (CBA) | Eric Luyangi | New Business Ventures Lead |
| 8 | Demyst Data | Mark Hookey | Founder |
| 9 | EcoCash Loans | Natalie Jabangwe-Morris | Head of Business and Market Development |
| 10 | eMoneyPool | Francisco Cervera | Founder |
| 11 | Experian MicroAnalytics | Elio Vitucci | CEO |
| 12 | EyeVerify | Kevin Schulte | Sales and Marketing Coordinator |
| 13 | Faircent India | Rajat Gandhi | Founder |
| 14 | Ferocia | Dominic Pym | Co-founder |
| 15 | First Access | Nicole Stubbs | CEO |
| 16 | Friendsurance | Sebastian Herfurth | Co-founder |
| 17 | Go Finance | Geoffrey Ndosi | Co-founder |

# **Interview tracker** – 34 interviews were conducted with deployments (2/2)

| # | Organization | Name | Title |
|---|---|---|---|
| 18 | I-lend | Niti Gupta<br>Vaddadi Shankar | Co-founder<br>Co-founder |
| 19 | InVenture | Sonali Mehta-Rao | India Director |
| 20 | Juntos Finanzas | Katie Nienow | Co-founder |
| 21 | KivaZip | Jonny Price | Senior Director |
| 22 | Kopo Kopo Grow | Ben Lyon | VP of Business Development |
| 23 | Lenddo | Diego Huerta | Head of Latin America |
| 24 | mChanga | David Mark<br>Kyai Mullei | CTO<br>CEO |
| 25 | Nirvoy Life Insurance | Rashed Hossain | Country Manager, Bangladesh |
| 26 | M-Pawa | Jacques Voogt | HOD: Financial services (Vodacom) |
| 27 | Persistent Energy | Hugh Whalan | CEO |
| 28 | Progressive Snapshot Insurance | David Pratt | General Manager |
| 29 | Puddle | Matt Flannery | Co-founder |
| 30 | Revoution Credit | Haydee Moreno | Head of Product |
| 31 | Simple | Joshua Reich | Co-founder |
| 32 | Social Money – Goal Saver | Scott McCormack | President |
| 33 | Tiaxa | Aiaze Mitha | Chief MFS Officer |
| 34 | Zidisha | Julia Kurnia | Founder |