MERCHANT DATA AND LENDING

ITU-T FOCUS GROUP ON DIGITAL FINANCIAL SERVICES

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Merchant Data and Lending: Can Digital Transaction History Help Jumpstart Merchant Acceptance?

Focus Group Technical Report

FOREWORD

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The procedures for establishment of focus groups are defined in Recommendation ITU-T A.7. TSAG set up the ITU-T Focus Group Digital Financial Services (FG DFSs) at its meeting in June 2014. TSAG is the parent group of FG DFS.

Deliverables of focus groups can take the form of technical reports, specifications, etc., and aim to provide material for consideration by the parent group in its standardization activities. Deliverables of focus groups are not ITU-T Recommendations.

Merchant Data and Lending: Can Digital Transaction History Help Jumpstart Merchant Acceptance?

About this Report

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CONTENTS

Page

List of Figures

List of Tables

Page

1 Introduction

It is widely agreed that digital liquidity is an important goal for developing markets. Digital liquidity enables the Bottom of the Pyramid (BoP) to receive, retain, and pay with e-money, which provides safety, greater access to credit (and ease of access to related information), income growth, and other documented benefits. This paper explores the hypothesis that BoP merchants may be more prone to accept e-money transactions, and thus help the e-money system achieve "digital liquidity" if doing so would make credit more available/accessible.

The approach employed to inform and test this hypothesis focused on studying the global use of "alternative credit underwriting" methodologies that often leverage one or more of the following factors:

- Mobile device characteristics (make/model, OS installed, etc.)
- Mobile usage data (e.g., data/voice usage, top up behaviour, etc.)
- E-money transactions made and received
- Social media profiles and network activity
- Big data.

This paper specifically explores whether data generated by BoP businesses accepting e-money can be helpful in achieving digital liquidity, which may in turn provide additional incentive for BoP merchants to accept digital payments.

This report is divided into three sections:

- Survey of in-market alternative credit data[1] (ACD) programs to demonstrate diverse approaches and successes of using e-money activity and other alternative credit data.
- Analysis to identify common and best practices, lessons learned, feasibility, as well as impact on BoP e-money acceptance.
- Recommendations on how to further assess these opportunities and how to move forward.

As noted, programs like these, if effective and scalable, could encourage more micro and small businesses to accept e-money payments from their customers with the expectation that it could help these businesses obtain small loans to grow and sustain their businesses.

1.1 Situation

Micro, small, and medium-sized merchants (MSMEs) form the backbone of developing economies.[2] In much of the developing world, however, growth of MSMEs are stifled by lack of access to capital. It is estimated that 50-60 per cent of small businesses around the world are underserved by traditional banks and do not have access to credit.[3] Nearly 70 per cent of the estimated 445 million formal and informal MSMEs in the developing world do not use financing from financial institutions.[4]

1 MOST NOTABLY, ACD DOES NOT RELY ON TRADITIONAL CREDIT BUREAUS OR BANK ACCOUNT DATA
2 THE WORLD BANK ESTIMATES THAT MICRO-BUSINESSES AND SMES ACCOUNT FOR AN AVERAGE 47.2 PER CENT AND 15.6 PER CENT OF GDP, RESPECTIVELY, IN LOW INCOME COUNTRIES
3 MSME DATABASE, IFC/WORLD BANK, 2011
4 "TWO TRILLION AND COUNTING", IFC AND MCKINSEY & COMPANY, OCTOBER 2010

Many MSMEs are unbanked, have no collateral, and do not have the requisite credit histories or audited financial statements that traditional lenders use to assess credit risk[5]. Accordingly, it is not surprising that in most emerging and frontier markets, fewer than 1 in 5 MSMEs have access to mainstream and affordable credit.[6] These businesses are sometimes referred to as "credit invisibles". For example, there are an estimated 30 million MSMEs in India, with only 1.6 million of these having received loans from financial institutions. The remainder have little to no access to formal financing.[7]

Often, these businesses are started with few resources, and their earnings keep the business, their owners, and families, afloat on a day-to-day basis. These BoP businesses typically serve the poor and their owners are usually poor as well.

In many emerging markets, traditional banking institutions have branches in highly populated areas but few-to-none in rural and poor areas, leaving businesses in more remote or poor areas without traditional brick and mortar banking services.

Without history, collateral, or even reasonable access, these businesses have little hope of borrowing funds to grow their businesses or manage cash flow during demand spikes or to sustain them during down cycles. Without access to traditional credit, these businesses often turn to alternatives such as borrowing from friends and family, payday lenders, and shylocks. These alternatives are not universally available, are risky, and are more expensive than traditional lending. Access to finance in emerging markets is believed to be one of the top three obstacles to growth in all emerging markets (except for the Middle East).[8]

1.2 Emerging model

There may be hope for MSMEs in emerging alternatives. While many of these MSMEs do not have traditional credit histories, they are not completely off the digital grid. Most of these merchants possess feature or smart phones capable of transacting on digital payment networks and may already do so for their business or as consumers.[9]

Research ICT Africa surveys revealed that more than 83 per cent of business operators owned a phone.[10] A 2015 Pew Research Center report shows similar penetration of mobile phones and fast growth of smart phone ownership, with 34 per cent of South Africans, 27 per cent of Nigerians and 15 per cent of Kenyans already owning a smartphone.[11]

Data residing on mobile phones, as well as phone use data made available through mobile network operators (MNOs) can yield telling information about their owners' identity, financial health, habits, relationships, and even their personality, all of which are beginning to help traditional and non-traditional lenders assess creditworthiness.

More and more, small business staff are using phones to conduct commerce through mobile payment and person to person (P2P) schemes, such as M-Pesa and Airtel Money. Still others participate in e-commerce marketplaces, such as Flipkart and Snapdeal. These platforms carry with

5 IN SOME REGIONS, SUCH AS THE PHILIPPINES, THERE ARE NO CENTRALIZED CREDIT BUREAUS. IN OTHERS, VERY FEW PEOPLE HAVE CREDIT HISTORIES. FOR EXAMPLE, IN INDIA, ONLY 25 PER CENT OF THE POPULATION HAS A CREDIT HISTORY. SOURCE: LENDDO

6 SOURCE: PERC

7 "WITH $10M IN NEW FUNDING, LENDINGKART HELPS SMALL BUSINESSES IN INDIA GET LOANS", TECHCRUNCH, JULY 2015

8 IFC/WORLD BANK ENTERPRISE SURVEY 2006–10 AND WORLD BANK GDP 2008–10

9 WITH A DIGITAL OR MOBILE-CENTRIC MODEL, A BUSINESS' REMOTENESS MAY NO LONGER BE AN IMPEDIMENT, SO LONG AS THE BUSINESS PHONE CAN CONNECT TO A CELLULAR OR WIFI NETWORK. BUSINESS OWNERS CAN APPLY ANY DAY OF THE WEEK, DAY OR NIGHT, WITHOUT HAVING TO VISIT A PHYSICAL LOCATION.

10 "TOWARDS EVIDENCE-BASED ICT POLICY AND REGULATION", RESEARCH ICT AFRICA, 2008

11 SPRING 2014 GLOBAL ATTITUDES SURVEY, PEW RESEARCH CENTER, 2015

them rich data that show, for example, a business' sales over time. For digital-centric companies, e-commerce marketplace data can also be used.

Smartphone penetration, which will continue to grow,[12] provides additional data opportunities. Through smart phones, ACD programs can collect web browser, mobile app usage, and other activity. Smartphone usage is also contributing to significant increases in social network usage. There are a myriad of both emerging and established global and regional social network platforms, and while adoption is not saturated, usage is growing quickly in emerging markets. Social network data can be used to help traditional and non-traditional lenders validate identity and an increasing number of lenders are relying upon social data for identity verification as well as social "cred", graphing lending applicants by the education, employment, and credit history of their peers.[13]

Table 1: Global social network use and growth by region

Region	Active social network users (% of population)[14]	Growth (YOY)
Africa	11%	25%
Americas	51%	6%
Asia-Pacific	29%	14%
Europe	47%	3%
Middle East	26%	13%

Multiple studies have shown that when no other traditional credit information was available, use of ACD, such as utility and telecom payments, were found predictive of either future delinquency on traditional credit accounts, or of future derogatory public records.[15]

The benefits of leveraging ACD can be profound. Businesses previously locked out because they had no traditional credit history may gain immediate access to lending by sharing their existing digital footprint. A digital lending solution (application, risk assessment, identity verification, disbursement, and servicing) can help lenders serve a wider audience as it is unconstrained by geographic boundaries and has lower costs associated with it than brick and mortar operations, which means it can extend loans, even extremely small loans (common and highly-valued), at lower cost.

The use of this data can be used to reduce or eliminate the need for customer-entered applications and to verify identity. This reduces the need for documentation and manual review, saves customers time, reduces data-entry errors, and reduces application abandonment. Some believe that the use of this data can be useful in traditional lending as well, as traditional credit scores are increasingly seen as a lagging indicator of financial health.[16]

12 "THE NUMBER OF SMARTPHONES IN KENYA IS SMALL TODAY, BUT IT IS DOUBLING EVERY YEAR. ALL THE BEST INDICATIONS SAY IN 2017 MOST KENYANS WILL HAVE SMARTPHONES." – MATT FLANNERY, CEO BRANCH, "KIVA FOUNDER DISCUSSES HIS NEW FOR-PROFIT MOBILE LENDING BUSINESS", HOW WE MADE IT IN AFRICA, DECEMBER 2015
13 "THE IMPACT OF SOCIAL CONNECTIONS ON CREDIT SCORING", WEI, YILDRIM, ETC., APRIL 2014
14 SMART INSIGHTS, JANUARY 2016
15 "PREDICTING FINANCIAL ACCOUNT DELINQUENCIES WITH UTILITY AND TELECOM PAYMENT DATA", PERC, MAY 2015
16 "AS BANKS START NOSING AROUND FACEBOOK AND TWITTER, THE WRONG FRIENDS MIGHT JUST SINK YOUR CREDIT", THE OBSERVER, DECEMBER 2011, HTTP://OBSERVER.COM/2011/12/AS-BANKS-START-NOSING-AROUND-FACEBOOK-AND-TWITTER-THE-WRONG-FRIENDS-MIGHT-JUST-SINK-YOUR-CREDIT/

2 Digital financial services and the poor

A recent study by Moody's found that increased use of digital financial services (DFSs) has positive impacts on GDP, household consumption, and jobs, and supports a "more stable and open business environment".[17]

Governments, banks, telecoms, fintech companies, NGOs, and others are aligned in trying to grow use of DFS. Yet, full adoption of DFS suffers in many parts of the world. In many markets, even where there is a strong base of consumers with DFS accounts, users often cash out their digital funds as there is not ubiquitous acceptance of them, especially amongst micro, small, and MSME.

In Kenya, often lauded as one of the most successful markets for DFS, over 85 per cent of Kenyans have a mobile payment account, yet only 2.3 per cent of the transaction value is conducted with merchants.[18] In some parts of Kenya, over 90 per cent of retail transactions remain cash-based.[19] It is not just in Africa that acceptance of digital payments suffers. In India, government and private organizations estimate only 4-6 per cent of Indian merchants accept digital payments.[20] Low merchant acceptance, especially amongst MSMEs, is common in all developing countries.

There are a variety of reasons for limited merchant acceptance, including transaction costs, cash-out costs, real or perceived lack of customer demand, and even a desire to remain in the shadow economy in order to avoid taxes. A significant percentage of MSMEs do not accept digital payments because the overall value proposition is not sufficiently strong. Unfortunately, there is no silver bullet to solve these acceptance challenges. A mix of approaches is necessary to push DFS acceptance forward to digital liquidity until there is a tipping point.

One approach to increasing merchant participation is to introduce propositions that bring additional value beyond that of the traditional benefits of e-money acceptance alone. This paper focuses on one such value-added proposition, specifically the notion that by accepting digital payments, the MSMEs could be providing business-related data that could help in the process of securing small loans and/or other financial services.

2.1 Hypothesis

If MSMEs have a better chance of gaining access to affordable lending by accepting digital payments from their customers and other businesses, as well as utilizing digital payment platforms themselves, that could be a meaningful factor in overcoming many of the hurdles currently impeding adoption and digital liquidity.

Indeed, in a recent study, "credit for business investments and easy/lower cost access to working capital credit" was cited by merchants in the developing world across all geographies, store type, and size as the most attractive value-added proposition to accept digital payments.[21]

17 "INCREASE IN ELECTRONIC PAYMENTS BOOSTED GDP AND JOBS IN 70 COUNTRIES", PAYMENTEYE, MARCH 2016, HTTP://WWW.PAYMENTEYE.COM/2016/03/10/INCREASE-IN-ELECTRONIC-PAYMENTS-BOOSTED-GDP-AND-JOBS-IN-70-COUNTRIES/?UTM_SOURCE=PAYMENTEYE+DAILY+NEWSLETTER&UTM_CAMPAIGN=11AB3D277A-10_03_2016_NL&UTM_MEDIUM=EMAIL&UTM_TERM=0_3BD2A3A3C5-11AB3D277A-14496341

18 "MOBILE PAYMENTS IN EMERGING MARKETS", ROBECO, OCTOBER 2015, HTTP://WWW.ROBECO.COM/IMAGES/MOBILE-PAYMENTS-IN-EMERGING-MARKETS-OCTOBER-2015.PDF

19 "SUB-SAHARAN AFRICA: A MAJOR POTENTIAL REVENUE OPPORTUNITY FOR DIGITAL PAYMENTS", MCKINSEY & CO., FEBRUARY 2014, HTTP://WWW.MCKINSEY.COM/INDUSTRIES/FINANCIAL-SERVICES/OUR-INSIGHTS/SUB-SAHARAN-AFRICA-A-MAJOR-POTENTIAL-REVENUE-OPPORTUNITY-FOR-DIGITAL-PAYMENTS

20 NPCI, 2014; RBI, 2014; AND "PAYMENTS SYSTEMS IN INDIA: VISION 2012-2015", RESERVE BANK OF INDIA, OCTOBER 2012, HTTPS://RBI.ORG.IN/SCRIPTS/PUBLICATIONVISIONDOCUMENTS.ASPX?ID=678

21 GLOBAL INNOVATIONS EXCHANGE REPORT, SEPTEMBER 2015, HTTP://WWW.GLOBALINNOVATIONEXCHANGE.ORG/BEYOND-CASH

2.2 Use of ACD

A number of programs in various markets were studied to determine commonality, feasibility, and potential opportunity for alternative credit approaches as an inducement for micro and small businesses to accept DFS. To this end, the research focused on the following questions:

- What is being done in emerging markets to use mobile devices, e-money, e-commerce marketplace, social media data, and other "leaky" digital data to assess credit worthiness of MSMEs?
- How effective are these programs?
- Which data elements are the most useful?
- What opportunities – economic, standards and regulation, partnership and more – are in place, or could be in place, to help these programs become effective and scalable, thereby encouraging more BoP merchants to accept e-money payments?

2.3 Approach

The focus is on the concerns and capabilities of merchants at the BoP who are typically unbanked, without a credit history, and are poor themselves. Included in this segmentation are the most basic sole proprietors selling goods or services ("the person selling fruit on the corner"), which tend to look much like person-to-person payments. The findings may also apply all the way up to mid-sized retailers, as well as small farmers. See the Glossary for a more detailed definition of these segments.

To ascertain the state of the market, this paper reviews relevant companies and initiatives around the globe to identify commonalities and differences in their methodologies. These case studies were supplemented with interviews of industry experts "on the ground" in these markets.

2.4 Assumptions

- A sizable percentage of micro and small businesses desire, but are not eligible for, loans from traditional lending institutions due to a lack of a bank account, credit history, audited financials, and/or collateral. At the same time, traditional bank loans are also viewed as expensive.
- Most BoP merchants possess feature or smart phones capable of transacting on e-money platforms – and may already do so for their business or as consumers.

3 Survey of In-Market Programs

While multiple factors are incorporated into a traditional credit analysis (e.g., business viability, collateral, intended use of funds, financial statements, bank statements, etc.), traditional credit criteria and scores rely heavily on three key data to determine access to credit:

Business' or owners' debt level

- Length of credit history
- Bank account history/behaviour
- Regular and on-time payments (typically of financial products)

Traditional credit history, then, largely reflects payment history and debit service, which is precisely what a significant swath of the MSME population does not have. New credit scoring techniques look at data that try to predict ability and willingness to pay versus traditional methods that rate financial statements and historical repayment behaviour.

There are multiple programs around the globe using ACD to ascertain the creditworthiness of micro and small businesses. As summarized in the table below, ACD programs are using a breadth of data in a customer's existing digital ecosystem – residing in phones and mobile wallets, e-commerce marketplaces, and social media profiles – to eliminate the need for customer-entered applications. These programs require the involvement/cooperation of the carrier, and, likely, consumer consent.

Table 2: Summary of ACD elements

Data element	Examples of ACD
Air-time top-up	• Amount and frequency of adding call, text, and data to SIM
Digital payments	• Value, number, frequency, day/time as well as with whom the e-money account is crediting or debiting, use of funds • Sales data from online marketplaces (e.g., Amazon, Snapdeal)
Phone data	• Phone model, operating system • Contact list (length) • Browser data (e.g., pages viewed) • Installed apps • Location • Transaction account balance
Phone usage	• Number and time of day of calls and texts in/out • Content of communications (grammar, complexity, vocabulary, and subject)
Social media	• Connections • Content of social media posts (e.g., grammar, complexity, vocabulary, subject)
Psychometrics	• Surveys to assess attitudes, beliefs, honesty, and intelligence

ACD programs are also using customer's digital data to verify identity. This reduces the need for documentation and manual review, saves customers time, and reduces data-entry errors and application abandonment.

Twelve programs were reviewed that use one or more of these elements in emerging markets around the world. Following are two examples (See Appendix 2 for others).

Figure 1: Branch

Company:	**Branch**
Overview	Based in San Francisco and with offices in Nairobi, Kenya, Branch (branch.co) allows applicants to login with social media (i.e., Facebook) to improve authentication and reduce application data collection. Branch analyzes mobile wallet data (i.e., M-Pesa activity) as well as calling patterns, contact lists, and social media behaviour. Loans are issued in 10 minutes. Branch is not a legal deposit institution and partners with KCB (a Kenyan bank) to issue loans. Their average loan is equivalent to $30 USD with repayment of up to 6 months. Default rates hover around 5 per cent.

As of December 2015, Branch has issued over 50,000 loans. Branch is active in Kenya and is currently integrating with MTN in Uganda and Vodacom in Tanzania.

Differentiator

- Uses social media to authenticate
- Analyzes phone contact lists

Screenshots

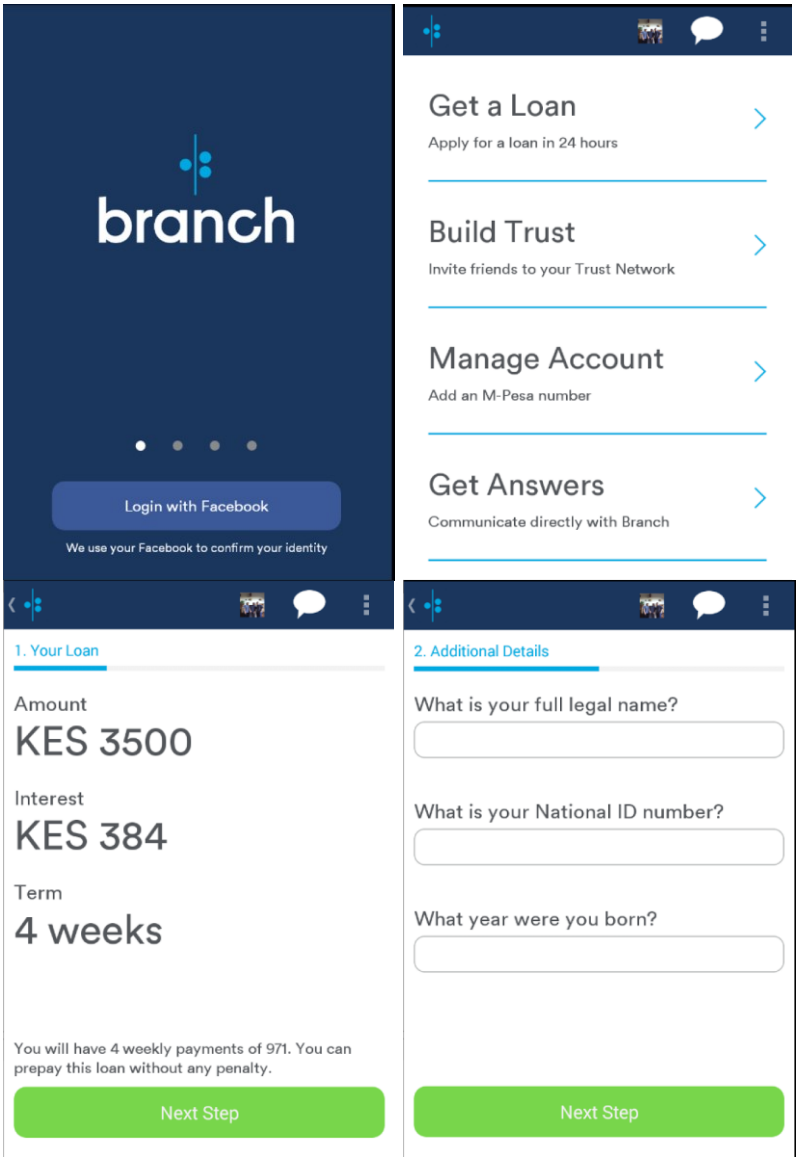


Figure 2: LendingKart

Company:	**LendingKart**
Overview	Founded in 2014 and based in Gujarat, India, LendingKart (lendingkart.com) uses more than 1,500 data points to evaluate companies for credit, including ecommerce data, VAT returns, and social media data to produce a financial health score, a marketplace score, a social reliability score, and a statutory compliance score. The marketplace score is derived from e-commerce marketplace sales data, including Flipkart, Snapdeal, Jabong, Amazon, Dehlivery, Power2SME, and M Swipe. Financial health and VAT data is sourced from regulatory websites, such as Registrar of Companies, from banks, and from the Credit Information Bureau Limited (CIBIL). Decisions are made within 4 hours and loans are disbursed within 72 hours. LendingKart operates in 16 Indian states and disburses about 70 short-term loans monthly.
Differentiator	• Produces multiple scores based on different data sources

Summary: Most programs reviewed use a variety of data to support their credit decisioning, finding that the predictive power and usefulness of the mobile data alone is limited.[22] Those that use e-money data typically supplement their view with phone usage data to develop a behaviour pattern.

Table 3: Summary of ACD elements used

Company	Air-time top-up	Digital payments	Phone type	Phone usage	Social media	Psycho-metrics	Savings	Repayment and other traditional
Ant Financial Group		X			X			
Branch		X	X	X	X			
Commercial Bank of Africa and Safaricom		X		X			X	
EFL						X		
Faulu and Airtel		X						
Greenshoe Capital	X	X	X	X				
InVenture		X	X	X	X			X
KCB M-Pesa and Safaricom		X					X	
Lenddo				X	X			X
LendingKart								X
L-Pesa								X
Kreditech					X			
Traditional Lenders							X	X

22 PERC INTERVIEWS WITH MNOS IN EAST AFRICA AND SOUTHEAST ASIA, 2012-2015

4 Further analysis of the underwriting and loan process

Programs that use e-money data sometimes require a minimum number of days with the same phone number and use of a mobile wallet account. These minimum requirements provide the lender (or credit decision platform) with data over time to establish patterns of behaviour. These limits also serve to reduce fraudulent account setups.

Table 4: Examples of wait times

Company	Wait time
Commercial Bank of Africa and Safaricom	30-day savings or immediate if post-paid phone user
Faulu and Airtel	>6 months mobile service and >2 months mobile money history
L-Pesa	>6 months with mobile carrier and a minimum of 10 mobile money transactions
Traditional banks	3-5 years in business

Several programs are reducing friction in the application process by removing the application step altogether. These programs allow the customer to automatically complete an application by capturing data already known by the customer's telecom, digital wallet provider, or through their social media account. This saves customers time and reduces data input errors and application abandonment.

Table 5: Summary of application process

Company	Application
Commercial Bank of Africa and Safaricom	None
Faulu and Airtel	Yes
InVenture	5 minutes
Traditional banks	In-person

Many programs require the customer to validate their identity by entering a National ID number. Some programs have customers take a photo of their government-issued ID. Increasingly, programs are turning to social media to validate identity, including name, location, education, and more.

Table 6: Examples of authentication

Company	Authentication
Branch	National ID Social media
Commercial Bank of Africa and Safaricom	Digital wallet PIN
Greenshoe Capital	National ID
KCB M-Pesa and Safaricom	Digital wallet PIN
Lenddo	National ID
Traditional banks	National ID

Nearly all of the programs reviewed do not require collateral, though some allow the customer to save, which is taken into account when determining the loan amount.

Table 7: Examples of collateral requirements

Company	Collateral
Commercial Bank of Africa and Safaricom	Savings (optional)
KCB M-Pesa and Safaricom	Savings (optional)
L-Pesa	None
Traditional banks	Typically required

The speed at which these programs are able to assess creditworthiness using alternative credit data is blinding. While traditional banks and even microfinance institutions (MFIs) may take days or weeks to make a loan determination, these programs are committing to loans in minutes or even seconds. Some programs are even pre-determining loan eligibility and are waiting for customers to ask for a loan as long as it does not exceed the pre-approved amount.

Table 8: Examples of decisioning

Company	Decision
Commercial Bank of Africa and Safaricom	Immediate
InVenture	Seconds
KCB M-Pesa and Safaricom	Immediate
Lenddo	3 minutes
Traditional lenders	1-6 weeks In-person

Most programs are leveraging their connection with DFS accounts in order to quickly distribute funds. In many cases, funds are available immediately. This contrasts with traditional banks, which can take weeks for funds to be available.

Table 9: Examples of distribution time

Company	Distribution time
Branch	10 minutes
Commercial Bank of Africa and Safaricom	Immediate
Greenshoe Capital	Few days to a week
InVenture	Immediate
KCB M-Pesa and Safaricom	Immediate
Traditional lenders	1-6 weeks

Interestingly, some programs are leveraging their DFS connections to automatically collect on loan payments, providing a piece of mind to customers and increasing collection recovery.

5 Summary of findings and conclusions

1 e-money accounts are tremendously helpful to digital lending programs. From identification, application, security, funds distribution and repayment, and even recovery, e-money accounts make it possible. It's hard to imagine a digital lending program being successful without the backbone of these programs in place.

2 e-money data is not (yet) as helpful as it could be for several reasons: First, some e-money users only have a portion of their income go through the account – most of their business is still done in cash. In addition, just like their customers, small businesses also cash out their e-money accounts, making spend analytics difficult. To the extent that there is data, e-money providers do not currently identify users as consumers or businesses and do not separate or track their funds in this way, so it is challenging to know how well an existing business is performing, what kind of business it is, etc.

3 Digital lending programs are in their nascent stages and most lenders are keeping their programs simple. Few digital programs are designed for small businesses, but instead offer products designed for the lowest denominator (no differences in data collection, credit criteria, lending amounts, pricing, etc.). For example, lending amounts often are not related to e-money account balances, flow of funds, intended use of funds, etc., but instead have pre-set tiers based that graduate based on repayment and they start extremely low (e.g., US$2.50).

4 There does not appear to be any interoperability, regulations, standards, best practices, or community around alternative digital lending, or organizations seeking to share data with the aim to influence policy. Even facilitating formal discussions focusing on data sharing, best practices, etc. could be helpful, including conferences dedicated to the topic (we are, however, starting to see individual presentations on the topic).

5 e-money providers could provide a set of APIs to make it simpler for new programs to get started. In general, each lender has to do a full integration effort rather than a simple one. Beyond telecoms, there is even less accessibility with billers (utilities), credit bureaus, etc. An integrator that allows these companies to integrate once to get to any and all telecoms, credit bureaus, etc. would be useful (though the business case for each participant is not yet clear).

6 Partnership between providers of mobile wallets, lenders, and other players is critical to the success of these programs. Equity Bank and Safaricom partnered to introduce M-Kesho. However, according to the World Bank, lack of a clear agreement on profit sharing and failure to effectively integrate operating systems led to the program's demise. Without technical and economic alignment, these new programs will also fail.[23]

6 Considerations for policy makers

We believe policy makers can play a guiding role in helping to ensure the potential benefits of ACD, including the use of e-money, in helping to incent BoP sellers to accept electronic payments, are realized. This, in turn, could serve as a strong factor in effecting digital liquidity. This guidance can come in several forms:

- Encourage the development of ACD in a system open to a wide range of participants – banks, MNOs, alternative lenders, etc. and explicitly address the use of e-money payment data as a meaningful data point in bringing credit to BoP merchants.

23 "M-KESHO GROWTH STALLS OVER HITCH ON PROFIT SHARING",BUSINESS DAILY AFRICA, MARCH 2012, BUSINESSDAILYAFRICA.COM/M-KESHO-GROWTH-STALLS-OVER-HITCH-ON-PROFIT-SHARING--/-/539552/1373474/-/8E1XLJ/-/INDEX.HTML

- In order to support these ACD systems, policy makers need to get out in front of a range of issues surrounding collection, usage, securing, and sharing of ACD data.
- To the extent policy makers can influence telecom and payment platforms, encourage open and easy to integrate APIs to access data while complying with applicable regulatory policies. The notion of "interoperability" should also address access to data.
- The notion of credit bureaus should be addressed in terms of their potential benefits to BoP populations, particularly the unbanked.
- Develop policies/guidance as to how firms share scores and/or raw data, loan decisions, and repayment and loss histories with other ACD users and/or traditional credit bureaus (it is possible that different data and scoring methodologies could be complementary).
- As further research is conducted and/or as market-specific programs are developed, consider including additional "deep dive" analyses, including:
    - How can ACD be used to enable trade credit between BoP businesses?
    - Merchant rights to review, dispute, opt out, or seek redress regarding data, decisions, etc.
    - How often and from what sources are data updated?
    - Who should be liable for loss or misuse of data?
    - Permissible use of data and what should these entities be allowed to do with the data?

Appendix 1.

Glossary of terms

Term	Definition
Microfinance Institution (MFI)	A financial institution specializing in banking services for low-income groups or individuals not normally supported by traditional banks.
Negative-only reporting	Reporting of information such as delinquencies, defaults, collection, bankruptcies, and liens. Indeterminate information such as credit applications (but not approvals or rejections) may also be included.
Positive data	Reporting of payment and credit information such as the timeliness of payments, credit utilization rates, credit limit, debt ratios, and account balance. For small businesses, it also includes trade credit data and leasing arrangements.
Shylocking	To lend money at extortionate rates of interest. This term is a reference to a relentless and revengeful moneylender in Shakespeare's Merchant of Venice.
Social graphing	A representation of the interconnection of relationships in an online social network. Used in alternative credit data analysis to determine an individual's reputation and creditworthiness.
Social verification	Use of social media and big data to check the veracity of information.
Trade credit	Extension of credit by one trader to another for the purchase of goods and services as a source of short-term financing.

Appendix 2

ACD case studies

Company	**Ant Financial Services Group (Ant)**
Overview	Alipay's Ant introduced a credit scoring agency, Sesame Credit, which is used for individuals and small businesses by combining public records and financial institution data with Alipay's marketplace data of more than 300 million consumers and 37 million small businesses. Scores are developed based on five criteria: • Credit history – payment history and indebtedness, including credit card repayment and utility bill payments. • Behaviour and preference – online history, including product categories shopped. • Fulfillment capacity – Includes use of financial products and services as well as Alipay account balances. Personal characteristics – personal information, including home address, length of time of residence, mobile phone numbers, etc. • Interpersonal relationships – reflects a user's friends and their interactions. Sesame Credit scores are being tested for use beyond lending, including high-speed VIP check-in at Beijing's Capital International Airport[24], by hotels to allow customers to book rooms or rental cars without deposits, and by dating sites to allow customers to check potential dates' scores.
Differentiator	Based on data from its own e-commerce marketplace.
Screenshots	 Sesame Credit app

24 "CHINA'S 'CITIZEN SCORES' CREDIT SYSTEM ISN'T AS ORWELLIAN AS THE ACLU THINKS…YET", TECHINASIA, OCTOBER 2015, TECHINASIA.COM/CHINA-CITIZEN-SCORES-CREDIT-SYSTEM-ORWELLIAN

Company	**Commercial Bank of Africa (CBA)**
Overview	In 2012, in partnership with Safaricom, CBA introduced M-Shawari (cbagroup.com/m-shwari/what-is-m-shwari). In Swahili, M-Shawari means to make something better or smoother. Loan amounts are determined by savings balance (no minimum balance is required), usage on Safaricom services (must be an M-Pesa user for 6 months and an active user of Safaricom voice or data services), and M-Shawari loan repayment history. M-Shawari loans cannot be serviced through CBA branches, only via mobile. Defaulters lose their Safaricom phone number. CBA is considering integrating a rewards program (Bonga) based on loan repayment behaviour.
Differentiator	Incorporates savings (not required) into loan amount determination. No loan application; eligibility and amount are determined through automated phone call. Loans build credit history.

Company	**Entrepreneur Finance Lab (EFL)**
Overview	EFL (eflglobal.com) provides credit scoring as a service using psychometric testing that can be delivered online or offline. These tests gauge ethics, honesty, intelligence, attitudes, and beliefs. EFL is investigating the use of mobile phone usage, social network, and geolocation data. EFL operates in 27 countries and has provided scoring for over 450,000 applications.
Differentiator	Uses psychometric analysis to determine willingness to repay.

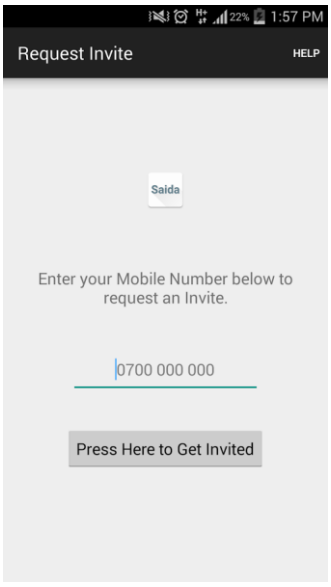
Company	**Faulu**
Overview	Launched in 2012 in partnership with Airtel, Faulu (faulukenya.com) offers 10-day loans in 17 counties to customers with at least 6 months of mobile service and 2 months of mobile money transactions. Default data is shared with the National Credit Reference Bureau.

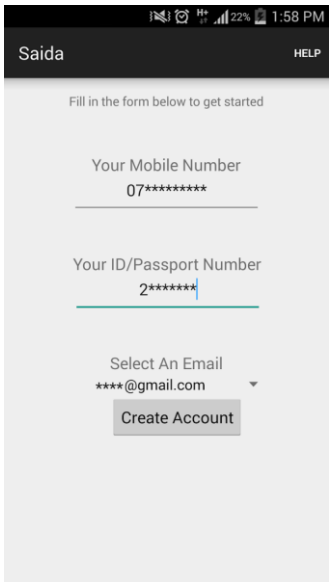
Company	**Greenshoe Capital, Inc.**
Overview	Based in Kenya, Greenshoe Capital, Inc.'s Saida (getsaida.com) analyzes SMS digital payments data, top-up data, and phone plan usage.

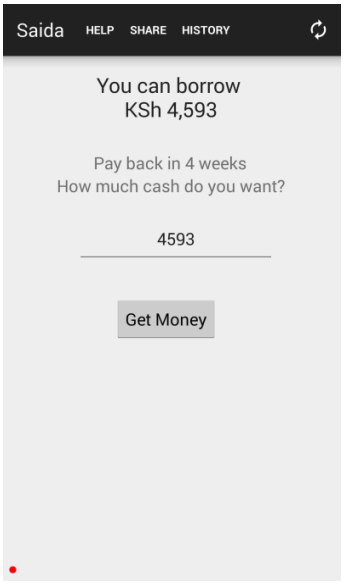
As of late 2015, Saida has given out more than 8,100 loans and is growing at 47 per cent week-over-week. The company touts retention rates of 84 per cent and has a default rate of 8.5 per cent on their 30 and 60-day loans.

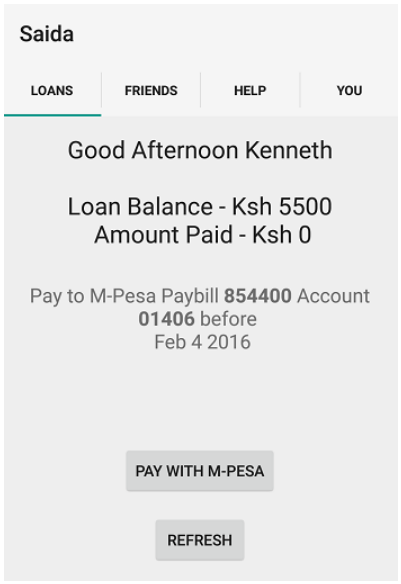
Differentiator — Analyzes the proportion of phone usage on data service, voice or text messaging.

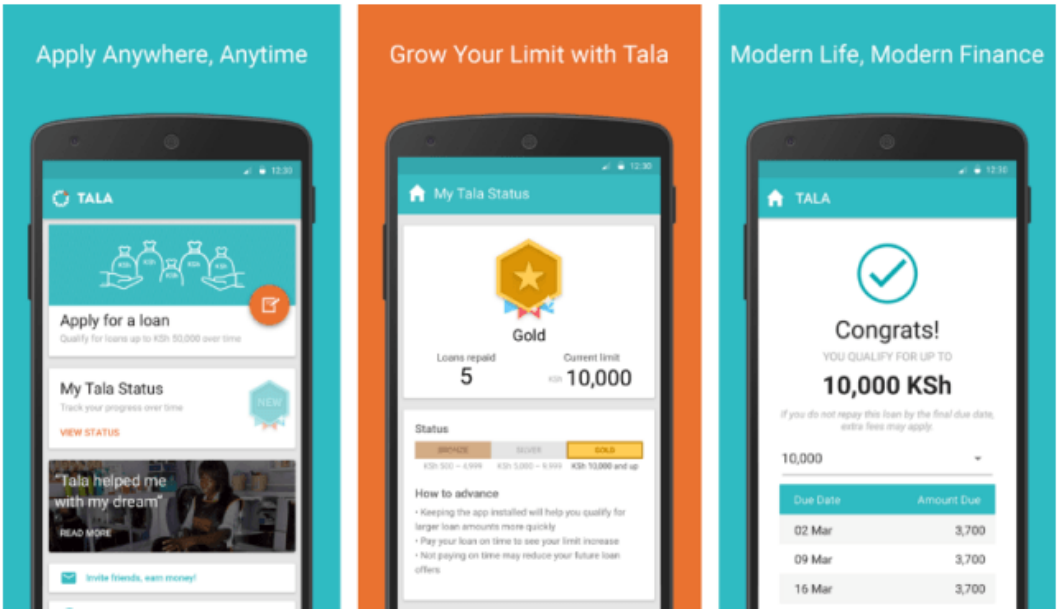
Screenshots





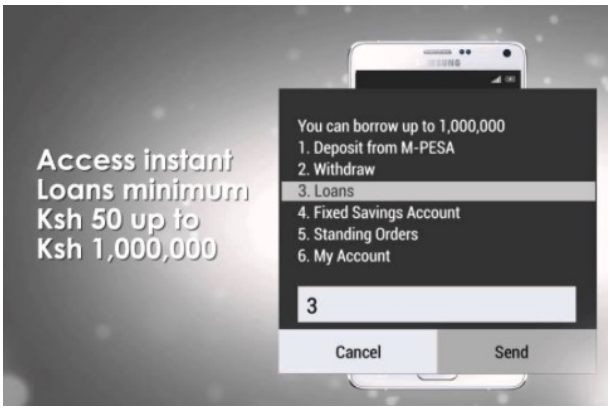




Company	**InVenture**
Overview	Based in Santa Monica, California, with offices in Nairobi, Kenya, InVenture's TALA (formerly Mkopo Rahisi) analyzes more than 10,000 data points per user. Data analysis includes deposits and withdrawals of mobile money accounts (M-Pesa), social media updates, demographic data, and phone usage. The application process takes about 5 minutes. A score and decision is produced in seconds. Funds are distributed immediately to the applicant's M-Pesa account. As of May 2016, TALA has enabled loans for over 260,000 consumers and businesses in Kenya and Tanzania. They have announced plans to expand in the region.
Differentiator	Analyzes bill payment timeliness. Analyzes phone usage, including time of data and battery drainage. Analyzes content of text messages, emails, Facebook, and Twitter posts.
Screenshots	

Company	**Kenya Commercial Bank (KCB)**
Overview	Launched March 2015, KCB M-Pesa (https://ke.kcbbankgroup.com/home/loans/mobile/kcb-m-pesa) is a partnership between KCB and Safaricom. Loan amounts are based upon M-Pesa transaction activity and savings balance (if applicable). Loan repayments range from 1 month (6 per cent APR), 3 months (5 per cent APR), and 6 months (4 per cent APR).
Differentiator	Integrated bank/MNO offering

Screenshots



Company	**Kreditech**
Overview	Founded in 2012 and based in Hamburg, Germany, Kreditech (kreditech.com) provides credit scoring as a service using 20,000 data points that are processed in real-time. They currently operate in Czech Republic, Poland, Spain, and Central and South America. Kreditech analyzes social media data to assess credit risk. Kreditech has scored more than 2.8 million customers.
Differentiator	Similar to other offerings in the market

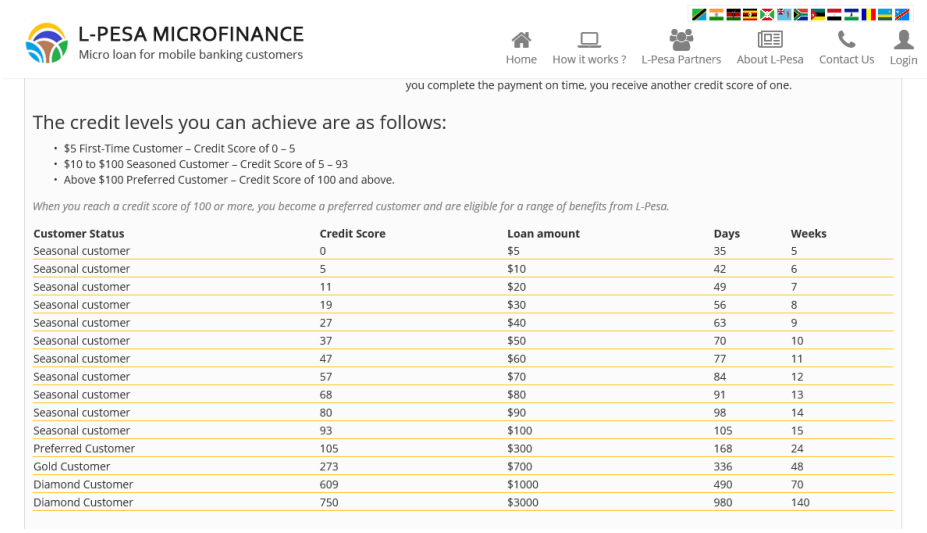
Company	**Lenddo**
Overview	Based in the Philippines, Lenddo started out in 2011 as a micro-lending platform in India, Mexico, and Columbia, using non-traditional data to issue nearly 16,000 loans. Lenddo shifted its model in 2014 to provide alternative credit data scoring and social verification as a service to banks, telcos, and credit card issuers and is now active in 15 countries, including USA, Mexico, Columbia, Peru, Brazil, Nigeria, Kenya, South Africa, Jordan, India, Indonesia, Philippines, Thailand, Mongolia, and South Korea. Lenddo's model uses more than 17,000 variables, including social media, phone, browser, and application data, as well as email and text messages. Lenddo is considering connecting with messaging apps (e.g., WhatsApp) to incorporate their data into their models. Lenddo reserves the right to share default status on the customer's social media profile. Because Lenddo's model uses social graphing, negative reporting impacts the customer's social circle.

	As a credit scoring platform, over 10,000 loans have been issued using Lenddo scores.
Differentiator	Social graphing to predict default – closest relationships matter more than quantity or diversity. Analyzes the content – grammar, complexity, vocabulary, and subject of email messages.
Screenshots	

Company	**L-Pesa**
Overview	Available in Egypt, Lesotho, Rwanda, Democratic Republic of Congo, Tanzania, Uganda, Burundi, Fiji, South Africa, Mozambique, India, Kenya, and Romania, to apply for an L-Pesa loan (l-pesa.com), customers must register their phone number. Loans are approved and distributed within 5 minutes. Loans are initially for $5 USD and repayable in 5 weeks, with weekly repayments. As customers pay back loans, they are eligible for larger loan amounts (up to $3,000 USD), longer repayment periods (up to 140 weeks), and lower interest rates. If customers are late on repayments, they lose credit points. Multiple missed/late repayments result in a zero score and customers must pay off the original loan and wait one full year to rejoin the program. As of October 2015, L-Pesa has 32 million registered users who have access to micro loans.
Differentiator	Loans are progressive – as the first loan is paid back, customers become eligible for larger loan amounts and longer repayment periods.

The program is independent of telecom.

Screenshots



Customer Status	Credit Score	Loan amount	Days	Weeks
Seasonal customer	0	$5	35	5
Seasonal customer	5	$10	42	6
Seasonal customer	11	$20	49	7
Seasonal customer	19	$30	56	8
Seasonal customer	27	$40	63	9
Seasonal customer	37	$50	70	10
Seasonal customer	47	$60	77	11
Seasonal customer	57	$70	84	12
Seasonal customer	68	$80	91	13
Seasonal customer	80	$90	98	14
Seasonal customer	93	$100	105	15
Preferred Customer	105	$300	168	24
Gold Customer	273	$700	336	48
Diamond Customer	609	$1000	490	70
Diamond Customer	750	$3000	980	140