Alternative Credit Scoring & its Role in Financial Inclusion

Webinar: 30 January 2019

Presenter

Wambui Chege,

Team Leader,

Mastercard Foundation Fund for Rural Prosperity

Mastercard Foundation Fund for Rural Prosperity is a
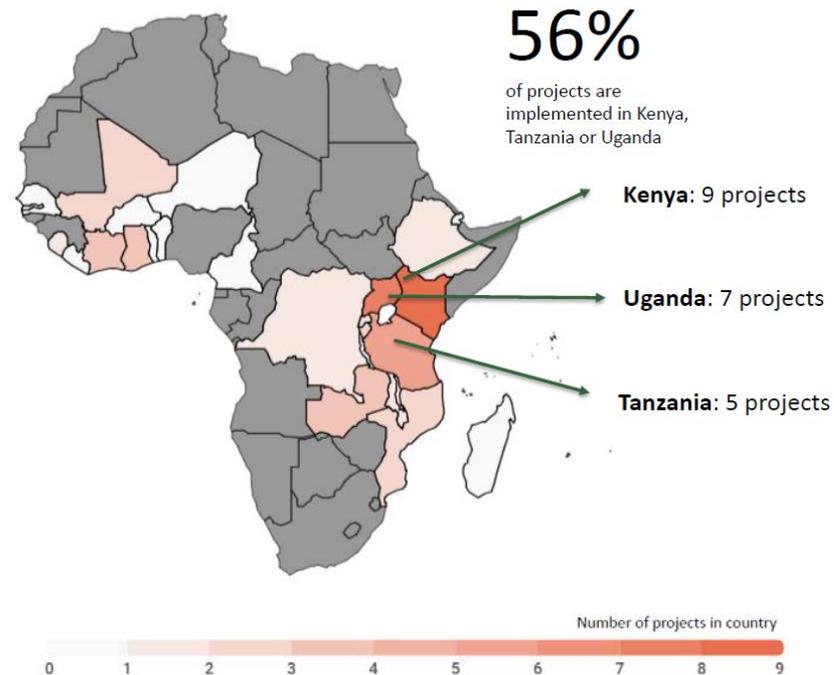
US$ 50 million challenge fund

designed to enable

1 million

underprivileged people in rural Africa to have access to appropriate savings, credit and insurance products and services.

The Fund was established by the Mastercard Foundation and is managed by consortium of firms led by KPMG. Partners: Nathan Associates London and IPE Triple Line

56%
of projects are implemented in Kenya, Tanzania or Uganda

Kenya: 9 projects

Uganda: 7 projects

Tanzania: 5 projects

Number of projects in country

0   1   2   3   4   5   6   7   8   9

Reaching over 950,000 users of financial products and services

Giving more than 350,000 people access to financial literacy training

Creating over 750 job opportunities through our portfolio

66
Financial products or services launched since 2015

4m
Household beneficiaries reached since 2015

38
Projects supported since 2015

Most projects (78%) offer **credit** products to their customers, but only

22%

of projects offer insurance products and

31%

of projects offer saving products

Juhudi Kilimo Company Limited	• **Idea:** Psychometric credit scoring for smallholder farmers • **Data collection:** SMS survey • **Business model:** Interest collected on loans
Compuscan Ground Up [Project on hold]	• **Idea:** Credit scoring for agricultural customers • **Data collection:** Existing credit information collated into a single system • **Business model:** Sale of the model to financial institutions
APA Insurance	• **Idea:** Insurance to pastoralists in arid and semi-arid lands • **Data collection:** Research by ILRI; satellite imaging to inform payout algorithms • **Business model:** Insurance premiums
First Access	• **Idea:** Credit scoring for agricultural customers • **Data collection:** Mobile phones, yields, inputs, weather and warehouse records • **Business model:** Sale of the model to financial institutions
Apollo Agriculture	• **Idea:** Strengthening supply chain through quality inputs to farmers on credit • **Data collection:** Satellite imagery, machine learning to check credit-worthiness • **Business model:** Interest on loans
PULA	• **Idea:** Crop insurance • **Data collection:** Remote sensing, machine learning to inform payouts • **Business model:** Insurance premiums from input companies (not farmers)

Alternative data

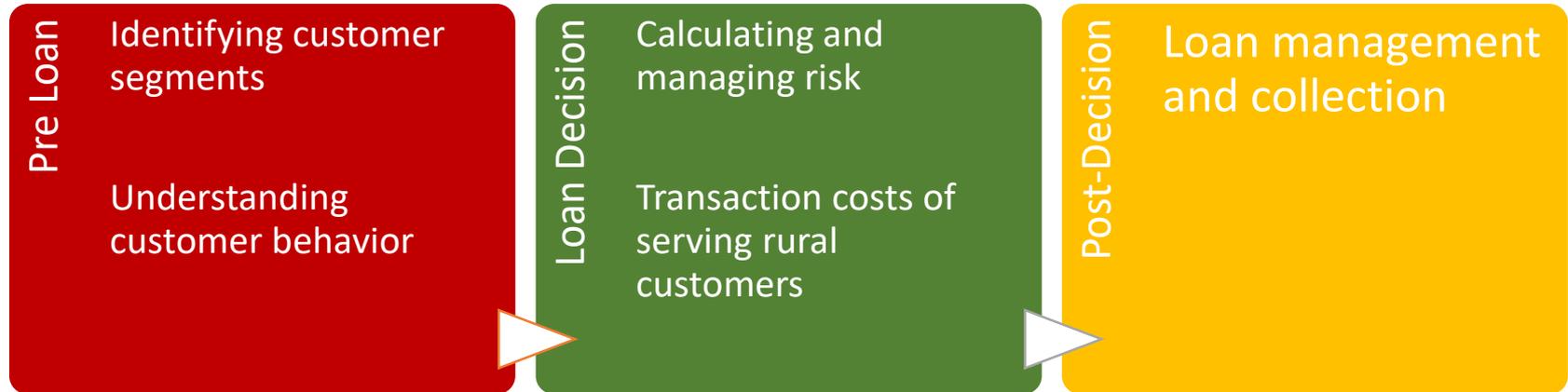| SyeComp	• **Idea:** Enhancing agriculture through ICT • **Data collection:** Geo-spatial data from satellites, multispectral drone sensors • **Business model:** Sale of data for various applications using Geographic Information Systems (GIS) and Remote Sensing (RS) technology
Copia	• **Idea:** "Amazon" for rural Africa including a micro-credit component • **Data collection:** Credit history through repayments • **Business model:** Income through mark-up on goods; interest on micro-loans
Ibero	• **Idea:** Supply chain strengthening through inputs on credit to farmers and guaranteed market for coffee • **Data collection:** Credit history through repayments • **Business model:** Guaranteed supply for a global coffee buyer
Musoni	• **Idea:** 100% mobile-based agricultural loan product – "Kilimo Booster" • **Data collection:** Credit history through repayments • **Business model:** Interest income
Pay-as-you-go solar providers	• **Idea:** Consumer financing for increasingly large solar home power systems • **Data collection:** Credit history through repayments • **Business model:** Interest income on sale of solar home power systems (various companies in FRP portfolio – M-Kopa, Easy Solar, Solar Now, Microcred)

Next Presenter

Howard Miller,

Associate Consultant,

Nathan Associates.

Pre Loan

Identifying customer segments

Understanding customer behavior

Loan Decision

Calculating and managing risk

Transaction costs of serving rural customers

Post-Decision

Loan management and collection

Digitisation and new data streams can help overcome all of these challenges

What does credit scoring do?

Past → Present → Future

Past — Repayment records / Transaction data

Present — Customer data

Future — Repayment risk

Lending Criteria: Capacity, Cashflow, Character, Conditions, Collateral
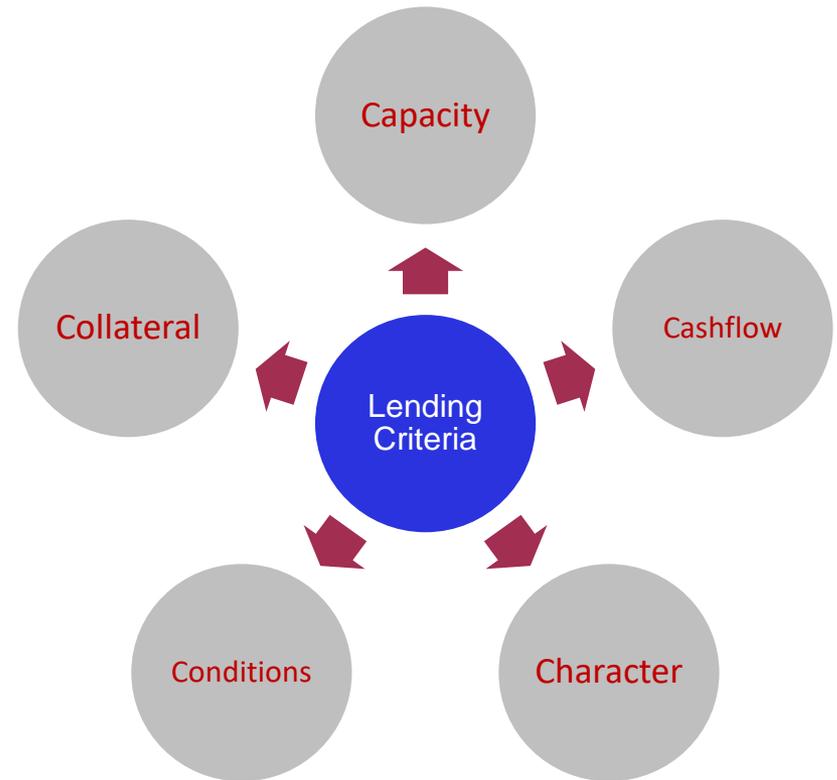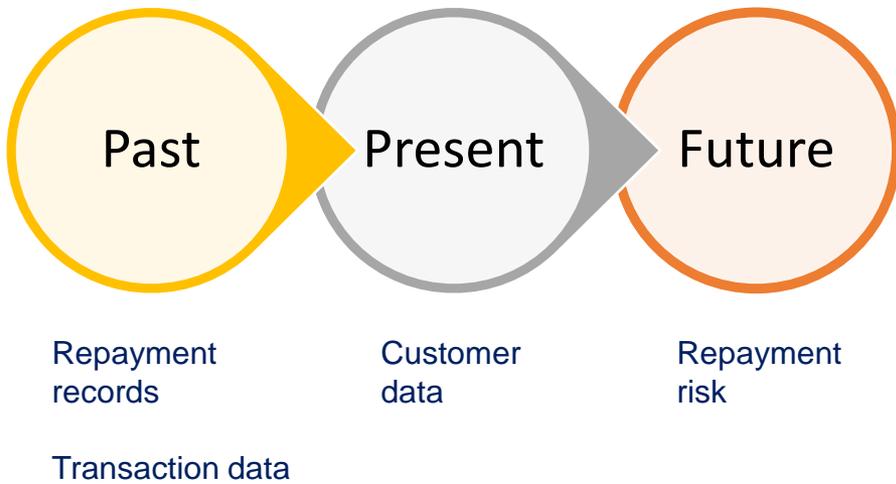
What kinds of data?

Traditional Data	Transactional Data	Agricultural Data	Remote Sensing Data
Applicant data Historical loan performance	Utilities payments CDR data Social network data Psychometric profiles	Value chain data Production data Historical yields	Satellite imaging Soil and water maps Weather data
	Character	Cashflow Capacity	Conditions Collateral

Next Presenter

Juliet Ongwae,

Chief Innovation Officer,

Musoni Microfinance Ltd.

Alternative Credit Scoring for Smallholder Farmers

The case of Musoni's Kilimo Booster Product
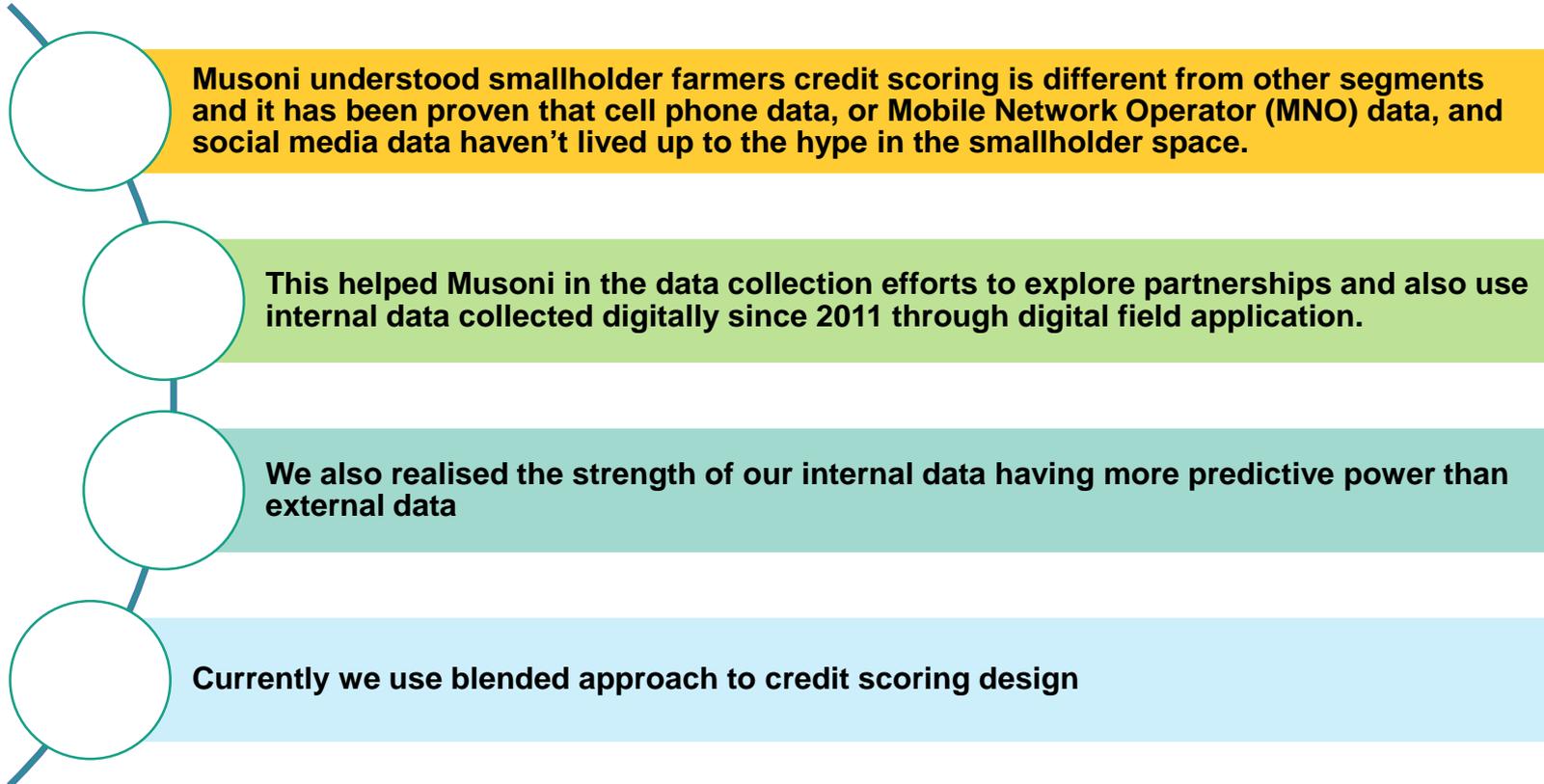
The Musoni Kilimo Booster Product

The product balances providing customized, flexible terms that will make it appropriate for farmers with cost-effective operations that will allow Musoni to scale.

- Flexible loan design to accommodate different crops and weather conditions

- Group co-guarantee

- Flexible Repayment Schedules

- A holistic view of the farmer and his incomes

- One product serving multiple needs (working capital, asset finance, diversification)

- Technology driven
    - Cost effective last mile reach
    - Industry leading TAT
    - Rich data for analytics & decision making

- Rich data for analytics and decision making

- Training: GAP, financial literacy, entrepreneurship, group management

- Insurance to mitigate risks in small holder financing

Musoni explored credit scoring because:

- We needed smarter ways of using data to understand smallholders as customers especially agricultural activities.
- To reduce turn around time for our credit appraisal and analysis
- To standardize our credit assessment
- To score mass client that we on-board from partnerships

The Musoni Credit Scoring Journey

Musoni understood smallholder farmers credit scoring is different from other segments and it has been proven that cell phone data, or Mobile Network Operator (MNO) data, and social media data haven't lived up to the hype in the smallholder space.

This helped Musoni in the data collection efforts to explore partnerships and also use internal data collected digitally since 2011 through digital field application.

We also realised the strength of our internal data having more predictive power than external data

Currently we use blended approach to credit scoring design

Challenges Musoni faced

Data for Credit

- While collecting data to score customers we faced challenges on rural farmers data as they had missing data for example age therefore limiting the model.

Partnership

- Relied on assessment and scoring by outsourced organisations which limited the ability to create a robust and customer-centric appraisal model based on internal experience, capacity and relations with our clients.

Information and Skills

- How to maximize the investment for greater returns
- Farmers liked the idea of "growing together"
- Income and land size were not always proportional

Suitability/ Access

- Repayment cycles did not fit the farming cycle
- Collateral are rarely available/ accessible
- Financing for diversification was limited by lack of experience

Time Requirement

- Ineffective loan delivery channels
- Shocks were urgent and loans took too long
- Processes are long, requiring multiple trips and documents

Partnerships as critical component in identifying real need, sharing of data, client identification, client on-boarding & relationship, client training

Tech-enabled model to include an in-house credit scoring model after repeat frustrations from third party sourced credit scoring models.

Use of alternative data and internal data in scoring model and also a blend of cashflow analysis

Maintaining high touch with high tech

Continuous innovation with use of machine learning and AI in the credit assessment

Next Presenter

Nicole Van der Tuin,

Co-Founder/ Chief Executive Officer,

First Access.

How to get there faster:

Credit Scoring and Digitization

Best Practices for a Data-Driven Future

Mindset:
What does it mean to be data-driven?

All actions can yield data.
To be data-driven is to collect that data, internalize it, and use it to make better decisions tomorrow.

Best practices for incumbent financial institutions
to become data-driven, for agricultural credit and beyond.

LAUNCH
New products

IMPROVE
Current products

DIGITIZE
Current products

Migrate manual credit origination from paper to mobile. Replicate the current process to minimize change management burden.

Use newly digitized data to drive improvements to risk, efficiency and speed through reports, business rules, eligibility criteria, credit scoring, and risk-based processes based on those.

Launch new loan products through digital channels and marketing. Connect with local and international partners to leverage their data and customer bases for more automated credit products.

- Internal data is predictive and cost-effective.

- Analyzing a good internal dataset always reveals valuable patterns.

- Most internal data is still on paper and hard to analyze.

- Most core banking systems aren't flexible enough on origination.

- Adopting new technology usually comes with a huge change management burden.

- Most technology doesn't allow affordable changes over time.

- The more closely a system can replicate the status quo, the easier it is to learn.

- Configurable systems are the only ones that are affordable and flexible enough.

Bottom line: Digitizing the status quo is more affordable because it reduces training needs and generates a reliable dataset to inform smart decisions about business evolution.

- Digitizing origination generates better data on clients, ops, staff. And informed managers!
- As the dataset grows, clear evidence emerges of how business rules, eligibility criteria, and scoring can be added or improved.
- It's radically easier to implement changes to a digitized business.
- Add business rules > weighted scorecards > regressions > algorithms with external data.
- Risk-based processes (e.g. fast-tracking) easier than risk-based pricing.
- ML best for variable identification in model building, not decision models themselves.
- Teams build a data culture as they see smart process change from simple calculations.
- Quality won't change without rejections. Volume will decrease without more marketing.
- Easiest place to start for process change: fast-tracking repeat customers.

Bottom line: A flexible system with conditional processes can generate the biggest improvements at the lowest cost.

- Measure customer acquisition cost (CAC) and lifetime value (LTV). Rethink them.
- Once origination is more efficient, it's easier to increase "throughput" of new applicants.
- External data are most relevant for agriculture - and other credit products - in Phase III.
- Distribution partners with KYC and transactional data/relationships most valuable.
- Difficult to fully automate ag credit decisions, at least in first few loan cycles.
- Mass pre-approval/pre-qualification > notifications > more data > credit decision.
- Where possible, add incentives and remove risk from lifecycle (e.g. no disbursement).
- Focus staff on tasks requiring judgment and human touch. Automate others.

Bottom line: Sustainable growth comes from being able to identify and acquire low-risk customers quickly and at a low cost.

Conclusion: Incremental change is more profitable (less expensive and lower-risk), but it requires flexible systems and relentless focus on sustainable growth.

Question time

- Please type your question into the chat box of this webinar privately to Grace Oduor.

- If you wish to, indicate who you would like to answer the question (the Fund, Nathan Associates, Musoni or First Access)

- Question time is limited due to time considerations but you can email info@frp.org with any questions or comments on this webinar.

Acknowledgements

Thank you

Look out for our next webinar on
www.frp.org