



JULY 2018

The Ecosystem of Digital Financial Services in Mozambique

FSDMo.
INVESTINDO EM INCLUSÃO FINANCEIRA



Table of Contents

04. Financial Inclusion and Digital Innovations
11. Approach & Methodology
14. Digital Ecosystem
33. Country Profile
36. Country Benchmark
39. The Future
42. Key Takeaways
43. Annex
51. Questionnaire

01

Financial Inclusion and Digital Innovations

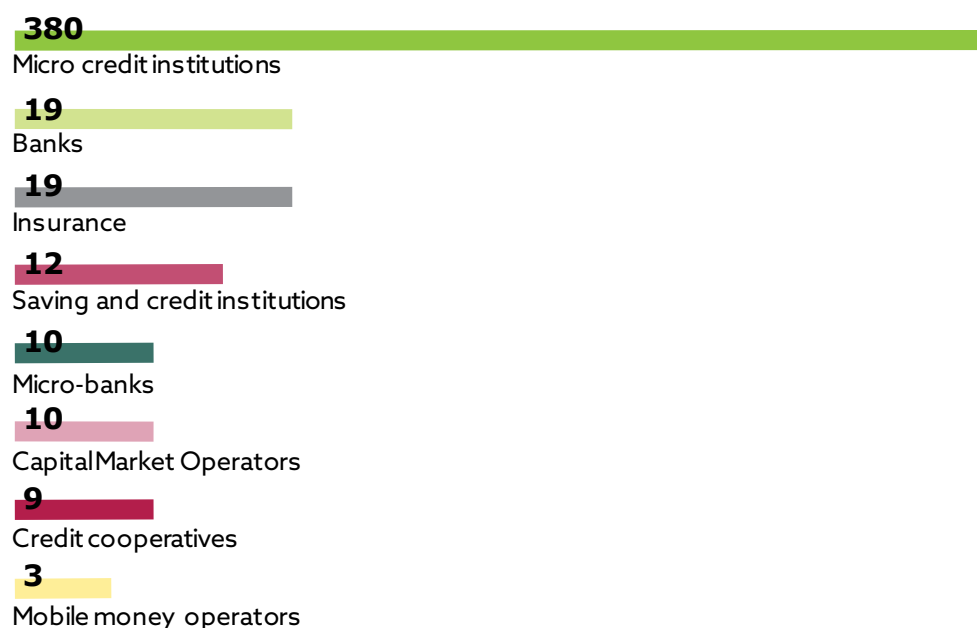
Financial Sector Composition

The National Strategy for Financial Inclusion 2016-2022 has identified three pillars that will guide the strategy:

- Access and use of financial services;
- Strengthening of financial infrastructures;
- Consumer protection and financial education.

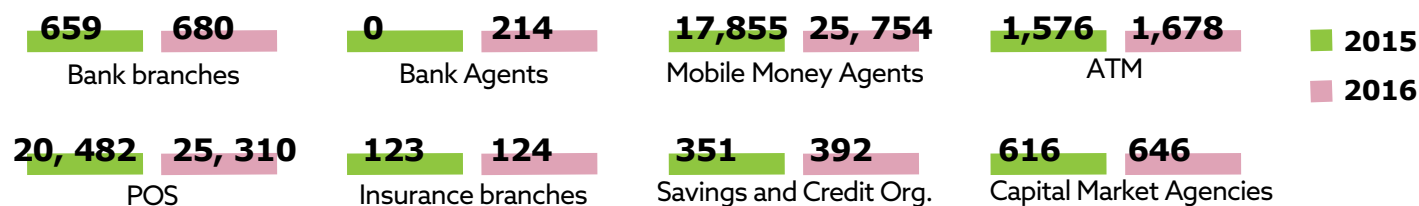
Source: Year 1 Implementation Report of the National Financial Inclusion Strategy 2016-2022, Central Bank of Mozambique, 2016

The number of financial institutions grew from 418 in 2015 to 462 registered institutions in 2016



Total Access Points

Eight types of different access points were recorded nationally. Compared to 2015, there was a 31.9% increase in total access points, mainly in Mobile Money Agents and POS.



Access and Use of Financial Services

Access points have been increasing rapidly in the last two years driven by the **expansion of POS and MMO agents**. Effective use has also grown in terms of number of Accounts.

Demographic and Geographic Access

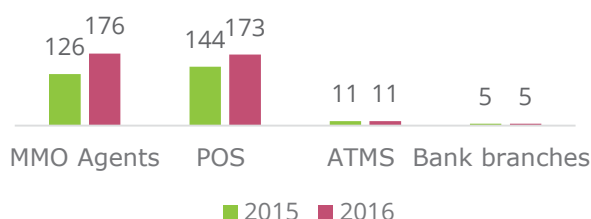
By 2016, there was a widespread distribution of financial services through different access points, mainly through mobile money agents and POS.



Per 100,000 adults

Total access points increased
by 28% between 2015-2016

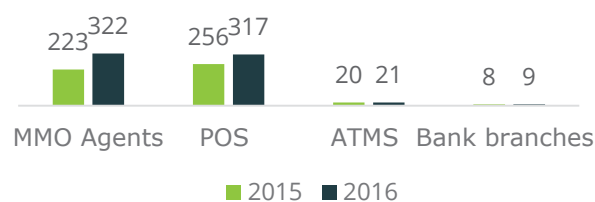
Key Access Points per 100,000 adults



Per 100,000 km

Total access points increased
by 32% between 2015-2016

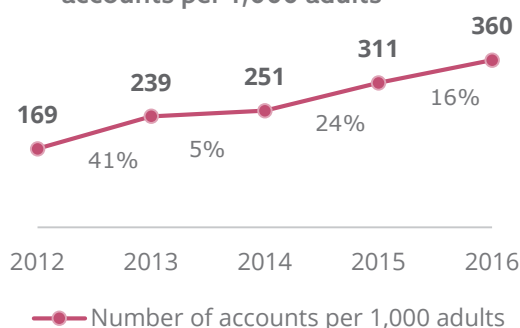
Key Access Points per 100,000 km



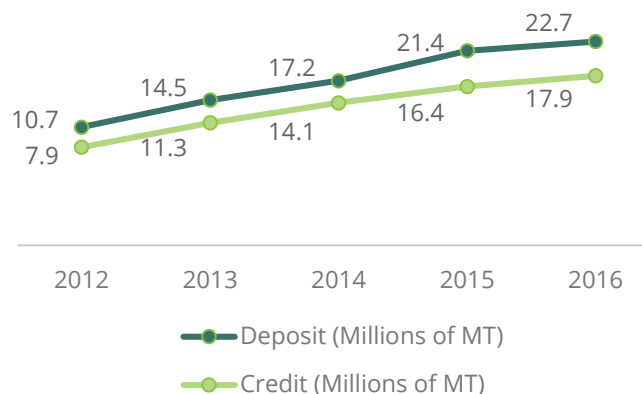
Effective Use

Between 2012-2016, the number of accounts per 1,000 adults increased by 191. The Proportion of adults that had a mobile money account was at 1% in 2012 compared to 47% in 2016.

Evolution of number of bank
accounts per 1,000 adults



Total Deposits and Credit per 1,000 adults



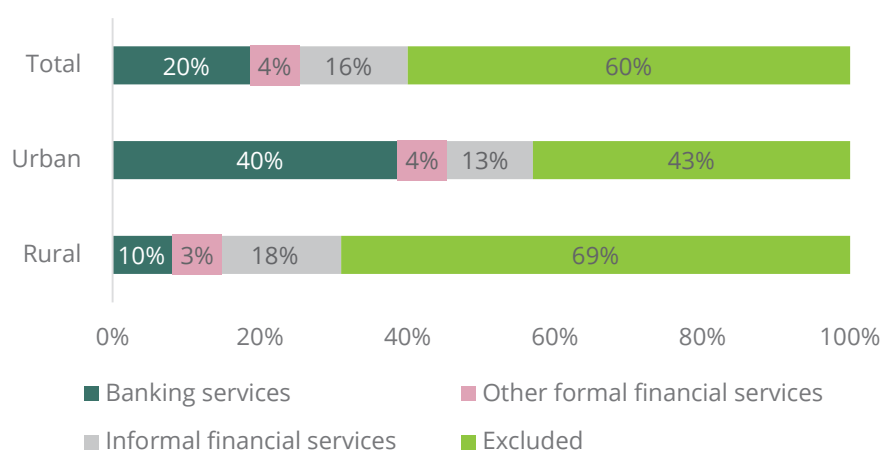
Source: Year 1 Implementation Report of the National Financial Inclusion Strategy
2016-2022, Central Bank of Mozambique, 2016

Financial Inclusion is Growing at Least from the Supply Side

Financial Inclusion is the “process of **awareness, access and effective use** of financial products and services offered by regulated institutions to the population as a whole, contributing to enhance their quality of life and social welfare.”

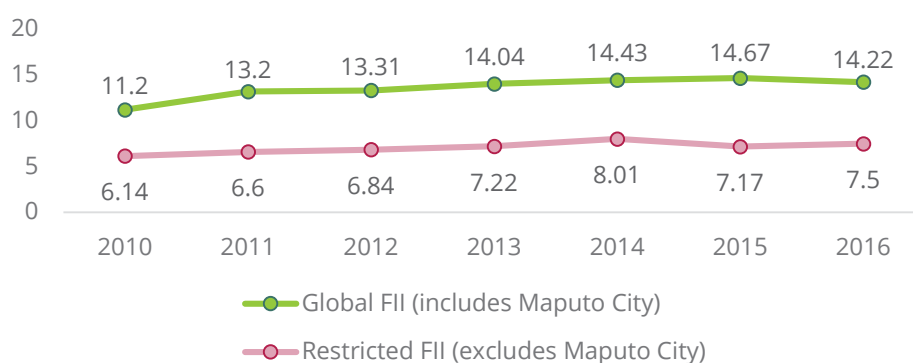
Access to Financial Services

In 2014 only 24% of the adult population had access to formal financial services. While there are no updated demand-side measures of financial inclusion supply-side measures indicate inclusion is increasing.



Financial Inclusion Index (FII)

Between 2010 to 2016, the Global FII grew by 27%. There was a decrease of 0.45 points between 2015 and 2016 in the Global FII because the country registered a higher number of districts (128 in 2015 versus 154 in 2016), but with limited access point coverage.



Source: Finscope Consumer Survey Mozambique (2014); Year 1 Implementation Report of the National Financial Inclusion Strategy 2016-2022, Central Bank of Mozambique, 2016

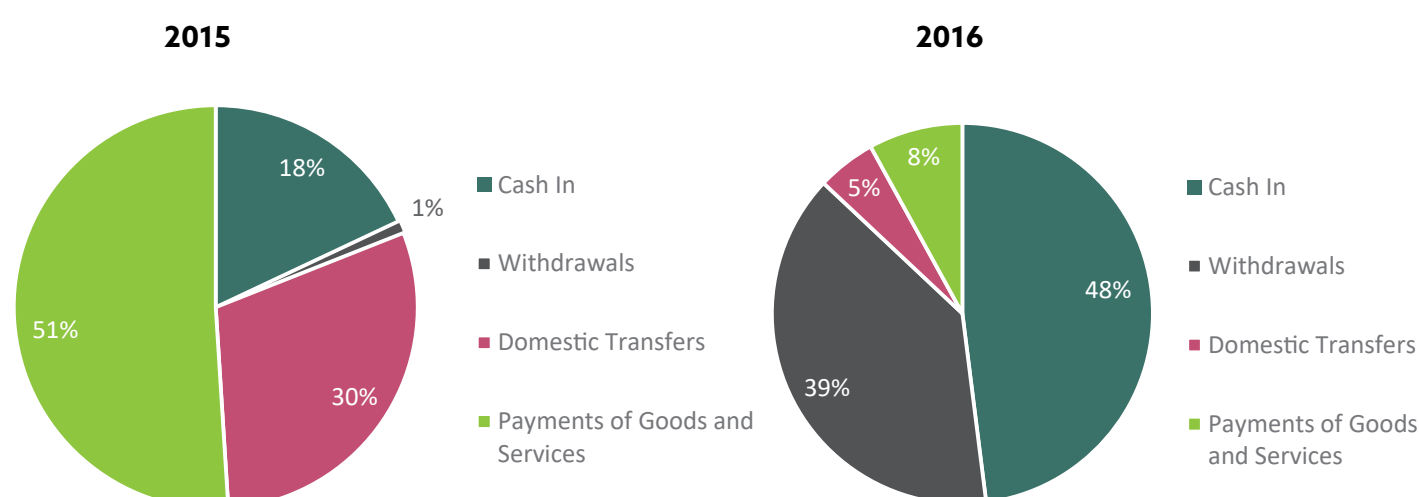
Mobile money accounts are expanding at a very high rate

Mobile accounts are being used to withdraw money from bank ATMs

This implies cash is still very dominant vs. electronic money.

As electronic funds do not remain in the system the impact on the monetary mass is limited.

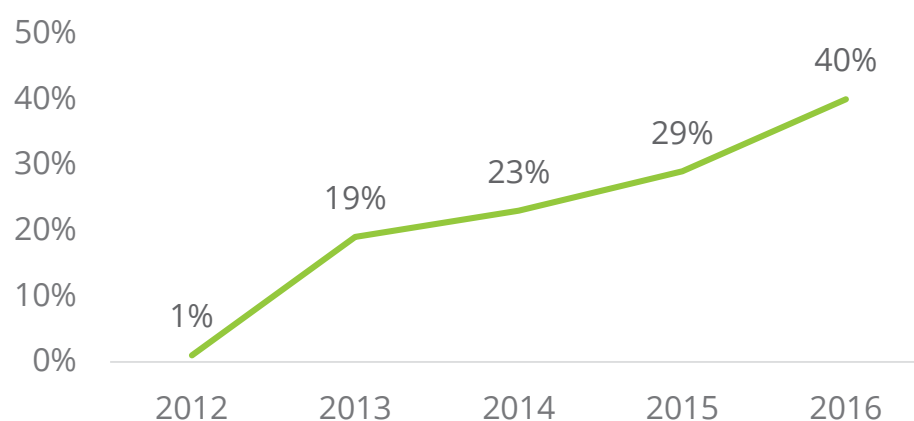
Value of Mobile Transactions (% of Total)



% of Adult Population with Mobile Money Accounts

Between 2012-2016, the number of accounts per 1,000 adults increased by 191. The Proportion of adults that had a mobile money account was at 1% in 2012 compared to 47% in 2016.

% of Adult Population with Mobile Money Accounts



Source: Year 1 Implementation Report of the National Financial Inclusion Strategy 2016-2022, Central Bank of Mozambique, 2016

Disruptive Digital Innovations around the World

A consolidated taxonomy for disruptive innovation in the financial services industry was designed by Monitor Deloitte for the World Economic Forum.

The taxonomy identifies 6 focus areas and 11 emerging clusters of digital trends.



Source: The Future of Financial Services How Disruptive Innovations are Reshaping the Way Financial Services are Structured, Provisioned and Consumed (2015).

Emerging Digital Innovations taking place in Mozambique

The core of digital innovations in Mozambique are taking place in the payments area whilst targeted initiatives are emerging in market provisioning and deposits and lending

Innovations currently taking place in Mozambique

Payments

Emerging Payment Rails

- Crypto currency
- P2P FX
- Mobile money

Cashless world

- Integrated billing
- Streamlined payments
- Mobile Payments

Insurance

Insurance disaggregation

- Sharing Economy
- Autonomous vehicles
- Digital distribution
- Securitization & Hedge funds

Connected Insurance

- Internet of things
- Advanced sensors
- Wearable computers

Deposits & Lending

Shifting customer preferences

- Virtual technologies
- Mobile 3.0
- Third parties API

Alternative lending

- P2P Lending
- Alternative Adjudication

Market Provisioning

Smarter Faster Machine

- Big Data
- Artificial intelligence/machine learning
- Machine readable news
- Social sentiment

Cashless world

- Market information platforms
- Automated data collection

Investment Management

Process Externalization

- Advanced algorithms
- Cloud computing
- Open source IT
- Capability sharing

Empowered Investors

- Social trading
- Retail Algorithm Trading
- Automated advice and management

Capital Raising

Crowdfunding

- Virtual Exchanges & smart contracts
- Alternative Due
- Diligence

Emerging Digital Innovations taking place in Mozambique

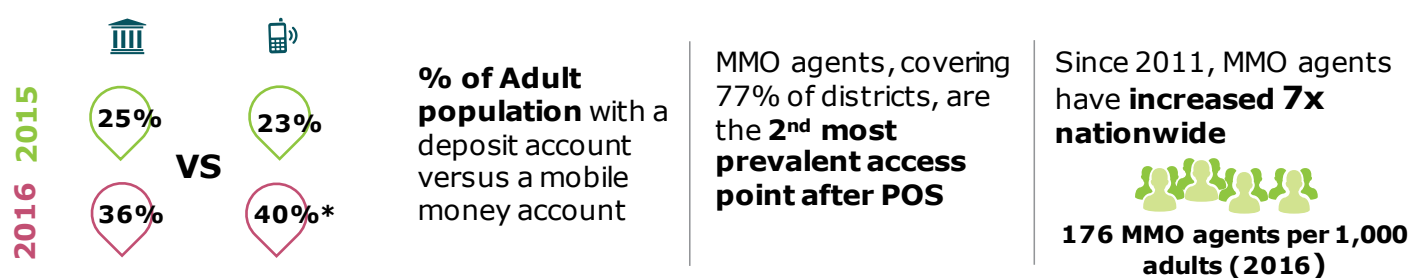
Digital technologies are being used to accelerate financial inclusion in Mozambique.

The key mechanisms identified that already being introduced in the market include mobile money, digital distribution of financial services, interoperability of bank-MNO payment systems, biometric data analytics and alternative lending adjudication systems.

Access to Financial Services

In 2014 only 24% of the adult population had access to formal financial services. While there are no updated demand-side measures of financial inclusion supply-side measures indicate inclusion is increasing.

1. Mobile money is playing a significant role in accelerating access to financial services.



2. Integration technologies (Application Programming Interface, APIs) have allowed interoperability between banks and between banks and MMO, as well as streamlined payments, which have proliferated digital financial services.



3. Biometric technologies are simplifying the compliance with KYC requirements for first movers in the consumer financial services and micro-insurance.

4. Branchless channels like mobile, agents and kiosks from banks and MNOs are enabling access to financial services to unbanked population.

5. Virtual POS are reducing transaction costs for SMEs.

6. Automated data collection and analysis is allowing the industry to adopt a more customer-centric approach. By knowing customer habits, players are able to tailor products and services specific to local client needs.

7. Automated loan adjudication provided by consumer finance institutions (unsecured lenders) is enabling access to loans for clients with little collateral.

8. Digital distribution of insurance services is poised to increase very low levels of insurance penetration in the country (1.58%)

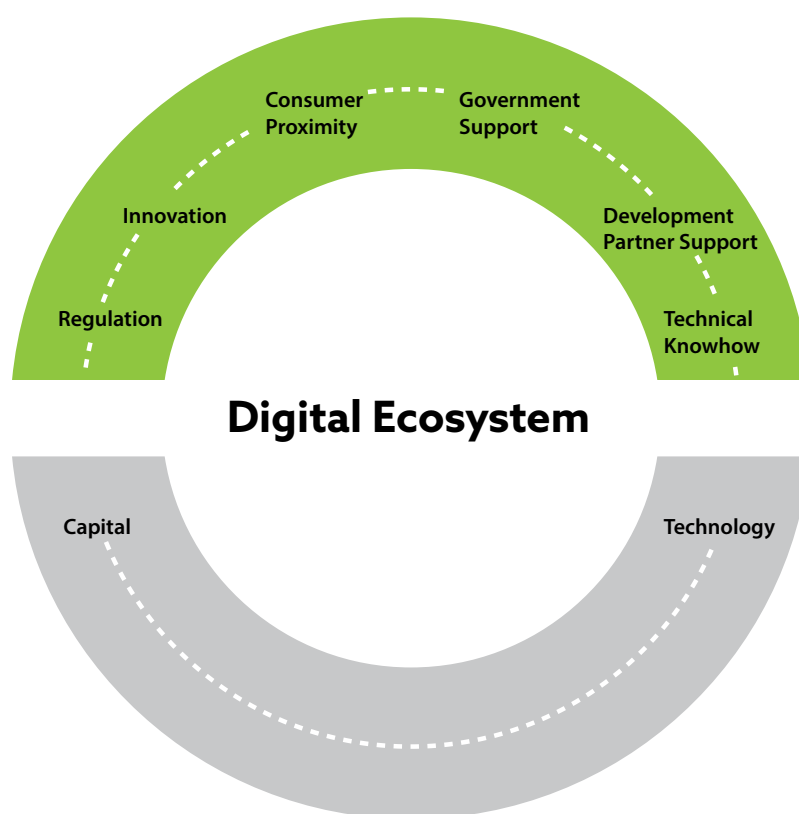
Source: Year 1 Implementation Report of the National Financial Inclusion Strategy 2016-2022, Central Bank

02

Approach & Methodology

Key dimensions required to the develop the digital ecosystem

- This study addressed key dimensions required to develop the digital ecosystem in Mozambique.
- They refer to all stakeholders involved in the ecosystem including the companies, the regulatores, developemnt partners and Government.
- It also provides an overview of enabling macro or environment factors such as the quality of business environment, degree of competitiveness in the economy and the innovation environment in the country.



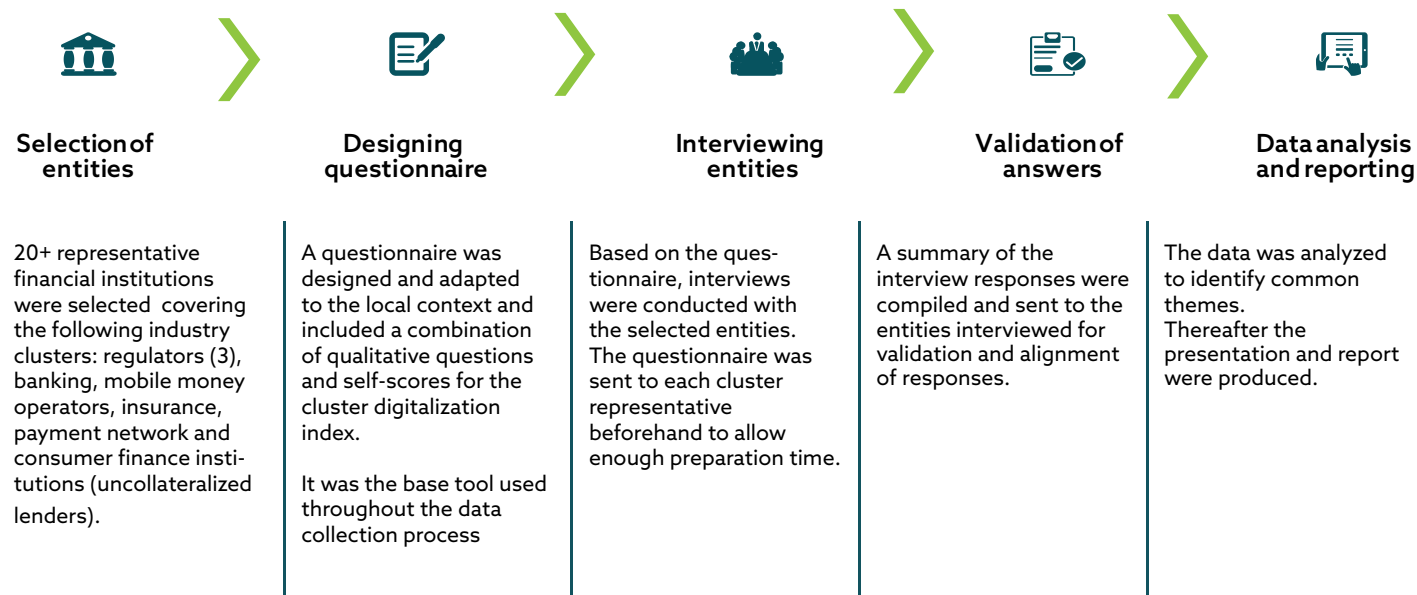
Business Environment

Competitiveness Environment

Innovation Environment

Macro-Factors

Study Approach



Methodology

1 Industry Features

1. Challenges
2. Key Investors
3. Success Stories
4. Future Trends

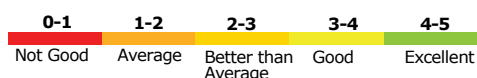
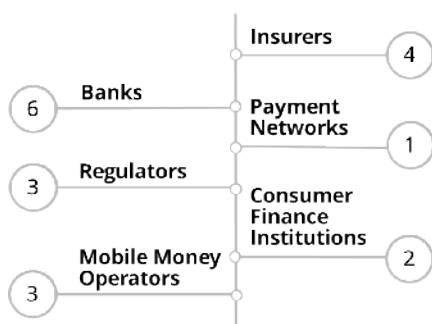
2 Digital Innovations

A list of innovations and technologies were compiled from the Deloitte Global Fintech Hub Review (2016). Entities were asked to select:

1. Top 5 Innovation Areas
2. Top 5 Underlying Technologies

3 Digital Ecosystem Index

The entities self-scored on 5 indicators using a scale of 1-5:



- 1. Regulation** – promote digital financial services?
- 2. Digital Innovations** – your institution's digital innovations?
- 3. Proximity to customers** – usage, ease of adoption and accessibility of your digital platforms?
- 4. Technical knowhow** – digital competencies in the industry and your institution?
- 5. Government Support** – government support of digital technologies in the industry?
- 6. Development Partner Support** – development partners' support of digital technologies in the industry?

Digital Ecosystem Index



Ecosystem Dimensions

1. Regulation
2. Digital Innovations
3. Proximity to Customers
4. Technical Knowhow
5. Government Support
6. Development Partner support

Industry clusters

- Banking
- Mobile Money Operators
- Insurance
- Payment Network
- Consumer Finance Institutions
- Industry cluster score is the average of the scores for all the 6 dimensions within a specific industry cluster

Ecosystem Dimensions

- Based on our knowledge of the sector and digital financial services in other countries we provided commentary on the industry self-scores

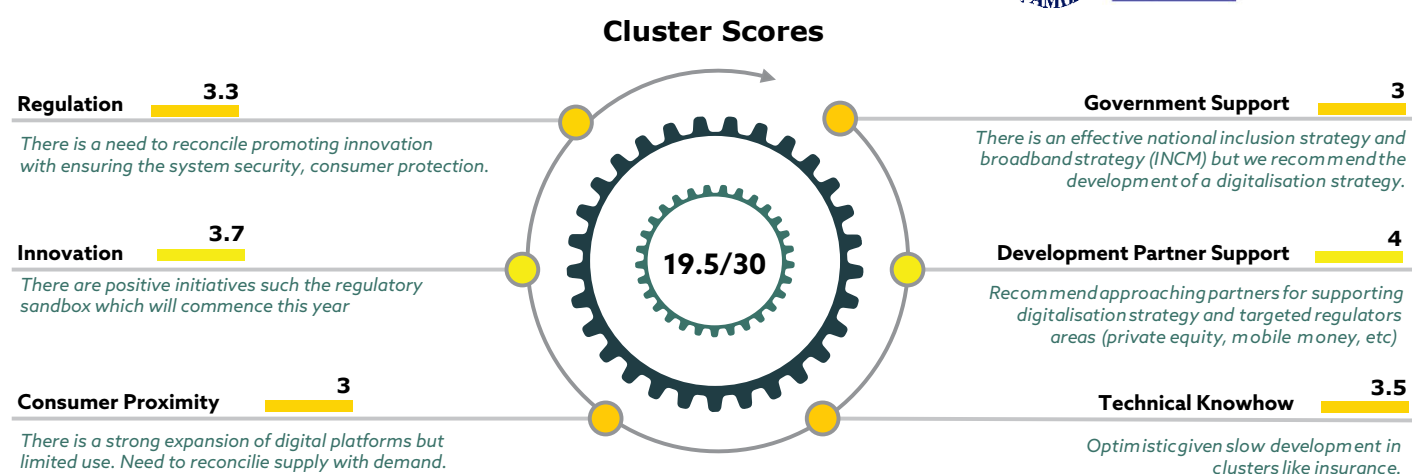


03

Digital Ecosystem

Regulators

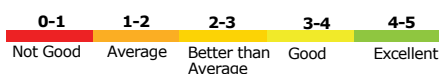
The regulators reported good levels of Innovation and support from Development Partners.



Consumers limit adherence to MMOs.

Self-evaluation of the six dimensions

Deloitte qualitative assessment of dimension



Observations

Dimension

Key Insights

Regulation



- The banking regulator has legal instruments such as the Financial Inclusion Strategy, Law of the institutions of electronic money (e-money), Aviso 5, Aviso 6, Aviso 15, Aviso 13, Aviso 19 etc. intended to cover the financial sector. There is a gap in FinTech regulation.
- The creation of the sandboxes project (FSDMoc) is a step towards regulation, as the regulator will have a vision of what can and should not be regulated in terms of innovation.
- In general, there is the e-money law, but there is a loophole to define a more specific regulation, for example a regulation for agents of electronic money institutions, the possibility of using airtime to purchase financial services and the component of credits and insurance (currently not allowed but can become a reality).
- The current regulation was drawn up taking into account the dynamics of the sector and guaranteed safety.

Innovation



- Regulators have shown great interest in promoting Digital Financial Services. They have done so by promoting discussion, forums such as Global Money Week, recreational events in collaboration with FSDMoç. and the World Bank, workshops, elaboration of legal instruments, etc.
- The Central Bank offers incentives for those who use cashless alternatives, with the introduction of withdrawal penalties.
- ISSM has a Memorandum of Understanding with FSDMoç. which aims to leverage the level of financial inclusion in the country.

Government Support



- The government established the single network of transactions through SIMO, created the Electronic Transactions published at country level and the Interoperability Law.
- The next step would be the regulation of sandboxes and the dissemination of digital channels for all.
- The government has also created adequate telecommunication infrastructure to support financial inclusion

Development Partner Support



- FSDMoç. and the World Bank has been major development partners. The Central Bank has received support from the World Bank as part of its strategy for financial inclusion.
- FSDmoç. has supported with technical assistance. It has also supported the elaboration of the National Strategy for Broadband and Cybersecurity.

Technical Knowhow



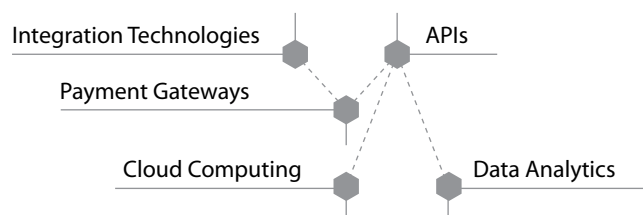
- There is technical competence in the market, but there is still a need for minor adjustments to the sector dynamics. Institutionally, companies have technical skills, and there is a need for continuous training.
- The Central Bank participates in global forums of AFI (Alliance for Financial Inclusion), where there is exchange and sharing of experiences and the best practices in this sector.
- The Sandboxes project will be one of the mechanisms for the development of technical skills in this sector.

Consumer Proximity

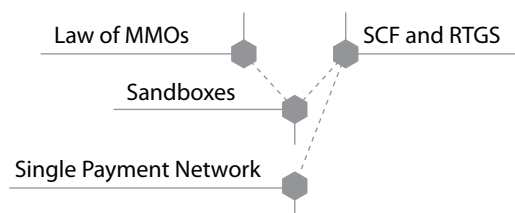


- For insurers the accessibility to digital financial services is relatively low, as they are still in their embryonic stage.
- For telecommunications, the accessibility is high, as the network covers a larger geography and platforms (USSD) can be developed using a basic cell phone without it being a smartphone. The issue of literacy has been a major constraint and reduces the rate of accessibility to digital financial services.
- Through the indicators of supply, about 36% of the population is banked. However, it is considered that the level of accessibility of services is high.

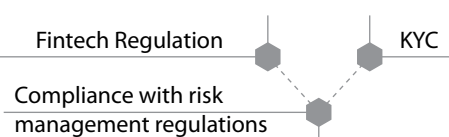
Techonologies



Innovation



Challenges



Success Stories



- State payments Real Time Gross Settlement (RTGS).
- The Law on electronic money institutions.
- Single payment network system (SIMO).
- Mobile Money Accounts.

Key Investors



- Banking and telecommunications institutions are the largest investors, followed by insurance operators and the private sector. The limitation of regulation has created barriers for the insertion of new investors in the market.

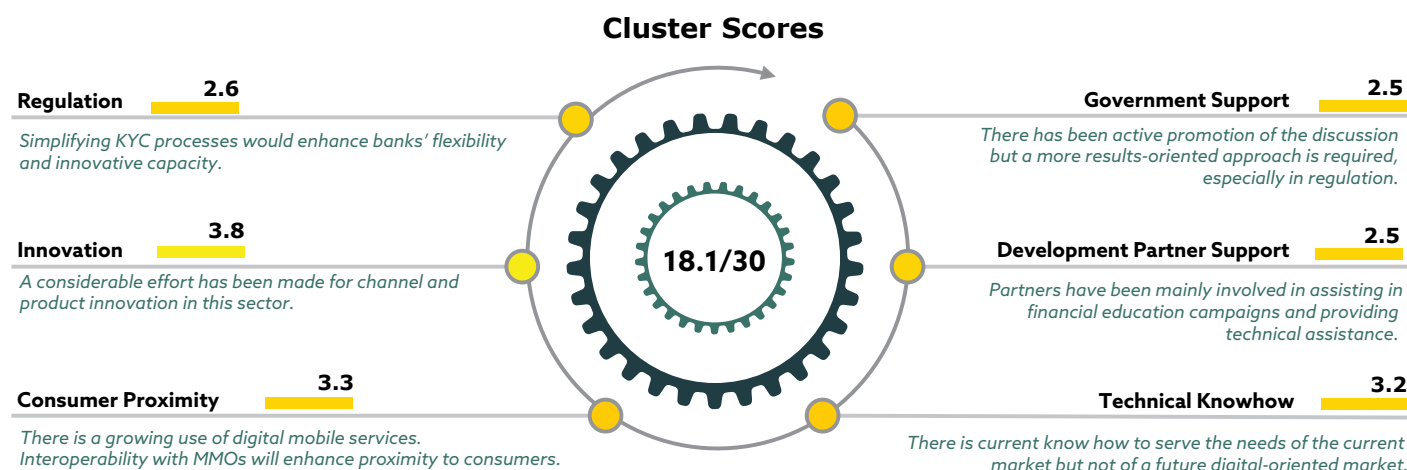
Lessons Learned



- Mobile is an effective technology to expand financial inclusion.
- Financial institutions need to improve their risk management systems.
- Need to focus also on broadening service diversification.

Banking

The industry reported that its innovation levels are “Good” but it demanded a simpler KYC process and more financial education initiatives.



Consumers limit adherence to MMOs.

Self-evaluation of the six dimensions
Deloitte qualitative assessment of dimension



Observations

Dimension

Key Insights

Regulation



- Legal and regulatory instruments to address digitalisation exist (such as the Law of Electronic Institutions), however there are some areas that still need to be developed.
- Key areas of regulatory concern include excessive documentation required for account opening (KYC), rules on fees and commissions enforced for banking and not for the MMOs, lack of clarity regarding thresholds for agency banking and adhering to a common network (SIMO) as it may stifle innovation.

Innovation



- All the interviewed banks have a “Conta Móvel” (USSD platform which does not require the users to have a bank account), mobile apps and internet banking.
- The Central Bank offers incentives for those who use cashless alternatives, with the innovations include kiosks by one bank, growing interoperability between banks and mobile money operators, pre-paid bank cards by two banks as well as agency banking offered by some of the banks.

Government Support



- The overall view is that the government engage in forums and promotion of discussion regarding digital financial services, but they do not create initiatives that can propel digitalisation further.
- However, the national interbank payment network (Sociedade Interbancária de Moçambique - SIMO) was identified as a notable initiative.

Development Partner Support



- Development partners have contributed to the promotion of financial inclusion through concessional lending, guarantees, financial education and technical assistance.
- Some partners such as DFID and SIDA (via FSDMoç) have funded studies and initiatives specifically on digital financial services.

Technical Knowhow



- The industry does have technical knowhow, but further training is required.
- Majority of the banks reported that they have limited in-house skills, so often outsource some solutions' development to foreign companies.

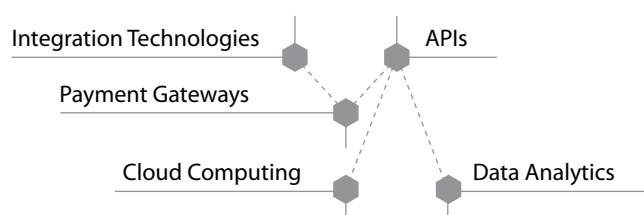
Consumer Proximity



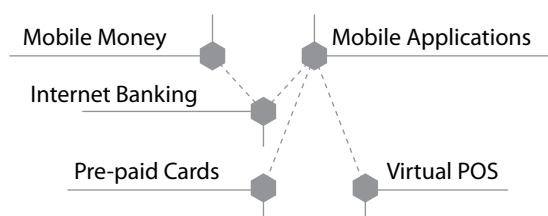
- The effective use of digital banking services started at a low base but is growing rapidly. Financial illiteracy poses a challenge but USSD platforms available are easier to use.
- These platforms are more accessible as only a basic phone and network connection is required.

Cluster Features

Technologies



Innovation



Challenges



Success Stories



- The introduction of the Conta Móvel in 2011 (Mobile Wallet) allows an individual to make financial transactions using a mobile number. It offers basic bank facilities and streamlined payments (electricity, water, TV, insurance, tuition).

Key Investors



- The banks themselves have invested in their own technologies. Banking groups with international headquarters benefit from knowledge transfer and capacity sharing.

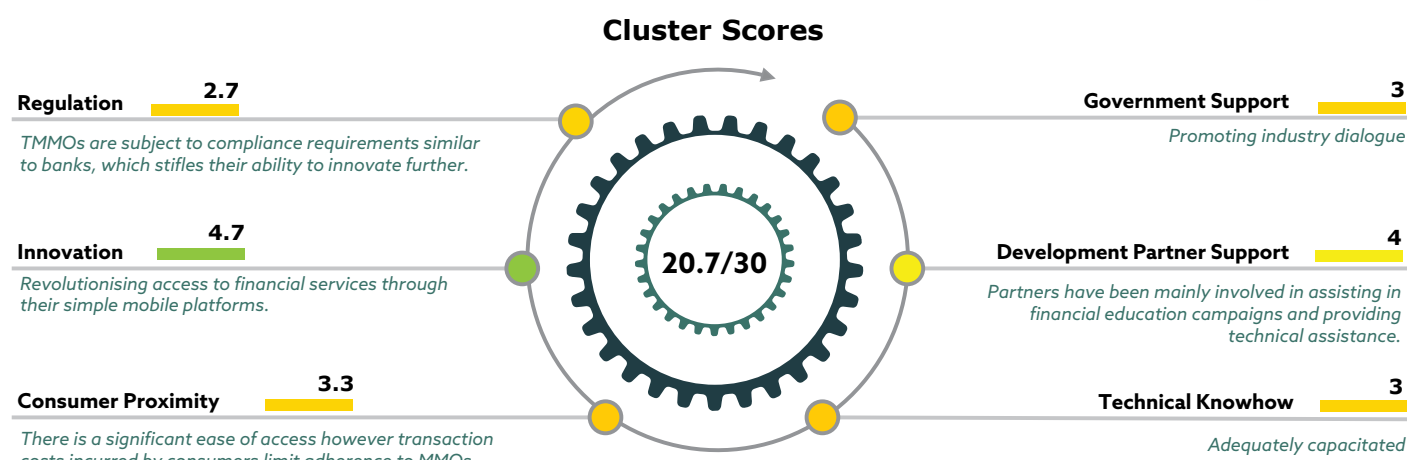
Lessons Learned



- Consumers' ability to adopt new technologies should not be underestimated, despite financial illiteracy challenges. A long-term investment is needed to establish sustainable technological disruptions. Cyber-security is significant area in digital banking. It is key for banks to have and implement a digital strategy.

Mobile Money Operators

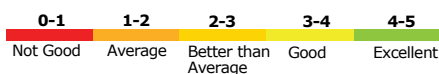
The industry reported that it is "Excellent" in Innovation and there is "Good" Development Partner Support.



Consumers limit adherence to MMOs.

Self-evaluation of the six dimensions

Deloitte qualitative assessment of dimension



Observations

Dimension

Key Insights

Regulation



- There is no specific regulation for mobile services. Currently, they are covered by the Law of credit institutions and financial companies, however, digital services have their specifications which are not included in this regulation.
- The liquidity ratio (8%) established for commercial banks also applies to mobile wallet.
- MMOs are subject to reports to the Central Bank without considering the type of service they offer and systemic risk.

Innovation



- Mobile wallet itself, is an innovation.
- Operators are currently designing alternative financial services such as credit, loans and insurance.

Government Support



- The government supports digital technologies promoting discussions, forums but not in the desirable way. In its initiatives, the government recently inaugurated 2 antennas in Maputo. The government often serves as a facilitator for international institutions to support these services.

Development Partner Support



- In recent times, development partners such as FSDMoç., KWF Bank, IFC, GTZ and FAR have provided technical and financial support to institutions within digital technologies in the Financial Sector.

Technical Knowhow



- The industry is emerging, and there is not much technical competence that responds to the digital transformation of Financial Services.
- The institutions consider the knowledge transfer between institutions. Institutionally companies have Subject Matter Expertise and in some cases they hire foreign experts or outsource.

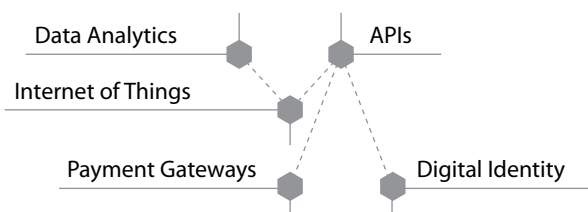
Consumer Proximity



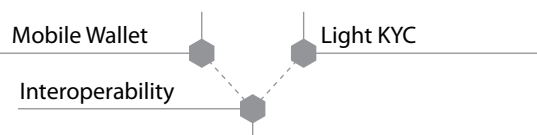
- Mobile wallets penetration grows through banking agents, as mobile operators have national network coverage, mostly where banks can not reach.
- The accessibility is high, with about 3.5million of active accounts (sum of M-pesa, M-kesh and E-Mola).
- The USSD system allow greater accessibility since they are easy to use and can be accessed from a basic cell phone. Accessibility has also increased due to interoperability with banks.

Cluster Features

Technologies



Innovation



Challenges



Success Stories



- The introduction of the mobile wallet service in Mozambique (2011 by M-Kesh) is the success story as it allowed the unbanked to access financial services. This catalysed a rapid expansion of accessibility with approximately 47% of adult population having a mobile money account by 2016.

Key Investors



- The banks and Telecommunications companies themselves have invested in their own technologies.

Lessons Learned

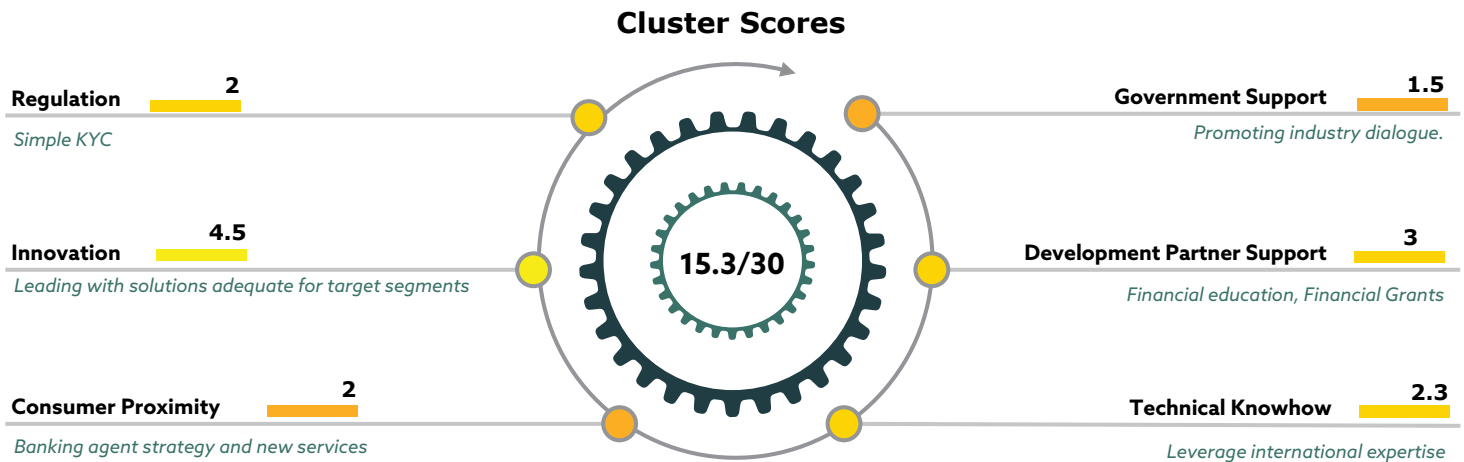


- Financial education campaigns are critical. The companies emphasized customer centricity as a key point as there is a need to design solutions that meet the consumer needs. It is important to consider that what works well in one market may not work in another market.



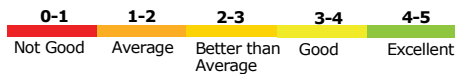
Consumer Finance Institutions

The industry reported that it is "Excellent" in Innovation and that Consumer Proximity and Government Support are "Average" .



Consumers limit adherence to MMOs.

Self-evaluation of the six dimensions
Deloitte qualitative assessment of dimension



Observations

Note: Letshego obtained a banking license in Mozambique as of September 2016.

Dimension Key Insights

Regulation



- Regulation is not supportive and needs improvement.
- There is a limitation of the regulation on both the consumer side as well as the provider side.

Innovation



- They specialise in having the fastest loan approval process in the market which is possible because of digital internal processes.
- Strategic partnerships are formed with existing market players distribute products via mobile platforms. Digital fingerprint technology (Letshego's Bluebox) simplifies the KYC process.

Government Support



- The Central Bank of Mozambique supports, because it has laws that promote digital financial services, but it is also an area where other governmental institutions can do much more. However, there are no incentives to operate in rural areas, and if there could be more activity in this area.

Development Partner Support



- Development partners have been very supportive.
- LetsGo has used 2 funds - MasterCard Foundation's Rural Prosperity Fund (RPF) and FSDMoç. LetsGo has received \$ 1 million in grant funding to develop its LetsGo Bluebox solution and FSDMoç has supported financial literacy campaigns. In addition, GIZ has provided technical support.

Technical Knowhow



- In the industry, there are some skills but still need training and knowledge sharing.
- The regulator and the institutions (banking and telecom) have to invest more in the technical capacity in the industry. Without the necessary training, challenges like fraud can be harder to intercept.

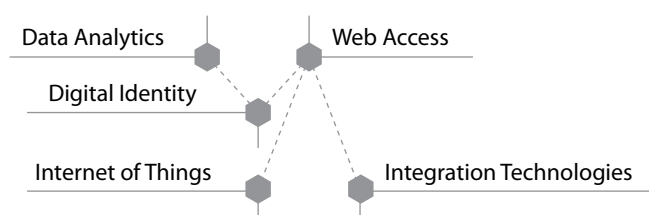
Consumer Proximity



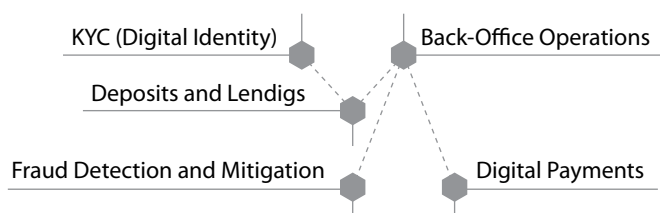
- The target market for these institutions are low-income individuals, public employees, informal market, and digital have been used to reach consumers.
- Consumers have demonstrated enough financial capacity to make transactions in the banking financial model.
- In terms of effective use, it is necessary to invest more in learning and dissemination of how to use the platforms.

Cluster Features

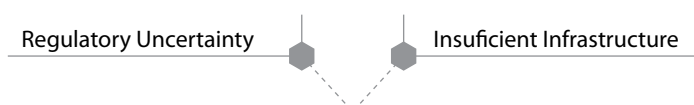
Technologies



Innovation



Challenges



Success Stories



- Bluebox (2015-2016) was an extremely innovative solution in the market. LetsGo Bluebox solution was awarded the MasterCard Fund for Rural Prosperity grant. Use of biometrics for simple KYC process will include more people, who would otherwise not qualify (lack of documentation) for this financial service.

Key Investors



- In this sense, banks have been the biggest investors in digital financial services. In parallel mobile operators have also invested in these technologies as well as development partners.

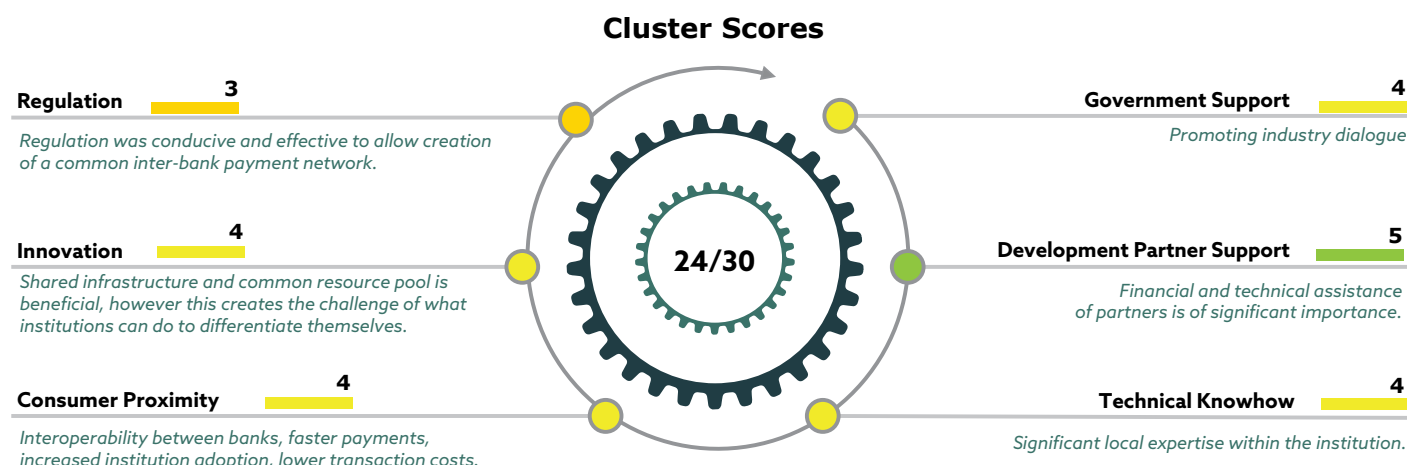
Lessons Learned



- Environment is not yet fully ready to embrace digitalisation. Multi-lingual and visual communication is critical to ensure large adoption within the communities, so it must be done in a careful way.

Payment Network

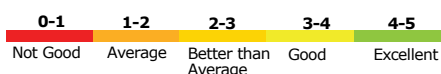
The industry reported that has "Good" Innovation and Consumer Proximity and that Development Partner Support is "Excellent".



Consumers limit adherence to MMOs.

Self-evaluation of the six dimensions

Deloitte qualitative assessment of dimension



Observations

Dimension

Key Insights

Regulation



- The regulator has demonstrated initiatives such as the creation of the SIMO network and passing the Law of Electronic Transactions in 2017 which accommodated for interoperability between financial institutions.
- However, there are areas within the regulation that are not yet developed such as simplifying the KYC process. This would allow more efficient data capturing processes and proliferation of financial services to segments of the population that previously had limited access.

Innovation



- The SIMO switch has enabled cashless transactions. They provided a platform that encouraged interoperability between the banks, mobile wallet (Conta Móvel) and internet banking.

Government Support



- The government has made a considerable effort in leading initiatives that promote the discussion of financial inclusion via digital mechanisms.
- However, the adequate legal instruments that can accommodate these innovations need to be created and implemented.

Development Partner Support



- There have been a number of initiatives by international agencies and entities that seek to finance the adoption of digital technologies in the financial sector in Mozambique.
- In particular, KfW has provided financial support to SIMO, via the Central of Mozambique.

Technical Knowhow



- The financial services industry does have technical knowhow. SIMO invests continuously in their employees' training as well as stays up to date with market tendencies.
- They tend to outsource some of their solutions and may often resort to Portuguese digital solutions.

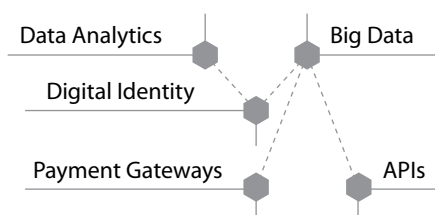
Consumer Proximity



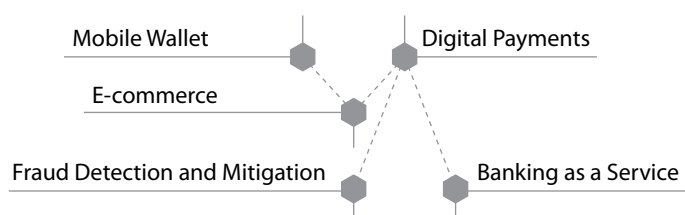
- There is a growing trend in the use of digital financial services nationwide.
- Financial illiteracy needs to be addressed to increase the adherence rate of these services, however SIMO has not registered any serious user complaints regarding the digital platforms they provide.

Cluster Features

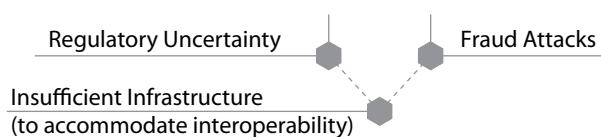
Technologies



Innovation



Challenges



Success Stories



- Interoperability between banks and reduced costs of financial services represents a great success in the history in the financial services industry.

Key Investors



- Banking, telecommunications operators and the Central Bank are the largest investors. It must highlight the intervention of FSDMoç, World Bank and KFW as major drivers.

Lessons Learned

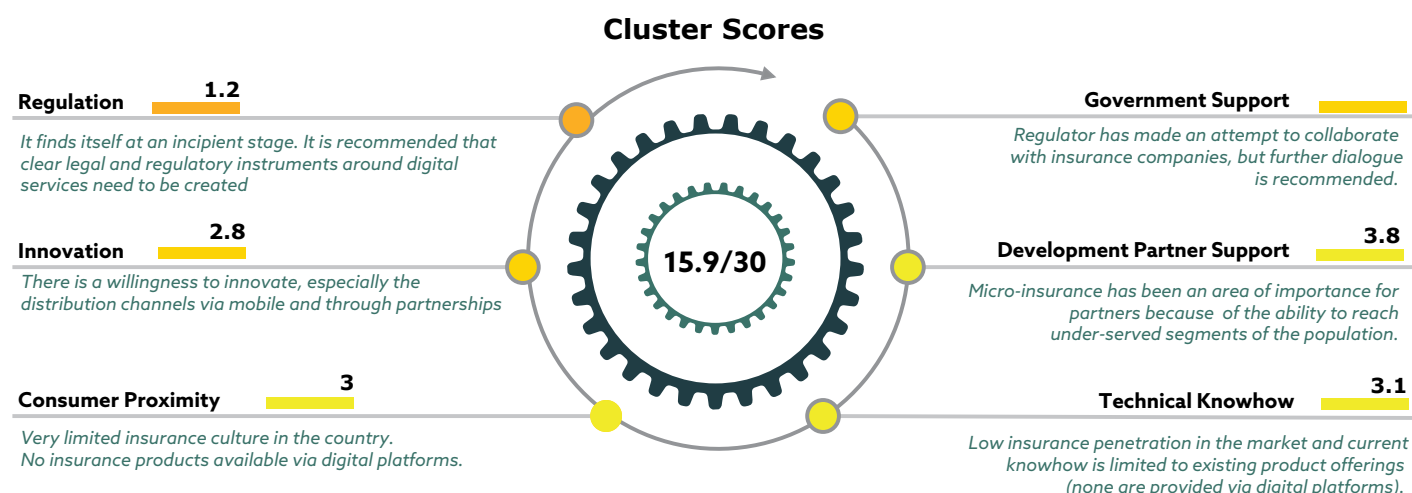


- Integration processes can be long and challenging to enforce compliance, however there are benefits to the end user.

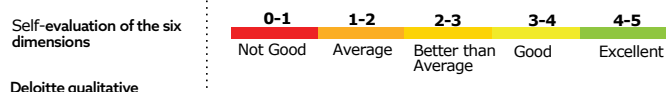


Insurance

The industry reported that it is "Good" in Proximity to Customers and Development Partner Support and "Average" in Regulation.



Consumers limit adherence to MMOs.



Dimension

Key Insights

Regulation



- Currently, there is no specific legal or regulatory instrument which accommodates digital financial services in the insurance sector. The lack of legal clarity creates challenges to insurance firms who want to innovate.
- Overcoming the requirement of a physical signature to celebrate a contract is one of the main regulatory obstacles faced by insurers when selling products and services via a digital platform.

Innovation



- Some insurers currently have websites where clients can view products and request quotes. Differentiated products currently include border kiosks, gas station insurance terminals and subscription to insurance products via mobile money operators.
- Future innovations within this sector include institution platform or is still at an incipient phase. Majority of development (SMS subscription, USSD and mobile apps).

Government Support



- The government has supported this digital transformation by promoting the discussion, but it is still very incipient.
- Especially for the insurance sector, there is a lack of a consolidated vision on how to utilise technology to accelerate financial inclusion.
- The priority is to first educate the population about the benefits of insurance.

Development Partner Support



- Initiatives by the World Bank and FSDMoç were highlighted, in particular in fostering the discussion of financial inclusion.
- Micro-insurance is an area development partners have actively supported.

Technical Knowhow



- The industry does have technical knowhow to accelerate the digital component, however regarding product development, insurance firms tend to outsource to local and foreign firms.

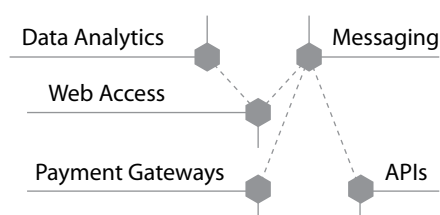
Consumer Proximity



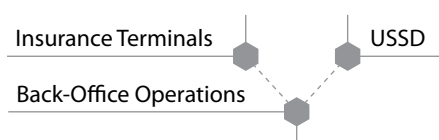
- Mozambique does not have a strong insurance culture and has limited financial literacy. Currently, there is low adherence of insurance products and limited offer via digital platforms.

Cluster Features

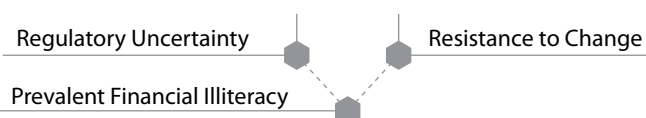
Technologies



Innovation



Challenges



Success Stories



- A success story observed in the insurance sector is Sanlam's partnership with m-Pesa to provide insurance services to over 6,000 members of the Zion Christian Church in Mozambique. They managed to access an effective distribution channel to reach clients that would otherwise not have access to this service.

Key Investors



- In the insurance sector, it is the companies themselves that invest in digital technologies. In the sector as a whole, telecommunications companies and development partners have played an active role in this process.

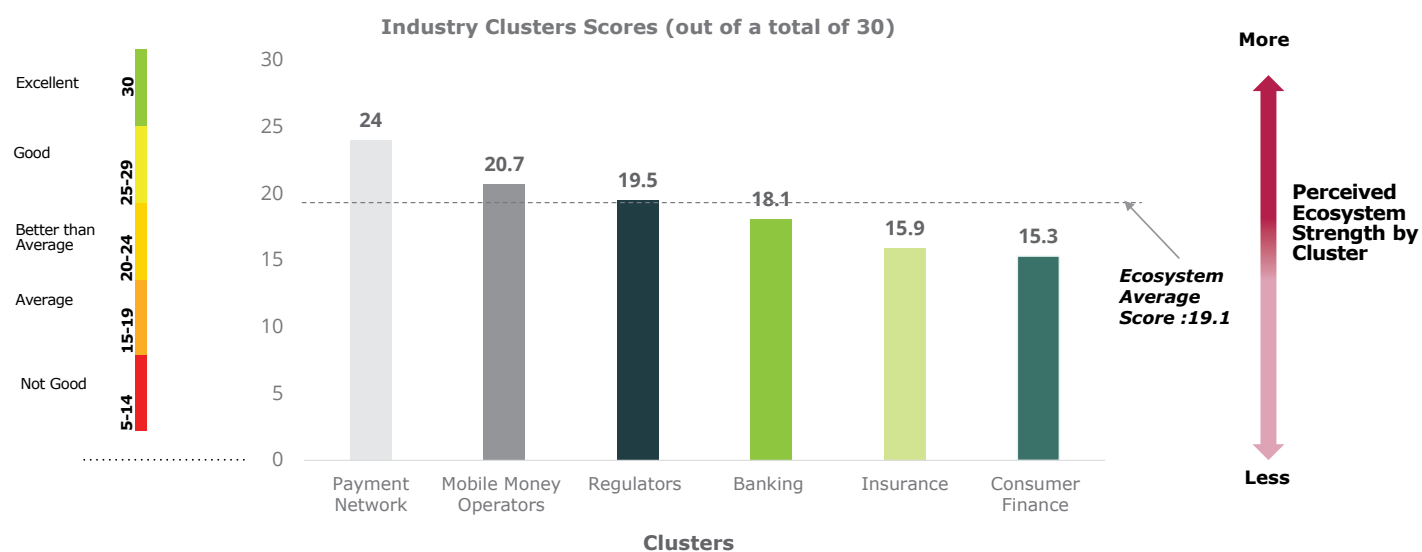
Lessons Learned



- Environment is not yet fully ready to embrace digitalisation. Multi-lingual and visual communication is critical to ensure large adoption within the communities, so it must be done in a careful way.

Digital Ecosystem Index – Clusters

The Ecosystem industry cluster with the highest self-rating score is Payment Network (SIMO) and the lowest are Insurance and Consumer Finance.

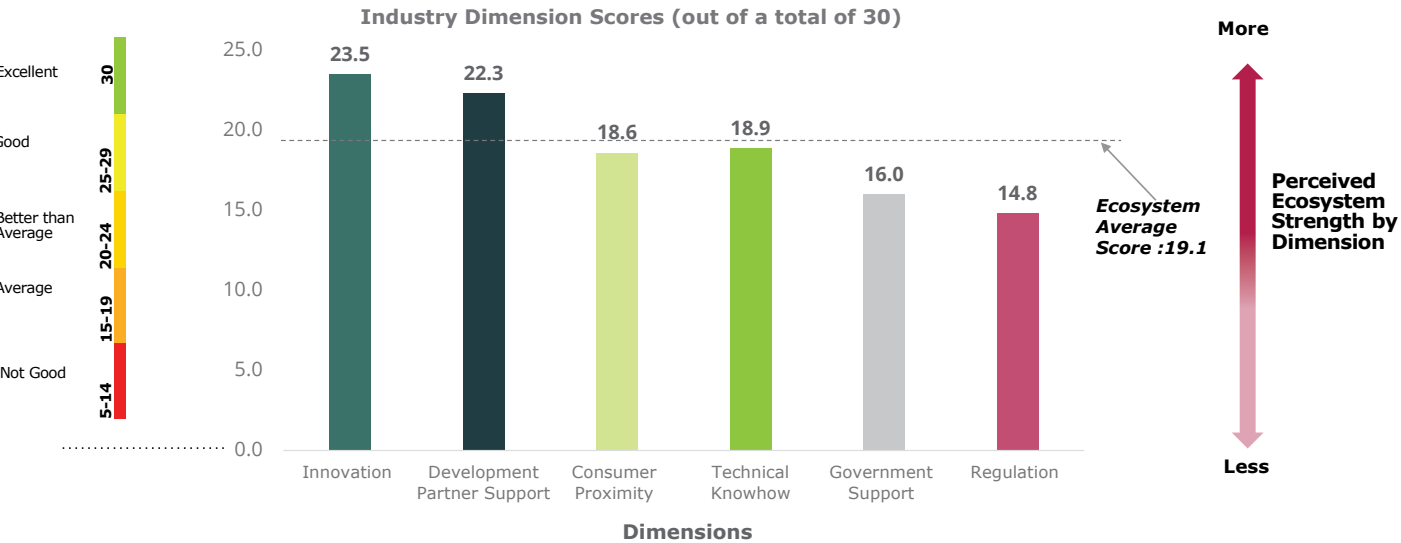


04

Country Profile

Mozambique's Digital Ecosystem

The dimension with the highest self-rating score is Innovation and the lowest are Government Support and Regulation.



Dimension

Key Insights

Regulation



- Existing regulation caters to conventional financial services but is not yet adapted to digital innovations.
- In the absence of specific regulation, institutions have space to be innovative. An industry wide regulatory concern is excessive documentation required for account opening (KYC).

Innovation



- Current innovations include branchless channels through mobile platforms, agency banking and kiosks.
- Biometric technologies are facilitating KYC data capturing.
- Strategic partnerships with existing market players who have technological platforms are being used to provide products and services.

Government Support



- The government has contributed by promoting the discussion in the industry, collaborating with development partners and institutionalising digital payment systems (e.g. payment of public sector salaries via digital platforms).

Development Partner Support



- Development partners have supported the strengthening of the financial sector and the promotion of financial inclusion.
- Some development partners are supporting digital financial services through investment infrastructure (payments), funding and technical assistance in mobile, micro insurance and financial illiteracy initiatives.

Active partners in this space include, UK, Sweden and Germany.

Technical Knowhow



- Technical knowhow exists to service the current financial services industry, however training and capacitation is required to accompany digital innovations.

At an institutional level, entities use a combination of local and foreign skills as well as outsource key digital solutions (platform development).

Consumer Proximity



- The usage of digital financial services started at a low base but is growing at a steady pace. Digital innovations via mobile are generally easy to use and accessible.

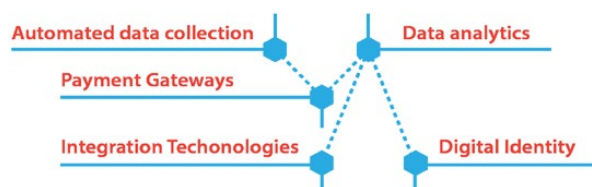
Greater network coverage and interoperability between banks and MMOs has increased consumer accessibility.

Financial illiteracy and consumer vulnerability are challenges

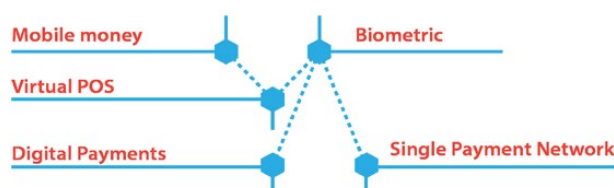
Mozambique's Digital Ecosystem



Technologies



Innovation



Challenges



Success Stories

M-pesa has transformed the way Mozambique moves money through its mobile money transfer system. Approximately 3 million Mozambicans use this platform as it can be accessed via a basic mobile phone. Other mobile platforms have been developed (m-Kesh and e-Mola).

Big Investors

Banks, MNOs, Germany (KfW), UK (DFID), Sweden, World Bank, MasterCard Foundation

Lessons Learned

FSDMoç. is currently developing a sand-box project to test financial solutions with the following institutions: Ekutiva solutions (Payments Gateway via http and ussd), Robobo (Payments Portal) PayTek (will develop the concept of Payment Aggregator), Zoono (Models of KYC and banking agency) and Mukuro (remittance services in a controlled regulatory environment).



05

Country Benchmark

Methodology

A country's financial sector development is influenced by macro-factors measured by the three chosen indices. Were calculated an aggregate Index Performance Score which is predicated upon three indices.

- Doing Business (DB)
- Global Innovation Index 20163 (GII)
- Global Competitiveness Index (GCI)

A lower Index Performance Score suggests that the country is more conducive to the growth of Digital Financial Services.

Doing Business (DB) Doing Business 2017 is the 14th in a series of annual reports on the regulations that enhance business activity and those that constrain it. DB measures the legal and regulatory environment in which companies operate. Long delays in setting up a company can stifle new ideas. Likewise a non-transparent legal system deters investors and customers from entering into relationships with anyone other than known counterparties, making the development of a knowledge-sharing ecosystem much harder.

Global Innovation Index (GII) First published in 2007, the Global Innovation Index is the result of a collaboration between Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) and their Knowledge Partners. In particular, the wide variety of measures used in the GI would be expected to capture the various innovation components for a technology-related sector. It should be noted that innovation is broader than solely technological Innovation.

Global Competitiveness Index (GCI) The Global Competitiveness Report (GCR) is a yearly report published by the World Economic Forum. Since 2004, the Global Competitiveness Report ranks countries based on the Global Competitiveness Index. The Global Competitiveness Index integrates the macroeconomic and the micro/business aspects of competitiveness into a single index. The report "assesses the ability of countries to provide high levels of prosperity to their citizens. This in turn depends on how productively a country uses available resources. Therefore, the Global Competitiveness Index measures the set of institutions, policies, and factors that set the sustainable current and medium-term levels of economic prosperity.

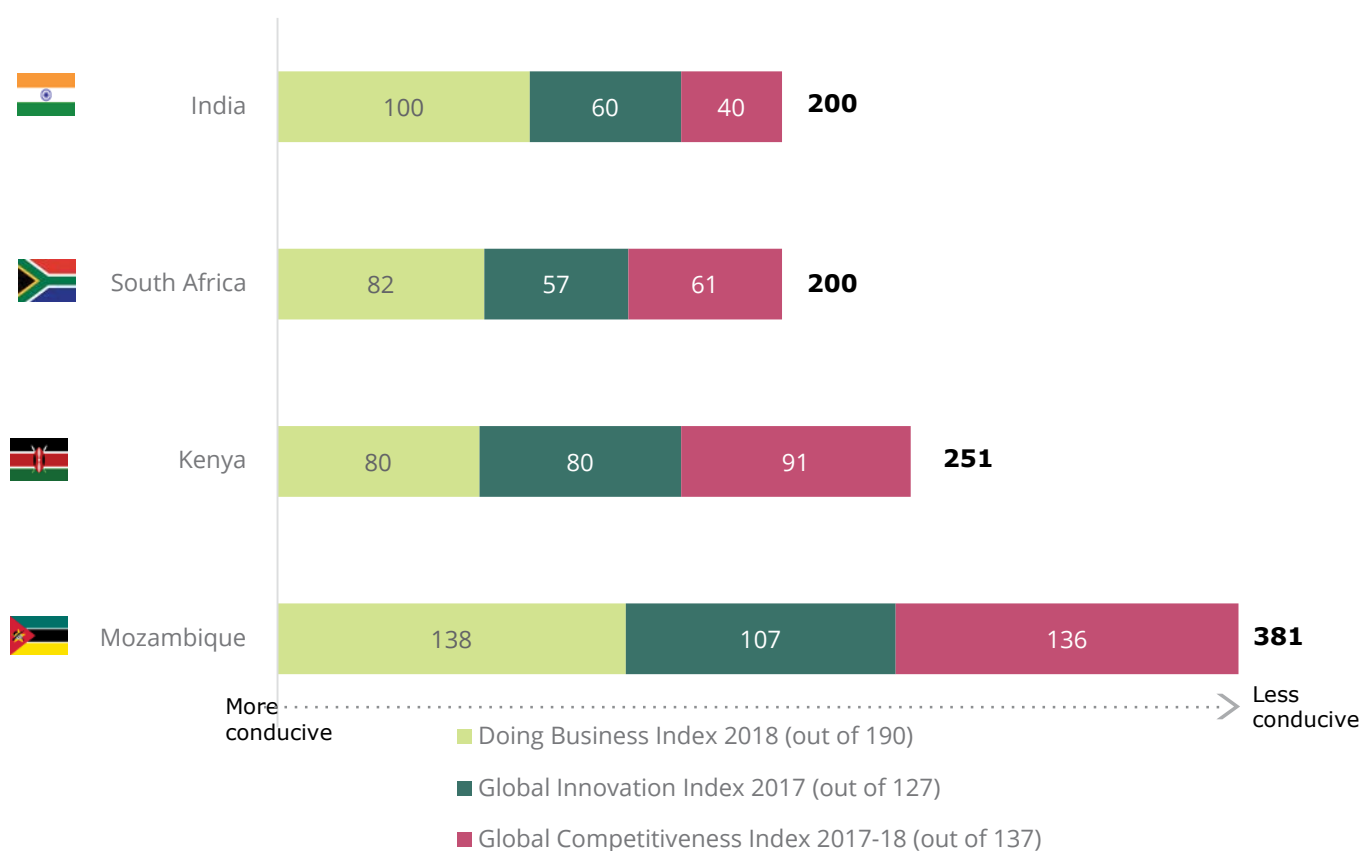


Macro Factors Performance Score: Benchmark

A country's financial sector development is influenced by macro-factors measured by the three chosen indices.

- A country's DB measures the legal and regulatory environment in which companies operate, which is crucial for the growth of digital financial services.
 - Innovation is a key factor in determining whether a particular country can foster a successful digital environment. In particular, the wide variety of measures used in the GII would be expected to capture the various innovation components for a technology-related sector.
 - A more competitive economy is likely to grow faster over time. The GCE is crucial to digital as it includes key macro and micro economic factors that are conducive for economic growth, including technological readiness, innovation and education.
- s financial sector development is influenced by macro-factors measured by the three chosen indices.

Macro Factors Performance Score



A lower Index Performance Scores indicates that the country is more conducive to Digital Financial Services growth based on the amalgamation of three global indices.

Macro Factors Performance Score: Mozambique

The Index Performance Score is calculated as the sum of the three indices (most up-to-date):

- Doing Business Index (DB) 2018
- Global Innovation Index (GIIN) 2017
- Global Competitiveness Index (GCI) 2017-18

For the purpose of our report, the three indices are considered to be of similar importance in proliferating digital ecosystem in Mozambique. Hence, they all have equal weighting.

Macro Factors Performance Score

Doing Business Index 2018

Electricity infrastructure improved in Mozambique as it takes less time to get an electricity connection, which is essential for doing business in general, especially for technological fields.

138/
190

Global Innovation Index 2017

Mozambique was among the top 10 low-income countries across all main Global Innovation Indices (innovation input, innovation output and innovation efficiency). Categorised as an "Innovation Achiever" between 2012-2017 as the GII scores are higher than expected based on Mozambique's economic development

107/
127

Global Competitiveness Index 2017 - 2018

Mozambique is a factor-driven economy. The weak macro-economic environment of the country has affected this score detrimentally. However, innovation and technological readiness have been improving steadily, both ranking at 117/137.

136/
137

Source: The Global Competitiveness Report 2017-2018, The Global Innovation Index 2017 and Doing Business Report 2018

06

The Future

What does the future hold?

Digital innovations are likely to accelerate financial inclusion. Mobile 3.0 innovations are most likely to proliferate and broaden financial services in Mozambique.

- Understand **how the new innovations alter the risk profile** of the industry
- Traditional mechanisms of **measuring customers' risk profile** will **lose their efficacy** as new data sources emerge
- New digital distribution channels will allow for **scalability at an exponential rate**
- Mobile money 3.0 - not only transactions but savings, loans, insurance and investments will boost inclusion
- **Electronic money** will bring new benefits - more clients and services, lower cost to reach customers and new market players like Fintechs, as well as new risks (e.g. KYC, AML, Cyber)
- **Alternative payment** network systems other than SIMO will emerge (QR Codes)
- **Increased Interoperability** - between mobile money operators
- The new generation of process externalization will provide an economical access to sophisticated capabilities, no longer dependent on banks' ability to make heavy infrastructure investments
- Increasing use of data analytics will allow for better understanding of customer needs & provide better services
- **Unbundling of banking services** from niche entrants which will develop best of breed point solutions for SMEs

Regulators

- Conditions for simpler KYC
- Address cyber security & data protection.
- Allocate banking licenses to non-conventional players: MMOs etc.
- Allow new financial services via mobile (loans, etc).
- Address risks related to new "non-traditional" institutions.
- Regulation of Fintechs
- Services to informal savings pools.

MMOs

- Accelerated adoption of mobile wallets, mobile merchant apps, ordering/shopping apps.
- Go-to-institution for managing customer transactions: eco-systems, mobile money.
- Potentially reduced transaction fees as competition increases.
- Lead customer relationship & products for newly banked . segment: loans and deposits
- Partnership & digital ecosystem resulting in more complex financial services.
- Increased Government transactions via digital.
- Interoperability between mobile operators.

Insurance

- Increased digital sales via mobile and USSD. Partnerships with data providers in the market will facilitate building a digital ecosystem.
- Connected insurance via devices & ecosystem participants.

Consumer Finance Institutions

- Increased competition.
- Greater penetration through Digital solutions in rural areas.
- Proliferation in number of agents.
- Diversification of services e.g. deposits.

Banking

- eBanking – richer online eco-systems.
- Loose control of customers transaction experience.
- Competitive offerings via data analysis.
- Digital Eco-systems with agents to serve customers without expensive infrastructure.
- Emerging technologies: cloud computing, QR codes for payment, payment gateway and block-chain.

Payment Network

- Enforce more transactions/ services via the switch: banking agents, mobile & insurance
- Further Standardization & cost reduction for financial services
- Greater interoperability
- Interoperability consolidation & increased partnerships (MMOs, banking agents)

Future Digital Innovations in Mozambique

The core of digital innovations in Mozambique are taking place in the payments area whilst targeted initiatives are emerging in market provisioning and deposits and lending

Innovations currently taking place in Mozambique

Future Innovations Identified by the financial services industry in Mozambique (next 3 years)

Payments

Emerging Payment Rails

- Crypto currency
- P2P FX
- Mobile money

Cashless world

- Integrated billing
- Streamlined payments
- Mobile Payments

Insurance

Insurance disaggregation

- Sharing Economy
- Autonomous vehicles
- Digital distribution
- Securitization & Hedge funds

Connected Insurance

- Internet of things
- Advanced sensors
- Wearable computers

Deposits & Lending

Shifting customer preferences

- Virtual technologies
- Mobile 3.0
- Third parties API

Alternative lending

- P2P Lending
- Alternative Adjudication

Market Provisioning

Smarter Faster Machine

- Big Data
- Artificial intelligence/machine learning
- Machine readable news
- Social sentiment

Cashless world

- Market information platforms
- Automated data collection

Investment Management

Process Externalization

- Advanced algorithms
- Cloud computing
- Open source IT
- Capability sharing

Empowered Investors

- Social trading
- Retail Algorithm Trading
- Automated advice and management

Capital Raising

Crowdfunding

- Virtual Exchanges & smart contracts
- Alternative Due
- Diligence

Source: The Future of Financial Services How Disruptive Innovations are Reshaping the Way Financial Services are Structured, Provisioned and Consumed (2015).

07

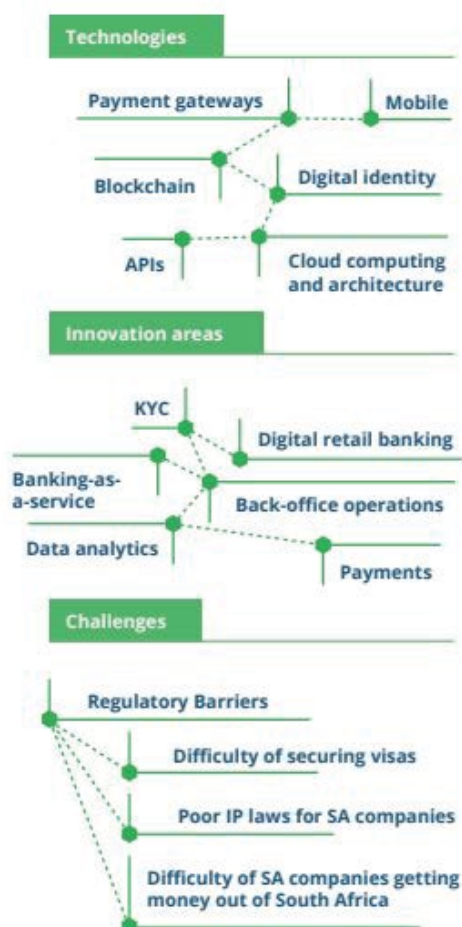
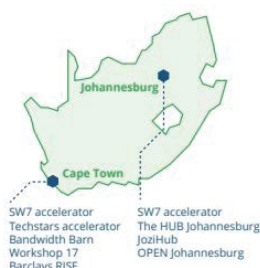
Key Takeaways

Methodology

1. A specific **regulatory framework** (adapted to digital innovations) is critical to promote financial inclusion through digital innovations in the market and allow new market entrants to operate, such as FinTech start-ups (traditional banking vs. digital banking and MMO).
2. **Interoperability** between the financial institutions and mobile money operators has made financial services more accessible
3. **Financial literacy** campaigns have contributed to the growing usage of digital financial services in Mozambique, led by development partners, Bank of Mozambique and other financial institutions. Financial literacy should continue to be a key focus area in the country's digital transformation of its financial services.
4. The current **telecommunications infrastructure** has enabled network coverage to remote areas of the country. Infrastructure pooling can result in a wider outreach, improved quality and reduced cost of data, which will play a big role in accelerating financial inclusion, via mobile platforms.
5. The **notable investors** in the digital proliferation of the financial services industry in Mozambique have been the banks, telecommunication sector via their mobile money platforms and donors (FSDMoç, World Bank, KfW, MasterCard Foundation, GIZ, Fundo de Apoio e Reabilitação Económica - FARE).
6. Changing **consumer behavior** need to be carefully considered. Products and services need to be tailored to meet the needs of consumers. The rate of adhesion and usage will grow at different rates per geographic access and per type of digital platform utilized. For example, platforms that require data access will be increasingly popular in urban areas while USSD platforms will be more easily adopted in rural areas.
7. There is a growing trend to distribute financial products and services via **mobile platforms** (USSD) due to the high accessibility rate.
8. The government has supported the digital transformation of the financial services industry by **promoting the discussion** via forums and conferences. They are collaborating with development partners in disseminating financial education campaigns and creation of FinTech sandboxes (BM and FSDMoç).
9. **Development partners** have actively contributed to the promotion of digital financial services not only through the promotion of the discussion, technical and financial assistance.
10. **Subject Matter Experts (SMEs)** play a key role in the digital transformation process both institutionally and industry-wide as they enable innovations to happen full-time and using cutting-edge technologies. There is a growing need for training programs in digital thematic, the knowledge transfer and, above all, the exploration of national human capital.

08 Annex

South Africa Landscape



Top FinTech Companies

M-pesa has transformed the way Mozambique moves money through its mobile money transfer system. Approximately 3 million Mozambicans use this platform as it can be accessed via a basic mobile phone. Other mobile platforms have been developed (m-Kesh and e-Mola).

Big Investors

Silvertree, NASPERS, Perry Blacher (Amadeus), Barclays Seeker Fund, 4Di Group, Hasso Plattner Ventures.

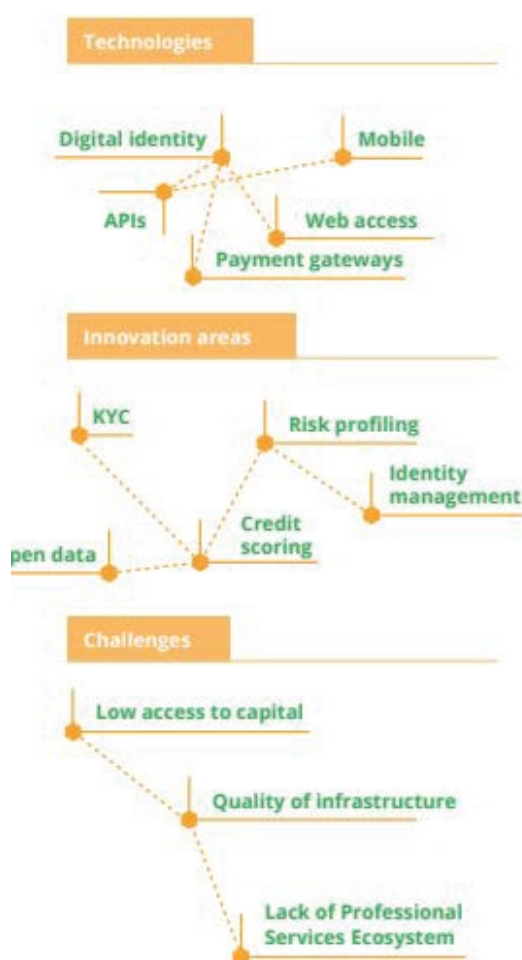
Success Stories

There are numerous individual company success stories. An example is the Barclays Accelerator powered by Techstars, where the 10 companies invested in were from 9 different countries both within Africa and from the UK, US, and Lebanon.

The Future

The South African start-up community is becoming more attractive and palatable to international investors. It is expected that more foreign venture capitalists will enter the market, thereby creating greater competition with existing South African VCs and ultimately better terms for start-up founders. Both Johannesburg and Cape Town are expected to strengthen, building bridges between the two Hubs and the global and regional FinTech community.

India Landscape



Top FinTech Companies

PayTM, FINO, Paytech, Citrus Pay, Bill Desk Freecharge, MobiKwik, BankBazaar, PolicyBazaar, Capital Float, SME Corner.

Big Investors

Sequoia Capital, 500 Startups India, SAIF Partners, Tiger Global, IDG, Accel Partners, Ascent Capital, Bain, Basil Partners.

Success Stories

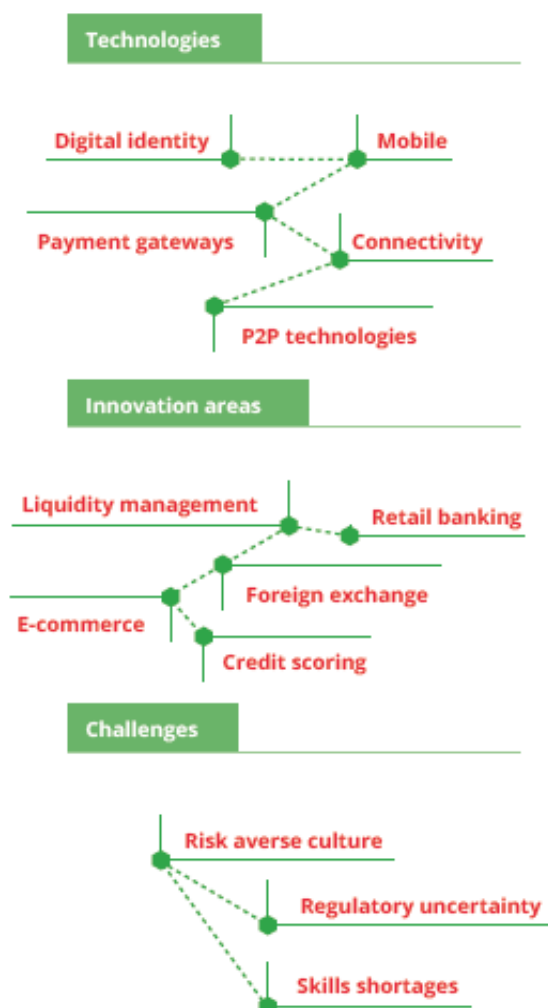
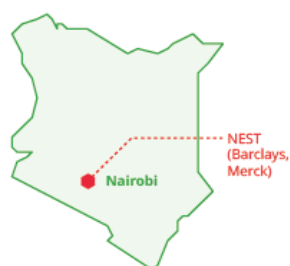
PayTM and mobile wallet/payments providers are rapidly expanding digital payment infrastructure.

The Future

The next phase of FinTech in India will see the emergence of new types of block chain extensions and other distributed ledger technologies, continued progress towards digital financial inclusion by 2020 and developments in next-generation payments.

Enabled by the India Stack, India will also see the emergence of non-payments FinTech companies – alternative lenders, alternative credit scoring, and artificial intelligence.

Kenya Landscape



Top FinTech Companies

Innova, Pesa Pal, KAPS LTD, Craft Silicon.

Big Investors

Savannah Fund, NEST, Centum Investment, Novastar Ventures.

Success Stories

M-PESA has revolutionised the way Kenya does business through its mobile money transfer system. Launched in 2007, 17 million Kenyans use M-PESA thanks to a simple text-based menu that is accessible on even the most basic mobile phone. MODE provides instant nano-credit for pre-paid mobile phone users across Africa, founded in 2010, it now has operations in 31 countries with a customer base of over 250 million.

The Future

The technical skills gap between Kenya and other international FinTech hubs will narrow due to continued training and development provided by programmes such as Code for Africa. With some international banking groups decreasing their presence in Africa, this will free up larger pools of talent to enter the FinTech space.



Definition of Digital Innovations in Mozambique

Payments

Emerging Payment Rails

- Mobile money: refers to financial transactions and services that can be carried out using a mobile device such as a mobile phone or tablet. These services may or may not be linked directly to a bank account.

Cashless world

- Integrated billing: includes mobile ordering and payment apps and integrated mobile shopping apps.
- Streamlined payments: location based payments and machine-to-machine payments
- Mobile Payments : payments done on mobile wallets and mobile-based merchant payment solutions.

Insurance

Insurance disaggregation

- Digital distribution: distributing products and services via a digital platform

Connected Insurance

- Internet of things: the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data.

Investment Management

Process Externalization

- Cloud computing: the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.

Cashless world

- Social trading: is a service that allows investors to replicate the operations of expert traders. It introduces a new way of analyzing financial data by providing a ground to compare and copy trades, techniques and strategies. Using social trading investors and traders could integrate into their investment decision-process social indicators from trading data-feeds of other traders. These social trading networks can be considered a subcategory of online social networks.

Definition of Digital Innovations in Mozambique

Deposits and Lending

Shifting customer preferences

- Mobile 3.0: purchasing deposits and lending services in the digital marketplace via mobile applications disintermediating banks.
- Third parties API : APIs are systems that software vendor program into their software to allow outside programmers to access to manipulate data. Third party API integration aims at utilising these systems to either eliminate duplicate entry data or to provide new features that the software vendors cannot provide.

Alternative lending

- P2P Lending: is a method of debt financing that enables individuals to borrow and lend money, using digital platforms, without the use of an official financial institution as an intermediary. P2P lenders solve the banking model's inefficiencies by developing online marketplaces that use complex algorithms to match borrowers with investors according to each party's specifications
- Alternative Adjudication: Borrowers are assessed on criteria beyond traditional credit scores, such as social data, and risk engines are reviewed more often to incorporate recent feedback.

Market Provisioning

Smarter Faster Machine

- Big Data: extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions. It allows the user to access extensive real-time data sets through specialized databases; uncover predictive insights on market movements based on correlations mapping and update and access insights in real-time through cloud-based analytics.

New Market Platforms

- Automated data collection: refers to the methods of automatically identifying objects, collecting data about them, and entering them directly into computer systems, without human involvement
- Data analytics: is the process of examining data sets in order to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software. data analytics predominantly refers to an assortment of applications, from basic business intelligence (BI), reporting and online analytical processing (OLAP) to various forms of advanced analytics.

Definition of Underlying Technologies in Mozambique

- **APIs** (Application Programming Interface): is a set of commands, functions, and protocols which programmers can use when building an application software for a specific operating system. The API allows programmers to use predefined functions to interact with the operating system, instead of writing them from scratch.
- **Big Data:** Refers to the growth in the volume of structured and unstructured data, the speed at which it is created and collected, and the scope of how many data points are covered. Big data often comes from multiple sources and arrives in multiple formats.
- **Cloud computing:** Is a general term used to describe Internet services. Is the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.
- **Data Analysis:** is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making.
- **Digital Identity:** is information on an entity used by computer systems to represent an external agent. That agent may be a person, organization, application, or device. ISO/IEC 24760-1 defines identity as “set of attributes related to an entity”. A digital identity is an online or networked identity adopted or claimed in cyberspace by an individual, organization or electronic device.
- **Integration technologies:** Are technologies that allow the integration of systems, data, services with the aim of creating interactivity among them.
- **Internet of Things:** Refers to a network comprised of physical objects capable of gathering and sharing electronic information.
- **Messaging:** is a method of communication between software components or applications. A messaging system is a peer-to-peer facility: A messaging client can send messages to, and receive messages from, any other client
- **Payment gateways:** is a merchant service provided by an e-commerce application service provider that authorizes credit card or direct payments processing for e-businesses, online retailers, bricks and clicks, or traditional brick and mortar. A payment gateway refers to the front-end technology that reads payment cards and sends customer information to the merchant acquiring bank for processing. The payment gateway is an important aspect of all electronic payment card processing.
- **Web Access:** Internet access that includes access to WWW.



Methodology

The methodology for this study comprised the following sections: 1. Cluster representative selection, 2. Industry Clusters Scores with Deloitte observations, Cluster Profile, Industry Features and Country Benchmark. This study has been carried out by Deloitte at the global level, was replicated in the Mozambican reality.

1 Cluster representatives

The cluster representatives were selected jointly with FSDmoç. This allowed FSDMoç. to provide their insights and knowledge on local Digital Financial Services market and its trends. These entities play an important role in developing in the financial sector (Regulators, Banks, Mobile Money Operators, Insurers, Payment Network and Consumer Finance Institutions).

2 Industry Clusters Scores

Six dimensions were defined that allow for consistency in the industry and it is preponderant that they are considered, since they influence the ecosystem.

Regulation: To what extent does current regulation promote digital financial services.

Innovation: The extent to which institutions have been innovative, the current innovations in terms of services and products offered to the market. Proximity to customers: The extent to which consumers have ease of access to services provided and the effective usage of services.

Technical know-how: The availability of technical skills in the industry and institutions that allow digitization of financial services

Government support: To what extent the government has supported digital financial services and where applicable, provide examples of their initiatives (e.g. promoting the debate).

Development partners support: To what extent the development partners has supported digital financial services and where applicable, provide examples of their initiatives (e.g. financial or technical assistance).



Each cluster representative self-scored the 6 dimensions using the scale below:

This quantitative measure enabled to compare data and have a broad sensitivity across the clusters.

The Industry Clusters Score is the average of the scores for all the 6 dimensions within a specific industry cluster

3 Cluster Profile

The entities interviewed had the opportunity to provide qualitative answers regarding the dimensions and it was based on these answers that the profile of each cluster was elaborated. In this way it was possible to have a broad view of these dimensions (regulation, innovation, technical know-how, government and development partners support) and get the key insights.

4 Industry Features

The cluster representatives provided a “state of the nation” overview which covers: Innovation, Technologies, Challenges, Key Investors, Success Stories and Future Trends in each market.

We sought to know what innovations are being made in the companies and Deloitte also provided a dropdown list of technologies to choose the five that allow these innovations to happen.

5 Deloitte Observations

To provide an additional layer of depth to the clusters self-evaluations, Deloitte reviewed the responses and the scores within the Subject Matter Experts (SMEs). Based on the knowledge of the sector and digital financial services in other countries the SMEs commentary on the industry self-scores.



09 Questionnaire



Description of metric	No.	Question
Financial Inclusion		
	1	How can digital financial services accelerate financial inclusion within the Mozambican context?
Country Indicators		
Regulation	2	How does the current regulation promote digital financial services?
Innovation Area	3	How does your institution promote the digital transformation of financial services in Mozambique? (specific examples)
Proximity to consumers	4	What is your opinion about: (i) the effective use of your digital financial services, (ii) ease of adoption of services (iii) financial accessibility
Proximity to <i>subject matter expertise</i>	5 (a)	In your opinion, are there technical skills in the industry that enable the digitization of financial services?
	5 (b)	In your opinion, are there technical skills in your institution that enable the digitization of financial services?
Government and donor support	6(a)	In your opinion, to what extent does the government support digital technologies in the financial services sector?
	6 (b)	In your opinion, to what extent do donors support digital technologies in the financial services sector?
Industry Characteristics		
Innovation Area	7	What are the top 5 areas of digital innovation in the financial sector that your institution has explored or is currently exploring?
Technology	8	What are the 5 underlying technologies that enable digital innovation in these areas?
Challenges	9	What are the three main challenges faced in the digital transformation of financial services from your institution's perspective?
Key Investors		
Investment Interests	10	Who are the biggest investors in digital financial services in Mozambique? (eg directly at your institution or for the industry in general)
	11	In your opinion, will new investors enter the market? Why?
Success stories		
	12	What is the biggest success story to come out of your digital transformation experience?
	13	What are the big lessons to be learned throughout your digital transformation process?
Future		
The next 3 years	14	In your opinion, what do the next 3 years look like? (eg. potential opportunities, other issues you consider relevant)

*The questionnaire was elaborated based on Connecting Global FinTech: Hub Review 2016 study conducted by Deloitte International. This questionnaire was adapted considering the Mozambican reality.



Av. Armando Tivane, no. 849, Maputo, Moçambique
Tel: +258 21 485 955 .
Email: fsdmoc@fsdmoc.com
www.fsdmoc.com

