

DIGITALIZATION OF SME FINANCE

PREPARED FOR
Afghan Credit Guarantee Foundation

ACGF

CREDIT GUARANTEE FUND AFGHANISTAN

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INTRODUCTION

➤ **Small and medium enterprises (SMEs) are integral to the economy in Afghanistan. According to the Afghanistan Ministry of Industry and Commerce (MoIC)¹, SMEs account for over 80% businesses in the country and are a vital provider of industry in urban and rural areas. Yet despite their importance to the Afghan economy, less than 5% of SME funding in Afghanistan comes from formal financial institutions such as banks or microfinance institutions (MFIs).² Small businesses instead tend to rely on informal sources of funding that may be insufficient for their needs, and many small businesses receive no funding at all. As banks, MFIs, government institutions, and other industry stakeholders work to expand economic opportunities and development in Afghanistan, SME financing will be a key instrument for improving the economy.**

Many of the challenges faced by SMEs and financial institutions in Afghanistan are present in other countries, and a new set of financial technology companies (FinTechs) have emerged with solutions that help digitize and improve financial services. Digitalization through FinTech holds enormous potential to transform SME financing and banking in Afghanistan, especially in the area of lending. FinTech solutions can help financial institutions collect, verify, and analyze their customers' data during the loan application process. Algorithms utilizing artificial intelligence (AI) and machine-learning can help overcome a lack of complete financial information, improving the loan approval process. FinTech solutions can also enable banks and MFIs to play to Afghanistan's strengths such as its relatively high penetration of mobile phones

compared to that of bank accounts (67% of Afghan population in 2017, compared to only 15% bank account penetration³). While some issues such as security and political instability cannot be directly addressed by new technologies, FinTech solutions do hold great potential to increase efficiencies, lower transaction costs, and expand financial services to the underserved SME sector.

As the leading provider of credit guarantees in Afghanistan, the Afghan Credit Guarantee Foundation (ACGF) is interested in understanding how FinTech solutions can improve service to existing SME borrowers and expand access to formal financing to small businesses throughout Afghanistan. As such, Lipis Advisors was hired to leverage their global expertise in payments and financial services to examine the applicability of FinTech solutions for SME lending in Afghanistan.

This report identifies key market needs for SME lending in Afghanistan and examines FinTech solutions used in other markets to help improve SME financing for both borrowers and lenders. After an overview of Afghan economic trends, an examination was made into major challenges and needs as identified by key market stakeholders' interviews and secondary research. Next, a global overview of SME lending FinTech solutions was conducted, followed by an analysis of the applicability of solutions for market needs as identified in stakeholder interviews and secondary research. Finally, five FinTech action plans were identified and prioritized that Afghan stakeholders can pursue to improve the SME lending market and modernize IT and business processes.

1 MoIC (8-11 October 2012) "Afghanistan Country Report-Enhancing the Competitiveness of Small and Medium Enterprises in Member States", presentation at Organization of Islamic Cooperation Meeting in Istanbul.

2 World Bank & the International Finance Corporation (2014) "Enterprise Surveys – Afghanistan Country Profile 2014", <http://www.enterprisesurveys.org/data/exploreeconomies/2014/afghanistan>

3 The World Bank provides data on mobile phone subscriptions and bank account penetration. For mobile phone penetration, see: <https://data.worldbank.org/indicator/IT.CEL.SETS.P2>. For bank account penetration, see: <https://data.worldbank.org/indicator/FX.OWN.TOTL.ZS>.

METHODOLOGY

➤ To understand the challenges involving SME lending in Afghanistan, a qualitative analysis was conducted of major developments within the Afghan banking industry, economy, and regulatory structure. After compiling an overview of the market from secondary research, interviews were conducted with stakeholders in Afghanistan. Interviewees represented banks, microfinance institutions, government agencies, and infrastructure providers; with additional interviews with ACGF, ACGF's subsidiary in Afghanistan, SME Client Support Afghanistan (SCSA), and their sister organization in Tajikistan, Tajik Credit Support Partner LLC (TCSP). Interviews focused on market challenges, SME demographics, legal and regulatory issues related to lending, and business strategy and innovation. Based on this research, the biggest issues related to SME lending were found to be related to borrowers' incomplete or insufficient financial information and a lack of stable technological infrastructures in Afghanistan.

Due to the nature of business confidentiality, trade secrets, and the variety of FinTech solutions, it is difficult to perform a quantitative analysis of FinTechs. These tend to be young, privately held companies, with little numerical data available in the public space. This required a more qualitative approach to examine the possible application of

solutions. FinTechs and their solutions are found world-wide, and as technology advances, the number of solutions will continue to grow. To determine the relevance of FinTech solutions, it was necessary to identify a small group of solutions that corresponded to the types of issues found in the Afghan market. Major FinTech lending solutions were found through Lipis Advisors' proprietary database, and secondary sources from leading international research firms and consultancies. Regional sources were also studied to identify FinTechs in Africa, Asia, Europe, the Middle East, and North and South America to ensure a diverse candidate pool.

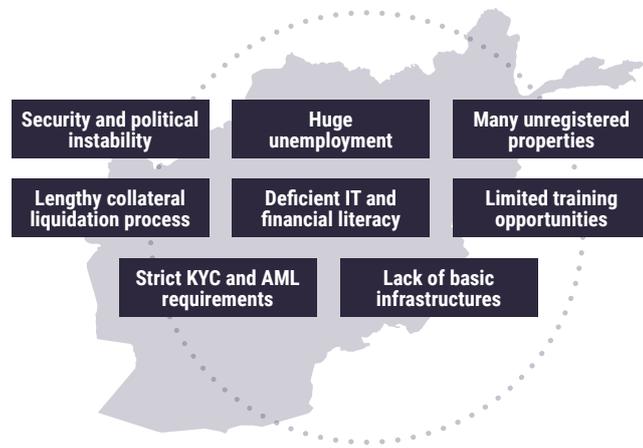
The applicability of FinTech solutions were evaluated to Afghan business practices and challenges. This includes the Afghan market conditions surrounding the large informal economy, the urban-rural divide, and the large underserved segments. Other relevant considerations involved the ability to serve informal SMEs, the financially illiterate, and thin-file credit borrowers (borrowers with little-to-no credit history). This involved studying characteristics like history in developing markets, strategic partnerships and relationships, and experiences with similar cultures to Afghanistan. Three main categories were used for assessing the "fit" of solutions within the market: technological fit, business fit, and cultural fit.

LOOKING AT MARKET CHALLENGES & IMPROVEMENTS

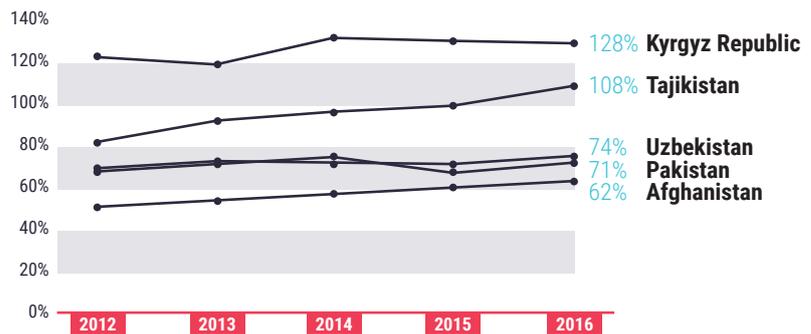
➤ Afghanistan is one of the most challenging markets to conduct business within any industry. The security situation and political instability has hindered economic growth and development. Banking infrastructures (like interbank payment systems) are limited, and many people have trouble accessing formal financing, particularly those in rural areas. The complex situation requires a wide-lens approach instead of basic remedies like increasing bank branches and ATMs. Issues exacerbating the developing financial sector include low financial literacy, poor infrastructures, a significant informal economy, and regulatory issues. Many of the stakeholders trying to address these issues are facing significant challenges.

IT infrastructure in Afghanistan is the most underdeveloped in the region. Compared to neighboring states, Afghan internet penetration is low, with only 10.6% of the population having access compared to 15.5% of Pakistanis and 20.5% of Tajiks.⁴ In terms of internet penetration among businesses, many Afghan firms have not yet utilized online channels for communication. Mobile penetration in Afghanistan is the lowest among the countries and only 21.8% of Afghan firms have their own websites.⁵ However, email usage for business is relatively widespread compared to the other countries and yearly data indicates a slow and steady increase in penetration of mobiles and internet.

While only 3% of mobile subscribers currently use e-money, the high rate of mobile phone subscriptions (over 2/3 of the population) suggest huge potential for mobile banking services.⁶ Currently, the only available financial services are payment related, however as people become familiar with the service, a rise in the use of mobile interaction among consumers and businesses to interact for financial services is expected.

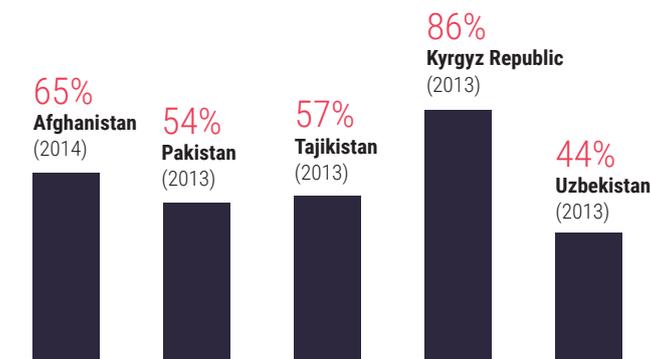


➤ Multiple market challenges in Afghanistan



➤ Mobile cellular subscription (% to population)

Source: World Bank



➤ Firms using e-mail to interact with clients/suppliers

Source: World Bank

⁴ The World Bank provides data on internet users who have used the Internet in the previous 3 months via any available channel. For more detailed information about the Internet penetration, please see: <https://data.worldbank.org/indicator/IT.NET.USER.ZS>

⁵ World Bank & the International Finance Corporation (2014) "Enterprise Surveys – Afghanistan Country Profile 2014", <http://www.enterprisesurveys.org/data/exploreeconomies/2014/afghanistan>

⁶ DAB provides data on e-money penetration. For more detailed information, please see: <http://dab.gov.af/en/page/financial-supervision/financial-statistics/EMIs>

CRUCIAL PLAYERS IN THE ECONOMY BUT NOT MUCH ATTENTION

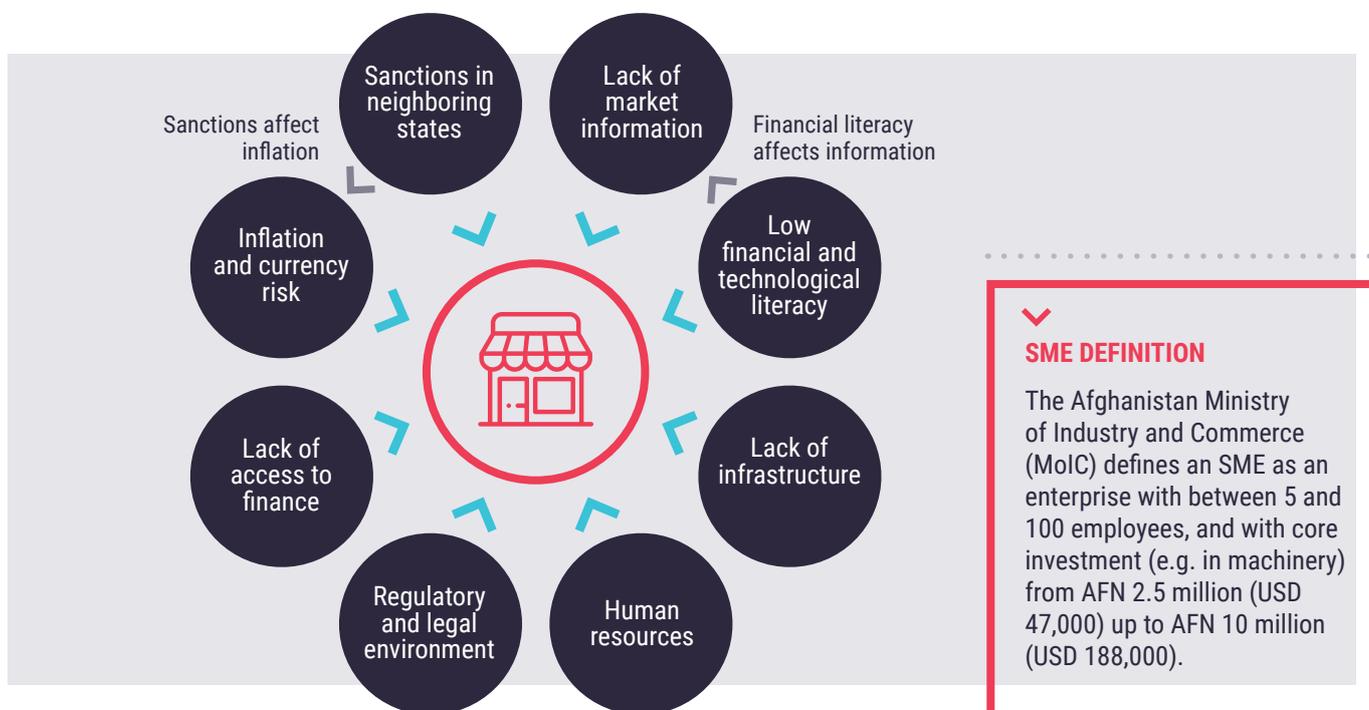
Afghan SME characteristics

➤ A major challenge to promoting economic growth in Afghanistan is balancing the needs of businesses with the lending-related needs of financial institutions (FIs). According to the OECD, 80% of total economic activity in Afghanistan is informal, with 2% of businesses receiving credit from banks.⁷ Low rates of financial literacy leaves many SMEs unaware of financing options from banks and MFIs. Others may be unaware of regulatory requirements like having a business officially registered with the government or about the collateral requirements. About 20% of the SMEs are registered with the Ministry of Industry and Commerce, and some registered businesses are inactive.⁸ SMEs tend to avoid registration due to a fear of entanglement in bureaucracy, and to avoid taxation. Legally, financial institutions can only serve registered businesses, leaving unregistered SMEs to rely on informal financing.

Most SMEs are based in urban areas given the relatively stable security situation in comparison to rural areas. Insufficient infrastructure investment has hurt the export

market, causing SMEs to face logistical difficulties. The trade industry is comprised of about 70-80% of all SMEs, with the rest belonging to manufacturing, agriculture, services, and others.⁹ Afghan exports concentrate on traditional items such as carpets, crops, and coal. Most of the exports are going to Pakistan, India and other neighboring countries such as Iran. This means that most SMEs are vulnerable to economic swings in both Afghanistan and neighboring states.

Many SMEs have low financial and IT literacy, complicating FIs' ability to approach them. Financial information is difficult to obtain from SMEs because they lack the practical knowledge about business administration. Very few SMEs have financial statements, and loan providers are often required to train businesses on record-keeping and accounting once a loan has been disbursed (e.g. on keeping balance sheets and P&L figures). Mobile networks are widespread in the country, but functionality is basic and people are not familiar with the sophisticated tools enabled by IT devices.



➤ Challenges for SMEs

⁷ OECD (2019) "Boosting Private Sector Development and Entrepreneurship in Afghanistan", <http://www.oecd.org/eurasia/competitiveness-programme/central-asia/Boosting-Private-Sector-Development-and-Entrepreneurship-Afghanistan-2019-EN.pdf>

⁸ Interview with SCSA, 9 October 2018

⁹ Interview with SCSA, 9 October 2018

AFGHAN STAKEHOLDER VIEWS ON SME CHALLENGES

➤ In order to understand the major challenges in the market and needs of both lenders and borrowers, Lipis Advisors conducted interviews with nine Afghan stakeholders. While each interviewee faced unique challenges related to their specific business or operational needs, some challenges were cited by most or all interviewees. Shared challenges are termed as major market needs and were used to establish a framework for assessing FinTech solutions. The figure below provides an overview of the challenges mentioned in interviews.



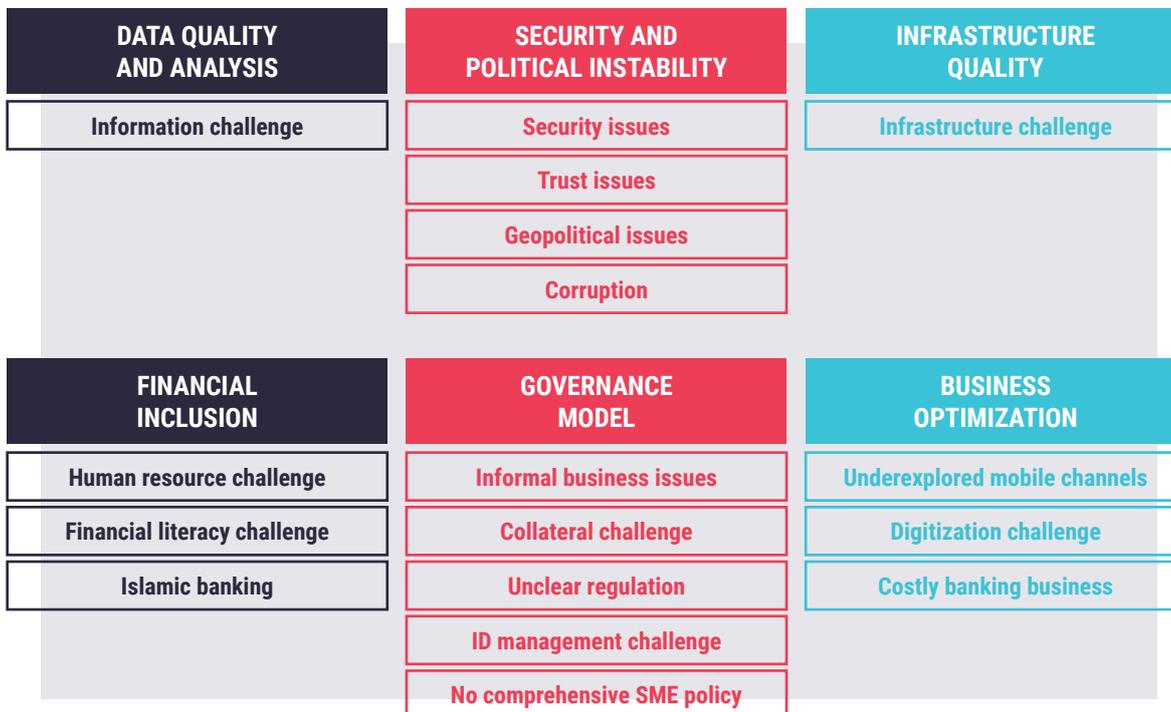
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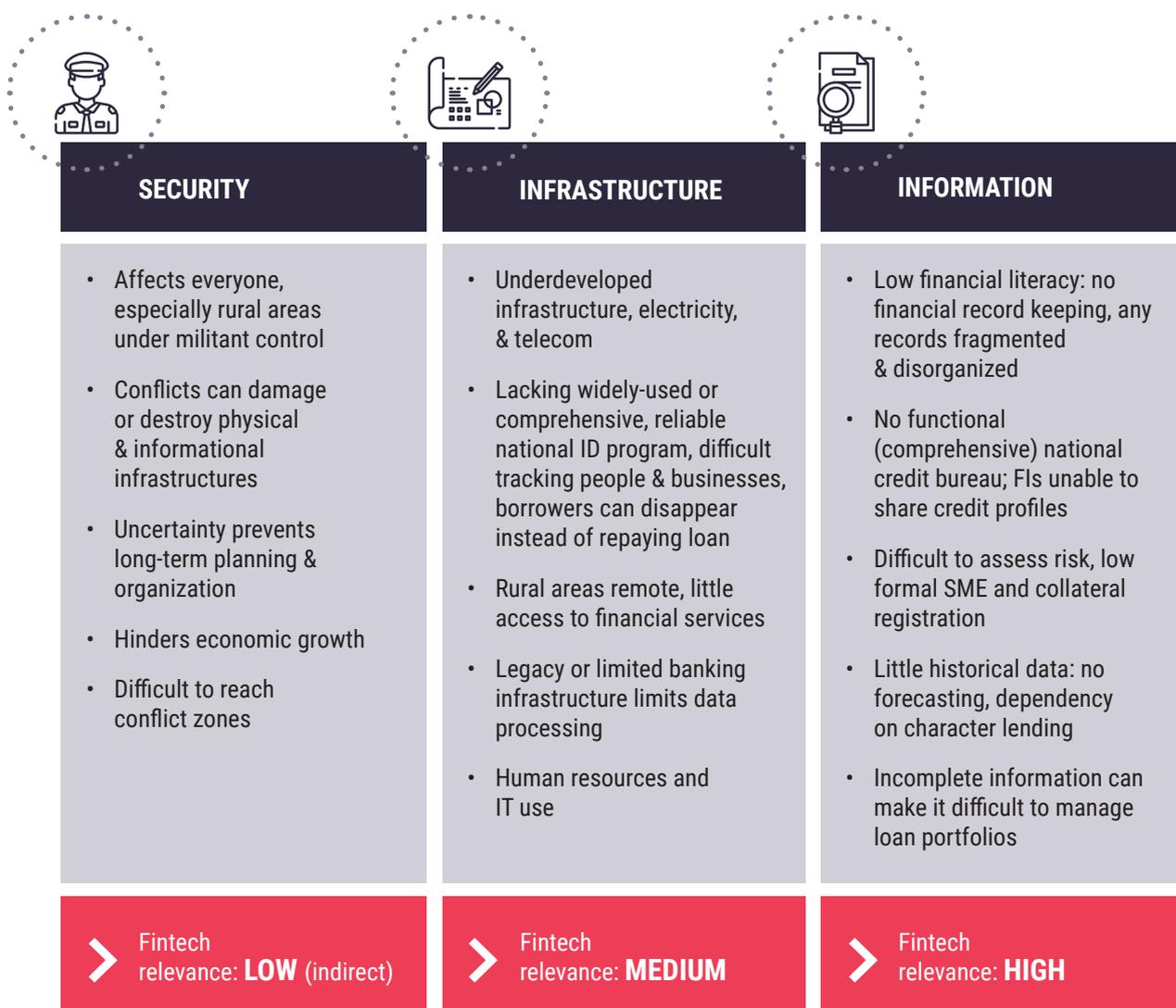
The challenges are grouped based on their similarities and color coded by the proximity between categories. For instance, the data quality and analysis and financial inclusion are colored similarly as they are related and

closely influencing each other. A similar relationship exists between infrastructure quality and business optimization; and between security and political instability and governance model.

MAPPING MARKET CHALLENGES TO FINTECH SOLUTIONS

➤ After conducting the Afghan stakeholder interviews, Lipis Advisors categorized the issues mentioned by interviewees into three major topics: security, information, and infrastructure. The figure below summarizes the main challenges and their relevance to FinTechs solutions. While security is an overarching problem that affects all sectors in Afghanistan, it is unlikely that FinTech solutions can directly contribute to improving it. FinTech solutions have more potential in the areas of information

and infrastructure. They can improve data quality through enhanced data collection and analysis, resulting in richer financial data on SMEs or better proxies for financial data than are used today (in cases where financial information is incomplete or unavailable). FinTech solutions can also be utilized to circumvent the lack of financial and IT infrastructures, thereby allowing lenders to expand and improve operations to underbanked rural SMEs and existing borrowers.



POTENTIAL APPLICABILITY OF FINTECH SOLUTIONS

HIGHLIGHTING FINTECH TOOLS

Technologies FinTechs use for SME lending

There are several types of technologies typically used by FinTech providers that specialize in SME lending. Typically, FinTechs do not use one type of technology, but rather combinations and subsets of certain types. Since these technologies are constantly shifting, there tends to be overlap and difficulty categorizing the technologies. FinTech companies are very protective of

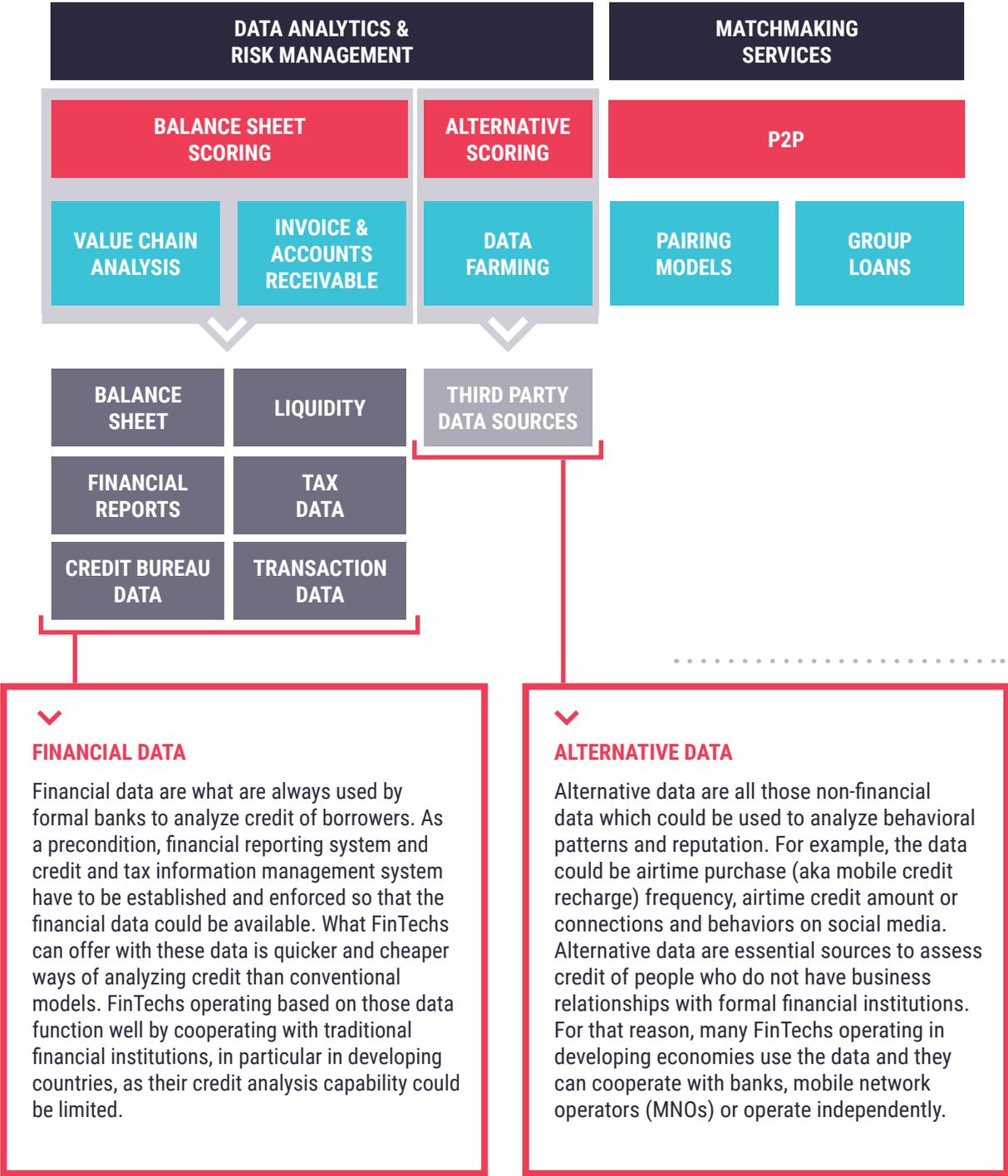
their trade secrets, but all disclose that they use some form of algorithmic processing as part of their services. FinTech providers and technologies vary, making an apples-to-apples comparison difficult. For this report, FinTech solutions are assessed through a qualitative and analytical approach based on the needs of the Afghan market.

SYSTEM-BASED TECH	Application Program Interface (API)	A software intermediary that allows two applications to interact to each other. API may be used for a web-based system, operating system, database system, computer hardware, or software library. API is an important technology not only for FinTech companies but also for every kind of business to connect different application systems and share information.
	Cloud computing	Cloud computing is the on-demand delivery of computer power, database storage, applications, and other IT resources over the Internet (cloud) to offer faster innovation, flexible resources, and economies of scales. FinTech companies benefit from using cloud computing to scale processing capacity quickly up or down according to customer demand and adapt to new products and services.
	Distributed ledger technology (DLT)	DLT is a data storing system based on a peer-to-peer network and a consensus mechanism (aka blockchain technology). DLT is deemed a powerful tool to enhance transparency and store data in a secure and errorproof manner. The major use case is as an underlying technology for cryptocurrencies, however it is also useful as a platform to record and transfer the data of assets. FinTech companies use such feature to facilitate invoice financing.

DATA-BASED TECH	Data mapping	It is the process of specifying how one information set relates, or maps, to another. Data mapping is used as the initial step to integrate or migrate a wide variety of data. In terms of FinTech, data mapping can be useful to recognize patterns from a large data set and apply it to credit scoring.
	Machine learning	A kind of computer science using statistical techniques to get computers to “learn” with data without being explicitly programmed. As a FinTech, machine learning is employed to make predictions and decisions based on big data collected from users.
	Natural language processing (NLP)	An area of computer science concerned with the interactions between computers and human languages. The best example of NLP is a chatbot which pops up to provide customer service on a webpage. NLP is used in the space of FinTech for text mining from digital sources such as social network websites to analyze patterns and tendencies of a person.
	Artificial Intelligence (AI)	In computer science, AI denotes a device that perceives its environment and takes actions that maximize its chance of successful outcomes. The technology heavily relies on deep learning and natural language processing and it analyzes big data to recognize patterns. AI is seen particularly useful in areas of underwriting, data processing and anti-money laundering in relation with finance.

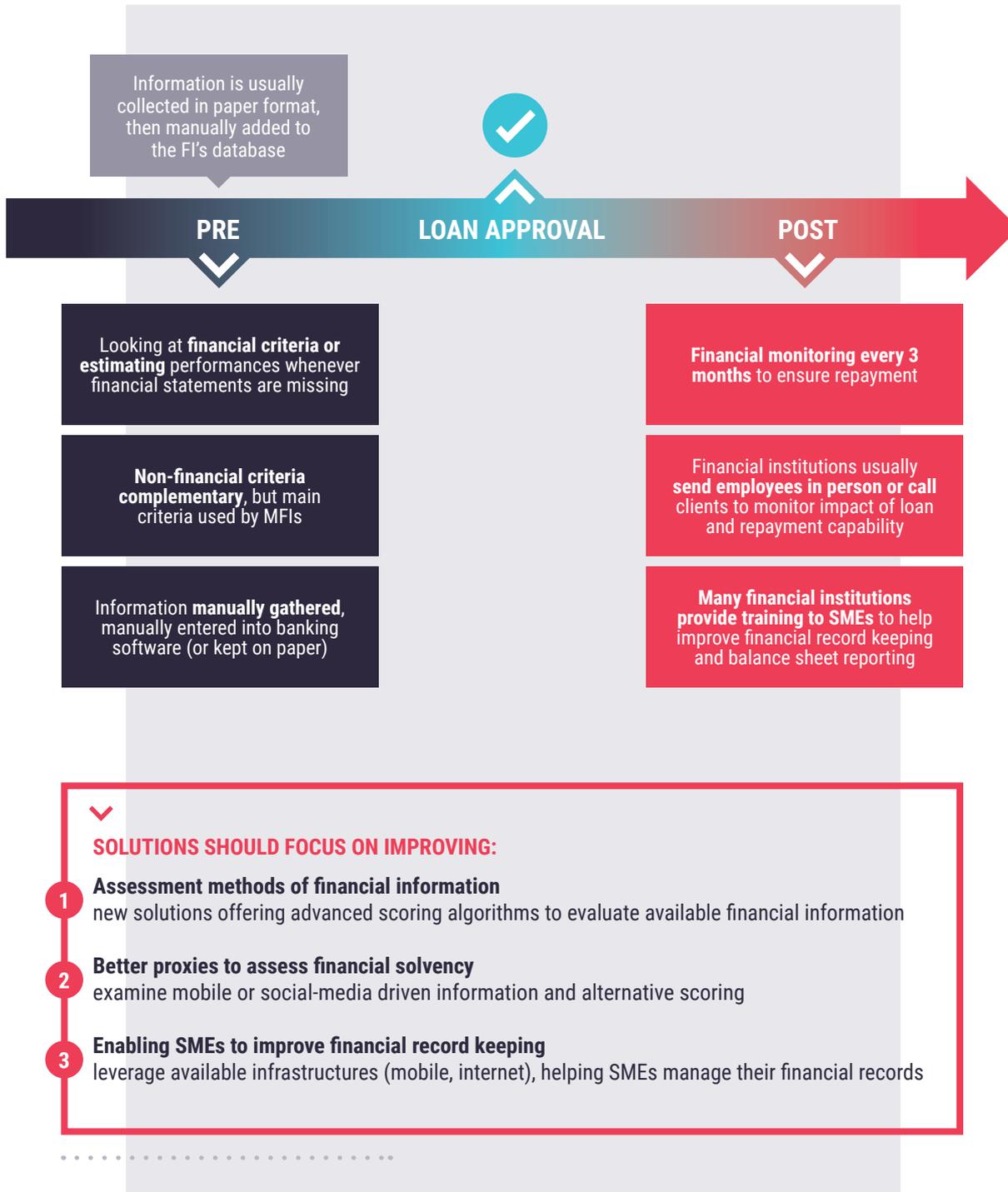
FINTECHS USE VARIOUS METRICS

Metrics used for credit analysis by FinTechs



SOLUTION APPLICATION TO THE LOAN PROCESS

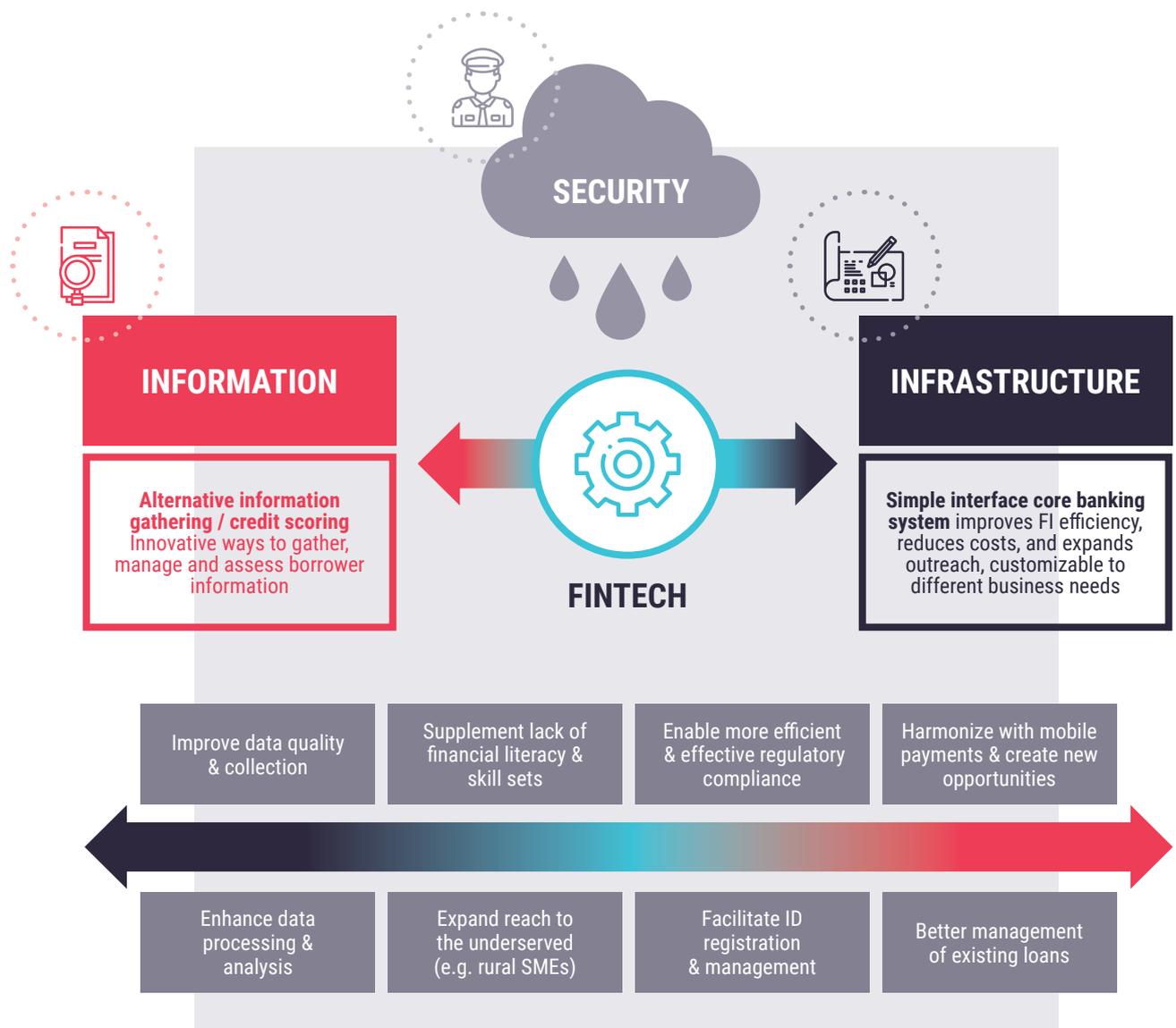
Detecting where FinTech solutions can improve the loan process



TARGET SOLUTIONS: FRONT-END & BACK-END

➤ FinTech solutions have the potential to tackle the two major obstacles: information and infrastructure. Solutions can enhance quality data gathering and analysis capabilities through combinations of technologies and strategies. They can also be utilized to improve infrastructures for better data management or reach out to those excluded due to infrastructure and distance. Based on the analysis, there are two promising types of FinTech services to help SME lending in Afghanistan: alternative information gathering / credit scoring and simple interface core banking system.

The first tackles the limitation of credit history and offers the means to analyze credit with alternative information available in the market. The latter enhances the operational capabilities of Afghan FIs with lean technological requirements. This will include more digitalized processes in the back office and also more flexible software to adapt to the changing situation in Afghanistan. Through addressing the front-end and back-end of SME lending processes with those technologies, FIs can feel more confident to serve for SME customers.



SHORT-TERM "QUICK WINS"

Potential projects for Afghan lending community

PROJECT 1

RICHER INFORMATION GATHERING

The project aims to tackle the lack of financial data with alternative data (like behavioral data and social network).

MARKET NEEDS ADDRESSED IN THE PROJECT

Improve data quality & collection	Expand reach to underserved customers	Supplement the lack of financial literacy & skill sets
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POTENTIAL APPROACHES

I. Alternative data gathering

- Use proprietary tools to collect non-financial data via mobile devices and online questionnaires

II. Digital data gathering

- In-field data collection, offline data input, online data transfers
- Better efficiencies in data collection

DEPENDENCIES

- FIs' willingness to cooperate
- Trainings to lenders
- Government support

PROJECT 2

ALTERNATIVE CREDIT SCORING

The project equips FIs with a capability to assess credit based on non-financial data or in the circumstance of limited data.

MARKET NEEDS ADDRESSED IN THE PROJECT

Enhance data processing & analysis	Expand reach to underserved customers	Supplement the lack of financial literacy & skill sets
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POTENTIAL APPROACHES

I. Non-financial data approach

- Use proprietary credit scoring algorithms, which can also function on non-financial data

II. Confidence level approach

- Calculate the risk of approving a loan based on available data in confidence levels

DEPENDENCIES

- FIs' understanding of advanced technologies
- Government support
- Promotion of the solution together with credit guarantee by ACGF

PROJECT 3

DIGITALIZATION OF LOAN PROCESSES

Digitalization is key to enhancing FIs' internal processes and reduce operational costs and errors.

Tablets and smartphones can also be leveraged to collect data digitally.

MARKET NEEDS ADDRESSED IN THE PROJECT

Improve data quality & collection	Enhance data processing & analysis
Better management of existing loans	Efficient & effective regulatory compliance

POTENTIAL APPROACHES

I. Tablet application

- Enabling simple appraisals on the ground
- Offline functionality for rural areas
- Simple preliminary credit analysis for quick judgements

II. Internal process enhancement

- Digitalizing risk analysis processes and visualization of risk portfolios
- A simple, user-friendly platform and interface

DEPENDENCIES

- Electricity supply, internet connection, and digital data availability
- Training lenders
- Further benefits can be achieved with development of digital ID management system

MEDIUM- TO LONG-TERM “UNLOCKING POTENTIAL”

Overarching financial industry projects

PROJECT 4

MOBILE CHANNEL ENHANCEMENT

Mobile channels can change the way FIs interact with customers. Mobile lending platform and SMS reminder functionalities are some of the potential approaches in the project.

MARKET NEEDS ADDRESSED IN THE PROJECT

Improve data quality & collection	Expand reach to underserved customers
Supplement the lack of financial literacy & skill sets	Harmonize with mobile payments & create new opportunities

POTENTIAL APPROACHES

I. Mobile lending platform

- Mobile financing for underserved populations
- Proprietary technologies to collect & analyze mobile usage
- Financial literacy training

II. SMS reminder

- Automatic SMS reminders for borrowers at repayments due
- Integration to internal schedule management system

DEPENDENCIES

- Human resources and reliable infrastructures
- Government's endorsement of online KYC

PROJECT 5

ONLINE COLLATERAL REGISTRY & BUSINESS REGISTRATION SYSTEM

This potential project addresses the fundamental need for the financial sector development in Afghanistan and aims to establish the foundation for more FinTechs to come in. The focus is on policy advocacy. It is understood that some Afghan and international stakeholders are already - at least partly - dealing with these topics.

MARKET NEEDS ADDRESSED IN THE PROJECT

Improve data quality & collection	Expand reach to underserved customers (e.g. rural SMEs)
Enable more efficient & effective regulatory compliance	Facilitate ID registration & management

POTENTIAL APPROACHES

I. Collateral data management empowerment

- Clear guidance from the DAB on how to use the movable collateral registry
- Banks and MFIs cooperate with the DAB to improve the ecosystem collaboratively
- ACGF could support the discussion with its connections with various stakeholders

II. Biometric identification system advocacy

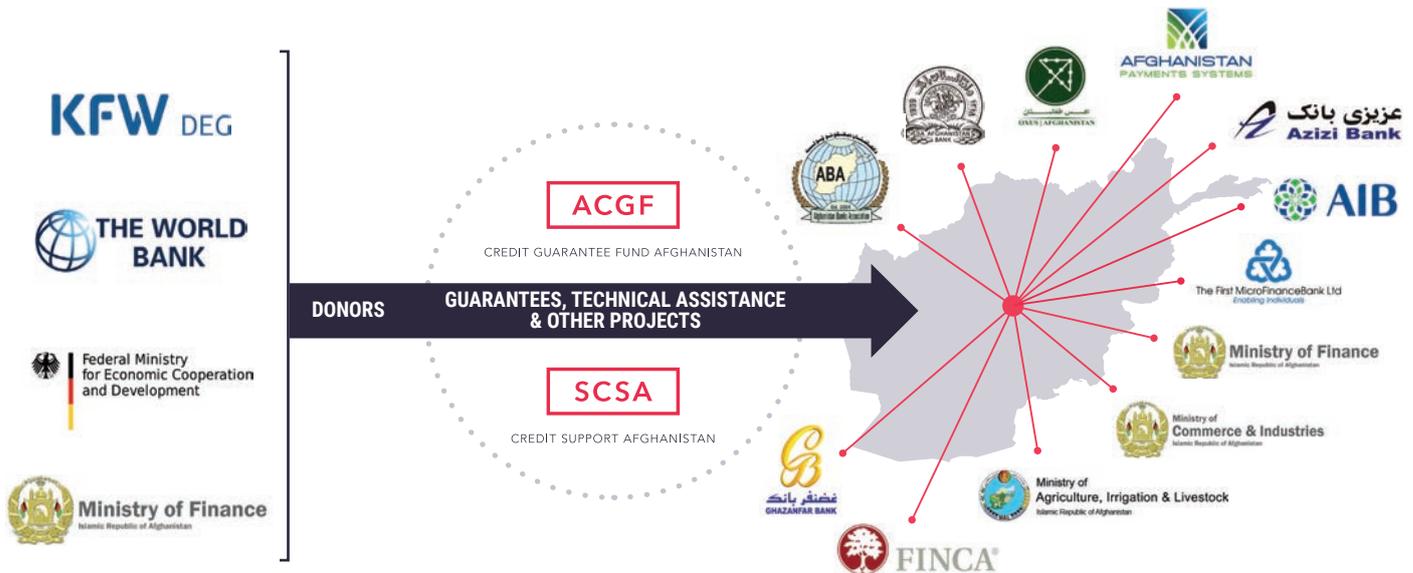
- KYC and AML compliance has been a heavy burden for Afghan FIs and they are skeptical about the effect of e-Tazkira due to the lack of guidance
- Biometric is an emerging solution in this space, particularly in developing countries and using it as a universal identifier could immensely improve the situation
- Nigeria is a success case and a similar scheme could be proposed to the Afghan government

DEPENDENCIES

- Engagement of industry stakeholders (banks, MFIs, government institutions, & SMEs)
- Governance & regulations

TRANSFORMING THE SME LENDING MARKET IN AFGHANISTAN

ACGF as an innovation catalyst



> ACGF and SCSA can play a supporting and inspirational role in transforming the SME lending market by helping FIs implement FinTech solutions, and galvanize the industry to collaborate on long-term projects. FIs in Afghanistan rely on ACGF's credit guarantees and SCSA's technical support in their lending operations, thus this support can help drive industry adoption of new technologies. This not only benefits the market, but can lead to a growth in SME lending supported by ACGF's guarantees. As lenders improve their services and expand their client base, the need for credit guarantees is expected to grow, increasing the need for ACGF's help to coordinate implementation FinTech solutions. ACGF is in a unique position to help guide the market by virtue of

the fact that they are an independent organization with contacts among a wide variety of market stakeholders.

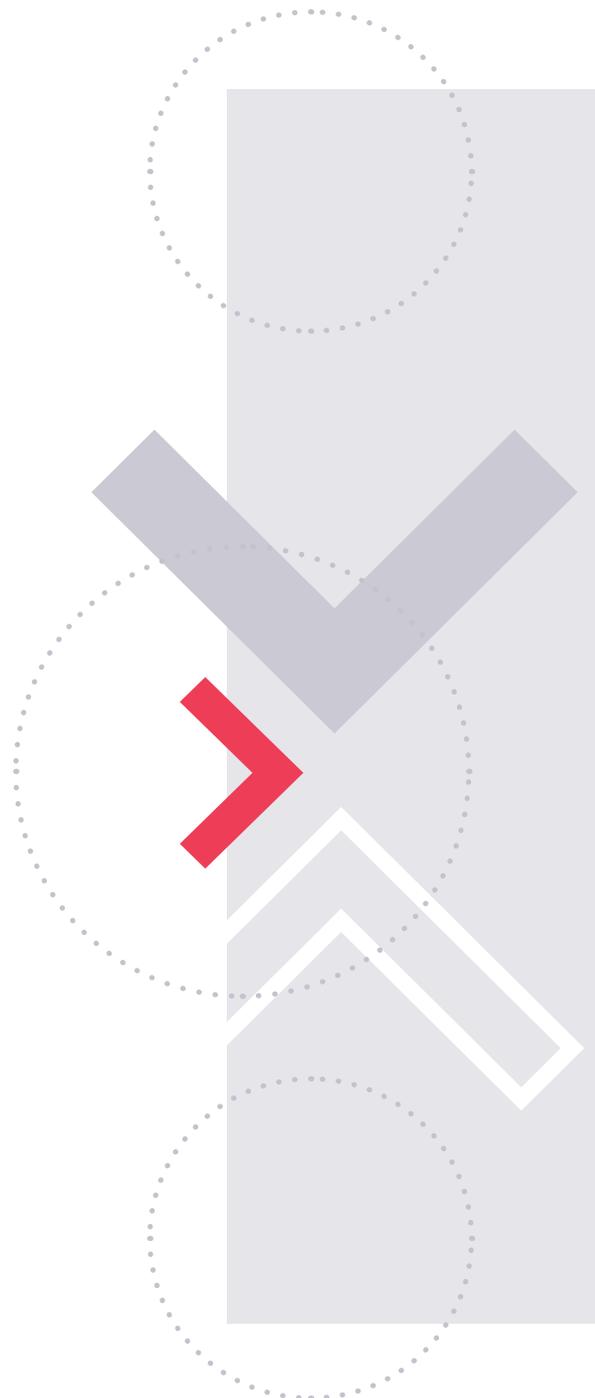
Reducing the high number of unbanked SMEs, is an important objective for the Afghan lending community in order to expand the business financing market. By supporting PIs in implementing technologies and improving internal processes, the need for ACGF's services will expand. Ultimately, the combination of new technologies, cyber security, industry collaboration, and innovative new business models can help improve and expand SME lending in Afghanistan and make a significant contribution to economic development and growth.

WHERE TO GO FROM HERE

Conclusion, defining the next steps

- Stakeholders throughout the Afghan lending market recognize the challenges in serving SMEs, and many are actively pursuing projects to improve their IT and business practices to improve lending. While Afghanistan faces many chronic issues related to security and political instability, there is still much that banks, MFIs, government institutions, and ACGF can do to overcome issues related to information and infrastructure challenges. The adoption of FinTech solutions in this space could help transform the SME lending market, improving service to existing customers and, crucially, expanding the market for formal financing. This last part is crucial, as over 80% of Afghan SMEs completely rely on informal lending to improve and expand their business.

Each bank and MFI, as well as ACGF itself, has potential projects related to FinTechs that can be implemented internally. However, there are also a number of industry-wide projects that could bring additional benefits to all stakeholders in the lending ecosystem. ACGF has the potential to play a supporting role in bringing their partner institutions together with other industry stakeholders. By exploring and implementing FinTech solutions, banks and MFIs can further modernize not only their IT systems, but their business practices related to lending. Evolving their mindset toward serving existing and new SME clients highlights the need for greater industry change and the business opportunities that a FinTech approach to lending can bring.



AUTHORS & SPONSORS

> This report was commissioned by the **Afghan Credit Guarantee Foundation (ACGF)**.

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The Afghan Credit Guarantee Foundation (ACGF) provides partial credit guarantees to SMEs through its partner financial institutions (PFIs) for SME loans. It also operates a technical assistance (TA) facility to introduce enhanced SME lending practices for PFIs and facilitate new lending opportunities and products to underserved groups. In 2005, the Credit Guarantee Facility for Afghanistan (CGF-A) was established. CGF-A was implemented by DEG (Deutsche Investitions- und Entwicklungsgesellschaft GmbH) and co-funded by the German Federal Ministry for Economic Co-operation and Development (BMZ) and USAID. ACGF was founded as an independent charitable foundation in 2014 in Germany as the successor to CGF-A, along with its Kabul-based subsidiary, SME Client Support Afghanistan LLC (SCSA).

For more information, see www.acgf.de



Lipis Advisors GmbH is an international consulting firm headquartered in Berlin, Germany and focused on the payments industry as well as related financial services. Lipis Advisors was founded in 2007 and has provided consulting services on all continents to numerous banks, payment processors, software vendors and FinTech companies with a global presence.

Lipis Advisors' primary business focus is financial and payment system analysis and strategic advisory services for payment associations, banks, FinTechs, and public authorities.

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