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Regulatory Technology ("RegTech") Readiness in Honduras

An Assessment of the Readiness of the National Ecosystem, Financial Regulators, Financial Market Participants, and Ancillary Actors

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Executive Summary

This report is the culmination of a ten month project to assess the readiness of the financial ecosystem in Honduras to apply machine learning, artificial intelligence (AI), blockchain processing and other technology solutions to improve regulatory compliance. The application of such regulatory technology is commonly known as RegTech.

RegTech solutions, where implemented in the developing world, have been used by financial institutions and other market participants to enhance internal controls, and by financial regulators to improve supervisory capabilities and internal processes for data collection and analysis. Where RegTech is used for supervisory purposes to gather and analyze data from supervised entities and to monitor their activities, it is also known as supervisory technology (SupTech).

To conduct this assessment the financial ecosystem of Honduras, a team of three consultants developed a qualitative analytical framework, outlined in Section 2. Designed to identify strengths, weaknesses, opportunities, and threats relating to the potential implementation of RegTech in Honduras, the framework can also be used by market participants and regulators to undertake their own assessments of RegTech readiness and implementation in their respective domains. It comprises four phases: initial planning, discovery, preparation, and implementation.

Assessments were undertaken through research and interviews with RegTech providers and implementers, followed by three visits to Honduras where the consultants met on site with a wide array of stakeholders to assess appetite and readiness for RegTech. The consultants interviewed both regulators and market participants and conducted workshops to identify and validate RegTech needs and readiness.

In general, market participants and regulators, although very curious about the RegTech concept, are not ready to implement its combination of technology solutions. Exceptions are larger commercial banks and some regulators. The three financial regulators in particular—Comisión Nacional de Bancos y Seguros de Honduras (CNBS), Banco Central de Honduras (BCH), and Consejo Nacional Supervisor de Cooperativas (CONSUCOOP)—are aware of the positive impact of digitization and are enthusiastic to institute innovations and technologies to build a more stable and inclusive financial system.

This assessment report includes a study of the economic and financial sector, followed by analysis of the level of readiness of Honduras based on different elements to be considered to implement RegTech solutions. Finally, the report outlines a proposed roadmap for the implementation of RegTech applications in Honduras, for both individual stakeholders and on a broader scale.

Section 3 presents the economic and financial sector background in Honduras, to contextualize the implementation of RegTech solutions. Honduras has a diverse financial sector with large disparities in technical sophistication and skills. Banks and some non-bank financial institutions have begun the process of digitization by strengthening their processes and internal infrastructures and by deploying strategies to increase usage of digital channels by clients. Smaller institutions are, however, far behind, largely relying on manual processes and brick-and-mortar interactions with clients. Regulators also show great disparities in terms of technical capabilities, human resource processes, hardware, level of skills, and supervisory capacities.

These ecosystem-wide disparities in financial resources, capacity, digitization, and automation translate to low levels of development across the financial sector. To some degree this has also resulted in financial exclusion, with smaller institutions unable to expand their services and handicapped by outsized, non-proportional compliance costs and uncertainty about regulatory compliance requirements. Larger institutions struggle with compliance costs and requirements because of uncertain and unpredictable issuance and application of regulations. This has made them risk averse. They often opt to exclude low-income customers who lack quality identification or for whom compliance costs are elevated relative to higher-income customers.

These exclusionary trends emanate largely from insufficient supervisory capacity for data-gathering and analytics and from inconsistent regulatory policies. By employing RegTech, supervisory capabilities could be strengthened and supervisory requirements fine-tuned to replace manual processes. Private sector stakeholders indicated they also have to navigate through duplicative compliance requirements and that there is generally a lack of feedback from regulators to their compliance-related enquiries. This has resulted in a gulf in the relationship between supervisors and their supervised entities, appearing to handicap to some degree the potential for collaboration for SupTech and centralized RegTech solutions. Financial regulators are largely unaware of these concerns from the supervised entities.

Section 4 assesses the level of readiness to implement RegTech solutions in Honduras. Elements to be considered as indicators of the potential success of RegTech implementation include policies, regulations, institutional features, and infrastructure. The consultants place these elements into two major categories: national ecosystem and the financial sector. National ecosystem elements relate to policies, infrastructure, or institutional issues with national implications: for example, power and communications infrastructure, financial technology (FinTech), and technology development ecosystems. Elements specific to the financial sector relate to regulations, institutional capacities, and technical needs of financial sector participants. All elements within these two categories will impact the identification and design of RegTech solutions and should be assessed and addressed during the process of solution development.

Many critical institutional, regulatory, collegial, and infrastructural elements needed for RegTech implementation are largely absent or not well developed across the financial ecosystem, including necessary strata of technology capacity, seamless cooperation between market participants and between regulators, requisite human skills and capacity, financial depth to procure and sustain RegTech solutions, sufficient technology and cybersecurity infrastructure, and an enabling and certain legal and regulatory environment.

The presence or absence of these elements in whatever readiness state are not preconditions for RegTech implementation. They are simply assessment tools to telegraph whether planning, procurement, operationalization, security and maintenance are likely to be successful. Further, not all elements have to be present in sufficient measure for the process to start.

For the three financial ecosystem regulators, internal RegTech solutions are dependent on procurement processes and the availability of internal skills, handicapped by outdated human resource processes that promote personnel internally rather than allow for outside hiring. In particular, while data analytics skills are critical and required, they are scarce. Other general threats to implementation of RegTech solutions in Honduras are also detailed in this report.

Technical issues identified as priorities to be addressed through RegTech solutions were related to anti-money laundering/combating the financing of terrorism (AML/CFT) processes, compliance with reporting obligations, and automation of internal risk management processes. Stakeholders—including regulators, financial market participants, industry associations, and some technology companies—confirmed the prioritization of these pain points at a workshop organized for the consultant’s third visit to Honduras. Another major pain point identified in the workshop is that market participants lack the requisite technology and human capacity to undertake internal and accurate assessments of their credit risks and liquidity positions.

All pain points are enumerated in the report, alongside a qualitative priority scoring of each pain point and a set of recommendations for potential solutions.

Section 5 provides a roadmap for public and private stakeholders in Honduras to follow in order to design and develop RegTech solutions. The roadmap includes five concrete actions stakeholders should employ: (a) identify or develop an inter-/intra-institutional mechanism for RegTech awareness and coordination, at the national level or within an organization; (b) develop a financial sector-wide vision for the use of RegTech; (c) refine and socialize the framework developed by the consultants to implement RegTech solutions; (d) address readiness improvements for ecosystem and industry elements, and (e) identify or promote the selection of a use case to pilot RegTech solutions. These actions can be undertaken by stakeholders individually or in partnership.

Notably, while the roadmap for RegTech implementation is the same for all stakeholders, it does not mean all should follow the same methodologies. For step (d) above, for example, pathways will vary widely. A small institution lacking IT, human resource capacities, and a sufficient level of digitization would have to address those gaps before embarking on the development of a RegTech solution.

And given multiple priorities and opportunity costs among various stakeholders, smaller providers in particular, it is unlikely regulators or financial sector participants will assess pain points in a vacuum. Their investigations of RegTech solutions may, however, provide a reason to undertake these pain point assessments. It is sometimes easier to identify the highest priority pain points than to rapidly implement solutions for them. For example, the centralized know your customer (KYC) utility was identified as the highest-priority solution by stakeholders. But it ranks as lowest in terms of suitability for rapid implementation, given the complex components, relationships, and rules required to launch it. It remains to be seen how quickly these issues can be overcome.

Market participants are particularly enthusiastic for donors to be involved in RegTech implementation, particularly on procuring solutions and capacity-building to promote understanding on how to procure, operationalize, and maintain RegTech solutions.

The overall results of the readiness assessment project are summarized in Section 6, Summary and Conclusions.

Table of Contents

| | |
|--|-----------|
| Executive Summary | 3 |
| Table of Contents | 6 |
| List of Tables | 8 |
| List of Figures | 8 |
| List of Acronyms | 9 |
| 1. Introduction | 11 |
| 1.1 Overview | 11 |
| 1.2 What Is RegTech?..... | 11 |
| 1.3 Project Aims and Objectives | 13 |
| 1.4 Project Scope of Work..... | 14 |
| 1.5 Report Structure and Aims..... | 14 |
| 2. Methodologies Used to Assess RegTech Readiness in Honduras | 15 |
| 2.1 Overview..... | 15 |
| 2.2 Desktop Research | 16 |
| 2.3 Stakeholder Selection and Outreach..... | 16 |
| 2.4 Visit Preparation and Objectives | 16 |
| 2.5 General Analytical Framework for Assessing RegTech Readiness | 17 |
| 3. Honduras Background | 23 |
| 3.1 Economic, Political, and Social Background..... | 23 |
| 3.2 The Financial Ecosystem | 24 |
| 3.3 Regulatory and Supervisory Environment..... | 25 |
| 3.4 Financial Inclusion Initiatives and Effect on RegTech Development..... | 28 |
| 4. Honduras Readiness Assessment: Findings and Potential Solutions | 29 |
| 4.1. Overview..... | 29 |
| 4.2. Ecosystem Readiness..... | 30 |

| | |
|---|-----------|
| 4.3. Financial Sector Readiness..... | 35 |
| 5. Roadmap for RegTech Implementation in Honduras | 51 |
| 5.1. Overview..... | 51 |
| 5.2 Identify or Develop an Inter-/Intra-Institutional Mechanism for RegTech Awareness and Coordination | 51 |
| 5.3 Develop a Financial Sector–Wide Vision for the Use of RegTech..... | 54 |
| 5.4 Refine and Socialize the Framework Developed by the Assessment Team to Implement a RegTech solution | 55 |
| 5.5 Address Readiness Improvements for Ecosystem and Financial Sector Elements..... | 57 |
| 5.6 Identify Use Cases and Assess Proposed RegTech Solution(s)..... | 58 |
| 6. Summary and Conclusions | 64 |
| References | 66 |
| Annex A: Regulators/Authorities in Honduras | 69 |
| Annex B: Relevant Laws and Regulations | 71 |
| Banking..... | 71 |
| Cooperatives..... | 72 |
| Anti-money Laundering (AML)..... | 73 |
| Consumer Protection..... | 74 |
| Data Protection and Privacy..... | 75 |
| ECommerce..... | 75 |
| Annex C: Regulated and Supervised Financial Institutions | 77 |
| Annex D: Summary of Proximate Challenges and Handicaps to Implementation of RegTech in Honduras | 78 |
| Endnotes | 79 |

List of Tables

- Table 1. Examples of RegTech solutions to general pain points 11
- Table 2. Mechanisms for exploring RegTech solutions22
- Table 3. Ancillary laws and regulations in Honduras that may enable or hinder some RegTech solutions 27
- Table 4. Elements to consider when deploying a RegTech pilot and their degree of readiness in Honduras 30
- Table 5. Access to information and communications technology in Honduras31
- Table 6. Access to electricity in Honduras..... 32
- Table 7. Assessment of readiness per element and per institution and type in Honduras.....40
- Table 8. Use of the BCH Innovation Tables initiative as a coordination collaboration mechanism.....53
- Table 9. Example of vision and medium-term goals for RegTech in Honduras.....55
- Table 10. Considerations for Implementation of RegTech solutions in Honduras, given low market readiness 56
- Table 11. Summary of action items pertaining to ecosystem elements for stakeholders.....58
- Table 12. Potential RegTech solutions, priority of need and implementation ease60
- Table 13. Actions stakeholders can undertake to catalyze RegTech in Honduras.....63
- Table 14. Regulated and Supervised Financial Institutions77
- Table 15. Summary of Proximate Challenges and Handicaps to Implementation of RegTech in Honduras 78

List of Figures

- Figure 1. Graphical representation of analytical framework assessing RegTech implementation..... 18
- Figure 2. Proportion of persons with access to an account (ages +15).....28

List of Acronyms

| | |
|-----------|--|
| AI | Artificial Intelligence |
| AML | Anti-Money Laundering |
| API | Application Program Interface |
| BCH | Banco Central de Honduras (Central Bank of Honduras) |
| CDD | Customer Due Diligence |
| CEPROBAN | Centro de Procesamiento Interbancario |
| CERT | Computer Emergency Response Team |
| CFT | Combating the Financing of Terrorism |
| CIPLAFT | Comisión Interagencial para la Prevención del Lavado de Activos y Financiamiento del Terrorismo (Interagency Commission for the Prevention of Money Laundering and Financing of Terrorism) |
| CISO | Chief Information Security Officer |
| CIV | Customer Identification and Verification |
| CNBS | Comisión Nacional de Bancos y Seguros (National Bank and Insurance Commission) |
| CONSUCOOP | Consejo Nacional Supervisor de Cooperativas (National Supervisory Council of Cooperatives) |
| CONATEL | Comisión Nacional de Telecomunicaciones (National Telecommunications Commission) |
| CTO | Chief Technology Officer |
| DFS | Digital Financial Services |
| DLT | Distributed Ledger Technology |
| EDD | Enhanced Due Diligence |
| eGov | e-Government |
| eID | Electronic ID |
| eKYC | Electronic Know Your Customer |
| ENIF | National Strategy for Financial Inclusion |
| FATF | Financial Action Task Force |
| FI | Financial Institution |
| FinTech | Financial Technology |
| FIU | Financial Intelligence Unit |
| ICT | Information Communications and Technology |
| ID | Identity Document |
| IT | Information Technology |
| IMF | Internal Monetary Fund |
| KYC | Know Your Customer |

| | |
|------------|--|
| LEI | Legal Entity Identifiers |
| LONO | Letter of No Objection |
| MFI | Microfinance Institution |
| ML | Money Laundering |
| MO-SMS | Mobile Originated Short Message Service |
| MoU | Memorandum of Understanding |
| NDI | National Digital Identity |
| NGO | Non-governmental organization |
| OPD | Organización Privada de Desarrollo |
| OPDF | Organización Privada de Desarrollo Financiera |
| PEP | Politically Exposed Persons |
| POC | Proof of Concept |
| PPP | Public Private Partnership |
| PSP | Payments Service Provider |
| RBA | Risk-based Approach |
| RegTech | Regulatory Technology |
| RFI | Request for Information |
| RFP | Request for Proposal |
| RTAC | Research Technical Assistance Center |
| SDD | Simplified Due Diligence |
| SINAIP | National Public Information System |
| SME | Small- and Medium-size Enterprises |
| SMO | Short Message Originated |
| SMS-MT | Short Message Service Mobile Terminated |
| SOW | Scope of Work |
| STR | Suspicious Transaction Report |
| SupTech | Supervisory Technology |
| TF | Terrorist Financing |
| TSP | Technical Service Provider |
| URMOPRELAF | Unidad Responsable del Registro, Monitoreo y Prevención de Lavado de Activos y Financiamiento del Terrorismo (Unit Responsible for the Registry, Monitoring and Prevention of Money Laundering and Financing of Terrorism) |
| USAID | United States Agency for International Development |

I. Introduction

I.1 Overview

Honduras is a lower-middle-income country with a relatively traditional financial system facing challenges related to efficiency, integrity, and ability to provide universal financial services. The United States Agency for International Development (USAID) saw the potential of Regulatory Technology (RegTech) in improving compliance and supervisory-related processes to overcome challenges in financial system development. It requested an assessment of the financial system in Honduras with the aim of designing a roadmap for implementation of RegTech solutions to overcome identified pain points.

This readiness assessment began in January 2019 when consultants Dr. Leon Perlman, Dr. Veronica Trujillo, and Ms. Nora Gurung began to outline the scope of work.

Over the course of 2019, the consultants undertook several research activities related to readiness assessment, including three reporting trips to Honduras to interact with stakeholders individually and conduct a plenary workshop with public and private sector stakeholders to chart a path, based on the findings, toward implementation of RegTech.

I.2 What Is RegTech?

RegTech is the tailored use of technologies and the development of new technology solutions to address compliance and supervisory-related challenges in more accurate, effective, and efficient ways. Supervisory technology (SupTech) refers to a specific set of RegTech solutions supporting supervisory agencies in their assessment of compliance. Both SupTech and RegTech support the fulfillment of such financial system goals as stability, integrity, and consumer protection. This report uses the term “RegTech” to describe both types of solutions but differentiates where necessary.

Examples of RegTech solutions to enumerated compliance and supervisory-related challenges, called “pain points” in the report, are detailed in Table I.

Table I. Examples of RegTech solutions to general pain points

| Pain Points | Potential RegTech Solution | Technologies Used | Examples |
|--------------------|-----------------------------------|--------------------------|---|
| Fraud Detection | Fraud prevention and detection | AI, Machine learning | Monetary Authority of Singapore is developing machine learning algorithms. Mexico’s Comisión Nacional Bancaria y de Valores (CNBV) uses RegTech solutions to detect fraud. |

| Pain Points | Potential RegTech Solution | Technologies Used | Examples |
|--|--|---|--|
| Timely and Accurate Liquidity Reporting Requirements | Integration and interoperability between central bank supervisory systems and supervised entities. | Application program interface (API) | The Bangko Sentral ng Pilipinas (Philippines Central Bank, or BSP) is using API for prudential reporting. Central Bank of Colombia is using a solution to identify early warning on liquidity and solvency of financial institutions. |
| Credit Risk Detection & Analysis | Support for transaction and risk monitoring | Big data analytics | Mexico's CNBV uses solution to perform credit analysis. |
| Lack of Useful Identity | Robust ways to verify identity | Biometrics | The bank verification number (BVN) in Nigeria is based on biometrics. |
| Suspicious Transactions/ Smurfing | Real-time client information sharing | Distributed ledger technology (DLT) | Estonia is using blockchain technology for ID purposes. |
| Regulations Issued with Short Implementation Deadlines | Machine-readable regulations for faster and low-cost adaptation to changes in regulations | Semantic technology and data point models | The Financial Conduct Authority (FCA) plans to develop machine-readable regulations. |
| Anti-Money Laundering | KYC utilities consolidate customer due diligence (CDD) data and reduce duplication. | Shared utilities | MyInfo in Singapore is a KYC utility. Mexico's CNBV uses solution to detect fraud. |

Financial inclusion is related to RegTech primarily through the opportunity these solutions bring to decrease compliance costs for market participants and supervision costs for regulators, as well as the potential to improve efficiency of current processes and evaluations.

A reduction in compliance costs for market participants could also benefit the typical financial inclusion customer, as freed resources would be redirected toward increasing efficiency in product delivery. A similar reduction in regulator costs and time allocation of scarce personnel resources could lead to re-allocation of those hours to more productive activities and would increase the opportunity to expand oversight to a range of institutions previously disregarded due to high costs of supervision.

On a broader scale, RegTech also allows application of a truly risk-based approach to supervision and ultimately, due to accurate and timely risk assessments of financial institutions, to more financial stability and less stringent requirements.

Improved tools for detecting and combating money laundering would also decrease the risk of being cut off by global correspondent banks, an ongoing challenge for many developing countries. It would also

help market participants conduct more accurate assessments of borrower profiles, which could lead to healthier and wider credit portfolios. Improved risk assessment methodologies decrease credit blacklisting, thus increasing the pool of potential users of financial products.

This improved performance could have a positive network effect on market efficiency and increase financial inclusion.

1.3 Project Aims and Objectives

The overall aim of this USAID initiative and the readiness assessment project was to:

- Deepen financial inclusion in Honduras by increasing financial well-being among underserved communities through a diverse set of commercially viable financial services that meet their needs.
- Achieve development objectives in priority sectors by harnessing digital financial services as tools to advance progress in health, agriculture, energy, governance, and education.
- Position USAID staff to better understand the range of RegTech applications that may be needed in Honduras.

Practically, this entailed:

- Identifying and assessing the compliance of market participants and the supervisory pain points of regulators.
- Assessing the technology development and FinTech ecosystem in Honduras.
- Understanding and assessing the supervisory capabilities of financial regulators in Honduras.
- Understanding and assessing the strategies, tools, and methodologies used by financial regulators to identify, collect, and analyze data used in their supervisory and consumer protection roles.
- Understanding the potential and practicality of using RegTech in financial sector compliance, regulation, and supervision in Honduras by interviewing and assessing the capacity and tools of regulators and market participants.
- Understanding and assessing how specific RegTech applications may operate in an environment where financial regulators and market participants have limited resources.
- Devising a feasible roadmap to identify and implement specific RegTech applications in Honduras to solve priority pain points.
- Understanding and assessing whether current rules and regulations provide sufficient support to implement RegTech solutions.
- Sharing the findings of the readiness assessment project with designated stakeholders to improve market oversight and efficiency.

In all, the readiness assessment project aimed to empower regulators in Honduras with feasible and efficient RegTech tools to improve market oversight, supervisory capacity, and consumer trust.

For market participants, the project aimed to identify RegTech tools to solve compliance and internal assessment pain points.

I.4 Project Scope of Work

Specific tasks in the readiness assessment project included:

- A high-level assessment of social, political, and economic conditions in Honduras that may affect RegTech implementation.
- A review of regulator tools, techniques and systems for market oversight and supervision, with focus on financial services or providers who serve consumers or small to medium enterprises.
- A review of current legal, policy, regulatory, and supervisory environments in Honduras and the drafting of a report on financial regulators' and market participants' pain points regarding oversight, supervision, and consumer protection.
- The identification of potential RegTech applications suitable for addressing identified pain points.
- Multiple visits to Honduras to undertake assessments of issues and discussions with stakeholders. These included workshops with financial regulators and market participants to discuss potential applicability of RegTech applications to the local market context, particularly from the standpoint of financial inclusion.
- Development of an analytical framework for RegTech assessment and implementation.
- Briefing USAID on readiness assessment findings.

I.5 Report Structure and Aims

This report presents the final findings distilled from various assessment activities undertaken during the readiness assessment project. Its primary objective is to develop a roadmap for RegTech implementation in Honduras.

The consultants assessed the readiness for RegTech implementation in Honduras, as part of the analytical framework shown in Section 2—especially in the initial planning and discovery stages. The content of this report is based on these findings.

The political, social, economic, and financial sector context in Honduras informing the investigation—and subsequent findings therefrom—are covered in Section 3.

Findings from the consultant's assessment are detailed in Section 4, which evaluates all ecosystem and financial sector elements to be considered when structuring the implementation of RegTech solutions. Each element contains an explanation of its importance, the opportunities it contributes, and recommendations for tackling any challenges it may bring to RegTech implementation.

Based on these findings, a proposed roadmap to implement RegTech solutions in Honduras is outlined in **Section 5**. The proposed roadmap is a contextual extension of the analytical framework and is based on previous experiences in implementing RegTech solutions, as well as from lessons learned during the earlier study on the feasibility and viability of implementing RegTech solutions in Honduras.

Because the processes in the analytical framework are not necessarily iterative and often dynamic and interlinked, some concepts, findings, and observations will be repeated and cross-referenced in the report.

2. Methodologies Used to Assess RegTech Readiness in Honduras

2.1 Overview

Designing a roadmap for RegTech implementation in Honduras is a complex task. Implementation is likely to be challenging. In particular, assessing readiness for implementation of RegTech requires substantial knowledge of the nature and interconnectedness of the financial system in Honduras; of any relevant legal and regulatory frameworks; and of the technical, financial, and human capacity of those tasked with devising, producing, and implementing solutions for solving critical compliance and supervisory pain points.

Due to the early stage of development and implementation of RegTech solutions globally, there are no settled perspectives on what these issues encompass, nor on how RegTech solutions should be developed or implemented. Literature and analysis of the subject is also relatively sparse.

With the RegTech concept constantly evolving, an analytical framework based on existing literature and the experience of the consultants was developed to guide the assessment of whether financial ecosystem participants—and supporting systems and structures—are sufficiently ready to implement RegTech solutions.

This analytical framework is outlined in Section 2.5 and graphically in Figure 1.

Besides being the guide for the consultant's activities, assessments, and eventual proposals, the framework can also be used by ecosystem participants in Honduras to guide potential implementation of RegTech solutions as and if future needs arise.

To gain necessary insights into the financial system in Honduras, to assess its needs and capacities regarding potential RegTech solutions all within the precepts of the framework, the consultants undertook several activities, including:

- Research that comprised a detailed literature review of legal, regulatory, and supervisory structures and processes.
- Identification of relevant stakeholders.
- In-country visits to obtain on site insights for identification of financial sector needs, pain points, and any constraints to, and readiness for, RegTech implementation and maintenance.

The following sections document and explain the methodologies used to assess the financial ecosystem in Honduras as well as the need and readiness for any number of RegTech solutions for identified pain points.

2.2 Desktop Research

Background research was undertaken in preparation for the reporting trips to Honduras, the scope of which was presented to NORC/USAID in February 2019 in the Inception Report.

The research agenda was designed with the following objectives:

- To understand the economic, political, and social context in Honduras.
- To understand the financial ecosystem structure and key participants, as well as the status of progress on financial inclusion.
- To gather information on compliance and supervisory processes.
- To assess the legal and regulatory environment and ecosystem capacity to determine to what degree it enables or hinders digital financial services and RegTech initiatives.

These are described in more detail in Section 3.

2.3 Stakeholder Selection and Outreach

Given the scope of the readiness assessment project, and after reviewing financial sector status through the desktop research process, the consultants identified stakeholders who could contribute to the project's goals. Those identified included financial sector regulators, government departments, market participants, technology providers, developers, and consultants.

The consultants reached out to these stakeholders before the planned visits to explain the project and, importantly, to identify who within the institutions would be relevant to its goals. Relevant personnel were then invited to sit for in-person interviews in the Honduran capital city of Tegucigalpa.

Briefing documents outlining the goals of the readiness assessment project were sent to these identified personnel ahead of the visits to provide interviewees a better understanding of the project.

Identified stakeholders who agreed to be part of the interview process included market participants, regulators, industry associations, and technology companies. A few teleconferences were also held with stakeholders far outside Tegucigalpa.

2.4 Visit Preparation and Objectives

Three visits to Honduras were undertaken by some or all of the consultants in 2019.

Based on their research and the scope of the project outlined in Section I, the consultants defined the objectives of Visit I to be:

- To determine and understand the spectrum of compliance processes from the vantage point of financial ecosystem participants.
- To determine and understand the spectrum of supervisory processes within each of the three financial regulators.

- To understand the current level of technology adoption for compliance and supervisory processes respectively.
- To identify bottlenecks to improving efficiencies in data collection and analysis for both market participants and financial regulators.
- To determine the nature of the FinTech ecosystem, as well as supporting ecosystems such as communications and electricity supply.
- To understand the nature of any laws and regulations in so far as they affect implementation of RegTech solutions.

Visit 1 to Honduras took place over five days in April and May 2019. Its findings were reported to NORC/USAID in June 2019. Due to policy-related constraints, the consultants were unable to meet with financial regulators during the visit. A brief Visit 2 was then undertaken to meet financial regulators over a two-day period in July 2019. The Visit report was presented to NORC/USAID in August 2019.

The goal of Visit 3, undertaken over two days in September 2019, was to stage a financial ecosystem-wide workshop to, among other things, validate the consultant’s hypothesis of potential RegTech solutions needed in Honduras. These hypotheses were based on analysis of already identified pain points around compliance, supervisory processes, and internal risk management. The workshop was also designed to create awareness on how RegTech solutions could potentially address challenges. The discussions highlighted readiness concerns for RegTech implementation.

Importantly, the workshop also facilitated much-needed discussion between ecosystem participants on cooperation required to implement centralized RegTech solutions and the feasibility of this required cooperation.

This plenary workshop was followed by a meeting with financial regulators, to assess their perspectives on the readiness, feasibility, and potential roadmap for RegTech solutions proffered in the ecosystem-wide workshop they had also attended. The report on the visit was presented to NORC/USAID in October 2019.

The blended primary findings of the reports presented in Section 4.

2.5 General Analytical Framework for Assessing RegTech Readiness

2.5.1 Overview

As noted above, the consultants devised an analytical framework to guide their visits to Honduras to assess RegTech readiness. (A reminder that references to “RegTech” here also refer to SupTech and RegTech for internal use for both market participants and regulators.)

The framework of the assessment, later calibrated according to outcomes from the consultant’s visits to Honduras, comprises four stages:

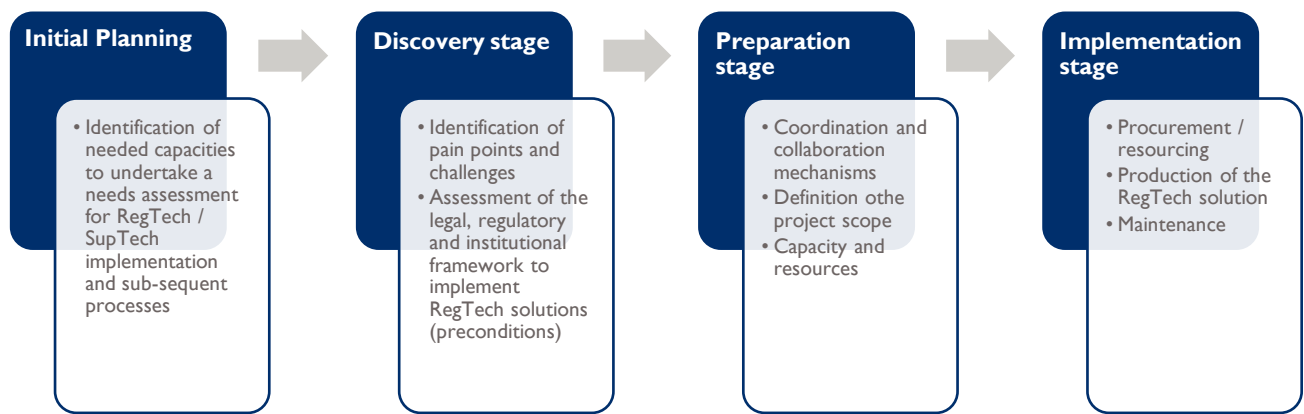
1. Initial planning
2. Discovery
3. Preparation

4. Implementation

These stages are shown in more detail in Figure 1. The consultants on site activities were composed primarily of the initial planning and discovery stages.

Notably though, executing these stages requires knowledge and understanding of RegTech concepts and their contextual purpose, solutions available (or those that can be rapidly developed), how solutions are operationalized and maintained, and familiarity with how to implement technology projects within the financial system. It is also important to consider an appropriate time frame for each stage, taking into account that the process is complex and—depending on the type of project—can take 6–12 months from inception to implementation.

Figure 1. Graphical representation of analytical framework assessing RegTech implementation



Initial Planning: Assessment of capacity to undertake a SupTech and industry RegTech evaluation.

Discovery Stage: Identify the main challenges and any needs to be addressed, ventilating any pain points and identifying potential solutions. (The consultant’s activities for the readiness assessment project were composed primarily of the initial planning and discovery stages.)

Preparation Stage: Involve all relevant stakeholders in defining scope of the readiness assessment project and assessing the capacity and resources to implement solutions.

Implementation Stage: Implement RegTech solutions by:

- Procurement process
- Production and testing of solutions
- Implementation of solutions
- Maintenance of the solution

2.5.2 The Analytical Framework's Core Components

2.5.2.1 Initial Planning

Overall Planning

Before embarking on the overall process, there is need to assess the internal capacity of market participants and regulators to initiate the discovery stage. This initial planning process requires technical expertise and experience with project management. Those with decision-making authority should be involved and, as budgets allow, the process may involve the use of external experts in RegTech solutions, such as consultants, policy experts, and information technology (IT) experts.

Evaluating Capacity, Resources, and Budget

Implementing solutions also requires requisite skills to initiate, assess, and execute each phase of the RegTech development process. This includes sufficient capacity for the procurement, resourcing, or production process since identification of solution providers or design of terms of reference for hiring requires requisite procurement skillsets.

Market participants and/or regulators must determine whether they have the capability to lead and collaborate in the identification, procurement, and deployment of RegTech solutions.

In general, internal evaluation should include the following questions:

- Is there the required capacity to identify and then supervise development of a solution?
- Who will be involved in the assessment process?
- What are the roles and responsibilities of the involved parties?

In relation to time and monetary resources needed to implement a solution, the evaluation should include the following additional questions:

- How much time is required for implementation?
- What is the cost of implementation?
- Who will bear the costs?
- Can it, will it, or how will it replace or integrate with legacy systems?

2.5.2.2 Discovery Stage

The discovery stage is an initial investigation into the context in which RegTech solutions could be needed and the components available or needed to ensure their successful implementation.

It comprises the identification of pain points and challenges to current processes, an assessment of legal, regulatory, technological, and institutional readiness, and preconditions for pursuing any of the identified, potential solutions to these pain points. It also includes an evaluation of the overall national environment, identification of needs and challenges relating to compliance, risk management, supervision or internal controls (as the case may be), and identification of appropriate RegTech solutions that could potentially satisfy these challenges.

Identification and Prioritization of Pain Points and Challenges

To determine whether any RegTech solution is needed, stakeholders should identify their primary pain points relating to compliance, risk management, supervision, or internal needs. Representatives from IT, compliance, legal, and risk management departments should be included in these discussions.

Where pain points relate to supervisory practices and compliance requirements for market participants, the process may require workshops, discussions, and/or other collaborative mechanisms between stakeholders to find potential solutions.

Assessing Legal, Regulatory, Technological, and Institutional Preconditions

An assessment of the applicable legal, regulatory, and institutional framework is needed to understand the readiness and feasibility of implementing any potential solution. In particular, the focus on technology and data in RegTech requires a review of whether an enabling and certain regulatory environment for use of RegTech exists, including rules around cybersecurity, data protection, AML/CFT cloud computing, digital identity, and competition.

2.5.2.3 Preparation Stage

Determination of Project Priorities and Practicalities

After identifying pain points, stakeholders prioritize them and identify potential RegTech solutions. If there are insufficient skills and capacity among stakeholders to identify and evaluate solutions, the process should be guided by external consultants or experts.

Solutions should be chosen from the ensemble available, based on a prioritization of needs versus practicality of implementation. This is particularly important for smaller institutions because of their budget and capacity constraints.

Apart from general preconditions to establish an enabling environment for RegTech adoption, there may also be additional specific preconditions fastened on a solution that need to be addressed, such as whether there is any legal uncertainty, or outright prohibition, on the use of a technology.

For SupTech solutions that involve public-sector stakeholders, it may be necessary to verify whether there is sufficient legal authority to undertake such projects.

Establishing Coordination and Collaboration Mechanisms

For internal RegTech solutions, internal coordination or collaboration mechanisms should be established, even if the solution requires external stakeholder participation. The required capacity may not always be available internally, in which case external support should be sought. In all cases, buy-in from management is critical.

Where RegTech solutions require collaboration between external parties, prospective parties need to firmly express their willingness and ability to execute a readiness assessment. Any commitments and coordination and collaboration mechanisms between stakeholders involved should be memorialized under a formal agreement between all parties, including nondisclosure agreements, conditions for access to data, technical architectures, and the respective roles of the parties. An inter-institutional mechanism

could also be established in which working groups manage specific stages of the development process, such as needs assessment, procurement, development, and adoption. A core group, as well as each working group, should have the capacity to perform tasks independently as well as collaborate with others.

It should be noted, however, that establishing coordination and collaboration mechanisms may not be restricted to this stage of the framework and may even be necessary during the discovery stage.

Designing Solutions

This phase encompasses the design of a proof of concept for the selected RegTech solutions. Governance rules should guide the process relating to:

- Parameters of the readiness assessment
- Identification of main stakeholders
- Rationale for the readiness assessment
- The readiness assessment's core objectives
- The proposed scope of work
- Terms of use focusing on legal rights of information flows
- Roles and duties of stakeholders
- Proposed timelines

Where the RegTech solution is to be developed internally, design teams should be formed that comprise the IT department and departments that require solutions. Where an external vendor will supply a RegTech solution, a process should be established for selecting the vendor, acquiring the solution, and maintaining the solution

The proof of concept design phase may begin with a design sprint, usually starting with a workshop to assess the value proposition, followed by quick prototyping and testing to provide answers to critical design and implementation questions. User-centric design principles should be used to align the design team under a shared vision.

2.5.2.4 Implementation Stage

Procurement and Sourcing Process

The use of a procurement or resourcing process will depend on legal mandates for the stakeholders participating in deployment of the solution. For regulators, procurement processes are often mandated by law. Notably, since public procurement rules can make the selection of the provider cumbersome or unreliable, extended lead times should be factored into planning.

Generally, procurement processes involve, but may not be limited to, publishing a request for information, followed by a request for proposals to, among other things, gathering information on potential and interested technical service providers (TSPs), the services that the TSPs can provide, and general cost (Blood-Rojas, 2017).

Scorecards, assessment criteria, and other tools for assessing submissions may standardize the evaluation process (World Bank, 2016).

For SupTech solutions, regulators could establish alliances with counterparts in other countries to share insights on available technologies, outline efficient development processes, and organize collaborative workshops.¹ Regulators in Honduras could, for example, also join and participate in the Global Financial Innovators Network to gain insights from other regulators on their approaches to and implementation of new technologies, including RegTech (Financial Conduct Authority, 2019).

To advance to the actual procurement and resourcing phase, the stakeholders/governing body should ensure that basic preconditions for the RegTech solution have been met, or are in the process of being met by the time the solution is ready for prototyping. Technical assistance will be required to define requirements, evaluate submissions, maintain quality in procurement/resourcing, and oversee the production processes.

Production and Testing of Solutions

In the prototyping and production phase, the development team will build a prototype for piloting using a lean approach. This requires splitting the process into iterative steps to allow for continued interaction to achieve the desired outcome.

The development of the solution may be channeled through different mechanisms. For example, an innovation hub may encourage collaboration between TSPs or FinTechs and regulators by establishing a proper governance process with duties, defining expected deliverables to measure progress, and requiring reporting every three months.

For SupTech solutions especially, a regulatory “sandbox” program² can be employed to scope the contours for the development of innovative solutions (Jenik and Lauer, 2017; Perlman et al, 2019). Other development mechanisms are outlined in Table 2.

At the end of this stage, professional testers should be contracted to trial prototypes. Feedback on the prototypes may be used to improve the development, testing, or evaluation of the solution.

Table 2. Mechanisms for exploring RegTech solutions

| Model | Description |
|------------------|--|
| Hackathon | Multidisciplinary event where technology-oriented players engage in collaborative problem-solving and prototyping over an intensive but short period. |
| Bootcamp | Workshop-style event focused on bringing in tech players and demo solutions. |
| Sprint | Methodological, goal-driven engagement with a team focused on driving a particular element forward, usually in periods shorter than a week. |
| Data competition | Analysis or build of a service in pursuit of an offered financial reward using a shared or publicly open dataset within a specific timeframe. |
| Data dive/jam | Selected organizations work along a team of data scientists, developers, and designers to analyze, visualize, and mashup data in order to get initial insights and build preliminary prototypes. |

| Model | Description |
|----------------------|---|
| Datapalooza | Workshop-based event with public and private sector actors, to showcase data solutions. |
| Request for Proposal | Solicit proposed solutions through an open bidding process for the procurements of vendors. |
| Challenge prize | Competition where participants provide solutions to a specific problem in exchange for a financial reward. The solution should be executed in a defined timeframe. |
| Accelerator model | Cohort-based program where the sponsoring organization selects similar start-ups (participants) to accelerate their development through mentorship, educational components, and capital. It finalizes with a demo day or pilot project. |

Implementation of Solutions

Once production is completed, solutions should be operationalized and integrated into an entity's systems and processes in parallel with remaining legacy systems and processes. A core group of staff with basic awareness of the processes of the market participant or regulator, experience with project management, technical expertise, and decision-making authority should be formed to implement solutions. But, as with the development phase of a RegTech solution, external parties may be needed initially until sufficient internal capacity is developed.

Maintenance of Solutions

Plans should be devised on how to monitor and evaluate the performance of solutions. This should include assigning roles and responsibilities, as well as metrics for monitoring and evaluation.

3. Honduras Background

3.1 Economic, Political, and Social Background

Honduras is a lower-middle-income country, the second poorest in Central America.

Among its major challenges are high levels of inequality and high ratios of crime and violence. More than 60 percent of its 9.2 million people live in poverty. The rural population is most affected by inequality, with one out of five rural residents living in extreme poverty. Structural issues—a large informal sector comprising about 73 percent of non-agricultural employment, strong dependence on agriculture, and gang-related violence—are at the root of the country's economic problems (World Bank, 2018; BTI, 2018; International Monetary Fund, 2019).

The economy's performance has, however, been improving. GDP has grown over the past years, supported by private consumption and inflows of remittances. Since 2012, the country has reduced its macroeconomic imbalances, institutionalized fiscal prudence, and laid the groundwork for a modern monetary policy framework. Arrangements have also been made with the International Monetary Fund

(IMF) and other international agencies to formulate a recovery plan to improve many aspects of the economy, including financial services (Alliance for Financial Inclusion, 2018; Sanchez-Bender and Maso, 2015).

To maintain this momentum, the country needs to foster more inclusive growth, increase the quality of fiscal policies, protect investment and social spending, enforce AML/CFT governance and frameworks, create further anti-corruption initiatives³ and improve the business climate (International Monetary Fund, 2019a). Most institutions favor transformational changes to support financial inclusion, stability, and integrity goals in the country—particularly in reforming and enhancing compliance and supervisory processes in the financial sector.

3.2 The Financial Ecosystem

Following decades of economic and security concerns, multiple government strategies since 2012 have been initiated to improve socioeconomic development, including the presidential *Vida Mejor* (“Better Life”) Program, the National Plan, and Plan 20/20 (Gobierno de la República Honduras; Open Government Partnership, 2016).

Flowing from these programs, the country now has 25 types of financial institutions, with more than 6,500 registered formal and informal financial entities. These institutions target different segments of the population, with varying levels of market oversight by multiple regulators. These oversights are outlined in Annex A and Annex C.

The following institutions play, or could play, a significant role in the financial sector:

- Commercial banks
- Financial corporations
- Private Financial Development Organizations, Private Development Organizations. Microfinance Savings institutions and Savings and Loan Cooperatives
- Rural banks
- Non-bank Institutions that Provide Payment Services Using Electronic Money

Of these, the banking sector represents 95 percent of total assets in the financial system. The banking system is stable, well capitalized, and has good levels of liquidity. The implementation of the international Basel III banking rules⁴ regarding bank capital conservation buffers is underway, and the banking regulator Comisión Nacional de Bancos y Seguros (CNBS) is designing a methodology to identify financial institutions considered to be systematically important - that is, large enough to potentially negatively affect the entire financial ecosystem in Honduras if they fail or experience liquidity problems (BIS, 2017).⁵ However, stress tests by CNBS on some large financial institutions show the sector’s resilience to standardized shocks. Other institutions with significant financial activities include private financial development organizations, credit unions, and insurance companies.

Also, dollarization remains high, with about two-thirds of the credit portfolio in the non-financial private sector based on foreign currency. Risks from excessive household debt, particularly from use of credit cards, needs to be carefully assessed and modulated, since excessive concentration of a portfolio in one product may increase both financial and macroeconomic risks (International Monetary Fund, 2017).

There is sparse data on the financial strength of the credit union sector. Regulators will need to monitor the sector closely to identify emerging risks and revisit their macro-prudential framework (International Monetary Fund, 2019b).

3.3 Regulatory and Supervisory Environment

3.3.1 Overview

As part of its initial investigation of the regulatory regime in Honduras, the consultants undertook an analysis of laws, policies, and regulations directly relevant to the financial ecosystem. This included ancillary laws and regulations that could impact implementation of any number of RegTech solutions. This was outlined in the Inception Report.

For context, a list of regulators relating to the financial and adjacent ecosystem is outlined in Annex A and a list of relevant laws and regulations is outlined in Annex B.

3.3.2 Financial Regulators

3.3.2.1 Overview

The primary financial regulators in Honduras are:

- Banco Central de Honduras (BCH), the central bank of Honduras, responsible for setting monetary, foreign exchange, and credit policies and regulations.
- Comisión Nacional de Bancos y Seguros (CNBS), the banking and insurance regulator, responsible for regulating and supervising banks, deposit-taking non-banks, and insurance companies and for monitoring compliance with the rules issued by BCH on monetary, credit, and exchange policy.
- Consejo Nacional Supervisor de Cooperativas (CONSUCOOP), the credit union authority, responsible for the regulation and supervision of credit unions.
- The Interagency Commission for the Prevention of Money Laundering and Financing of Terrorism (Comisión Interinstitucional para la Prevención del Lavado de Activos y Financiamiento del Terrorismo—CIPLAFT), which regulates AML controls.

Of the 25 types of financial institutions in Honduras, 18 are supervised by CNBS. Entities beyond the oversight of the CNBS are either regulated by other organizations, such as CONSUCOOP, or are informal financial entities recognized, but neither supervised nor regulated.

3.3.2.2 Compliance and Supervisory Processes

To enhance financial resilience, regulators are working to strengthen supervisory methodologies and capacities. Along with the implementation of Basel III standards, CNBS indicates that they are working on, among other things, a supervisory manual, a pilot for risk-based supervision (see Section 4.3.3.3.4), introduction of regulations for market risk, developing new methodologies to assess operational risk, and strengthening their AML/CFT framework.

Risk-based supervision, often seen as a subset of principles-based regulatory approaches, impacts the effectiveness of RegTech/SupTech applications in so far as it depends on data that can enable supervisors

to identify, understand, and account for risks. These risks might relate to a product, an institution, or other internal and external factors. In addition to data, risk-based supervision depends on giving supervisors access to the right mix of techniques and tools—including SupTech tools—to implement the risk-based approach.

While risk-based approaches tend to operate through high-level principles, market participants in less-developed markets may need some rules-based regulations to complement these principles. The uncertainty among financial market participants on how to implement CNBS's risk-based approach to AML highlights this, with requests to CNBS for specific rules and/or guidance for the implementation of a risk-based approach.

Similarly, measures are being undertaken to build supervisory capacity within CONSUCOOP⁶ and to reinforce its oversight capacities, particularly those relating to compliance with AML/CFT rules (CONSUCOOP, 2019; International Monetary Fund, 2019c).

See Section 4 for pain points related to overall compliance and supervisory processes.

3.3.3 Financial Sector and Related Laws and Regulations

Analysis of financial-related laws and regulations in Honduras shows a patchwork with direct and indirect influence on RegTech solutions and their support systems.⁷ While they address some current operational aspects of the financial sector, they do not provide clarity or certainty around the enablement and fidelity of technological solutions. To some degree, evident regulatory gaps can be filled by either clarifying existing, or passing new, ancillary laws and regulations that may fully enable use of RegTech solutions.

A full spectrum of relevant financial sector laws and regulations are outlined in Annex B. A summary of these laws and regulations, as well as the varieties of ancillary laws and regulations that could affect RegTech implementation, are shown in Table 3. Further discussion on laws and regulations can be found in Section 4.3.2.

Given the importance of compiling and sharing data for RegTech, it is worth highlighting that while Honduras does have a data protection law, no government entity is mandated to enforce attendant data protection issues. A nominal data privacy authority is the Access to Public Information Institute, an independent body responsible for promoting and facilitating access to public information to all citizens, as well as for the regulation and supervision of public information protection, classification, and storage by the public sector.

A draft Data Privacy Law was discussed by the Honduran Parliament in 2018 but has not been approved. Critics argued it was too focused on protecting data as a human right, rather than on its practical economic use.

Table 3. Ancillary laws and regulations in Honduras that may enable or hinder some RegTech solutions

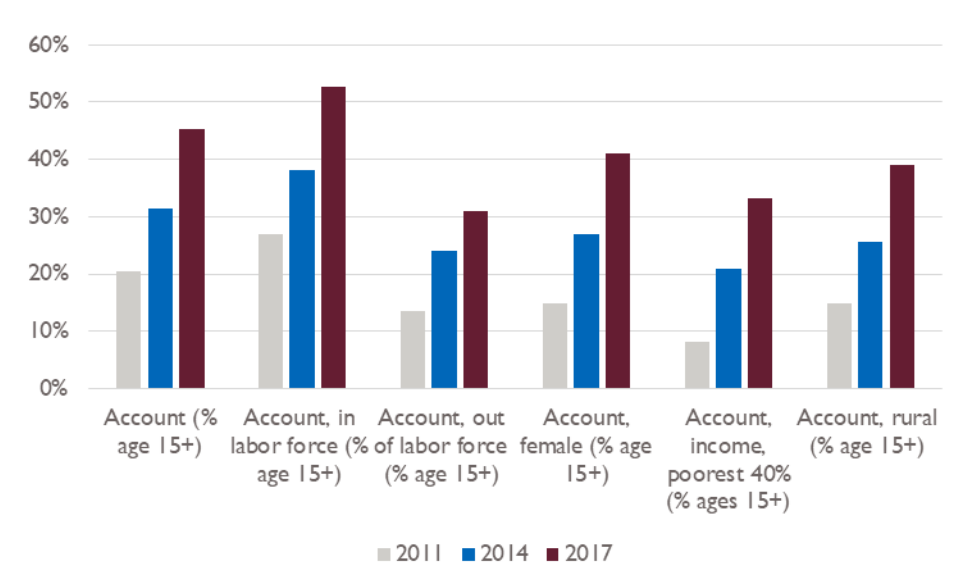
| RegTech Relevance | Laws/Regulations | Authority |
|-----------------------------------|---|---|
| Telecommunications Infrastructure | <p>Framework Law for the Telecommunications Sector (1995)</p> <p>Amendments to the Framework Law for the Telecommunications Sector (Decree No. 112-2011)</p> <p>Amendments to the Framework Law for the Telecommunications Sector (Decree No. 325-2013)</p> <p>Regulation for the protection of the rights of the users of telecommunication services</p> <p>Regulation of Tariffs and Cost of Telecommunication Services</p> <p>Regulations for the Provision of Short Message Originated, MO-SMS (Mobile Originated Short Message Service), SMS-MT (Short Message Service - Mobile Terminated), and access to information content services</p> | Comisión Nacional de Telecomunicaciones (CONATEL) |
| Banking & Payments | <p>Resolution No. 2510/16-12-2013</p> <p>Amendment to the Law Regulating the Deposit Fund for Financial Institution (2004)</p> <p>Law Regulating Development Private Organizations Dedicated to Financial Activities, Decree 229-2000</p> <p>Financial Systems Law (2004)</p> <p>Amendments to Financial Systems Law (Directive No. 160-2016)</p> <p>Law on Payment and Securities Settlement Systems (2015)⁸</p> <p>Regulation for Authorization and Operation of Non-bank Institutions that Provide Payment Services Using Electronic Money (2016) (DORH, 2016a)</p> <p>Guidelines for the Supervision of Non-bank Institutions that Provide Payment Services Using Electronic Money (Resolution GE No.519/04-07-2016) (CNBS, 2016)</p> <p>Resolution No. 251/16-12-2013 Approving the Rules on the Authorization and Functioning of Correspondent Agents (<i>agents correspondientes</i>) (CNBS, 2013)</p> <p>Non-bank Institutions that Provide Payment Services Using Electronic Money</p> <p>Acuerdo No. 01/2016</p> <p>Circular CNBS No. 11/2015 (CNBS, 2015)</p> | CNBS/NCH |
| AML/CFT | <p>Anti-Money Laundering/Combating the Financing of Terrorism Law (2015)</p> | CIPLAFT |
| Credit Unions | <p>Amendments to the Articles Contained in the Cooperatives Law of Honduras, Decree 174-2013</p> | CONSUCOOP |
| Data Privacy | <p>Law of the Civil Registry (Article 109, Decree 62-2004)</p> <p>Law for Transparency and Access to Public Information (Article 3.5, Decree 170-2006)</p> <p>Rulings on the Law for Transparency and Access to Public Information (Article 42, Accord 001-2008)</p> | |
| Procurement | <p>Government Contracting Law</p> <p>Law for the Promotion of Public-Private Partnerships</p> | COALIANZA |

| RegTech Relevance | Laws/Regulations | Authority |
|-------------------|---|------------------|
| E-commerce | Electronic Commerce Law (2014) (DORH, 2015) Law of Efficient and Transparent Purchases through Electronic Media (DORH, 2013a) Electronic Signatures Law (2013) (DORH, 2013) | CONATEL |
| Competition | Law for the Defense and Promotion of Competition | CDPC |
| Evidence | Evidence Law | Justice Ministry |

3.4 Financial Inclusion Initiatives and Effect on RegTech Development

Financial inclusion is a core objective in the financial sector. Many initiatives and reforms have recently been undertaken by financial regulators, with recent indicators showing progress over the past few years. The results are graphically shown in Figure 2.

Figure 2. Proportion of persons with access to an account (ages +15)



Source: World Bank 2018. Global Findex Database 2017.

A National Strategy for Financial Inclusion was launched by CNBS in 2015. This resulted in market and regulatory changes, including enactment of regulations on e-money, the expansion of banking agents (driven by increasing competition), improvement in communication flows between governmental actors, and an increasing number of people using the banking system to make utility payments or do remittances (Alliance for Financial Inclusion, 2018).

Financial inclusion, despite its growth, requires further work. Rural areas remain underserved, and low-income populations have disproportionately low access to financial services. Remedial actions should be approached in a coordinated manner, by articulating policies and associated regulations and public and private sector actions. The current strategy lacks these important components.

CNBS recently launched a women's financial inclusion strategy, while BCH launched an inter-institutional coordination mechanism, Innovation Tables, between the public and the private sector, designed to facilitate the understanding and adoption of innovation in the financial system, including FinTech.

4. Honduras Readiness Assessment: Findings and Potential Solutions

4.1. Overview

The ability to implement RegTech solutions in Honduras may be measured by the level of readiness to establish a RegTech pilot. Readiness here refers to an overall level of certainty, reliability and cost-effectiveness of elements needed to implement RegTech solutions.

These readiness elements are not preconditions for RegTech implementation. They are simply assessment tools to telegraph whether the planning, procurement, operationalization, security, and maintenance of RegTech is likely to be successful. Not all elements must be present in sufficient measure for the process to start.

The consultants placed the elements into two categories:

- National ecosystem elements discussed in Section 4.1 that may affect or impact RegTech implementation in Honduras. These comprise elements with national implications but also with direct impact in the implementation of RegTech solutions.
- Specific financial sector elements discussed in Section 4.2 that must be addressed to enable RegTech implementation in Honduras. These elements are linked to institutional, regulatory, and technical factors.

Solutions or recommendations provided for each of the elements may not necessarily solve an associated pain point but will certainly help provide mechanisms to mitigate any negative effects.

The overview of all elements and levels of readiness in Honduras for each identified element is graphically summarized in Table 4 as a graduated heat map. In subsequent paragraphs, we explain in more detail how the level of readiness was determined.

Table 4. Elements to consider when deploying a RegTech pilot and their degree of readiness in Honduras

| Elements to Consider When Deploying a RegTech Pilot | | Readiness |
|---|--|----------------|
| Ecosystem | National communications facilities, cost and reliability | Non-starter |
| | Power infrastructure | Unsatisfactory |
| | Identity systems | Evolving |
| | Fintech ecosystem | Improving |
| | E-government ethos | Improving |
| Financial sector— collaborative environment | Collaboration within market participants | Improving |
| | Collaboration between market participants | Non-starter |
| | Collaboration between regulators and market participants | Improving |
| | Collaboration between regulators | Improving |
| Financial sector— Policy and regulatory framework | Data protection | Non-starter |
| | Data sharing | Non-starter |
| | Cybersecurity policies | Non-starter |
| Financial sector institutional capacity | IT capacity/systems | Improving |
| | Human resources | Improving |
| | Procurement policies | Non-starter |
| Financial sector technical domains | Data reporting | Improving |
| | Data analysis | Improving |
| | Risk management | Improving |
| | AML/CFT | Non-starter |
| | Consumer Protection | Non-starter |

Scale: Gradings are not based on a quantitative metric but on the consultants’ overall assessment.

| | | | | | |
|-------------|----------------|----------|-----------|------------|-------|
| | | | | | |
| Non-starter | Unsatisfactory | Evolving | Improving | Acceptable | Ready |

4.2. Ecosystem Readiness

The readiness of the ecosystem to implement RegTech is defined by current developments and existing challenges of ecosystem elements needed to support or ease the implementation of RegTech solutions.

These ecosystem elements include:

- National communications facilities
- Power supply
- Identity systems
- FinTech ecosystem
- E-government ethos

Given these are countrywide issues, in most cases potential solutions to issues that arise from them are beyond the remit of any one regulator. Any response or approach would be circumscribed to information-gathering and mitigation strategies.

There are issues, however, that could be addressed both as part of the national ecosystem and through the prism of their effect on the financial sector—for example, cybersecurity, cloud computing, or data-sharing policies.

We address these issues within the context of their impact and relevance to the financial sector in Honduras in Section 4.3 on the financial system’s readiness for RegTech.⁹

4.2.1. National Communications Facilities

The national communications infrastructure is unreliable and costly: The deployment of RegTech solutions will require consistency and reliability of communications networks in a wide range of geographic scenarios. These areas and specific connectivity requirements will be determined for specific RegTech use cases. In all cases, the level of connectivity at head offices, branches, or other point of sales of financial institutions must be evaluated. They should maintain broadband speeds as defined by the International Telecommunications Union.

From discussions with ecosystem participants and others with practical experience in the efficacy and reliability of the communications infrastructure used in an enterprise and small and medium size enterprise context, the consultants learned that national communication infrastructure is unreliable and costly. There are low indicators of coverage, with Internet access, broadband infrastructure, and even mobile adoption showing low penetration compared to other countries in the region, as shown in Table 5.

While mobile phone penetration is relatively high, as Table 5 shows, access to and reliability of broadband internet is low. Many RegTech solutions require reliable high-speed communications facilities and infrastructure, especially those involving collaborative processes. Many small and medium size enterprises that could provide data for these processes rely on mobile coverage rather than fixed broadband. Reliable high-speed coverage is prevalent only in main urban areas, with towns in rural areas often losing mobile coverage. This severely impacts the ability of small and medium size enterprises to undertake commercial activities. Web and e-mail usage by business is correspondingly also very low.

Telecommunication regulator CONATEL is planning expansion of fiber optic infrastructure and broadband via mobile to remote locations.

Table 5. Access to information and communications technology in Honduras

| Indicator | Percent of the Population (2017) |
|--|----------------------------------|
| Individuals using the Internet (percent of population) | 31.70 |
| Fixed broadband subscriptions (per 100 people) | 2.53 |

Source: WDI 2019

Recommendations

- Financial authorities and providers should gather data on the level of coverage of communications networks. A collective repository of data shared with financial institutions could support the deployment of RegTech solutions.

- Financial authorities could coordinate and agree with CONATEL to exchange data on infrastructure coverage and quality.
- Stakeholders should assess the need for communications/internet coverage, in terms of quality, price, and reliability where needed for the deployment of specific RegTech solutions. Where there is poor or no coverage, they should explore satellite communications for mission-critical components of their RegTech solutions. Reporting deadlines may need to allow for the effect of connectivity outages.
- For planning purposes, CONATEL should be engaged to discuss connectivity solutions for use with especially collaborative RegTech solutions.

4.2.2 Power Infrastructure

The national power supply is erratic, often leading to loss of fixed and mobile internet connectivity and hindering commercial activities. Reliable energy supply is essential for the deployment of RegTech solutions. Table 6 demonstrates access to power in Honduras. With supply erratic, especially in rural areas, lack of contemporaneous data feeds to RegTech solutions because of power outages may affect reliability of data reporting. Power generators are prevalent in many, but not all, enterprises.

Table 6. Access to electricity in Honduras

| Indicator | Percent of the Population (2017) |
|--|----------------------------------|
| Access to electricity (percent of population) | 86.50 |
| Access to electricity, rural (percent of rural population) | 71.85 |

Source: WDI 2019

Recommendations

- For planning purposes, financial regulators and supervised entities should assess the impact of unreliable power supply on compliance-related activities and data reporting. Reporting deadlines may need to allow for the effect of power outages.
- RegTech solutions and continuity of data reporting should be graded on the impact of power outages in particular areas.
- Ad hoc mechanisms to mitigate risks related to power supply should be assessed, particularly for joint RegTech solutions—for example, through the acquisition of power generators as assets of the consortium.

4.2.3 Identification Systems

Identity systems are key elements for the deployment of many RegTech solutions. Where transaction monitoring solutions, for example, require customer identification documents (IDs), they rely on national identification systems to identify persons. If these look-up facilities are unavailable, have gaps, are unreliable, or are incomplete, this severely undercuts the accuracy and efficacy of RegTech solutions for transaction monitoring and AML goals. Some RegTech solutions can also solve the issue of identity verification.

While a national digital identification system is used in KYC applications, not all fraud-prevention components are used. The national identification system is managed by the National Civil Registry (*Registro Nacional de Personas* or RNP), and some 98 percent of adults have national IDs (USAID, 2017).¹⁰ While these have barcode and biometric details embedded, most features are largely unused by market participants in undertaking verification. The verification process is also largely manual and superficial. High-profile reports of identity fraud from within RNP, alongside an outdated image database, has rendered this database largely unreliable.

Legal Entity Identifier Databases are segmented and deficient. Crucial to understanding the scope of the financial ecosystem for RegTech purposes databases on legal entities using international Legal Entity Identifier (LEI) standards. LEIs assist in tracing funds and in efficient identification of potential money laundering and fraud. Financial institutions use these databases as a cross reference mechanism and pay to access this information. Ordinarily, LEIs would be components of the national tax registry, notaries, and the trade registry. This data, however, is siloed and not easily accessible. Local registries are not connected to national registries, and information is not updated regularly (GAFILAT, 2017). This configuration and lack of complete data severely handicaps the efficacy of RegTech use.

Recommendations

- RNP and other institutions should regularly use biometrics for robust identification and attestation of identity.
- Access to the national identification database for authentication and adoption of biometric devices can improve KYC processes and provide real-time identification and verification of users. Access should be available to entities that qualify to be on a whitelist of trusted parties, and access fees should be made more affordable for small and medium size enterprises.
- The national identification system, beset with reports of the issuance of fraudulent IDs, requires implementation of proper control measures, such as know your employee practices, access controls, and monitoring. This requires inter-regulator and national government intervention. MoUs should be signed between all financial authorities and with ID institutions to coordinate plans and ecosystem needs.
- LEIs across multiple authorities should be unified in a single data repository, or API access should be provided for the same purpose. This will require coordination in the form of MoUs and information exchanges between different authorities.
- All activities, discussions, and plans relating to access and standardization of access to LEI and national IDs should be undertaken through the prism of plans for a collaborative centralized AML/CFT RegTech solution involving multiple entities of varying financial and cyber-security capabilities.

4.2.4 Financial Technology Ecosystem

Technical development and support structures within Honduras are crucial to implementation and continued use of RegTech solutions. Installation and maintenance of supporting hardware and software applications requires local expertise, affordability, reliability, operational competency, and local presence. However, very few local companies have such expertise and/or capacity. In general, local technical talent to design, procure, and manage RegTech applications is scarce.

The local FinTech ecosystem for development of RegTech solutions is nascent, with very few FinTech companies operating consistently. There is no identifiable ecosystem for nurturing FinTechs in Honduras, or for non-FinTech software development generally. The few identified FinTechs operational in Honduras have been unable to secure financing from third parties, handicapping their growth. There are also no local FinTech networks, although modest steps are being taken to create and cultivate a FinTech-friendly environment through BCH's Innovation Tables initiative.¹¹ There are also some private initiatives, such as the partnership of Banco Ficohsa with a FinTech company to develop its agent network and provide a mobile wallet under the Tingo brand.

Recommendations

- Procure RegTech solutions from non-Honduran sources where possible, possibly using cloud-based solutions where legally allowed.
- Assess and consider altering legal barriers outside the financial sector such as tax, public procurement rules, data localization rules, and import duties that may hinder growth of FinTech companies.
- Leverage BCH's Innovation Tables initiative for FinTech capacity-building that ultimately supports local design and maintenance of RegTech applications.
- Leverage Innovation Tables' work streams to promote and cultivate cooperation and exchanges between FinTech providers and financial institutions.
- Coordinate financial regulators support of smaller market participants and those in rural areas and improve their technical capacity by implementing proper IT development and project management methodologies, one of which is known as "Agile" (Agile Alliance, 2020).¹²
- Coordinate financial regulators and the financial sector to support the creation of tech innovation hubs, incubators, or other mechanisms to cultivate transformative solutions.

4.2.5 E-Government Ethos

A comprehensive government digitization strategy is lacking, handicapping the creation of a culture of digitization, automation, and innovation in the public sector. The Honduran government is actively trying to improve the use of digital technologies within the public sector. The Digital Government Unit was created in 2014, with a four year agenda of enacting a law for information communications and technology, a digital signature law, a law creating a fund for telecommunications and information communications and technology, an e-commerce law, a national broadband initiative, a data privacy law, an e-government law, and a cybersecurity law. Although some, such as the e-commerce law, have been enacted, many have not. There is also a lack of national interoperability standards, both semantic and technical, API standards, and digital identity standards.

Compared to its peers, Honduras is far behind in adopting an e-government ethos. Given limited progress in improving the use of digital technologies and the fact that governmental websites are only available for information purposes and do not provide any interactive services, there is clear need for more progress in adopting an e-government ethos. The implementation of an e-government agenda may improve technical and financial literacy. Such an ethos would permeate all sectors of the economy and prepare institutions to embrace technology-based change. Stakeholders in the financial sector would be nimbler in adopting and deploying RegTech solutions.

Recommendations

- Develop national regulations on information, communications and technology issues (or accelerate the process to enact them). These regulations, by extension, affect the implementation of RegTech/SupTech (e.g., data privacy, data protection, and cybersecurity).
- Coordinate government departments to develop a national program to generate cultural change in technology adoption and use.
- Adopt technical standards using Organization for Economic Co-operation and Development (OCED) and International Organization for Standardization (ISO) references for IT and related vocational training.¹³
- Develop a national policy and strategy to automate exchange of information between public sector institutions.
- Institute interactive e-government services for the public with transactional functionality. These services would create additional data lakes - repositories that store large amounts of relevant structured and unstructured data - that can be used for RegTech solutions. FinTechs should be included where possible in e-government strategy discussions.

4.3. Financial Sector Readiness

This section presents elements within the financial sector to be considered when implementing RegTech solutions.

These elements relate to institutional factors, such as:

- The degree of collaboration in the financial sector
- Institutional capacity
- The legal regulatory framework relevant to deploying technology-based solutions
- Technical issues in relation to operational issues

The overall level of readiness for each element is represented in summary as a graduated heat map in Table 4, while readiness per institution is outlined in Table 7.

As noted above, solutions or recommendations proposed to address these challenges per element are criteria, not preconditions for RegTech pilot implementation plans.

4.3.1 Collaborative Environment

Most RegTech solutions involve multiple stakeholders and require collaboration and coordination in some form, whether by institutions or departments within institutions, centralized solutions such as KYC Utilities, or for data provision for SupTech use.

Internal collaboration within market participants is lacking. As technology becomes more integrated within market participant and regulator processes, tighter coordination is required for technology inventories, user testing, and compliance checks. Many ecosystem participants, however, lack acceptable levels of internal coordination mechanisms, especially between non-technical departments and IT departments. In many cases, there is little or no coordination between legal/compliance departments and IT departments in devising or implementing required solutions that address compliance and risk management needs. Only some banks have established inter-departmental teams for technology development and integration.

Without coordination, there is risk of developing/implementing technology that either does not meet business requirements, is not timely, or does not comply with laws and regulations.

According to the consultant's assessment, this institutional, siloed environment is one of the primary hindrances of RegTech catalyzation in Honduras.

Collaboration between market participants is limited. While they may interact and collaborate with each other through industry associations and networks, this interaction is nominal. There is limited actual cross-industry collaboration on issues of mutual concern, such as AML/CFT, fraud trends, risk management, and consumer protection.

Even though industry associations are meant to facilitate collaboration and sharing of knowledge of mutual concern and benefit, competitive issues prevent market participants from collaborating. The banking association is seen by many of its members as having limited power, and only some of its working groups are regularly active. This is a worrying trend, as lack of representation from market participants may handicap RegTech solutions. It can also affect the potential governance structure for centralized RegTech solutions, creating the possibility that large market participants will dominate centralized solution discussions and push their own agendas.

For smaller entities, a reluctance to collaborate is based in large measure on uncertainty as to whether they are legally allowed to share data with other market participants. They are not prepared to take that risk.

There is lack of collaboration and trust between regulators and market participants.

Communication between the public and private sector is limited and then routed only through associations and networks of market participants. While there are no formal coordination mechanisms between the public and private sector other than on a supervisor-supervised entity basis, BCH's Innovation Tables initiative aims to break that logjam. IT departments from regulators and market participants are also making some progress by coordinating through forums where standards and processes for reporting are defined: for example, the Isaca chapter (ISACA, 2017).

A challenge for future RegTech implementation is the dearth of collaborative goodwill from market participants towards CNBS. For example, market participants reported to the consultants that they

struggle to implement changes mandated, often on short notice, by regulations within the deadlines set by CNBS and other financial regulators. They also say CNBS has not engaged them on their complaints that some procedures and compliance deadlines are, in their view, unrealistic. Regulators, however, indicated to the consultants that, on the whole, they are not aware of these specific concerns.

Collaboration mechanisms between financial regulators are inefficient. The flow of information between financial regulators is segmented and inefficient. For example, while BCH drafts regulations jointly with CNBS, market participants must report information directly to CNBS and then on to BCH. This exchange is facilitated mostly via email. Currently, there is little information-sharing with CONSUCOOP, given its early stage of data-gathering efforts from market participants, both for regulatory and supervisory purposes. As data is gathered and analyzed manually, it is very costly for CONSUCOOP to engage in data exchanges.

Recommendations

- Establish new and bolster existing mechanisms for intra- and inter-institutional collaboration and coordination. These could be in the form of working groups between regulators and market participants, separately between market participants, or within specific institutions.
- The current siloed, non-interoperable, and competitive working environment in the private sector and the often-fraught relationship between supervisors and their supervised entities appears to have dampened enthusiasm for collaboration. The root of such issues needs to be identified and addressed by establishing working groups that meet regularly.

4.3.2 Policy and Regulatory Factors

4.3.2.1 Data Protection

Market participants cannot determine with certainty the nature of sensitive data. There is a general lack of clarity throughout the financial ecosystem on classifying data and on determining what data can be shared with competitors. This hesitance relates even to collegial use such as swapping data on fraud trends and on customers who may be engaged in criminal behavior. This insecurity has heightened the reluctance of market participants to share data within and external to the financial sector.

Recommendations

- Since more information may need to be gathered and shared generally and specifically for potential RegTech use among market participants for AML, credit risk, and anti-fraud initiatives, data protection laws and regulations must be updated to provide safe harbor for doing so. Market participants are unlikely to readily provide data to centralized solutions unless these are in place.
- In the absence of a national initiative or set of policies on data privacy and data protection, financial regulators should coordinate to develop a comprehensive financial-sector data privacy and data protection framework that addresses how entities—often called data controllers—are required to store data and how they are legally able to share customer information with companies inside and outside a country using safe harbor provisions. With these frameworks, provision must be made for ensuring that customers are made aware of how identifying data is being shared, and they give their consent before it is. Sharing could be for marketing purposes but mostly is for access to new services required by the customer.

4.3.2.2 Data Sharing

To reap the benefits of investing in RegTech solutions, there may be a need to share data among and within financial regulators and market participants.

There is, however, hesitancy to share customer information. Market participants are unsure of the regulatory perimeters (and consequences) relating to sharing data, even if the data to be provided for sharing is fully anonymized or made pseudo-anonymous.¹⁴ CNBS has not taken steps to ease access to information by different providers or to better shape data-gathering, storage, and management rights and duties of financial providers. The use of credit bureau data is a clear example, where data is not easily shared and not accessible to everyone.

Fear of sharing information stems from the lack of regulatory framework and security controls. Lack of standardized security controls also heightens fear among market participants, who fear that data shared by larger entities will be compromised due to the counterparty's poor internal controls. This has made larger entities, and others, being more risk-averse than usual.

Competitive issues limit sharing. While lack of policies and regulations affect data sharing, in many cases, so do competitive issues. In the banking sector especially, this is prevalent, despite the existence of a banking association designed to provide safe harbor for collaboration and sharing of knowledge of mutual concern.

Recommendations

- Technical awareness and capacity of ecosystem participants in relation to data-sharing and storage should be improved through collegial training. The current methodology of sharing by institutions using emails or USB drives may be more susceptible to tampering and should be revised. This may include robust risk assessments of data sharing and an understanding of how to mitigate risks accordingly. Potentially, this training can be done through BCH or the banking association.
- The data protection and privacy framework should be updated to address collaborative use of data. When customer data is shared by banks with pre-approved entities such as FinTech's, this is known as open banking. When data is similarly shared between approved non-bank FinTechs and with banks, this is known as open finance. While this type of approved open banking/open finance data sharing could provide a huge source of additional granular data for compliance and general SupTech purposes, a prerequisite is a robust data protection framework, currently lacking in Honduras. Such a framework is a pivotal precondition for enhanced RegTech activities in Honduras.

This framework will establish baseline practices for data sharing, allowing for the development of trusted data-sharing partnerships by addressing issues related but not limited to what data can be shared, agreements for sharing, technical and organizational processes and standards, transparency and accountability needs, and monitoring of processes. This framework, when established at a national level, can facilitate data sharing not just for the development of new products and services but also for reducing compliance burden and building confidence within the financial sector.

4.3.2.3 Cybersecurity

The implementation of RegTech solutions may increase cybersecurity risks. Common risks when using RegTech solutions are data breaches, sabotage, and data or identity theft. It is important to consider all these threats when designing RegTech solutions, as well as the legal and regulatory environment applicable to prevent this risk, and to assign responsibilities and liabilities in case of breaches or compromise.

Comprehensive national cybersecurity standards are absent, with asymmetrical rules prevailing. While Honduras has signed the Budapest Convention on Cybercrime to follow international standards in prosecuting cyber-delinquents, there is no national coordination on cybersecurity and cyber resilience standards.

While CNBS has had limited cybersecurity policies and regulations since 2003 and has prioritized actions and assigned staff to deal with cybersecurity issues, these are asymmetrical rules: for example, cybersecurity regulations appear to apply only to banks, with no guidance for non-bank financial institutions. When such regulations do exist, they are only components of operational risks rules issued by CNBS to prevent illegal intrusions.

The lack of national standards is concerning for many larger market participants since, while they may have good internal cybersecurity hygiene and controls, without national cybersecurity and cyber resilience¹⁵ standards, they will lack confidence that their counterparties have adequate and appropriate levels of cyberhygiene. For centralized and collaborative RegTech solutions, any inconsistency and asymmetry in cyberhygiene creates the specter that the solution will only be as secure as the weakest link.

Additionally, the lack of information-sharing systems amongst financial ecosystem participants, the lack of mandatory reporting requirements for cybersecurity intrusions and breaches, and the lack of a central reporting mechanism for such events, creates concerns that financial systems may be unnecessarily vulnerable. These concerns should be addressed by regulators through standardized national cybersecurity regulations to ensure that data security is maintained throughout the financial ecosystem and not just any centralized RegTech solutions.

No major issues have been reported in the financial system relating to hacking or loss of funds through intrusions, however—although this is not to say that none have occurred or will occur. The general financial ecosystem antipathy toward sharing data with competitors makes such assessment difficult.

At the institutional level, given the lack of a comprehensive financial system framework for cybersecurity, while large financial institutions have dedicated technology teams with chief information security officers (CISO) and chief technology officers (CTO), some entities the consultants interviewed do not have anyone dedicated to cybersecurity and, in many cases, outsource these responsibilities to an external service provider. This again is an issue of cost.

Recommendations

- Develop a national framework for cybersecurity to standardize risk management practices, to facilitate the exchange of data in case of incidents, and to provide legal certainty on, roles, responsibilities, and liabilities in case of IT breaches. A more detailed analysis of the framework would be needed to analyze if it is risk based and proportional.

- Institute regulations that apply to all sectors rather than just to the banking sector. Such rules and regulations need be rationalized and proportional. Doing so would ensure fidelity of any RegTech solutions, centralized or not.
- Develop a national Computer Emergency Response Team (CERT) to prevent and react to cybersecurity incidents, and improve security quality. This would require collaboration between multiple stakeholders. The response team could share information and responses with its counterparts in other countries.
- Improve capacity for cybersecurity and cyber resilience within institutions, especially smaller market participants.

4.3.3. Financial Sector Institutional Readiness and Opportunities

4.3.3.1 Overview

Institutions will need to build readiness in different elements to adopt and utilize technological solutions. Needs will be based on the specific RegTech solution but may require assessment of current technological and non-technological systems and processes, as well as financial and human resources for deployment, development, use, and oversight. The assessment also helps identify opportunities for RegTech use.

The consultant’s assessment of readiness per element per institution is outlined in Table 7 and is summarized below.

Table 7. Assessment of readiness per element and per institution and type in Honduras.

| Category | Elements | Degree of Readiness | | | | | |
|------------------------|----------------------|---------------------|--------|-----------|--------|-----------|-------|
| | | BCH | CNBS | CONSUCOOP | Banks | Non-Banks | Coops |
| Institutional capacity | IT capacity/ systems | Yellow | Yellow | Red | Green | Red | Red |
| | Human resources | Yellow | Yellow | Red | Yellow | Red | Red |
| | Procurement policies | Red | Red | Red | Grey | Grey | Grey |
| Technical domains | Data reporting | Yellow | Yellow | Red | Yellow | Red | Red |
| | Data analysis | Yellow | Yellow | Red | Yellow | Red | Red |
| | Risk management | Yellow | Yellow | Red | Yellow | Red | Red |
| | AML/CFT | Red | Red | Red | Yellow | Yellow | Red |
| | Cybersecurity | Red | Red | Red | Yellow | Red | Red |
| | Consumer protection | Red | Red | Red | Red | Red | Red |

Scale: Gradings are not based on a quantitative metric but on the consultants’ overall assessment.

| | | | | | |
|-------------|----------------|----------|-----------|-------------|-------|
| Red | Light Red | Orange | Yellow | Light Green | Green |
| Non-starter | Unsatisfactory | Evolving | Improving | Acceptable | Ready |

4.3.3.2. Capacity

While different RegTech solutions may have their own specific technical requirements, in general stakeholders need be more technically adept and familiar with basic software. The assessment of the capacity of both regulators and market participants indicates lack of experience and skill with technology as well as inadequate IT systems and processes.

4.3.3.2.1 IT Capacity and Processes

Size and skill of IT teams differ between market participants. Banks are mostly likely to have in-house IT teams to develop solutions, whereas non-banks such as OPDFs are more likely to outsource their IT, cybersecurity, or application development needs. Similarly, at a management level, while banks have chief information systems officers or chief technology officers, or both, this level of staffing is not common among other market participants. This asymmetry is a challenge for the financial sector to move toward digitization, since not all market participants may be able to adopt what are likely to become standard processes and technologies. As a result, some market participants may ultimately be unable to do business with others with relatively advanced systems, lest risks be introduced from their interactions.

There are IT capacity issues at all levels, although smaller participants are in the weakest position. Smaller market participants appear to have a culture of non-reliance on technology, and if they do use technology, they do so with limited technical and budgetary resources. Their ability to change from current systems and processes to adapt to basic digital reporting mechanisms in standardized formats (as per regulators systems) has been deeply challenging in terms of budgets, capacity, and skills. A completely automated system that requires them to integrate new technologies and configure their systems would be extremely challenging if not impossible, considering current financial and IT team capacity.

Affordability and opportunity cost of RegTech solutions concerns smaller participants. While all market participants the consultants canvassed recognized the overall value in using RegTech solutions, smaller participants were weary not just of the cost of new systems but also of the opportunity costs in diverting scarce internal resources to them. Smaller market participants, such as microfinance institutions and credit unions, indicated their voluntary participation in RegTech, both for their own internal needs and collaboratively, is unrealistic, especially since they have bootstrapped limited resources to fund even their core systems. The consultant's assessment is that with their limited financial and technical resources, these market participants are likely to invest in RegTech only if such technologies and processes are mandated by regulators.

Market participants, especially smaller ones, cannot afford required hardware to sustain technological solutions. The use of technology would require establishing physical IT systems within institutions, including installing appropriate hardware. Some market participants who already use technological tools have IT systems in place, but they would have to improve their current systems to support more enhanced tools. Other market participants who do not currently use technology extensively would have to first set up basic IT systems within their institutions. This would require a relatively large investment, which may be a challenge for smaller market participants.

Regulators, even larger ones such as CNBS that have well-staffed IT teams struggle to comprehensively manage IT issues within their organizations. Instead of tackling larger issues

in a strategic manner, CNBS's IT staff mainly responds to requirements from different internal users or departments separately, deploying quick-fix patches to solve issues. As a result, there is little assessment of how certain developments may be implemented across departments to increase utility and little evaluation of the impact of certain fixes. Generally, implementation of IT projects takes three to six months.

CONSUCOOP is in the weakest position among regulators, since it is still largely dependent on manual processes. Even though it was established in 2014, CONSUCOOP is still working on digitizing its supervisory processes. For example, there are currently no automated tools to create consolidated data on the credit union ecosystem and, hence, no single database containing information reported by credit unions. Instead, staff computers hold this reported information, with clear constituent risk of loss, compromise, fraud, and error.

Recommendations

- Institute IT capacity development programs, especially for smaller ecosystem participants. These could be facilitated via new workgroups formed as part of collaborative initiatives for RegTech in Honduras and/or form part of BCH's Innovation Table initiative.
- Enlist funders and donors to devise initiatives to support digital transformation of smaller institutions to increase ecosystem readiness for RegTech.
- Provide government financial support for smaller ecosystem participants to assist implementation of RegTech solutions. This could be in the form of tax breaks and/or direct subsidies from government departments tasked with industrialization and digitization of the economy,
- Develop and socialize standardized best IT practices by banking association and/or BCH's Innovation Tables initiative.

4.3.3.2.2 *Human Resource Capacity*

Insufficient capacity to facilitate RegTech implementation process. Ecosystem participants largely lack experience in initial assessment, execution, and operationalization, as well as procurement/sourcing, deployment, development, and oversight required for RegTech implementation, an issue magnified with smaller participants. Technical expertise, experience with project management, and decision-making lines is also limited.

Project management capacity, especially utilizing tech-oriented methodologies such as Agile, is also lacking among financial sector providers. When industry participants shared their work methodologies, it was apparent they still work under a non-interactive, siloed approach. Clearly, though, development of RegTech products requires a multidisciplinary approach that is constantly evolving, in order to measure progress and rectify strategies and activities as needed. This flexibility does not yet appear to be embedded in the Honduran business culture and requires an entity to acknowledge the need for an organizational change.

Hiring people with IT backgrounds and other types of “advanced” professional skills can be difficult outside Tegucigalpa. For RegTech applications to be utilized fully, human resources should be decentralized for the deployment and monitoring of the performance of any solution. However, private sector stakeholders indicated they are constrained in their ability to hire qualified or component staff to operate their branches, especially in rural areas.

Internal human resource policies of regulators handicaps the ability to find skilled personnel and/or technological partners. For example, BCH's capacity to innovate or apply new technologies is constrained by its HR policy, which requires employees to develop a career path within the institution for incorporation in new roles. The net result is that BCH does not generally hire new staff from external applicants, resulting in a skills shortage in many important supervisory domains.

Recommendations

- Develop stakeholder capacity in all RegTech implementation processes, including procurement/sourcing, assessment, development, deployment, and oversight.
- Modernize human resource policies of regulators to facilitate external recruitment in new areas of emerging expertise.
- Coordinate central government and financial regulator mechanisms to promote decentralization of human capital across the country.
- Encourage businesses to hold recruitment drives at universities and institutes providing training and education.

4.3.3.2.3 Procurement Policies

Regulators are constrained by inflexible procurement policies. Current laws and regulations favor procurement of goods and services from entities with significant size, track records, and sales. However, this restrictive policy may prevent use of smaller TSPs/FinTechs with novel RegTech solutions which may not meet current public procurement standards.

Recommendations

- Improve public procurement rules to be more inclusive in soliciting services from smaller TSPs/FinTechs with novel RegTech solutions that may not meet current public procurement standards.
- Advocate for a differentiated process to acquire technology, maybe even creating a framework for small providers, and considering tech requirements of readiness assessments.

4.3.3.3 Technical Domains

The consultants assessed current processes and support structures within internal and external compliance and supervisory domains as a means to assess technological solutions currently used and to identify opportunities for deployment of RegTech solutions.

The focus was on:

- Data collection and reporting
- Data analysis
- Risk management
- AML/CFT

Overall, the consultants found that while there has been a level of automation in the financial ecosystem, especially at CNBS, BCH, and banks, this has focused more on automation of data collection and reporting processes than on data analysis. Attempts at increased or modernized automation is challenging due to the diverse and inconsistent technical capabilities of market participants. The result is an asymmetrical mix within many ecosystem participants of the use of manual and automated processes.

4.3.3.3.1 *Data Collection and Reporting*

Data collection processes are not standardized within CNBS. Different departments within CNBS collect the same information, but under different reporting formats and use inconsistent means of delivery.

For example, while CNBS usually uses application software that allows market participants to either input or upload data, some reports are gathered through email. And while most institutions supervised by CNBS submit data directly online, CNBS requires some reports to be physically delivered to its offices using CD-ROMs or USB sticks. Uploaded data must be in standardized formats specified by CNBS, but data reporting methodologies are haphazard and do not always follow a structured approach. The non-standard nature of these data collection procedures and formats has led to discrepancies and duplications in data acquired.

As such, many market participants believe CNBS's supervisory processes are duplicative, manual, and inefficient. CNBS, though, believes there are established channels for communication with market participants and has a rosier, "collegial" understanding of how it is viewed by market participants.

A more in-depth analysis of CNBS requirements for supervised entity reporting is needed to identify these issues. According to information provided to the consultants by CNBS, the Toronto Centre – a non-profit organization that promotes financial stability and access globally by providing practical training to financial sector regulators and supervisors – has conducted some of this work in the form of an in-depth regulatory and supervisory analysis to improve CNBS's data-reporting requirements and data-gathering functions. CNBS indicated that this process is designed to allow it to issue evidence-based regulations. The consultant team did not have access to this information.

BCH is dependent on timely and accurate data inputs from other financial regulators.

While BCH is responsible for monetary, credit, and exchange policies, it does not have a direct role in the oversight of market participants. It does, however, play an indirect role in supervising the financial sector and its participants by sourcing its data and information from other regulators, particularly CNBS. Correspondingly, any delays in data collection and analysis by CNBS and others affect the ability of BCH to analyze aggregate data and produce reports.

BCH's compliance department handles reporting tasks and exchanges information with different regulators dealing with potential AML/CFT issues. Information provided to BCH is mainly related to transactions in the national payment system.

Exchange of data with other government institutions is relatively inefficient since everything is done manually through email. Additionally, current processes to exchange information even between departments within BCH are burdensome, since their systems are not well interconnected. Data exchange between, or visualizations for, staff of different BCH departments is done manually. As the current system has more than 24 interconnections, they are exploring the implementation of use of APIs¹⁶ to improve efficiencies.

Data collection, validation, and analysis in CONSUCOOP is done mostly manually. The majority of CONSUCOOP reports are sent through Excel or PDF files, and consolidated analysis is done manually. The German Cooperative and Raiffeisen Confederation is reportedly developing an early warning system for CONSUCOOP.

Also, in October 2018, CONSUCOOP and BCH signed a MoU to ease exchange of information. This includes credit unions' balance sheets and income statements. The agreement will facilitate BCH's ability to access more comprehensive monetary and financial sector statistics.

Frequent and unexplained changes in compliance requirements, especially reporting, are burdensome to market participants. Compliance by various market participants covers several areas and may involve different internal actors. In general, compliance requirements related to reporting are burdensome to all market participants, as there are frequent changes in regulations and unrealistic implementation timelines. The burden appears to be heavier for smaller market participants with insufficient financial and human resources.

Recommendations

- Use automated reporting solutions. While reporting for the SupTech process has been somewhat automated, manual processes are still involved in devising reports in specific formats and uploading/inputting to regulator platforms. Data collected from virtual assistance solutions help in this regard and can be used for both internal use within market participants and SupTech use, where data is accessed and analyzed by regulators. APIs can be used in furtherance of SupTech solutions to automate collection of data from market participants such that data can be forwarded or extracted from systems of market participants to regulators in predefined intervals through push or pull approaches. For example, a change in report processing requirements may only require changes in the middleware or the regulator's processes, rather than in those of each market participant.
- These solutions draw on advances in big data storage and analytical technologies that automate the collection of data from market participants, especially prudential returns. Automated data collection can be complemented by quality controls using integrated rules and validations, profiling of market participants based on obtained data, and sharing with departments and other regulators.
- Use real-time monitoring solutions. Real-time monitoring provides a live view of a given supervisory domain, where instead of aggregated data and template-based reporting, APIs can be used to gather granular data directly from the core system of market participants and then processed by middleware solutions to generate information in required formats. Data may be visualized in a dashboard, with or without contemporaneous or predictive analysis.
- While real-time access to data would reduce the burden on market participants, it may also place a burden on regulators to ensure sufficient capacity to react to any movements or predictions in real or near real time. Overall, though, such access would streamline monitoring and improve the process.
- Enable automated data-sharing. Automating the sharing of already collected data can be beneficial for complete automation. It can streamline processes and reduce cost and effort for both regulators and market participants, especially for BCH. Automated reporting, real-time monitoring, and data-sharing tools and technologies can also be used internally across departments within regulators to improve their current processes.

- Use machine-readable regulations. Market participants currently must manually interpret existing and new rules and regulations and then configure their systems to ensure compliance with them. This is time consuming and introduces potential for differences in what is intended by regulators versus what is implemented by market participants. A potential solution is the use of semantic technology and data point models for converting regulatory text to programming languages. These machine-readable regulations can be directly introduced into IT systems of market participants to automatically configure systems to comply with new regulations. This can address challenges faced by market participants to source, track, and interpret regulations, especially when they are frequently changed.

4.3.3.3.3 *Data Analysis*

Data analysis methodologies are still largely manual for both regulators and market participants. Data analysis to prevent and mitigate internal risks within a financial institution, as well as reported data by regulators, is largely manual or only performed with econometric statistical software packages such as Stata or R. The analysis is also limited to descriptive analysis, with very little focus on predictive analysis.

Data analysis using current methodologies is time consuming and inefficient. Supervisory costs are high due to the lack of tools for automated data gathering and analysis. Smaller regulators are also not ready to implement automated reporting processes. Since only a few employees have the required analytical expertise, there are often significant delays in producing status reports.

Correspondingly, at the institutional level, compliance costs can be burdensome, with three- to four-people teams assigned to input data into reporting systems provided by regulators. The manual process also means market participants often lack timely feedback on inputted data.

Collected data is analyzed separately by different departments within CNBS. Software used by each department at CNBS to perform analyses varies according to the skills in, or the standard defined for, that department. Moreover, analysts take time to manually produce reports, a glacial step that delays supervisory actions. Delays mean regulators and market participants are unable to respond to changes or provide timely status reports, as they have to work with data often as old as two months, leaving the financial sector with data blind spots. CNBS acknowledges the need for implementation and training on data-analysis tools.

BCH lacks proper data analysis capacity. BCH's Department of Economic Studies has staff responsible for applying data analytic techniques in their fields of competency, but they perform data analysis tasks using traditional econometric programs such as R. They also feel that they currently do not have enough capacity to assess the viability of and the results from algorithms used by AI¹⁷ providers or products. Their technical staff is still using basic MS Excel to manually analyze data and suspicious transactions.

Recommendations

- Encourage ecosystem participants to use cloud computing for cost-efficient storage, applications, and application platforms. This would give them the opportunity to prepare for digitization without high investment in infrastructure and applications. There are, however, potential regulatory burdens to

overcome, particularly the need for explicit consent within regulations for use of both cloud computing systems and data localization. Regulatory clarity from financial regulators is needed.

- Use automated data analysis tools to integrate with automated data collection or validation and analysis of imported data collected from one or multiple sources.
- Consolidate data analysis tools with visualizations and reports based on information required for different departments.
- Undertake capacity development of current staff.
- Hire new staff with data analytical skills and familiarity with newer data analytical tools.

4.3.3.3.4 *Risk Management*

Risk management can greatly benefit from implementation of RegTech solutions.

Currently, data collection for risk management is largely automated, while data analysis is manual. There are no tools available for automated early-warning reports for risk management. Private sector stakeholders complain that what they consider excessive and repetitive requirements keeps their compliance costs high. They also feel supervision is ineffective because for the most part, they do not receive any or sufficient feedback on the data they collect and report to supervisors. In addition, the adoption of CNBS's current risk-based approach has been challenging for market participants because of CNBS's high level of risk aversion and market participants' desire to be guided in the process of implementation of each regulation through "rules." This dissatisfaction was particularly evident for the risk-based approach to AML that has in part been implemented. CNBS feels, however, that such rule-based guidance when using a principles-based risk-based approach is not its role, and that market participants must simply "figure it out."

CNBS is working on adopting a risk-based approach for supervision. The Toronto Centre conducted an in-depth regulatory and supervisory analysis (so far, shared only with CNBS) to primarily improve and strengthen the risk-based approach program. This includes but is not limited to:

- Designing the supervision program.
- Designing the supervision methodology.
- Reviewing information required from market participants.
- Outlining IT requirements.
- Training CNBS staff.
- Defining consultation mechanisms with different industries and stakeholders.
- Identifying required organizational changes.
- Evaluating and readjusting supervisory processes.
- Planning implementation of quality assurance processes.

The risk-based approach (RBA) program is expected to improve CNBS's supervisory capacities for evaluating financial institutions' sustainability, identifying financial sector risks early, and improving corporate governance and risk management by market participants.

Credit risk is difficult to manage because of regulatory reforms, manual processes, and lack of appropriate data. Technologies are used for managing credit portfolios, but they not often for managing risks or generating early warnings. Smaller market participants, most non-banks and lenders, conduct their credit risk assessments manually. Moreover, CONSUCOOP is affected by the lack of automated access to the CNBS credit registry, and data from the credit bureau is out of date by at least two months. There are also no industry-wide standards for credit scoring. There are also additional issues that emanate from an inadequate regulatory framework: for example, credit risk managing rules are being threatened by governmental reform of debtor categories for purposes of debt refinancing for salaried workers.

Frequency of liquidity reporting requirements are a compliance burden for many market participants. CNBS has demanded liquidity coverage ratio reports on a daily basis, but this requires internal system changes that cannot realistically be fulfilled in the eight-month implementation time CNBS has provided. Such unrealistic implementation times from the CNBS are very common, as noted above.

Fraud management—both internal and external—is a challenge because of lack of reliable detection tools. Identifying fraudulent identities and linking them to potential fraud actors is a challenge for many ecosystem participants, with most indicating they believe the national ID registry is compromised. Some use offline tools to detect fraudulent transactions, even though reaction to incidences of fraud may not occur in real-time. There also appears to be fraud and lack of compliance within institutions, as staff are reportedly involved in prohibited activities. Because of a lack of proper internal monitoring systems, such cases are often missed.

Recommendations

- A risk-based approach requires data to identify, understand, and account for risks. To undertake data-driven decision-making for risk-based supervision, CNBS will require data in the correct format and appropriate tools and skills to extract insights from the data. While there may be different tools that facilitate data collection and analysis for a risk-based approach, RegTech solutions that automate data collection and allow for real-time monitoring are needed to assist CNBS to improve efficiencies in data-gathering from market participants. Moreover, the data from different sources could be fed into internal RegTech analytical tools that overlay scattered data points to provide CNBS with a more comprehensive and contemporaneous risk analysis of the Honduran financial system.
- Use potential big datasets and AI for improved data analysis. For both regulators and market participants, increasing availability and collection of data allows for improved internal algorithms for analysis using big data and/or AI. Analysis of internal and external data using such new and improved technologies can improve institutional processes, including risk management—a major pain point.

This could improve procedures for:

- Market risk management through simulations and predictions.
- Fraud management, through quicker and more precise fraud identification.
- Credit management, through better user behavior prediction.
- AML practices, by detecting transaction trends and suspicious transactions.

- Identification of pain points in data collection, analysis, and sharing of processes to improve efficiency of the credit bureau.
- Integration and ensuring interoperability between central bank supervisory systems and supervised entities to facilitate automated monitoring and/or real-time monitoring.
- Installation of internal systems to manage staff access levels, both in physical and virtual locations.
- Improvements in compliance awareness for staff members.

4.3.3.3.5 *Anti-Money Laundering/Combating Financial Terrorism*

Know Your Customer data is captured and stored in silos of market participants, regulators, and government bodies. Current siloed and non-interoperable KYC processes are inefficient and ineffective, as customers have to provide identical data to multiple parties. This segmentation has also limited the ability of market participants, regulators, and government bodies to identify and verify users. Broader data sets, such as those related to tax and credit, can be beneficial to evaluate risks; because they are collected by different parties, however, it is difficult to access each data type. Even so, access to these data sets is not necessarily available to all stakeholders.

The Financial Intelligence Unit collects required data from market participants for AML/CFT compliance electronically, but inter-governmental sharing of AML-related data is manual. Data submission by market participants regarding suspicious transactions to the Financial Intelligence Unit—a division of CNBS—is automated, but data analysis of this information is performed manually. And while the unit is responsible for providing information on suspicious transactions to other governmental entities, such as the Prosecutor General and the judiciary, most such data exchange is done manually and in person. CNBS reports it is developing a platform to send and receive information electronically.

Incomplete and outdated ID databases frustrate KYC processes. Market participants are not able to perform complete customer identification and verification as part of a customer due diligence process, as there is no single reliable database. While some market participants use the census database, that information is outdated.

Recommendations

- Establish a comprehensive customer identification database that can be accessed by market participants to facilitate their customer due diligence processes.
- Financial regulators should, in conjunction with industry stakeholders, examine the potential for a centralized KYC utility for comprehensive customer due diligence. A centralized function that supports KYC and AML/CFT processes—commonly referred to as a shared KYC Utility—can facilitate customer identification and verification, sanctions screening, transaction limit checks, and velocity checks (Arner et al, 2018; PwC, 2015; CITI, 2014). An industry-wide need for a KYC Utility was confirmed by industry stakeholders in the workshop held during the third visit to Honduras.
- If allowed by laws and regulations, ensure ecosystem participants provide real time data for the KYC utility, to be accessed by qualifying ecosystem participants on a cost-recovery basis. Appropriate data privacy measures can also be instituted by masking identifiable information or implementing access levels.

- Change laws and regulations on data privacy, and current prohibitions in AML laws on “tipping off¹⁸,” to ensure regulatory certainty for creation of utility and data-sharing.
- Adapt laws and regulations to explicitly allow collegial negotiations between competitors and prohibit collusive behavior by those with significant market power in setting governance conditions, access, and usage pricing. Anti-competitive behavior should be prevented when ecosystem participants collaborate. Competitors may meet to decide on pricing for shared solutions on such issues as KYC utility, anti-fraud, and risk management. These negotiations may touch on prohibitions against collusive behavior. Larger entities may dominate the governance of shared utilities and decide on pricing and terms for access to data. Similarly, special dispensation from the competition regulator may be required to allow competitors to assemble and negotiate pricing for use of the utility.

4.3.3.3.6 *Consumer Protection*

The regulatory framework for consumer protection is neither explicit nor comprehensive.

Consumer protection frameworks must provide the same rights and protections to all financial consumers. Current, consumer protection rules are neither explicit nor housed in a single national policy framework. Instead they are mixed with other types of financial regulations.¹⁹ Rules apply inconsistently across banks, non-banks, credit unions, and other financial service providers, and supervisory practices are almost non-existent. For example, there is no oversight of interest rate publication by financial providers. Importantly, having two supervisory authorities with little coordination mechanisms in place between them, does not contribute to ensuring the same protections to all.

Processes to gather data on consumer complaints by providers use both digital and physical/manual mechanisms. Mechanisms to solve customer complaints in most institutions, including banks, are done manually. Most institutions do not invest in online or mobile-based platforms that would allow customers to submit claims. Customers must write their complaints manually, and the process to address and solve them is also done manually. These manual mechanisms increase costs generally, due to increased staffing requirements, but do not necessarily provide effective recourse or resolution mechanisms for customers. However, although overall the process is not automated, customer complaint reports are sent to CNBS annually using digital interfaces.

Recommendations

- Investigate the use of chatbots- automated computer programs designed to simulate conversations with human users- as a customer interface for complaints and general inquires. Chatbots can be used to allow customers to file complaints to institutions or regulators through web or mobile digital platforms. Chatbots can guide customers through the filing process and update them on complaint status. The automated conversations can reduce institutional workload and also serve the objective of identifying market misconduct. When used by regulators, digital customer engagement will also provide data that can be analyzed to gather insights from all complaints for better oversight and policy development.
- Establish an online complaint submission and management platform. Stakeholders should create digital platforms to submit and manage complaints. This would be similar to chatbots but would not require investment in designing the conversational structure. Even with a different user experience, if implemented by regulators, data gathered from the platform can provide insights to improve

oversight and policy development. If implemented by market participants, the data can be analyzed for insights on their performance to identify areas for improvement.

5. Roadmap for RegTech Implementation in Honduras

5.1. Overview

Section 4 presents elements to consider while identifying need for RegTech solutions and deploying RegTech solutions in any given country. These elements include national ecosystem and financial-sector specific elements that present challenges to achieving readiness necessary to implement RegTech. Table 7 summarizes these national ecosystem and financial sector elements as challenges and offers the degree of readiness for each element in Honduras.

This section brings together these strands to outline a roadmap for RegTech implementation in Honduras for policymakers, regulators, private sector stakeholders, and other actors. Annex D is a summary of challenges to the implementation of RegTech in Honduras.

Given the low or evolving level of readiness in most cases, we believe a roadmap for RegTech implementation in Honduras need:

1. Identify or develop an inter-/intra-institutional mechanism for RegTech awareness and coordination at a national level or within organizations.
2. Develop a financial sector-wide vision for the use of RegTech.
3. Refine and socialize the framework developed by the assessment team to implement a RegTech solution.
4. Address readiness-improvements for ecosystem and industry elements.
5. Identify or promote the selection of a use case to pilot a RegTech solution.

RegTech solutions could be implemented by individual market participants or by a consortium, by regulators or by a wider group comprising both public and private sector institutions. The roadmap that should guide their actions for the prioritization and implementation of RegTech solutions.

5.2 Identify or Develop an Inter-/Intra-Institutional Mechanism for RegTech Awareness and Coordination

Diverse elements to be considered when assessing implementation criteria of RegTech solutions, shown in Table 7, clearly go beyond the powers and scope of work of a single institution or authority.

This makes the need for collaboration and coordination critical to provide coordinated and non-duplicative solutions and/or to advocate for them if implementation requires involvement of parties other than the stakeholders.

For example, improving the power infrastructure in the country is not in the remit of any of the financial authorities. However, energy reliability is an essential ingredient to facilitate and/or deploy a RegTech solution. Thus, through a coordinated body or approach, stakeholders can coordinate on their power infrastructure needs, share information on developments, hindrances, or solutions they have been testing; and, if necessary, create a joint solution.

As outlined in Section 4, however, the level of inter-/intra-institutional coordination and collaboration to undertake such activities is very poor. Collaboration between the public and private sector is almost non-existent, and inter-institutional coordination between government agencies is anemic.

Clearly, then, there is urgent need to lower barrier to collaboration, for competitive, trust, or legal reasons to facilitate RegTech awareness, implement collaborative RegTech (or other) solutions, or develop common solutions to mitigate national challenges such as lack of a FinTech ecosystem, and unreliable telecommunications systems and power provision.

While collaboration is not an embedded ethos in financial systems in Honduras, barriers appear to be gradually lowering. This is an encouraging sign for developing RegTech solutions.

The following should be considered in Honduras to effectively take advantage of these developments:

a) Identify and Convene Structures for Collaboration

Collaboration to catalyze RegTech implementation is both an intra- and inter-institutional goal, and structures for RegTech will reflect this. The former requires departmental managers to identify needs and create internal structures for collaboration. These can, for example, link an institution's IT and compliance departments via an internal RegTech committee for internal RegTech needs. This committee could also form the basis for that institution's representation on external inter-institutional collaborative initiatives.

Inter-institutional mechanisms are challenging to develop given the lack of inter-institutional collaborative ethos in Honduras. They will involve management-level buy-in, but most importantly a "champion," a person or entity to facilitate at least the initial interactions. Within the financial or regulatory institutions, a formal mechanism to coordinate between different departments could be envisioned.

For example, in the face of rapid FinTech developments globally, CNBS now has an internal FinTech coordination group to gather and coordinate the diverse set of internal expertise to explore FinTech use internally and to understand potential developments in Honduras

At the national ecosystem level, there is a mechanism for inter-institutional collaboration—Innovation Tables—that is led by BCH, but this does not include specific RegTech-focused agendas. Overall, regulators and industry stakeholders in Honduras may decide to leverage the existing BCH Innovation Tables initiative, or to create a new inter-institutional coordination mechanism to promote RegTech.

Table 8 shows the pros and cons of using BCH's Innovation Tables as a coordination collaboration mechanism for initiating discussions of RegTech in Honduras.

Table 8. Use of the BCH Innovation Tables initiative as a coordination collaboration mechanism

| Pros | Cons |
|---|--|
| It has knowledgeable members on innovation, representing most public and private sector stakeholders relevant for RegTech. | It covers a broader set of topics, such that RegTech goals could be diluted. |
| Commitment from different stakeholders has already been obtained. | Current membership might not include all stakeholders relevant for RegTech. |
| Frequency of meetings have been defined. | n/a |
| Stronger opportunity to coordinate RegTech initiatives with other market innovations (Fintech ecosystem developments). | n/a |
| Stronger opportunity to leverage what has been done to support the “innovation ecosystem” to favor RegTech needs, such as skills, infrastructure, or regulations. | n/a |

Given the anemic state of collaboration in Honduras, the most important push to initiate such collaboration could, and should, emanate from initiatives by regulators such as BCH’s Innovation Tables. It is advisable, though, to formalize agreements under some type of legal instrument.

b) Outline Membership Criteria for Collaborative Mechanisms

This mechanism will require identifying potential participants. Whether an intra or inter- coordination mechanism, stakeholders with different profiles and belonging to different departments (within the same institution) or institutions (in case of an inter-institutional coordination mechanism) need be considered. Financial sector regulators, market participants, and entities operating in technology and finance should be part of any inter-institutional collaborative mechanism.

Overall, membership criteria should be flexible enough to allow for new stakeholders, as collaborative mechanisms or technology solutions evolve. Depending on the circumstances and structures, and particularly in the case of inter-institutional coordination mechanisms, donors or funders could also be part of the groupings, but usually only in observer roles.

Participants in a collaborative mechanism or committee should have a thorough understanding of the RegTech-related needs and challenges, financial, HR capacity, and otherwise, of their institutions and how their respective institutions deploy these solutions.

Representatives from institutions should be sufficiently senior to convince their management to implement agreements reached within the committee/mechanism and carry mandates to enter into agreements within decision-making structures of the collaborative structure.

c) Define Mission and Scope of Work

Any intra- or inter-institutional coordination mechanism should clearly define its mission and scope of work. These may be focused on creating awareness and promoting collaboration for the implementation of RegTech solutions and can also include dealing with some challenges identified in Section 5.5. One important task to be assigned to this group is the definition of a financial sector-wide

vision for RegTech. It can also be in charge of representing financial sector stakeholders on RegTech topics before other public sector authorities.

d) Define Governance and Operational Structures

The nature and structure of collaborative mechanisms can vary. They can follow a loose, possibly temporary, approach where stakeholders commit for a specific purpose (such as sharing certain type or types of data) or for a more long-term collaborative proposition (for example, a RegTech Association with specific working groups and permanent governance and support structures). For RegTech purposes, the latter is preferable, especially for enabling data sharing.

In all cases, governance structures and mechanisms should be outlined at the outset of the process to understand any loose affiliations or need for formal structures. While often controversial, given the range of sizes and influence of various entities potentially serving on such structures, the principle of one-entity-one-vote in any collective decision-making body should be the goal, with no one entity given veto power over decisions. As is common in many industry associations around the world, to protect smaller participants from sudden financial shocks, more than a two-thirds majority should be strived for at association governance level, where financial decisions impacting members arise.

Working groups should be established when necessary to deal with specific issues or projects. These working groups should report periodically to any collaborative management structures. It is also important to identify a stakeholder to act as initial project manager, bearing in mind these may have budgetary and other financial implications, at least in terms of time of the selected stakeholder.

Face-to-face meetings should occur regularly, so as to assess progress on pre-defined objectives. It is advisable to establish frequency in a formal document and allow for extraordinary meetings. Monthly or bimonthly meetings can assist in tracking progress. Email lists should also be created for working groups to communicate regularly, obviating the need for face-to-face meetings.

e) Define Tasks

Coordination mechanisms should clearly define a work plan, with short-term, medium-term, and long-term goals and a leading stakeholder assigned for each of the pre-identified tasks. Tasks could include:

- Definition of a financial sector-wide vision for RegTech.
- Workshops on RegTech basic concepts with high-level staff/decisionmakers to maintain commitment to the definition and vision for RegTech in Honduras.
- Analysis of methodologies to implement RegTech solutions.
- Analysis of ecosystem and financial sector topics to assess the extent to which structures could address them.
- Defining a use case for a RegTech pilot.

5.3 Develop a Financial Sector–Wide Vision for the Use of RegTech

Any intra or inter-institutional coordination mechanisms in Honduras should begin their interactions and deliberations with a common and clear understanding of:

- Their common definition of RegTech (see Section 1.2).
- The ultimate goal for implementing any number or type of RegTech solutions in Honduras.
- Setting a vision for RegTech development and collaboration among participants.
- An outline of their vision of RegTech developments in the short, medium, and long term.

Table 9. Example of vision and medium-term goals for RegTech in Honduras

| Vision | All financial sector providers will be able to use new technologies for compliance tasks |
|---------------------------------------|--|
| Medium-term goals (4 years from 2020) | The RegTech ecosystem and cross-cutting financial sector challenges would be addressed. One/two/three pilots on RegTech solutions would be functioning in the market. |

5.4 Refine and Socialize the Framework Developed by the Assessment Team to Implement a RegTech solution

To readily implement RegTech pilots in Honduras, stakeholders should adapt or modify the framework proposed in Section 2.

To recap, this framework includes:

1. Initial planning
2. Discovery
3. Preparation
4. Implementation

Stakeholders—individual institutions, consortiums, or an inter-institutional coordination mechanism—willing to undertake RegTech pilots should deliberate at the outset the use of these steps to achieve their vision for deploying RegTech solutions.

Table 10. Considerations for Implementation of RegTech solutions in Honduras, given low market readiness

| Stages to Develop RegTech Solution | Criteria for stakeholders to consider when implementing RegTech Solutions |
|---|--|
| 1—Initial Planning | <p>In general, level of skills, knowledge and resources are low for stakeholders to efficiently identify, design and implement RegTech solutions on their own. Stakeholders should consider hiring external consultants or obtaining support from international donors to proceed with implementation of next stages.</p> <p>Since this has already been identified for Honduras through this assessment, stakeholders are encouraged to take necessary steps to start their discussion in the Discovery Stage.</p> |
| 2—Discovery | <p>This report outlines high level pain points and challenges of stakeholders in the financial sector related to compliance, supervision, and internal needs. Stakeholders should further discuss the institutions or country’s priorities, based on the findings of this report and their own insights. This may require establishing inter-institutional mechanisms as outlined in Section 5.2. Such mechanisms would also be important in Honduras to increase low awareness of RegTech applications.</p> <p>Stakeholders should assess ecosystem-wide issues for implementation of RegTech solutions as specified in Section 5.5 and how these gaps can be addressed. While the assessment has been conducted by the consultants at a high level, stakeholders will have to further delve into each ecosystem element to determine granular action items.</p> |
| 3—Preparation | <p>In this stage, expert advice is needed to set clear boundaries on the goals of readiness assessment and to evaluate technical solutions available to accomplish these goals.</p> <p>Expertise is needed to help prioritize between different existing pain points based on need and ease as outlined in Section 5.6. Stakeholders need identify what coordination mechanism is needed for the selected use case, specific features of the solution, and additional preconditions that need be met.</p> <p>Coordination mechanisms may be set up for further analysis of Stage 2 and could be further refined for Stage 3.</p> |
| 4—Implementation | <p>This stage involves four sub-stages: procurement and sourcing processes, production and testing solutions, implementation of solutions, and maintenance of solutions. For procurement or sourcing processes, stakeholders/governing body should ensure the basic ecosystem and financial sector elements have been addressed—or at least are in the process of being met by the time the solution is ready for prototyping.</p> <p>Technical assistance will be required to define requirements, evaluate submissions, maintain quality in procurement/resourcing, and oversee production processes. For implementation of solutions, a core group of staff with basic awareness of the processes of the market participant or regulator, experience with project management, technical expertise, and decision-making authority should be formed to implement solutions.</p> |

5.5 Address Readiness Improvements for Ecosystem and Financial Sector Elements

Stakeholders, whether coordinated through an intra-institutional or inter-institutional structure, need to assess elements proposed in Section 4 before refining or adapting the framework to implement a RegTech solution (Section 5.4). Similarly, this process of assessment and identifying potential solutions or mitigating techniques can leverage recommendations formulated in Section 4 for each element.

The low or evolving level of readiness for RegTech in Honduras calls for collaborative efforts to address ecosystem-wide and financial sector challenges in particular. How and when to address these challenges, whether they need be fully addressed before the RegTech solution is designed and implemented, and how to approach the challenge will vary based on the solution. Being aware of these challenges, though, stakeholders may choose between:

- Addressing the challenge themselves.
- Taking coordinated actions at a national level, or through a consortium to address the challenge.
- Acting to mitigate the effects of the challenge, rather than solving it directly.

This section summarizes options to consider when assessing common ecosystem and financial sector challenges.

Ecosystem challenges

Solutions for ecosystem challenges are clearly beyond the power of any stakeholder wanting to implement a RegTech solution. However, all stakeholders need consider implications of establishing a RegTech pilot.

Thus, development of RegTech projects would be better served, and the process enhanced, if granular information on these elements is available. Information and data would support individual initiatives, as well as those developed under a coordinated mechanism.

Another measure that could support the implementation of RegTech pilots is advocating for regulatory, policy or infrastructure changes at the national level through inter-institutional coordination mechanisms.

Table II summarizes actions stakeholders can take for each element of the ecosystem), all explained in detail in Section 4.

Table II. Summary of action items pertaining to ecosystem elements for stakeholders

| Ecosystem elements | Main Recommendations |
|-----------------------------------|---|
| National communication facilities | <ul style="list-style-type: none"> • Gather granular data of telecommunication networks and internet (level of coverage and features) and match it with the location of financial institutions access points. • Partner with CONATEL to influence in policy decisions. |
| Power infrastructure | <ul style="list-style-type: none"> • Assess existing restrictions of power supply and how that affects access points of financial institutions. |
| Identity systems | <ul style="list-style-type: none"> • Discuss with identification institutions their plans to improve identity systems and explain needs from a financial sector angle. • Assess the possibility of developing a RegTech solution to address current challenges for financial sector providers in AML/CFT compliance. |
| Fintech ecosystem | <ul style="list-style-type: none"> • Develop and share a repository of FinTech providers—including, and beyond, those included in BCH’s Innovation Table initiatives—among those collaborating on RegTech solutions. • Coordinate with the Innovation Table initiative on needs of providers, RegTech awareness activities, and support for smaller financial institutions in adopting innovation in a more structured way. |
| E-government strategy | <ul style="list-style-type: none"> • Advocate for the development legal frameworks at national level on information communications and technology. • Engage with the digital government unit to create RegTech awareness. |

5.6 Identify Use Cases and Assess Proposed RegTech Solution(s)

As noted in Section 4, there are multiple pain points for financial ecosystem participants in Honduras, and potentially many corresponding opportunities to address them using RegTech solutions.

This section guides inter-institutional coordination mechanisms or individual stakeholders in identification of RegTech use cases that could potentially be deployed in the next three to four years to address specific pain points. Potential solutions in this section correspond primarily to pain points elements assessed as “Financial Sector Technical Domains” in Section 4.3 above.

Given the limited technology resources in Honduras and the systemic issues identified above, any RegTech use for the corresponding pain points should be assessed according to priority of need against ease of implementation.

Assessment of ease of implementation for each RegTech solution should be measured using the following criteria:

- **General Ecosystem Readiness:** As explained in Section 4.2, solutions or mitigating strategies for ecosystem-wide issues analyzed in Section 4 will vary and be based on the type of RegTech solution and if the use is for internal purposes.

- **Type of Collaborative Environment:** Stakeholders must assess whether the solution would benefit from or must involve a single or multiple stakeholder. The coordination and collaboration of multiple stakeholders—whether of different institutions or different departments within an institution—will also determine ease of implementation.
- **Policy and Regulatory Framework:** Based on the solution, a set of policy and regulatory frameworks may be needed to guide and encourage implementation. Many may need to be implemented at more than one institution and may be covered in the assessment of Ecosystem Readiness. If the slow pace of law and rulemaking in Honduras is a limiting factor, then letters of no objection (LONO) should be issued to market participants to give them legal certainty as to their use of RegTech-enabling activities and systems currently not covered in any existing laws or regulations. However, specific frameworks may be required for each solution.
- **Institutional Capacity:** The capacity of institutions to assess, procure, source, develop, implement, and use RegTech solutions, along with their financial resources to support the processes need to be considered. When multiple stakeholders with different capacities and different priorities are involved in the implementation of RegTech solutions, establishing an even level of institutional readiness may be particularly challenging.

Despite the assessment of solutions based on need and ease of implementation, overall prioritization for implementation will be heavily dependent on stakeholders' ability to bear their responsibilities and adequately provide required resources. If the gap between the priority of need for a RegTech solution and the ease of implementation of that solution is too large, however, then, to preserve resources, the particular solution should be assessed under long-term implementation plans.

The selection of RegTech solutions is followed by processes outlined in Section 5.3. This usually includes defining and outlining governance rules around use of the solution and identification of procurement processes to select the vendor or for acquiring the solution, as well as design of a proof of concept for the selected RegTech solution.

Table 12 summarizes RegTech solutions identified in Section 4 and their corresponding pain points. These pain points focus on the nature of compliance duties and supervisory processes and assesses their priority relative to RegTech implementation. The corresponding proposed solutions are similarly assessed according to the difficulty or ease in their implementation based on the above criteria.

Table 12. Potential RegTech solutions, priority of need and implementation ease

| Potential RegTech/SupTech Solutions | Technical Domain | Pain Point(s) Addressed | Priority of need | Execution Ease | Collaborative Mechanism | Formal or Informal? | Potential Stakeholders | Additional Preconditions per Solution |
|---|--|--|------------------|----------------|------------------------------|---------------------|--|--|
| Automated reporting and automated real-time monitoring solutions using APIs | <ul style="list-style-type: none"> Data collection & reporting AML/CFT | <ul style="list-style-type: none"> Manual processes in data collection & validation Data collection not standardized Lag in data availability Lack of complete & updated KYC databases | | | Inter-institutional | Formal | Financial regulators, financial institutions | <ul style="list-style-type: none"> Regulatory standards or guidelines for the use of APIs Legal provisions to enable the use of smart contracts |
| Automated reporting & data-sharing using APIs to provide access to ID database (1) | <ul style="list-style-type: none"> AML/CFT | <ul style="list-style-type: none"> National ID registry not accessible to all | | | Inter-institutional | Formal | ID registry, financial regulators, market participants | <ul style="list-style-type: none"> Regulatory standards or guidelines for the use of APIs Removal of legal constraints to access data from ID registries |
| Automated data-sharing using APIs to improve data collection & analysis processes (2) | <ul style="list-style-type: none"> Data collection & reporting | <ul style="list-style-type: none"> Sharing of information within and across institution is manual Reporting is duplicative and overlapping between financial regulator's departments | | | Inter-institutional/Internal | Formal or Informal | Financial regulators or a single financial authority | <ul style="list-style-type: none"> Regulatory standards or guidelines for the use of APIs Standards for cloud computing |

Table 12. Continuation

| Potential RegTech/SupTech Solutions | Technical Domain | Pain Point(s) Addressed | Priority Exec. of need | Exec. Ease | Collaborative Mechanism | Formal or Informal? | Potential Stakeholders | Additional Preconditions per Solution |
|--|--|---|------------------------|------------|-------------------------|---------------------|--|--|
| Big datasets & AI for improved data analysis to improve efficiency (1) | <ul style="list-style-type: none"> Data analysis | <ul style="list-style-type: none"> Data analysis of reported data by financial regulators & market participants is still manual or only performed with econometric software Delays in feedback & publication of industry data by financial regulators | | | Inter-institutional | Formal | Financial regulators, credit bureau, market participants | <ul style="list-style-type: none"> Consumer protection framework for assessing clients' risks from data-sharing & analysis Regulatory standards or guidelines for the use of APIs Regulations to monitor algorithmic biases |
| Big datasets & AI for improved data analysis for risk management (2) | <ul style="list-style-type: none"> Data analysis Risk management | <ul style="list-style-type: none"> Uncertainty in implementation of risk-based approach Manual analysis to determine credit risk High frequency of liquidity reporting Lack of tools for internal & external fraud management | | | Internal | Formal or Informal | Multiple departments within a financial regulator | <ul style="list-style-type: none"> Technical capacity to deal with algorithms oversight Data localization rules Cloud computing regulations |
| KYC utility (Distributed Ledger Technology, API, Biometric ID) | <ul style="list-style-type: none"> Risk management AML/CFT | <ul style="list-style-type: none"> No complete databases & more efficient processes to prevent AML/CFT KYC data is captured & stored in isolation | | | Inter-institutional | Formal | Financial regulators, Financial Intelligence Unit, market participants, other public-sector entities | <ul style="list-style-type: none"> Definition of the roles and responsibilities of stakeholders involved in solutions Regulatory standards or guidelines for the use of APIs |

Table 12. Continuation

| Potential RegTech/SupTech Solutions | Technical Domain | Pain Point(s) Addressed | Priority of need | Execution Ease | Collaborative Mechanism | Formal or Informal? | Potential Stakeholders | Additional Preconditions per Solution |
|--|--|---|------------------|----------------|-------------------------|---------------------|--|--|
| Biometrics | <ul style="list-style-type: none"> Risk management AML/CFT | <ul style="list-style-type: none"> Lack of robust ID mechanisms | High | Low | Inter-institutional | Formal | ID registry, financial regulators, market participants | Coordination with ID agencies |
| Machine-readable regulations using semantic technology & data point models | <ul style="list-style-type: none"> Data collection & reporting | <ul style="list-style-type: none"> Frequent changes in compliance requirements | Low | High | Inter-institutional | Formal | Financial regulators, market participants | Standardized legacy systems |
| Cloud computing for cost-efficient storage | | <ul style="list-style-type: none"> Cost of technology adoption | High | Low | Inter-institutional | Formal | Financial regulators, market participants | <ul style="list-style-type: none"> Rules & regulations that explicitly allow use of cloud computing Regulations for blockchain use |

Scale: Gradings are not based on a quantitative metric but on the consultants' overall assessment.

| | | | |
|---------------------|-----------|--------|------|
| Current Priority | High | Medium | Low |
| Implementation Ease | Difficult | Medium | Easy |

Based on the above roadmap, there is need in the immediate term to build readiness and increase awareness of RegTech in Honduras. Immediate implementation of RegTech solutions may be viable only by commercial banks and potentially by CNBS and BCH. For collaborative RegTech solutions or internal RegTech solutions for other stakeholders, more readiness is required. Implementation of RegTech solutions for those stakeholders may only be possible in the medium to long term.

Although not exhaustive, Table 13 outlines specific action items to further readiness among stakeholders in the short term. Other non-RegTech-related solutions may be implemented in the short term to address pain points identified through this assessment.

Table 13. Actions stakeholders can undertake to catalyze RegTech in Honduras

| Stakeholders | Action Items |
|---|---|
| Financial regulators (CNBS, CONSUCOOP, BCH) | <ul style="list-style-type: none"> - Establish formal communication and collaboration mechanisms with market participants to increase understanding and possibilities of RegTech as well as general market developments - Increase engagement with market participants to develop trust and collegiality - Assess viability of incorporating RegTech agenda in existing Innovation Tables - Advance laws, regulations, and frameworks to facilitate adoption and improve information communications and technology - Gather data regarding ecosystem elements: power supply, telecommunication infrastructure, Fintech providers, etc. - Improve internal capacity, especially pertaining to IT, to increase efficiency in monitoring, supervision, and market analysis |
| Market participants (Banks, Non-banks, Credit Unions, Insurance companies, E-money issuers, Lenders, Guarantee funds) | <ul style="list-style-type: none"> - Develop collaborative environment among market participants, especially to address widespread issues such as KYC and cybersecurity - Improve internal IT techniques and capacity to adopt technologies to improve compliance and internal processes and to shift industry’s focus from business processing to data analytics - Foster collaboration between IT teams and other departments to identify pain points, needs, and potential RegTech solution - Participate or self-organize trainings on RegTech and institutional digitization - Design framework individually for the adoption of technology - Leverage networks for the procurement of expensive tech solutions |
| USAID | <ul style="list-style-type: none"> - Identify organizations working to use technology to improve financial sector oversight and supervision to explore potential collaborations - Identify current/potential USAID activities that capitalize on opportunities that may not directly focus on implementation of a RegTech solution but address pre-conditions and create an enabling environment for RegTech adoption moving forward - Explore providing technical and financial assistance to stakeholders to further initiate discussions and guide implementation of RegTech solutions |
| Donors, multilaterals, and associations | <ul style="list-style-type: none"> - Toronto Centre has conducted an assessment for the implementation of risk-based supervision by CNBS. Implementation of assessment findings and recommendations could potentially improve readiness challenges. - Industry associations and networks such as the Asociación Hondureña de Instituciones Bancarias (AHIBA), Federación de Cooperativas de Ahorro y Crédito de Honduras, Ltda. (FACACH), Red Katalysis, and Red de Microfinancieras de Honduras (REDMICRO) can facilitate discussions within industry to aggregate needs and challenges and channel resources to collectively address them and/or communicate the necessary to financial regulators. |

6. Summary and Conclusions

1. The financial sector in Honduras is diverse, technologically immature, generally non-collaborative, and risk averse. It does, however, have great potential insofar as there is interest in acquiring and implementing new innovations that could improve stakeholder compliance and operations.
2. The critical elements to telegraph successful and operationally sustainable implementations of RegTech solutions with national impact are not yet fully in place. In the near term, these are unlikely to be without significant improvements in financial stakeholder capacity and skill sets; procurement policies; financial acumen; enhancements in the reliability of national power supply and communications systems, installation of backup power systems and satellite uplinks, or city-wide wireless access networks; improved and more consistent supervisory practices; and the embracing of a trusting, collaborative culture between competitors and regulators. A KYC Utility for AML purposes is the ecosystem's stated near-term RegTech wish and need, but due to several absent or incomplete constituent elements, is, practically speaking, a medium- to long-term proposition. Internal RegTech applications for liquidity and credit risk assessments are more likely medium-term solutions. CNBS is the financial authority in the best position to implement RegTech solutions but, even so, only in the medium term. Embracing an e-government ethos—currently lacking—among regulators and government departments would significantly improve the ability to successfully implement RegTech solutions.
3. A number of financial providers serve different segments of the population but are limited by their traditional brick-and-mortar approach to providers of financial services. Much of their tools and infrastructure lag behind their regional and developed world counterparts, with only a few using technology adequately to enhance their offerings, internal processes, compliance requirements, and customer experiences.
4. Institutions generally have a risk-averse approach regarding low-income potential clients, often resulting in financial exclusion because of perceived compliance, reputational, and financial risk in onboarding these customers. Similarly, there is distinct and deliberate lack of collaboration between ecosystem participants, which will at a downstream-level impact any RegTech initiatives requiring broad industry participation.
5. Financial regulators in Honduras show different levels of development in terms of technological adoption and are constrained in making systemic improvements by inadequate staff levels and resources. CNBS is the financial authority best positioned to implement RegTech solutions and grow financial inclusion. BCH has high levels of technological adoption, but its role is limited to credit policy design and payment systems management. CONSUCOOP lacks a solid technological infrastructure, and is most limited among the three regulators in terms of resources and staff.
6. To implement RegTech solutions, stakeholders should consider the level of readiness of both the ecosystem and the financial sector. The national ecosystem has five main elements that, if improved, could telegraph the possibility of successful implementation. These include communication facilities, power infrastructure, identification systems, the FinTech ecosystem and the e-government ethos. The financial sector has three main elements, but with multiple sub-elements. These include a collaborative environment, policy and regulatory aspects, and institutional capacity. The overall low level of readiness is due to issues with infrastructure and the lack of digital culture in the country. Because all these elements have national implications, proposed solutions could be worked at national level. From a RegTech implementation perspective, as national issues are beyond remit of

financial regulators, their role would, at a minimum, be to mitigate through rules any operational risks to themselves and market participants. For example, unreliable power supply and communications could be mitigated by power generators and satellite uplinks or city-wide wireless access networks.

7. The low level of readiness of the financial sector is defined by the lack of collaborative culture, enabling policy and regulatory framework and institutional capacity, inadequate IT skills, underdeveloped technological systems and infrastructure, and cumbersome procurement processes, among others.
8. The assessment of readiness also revealed supervisory and compliance-related pain points and needs. They telegraph, though, great potential for RegTech solutions facilitating data reporting, data analysis, and risk management, including for credit and liquidity assessments and for AML/CFT. These potential RegTech solutions should be assessed based on priority of need and ease in implementation by stakeholders. The implementation of such solutions, unlikely in the short term, requires further improvement in readiness of the national ecosystem and financial sector and addressing of specific elements.
9. The financial ecosystem in Honduras presents a low level of readiness to implement RegTech solutions. Although stakeholders are enthusiastic about the concept, elements telegraphing the planning, procurement, operationalization, security, and maintenance are likely to be successful are largely absent. However, not all the elements have to be present in sufficient measure for the process to start.
10. A roadmap to implement RegTech solutions in Honduras has been proposed in order to guide stakeholders' actions. This has five main steps: (a) identify or develop an inter-/intra-institutional mechanism for RegTech awareness and coordination at national level or within an organization; (b) develop a financial sector-wide vision for the use of RegTech; (c) refine and socialize the framework developed by the assessment team to implement a RegTech solution; (d) address readiness improvements for ecosystem and industry elements; and (e) identify or promote the selection of a use case to pilot a RegTech solution
11. This roadmap allows the implementation of RegTech solutions on an individual or coordinated basis. It also covers the initial planning, discovery and preparation stages of the framework developed by the consultants to guide the implementation of RegTech solution.
12. Recommended immediate next steps for each stakeholder have been outlined based on the roadmap. These pertain to improving ecosystem and financial sector readiness and increasing RegTech awareness.

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Annex A: Regulators/Authorities in Honduras

Banco Central de Honduras

Banco Central de Honduras (BCH), Central Bank of Honduras, formulates and directs the monetary, credit, and exchange policy of the country and issues-related regulations. It administers international monetary reserves, determines exchange rates, provides credit facilities to institutions of the financial system, and promotes monetary stabilization, among many responsibilities.

<http://www.bch.hn/eng/index.php>

Comisión Nacional de Bancos y Seguros

The National Banking and Insurance Commission, is the banking and insurance regulator in Honduras. It is responsible for monitoring compliance with rules issued by Banco Central de Honduras regarding monetary, credit, and exchange policy. It has oversight over the activities of accredited insurance and banking institutions. CNBS ensures the correct constitution; expansion of operations; and merging, processing, and closing of institutions under its charge, as well as extension activities abroad. It also works to promote consumer protection and financial inclusion. <https://www.cnbs.gob.hn>

Gerencia de Protección al Usuario Financiero

A unit under CNBS, Gerencia de Protección al Usuario Financiero (GPUF), Office of Financial User Protection, works to protect financial service users through transparency and financial education. It hosts a portal that provides information on interest rates, benefits, and requirements of products and services offered by banks, financial institutions, and private development organizations.

<https://gpuf.cnbs.gob.hn>

Consejo Nacional Supervisor de Cooperativas (CONSUCOOP)

Consejo Nacional Supervisor de Cooperativas (CONSUCOOP), National Supervisory Council of Cooperatives, controls, monitors, and supervises cooperatives to safeguard the interests of affiliates and ensure they comply with laws and regulations. <http://web.consucoop.hn>

Comisión Nacional de Telecomunicaciones (CONATEL)

Comisión Nacional de Telecomunicaciones CONATEL, the National Telecommunications Commission, executes telecommunication policy in Honduras through regulation and coordination. It collaborates with the president to formulate telecommunication policy; issues regulations and technical standards for the provision of telecom services; grants authorizations, permits, registrations, and licenses for the provision of these services; ensures rights of users are protected and institutes mechanisms through which users can exercise their rights; supervises compliance with obligations established for the supervised entities; and manages and controls use of the radio spectrum. <http://www.conatel.gob.hn>

Comisión de Defensa y Promoción de la Competencia Honduras (CDPC)

Comisión para la Defensa y Promoción de la Competencia (CDPC), Commission for the Defense and Promotion of Competition, is an autonomous institution with functional, administrative, technical, and financial independence to apply the law for the defense and promotion of competition.

<https://www.cdpc.hn>

Comisión Interagencial para la Prevención del Lavado de Activos y Financiamiento del Terrorismo (CIPLAFT)

Comisión Interagencial para la Prevención del Lavado de Activos y Financiamiento del Terrorismo (CIPLAFT), Interagency Commission for the Prevention of Money Laundering and Financing of Terrorism, was created at the ministerial level in 2004 to work on investigations of money laundering and terrorist financing. It works with CNBS, which is the primary regulator of AML/CFT compliance and conductor of investigations. CNBS houses the Financial Intelligence Unit, which provides information in the investigation and prosecution phases of proceedings regarding money laundering terrorist financing and asset forfeiture (GAFILAT, 2016). CIPLAFT coordinates public offices in implementation of the Asset Forfeiture Law and money laundering controls.

National Civil Registry—Registro Nacional de las Personas Honduras

The National Civil Registry primarily administers the National Identification System and issues the National ID to citizens. They provide information to the National Electoral Council to prepare for the census.²⁰

Instituto de Acceso a la Información Pública

Instituto de Acceso a la Información Pública (IAIP), The Institute for Access to Public Information ensures the security of public information, information classified as confidential by public entities, sensitive personal data, and information that current legislation considers secretive. It can require institutions take necessary step to protect personal data they use or collect. <https://web.iaip.gob.hn>

Sistema Nacional de Información Pública (SINAIP)

Sistema Nacional de Información Pública (SINAIP), the National Public Information System, integrates, systemizes, publishes and gives access to Public information through multiple channels. It has five components:

1. Electronic Information System of Honduras (SIELHO)
2. Unique Portal for Transparency
3. Citizen Attention Centers
4. Center for Study and Research
5. Virtual Learning Platform (SINAIP, 2014)

Annex B: Relevant Laws and Regulations

Banking

Resolution No. 2510/16-12-2013 Approving the Rules on the Authorization and Functioning of Correspondent Agents

The rules contained in this document establish financial services guidelines selected financial institutions will be able to carry out through correspondent agents. Selected financial institutions include savings and credit cooperatives, financial associations, and private development organizations.

All supervised institutions should have a clear and transparent policy on correspondent agents. This must be previously approved by the institution's Board of Directors or Administrative Council. Evaluations between several agents should be carried out by either of the aforementioned entities, and these evaluations should be documented in writing. A designated office should provide an Annual Report to the Board, informing them of the most relevant events and operations involving correspondent agents.

Correspondents are forbidden from operating when communication glitches hinder online transactions, promote their services directly to clients, or hold financial services independently (CNBS, 2013).

Resolution No. 215.2: Approval of the Regulations for the Opening, Management, and Closing of Basic Deposit Savings Accounts in Supervised Institutions

This circular establishes regulations financial institutions must follow for the establishment, operation, and liquidation of basic savings accounts. Financial institutions enabled to offer basic savings accounts in this circular include financial institutions, credit and savings cooperatives, private banks, and public banks.

A basic deposit savings account can only be opened by natural persons, and financial institutions cannot charge for their management of minimum balances or inactivity in these accounts. Articles within this document detail all needed information for opening a basic account, including the establishment of interest payments by the aforementioned financial institutions.

All institutions will be directly responsible for compliance with these regulations, as well as for all existent anti-money laundering (AML) regulations (CNBS, 2013).

Amendment to the Law Regulating the Deposit Insurance Fund for Financial Institutions (2004)

This is the 2004 amendment to Articles 2, 4, 7, 10 and 15 of the Deposit Insurance Law for Financial Institutions. The deposit insurance fund is funded through liquidity funds that financial institutions maintain to back their clients' deposits.

The use of these funds will be administered by the National Commission of Banks and Insurance. The deposit insurance fund will be administered by an Administrative Board formed by an Executive President, a Central Bank Directive, and a representative of the Honduran Council for Private Enterprises.

Whenever a member institution decides to liquidate, it can request full reimbursement of its contribution to the fund.

The Honduras Central Bank will maintain an emergency line of credit with the deposit insurance fund. This line of credit may only be used in case the insurance fund runs out of funds to support its member institutions.

Law Regulating Development Private Organizations Dedicated to Financial Activities, Decree 229-2000

This law promotes financing to micro and small enterprises, guaranteeing the legality and transparency of their operations. This is done to prevent money laundering (AML) and financing of terrorist activities. The law regulates only private development organizations (OPD, by its Spanish acronym) (DORH, 2000).

OPDs are a range of institutions that build private enterprises with the specific aim of promoting economic growth, and poverty reduction in developing countries. This includes working with firms directly or by working with membership organizations to represent them.

All OPDs must present their applications to the executive branch of government for approval. First-level OPDs must show proof of having least 10 million *lempiras*; second level OPDs must have at least 1 million *lempiras*.

OPDs must have a General Assembly, a Board of Directors, and a general management body. There must be a General Assembly meeting once a year to inform shareholders of the entity's financial performance.

Financial Systems Law (2004)

This law regulates the organization, authorization, constitution, operation, merging, conversion, modification, liquidation, and supervision of financial systems and institutions (DORH, 2004).

Amendments to Financial Systems Law (Directive No. 160-2016) (DORH, 2016)

Cooperatives

Amendments to the Articles Contained in the Cooperatives Law of Honduras, Decree 174-2013

This is a 2013 amendment to the 1987 Cooperatives Law of Honduras. The Constitution establishes, in Article 338, the state is obliged to regulate and promote cooperatives because they are institutions that strive to bring economic development to the Republic of Honduras. This document regulates conditions for the establishment, organization, and operation of cooperatives.

It requires all cooperative institutions be under supervision of the National Cooperative Sector's Regulator. Similarly, the circular requires cooperatives to provide services that benefit the particular and collective needs of its associates, as well as redistribute earnings in proportion to owners' equity ownerships.

All cooperatives must be structured by a General Assembly, a Board of Directors, and a General Management Body. All cooperatives must hold at least one General Assembly meeting each year to report the institutions' latest financial statement and the Annual Plan of Operations.

PAYMENTS

Law on Payment and Securities Settlement Systems (2015)

This law aims to ensure proper settlement and clearing in the following systems: Real Time Gross Settlement, interbank transfers, electronic checks, payment cards, transfer of public funds, central depository of public values, electronic payment transaction, cross border payments, e-money transaction, and any other as stated by BCH. The central bank also functions within the legal framework set by this law.

Regulation for Authorization and Operation of Non-bank Institutions that Provide Payment Services Using Electronic Money (2016)

The regulation outlines the establishment and operational requirements for non-banking institutions that provide services using electronic money. They are authorized to provide services such as activating e-wallet loading and withdrawing funds, balance inquiry, transfers, payments between users, purchasing goods and services, payments to providers, salary and wage payments, collection of funds, and conditional transfers to government. The regulation also outlines restrictions for transactions through e-wallets, escrow requirements, and oversight and supervision responsibilities of non-bank institutions that provide payment services using electronic money (DORH, 2016a).

Guidelines for the Supervision of Non-bank Institutions that Provide Payment Services Using Electronic Money (Resolution GE No.519/04-07-2016)

These regulations establish supervisory guidelines applicable for non-bank institutions that provide payment services using electronic money. It includes capital requirements, consumer protection requirements, and risk management and internal controls (CNBS, 2016).

Anti-money Laundering (AML)

Anti-Money Laundering Law (2015)

This AML Law prevents, controls, and counters money laundering and terrorist financing activities. This law established CIPLAFT, composed of permanent representatives from the National Commission of Bank and Insurance and the National Defense Council.

All institutions must follow due diligence. These processes include identifying final beneficiaries and their funding sources. Financial entities are advised to conduct on site investigations if they doubt the legitimacy of their clients' credentials.

TELECOM

Framework Law for the Telecommunications Sector (1995) (Tribunal Superior de Cuentas, 1995) and amendments (Decree No. 112-2011 and Decree No. 325-2013) (DORH, 2011)

&2014).The law regulates activities in the telecommunication sector, including the operation and exploitation of telecommunication services, in order to have a competitive and efficient market. It covers the operation of the National Commission for Telecommunications (CONATEL – Comisión Nacional de Telecomunicaciones, rights over the radio spectrum and licenses and authorizations for Telecommunication companies.

Specific regulation for the protection of public users and/or subscribers of telecommunications and TIC (2017)

The regulation outlines rights and responsibilities of users and subscribers of telecommunication services and TIC. It specifies how users can exercise their rights along with access, responsibilities, and limitations of contracting to use public telecommunication services (DORH, 2018).

Regulation for the protection of the rights of the users of telecommunication services (Resolution NR014/2017)

The resolution sets rights and duties of telecommunication customers ensuring access to a wide variety of telecommunication services, and technology, information and communication apps. It regulates as well rights and duties of telecommunication providers, through a predictable framework promoting a fair and competitive environment.

Consumer Protection

Circular 1769: Amendment to the Complementary Rules for the Strengthening of Transparency, Financial Culture and Financial Customer Service among Supervised Institutions (2012)

This circular establishes complementary rules to enforce information transparency practices for financial products. This document refers to the regulation of information diffusion, commissions, interest rates, and binding contracts.

Chapter II discusses diffusion of financial product information. All financial institutions shall maintain general information on products and services through customer offices and internet portals. Information should be accurate and congruent with the economic and legal nature of all products. Information on fees and interest rates follows similar regulations. This chapter has information on bank statements and the information that these should include.

Chapter III refers to all binding contracts, including the information that clients should read before entering a contract. Abusive clauses and practices are identified and described.

Chapter IV addresses commissions and the criteria for their application. Commissions can only be charged for services previously solicited and authorized by financial users.

Chapter V refers to interest rates. The chapter states that interest rates must be communicated in a clear, transparent manner.

Circular No. 1768: Amendment to the Complementary Regulations for the Strengthening of Transparency, Financial Culture and Financial Customer Services among Supervised Institutions (2012)

This circular establishes the complementary regulations increasing information transparency and accountability. This circular addresses issues similar to Resolution No. 1769, but also contains general guidelines on the organizational policies, procedures and methodologies which financial institutions should follow. This shall be applicable to all financial institutions in Honduras.

Chapter II will refer to the implementation of all processes and procedures in the institution's Customer Service System. All Customer Service Officers must have knowledge of the Customer Protection Law's contents and have experience on customer service protection. All personnel must be trained in customer service attention.

All institutions should present an annual report to the National Bank and Insurance Commission, which must detail the methodology and results of internal auditing procedures.

Data Protection and Privacy²¹

Law of the Civil Registry (Article 109, Decree 62-2004)

This law refers to public personal information that is contained in the archives of the Civil Registry (DORH, 2004a).

Law for Transparency and Access to Public Information (Article 3.5, Decree 170-2006)

This law allows any person to access all the information contained in public entities except confidential information. It also protects *habeas data* and forbids sharing of information that may cause social damage to the people (DORH, 2007).

Rulings on the Law for Transparency and Access to Public Information (Article 42, Accord 001-2008)

This mandates the need for data subject consent prior to use by any third party (IAIP, 2007).

ECommerce

Electronic Commerce Law (2014)

The law regulates all types of data exchanges, electronic signatures, certification services, electronic contracting, and provision of electronic services, through information networks, including electronic commerce and consumer protection of these systems (IAIP, 2007).

Law of Efficient and Transparent Purchases through Electronic Media

The law regulates public procurement of goods and services through electronic offering, under different modalities: Joint purchase (allows the partnership of two providers through one single bidding); Agreement Framework, which allows the selection of one or more providers of goods and services to be incorporated

to the electronic catalogue; and reversal auction. The law applies to all procurement of goods and services performed by governmental bodies including financial regulators (DORH, 2013a).

DIGITAL SIGNATURE

Electronic Signatures Law (2013)

The law outlines that all electronic signatures in any form of data message will have the same legal validity and enforceability as a handwritten signature as long as it meets established requirements. The electronic signature method must determine the identity of the person and his/her consent and must be reliable. This means data for the creation of the electronic signature belongs exclusively to the signatory, the electronic signature must be verified, the data for the creation of the signature was available at the time of signing, and under the exclusive control of the signatory. It allows detection of any alteration of the signature after it has been executed and the electronic signature is linked to the information or data message such that if anything is changed, the electronic signature is invalid (DORH, 2013).

Annex C: Regulated and Supervised Financial Institutions

Table 14. Regulated and Supervised Financial Institutions

| Type of Institution | Number of Institutions | Authority in Charge of Regulation and Supervision |
|---------------------------------|-------------------------------|--|
| Commercial Banks | 15 | CNBS |
| Public Banks | 3 | CNBS |
| Foreign Banks Offices | 1 | CNBS |
| Financial Companies | 10 | CNBS |
| OPDF | 5 | CNBS |
| Insurance Companies | 12 | CNBS |
| Credit Card Processors | 3 | CNBS |
| Remittance Companies | 4 | CNBS |
| Credit Unions | 306 | CONSUCOOP |
| Public and Private Sector Funds | 8 | CNBS |
| Credit Information Agencies | 2 | CNBS |

Source: CNBS and CONSUCOOP

Annex D: Summary of Proximate Challenges and Handicaps to Implementation of RegTech in Honduras

Table 15. Summary of Proximate Challenges and Handicaps to Implementation of RegTech in Honduras

| Challenge | Effect | Report Reference |
|--|--|------------------|
| Poor collaborative culture between stakeholders | Without sufficient collaboration, regulators cannot prioritize issues, market participants are not incentivized to adopt RegTech, and TSPs/FinTechs cannot develop adoptable solutions. An honest broker to catalyze collaboration may not be acceptable to all stakeholders. Collaborative efforts between regulators are similarly limited. | 4.3.1 |
| Cybersecurity deficiencies | The lack of a cybersecurity and cyber resilience culture may expose the Honduran financial sector to cyber threats and have a chilling effect on implementation of centralized RegTech solutions where data becomes a lure for bad actors. | 4.3.2.3 |
| Affordability of RegTech solutions | Inability of smaller providers to purchase and properly maintain RegTech solutions may create asymmetry in implementation and use. | 4.3.3.2 |
| Insufficient capacity for implementation & use of many RegTech solutions | Existing staff must be retrained, and additional data scientists hired to analyze collected data. This is particularly difficult given higher incentives in the private sector and the HR policies of regulators who do not promote recruitment of new technical staff or train current staff on necessary technical skills. | 4.3.3.2 |
| Lack of clear enabling regulations | Along with laws and regulations hindering digitization, a number of enabling laws and regulations for RegTech are missing or unclear, including national standards for interoperability, API deployment and implementation, and digital identity. Such uncertainty increases market costs and reluctance to implement RegTech solutions. | 4.3.2 |
| Procurement & implementation challenges | With very few TSPs/FinTechs in Honduras to develop and/or maintain RegTech solutions, those developed by foreign TSPs may not adapt to fit the Honduras context. Corruption may also affect procurement of best solutions. | 4.3.3.2.3 |
| Dependency on donor funding for RegTech solutions | Smaller market participants with limited resources are only likely to fully participate in RegTech solutions if assisted by donor funding. Such funding may not be readily available. | 4.3.3.2 |

Endnotes

¹ For example, the TechSprint by the UK Financial Conduct Authority, where established players, new FinTech companies and regulators worked together to understand the potential of RegTech and find efficient and effective solutions.

² Regulatory sandboxes are set up under a regulator's supervision to allow innovations to be experimented in a live controlled environment. It is commonly used to develop regulations that keep up with the innovations in the market.

³ Family alliances and coalitions of interest groups are prevalent in the Honduras economy. They exercise strong influence on the regulatory framework setup and enforcement.

⁴ Basel III is internationally agreed upon measures to strengthen the regulation, supervision and risk management of banks.

⁵ The Basel II rules refers to systemically important financial institutions or systemically important banks as a bank, insurance company, or other financial institution whose failure might trigger a financial crisis. They are colloquially referred to as "too big to fail".

⁶ CONSUCOOP recently signed an agreement with the German Credit Union Federation to receive technical assistance in order to strengthen its supervisory processes.

⁷ Honduras is a civil law country and, as such, legislation is considered the primary source of law that is established through codified law, special laws, and written administrative regulations. Thus, laws are only valid once the enactment procedure is completed and come into force once they are published in the Official Gazette.

⁸ Ley 29440. Ley del Sistema de Pagos y Liquidación de Valores. See <http://www.bcrp.gob.pe/docs/Sistema-Pagos/Ley-29440.pdf>

⁹ There is a policy choice behind addressing some of these topics at national level or at industry level. For purposes of RegTech implementation, we'll encourage to address them at sector level.

¹⁰ 97.62%, according to USAID, 2017. The Ecosystem for Digital Finance and Financial Inclusion in Honduras. Market Landscape and Analysis. PPT.

¹¹ BCH is leading Innovation Tables initiative, along with other regulators and market participants to promote public- and private-sector collaboration in FinTech and is in the nascent stages of implementation. The initiative aims to better use and understand technologies that can support financial inclusion goals, increasing market competition, preserving financial stability, and strengthening consumer protection.

¹² Agile software development comprises various approaches to software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customer(s)/end user(s). It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, and it encourages rapid and flexible response to change.

¹³ The ISO 9001:2008 or ISO 9001:2015 quality standards for example define training requirements to help improve an organization's quality. The standard requires employees to be trained with the knowledge and skill necessary to do their jobs with quality and to verify that the training provided was effective.

¹⁴ Pseudo-anonymous data has no visible identifiers, and information that can be linked to users is only available to service providers, data controllers or site administrators.

¹⁵ Here cyber resilience refers to an entity's ability to continuously operate despite being the subject of a cyber-attack and/or intrusion.

¹⁶ Protocols and tools that allow different systems to interact with each other.

¹⁷ AI is technology that performs tasks that traditionally require human intelligence. Machine learning is a subcategory of AI that learns from data and recognizes patterns to change existing algorithms to better fit the nature of the data. Big data analytics extract meaning from large datasets of diverse data that may include structured and unstructured data. It is usually based on machine learning or other technologies.

¹⁸ “Tipping off” is offence under most AML regulations worldwide, committed when a person knows or suspects (subjectively) that a protected or authorized disclosure has been made in terms of AML regulations, and makes a disclosure to a third party (client), an act which is likely to prejudice any investigation which either is or might be conducted.

¹⁹ Prudential regulations refer to rules aiming to preserve financial stability at the financial system. They are related with capital requirements and risk management mostly.

²⁰ Registro Nacional de las Personas. “Juntos Somos Patria,” Registro Nacional de las Personas, <http://www.rnp.hn>

²¹ DLA Piper. Data Protection Laws of the World Honduras.