Business Environment Reform Facility

Understanding the Role of Fintech Companies and Regulations in Enabling Caribbean MSMEs to Innovate and Grow

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About Business Environment Reform Facility (BERF)

BERF is funded by the UK Department For International Development (DFID) under the Business Environment for Economic Development (BEED) Programme. BERF is a central facility responding to demand from the DFID's priority Country Offices and stakeholders to initiate, improve and scale up business environment reform programmes. BERF is managed by a consortium led by KPMG LLP. The programme started in January 2016 and will finish in January 2019.

We provide expert advice, analysis of lessons learned, policy research about what works and what doesn't and develop innovative new approaches to involving businesses and consumers in investment climate reform.

BERF has a strong emphasis on strengthening the Business Environment for women and girls, as well as for young adults more generally. It is also aiming to improve the relationship between business and the physical environment including where relevant through linkage to climate change analysis. BERF recognises the need for appropriate political economy analysis in order to underpin business environment reform processes and interventions.

About Compete Caribbean

Compete Caribbean is a multi-donor facility whose objective is to support the Caribbean region in increasing productivity and Caribbean firms' contribution to economic growth, by providing technical assistance for business climate reforms, clustering initiatives, and stimulating innovation in the Caribbean region. The program, jointly funded by the Inter-American Development Bank (IDB), the United Kingdom Department for International Development (DFID), the Caribbean Development Bank (CDB) and the Government of Canada, supports projects in 13 Caribbean countries.

About this Report

Research for this study was conducted by Wayne Beecher, Shiva Bissessar and Michael Julien between August and October 2018.

The views contained in this report are those of the authors and do not necessarily represent the views of any BERF consortium member or DFID or any of their professional advisers. This is a working paper shared for discussion purposes only. No reliance should be placed upon this report.

Acronyms and Abbreviations

AI	Artificial Intelligence
AML	Anti-Money Laundering
API	Application Programming Interface
B2B	Business to Business
BOB	Bank of The Bahamas
BOG	Bank of Guyana
BOJ	Bank of Jamaica
CARICOM	Caribbean Community and Common Market
CBTT	Central Bank of Trinidad & Tobago
CBDC	Central Bank Digital Currency
CFT	Counter Financing Terrorism
DFC	Digital Fiat Currency
DFS	Digital Financial Services
DLT	Distributed Ledger Technology
EC	Eastern Caribbean
ECCB	Eastern Caribbean Central Bank
ECCU	Eastern Caribbean Currency Union
e-commerce	Electronic Commerce
e-money	Electronic Money
e-wallet	Electronic Wallet
FATF	Financial Action Task Force
FCA	Financial Conduct Authority
FI	Financial Institution
FinTech	Financial Technology
FSC	Financial Services Commission
GDP	Gross Domestic Product
GTT	Guyana Telephone and Telegraph
IPR	Intellectual Property Rights
KYC	Know Your Customer
MFS	Mobile Financial Services
MNO	Mobile Network Operator
MoU	Memorandum of Understanding
mPOS	Mobile Point of Sale
MSME	Micro Small Medium Enterprise
MTB	Money Transmission Business
NMNO	Non-Mobile Network Operator
OECS	Organisation of Eastern Caribbean States
P2B	Person to Business
P2P	Peer to Peer
POS	Point of Sale
PSP	Payment System Provider

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Executive Summary

The report was commissioned by DFID Caribbean under the BERF programme, in conjunction with Compete Caribbean. The assignment was undertaken to understand the constraints that Caribbean micro, small and medium enterprises (MSMEs) face in accessing digital payment solutions, evaluate the impact of those constraints and provide relevant recommendations.

Key Findings and Recommendations

The main constraints in the region's digital payment eco-systems are:

- Burdensome regulatory environment leading to high standard of on-boarding of MSMEs by financial institutions following their interpretations of regulatory and international reporting obligations for customer due diligence, rather than using a customised risk-based approach. This imposes more onerous requirements for Caribbean MSMEs trying to open bank accounts and / or merchant accounts to accept digital payments than for their peers in other countries. Therefore, some MSMEs use alternative payment solutions outside the region where they can access more responsive service offers. These workarounds create unnecessary currency and data transfers abroad
- These tight regulations; which are more stringently applied in the Caribbean relative to many other countries also impact the ability of service providers – both local and international companies -to bring to the market standard and innovative services which can benefit MSMEs.
- Pressure from foreign correspondent banks and general risk aversion of commercial banks result in more rigorous adherence to know-your-customer (KYC) requirements, which drives customers away from formal financial institutions and pushes them towards cash-based transactions. This interaction results in a general lack of trust; and effectively perpetuates financial exclusion in the region.
- Limited mobile payment solutions in the Caribbean that offer compelling value propositions to satisfy the needs of MSMEs and their customers. This is compounded by the lack of adequate and well-established distribution channels for mobile payment solutions, which makes it inconvenient for users to engage with the service providers. Therefore, the lack of understanding about the costs and benefits of mobile wallet solutions have resulted in low user adoption rates.
- The lack of cost-effective payment gateways in the Caribbean prevents high tech entrepreneurs from exploring new business models. Younger digitally-native Caribbean MSMEs have been struggling to find local digital payment solutions while crafting their business models to embrace the opportunities that digitally accessible markets present. Easier and cheaper access to online payment solutions would spur business growth substantially given the increasing number of young Caribbean entrepreneurs prepared for the digital economy, also considering the purchasing behaviours of tourists interested in diverse experiences.

- The forgoing challenges put Caribbean MSMEs at a considerable disadvantage in the underutilisation of all types of digital payments solutions (online, mobile, electronic) as the mainstay of their domestic and export-oriented business.

Given the nascent state of the digital payment eco-system, a two-step approach is recommended to increase MSME participation in the digital economy. The first step is to establish the foundations of an enabling eco-system. This requires regulations that strike a balance between prudence to avoid undue risk, and innovation to build dynamic digital solutions. The second step is to prompt responses from the service providers, including both FinTech companies and the commercial banking sector, to create more innovative and cost-effective solutions that address the constraints identified. Within this context, the following recommendations are made:

(i) Enabling ecosystem

1) **Improving the ease of on-boarding MSMEs;** which are exporting or want to export products and services to international markets or those interested in offering e-commerce transactions by: a) improving the financial literacy of the MSMEs; b) addressing compliance concerns of the banks through greater clarity from the regulators; c) strengthening the capacity of commercial banks to on-board MSMEs; and d) formalizing policies to support MSMEs which want to participate in the digital economy to receive international payments.

2) **Increase user and merchant awareness of the benefits of electronic and digital financial services** through an interactive communication strategy to enlighten consumers, institutions and the private sector and encourage them to make effective use of online non-cash payment systems. Such a strategy should be aimed at: a) encouraging all Governments to adopt online payment systems to improve both operational efficiency and usage by all citizens; b) developing strong "instant" on-boarding programmes including public awareness campaigns of digital payment benefits embedded in the services offered; c) designing and executing comprehensive change management and communication campaigns with integrated lifecycle marketing programme[1]; d) creating benefit-oriented messaging systems to influence behaviours and adoption (i.e. what's in it for me highlights); e) training merchant and institutional staff in digital services literacy; and f) creating incentives so that users will be attracted to digital payment programmes.

3) **Strengthen the FinTech capacity of Regulatory Authorities** through a comprehensive capacity building programme for the region's regulatory authorities so that they can assimilate and adopt global best practices. This could be supported by the establishment of a regional regulatory sandbox and regional innovation hub to help build the capacity of service providers and regulators, in a controlled environment, as

[1] https://www.infusionsoft.com/business-success-blog/marketing/automation/what-is-lifecycle-marketing

the industry evolves. Stronger collaboration among regulatory authorities should include specific policies and incentives to support local and regional software developers and payment service providers to develop products and services relevant to the needs of regional entrepreneurs.

4) **Foster inclusiveness and increasing harmonization and interoperability** between financial systems. Regulators should support interoperability among the systems of all current market participants, which will lead to lower compliance costs and minimize potential disruption to the market. Data standardization and harmonized definitions could allow financial regulators to make efficiency improvements by allowing for the sharing of information amongst market participants.

(ii) Drawing on the lessons learnt in Kenya and Haiti the following design elements should be considered as critical success factors for improving digital payment solutions in the region:

1) Initial focus should be on products and channels which complement existing patterns of behaviour; e.g. peer-to-peer transactions which are already occurring informally.
2) Customer education and coaching is critical during the initial on-boarding process, to resolve customer hesitation due to limited financial literacy.
3) Use human centred design principles to develop simple, functional and intuitive user interface to enhance user experience.
4) Gradually build a bundle of services that creates compelling use cases for consumers
5) Build an efficient agency network to span geographical gaps, especially for rural customers, where community style engagement could be most effective.
6) In building the agency network, partner with MSMEs which already control the distribution networks (existing community shops and convenience stores) as critical touch points for technology support and user engagement.
7) Incentivise agents/merchants (MSMEs) to become champions of change to push services to their customers.
8) Explore the establishment of payment aggregation and distribution services to support MSMEs in access ecommerce opportunities.
9) Leverage existing financial infrastructure for connectivity through partnership with the banks and mobile network operators.

1. Introduction

1.1 Purpose of the report

The report was commissioned by DFID Caribbean under the BERF programme, in conjunction with Compete Caribbean. The assignment was undertaken to understand the constraints that Caribbean micro, small and medium enterprises (MSMEs) face in accessing digital payment solutions, evaluate the impact of those constraints and provide relevant recommendations.

The purpose of the report is to understand the constraints in terms of costs, procedures and legal requirements that MSMEs face in accessing digital payment solutions, which includes online payment and mobile (e-wallet) payment for digital transactions. The report identifies the constraints that Caribbean MSMES face in accessing traditional electronic banking payment products and newer FinTech digital payment solutions, highlights the magnitude of the problem, and estimates the impact of the current barrier that MSMEs face in conducting digital transactions. Resulting from the assessment, recommendations will be made to address the problems identified and provide alternatives to increase the penetration of online and mobile payment technologies across the region.

1.1.1 Methodology and approach

The research was conducted over a two months period and used a qualitative approach to solicit feedback from key stakeholders in the digital payment eco-system. These stakeholders included MSMEs, regulatory authorities, payment services providers, commercial banks and Central Banks.

Focus group consultations were held with MSMEs in Jamaica, Barbados, Trinidad, Guyana, St. Lucia and The Bahamas, to solicit their feedback and concerns with respect to receiving non-cash domestic and international payments.

Consultations were held with regulatory authorities to examine their depth of knowledge as it relates to the financial technology (FinTech) sector, their existing or planned approaches to oversight of the sector and their capacity (building) needs to adequately oversee the sector's evolutionary needs. Our meetings with the Central Banks in each of the six countries provides insight into their approach, policy and regulatory guidelines for the emerging FinTech sector and their exploratory steps towards piloting central bank Digital Fiat Currency (DFC).[2]

Similarly, consultations were also held with service providers and potential service providers of digital payment services, to understand their how their offerings can benefit MSMEs and the process it took to bring their products to market.

Discussions with commercial banks were focused on understanding their existing products and its responsiveness to the needs of MSMEs for accessible payment services. Additionally, the banks' information and business requirements for on-boarding MSME clients, client due

[2] A comprehensive list of stakeholders can be found at Appendix 1.

diligence processes and concerns about a regulatory-driven blanket approach towards onboarding rather than a risk-based approach, were explored.

The research examined the area of digital payments along a spectrum of traditional to more novel solutions beginning with commercial bank products designed to facilitate payment card transactions at a physical location or via an online presence. In consideration of more novel services the classification of services could run from Mobile Financial Services (MFS) to digital currency-based products to Central Bank issued DFC.

1.2 Scope of work

Various factors have influenced the scope of this study:

- The study was confined to a sub-set of CARICOM. Interviews were carried out in six of the fifteen CARICOM member countries i.e. in The Bahamas, Barbados, Guyana, Jamaica, Trinidad and the OECS region represented by St. Lucia and St. Kitts. Consequently, although insightful, the findings might not necessarily represent the reality of a specific member country not included in the research.
- The research followed a qualitative approach with findings from four stakeholder groups within the digital payment eco-system consisting of (i) MSMEs (ii) service providers (ii) commercial banks, and (iii) regulators / policy makers / authorities.
- 43 MSMEs participated in the focus group sessions, approximately 50% of which represented a small but emerging niche of entrepreneurs planning to leverage digital payment systems to grow their businesses. These groups were unstructured and lacked the quantitative data needed to identify the full impact of underlying constraints on sales and export growth. Due to the absence of such data, it was not possible to test the hypothesis that Caribbean MSMEs' performance would be comparable to similar firms operating in other countries where digital payment solutions are easily accessible. Service providers, regulatory authorities and Central Banks were at different stages of FinTech assimilation across the region: some countries were a bit more advanced in their accommodation of FinTech (e.g. The Bahamas) than others. This meant the interviews produced mixed results from country to country, making it difficult to generalise the actual state of digital payment solutions across the region.

Table 1 Number of participating stakeholders

Country	MSMEs	Service Providers	Banks	Regulators/Policy Makers/Agencies
Barbados	11	1	1	1
Trinidad & Tobago	7	5	1	2
St. Lucia	8	2	2	1
Jamaica	4	2	1	1
Bahamas	4	4	1	1
Guyana	9	3	2	3
Total	**43**	**17**	**8**	**9**

A breakdown of the number stakeholders engaged in the study is provided in Table 1. In seeking to identify MSMEs for the study, the following criteria were used:

- Belong to informal sector (e.g. non-registered business)
- Belong to formal sector (e.g. registered small businesses)
- Primarily have tourists as clients (e.g. selling arts and crafts etc)
- Primarily serve clients from the Caribbean diaspora (e.g. selling digital goods)
- Primarily serve clients from international markets (e.g. professional services, selling digital good)
- Are attempting or have attempted to establish e-commerce capability on existing website (e.g. Carnival ticket vendors)
- Have tried to get commercial banking (with ability to process payment card transactions) and have found issues with this process
- Are led by female entrepreneurs

Two critical observations affecting the research is that digital payment systems are at an early, but rapidly evolving, stage of development in the region and therefore the landscape is both uncertain and unstructured at best. In that context, the receptivity of some key stakeholders to our research is worth noting: some commercial banks and service providers were markedly guarded in participating in our interviews; perhaps because of the uncertainty that currently surrounds the evolution of digital financial services in the region, or because of the intellectual propriety they possess and are possibly reluctant to disclose. For instance, the research team had no access to the MOUs entered into by one service provider and its intended partners. To some extent, this level of exclusivity limited the findings about the strategic positions that some institutions have adopted with respect to online payment services, mobile money and digital currency.

The study also explored issues related to the regulation of financial services and Central Bank issuance of DFC, as these are likely to influence the enabling environment for financial inclusion and promote non-cash MSME activity in the future.

1.3 Report structure

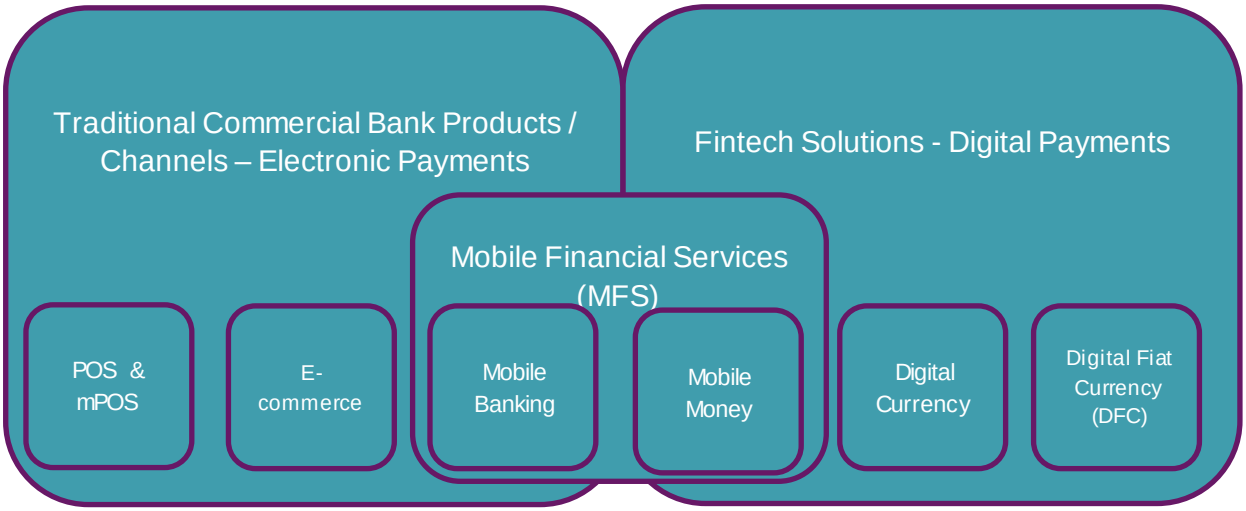
In line with the objectives of the report, Section 2 reviews the current state of financial inclusion in the Caribbean and how the banking sector interface with MSMEs. Section 3 identifies the constraints MSMEs face in accessing electronic and digital payment services. Section 4 analyses the current barriers to digital transactions. Section 5 proposes solutions and recommendations to address the constraints identified. The final section urges action by setting out priorities which need to be pursued with urgency.

2. Background and Context

As a precursor to the ensuing analysis and to better understand the financial and MSME sector interface in the Caribbean, the report highlights the current state of (1) financial inclusion in the region given the need for digitalisation and (2) the commercial banks' interface with MSMEs with respect to e-commerce and digital transactions.

Figure 1 below illustrates how different modes of digital payments were conceptualised for the purpose of the research.

Figure 1 Range of FinTech services explored in the study



- Point of Sale (POS) and Mobile Point of Sale (mPOS) facilitates 'card present' transactions for domestic payments.
- E-commerce facilitates 'card not present' international payments and requires connection to payments gateway.
- Mobile Banking facilitates movement of funds between accounts.
- Mobile Money relies upon mobile wallets / e-wallets. These concepts require supporting regulatory classifications. Two examples of mobile money solutions were uncovered. Varying levels of support for wallet classifications were also observed.
- Mobile Financial Services are a range of financial services delivered via mobile applications.
- Digital Currency can be used to create payment products. At least one such example was found where the product, although built on digital currency, was positioned as mobile money.

- Digital Fiat Currency (DFC) is a form of Central Bank issued Digital Currency (CBDC) which exists within the retail space for everyday use by consumers. Two examples of Central Banks exploring this area were uncovered.

2.1 Financial inclusion in the Caribbean context

McKinsey Global Institute[3] estimates that improving access to financial services could add $3.7 trillion to the GDP of emerging economies by 2025. The report suggests that low-income countries like some CARICOM member states stand to gain the most, adding as much as 10% to 12% to their GDP. With a significant portion of CARICOM citizens unbanked or underbanked, any small improvement in financial inclusion would mean a notable shift in GDP. For example, a World Bank report published in 2017[4] revealed that only 12% of Jamaican adults own money transfer accounts, checking accounts and credit cards[5]. Given that many Caribbean consumers do not have credit cards or checks to process transactions, the eligible markets for e-commerce and business-to-business (B2B) have been dramatically limited in the region. Indeed, the size of the informal sector in the Caribbean still represents 35 to 44% of GDP[6], despite the growth of sectors such as tourism. Less than half of MSMEs (only 48%) have access to appropriate financial services which affects their ability to manage cash flows, access finance, and mitigate risks. Caribbean MSMEs are at a considerable disadvantage in the underutilisation of electronic and digital payments solutions. These constraints affect their capacity to invest in innovation and growth.

Caribbean countries have experienced a significant slow-down in GDP per capita growth over the past three decades (Ruprah et al). In the early seventies, the real GDP per capita was four times higher in the Caribbean than that of the Rest of Small Economies (ROSE) of the world. Since then the region has experience declining or stagnant growth. In 2014, the real GDP growth was only 0.9[7]. Caribbean firms are smaller, highly concentrated in the retail, services and tourism sectors, reveal lower total factor productivity, and suffer more heavily from a lack of access to finance. Although digital payments alone cannot eliminate the underperformance gap in the Caribbean private sector, digitalization of financial transactions can boost economic activities significantly. It can also increase access to credit as digital history and other digital prints are increasingly used to mitigate information asymmetries in credit risk assessment.

However, the emergence of a young and vibrant MSME segment of digital entrepreneurs who are developing innovative business models to offer e-commerce products and services targeted at international markets is underserved in the Caribbean. A business accelerator and incubator services provider[8] point out that “4 out of 5 clients are looking for easy access to online payment systems as a critical component of their business model”. These emerging

[3] MCKINSEY GLOBAL INSTITUTE: Digital Finance for All - Powering Inclusive Growth in Emerging Economies, Sep 2016.
[4] Crowdfunding’s Potential in the Caribbean, InfoDev Innovation and Entrepreneurship, 2017
[5] Crowdfunding’s Potential in the Caribbean, InfoDev Innovation and Entrepreneurship, 2017
[6] Estimating the Size of the Informal Economy in Caribbean States, IDB publication 2017, p.4
[7] https://publications.iadb.org/handle/11319/7997?locale-attribute=es&

[8] 10 Habitat - in Barbados.

businesses range from high tech entrepreneurs exporting digital services such as digital marketing and online booking to creative industry entrepreneurs or Uber-equivalent services[9], as well as online real estate agencies offering their services globally. AIRBNB and HOMEAWAY are struggling to penetrate the Caribbean market because of the issue of fragmentated regulations in each country but persons with access to a bank account in a territory approved by these companies have started to offer the service. Overall, the MSMEs interviewed in this research concur that the absence of online payment systems is having a substantial impact on potential export sales. Given that most young entrepreneurs are native to online systems and have exposure to more advanced digital economies, the trend towards more digitally engineered or enhanced business models will continue to grow. As entrepreneurs become more sophisticated they will realize the value of targeting larger international markets which offer much greater growth opportunities than is possible within a smaller domestic or regional space. These factors will drive the demand for digital financial services in the Caribbean.

The ubiquity of the mobile phone in the Caribbean including in remote areas gives hope as it makes it possible to bring financial services to people who have never considered opening a bank account, thereby increasing the market at the base of the pyramid. The penetration rate of mobile phones in the region is much faster than that of credit cards: A World Bank report published in 2017 revealed that mobile phone penetration is 110% in Jamaica, and over 50% of those with mobile phones have smartphones.[10] Going mobile can significantly reduce the cost of providing financial services. Digital accounts (inclusive of mobile wallets) can be 90% cheaper than conventional ones for banks and other providers to maintain, costing as little as $10 annually per customer.[11] This makes it profitable to provide accounts for lower-income earners and small businesses which are typically an unprofitable segment for conventional banks. With the evolving breakthroughs in financial technologies, a sustainable and even profitable path towards financial inclusion for both individuals and micro and small businesses is now an attractive possibility. Access to cost effective financial services to process safe and secure digital transactions is critical for Caribbean entrepreneurs as it will enable them to reach international customers both visiting and abroad.

Digital payment systems offer a dual promise, as an engine for financial inclusion and economic activities, and as a business opportunity for innovative financial service providers. The efficiencies made possible through current and evolving financial technologies, puts the vision of financial inclusion on the horizon of policy makers in the region. However, initial attempts at the full engagement of the unbanked through digital channels have been met by underwhelming responses. Poor adaptation rates and hence the inability for service providers to achieve sustainable transactions volume and profitability, threatens to derail efforts towards achieving a state of full financial inclusion. The result has been that a critical segment of the

[9] Caribbean Transit Solutions

[10] Crowdfunding's Potential in the Caribbean, InfoDev Innovation and Entrepreneurship, 2017

[11] MCKINSEY GLOBAL INSTITUTE: Digital Finance for All - Powering Inclusive Growth in Emerging Economies, Sep 2016.

productive sector continues to be excluded from the financial system, thus limiting their growth potential and their ability to contribute to economic growth. More and better collaboration among the private, public and development sectors is required to take advantage of the opportunity offered by digital financial systems. Hence, the objective of the assignment is to understand the reasons for the observed scarcity of effective digital payment solutions in the Caribbean, particularly for the MSMEs, and how to address them.

2.2 The commercial banking interface with MSMEs

Commercial banks are the conduit for correspondence banking relationships and cross border transactions. These attributes make the banks an integral player in the financial architecture of the region; and position them as a key influencer in the financial eco-system. Hence, the engagement of the commercial banks in the pursuit of financial inclusion will be critical to success, at least in the short run.

Correspondent banks in advanced economies have been severing their relationship with commercial banks in the Caribbean[12] over the past decade. Institutional and regulatory factors have caused correspondent banks to reduce their exposure to risks, particularly in the areas of anti-money laundering (AML), counter-terrorism financing (CFT), and the need to ensure compliance with international trade sanctions.[13] Self-imposed pressure to adhere to these international standards by commercial banks has made it increasingly difficult for MSMEs to establish business accounts with commercial banks. The requirements to meet international obligations for AML and preventative financing for terrorism guidelines via the imposition of know-your-customer (KYC) procedures create challenges for most MSMEs which operate without well-established business system and operational capacities.

KYC guidelines require banks to develop a complete profile of their customers including the full name on an official identity cards with photo, a proof of address, contact details and knowledge of the customer's financial history. These details represent a major constraint for mobile workers and underprivileged persons. Furthermore, corporate customers must provide details of incorporation, names of owners and directors, business undertaken by the company, audited financial statements, signing officers, and persons authorized to conduct transactions with the financial institutions on the company's behalf – requirements that many find difficult to observe.[14]

The banks' irresponsiveness and restrictive attitude are also due to internal culture as much as they are reflections of adherence to guidelines and standards. Some international branch banks located in the Caribbean exhibit ultra conservative requirements that are more stringent

[12] World Bank, 2015; CDB 2016.

[13] The Caribbean Development Bank is planning to conduct research on the issues of de-risking in the Caribbean given the growing concern for the sustainability of the financial eco-system in the region (2018).

[14] In February 2018, the Central Bank of Bahamas issued guidance in the form of "Proposed Reforms to Customer Due Diligence Requirements for Account Opening and Provision of Financial Services in Supervised Financial Institutions" in the hope of providing clarity to its FIs with respect to, amongst other areas, the documentation required to for on-boarding customers in the hope of reducing financial exclusion.

than international AML regulations[15]. The Central Banks of the Bahamas and Barbados are aware that commercial banks' on-boarding requirements are more stringent than international regulations require. The Bahamas Central Bank recently issued guidelines to the banks to encourage more appropriate on-boarding requirements in the interest of promoting financial inclusion. Providing more clarity to facilitate interpretation of international regulations can improve access to the financial system for MSMEs.

2.3 Service providers

Feedback from the focus groups indicates that MSMEs require more responsive systems to facilitate payments – this highlights the plight of MSMEs in particular, as medium sized businesses are likely to have established relationships with the banks which can smooth out the process of applying for point-of-sale (POS) or e-commerce services. Service providers shared the view that there were solutions on the market which could assist MSMEs in receiving domestic payments. They accepted, however, that the uptake of these services is not maximized at present, and that, it was incumbent on them to raise awareness of these services and build confidence in the market.

In general, service providers in the payments space described an arduous process of interaction with the regulator to bring payments services to market. In some instances, these service providers described themselves as being key stakeholders in the local payments space yet bemoaned the lack of interaction with the regulator to chart the course of payments evolution. Some further ventured that regulators may be ill equipped and under-prepared in understanding the global trends in the payments industry.

A sampling of some of the services as provided by service providers participating in the research, includes (see Appendix 2: Digital Payment System Country Profile for the region):

- Barbados: Mobile Financial Services (MFS) built on digital currency supporting P2P and P2B
- Trinidad and Tobago: On-premise and online utility payments, payments for small businesses facilitated via an existing agent network of lottery booths, utility payment via mobile.
- Jamaica: Mobile Financial Services (some with partnership with commercial banks and other financial institutions) which facilitates bill payments, P2P transfer, domestic and international remittances, loyalty programmes and merchant purchases
- Bahamas: Money Transmission Business (MTBs) providing domestic and international remittances, utility payments, nascent MFS development to eventually support wallet based P2P, and P2B services

[15] For example, some branch specific requirements involve that MSMEs sign source of funds statements for local payments at are level less than international standards.

- Guyana: Mobile Financial Services (MFS) supporting P2P and P2B, Money Transmission Business (MTBs) providing domestic and international remittances, utility payments

However, the challenge of mainstreaming digital transactions is greater in the Caribbean than in other regions. FinTech companies, after having developed an appropriate and safe technology, must invest considerable efforts to penetrate the Caribbean markets which is smaller and highly fragmentated in terms of regulations and demographics. For example, a report published by IDB in 2018 identified 703 FinTech start-ups located in 15 Latin American countries, 60% of which began operations before 2016[16]. By comparison, this research although much smaller in scope, identified five FinTech start-ups covering ten countries, most of which not yet fully operational.

An emerging and yet unresolved issue is whether mobile payment systems that are confined to domestic or regional CARICOM markets can be financially viable in the Caribbean. Notwithstanding the new business model created by advances in financial technologies, it is still unclear whether Caribbean user volume would be sufficient to sustain a competitive business environment where multiple non-mobile network operators (NMNOs) are driving service offerings without mobile network operators' (MNOs') participation. Recent research would suggest that: 1) mobile money projects have long payback periods and marginal profitability within the first ten years of business existence; and 2) comprehensive high-volume usage is essential for business sustainability.[17]

2.4 Regulatory Enviroment

Part of the reason why MSMEs have almost no access to a wide range of digital payment options is that regulatory systems have not evolved to enable and/or facilitate offerings of such new products by service providers. Various levels of receptiveness to essential digital payments concepts such as wallets, mobile money and digital currency were found in interacting with the regulatory / authority / policy maker stakeholder groups.

Given the role of regulators in consumer protection and ensuring the stability of the monetary and financial systems, and the scope of digital transformation at stake, it is imperative that regulatory institutions benefit from technical assistance. They not only need to learn about new technologies or business models and their implications on risks, costs and benefits, but also about effective coordination mechanism almost in real time with business start-ups, traditional institutions and their peers in other jurisdictions. Despite the challenges involved, Caribbean countries took concrete actions in creating an enabling environment for digital transactions to expand. The five case studies in appendix are summarized below.

[16] https://publications.iadb.org/handle/11319/8265

[17] See: "Mobile Money for the Unbanked. Mobile Money Profitability. A digital eco-system to drive healthy margins". GSMA Report. November 2014.

Guyana

The Bank of Guyana previously allowed GTT to establish a mobile money service via a 'no objection' letter; however, it currently questions if it is the role of the Bank to stimulate innovation in the payments sector suggesting instead a greater role to be played by the government (See Appendix 6).

Jamaica

The Bank of Jamaica previously allowed for the development of mobile financial services via a legislative reform and pilot testing which eventually allowed service providers to bring products to market.

Trinidad and Tobago

The Central Bank is currently in the process of developing policy in the areas of e-money and virtual currency. It is expected that mobile money and e-wallets will be covered under such reform to allow a greater influx of such solutions in the market (see Appendix 7).

Bahamas

The Bank of Bahamas performed the necessary reforms to allow for the classification of wallet-based transactions as well as for non-MTBs to bring such solutions to market. This can potentially bring various services to the masses via their mobile phones including P2P and P2B. The Bank of Bahamas and ECCB have signalled their intent to pilot DFC in the hope of overcoming longstanding payment systems and other deficiencies plaguing their respective territories (see Appendix 5).

Barbados

The Central Bank of Barbados has recently announced an initiative with the Barbados Financial Services Commission to develop a regulatory sandbox as their response to the nurturing innovation in the FinTech space.[18] Bitt's mobile payment solution, mMoney, has been accepted as the first participant in the sandbox, which will allow for a set period of public testing to take place, after which recommendations on possible regulation for this, and similar products, will be made.

[18] http://www.centralbank.org.bb/news/article/9433/central-bank-of-barbados-and-financial-services-commission-announce-the-establishment of a regulatory sandbox framework - this will provide regulatory clarity for businesses offering viable and new financial technology (Fintech) products, services and solutions. 23 October 2018.

3. Current Status and Barriers to Digital Transactions in the Caribbean

Overall, there is an absence of quantitative information on the impact of the inadequacy of systems to support non-cash domestic and international payments. However, the preceding findings indicate that, because of various eco-system deficiencies, Caribbean MSMEs are at a considerable disadvantage in the underutilisation of electronic and digital payments solutions as the mainstay of their domestic and export-oriented business strategies.

3.1 High opportunity cost

Although difficult to quantify, the magnitude of on-boarding constraints is substantial for MSMEs located in the Caribbean. The MSMEs interviewed concur that the absence of online payment systems is having a substantial impact on potential export sales. However, they were unable to quantify the level of impact: some "guesstimate" that it is as low as 10% in lost sales annually while others suggest that lost revenue is "in the hundreds of millions". Less than half of those interviewed say that export sales through such systems account for more than 50% of total sales – although there are a few outliers such as, online distributors and music content originators and curators, where they do account for 100% of sales. This barometer, however, is more reflective of the stage of business development of the MSMEs rather than the capacity of the systems to facilitate online sales.

The ability to reach new and foreign markets is compromised by the stringent information requirements placed on MSMEs to be on-boarded by financial institutions and subsequently receive access to online payment systems. These constraints compound the challenges faced in developing new products and services for export markets.

There is also a subtler opportunity cost to the governments in the region. Digital transactions create a rich source of data from which important market intelligence can be gathered and used to inform progressive policy decisions. However, with an increasing number of entrepreneurs using overseas payment solutions, valuable information resources are being accumulated off-shore, beyond the observation of regional policy makers. Hence, the region could lose critical insights into important trends and opportunities that could support the growth of the export sector.

3.2 Lack of connectivity for cross border settlement

3.2.1 E-commerce

The limited reach of established payment processor services such as PayPal or Stripe to fully interact with commercial banks accounts in Caribbean territories, similar to how they can be linked to US banks accounts is puzzling. At least half of the MSMEs interviewed have tried to access online payment systems in the Caribbean. But because of the absence of readily accessible systems, many have opted for alternative payment solutions (workarounds) instead. Mostly, they use either Paypal or Stripe in the United States as such solutions were

described as easy to integrate as checkout options on their website without the hassle of dealing with a bank and its payment gateway.

In terms of cost PayPal has a fees per transaction of 2.9% + US$0.30,[19] which is lower or comparable to the fees associated with commercial bank e-commerce service offerings. First Citizens Bank in Trinidad and Tobago quoted a merchant discount rate averaging around 3% plus a monthly fee of US$100.00 and a transaction fee of US$0.50.

In addition to these fees, MSMEs must also bear the cost of integration of their website's shopping cart to the bank's payment gateway. The associated cost of this integration was found to be varying within a range of US$500 to US$1,000 to US$10,000 between the territories of Trinidad and Tobago and St Lucia to the Bahamas respectively. Hence this is potentially a significant barrier to entry for MSMEs.

However, these workarounds are also subject to constraints. MSMEs cite the 30-day holding period and the minimum amount that the business must retain in that account before Pay Pal will make a payment to the vendor. Stripe, the other most often used system, requires that users establish a minimum account value of US$500. It is still cost-effective but exposes Caribbean MSMEs to US tax obligations. Additionally, Stripe requires vendors to have US bank accounts,[20] a criterion which eliminates potential exporters which do not have either personal or a professional accounts.

The absence of Caribbean based payments processor service which can aggregate payments from websites to a payment gateway was highlighted in the MSME focus groups where participants expressed their desire to simply add a checkout option to their website shopping basket, like PayPal, without the hassle of dealing with banks or payment gateway integration. It appears that such a service may be in development by WiPay to serve certain Caribbean territories.

With respect to facilitating e-commerce, MSMEs across the various territories indicated that the process of opening a bank account in the US was a much simpler process[21] and further offered that by linking payments processing services, such as PayPal or Stripe, to such an account in the US allows them to receive international payments quicker and without the hassle and costs associated with the application to local banks for the respective services and accounts, and having to set up integration of their websites to a payment gateway.

Having a bank account in the US for non-residents can prove to be problematic given taxation obligations, and additionally, not all MSMEs have the ability to open an account in the US. Hence, some MSMEs advocated obtaining a VISA debit payment card which can then be linked to their PayPal accounts to receive international payments. The problem with this

[19] If set up as a US based customer. If establishing the account as a Caribbean based customer this increase to 5.9%.

[20] Some MSMEs indicates their preference for the Atlas service from Stripe which will establish a US business on the MSME's behalf and cater to US bank account and basic accounting needs. Not all MSMEs will qualify for this service however.

[21] In response to this comparison, commercial bank representative highlighted that the US market has developed institutional capacity to support verification of identity and validity of documents resulting in a smoother on-boarding process.

approach is that PayPal takes 30-days to clear the payment and once the payment is credited to the linked local currency denominated payment card the funds are no longer in foreign currency. This poses a problem for MSMEs who are therefore further required to repurchase foreign currency to, for example, pay suppliers, despite being earners of foreign currency themselves. The payment card product is not a bank account and hence the typical range of services which an MSME may be familiar with, given their experience with chequing or saving accounts, is not present; this further limits MSMEs' access to funds from received payments.

Other e-commerce workaround includes using a ticketing platform, e.g. the use of Billodex, to facilitate e-commerce transactions in the USA. The informal sector in Jamaica is monetizing pre-paid telecommunication credits where some vendors accept it as a means of payment via their cell phones and even online. In the Bahamas pre-paid credit is used to facilitate remittances or cross border settlements; in Haiti, peer-to-peer transactions are facilitated through a telecom-led mobile money platform. In Guyana one Carnival promoter referenced the use of a 3rd party ecommerce site to facilitate transactions at an 8% transaction cost.

3.2.2 Mobile Financial Services (MFS)

Apart from online payments via websites for e-commerce, online payments using digital services and mobile (e-wallet payments) within and outside traditional banks are only just emerging. Service payment providers have emerged in St. Kitts-Nevis (CaribePay, JAD Cash), Trinidad and Tobago (WiPay) and Barbados (mMoney), The Bahamas (OMNI, SunCash and Cash n Go), Jamaica (MPAY, MYCash and Quisk) and Guyana (GTT). However, with the exception of the service provided by banks and mobile service providers in Jamaica and the Bahamas, these services do not allow MSMEs to receive international digital payments. The latest mobile money service in Jamaica, MyCash, which is a collaboration between Sagicor Bank, Digicel, Master Card and Metropolitan Commercial Bank in the USA, promised a new model, which emphasises collaboration and partnership to solve connectivity issues. Both Quisk and GK MPay (Jamaica) have the capacity to accept transfer from bank accounts and remittances respectively. However, both services still struggle with slow user acceptance.

4. Constraints to Accessing Digital Payment Solutions by Caribbean MSMES

In this section of the report we analyse the current digital payment solutions available in the Caribbean. The current constraints to MSMEs in accessing electronic payment channels from traditional banks and FinTech digital payment systems are identified and analysed.

4.1 Accessibility a major challenge for MSMEs

The commercial banks demand that businesses provide an extensive amount of KYC information, which can include confidential cashflow projections and business plans, as the basis for establishing accounts with them. The focus group MSMES perceived this to be a severe challenge which forced them to pursue alternative payment solutions (or workarounds) – a more costly solution than the options available through regional service providers. So, although MSMEs complain about the high commercial bank service fees and costs generally; those that need access to online payment systems, are much more concerned about accessibility than about the actual costs of using these services.

Within the MSME focus group sessions across the various territories, a common thread of general dissatisfaction with the process of applying for and attaining Point of Sale (POS) terminals and/or mobile Point of Sale (mPOS) device to process payment card transactions, which was perceived as onerous in terms of the informational requirements, duration of the process and up-front capital requirements. However, most commercial bank representatives countered that their mPOS product was designed for MSMEs including sole traders[22] with the informational requirements principally being (i) copies of the business registration documents and (ii) two valid forms of identification. The application phase may include verification of information and a site visit while the process can take up to 2 weeks[23]. Once the application is approved the applicant schedules an appointment to open a 'business chequing account' which further requires (iii) proof of address (iii) cashflow projection or audited financials and (iv) letter describing the business.[24]

For the e-commerce service, which allows processing of payment card transactions in an online shopping basket, the application process is essentially the same; however, the process itself is subject to management review which increases the timeframe to between 2-3 weeks and there is sometimes added informational requirement at this stage; such as, a business plan. Once approved for the service, the applicant is invited to open a business chequing account with the same requirements as outlined above. The client is then introduced to the payment gateway service provider and provided with the necessary information to perform

[22] The bank's compliance department would have had to sign off on the lower informational requirements for the creation of these products.

[23] These timeframes varied between territories with Scotia Bank in St. Lucia stating it would take up to 8 weeks to obtain the POS device.

[24] These further informational requirements were described as a formality in the process and are reviewed by the bank during a scheduled appointment which can last 60 - 90 minutes.

integration of their website to the payment gateway.[25] The actual integration to the payment gateway also adds to the cost[26] and time taken for the business to be ready to receive payments.

It is important to note that if the business is deemed to be risky based on the nature of the business and corresponding guidance of business classifications from the Central Bank, further interaction with the applicant may be required. The subsequent risk assessment process can delay the application process and result in a capital requirement via posting of security.

4.2 High transaction costs

The focus group MSMEs did not compute the cost of non-cash payment systems. However, they reported that such costs are quite high. Typically, merchant account transaction costs in the Caribbean are 4% to 6% while globally they are 1% to 2%. But actual total international costs, inclusive of foreign exchange (FX) fees, can be higher. Local digital payment services offer the lowest fee structure on average. However, awareness of these service is low, and hence users lack the information need to properly assess their choice of service. Table 2 below highlights the international costs of digital payment services compared with online and digital payment systems in the Caribbean.

Table 2 Comparative cost of digital payments internationally to local cost (USD)

Type of Service	Payment Service	Fees				
		Set Up	Deposit	Withdrawal	Transaction	Forex
International Digital Payment Services	Pay Pal		2.9% +$0.30	Up to $5	2.9% +$0.30	2.% +5% + Fixed Fee
	Stripe Atlas	$500			2.9% +$0.30	
Local Merchant Accounts	Credit Cards				4 - 6%	
Local Digital Payment Services	MyCash	$0	$2	$2	2.25%	$5
	GK MPay	$0	$0.75	$0.75	$0.05 - $1.11	$4.50-$9.50
	NCB Quisk	$0	$0	$0	1% + GCT	N/A
	mMoney	$0	$0	$0	$0	N/A

turkey
ghana

[25] A payment service provider in the Bahamas described a scenario where commercial banks have misunderstood PCI compliance obligations and further mandated security requirements for merchants' websites when in fact the payment gateway needs to have such level of compliance.

[26] The cost of outsourcing the integration of the website to the payment gateway varied between territories; however, it can potentially be a significant barrier to entry for the MSMEs.

	India
	EME
	TOR with workplan-Pakistan
	Budget for the PF one

Source: *https://moneytransfercomparison.com/ewallets/* and online research of regional service providers.

4.3 Lack of awareness of online payment options

Most of the MSMEs interviewed lacked knowledge of the limited range of online services offered in the Caribbean, particularly those offered by local banks. For instance, some were not aware of mobile POS products and the reduced informational requirements to apply for these. The few MSMEs that indicate some awareness of these services expressed a reticence to approaching these service providers due to perceived challenges involved in integrating the services into their own online platforms. Some MSMEs indicated that they were not very knowledgeable about e-wallet options; with only basic knowledge of services like Apple Pay and Venmo. Others were vaguely aware of local mobile payment platforms although some MSMEs did acknowledge that peer-to-peer solutions (P2P) can be of potential value in facilitating payments transactions either formally or informally for micro and small businesses. Those MSMEs who tried to use available payment services expressed concern that the platform appeared somewhat complicated and MSMEs operating at the retail level indicated that they did not understand the concept of mobile money. More knowledgeable MSMEs however pointed out that they associated increased business efficiency with e-wallets – especially where certain business transactions are done locally. Overall, the perception amongst the MSMEs was that the digital payment services available locally were not yet at a stage where they were likely to have significant impact on export flexibility – given that such services are limited and are localised.

4.4 Resistance to change – difficult adoption and conversion to the digital economy

Another reason is the low level of user literacy about such options, which is a major challenge for banks, their customers and regulatory authorities at this stage of FinTech sector development. Businesses that have introduced such systems (e.g. Jamaica and Haiti) have observed that user enthusiasm is low, and that uptake tapers off markedly following the initial positive response to such services. Even with limited requirements for user registration, Digicel's mobile money initiative in Haiti failed to gain traction initially. The reason for this may have included user reservations about that new digital payment channels and lack of knowledge in using the system.[27] These trends may not be consistent across countries, but they signal that user awareness and uptake could be major challenges for the sustainability of such services in both domestic and regional markets.

[27] http://old.seattletimes.com/flatpages/nationworld/haiti-shaky-recovery-part-2-earthquake-five-years-later-annivers.html.

Almost all MSMEs which have used or attempted to use digital payment services, commented that chargebacks were the main perceived risks associated with these systems. Others point out that there is an absence of local legislation on user fraud. Generally, they are not concerned about online hacking into bank accounts since this is mainly the responsibility of the e-commerce gateway service provider. Neither do they have any major concerns about data mining or security, for the same reason. Overall the perceptions and interpretation of regulations are misaligned with the reality in most cases and must be better managed in other to facilitate digital transformation.

Lack of trust is another issue affecting adoption of digital services from financial institutions. MSMEs feel the banks view them with suspicion first, before understanding their needs and offering relevant solutions to their problems. Some MSMEs questioned whether banks could be trusted with their confidential business plans and cashflow projections, citing this as the basis for their opposition to informational on-boarding requirements. Consumers in the informal sector who are generally financially and socially excluded, view formal institutions such as the government and financial institutions with suspicion and distrust. A recent survey cited by the Deputy Governor of the Bank of Jamaica indicated that 50% of the informal sector do not trust commercial banks.

5. Conclusions and Recommendations

It is axiomatic that the eco-system for e-commerce and digital payment is still new to the region. Therefore, neither the regulatory environment nor commercial banking systems are adequately supportive of this market segment to ensure sustainable MSME growth. Fortuitously, the indirect availability of a growing range of international online payment services now offers MSMEs practical "workarounds" to the interface challenges with commercial banks (e.g. PayPal, Stripe, The Orchard, Billodex). But they are not ideal solutions for all small export businesses given that many do not meet some of the providers' basic account establishment criteria. These workarounds also create additional burdens for Caribbean MSMEs and disadvantages compared to their peers abroad which affects their global competitiveness. Over the longer term therefore, the solution lies in deliberately coordinated efforts to substantially improve the region's e-business and digital eco-systems in line with international best practice so that MSME export-led growth can be effectively unlocked in the process.

5.1 Establishing an enabling eco-system

5.1.1 Getting the regulatory framework right

Creating an enabling regulatory environment requires a balance between innovation and customer protection while maintaining the integrity of the financial system. Critical to the building of digital payment systems is an **enabling eco-system to support by light touch and evolving regulatory frameworks that are responsive to the needs of its stakeholders and global trends**. The study has taken note of varying ways by which territories are enabling innovation in the digital payments space (see Appendix 4 through 7). Regulators can draw upon the experience of first world nations and lesser developed countries in this area such as the experiences of the UK or Kenya to define models which will work for their unique circumstances. For example, in Kenya, the innovation in digital payments was driven by established financial institutions and a mobile network provider. The guidelines that allow for the building of branchless bank agents is also slow to evolve in the region. The absence of a strong agency network and lack of trust in financial institutions may account for the initial difference in results. The M-PESA case study (see Appendix 3) highlights the success of the M-PESA initiative.

Regulations could play a role in reducing the cumbersome on-boarding process that are a deterrent to many small businesses. The Bahamas Central Bank expressed an openness to relaxing KYC requirements to encourage faster rate of financial inclusions. Although the banks are slow in responding, this may still prove to be a positive move which could yield success in the medium term if supported by appropriate education and awareness campaigns.

A look at the current state of digital payment eco-systems highlights several gaps that must be addressed to facilitate increased adaptation of digital payments. At present both **customer expectation and service provider innovativeness seem to be outpacing the capacity of the regulatory authorities.** Even in countries where regulatory frameworks are articulated,

the effectiveness of the digital payment system is only merely evolving as a critical mass of users is yet to adopt the platform, which leaves many of the early service providers in untenable positions. There could be a number of factors contributing to the failure to launch; however, based on the sentiments expressed by stakeholders during consultations, the heart of the issue seems to be asymmetry of interest, knowledge, capacity and confidence. The only way to bridge this divide is to encourage greater levels of collaboration and team work.

5.2 Regulatory sandbox

It is recommended that a regional sandbox be established. This approach can leverage the experience of regional jurisdictions and international expertise to develop an appropriate regulatory framework. The regulatory sandbox could be an important first step to enable the prudential development of an effective digital payment eco-system. While an innovation hub focusing on Fintech can grow the pool of potential solutions, once these solutions are ready to be brought to market regulators will require a way to understand and test these products and services. It would be best if such an understanding can be achieved under live market conditions, albeit on a limited scale, and more importantly with a limited amount of risk to the live market. This is the **underpinning principle of a regulatory sandbox where financial regulators allow limited testing of financial services and products in a live but restricted environment.** This approach benefits both the FinTech and the regulator as they achieve the benefit of testing the product and understanding the product respectively. The sandbox approach has additional benefits of lowering the time taken to bring products to market and enhancing consumer protection.

Examples of some form of sandboxing techniques have been observed in the Caribbean in the past. The use of a 'no objection' letter in the case of mobile money development in Guyana has been mentioned already as one way by which regulators can impose conditions and allow innovation to take hold in a controlled manner while an understanding of the product is achieved, and oversight of the product classification is eventually established. Similarly, in Jamaica, with the introduction of the "Guidelines for Electronic Retail Payment Services" by the Bank of Jamaica in 2014, a set of limited trials of Mobile Financial Services products took place facilitating live testing of the products within a regulator-sanctioned and controlled mode, to evaluate the products prior to subsequent issuance of operating licences. Even the DFC pilots to be undertaken by the Bank of Bahamas and the ECCB can be viewed as employing sandboxing techniques.

However, there are more formal approaches to regulatory sandboxes which Caribbean regulators can draw from, with the most notable being the Financial Conduct Authority (FCA) in the UK which has successfully fielded four cohorts of participants within its regulatory sandbox since 2016. Some of these participants have successfully graduated from the sandbox and have gone on to attain licenses to operate from the FCA. The types of products fielded within a sandbox do not necessarily have to be payments-based but the product range can include identity-based products or compliance enhancing products or "Reg Tech" products.

5.3 Building trust in digital payments

Central Bank Digital Currency (CBDC) could be an important catalyst in creating a cultural shift away from cash. Regionally it has been noted that some Central Banks, are considering the issuance of a CBDC in the retail space, creating a Digital Fiat Currency (DFC) as a form of sovereign currency which is fully convertible and equivalent to it physical counterpart. In theory, this could achieve greater levels of financial inclusion and increase confidence in, and drive adoption of, existing digital payment systems. The full benefits of an issuance of DFC could be realised if it also supports use cases which can drive mass adoption such as: conditional cash transfer programmes (e.g. Jamaica) and other government bulk disbursement programmes such as national pension payments eco-system.

Regional efforts to leverage the Central Banks' credibility to catalyse the digital payment eco-system through the exploration of DFC are reflected in the proposed pilots announced by the ECCB (see Appendix 4) and the Bank of Bahamas (see Appendix 5) and in Barbados (see Appendix 13).

5.4 Options for dynamic digital solutions

In tandem with addressing the eco-system challenges, digital payment service providers must consider deep innovation and investments to effectively realize the opportunities resulting from the challenges affecting the region's financial industry. Given the nascent stage of digital payment systems in the Caribbean, more private-public collaboration is essential to enable service providers to fully seize current and future opportunities. The digital transformation of the financial system requires skills set not yet available to any single player in the region's digital payment eco-system. Whereas the commercial banks control the backend of the financial infrastructure, they lack user engagement capacity and trust which are critical to viral adaptation. The new non-bank FinTech companies may have the competitive advantage in designing useful applications and engaging the excluded users; however, they may be limited in delivering a fully functional solution due to the lack of access to the backend of the financial architecture where payments are settled. To create compelling use cases and value propositions, digital payment eco-system players must integrate their diverse and hard-to-develop capabilities. Success requires broad marketing and distribution, management of agent sales force, systems and analytics, rapid product development, and financial intermediation. Examples of such integration could include the ability to reduce costs by leveraging existing customer bases and distribution networks to drive rapid growth. Driving transaction volumes through existing or emerging use cases, such as e-commerce and supply chain financing, could be a catalyst to scale transaction activities. Also leveraging partnership to offer adjacent products that build on mobile wallets will generate additional long-term revenue streams.

Conceptually, any digital solution should adhere to FATF's AML/CFT guidelines and offer MSMEs a lower barrier to entry to financial services via a more risk-based approach to customer on-boarding, reduced customer due diligence (CDD) and lower KYC requirements.

Such an approach could ease the burden of domestic cash transactions, unlock the region's latent export potential, encourage a larger proportion of MSMEs to use business models aimed at international exports.

Drawing on the lessons learnt in Kenya and Haiti the following design elements should be considered as critical success factors for improving digital payment services in the region:

1) Initial focus should be on products and channels which complement existing patterns of behaviour; e.g. peer-to-peer transactions which are already occurring informally.
2) Customer education and coaching is critical during the initial on-boarding process, to resolve customer hesitation due to limited financial literacy.
3) Use human centred design principles to develop simple, functional and intuitive user interface to enhance user experience.
4) Gradually build a bundle of services that creates compelling use cases for consumers
5) Build an efficient agency network to span geographical gaps, especially for rural customers, where community style engagement could be most effective.
6) In building the agency network, partner with MSMEs which already control the distribution networks (existing community shops and convenience stores) as critical touch points for technology support and user engagement.
7) Incentivise agents/merchants (MSMEs) to become champions of change to push services to their customers.
8) Explore the establishment of payment aggregation and distribution services to support MSMEs in access ecommerce opportunities.
9) Leverage existing financial infrastructure for connectivity through partnership with the banks and mobile network operators.

6. Priorities

Based on the recommendations and analysis of potential options (appendix x), the following priorities will improve the FinTech eco-system in the Caribbean, both for MSMEs and other main participants in the digital payment eco-system i.e. users, financial services providers, merchants, regulatory authorities, Central Banks and commercial banks. Although credit unions have not been consulted in this study, they can also play a key role in mainstreaming digital transformation given their large market share in most Caribbean countries.

Improve the ease of on-boarding MSMEs. The first priority is to create an enabling environment for MSMEs by commercial banks who either are exporting or want to export products and services to international markets. The proposed strategy consists of a multi-pronged technical assistance initiative aimed at: 1) improving financial literacy of MSMEs; 2) addressing legal concerns of the banks; 3) strengthening the capacity of commercial banks to on-board MSME customers; and 4) formalisation of policy to support MSMEs which want to participate in the digital economy to receive international payments.

Increase user and merchant awareness of benefits of non-bank financial services. An interactive communication strategy must be developed of which the main goal should be to enlighten consumers, institutions and the private sector and encourage them to make effective use of online non-cash payment systems. Such a strategy should be aimed at 1) encouraging all governments to adopt online payment systems to improve both operational efficiency and usage by all citizens; 2) developing strong "instant" on-boarding programmes including public awareness campaigns of digital payment benefits embedded in the services offered; 3) establishing lifecycle messaging programmes; 4) creating benefit-oriented messaging systems (i.e. "what's in it for me highlights); 5) training merchant and institutional staff in digital services literacy; and 6) creating incentives so that users will be attracted to digital payment programmes.

The region's regulatory authorities should be trained to become proficient in the management of best practice guidelines for effective development of the FinTech sector (see Appendix 9). There are various implementation mechanisms that have been activated to support this best practice framework (e.g. FinTech facilitation offices in Hong Kong, a FinTech support desk in Korea, a Securities and Investment Commission-supported innovation hub in Australia). Regulator assimilation and adoption of these policies will require developing substantial human resources. It is recommended that a Regional Regulatory Sandbox[28] be established, which would leverage existing and planned country level initiatives. This could be complemented by regional innovation hubs with sector specific expertise labs established across the region. This could include incentives for local and regional software developers and

[28] A regulatory sandbox is a framework set up by a regulator that allows fintech start-ups and other innovators to conduct live experiments in a controlled environment under a regulator's supervision: http://www.cgap.org/blog/regulatory-sandboxes-potential-financial-inclusion.

payment service providers to develop products and services relevant to the needs of regional entrepreneurs.

Inclusiveness and increasing harmonisation and interoperability. Financial services companies will generally implement technological changes in parallel with legacy systems, rather than overhauling their entire infrastructures. Regulators should support interoperability among the systems of all current market participants, which will lead to lower compliance costs and minimise potential disruption to the market. Data standardisation and harmonised definitions could allow financial regulators to make efficiency improvements by allowing for the sharing of information amongst market participants. As an example, the International Technical Committee for Blockchain Standards is currently working on developing international standards to support the roll-out of blockchain technology, as led by Standards Australia. The committee includes a cross section of industry experts, consumer associations, along with government and non-government representatives, who will be looking at the standardisation of blockchains and distributed ledger technology (DLT) to support interoperability and data interchange among users, applications and systems. Various study group streams, including smart contracts, identity and use cases, have also been created.

Leadership Framework. Leadership is required to champion the cause for a full financial inclusion which is now possible due to advances in financial technology. Action is required to start the process of executing some of the recommendations articulated in this report. A regional working group (FinTech Unit) should be established to provide the leadership and drive need to execute the recommendations made in this report and to continue researching and evolving the parameters of the options so as to find the right solutions to assist the region to grow. An industry association would also facilitate consultation between regulators, development agencies and the private sector.

Security, Risk & Privacy. Information security and data privacy are critical concerns for payment solutions beyond the traditional banking sector. These were key concerns arising from the ECCB DFC pilot focus group. As slow as the commercial banking sector has been to innovate its products and services, the public has grown to trust and have confidence in using its products and services. Likewise, the financial services industry is often viewed one of the industries with heightened sensitivity to the need of having information security and data privacy integrated, within not only its products and services, but also its process for creating those products and services.

The maturity level of Caribbean entrepreneurial efforts to produce FinTech solutions may not have been assessed with respect to secure software development and quality assurance. This goes beyond mere penetration testing and vulnerability scanning of products at the end state of the product development cycle, but extends into the design phase of products and services to ensure security and privacy and that development processes are sensitive to such needs.

Entrepreneurial efforts, which may be focused on keeping costs low and delivering functionality, would require assistance with respect to ensuring their development processes observe established 'security by design' principles and that their outputs can stand the test of

independent code reviews. Regulators who would have previously been largely dependent on observations of financial industry standards by their clients would now have to scrutinise closely FinTech practices in producing solutions and their risk mitigation strategies. FinTechs should be prepared to consider for themselves, and be able to demonstrate to regulators, that their products address risk at various levels including; systemic, operational, reputation, legal, liquidity and fraud

It would be prudent to establish open and public baseline quality assurance standards for potential FinTech and their solutions to be qualified by regulators as part of their interactions with FinTech seeking operational licences. This publicises the barriers to entry which would increase FinTech readiness and raise the level of maturity in information security in software development within the local territory.

Privacy concerns have been expressed internationally on the indiscriminate use of customer data by FinTech.[29] Hence, the Caribbean needs to guard against such abuses.

[29] https://privacyinternational.org/case-studies/757/case-study-fintech-and-financial-exploitation-customer-data

Appendix 1 Stakeholder List

Stakeholders Jamaica
Organisation
Amazing Gains
O'Shane Bryant Fitness
MC System
Xtrinet Ltd
Infinity Partners
Jamaica Credit Union League - CONEC
Bank of Jamaica
MCONEC
Development Bank of Jamaica

Stakeholders The Bahamas
Organisation
BAF Financial
Global Fulfilment Services
Omni Financial Group
Mobile Assist
HODL Group
Next level Solutions
The Central Bank of the Bahamas
Small Business Development Centre
Deltec Bank and Trust
Bahamas Hotel & Tourism Association
Bahamas Entrepreneurial Venture Fund
BAF Financial
Global Fulfilment Services
Omni Financial Group
Mobile Assist
HODL Group
Next level Solutions

Stakeholders Barbados
Organisation
Barbados Cultural Industries Development Authority BCIDA
BCIDA
Adelabus
Artemis Art
CRS Music & Media Ltd
Pricewhirl, www.pricewhirl.com

JNL Traders
Whatnotz
Colour Punch Beauty
Vision Funder
Ten Habitat
Caribbean Transit Solutions
Financial Services Commission
Central Bank of Barbados
BITT

Stakeholders St. Lucia
Organisation
Meme Bete Ltd.
EcoCarib Inc.
eMagine Solutions Inc
Chrycee Musique
Converge Solutions
LBM Designs
Christy Creations
Financial Services Regulatory Authority
1st National Bank St. Lucia
CaribePay
RBTT Bank (Grenada) Ltd
I'm Local - www.imlocal.gd
Grenada Cooperative Bank
Coconut Beach Restaurant
Hangers Grenada
Eastern Caribbean Central Bank
Bank of St. Lucia
Caribbean East, Scotiabank Ltd.

Stakeholders Guyana
Organisation
Rainforest Pottery
Amazon Authentics
Nature's Finest
LWS Designs
Pleasurable Floras
Hit & Jams
Camex Restaurants Inc.
Winedays
Fab Kids 592
Intellect Storm
Digicel
Massy Group (Moneygram)
Republic Bank
Scotia Bank
Financial Intelligence Unit
Bank of Guyana
Chamber of Commerce

Stakeholders Trinidad & Tobago
Organisation
Upmarket Events
Chef Made
Simply Escape 868 (swimwear)
Dida Design Studio
Artist (informal sector)
My Carnival Bands
CDB Design Studio
Paywise
WiPay
Forward Multimedia
Resonance
Massy Group (Sure Pay)
First Citizens Banks
Info Links Services Ltd
Central Bank of Trinidad & Tobago

Appendix 2 Digital Payment System Country Profile

Country	Traditional Bank Services (Electronic)		FinTech (Digital Payments)	
	Point of Sale (POS)	**eCommerce**	**Mobile Financial Service (MFS)**	**Digital Fiat Currency (DFC)**
Trinidad	POS readily available although consumers have complained of onerous process to obtain mPOS (e.g. First Citizen's Bank mFirst) targeting MSMEs including sole traders available with reduced requirements than if entity was limited liability Infolinks Systems Ltd. interbank payment switch present over 20 years	Several banks offering this as a service. Workarounds include linking PayPal account to VISA debit card; however, services available form a prepaid card are limited when compared to range of services from a bank account WiPay to launch payment aggregator type service which would facilitate payments as a checkout option akin to PayPal	Banks offer mobile banking CBTT producing e-money and virtual currency policies which may support mobile money as a subset of e-money TSTT offers Bmobile VISA, which is a product consisting of a prepaid card paired to a mobile app. However, this has limited functionality, e.g. does not offer P2P	CBTT participates in regional Central Bank groups and other fora to keep abreast of issues involving FinTech, blockchain, DFC, etc
Guyana	Seems to be the most cash intensive economy examined in study MSMEs did not have an issue with the application process for POS device however they lamented the low success rate in receiving a device Scotia Bank cited fraud and potential fines from partners as reason for low distribution of POS Interbank payment switch not present; however banks are coalescing around VISA Debit and EMV standard in 2019. EMV adoption lowers fraud and could lead to increased POS distribution	Only Scotia bank offers this as a service targeting larger clients. It is cost prohibitive for MSMEs to acquire this service Chamber for commerce called for legislative and policy reform to introduce eTransactions laws and incentivize eCommerce services and development	GTT offers mobile money, however user adoption seems to be an issue and only large merchants have signed on. GTT engaged local FinTech Intellect Storm to streamline merchant registration and settlement. While BOG previously issued a 'no objection' to GTT's mobile money it does not see its role as having to stimulate innovation. Role identified for Government to stimulate and incentivize innovation	BOG is engaging the World Bank on their National Payment Systems initiatives and capacity building on areas such as FinTech, blockchain, regulatory sandboxes etc may be sought thought this programme BOG as no interest in DFC at this point

Barbados	POS and mPOS (e.g. RBC's EZPay which targets sole traders) are available; however, obtaining the service can take up to 8 weeks in the case of some banks	eCommerce service available but the cost of website integration and the management of PCI compliance is considered prohibitive. One entrepreneur in the creative industry opt to use an international aggregator who management both payment and distribution. This service comes at a cost of over 30% and a settlement time of over 30days, but is preferred over local options	Bitt offers mMoney which is built on a digital currency platform but positioned as a mobile money service.	The government of the Barbados announce a pilot to explore the development of the digital fiat currency. The pilot will operate a regulatory sandbox which will involve the Central Bank, the financial service authority and Bitt.
Jamaica	Jamaica has a well establish financial system with POS and mobile POS services available through the commercial banks. There is also an extensive ATM network with interoperability to a national payment switch. The two local commercial banks (NCB and Sagicor) recently launch mobile point of sales options that's linked to a mobile phone. Following the passing of agency banking regulations, First Global Bank opened its first agent branch in Sept 2017	Ecommerce gateways are available through the banks, however, MSME are either unaware of the service or indicated it was difficult to integrate and manage, due to the perceive complexity setting up and operating the services. The onboarding procedure by the commercial banks to established merchant accounts is also perceived to be intrusive and onerous. Entrepreneurs express much better customer experience when dealing with payment providers overseas, who they felt more value their business.	Several mobile payment options exist; however, user adaptation has been low. Connec, the first mobile provider to launch in the market, suspended services after 3 years. The following services still exist. Digicel/Sagicor MyCash offers mobile wallet and prepaid card to its members and allow transactions with the United States, through a partnership Metropolitan Commercial Bank GK MPay allows for merchant purchases, bill payment, P2P transfer, remittances and rewards. NCB Quisk, allows users to send and receive money, add money from NCB ATMs, do merchant purchases and pay bills	The Bank of Jamaica indicated that there are current no plans for a digital fiat currency at this time

Bahamas	POS and mPOS (e.g. RBC's EZPay which targets sole traders) are available; however, MSMEs seem to have some preconceived notions of these products in terms of cost and the process to attain same Interbank payment switches not present.	eCommerce is deemed costly; the cost of website integration to payment gateway is high in comparison to other territories and may pose a barrier to entry MSMEs believe that it's easier to open bank account in US which they can link to their PayPal account than to take eCommerce service from local bank	Nascent Mobile Financial Services (MFS) development as MTBs including Omni, Suncash and Cash n Go expressed plans to launch mobile apps offering P2P and P2B. New regulation allows for non-MTBs to provide wallet services; MobileAssist intends to provide P2B and B2B services under same	Various banking deficiencies have been identified; commercial bank footprint has decreased from 36 branches in 2011 to 32 in 2018 and 'web shops' provide informal money transmission. The Bank of the Bahamas has issued an open request for EOI on DFC which speaks to a pilot being launched in 30 months. The EOI allows for DFC capacity building in reviewing submissions and learning of various vendors and solutions.
St. Lucia	POS and mPOS e.g. RBC's EZPay which targets sole traders; obtaining the service can take 8 weeks from some banks	eCommerce service available but the cost of website integration to payment gateway (EC $3000) could pose a barrier to entry for MSME	CaribePay from St Kitts and Nevis promotes itself as cashless and is designated as a fund transfer system under the ECCB's Payment Systems. JAD is another digital wallet provider from St Kitts and Nevis.	The ECCB has established an MOU with Bitt to do a retail payment system 18-month DFC pilot

Appendix 3 Case Study - The M-PESA Experience

M-PESA was launched in 2007 and rapidly became successful. There are many factors that contributed to its success: low-cost and secure transactions; transactions conducted via mobile phones; and an intuitive user interface; but the two most influential factors have been ease of access/use, and management of its network of agents. M-PESA is available to everyone with an ID and mobile phone. Once an account is opened, the individual can complete transactions on their phone. The ability to use this simple, yet effective, financial service has resulted in benefits for start-ups and have a means to conduct transactions or those who previously sent remittances via a delivery agent, but can now simply use an app. This previous method of delivery can be costly, and security can be a concern as well. M-PESA can bypass those issues by sending remittances to the phone of the user. The recipient then goes to a "cash-agent," who gives them the money.

When M-PESA launched, they had a network of 400 agents spread throughout Kenya, but primarily in densely populated areas. This initially excluded some members from using M-PESA who were not with in a manageable distance from a cash agent. As the customer base grew, so did the network of agents. From the start, M-PESA knew that they needed to provide a consistent and quality experience at cash agents. They focused on training the agents, because they are the ones who define a customer's experience, build their trust or lose it. M-PESA stresses the need for a consistent experience at a cash agent, despite the location.

In January 2017 there were 110,000 cash agents in Kenya serving 96% of the population. That is 40 times more agents than the number of ATMs in Kenya. (BLUE FN). Through the six years after its launch, M-PESA increased consumption levels, facilitating 186,000 families (~2% of the Kenya's population) to move out of poverty. This impact was more pronounced in female-headed households (more than twice the average). [BLUE FN]. The reason for this could be due to easier access to or more frequent remittances, or women having the ability to work in a sector other than agriculture. The ability to transfer money to anyone with M-PESA has allowed people to start a small business with their phone.

Since it initially launched with 400 agents, M-PESA did not have the number of agents needed to service the entire country, but as M-PESA grew in customer base, the agent network expanded to include more rural areas of the country. Another issue that was initially faced, was not by M-PESA, but the Brick and Mortar Financial Institutions. They were losing customers to mobile money and thusly needed adapted to the shifting market and created partnerships with mobile money services. The most common of these is 'M-Shwari,' which M-PESA clients can use as a bank account that is linked to their M-PESA account. This innovative and integrative solutions have benefited both pre-established financial institutions, as well as M-PESA and its customers.[30]

[30] Sources: http://www.cgap.org/blog/why-does-m-pesa-lift-kenyans-out-poverty; http://www.findevgateway.org/library/long-run-poverty-and-gender-impacts-mobile-money; https://www.mckinsey.com/industries/social-sector/our-insights/mobile-money-getting-to-scale-in-emerging-markets; http://www.findevgateway.org/library/banking-m-pesa-age-lessons-kenya.

Appendix 4 Case Study – Digital Fiat Currency Pilot in the EC Currency Union

In March 2018, the Eastern Caribbean Central Bank (ECCB) announced the signing of an MOU with a Caribbean based FinTech, **Bitt**, to engage in a Digital Fiat Currency (DFC) pilot.[31] DFC is viewed by the ECCB as a potential solution towards a litany of woes plaguing the Caribbean including financial exclusion, the increasing cost of rising cost of financial intermediation and inefficiencies of handling cash and cheques.

The pilot is intended as part of the ECCB's research to test the issuance, usage and destruction of a digital version of the Eastern Caribbean dollar in the retail payment space over a period of 18-month with a targeted start of January 2019. This digital EC dollar will have guaranteed convertibility and will be recognized as sovereign currency. The pilot will be conducted within two Eastern Caribbean Currency Union (ECCU) territories and will include, within each territory, participation of at least one financial institution, two merchants and number of end user participants. The pilot will allow for testing of a digital wallet developed by the ECCB as a 'white box' wallet which can be branded and issued to users as well as allow for the development of wallets by third party developers based on specification stipulated by the ECCB.

Two modes of operation based on value of transactions will be tested. Users with smaller digital EC holdings typically performing smaller transactions, will have all their digital EC dollars stored solely within the digital wallet on their smart device. In event of users with larger holdings, a hot /cold storage methodology will be employed where the DFC issuing FI will hold the majority of the user's funds in 'cold storage' while a smaller portion will be in the user's 'hot' wallet. In the event of the user needing to access fund from the cold storage, a check against the value of holdings in cold storage at the issuing FI is made and the payment is guaranteed and executed via smart contract once the holdings are adequate.

A wide spectrum of users will be targeted for participation in the pilot ranging from school children to teachers to lawyers; however, it is to be expected that more tech savvy end users will volunteer for the pilot. Users registered within the pilot will have to submit to KYC processes before receiving the digital EC dollars. It has been noted from the focus groups with various stakeholders held thus far that security and privacy are the greatest concerns being expressed.

[31] https://www.eccb-centralbank.org/news/view/eccb-to-embark-on-blockchain-pilot-initiative-with-bitt-inc.

Appendix 5 Case Study – Payments System Development in The Bahamas

Since 2015 consolidation efforts by some commercial banks in the Bahamas has been ongoing resulting in the closure of branches placing customers at a disadvantage with limited banking infrastructure in certain Family Islands. Additionally, in July 2015 Fidelity Bank and Trust sought to de-risk its operations by ceasing the operation of the Western Union franchise under its control across all of the Bahamas. Informal money transmission via 'web shops', which came under the remit of Gaming legislation in 2014, still provide an essential service within the Family Islands. At present there are five (5) non-bank entities licensed to operate as MTBs, three (3) of which indicated via this study their intentions towards the development of mobile apps to perform P2P and P2B services. These services are not yet commercially offered but does have the potential to increase domestic payments options for MSMEs. The introduction of Payments Instruments Oversight Regulations, 2017, allows for further expansion of the types of entities, beyond those with MTB licenses, which can operate stored value electronic money products[32].

The Bank of Bahamas itself has taken a lead role towards developing the pathway for the introduction of new digital payments products and services and it lists within its strategic goals "universal access of residents to the means to initiate low cost digital payments". In September 2018, a request for Expressions of Interest (EOI) in the design and implementation of a Digital Fiat Currency (DFC) system was issued. The EOI sets expectations of a pilot DFC to "be in circulation within 30 months, and offer security and versatility over a life cycle process for managing currency that is superior to cash"[33]. The approach of the Bahamas Central Bank in issuing an open and public EOI should be applauded as it allows the regulator to develop capacity in this novel area based upon subsequent review of the various submissions without necessarily committing itself at this early stage to a single service provider or solution.

[32] http://www.centralbankbahamas.com/download/031486300.pdf
[33] http://www.centralbankbahamas.com/download/036923300.pdf

Appendix 6 Case Study - Development of Mobile Money and e-Commerce in Guyana

Guyana Telephone and Telegraph (GTT) via its subsidiary, Mobile Money Guyana (MMG) was granted a 'no objection' letter by the Bank of Guyana to launch their mobile money product which came onto the market in March 2013. Amongst the conditions which GTT had to agree to in attaining this status was that they maintain a cash balance equivalent to the amount of credit issued at any point in time and that operations would be subject to inspection by the BOG. Additionally, they were advised that regulation would be developed to eventually incorporate oversight of mobile money products. This approach allowed GTT to begin service and allowed the Bank to learn about the mobile money product.

However, the MMG service seems to have encountered user adoption issues despite it holding the promise of providing services to the financial excluded. In terms of services, there seems to be a focus on the development of bill payment and merchant payments, however the merchants signed up to the service seem to be large merchants rather than micro or small businesses. There is some development of service enhancements to the platform with a 3rd party local software development company acting as a FinTech, being engaged to streamline qualification, registration and settlement for merchants.

The "National Payments System Development Plan" published by the Bank in March 2018[34] discloses the stark deficiencies in payments in Guyana at present which leads to its classification as a cash intensive economy. The document also charts the course towards reform and earlier this year the National Payment Services Act (2018) came into being as an act of Parliament. Despite this progress the Chamber of Commerce representatives bemoaned the tardy development of eCommerce locally expressing the view that further development of policy, legislation and regulation is required. They also called for Government to incentivize consumer and merchant behaviours towards adoption of digital payments as well as incentivize the private sector to develop solutions.

In response to the question of how the Bank can influence the creation of more responsive payments solution for MSMEs, the representatives reiterated their past efforts towards creating an enabling environment to allow innovation to potentially flourish, via their handling of the GTT mobile money service. However, they also underscored that their remit has traditionally been one of banking supervision and oversight and questioned if they should now be responsible for stimulating innovation in the payments space. Similar to the position of the Chamber of Commerce, they opined that Government needs to play a role and incentivize private sector development appropriately.

[34] https://www.bankofguyana.org.gy/bog/images/Guyana%20BOG%20NPS%20Development%20Strategy.pdf

Appendix 7 Case Study – E-money and Virtual Currency Policy in Trinidad and Tobago

In response to the growth of FinTech globally and numerous expressions of interest which the Central Bank of Trinidad and Tobago has received, the Bank is currently working on development of electronic money (e-money) and virtual currency policies which can potentially increase the number of categories of licenses involving electronic payments which the Bank recognizes. This work is expected to yield results by the end of 2018 following which further work will commence towards the development of comprehensive payment systems legislation in the 2019-2020 fiscal year.

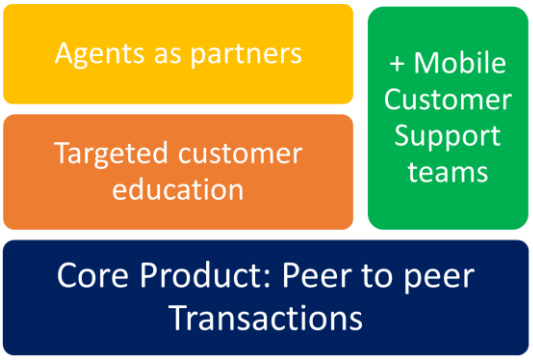
While the bank maintains that the current definition of e-money is broad enough to cover both payment card and software-based products, it is expected that mobile money, as a subset of e-money, and mobile wallets will be further defined in the development of the e-money and virtual currency policies. These policies are expected to have the effect of opening the payments space for non-financial institutions, for example Mobile Network Operators (MNOs), to be able to issue e-money based products and services. Typically, in such a scenario a licensed financial institution may still be required, as a partner within the service offering, to hold user fund.

The Payment System Council, a body made up of representatives of the Bank, the telecommunications regulator, the interbank payment switch provider and other key stakeholders, has within its mandate examination of needs towards more responsive payments systems. It examines needs of government, businesses and consumers and the barriers to using electronic payment systems towards transformation of the payment system. Existing barriers to more a responsive payment system include the lack of full proclamation of key legislation including, the Electronic Transactions Act (2014) and the Data Protection Act (2011).

Appendix 8 Case Study - Mobile Money Turnaround – Digicel Haiti MONCASH

In 2015, four years after its initial launch, Digicel Haiti relaunched and rebranded its mobile money service, changing the name from TchoTcho to MonCash.

Strategy:



Result: Between July 2015 and July 2017, the service grew significantly:

The active 90-day mobile money account base rose from 83,000 to 795,000, an increase of 860%.

Agent activity rate rose from 29 per cent, and 93 per cent.

The value of mobile money transactions increased by 950 per cent and volumes increased by over 2,000 per cent.

The Digicel Haiti MonCash turnaround story shows that mobile money can succeed in Latin America and the Caribbean, when a targeted and coordinated approach to fundamentals is applied.

Appendix 9 Best Practice Guidelines

Taken from "Best Practices for Effective Development of FinTech" Asia Security Industry and Financial Markets Association (ASIFMA), June 2017. These guidelines have been proffered to more advanced Asian countries such as Singapore, South Korea, Japan, Hong Kong, Malaysia and Australia, but are considered instructive to the Caribbean case. We acknowledge that adoption of each of these best practices will require considerable exposure and training of Caribbean regulators in terms of the legal and regulatory frameworks that underpin these initiatives. These guidelines include**:**

Best Practice 1: Support the development and adoption of responsible, safe and secure FinTech products and services, by facilitating dialogue between FinTech participants, financial institutions and policymakers.

Best Practice 2: Work with the industry to explore Regulatory technology solutions to create more efficient and effective regulatory supervision and reporting mechanisms.

Best Practice 3: If required, develop regulatory policies that strike an appropriate balance between innovation, safety, and consumer protection.

Best Practice 4: Ensure consistent regulatory standards are applied to all market participants.

Best Practice 5: Ensure inter-agency cooperation to promote consistency nationally across different sectors impacted by FinTech such as banking, securities, insurance and telecommunications.

Best Practice 6: Enhance cross-border cooperation with other regulators to promote use of best practices, recognition agreements and harmonisation of laws and regulatory requirements.

Best Practice 7: Support industry-driven interoperability.

Best Practice 8: Provide a clear framework and guidelines to allow for cross-border transmission of data for processing and storage.

Best Practice 9: Ensure laws support technological developments.

Best Practice 10: Promote cybersecurity and data security in a globally interconnected financial system.

Appendix 10 Mobile Payment Service Providers in the Caribbean

Mobile Money Service	Sign Up	Remittance	Transaction	CICO (Cash in Cash Out)
MyCash - Jamaica Mobile wallet and prepaid card to subscribers in the United States, with banking partner -Metropolitan Commercial Bank	$0	$5	2.25%	$2
GK MPay - Jamaica Purchases Pay Bills P2P Transfer Remittances Rewards	$0	$4.50-$9.50	$0.05 - $1.11	$0.75
NCB Quisk- Jamaica Send Money Receive Money Add money from NCB ATM Merchant Purchase Pay Bills	$0	N/A	1% + GCT	$0
mMoney - Barbados	$0	N/A	$0.0	$0
Cash n Go - Bahamas				
Omni - Bahamas				
Sun Cash- Bahamas				
GIFT				
CaribePay – St. Kitts				
Wi Pay = TT				

International Payment Providers fees

eWallet	Deposit Fees	Withdrawal Fees	Transfer Fees	FX Fees
Paypal	2.9%+$0.30	Up to $5	2.9%+$0.30	2.8%-5.4%+ Fixed fee
Skrill	1.9% (Credit Card)	7.5 Euro	1.9% up to $20	3.99%
Neteller	1.75%-4.95% (Credit Card)	7.5 Euro	1.9% up to $20	3.99%
EcoPayz	Up to 7%	5-10 Euro	0 to 1.5%	2.99%
AliPay	?	0.1% after 20,000 Yuan	0.1% after 20,000 Yuan	Min 3%
Venmo	3% (Credit Card)	?	$0.25 and Up	Only Dollar to Dollar Transfers

Appendix 11 Support for the Evolution of Caribbean FinTech

Eco-system priority	Proposed Solutions Year 1 - 5	Proposed Solutions Year 5 - 10	Proposed Solutions Beyond Year 10
1. For more effective MSME access, address the Information needs and business risks of commercial banks	1. Technical assistance to MSMEs to help them deliver information needs of banks. 2. Promotion of direct payment MOUs between Pay Pal and SME bank accounts 3. Complete the establishment of e-commerce legislation in each country 4. Create legislation that would protect commercial banks against online fraud 5. Expose/train commercial banks to Best Practice On-boarding strategies to help them improve the cost-effectiveness of adding new MSME clients 6. Enact legislation that allows for financial services providers to offer non-bank aggregator services locally and regionally	1. Introduce credit bureaus and collateral registries across the region to eliminate information asymmetries	
2. User awareness and uptake of new online and digital payment solutions	1. Encourage all Governments to adopt online payment systems to improve both operational efficiency and usage by all citizens. 2. Develop strong "instant" on-boarding programmes including public awareness campaigns of digital payment benefits 3. Establish lifecycle messaging programmes 4. Create Benefit-Oriented messaging systems (i.e. "what's in it for me highlights) 5. Train merchant staff in digital services literacy. 6. Create incentive so that users will be attracted to digital payment programmes		

Eco-system priority	Proposed Solutions Year 1 - 5	Proposed Solutions Year 5 - 10	Proposed Solutions Beyond Year 10
3. Adaptability and agility – in terms of access to and usage of the best technology	1. Encourage joint ventures and venture building between banks and FinTech Start Ups to keep technology access agile 2. Encourage open source tendering to expand access to the best FinTech Technology systems		
4. Regulatory oversight that is conducive to non-financial service sector development with appropriate governance oversight requirements and guidelines	Create FinTech Facilitation Units (FFUs) to: 1. Provide coordinated TA for Regulator Capacity building in global Best Practice guidelines emphasizing: a) dialogue to develop safe and secure FinTech products b) establish Regtech solutions c) develop regulatory products that balance innovation, safety and consumer protection d) establish regulatory standards for all e) ensure interagency corporation f) enhance cross-border cooperation g) encourage industry-wide interoperability h) provide a clear framework for transmission of data		
5. Scalability, especially in terms of local interoperability and in terms of cross-border expansion	1. Regulatory Authorities to encourage harmonisation of regulatory standards and policies between countries – to facilitate regional business establishment (on a broader scale)	1. Establish a digital currency exchange to facilitate cross-border usage of online fiat digital currency products 2. Establish interoperability for movement of mobile money across CARICOM borders	

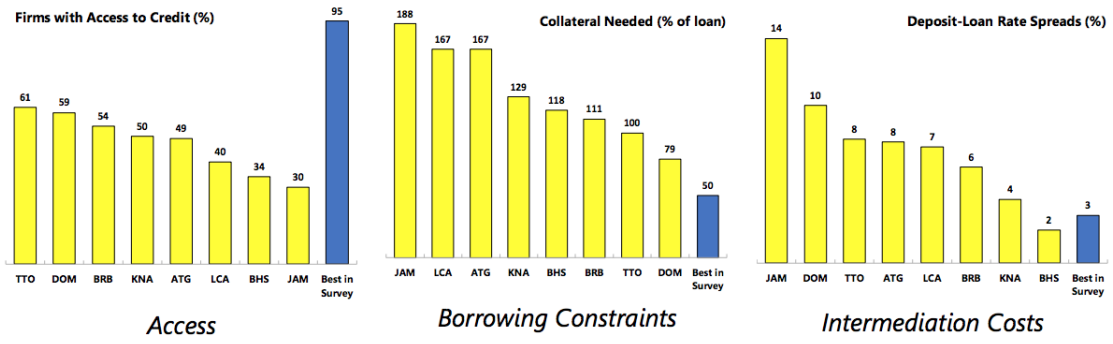
Appendix 12 Access to Finance in the Caribbean

It is well known that, when compared with advanced economies (which serve as proxies for the frontier), most countries in the Caribbean lag behind in related performance indicators. For example, only 48 percent of firms, on average, have access to credit in the Caribbean, about half of the comparative "best" indicator of 95 percent. There are considerable differences in SMEs' financial inclusion as well:

- Constraints are especially severe in Jamaica, which has the highest intermediation cost and collateral requirements and the lowest proportion of firms with access to credit.
- Two notable cases are those of Trinidad and Tobago and the Dominican Republic, with the lowest collateral requirements in the region and the most firms with access to credit. Nevertheless, interest rate spreads are high in both countries, reflecting inefficiencies such as the lack of a unified and modern asset registry, which exacerbates information costs for the lender. Thus, intuitively, firms can access credit and leverage up, but must pay dearly for it: price is used as a differentiating tool.
- By contrast, the Bahamas has higher collateral requirements and very few firms with access to credit, but very low interest rate spreads. Credit market entry costs are high – but leverage is kept at low rates, so funding is relatively cheap for those with access.

The figure below illustrates the differences between countries in terms of firms' access to credit, borrowing constraints and intermediation costs – ranked against "best in survey" in the IMF Working Paper WP/18/53.

Figure 2 Financial Inclusion Indicators for Selected Caribbean Countries



Source: Financial Development and Inclusion in the Caribbean. IMF Working Paper WP/18/53

When compared with "best in survey" barometers, these indicators imply that overall 1) access to finance, and, by implication, access to innovative financial services products in the Caribbean is extremely difficult for MSMEs, 2) high collateral requirements of banks are representative of the banks' above-average risk aversion to lending, and 3) that the cost of borrowing in the region is relatively high – with the exception of the Bahamas.

- **Additional analysis and ideas**

The approach to possible solutions seeks to address the root causes of the constraints identified during the consultation. These root causes are first analysed and then appropriate recommendations are made to resolve them. Some of these root causes relates to cultural and trust issues, which may not be directly related to digital payment systems but impact the complexity of the challenges within the space. When addressing cultural issues, a linear response is often not practical. As such the logic of the solutions recommended followed a non-linear pattern which is captured in Table 3 below. The solution framework offers several recommendations to address multiple root causes and related constraints, which emphasise the need for a holistic approach to resolving the constraints identified.

Table 3 Solution framework: constraints root causes and recommendations

Constraints	Root Causes	Recommendations
Accessibility a major challenge for MSMEs	Burdensome regulations Weak eco-system	Light touch regulations Regulator Sandbox Capacity Strengthening Communication & Education Improved digital solutions
High transaction costs	Burdensome regulations Weak eco-system	Light touch regulations Regulator Sandbox Innovation Hub Improved digital solutions
Lack of awareness of online payment options	Weak eco-system Financial Literacy	Communication & Education Improved digital solutions
Dominance of the cash culture	Risk aversion Financial Literacy	Build Trust in digital payments Communication & Education Improved digital solutions
Regulatory challenges, user literacy low acceptance rate	Burdensome regulations Risk aversion Financial Literacy	Build Trust in digital payments Innovation Hub Regulatory Sandbox Communication & Education
Perceived risks of online payment systems	Risk aversion	Build Trust in digital payments Communication & Education Improved digital solutions
Banker risk aversion	Risk aversion	Communication & Education Light touch regulations Improved digital solutions
Lack of trust	Risk aversion Weak eco-system Financial Literacy	Build Trust in digital payments Communication & Education

- **Root cause analysis**

Resulting from the assessment, the following observations underlie the constraints identified. These are the root causes contributing to the constraints to MSMEs accessing digital payment services. A summary of these root causes is as follows:

1) **Burdensome regulatory environment** which imposes onerous requirement on MSMEs trying to open bank accounts or merchant accounts in order to accept digital payments. This forces some MSMEs to seek alternative payment services outside the region which offer better ease of service and customer experience. These regulations also impact the service provider's ability to create innovative services in response to market challenges. Any solution to this challenge must involve creating relevant regulations that address the needs of the region. The correspondent bank de-risking issue is a challenge which must be addressed in this context. A regional response along with technology application can help to mitigate this challenge for individual banks.

2) **General risk aversion of key stakeholders** such as banks and consumers, emanating from a lack of trust which perpetuates the cash-based culture. To resolve this issue, leadership is required from the governments in the region. A new digital economy must be envisioned, and actions taken towards its realisation if full financial inclusion is to be achieved.

3) **An overall weak eco-system** indicated by low user adaptation rates, limits demand and accessibility to digital payment systems for retail consumers, which has dampened the demand by MSMEs for such services. This includes the effectiveness of the service providers in delivering compelling value propositions which takes into consideration the low levels of financial literacy pervasive in the informal sector. The absence of effective distribution networks through which to engage customers is also a binding constraint. Critical success factors here will be the establishment of an agency network and creating connectivity to the financial system through interoperable services. MSMEs can play a critical role in the building of such agency networks, if they can leverage their existing customer base to become the points of engagement and delivery of digital payment and related services. In some instances, basic attention to utilities is required including telecommunications, internet and electricity to ensure such electronic channels and digital payment services can be utilised

Given the nascent state of the digital payment eco-system, a two-step approach is suggested to facilitate the effective participation of MSMEs in the digital economy. **The first step is to establish the foundations of an enabling eco-system.** This requires regulations that strike a balance between prudence to avoid undue risk, and innovation to build dynamic digital solutions. **The second step is to prompt responses from the service providers**, including the commercial banking sector, to create more innovative solutions to address the constraints affecting MSME access to digital payment services.

- **Developing innovation in financial services**

  -Institutional capacity

The various territories covered had quite different circumstances and levels of maturity in terms of payment systems and hence had varied levels of response to developing innovation in the financial services. Additionally, various levels of understanding of the global payments

space were also observed (see Appendix 2 and Appendix 4 through 7). A common thread, however, within the various territories, was the gap between level of understanding of innovation in the payments space between the service providers and the regulators where the services providers had greater level of knowledge**. Strengthening of institutional capacity within the regulator stakeholder group is therefore strongly recommended.**

Another area which requires addressing is the lack of interaction between these key stakeholders. **Fora to encourage strengthening of communication and interaction towards the charting of the course of digital payments systems development within the respective territory is required.** Such fora can also facilitate service providers with the development of an understanding of the regulators' remit and their need to be sufficiently informed about business processes, risk mitigation, product development and general operations of services providers in the payment space.

-Innovation hub

While an enabling regulatory environment can facilitate the ease with which entrepreneurs are able to bring payment products to market, it doesn't necessarily create a pipeline of innovative products. To encourage such innovations, **regional Governments may need to work together to create a digital innovation hub which can have FinTech as one of its specialisations.** This may need to be tackled at a regional level given the lack of entrepreneurial talent which may exist in any single territory. The hub would serve to provide an environment where start-ups can participate in a shared space with more established FinTech we are already seeing emerging in the Caribbean to build and test their innovations. The benefit of having such innovation under a single roof also extends to the possibility of investors and other key stakeholders to have access to multiple potential offerings at a single location. Such an initiative can also be tied to angel investor networks, venture capital initiatives and the junior stock exchange in territories. Such an initiative would have to be part of a defined strategy towards developing innovation and entrepreneurship, with FinTech as a sub-activity, which may stem from existing programmes within the Caribbean which are seeking to promote economic diversification and digital transformation as strategic objectives.

Comparative analysis of potential solutions

For mobile payment service providers, the following solutions are proposed:

Option 1: Enhance current initiatives. Revising their existing business models to establish interactive channels of engagement that can deliver a simple service relevant to the basic needs of entrepreneurs and their retail customers. The turnaround of performance of Digicel in Haiti is illustrative in this regard (see Appendix 8).

Analysis: this could be an appropriate strategy for existing digital service providers with extensive investments in their existing platforms and which cannot afford more significant investment in their business model. However, this approach would only allow for marginal growth due to lack of access to the capacity and expertise required to effectively manoeuvre in a growing industry.

Option 2: Scale through collaboration. Leverage existing financial infrastructure and agency networks to create a more integrated and connected digital payment eco-system. A possible partnership framework could be one where commercial banks maintain control of the backend of the financial architecture and provide the necessary safeguards and compliance to international standards (capacities they already have to some extent); while allowing FinTech service providers to innovatively build more engaging front-end user interfaces to create new customer experiences and resolve the constraints identified in the digital payment eco-system. Such collaboration could result in regionally based aggregators of digital payment solutions and supply chain management service to respond to the growing demand for a viable e-commerce platform that can facilitate export ambitions of MSMEs in the region.

Analysis: this is a practical evolution from the current digital payment models, which are either bank-led or service provider-led. This approach leverages the best of capacities within the eco-system to deliver a comprehensive payment solution to both MSMEs and their customers. Because this model emphasises partnership, the investment required would not be too significant for any single player. However, allowance would have to be made for system upgrade if necessary and Application Programming Interface (API) integrations.

Option 3: Digital disruption. Some would argue that the Caribbean is so far being the digital age that a complete reimagination of the region's digital economy is required just to catch up to the pace of the transformation occurring on a global scale. This reimagination would start with a human centred design process focus to create relevant value propositions for regional entrepreneurs. This means viewing the region as an integrated eco-system designed to facilitate the development of digital engineers would solve regional and global challenges. This could start by creating a new regional payment system, based on Central Bank fiat currency that would allow for seamless regional transactions (P2P, B2B, B2C, government payments and cross-border transactions, etc.). A regional payment system would have better leverage in tapping global payment platforms which could facilitate direct bank connection, and thus reducing regional anxiety over de-risking concerns. Further the creation of a consensus-based

digital identification system, with built-in KYC features and the partial or full automation of the AML/CFT compliance process through AI driven data analytics, could significantly reduce the cost of managing regulatory reporting obligations. Such a platform could be game changing, not just because of the elimination of the frictions in the current digital payment eco-system, but because of the number of services which could be stacked on the platform to create a fully inclusive financial landscape.

This is a radical approach which could give rise to a new generation of globally competitive digital native entrepreneurs. However, the key challenge will be collaboration and long-term investment which is required to sustain such an initiative has not been very evident in the region.

Appendix 13 Barbados Regulatory Sandbox

On October 23rd, 2018, the government of Barbados announced the establishment of a regulatory sandbox framework: "The Central Bank of Barbados (CBB) and the Financial Services Commission (FSC), the nation's two financial regulators, have established a Regulatory Sandbox where entities can do live testing of their products and services. The purpose of this Regulatory Sandbox is two-fold. For businesses, it allows them to test the feasibility of their innovations in a real-world, but controlled, environment. For the Regulator, it provides an opportunity to better understand the nature of the product or service and by extension to determine whether the existing regulatory framework is sufficient, or if a new type of legislation is necessary. The ultimate aim is to ensure that innovative technologies are not stymied, while at the same time protecting Barbadians and the financial system."

The new administration which took office in mid-2018 was faced with the harsh realities of stagnating economic growth, looming concerns related to de-risking of international correspondence banking relationship and navigating the edges of a debt crisis amongst other issues. Meanwhile, there were a confluence of global and domestic trends which enabled such a bold strategic positioning. In 2017, the global market capitalization of crypto-assets grew 500% to reach more than USD$900 billion. Initial Coin Offerings (ICO) increased exponentially by raising approximately USD$6 billion. ICOs represent a new form of financing strategy for companies that use blockchain technologies to transfer value, rights, access, or other digital functionalities. On the local scene, FinTech innovations are emerging too. The Barbados Stock Exchange announced a partnership with Polymath, a Toronto-based ICO start-up which aims to launch the 'world's first' regulation-compliant security token fund. Additionally, the Aion Network established a blockchain platform from Barbados and collaborated with the Ministry of Education and the University of West Indies to offer workshops and courses focused on blockchain technologies. Bitt's digital wallet which also builds on decentralised networking technologies has expanded to approximately 500 merchants and 5,000 wallet users within a year.

Shortly after, the Barbados-based fintech company called Bitt participated in the sandbox to share information during the testing of its mMoney solution which enables mobile wallet users to send, receive and store digital dollars with registered merchants. The Sandbox Regulatory Review Panel (RRP) expects to issue its initial recommendations and regulatory guidelines in January 2019. This collaboration between the authorities and the private sector illustrates the government's commitment towards digital transformation and may lead to foreign direct investments from growing financial and regulation technologies companies (fintech and regtech).

The disruptions in the financial services landscape by these emerging technologies represent significant opportunities to improve the efficiency of existing financial offering and introduce new services which could deepen financial inclusion and enable Caribbean MSMEs to grow. However, these positive innovations involve risks which must be properly assessed and analysed. Regulators are rightfully concerned about the stability of their financial system and

consumer protection to prevent incidences of data breach, cyber hacks, money laundering or other fraudulent and illicit activities. On the other hand, one of the major constraints to the emerging fintech sector is the uncertainty relating to the regulatory response which could stifle innovation. For example, the sell or exchange of digital tokens on blockchains to provide access to specific services or information creates confusion among regulators. The lack of clarity on the treatment of these digital tokens (security or utility) has critical implications for the high-tech companies and their investors. However; given the complexity and evolving nature of these emerging technologies, there are limited ways other than reviewing the documents provided and analysing the substance through a trial period to determine the true nature and implications of a digital record on a decentralized network such as blockchain.

The Barbadian regulators seem to be aware that regulatory clarity is of critical importance to the evolution of FinTech innovations and have followed the global trend of developing a "regulatory sandbox" to foster growth of the sector. The requirements for transparency during the trial period could be useful for planning the regulatory convergence in the region. In any case, the regulatory sandbox should facilitate the decision-making process about regulatory treatment in the context of uncertainty, ambiguity or rapid change, while empowering regulators to allow constructive disruptions strategically as their economy transition into the 4th industrial revolution.

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