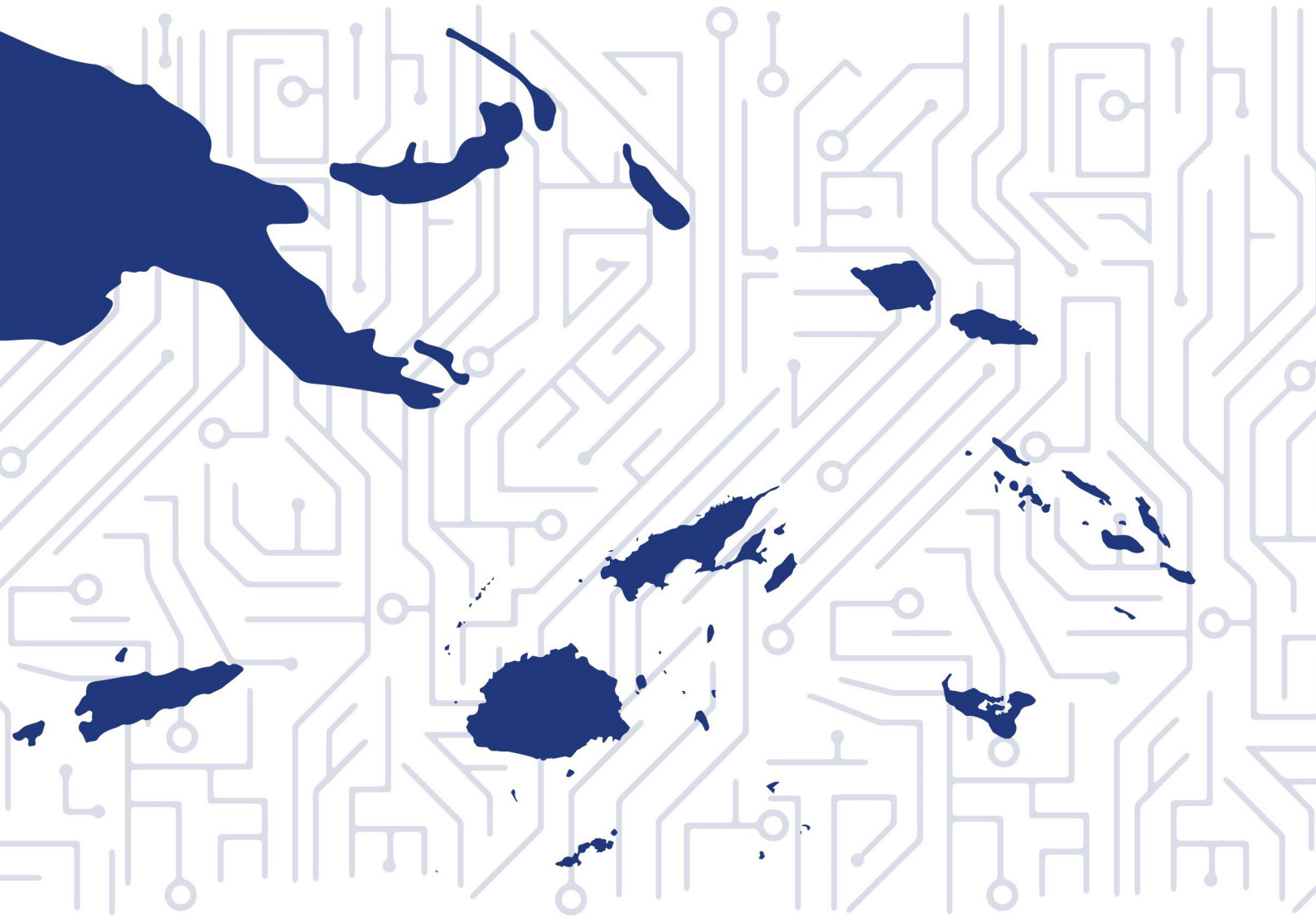


The Opportunity for Digital and E-commerce Payments in the Pacific Region

This publication is brought to you by the Pacific Digital Economy Programme (PDEP) which is jointly administered by the United Nations Capital Development Fund (UNCDF), United Nations Development Programme (UNDP) and United Nations Conference on Trade and Development (UNCTAD). The programme receives funding from the Australian Government.

This research was conducted and written by LFS Advisory, Chris Statham, Konstantin Schroeter, Marius Siebert, and Samuel Chari. Reviews of the report and additional inputs were provided by Kapronasia (KA), Zennon Kapron and Sri Ranjani Mukundan with contributions from UNCDF Country Coordinator in Solomon Islands Sam Mulawa, UNCDF Regional Technical Specialist – Ecosystem and Incubation Ajay Jagannath and UNCDF Pacific Lead, Bram Peters.

UNITED NATIONS UNCTAD

UNDP

UNCDF
Unlocking Public and Private Finance for the Poor

Check out our website
www.uncdf.org

Twitter
@UNCDFdigital

Facebook
@UNCDF

Executive Summary

Pacific Island countries have unique demographic attributes characterized by low and scarce populations and high migration rates. Due to this, the economic heft of the Pacific Islands is also limited, with a cumulative regional GDP of USD 32 billion (GDP per capita of USD 3,600) as of 2020, as compared to neighboring Australia with ~USD 1.3 trillion (GDP per capita of USD 51,812). The Pacific Islands are also one of the least densely populated regions in the world, with ~34 people per square kilometer. Apart from the demographic constraints, the Pacific Island countries have limited natural resources and a large proportion of the Pacific Islander population living overseas in Australia and New Zealand, thus leaving the region highly dependent on inward remittances.

Despite efforts taken by individual Pacific Island countries to develop payments infrastructure, several challenges have constrained progress. Firstly, the demographic challenge of small and scarce populations, characterized by low economic resources and poor financial and technology literacy rates, has limited the uptake of newer technologies. Secondly, the ecological fragility of the countries' locations makes infrastructure projects such as undersea data cables challenging. Thirdly, the current payment infrastructures are not interoperable, making cross-border transactions highly cumbersome. Finally, a lack of uniform regulations to govern digital payments, rigid existing regulatory requirements, and the lack of ancillary regulations covering areas such as data privacy and cybersecurity further exacerbates the challenge and has left one-third of the region's population lacking access to formal financial services.

The emergence of FinTech and other non-bank financial services providers could be an opportunity for the Pacific Island countries to increase financial inclusion and support overall economic growth, especially if the region focuses on establishing interoperable and accessible digital payment infrastructure. In many other regions and jurisdictions worldwide, digital payments have helped bring individuals into the formal financial ecosystem and find new sources of economic growth including E-commerce. Digital payments also provide the base-level digital finance infrastructure on top of which other services such as lending and investing can be built. However, the current payment infrastructure in the Pacific Islands is lacking, both in terms of provision and uptake.

To overcome these challenges, the region needs to focus on three areas: Firstly, to **overcome infrastructural challenges,** governments should setup up a pan-regional central payment infrastructure to enable real-time, interoperable cross-border payments. The system should be based on open banking principles and best practices including APIs and ISO20022 messaging standards to allow for seamless implementation and interoperability. The platform should also include an E-commerce gateway and standardized and interoperable QR code functionality to enable E-commerce payments as well as simplify in-person point of sale payments. As intra-regional payment volumes are somewhat low, the focus should be on central payments infrastructure that both aggregates existing digital payments platforms, such as those in Papua New Guinea, as well as allows for other Pacific Island financial institutions without existing central payment infrastructure, to connect into the regional payment system.

Secondly, to **overcome regulatory hurdles,** governments should look at establishing uniform payment regulations in general and more specifically around licensing, easing current onboarding regulations without compromising on AML/CFT requirements, and developing ancillary regulations covering data privacy and cybersecurity based on international standards. The Pacific Island countries should also look to establish a National Digital ID system to help service providers carry out eKYC for onboarding and digital authentication to streamline digital finance transactions.

Lastly, to **increase consumer adoption of digital payment solutions,** financial and technology 'literacy' rates should be improved by mandating short courses as part of the school curriculum as well as conducting workshops and public awareness campaigns to reach people in remote locations. This will help not only spur adoption of digital payments and financial services, but will equip the next generation with value-added skills for the 'new economy.'

In conclusion, the Pacific Island countries have an opportunity to leverage digital payment solutions to help provide equitable access to financial services as well as potentially improve economic conditions. However, what is necessary for the success of these recommendations is a multi-stakeholder engagement strategy to make sure all parties are involved, well-informed, and on the same page which will be a key element of success.

Contents

List of Figures

List of Tables

List of abbreviations

ADB	Asian Development Bank
AFI	Alliance for Financial Inclusion
AML	Anti-money laundering
API	Application Programming Interface
BPNG	Bank of Papua New Guinea
CAGR	Compounded Annual Growth Rate
CBS	Central Bank of Samoa
CDD	Consumer Due Diligence
CFT	Combating the Financing of Terrorism
COMESA	Common Market for Eastern and Southern Africa
DFAT	Department of Foreign Affairs and Trade (Australia)
DFS	Digital Financial Services
DSS	Demand Side Survey
EFT-POS	Electronic Funds Transfer at Point of Sale
EGDI	E-Government Development Index
EIB	European Investment Bank
EMV	Europay, Mastercard and Visa
EU	European Union
EODB	Ease of Doing Business
GDP	Gross Domestic Product
GSMA	GSM Association
HR	Human Resource
ICT	Information and Communication Technology
IFC	International Finance Corporation
ITU	International Telecommunication Union
KYC	Know Your Customer
MCIL	Ministry of Commerce, Industry, and Labour
MFAT	Ministry of Foreign Affairs and Trade (New Zealand)
MNO	Mobile Network Operators

MSME	Micro, Small, Medium Enterprises
MTO	Mobile Telecommunication Operator
NFIS	National Financial Inclusion Strategies
NZD	New Zealand Dollars
PAPRI	Pacific Payment, Remittances and Securities Settlement Initiative
PWGR	Pacific Working Group on Remittances
PFIP	Pacific Financial Inclusion Programme
PNG	Papua New Guinea
POS	Point of Sale
QR code	Quick Response Code
RACI	(Stakeholder) Responsible, Accountable, Consulted, Informed Matrix
SDG	Sustainable Developmental Goals
TDB	Tonga Development Bank
TVET	Technical and Vocational Education and Training
UNCDF	United Nations Capital Development Fund
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USA	United States of America
USD	United States Dollar
USP	University of South Pacific
WMBL	Women's Micro-Bank Limited

1. Research Methodology

The primary objective of this report is to explore how to increase the adoption of digital payments in the Pacific Islands region and the potential for regional payment aggregation. The key research objectives that guide the structure of the report are as below:

Key research objectives:

1. **Assess current state and trends of the payments sector** of Papua New Guinea, Fiji, Solomon Islands, Vanuatu, Samoa, and Tonga.
    a. High-level mapping of the payment sector emphasizing the regulatory oversight and policy environment
    b. Access levels and usage of various payment instruments in the markets
    c. A timeline of the introduction of policies and market developments (including infrastructure developments) related to digital payments
    d. Current legal and policy issues of concern to regulators and market participants.
2. **Deep dive into current state and trends of digital payments** in Papua New Guinea, Fiji, Solomon Islands, Vanuatu, Samoa, and Tonga.
    a. Quantify current demand and future projections for E-commerce payments in the Pacific region
    b. Identify opportunities and barriers in the digital payments ecosystem across the Pacific Island countries
    c. Potential legal and regulatory constraints
3. **Develop a roadmap that includes:**
    a. Recommendations for ways in which the governments, private sector, and other stakeholders can promote the uptake of E-commerce payments.
    b. Specific recommendations for potential solutions/incentives to address opportunities and constraints for E-commerce payments aggregation services.

The existing report by LFS Advisory has been used as the primary reference point for gathering and reorganizing the information. On top of existing documents used for secondary research by the LFS Advisory Team, Kapronasia conducted secondary research where necessary and updated figures/tables based on the latest data.

2. Introduction

The Pacific Islands region consists of 14 countries with an overall population of about 11 million people, 75 percent of whom live in Papua New Guinea. The countries are archipelagic and are characterized by their remote and isolated geography. This study focuses on six of the 14 countries: Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu. These countries share similar demographic characteristics and are in nearly identical phases of development. However, according to the World Bank, some of the Pacific Island countries—Vanuatu and Samoa, are among the least-developed countries in the world as measured by GDP per capita.

Several studies have concluded that E-commerce could be a way for the Pacific Islands to increase their overall economic growth.[1] However, any existing successful E-commerce market has relied on a solid payment infrastructure to enable the development of the industry. China's E-commerce industry began when Alibaba launched the C2C focused Taobao and B2C-focused Tmall platforms. Still, the industry only started to grow measurably when Alibaba launched Alipay as a purpose-built E-commerce payments platform. Amazon largely relies on credit cards, and eBay had PayPal as their primary payment method, at least initially.

However, despite a significant amount of discussion, the Pacific Islands payments infrastructure is still underdeveloped, and the region remains one of the least banked geographies globally.[2] With low economic development and a small and disbursed population characterized by poor financial literacy and technology uptake, establishing robust payment infrastructure has remained challenging for the region. The region's geographic layout and ecological fragility have also curtailed further extending physical infrastructure such as undersea data cables.

However, with new FinTech platforms and solutions, and more accessible payment systems, there is a unique opportunity to increase financial inclusion in the Pacific Islands especially as the COVID-19 pandemic has pushed more of the region's population to adopt digital payments.[3] As more of the population has access to the internet and smart devices, there is a new possibility of digital-first payment solutions similar to what we have seen in other emerging and underserved markets across Asia. Yet, a basic payment infrastructure capable of supporting both online and offline payments remains a critical prerequisite.

The development of such an infrastructure requires the involvement of multiple actors within the ecosystem, including private and public parties. As the development of payments infrastructure is typically costly without a clear breakeven, regulators need to be part of the discussion and instigators in developing innovative and new payments infrastructure. The possibility of accomplishing the same in the Pacific Islands requires commitment, a clear strategy, as well as economic incentives.

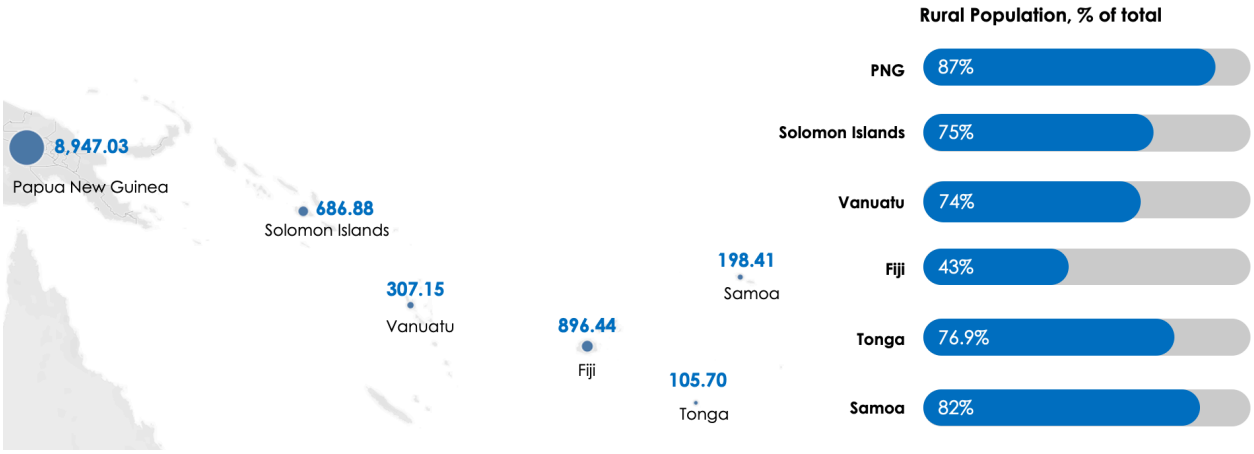
The objective of this report is to explore how to advance digital payment adoption in the Pacific Islands and how digital payments aggregation could help drive economic development. We will start by discussing the current demographic and digital landscape, then we will look at the key challenges and opportunities in developing digital payment infrastructure, and finally we will end by putting forward a number of recommendations to establish digital payment platforms which may help in the overall uptake of digital financial solutions.

[1]Pacific Islands Forum; Asia Development Bank
[2]UNDP's Pacific Financial Inclusion Programme (PFIP): http://www.pfip.org/about/what-we-do/ deepening-access/
[3]https://blogs.adb.org/blog/covid-19-has-created-digital-opportunities-pacific

2.1. Demographic and economic outlook

To better understand the feasibility of a pan-regional central payments infrastructure in the Pacific Islands, it is important to understand the existing regional landscape. The six countries in this study share similar demographic and economic characteristics and challenges. The region is one of the least densely populated globally, with only 34 people per square kilometer and the majority living in rural areas (see Figure 1). With a total regional population of 10.7 million in 2018, PNG, Fiji, and the Solomon Islands account for almost 94 percent of the overall population.[4] Emigration is high, with many migrants searching for better jobs and livelihoods outside of the region, especially in Australia and New Zealand, leaving the Pacific Islands heavily dependent on inward remittances.

FIGURE 1: Total population (in thousands) and percentage of rural people, 2020[5]



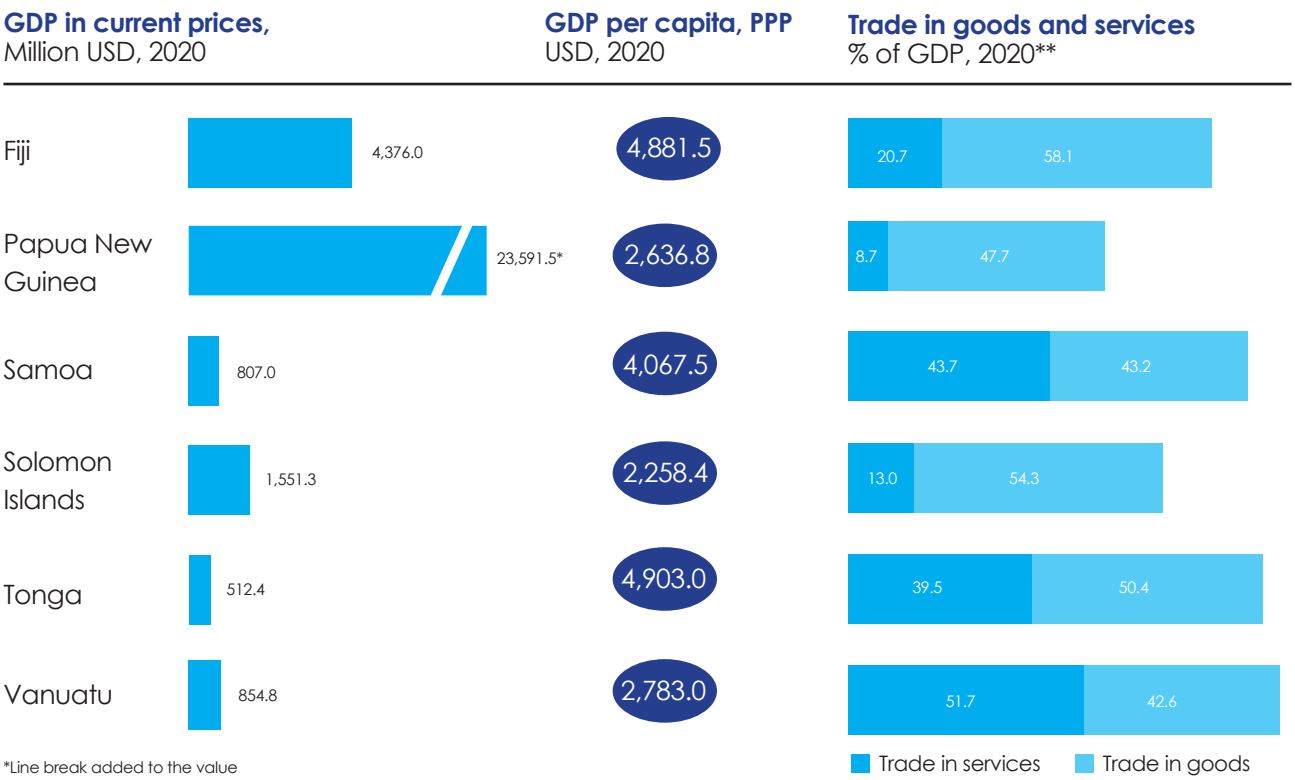
Source: World Bank Development Indicators, 2018

Due to the small and scarce population, economic growth and opportunities in the region are limited, leading to a significant financial dependence on the nearby economies of Australia and New Zealand. The Pacific Islands have also been identified as one of the most disaster-prone regions globally, primarily due to climate change, and face a considerable risk of flooding and frequent cyclones. According to the World Risk Report 2020, five out of the six Pacific Island countries included in this report are ranked in the top 15 countries most vulnerable to natural disasters globally, with Vanuatu topping the list with the highest risk in the world. This risk often hinders the commissioning of infrastructure projects in these countries.[6]

The GDP of the Pacific Islands has grown at an average of 6.3 percent CAGR in the last three decades (1990 to 2019). Most of the region's GDP is dominated by trade in goods and services with a significant amount of the region's exports coming from commodities; the much smaller services trade is dominated by tourism and tourism-related services. The small size of the economy and production base has led to diseconomies of scale for many businesses, hindering the growth of services in the island countries. Apart from the economic indicators, the Ease of Doing Business (EODB) score for many of the countries is also relatively low, with Fiji ranking 102 out of 190 countries with a score of 61.4 out of 100 and Vanuatu ranking 107 with a score of 60.7. This compares to global leaders New Zealand, ranked first with 86.8, and Singapore ranked second with 86.2.

[4]World Development Indicators, World Bank, 2018
[5]Ibid (see footnote 2)
[6]World Risk Report 2020, Relief Web, https://reliefweb.int/sites/reliefweb.int/files/resources/WorldRiskReport-2020.pdf

FIGURE 2: Select economic indicators in Pacific Island countries



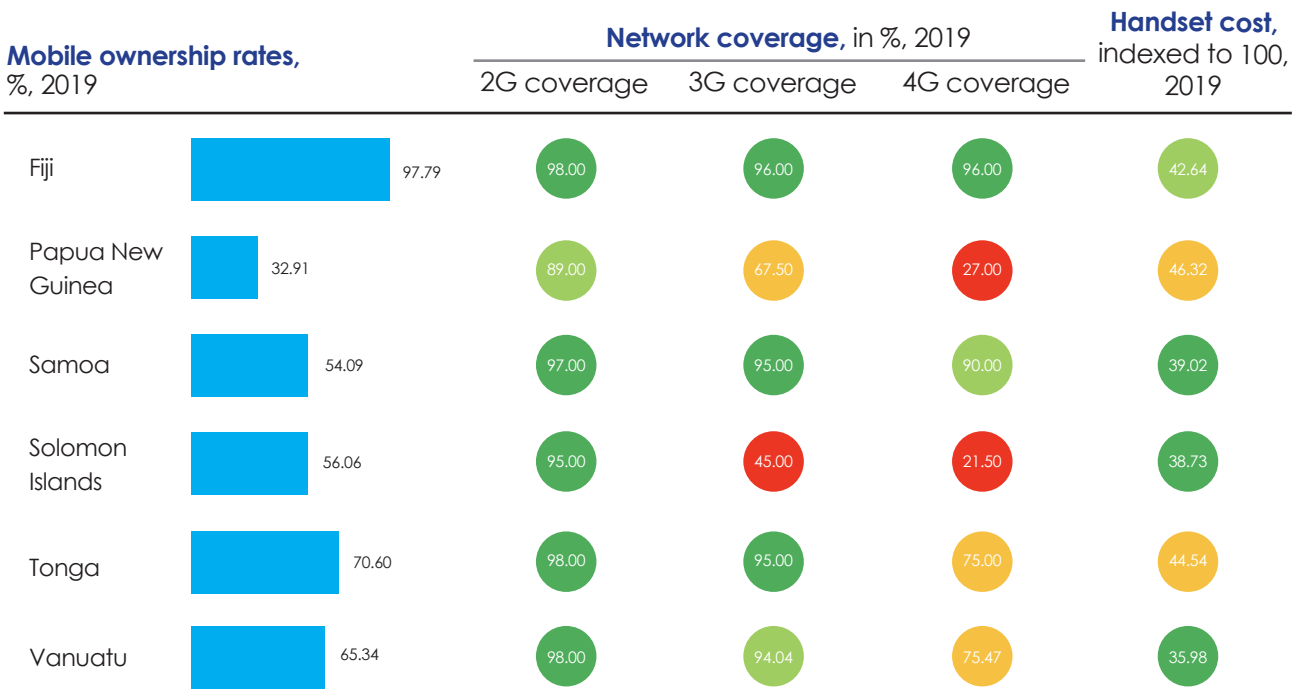
*Line break added to the value
**For Merchandise and Trade in Services, numbers for PNG, Samoa, Tonga and Vanuatu are from 2018 or 2019 as it is the latest data available

Source: World Bank Development Indicators, 2020

2.2. Digital infrastructure and access

The Pacific Island countries have made a significant effort to expand their digital infrastructure in the last few years, enabling more people to go online. As a result, mobile ownership rates have increased by an average of 16.0 percent over the five years (2014-19), led by Vanuatu, where mobile ownership grew 26.3 percent over the same period. The average mobile ownership rates in the Pacific Islands countries stood at 62.0 percent in 2019; however, the inter-country differences are still high—with Fiji at 97.8 percent and PNG as low at 32.9 percent. In addition, there are differences among and within the countries, with urban areas having widespread access to mobile phones and networks and rural regions still lagging. Regarding internet coverage, the region has high 2G and 3G coverage at 96.0 percent and 81.4 percent respectively on average; however, the 4G connections are still low at 64.0 percent, mainly due to poor 4G coverage rates in PNG and the Solomon Islands.

FIGURE 3: Mobile ownership and internet coverage rates in the Pacific, 2019[7]



Source: GSMA Mobile Connectivity Index, 2019

Apart from the basic digital infrastructure metrics such as mobile ownership rates and internet coverage, the Pacific Island countries have a relatively low score on other digital readiness dimensions such as mobile phone and service affordability and basic ICT skills, as captured by the GSMA Mobile Connectivity Index (see Figure 4), which examines and ranks different countries based on a host of data points—from infrastructure to consumer readiness. With the exception of Fiji and PNG, whose GSMA Mobile Connectivity Index scores are high due to consumer readiness and basic skills, most Pacific Island countries perform poorly on all dimensions. Furthermore, all countries (including Fiji and PNG) perform poorly in terms of affordability, and content and services dimensions, highlighting a clear challenge.

[7]GSMA Mobile Connectivity Index, 2019; https://www.mobileconnectivityindex.com/#year=2019

FIGURE 4: GSMA mobile connectivity index for select Pacific Island countries, 2019[8]

Source: GSMA Mobile Connectivity Index, 2019

The region has also recently upgraded its international network connectivity. In 2018, Fiji was connected to the Tui-Samoa undersea cable, which then connects to the South Cross cable, which has direct links to the US and New Zealand.[9] At the end of 2020, the Pacific Islands were connected by 12 fiber-optic submarine cables through the World Bank's Pacific Regional Connectivity Programme.[10] In addition, the Coral Sea Cable System, a 4,700km long fiber-optic submarine cable system linking Australia, PNG, and the Solomon Islands, was launched in June 2020. These connectivity improvements have decreased the cost of internet access and consequently increased internet penetration.

[8]Ibid
[9]The Mobile Economy Pacific Islands, 2019, GSMA; https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/03/GSMA_MobileEconomy2020_Pacific_Islands.pdf
[10]TeleGeography Submarine Cable Map, https://www.submarinecablemap.com/

3. Key Findings

The key findings from the research have been summarized into three areas:

Firstly, the report looks at the current trends in regional digital payment systems, including an overview of existing service providers and the current digital adoption rates. Secondly, the report examines the current state of the E-commerce payments system and quantifies the future demand by sector. Finally, the report reviews the key challenges in digital payment aggregation in the Pacific Islands, including infrastructure, regulations, and demographics.

3.1. Trends in digital payments

The financial sector in the Pacific Islands is dominated by the banking sector—with total assets of the latter ranging from as low as 50 percent of GDP in the Solomon Islands to over 100 percent in Vanuatu. However, retail bank deposits as a percentage of GDP remain low, signaling a large underbanked population in these countries. Only a few banks operate in the Pacific Islands, with some countries served by only one institution. Most of these are foreign-owned, operating through partnerships with regional banks. With the introduction of mobile banking and other digital financial services in the region, financial inclusion is expected to increase along with improvements in access to banking services.[12]

Online banking in the Pacific Islands is primarily delivered through traditional banks.[13] PNG's MiBank was one of the first movers to introduce a mobile wallet (MiCash) in 2012 to promote banking among the rural population living in isolated parts of the country. Many other big banks in the region, such as Bank South Pacific, ANZ Group, and Westpac, have also developed their own mobile money wallets and online banking services. In addition, many mobile network operators (MNOs) have initiated digital payment services in the region, including Vodafone's M-PAiSA and Digicel's Mobile Money.

The high migration (rural-urban) and international emigration rates in the Pacific Island countries have led to inward remittances becoming an integral part of the region's GDP. In 2013, the PAPRI initiative (Pacific Payment, Remittances and Securities Settlement Initiative) by the World Bank conducted assessments of the existing national payment systems in the Pacific Island countries and suggested ways to ease the process of remittances and reduce transaction costs due to the high dependence of these economies on remittances. In 2019, personal inbound remittances accounted for 37 percent of GDP in Tonga and 17 percent of GDP in Samoa, compared to the global average of 0.7-0.8 percent of GDP. This trend of high dependence on personal remittances has been increasing over the last decade.

[11]https://www.imf.org/external/pubs/ft/wp/2015/wp1596.pdf
[12]Ibid
[13]Digital Financial Services in the Pacific, Asian Development Bank, https://www.adb.org/sites/default/files/publication/182300/digital-financial-services-pacific.pdf

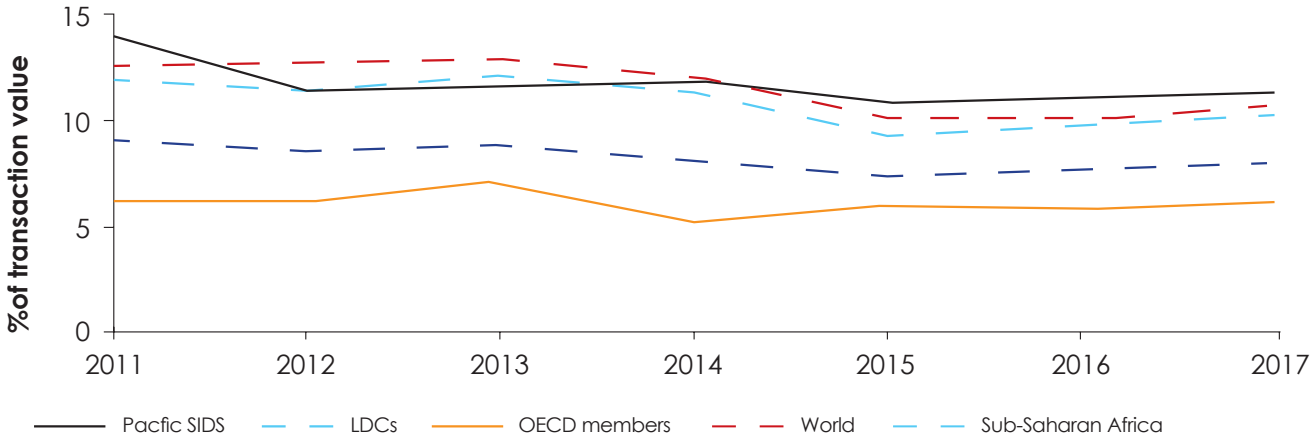
FIGURE 5: Personal remittances received in select countries, 2020[14]

Note: The latest data available for personal remittance as % of GDP for Tonga is as of 2019

Source: World Bank Daevelopment Indicators

However, despite the massive dependency on remittances, transaction costs of sending remittances are still high (see Figure 6). Though transaction costs fell from ~14 percent of total transaction value in 2011 to ~12 percent in 2012, they have remained stubbornly high ever since and are higher than other developing countries. Despite banks promoting online banking and improving agent distribution channels, transaction costs have not decreased significantly. To address this issue, new online channels have been promoted by the regulators and developmental partners in these countries.

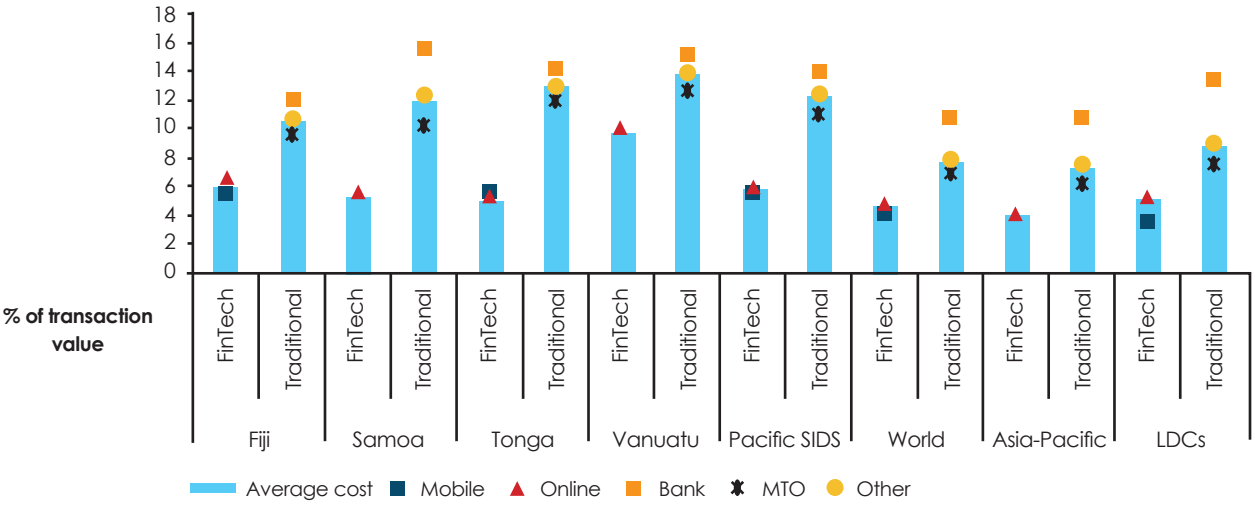
FIGURE 6: Transaction costs of sending remittances, 2011-2017[15]



Source: FinTeching Remittances in Paradise, UNESCAP

With newer FinTechs entering the market, the average transaction cost of sending remittances through digital channels has come down, approaching the global average costs. As a result, there has been a substantial shift to digital remittances, a transition accelerated by COVID-19.[16]

FIGURE 7: Average cost of sending remittances by type of channel, 2016 Q2 to 2018 Q4[16]



Source: FinTeching Remittances in Paradise, UNESCAP

To help lower costs and create efficiencies, the Pacific Working Group on Remittances (PWGR) is working on the regional integration of payment systems to settle remittances and foreign currency exchanges. The target is to reduce the transaction costs of migrant remittances to less than three percent and eliminate remittance corridors with costs higher than five percent, in line with the UN's Sustainable Development Goals 2030. While this is a notable effort, it may just create a patchwork solution rather than a future-proofed approach to payment innovation; this is discussed in the recommendations.

[15]Ibid
[16]Ibid

3.1.1. High volume use cases

Many local banks, FinTechs, telecom operators, and even central banks are engaged in providing digital payments in the Pacific Island nations. A few examples are as follows:

- In 2017, **Tonga** Development Bank (TDB) launched the Ave Pa'anga Pau voucher that enabled Tongan diaspora and seasonal workers in New Zealand to remit funds to Tonga. Using this service, the remitter could deposit money into their New Zealand TDB account, and the recipient would be able to receive it in Tonga. Completing the transaction required the recipient to have an account with TDB, which simultaneously helped address the issue of financial inclusion in Tonga. The cost of sending remittances using this voucher was 4.6 percent compared to the average of 9.7 percent across both online and traditional remittance channels. Between June 2019 and February 2020, Tongans received remittances worth the equivalent of USD 5.2 million. Following its success in New Zealand, this service was launched in Australia as well in 2020, with the help of the PFIP.
- In 2017 in **Fiji**, Vodafone deployed 1.2 million E-Transport cards to help the local transport system go digital. The cards allow users to load money via M-PAiSA, which has been used by nearly 85 percent of Fijians with over 550,000 cards active on a 30-day basis.
- In 2018, **PNG** launched the Mama-Bank Access Point, an online banking solution to provide essential financial services to unbanked women in rural areas.[17] This is a pilot initiative undertaken by the Women's Micro-Bank Limited (WMBL) in partnership with the PFIP. Through this program, almost 10,000 women have been enrolled biometrically and also have been helped to save more of their income.
- In 2020, SolaPayGo, a solar power provider in **PNG**, came up with a pay-as-you-go service using airtime credit (for Bmobile Vodafone users) and other mobile banking platforms such as those operated by Bank South Pacific and MiBank. Through this, they have reached over 9,000 households in PNG.
- In 2019, **Solomon Islands** launched youSave, a voluntary pension saving scheme. The account allows members to save money for a pension through either their offices or ANZ Bank's goMoney digital channel and their agents. Over 25,000 Solomon Islanders have signed up for the service so far.
- Since 2018, the National Bank of **Vanuatu** has been converting 27,000 existing passbook-based manual account holders to a digital POS-based account platform. They also aim to add 14,000 more new accounts, primarily targeting farmers and the rural population.

3.1.2. Actors in the ecosystem

- Several challenges limit the growth potential of payment solution providers in the Pacific Islands, the most prominent of which is the small and dispersed population. This impedes realizing economies of scale, thereby threatening the sustainability of these businesses. However, the cost-efficiency digital payments provide has attracted many players in recent years.
- This sub-section will briefly discuss existing players—both traditional (banks) and non-traditional service providers (such as MNOs, and online service providers of payments) including telecom players who provide the enabling environment for transactions to take place. The below table gives a quick overview of current service providers in the region, and the countries they operate in.

TABLE 1: List of regional service providers

Name	(Regional) HQ	Countries of operation
MNOs		
Vodafone	Fiji	Samoa, Tonga, Vanuatu (also Kiribati, American Samoa and the Cook Islands), Solomon Islands
Digicel	Papua New Guinea	Fiji, Nauru, PNG, Samoa, Tonga, Vanuatu
Banks (excluding Central Banks and Regulators)		
National Bank of Vanuatu	Vanuatu	Vanuatu
MiBank	Papua New Guinea	Papua New Guinea
Tonga Development Bank	Tonga	Tonga
National Development Bank of PNG	Papua New Guinea	Papua New Guinea
National Bank of Samoa	Samoa	Samoa
Bred Bank	Independent Offices	Fiji, New Caledonia, PNG, Solomon Islands, Tahiti, Vanuatu
Bank South Pacific	Papua New Guinea	Cook Islands, Fiji, Samoa, Solomon Islands, Tonga, Vanuatu
ANZ Bank	Independent Offices	Fiji, PNG, Samoa, Solomon Islands, Tonga, Vanuatu
Westpac Bank / Kina Bank	Independent Offices	Westpac PNG and Westpac Fiji were sold to Kina Bank in 2021
PSPs		
Kovina	Australia	Regional merchant payments targeting the tourism sector
KlickEx	New Zealand	Regional payments system provider, MTO, currently developing the Tonga national switch
UnionPay's Quick Pass	N/A	Partnered with ANZ to launch Quick Pass, a tap & go payment solution for UnionPay cardholders operating in Fiji, Tonga, Samoa, Solomon Islands and Vanuatu

Source: Kapronasia analysis

Apart from existing MNOs, Banks, and PSPs, multiple online payment gateways exist in these countries. These online payment gateways play a huge role in inward and outward remittances from one country to another. Oftentimes, the existence of such online platforms helps reduce the overall transaction costs involved in remittances.

[17]PHB Development, https://phbdevelopment.com/mama-bank-access-points-in-rural-papua-new-guinea/

FIGURE 8: Online platforms operating in the Pacific[18]

	Fiji	PNG	Samoa	Solomon Islands	Tonga	Vanuatu
Ave Pa'anga Pau					●	
Compass Global Markets	●	●	●	●	●	●
KlickEx Pacific			●		●	
Orbit Remit	●					
World Remit	●		●		●	
XE Money Transfer	●	●	●	●	●	●
Xendpay	●		●	●	●	●

Source: Kapronasia and LFS Advisory analysis

While the number of digital channel access points such as ATMs and POS terminals has grown across the region in recent years, these are still low due to their low business viability. The below figure summarizes the current digital channel access points in the six countries.

FIGURE 9: Digital channel access points[19]

	Fiji	PNG	Samoa	Solomon Islands	Tonga	Vanuatu
Mobile Money Agents	367	391	116	164	5	24
Automated Teller Machines (ATMs)	339	470	73	57	27	88
Point of Sale (POS)	5,817	14,317	590	404	535	809

Source: Kapronasia and LFS Advisory analysis

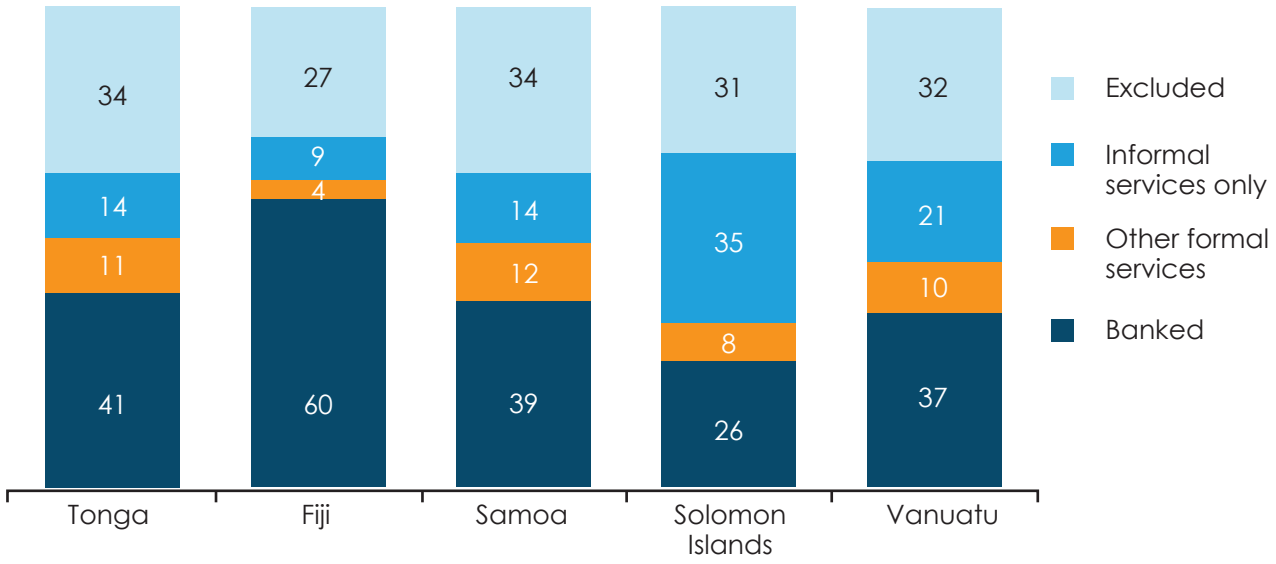
[18]Ibid
[19]IMF, 2020 For PNG: CEFI Graphs and Infographics 3rd Quarter 2018 (thecefi.org)

In addition to the service providers, end-consumers and merchants play a critical role in digital payments. For physical or online merchants to be able to use digital payments, there are a few essential considerations, namely: availability of payment acquirers, suitable POS terminals (whether dedicated or smart-device) and gateways, settlement time, and basic infrastructure such as power and network connectivity. For the above mentioned reasons, many Pacific Island business owners have not transitioned to digital payments. Indeed, in the E-commerce space, even though many products and services provided by SMEs are marketed online through social media or otherwise, actual E-commerce transactions are often completed in cash. However, a few local marketplaces, such as Vitikart, Pacifikart, CyberFood, Fiji Eats, Maua App, etc., have started addressing this gap by providing seamless e-payment options during checkout. One exception to this trend of completing transactions in cash is in the tourism sector. As foreign tourists often prefer to pay using debit/credit cards, digital payment acceptance in the tourism sector was growing, at least pre-pandemic.

Financial inclusion in the Pacific Island countries

Financial inclusion remains a challenge in the Pacific Islands. Although current data is difficult to come by, as of 2016, 30 percent of the population in these countries are entirely excluded from any formal or informal financial services. On top of this, roughly 10-35 percent of the population in these countries rely on informal financial services, a number that is far higher in rural populations. However, in the past five years, financial inclusion rates have improved. For instance, in Fiji, financial inclusion rates have increased to as high as 80 percent per the PFIP survey conducted in 2020.[20] It should be noted that the other Pacific Island countries' financial inclusion rates might also have improved, however have improved due to the lack of more recent data. Pacific Island governments have designed a number of initiatives to improve financial inclusion rates. For example, in Tonga, the number of ATMs and Electronic funds transfer at point of sale (EFT-POS) branches branches tripled between 2015 and 2020, and agent penetration rose from three to every 10,000 adults to 52.[21]

FIGURE 10: Financial inclusion in Pacific Island countries, 2015[22]



Source: PFIP surveys (Note: PFIP survey was not done for PNG)

[22]PFIP demand side surveys, http://www.pfip.org/our-work/work-streams/market-information/national-demand-side-surveys/

It is important to note that the adoption of digital payments improves with the level of education.[23] However, the tertiary and post-secondary non-tertiary education system in the Pacific Islands is limited to a single regional university with presence in multiple countries in the region—the University of South Pacific (USP). In addition, the few small national universities and many Technical and Vocational Education and Training (TVET) programs, except USP, have a weak focus on ICT and an even weaker focus on digital skills (website, API development, etc.) relevant to digital payments and E-commerce. In addition, the uptake has also been poor, with enrollment numbers not crossing double-digits.

Two others sources of training specific to E-commerce include: 1. General support provided by business incubators and accelerators and payments support provided by the Digital Frontier Institute (which receives scholarships from the PFIP) (refer to figure 11).

FIGURE 11: Digital Frontiers Institute Enrolment

	Unique students enrolled	Course completion rate*, %	UNCDF scholarship rate**,%
Fiji	22	70%	59%
Papua New Guinea	7	45%	0%
Samoa	2	77%	0%
Solomon Islands	11	58%	45%
Tonga	N/A	N/A	N/A
Vanuatu	3	75%	33%

Note: *Course completion rate: Total courses completed to total courses taken; **UNCDF scholarship rate: Number of students on UNCDF scholarship versus self-paid

Source: Digital Frontiers Institute

[23]World Economic Forum, http://www3.weforum.org/docs/WEF_Accelerating_WWDigital_Inclusion_in_the_New_Normal_Report_2020.pdf

3.1.3. Current policy and regulatory landscape

While few regulations in the Pacific Islands relate specifically to digital payment systems, there are a number of regulatory and policy initiatives worth exploring across four different areas: payment infrastructure, mobile money policy, cyber and data protection, and AML/CFT regulations.

FIGURE 12: Policy and regulatory areas

Source: Kapronasia analysis

1. **Payment infrastructure:** The payment system infrastructure in most Pacific Island countries is underdeveloped. PNG is the only country in the region with a national payments switch, which makes interbank transfers very arduous. Consequently, interbank payments are mostly completed via cheques, and thus retail payment settlement times are very long. In fact, a settlement between accounts in the same bank in two different countries is faster than settlement between accounts in two different banks in the same country.

   An online payment gateway is being developed in PNG, which will be rolled out in phases and should ease the challenges around settlement both online and off. In other countries, due to the lack of national switches, many banks have entered into bilateral interchange agreements for domestic card issuance, acquiring, and clearing networks. For instance, in Fiji, Bank South Pacific partnered with Bank of Baroda, HFC partnered with Westpac, and most recently, in 2018, ANZ partnered with Bred Bank. These bilateral agreements allow customers of one bank to access the ATM and EFT-POS machines of the partner banks.

   Due to the lack of a national switch, there is also a regulatory/policy vacuum for payment infrastructure in these countries. For example, in Fiji, the Fiji Interchange Network (Payments) Bill 2016 regulated payment systems and interchange services. The Bill also provided a foundation to realize a national switch; however, it has not been passed into an Act, and implementation of the national switch has also been pending.

2. **Mobile money regulations:** None of the Pacific Island countries have a dedicated mobile money policy/regulation, although individual regulators have come up with stop-gap solutions. For example, in Fiji, Vodafone and Digicel (the only mobile money providers) entered into a Trust Deed with the Reserve Bank of Fiji. As a result, the two providers commit to holding customers' funds in a trust with strict terms and conditions governing its operations. In contrast, the Central Bank of Samoa (CBS) has issued 'No-objection' certificates to Vodafone and Digicel to offer mobile money through electronic wallets in order to refrain from limiting mobile money growth. As we have seen in countries like China, while having a robust set of mobile payment regulations may not be an absolute must-have for digital payments to grow, they do eliminate a certain amount of uncertainty, which can help drive adoption.

Consumer protection, Data privacy, and Cybersecurity: Most Consumer Protection Acts in the Pacific Islands do not cover the interests of consumers online. Fiji, Samoa, Tonga, and the Solomon Islands all have Consumer Acts, but except for Samoa, all these legislations are over twenty years old. They do not include provisions for online or E-commerce transactions. Samoa introduced the Competition and Consumer Act in 2016, but the legislation is ambiguous. While the Act covers credit and insurance and gives direction to the Ministry of Commerce, Industry, and Labour to ensure consumer protection, it does not regulate payment services, which is still with the Central Bank of Samoa. In Vanuatu, an initiative to draft a legislative framework by the Ministry of Tourism, Trade, Industry, Commerce, and Ni-Vanuatu Business has been undertaken, but this has not yet been tabled in Parliament. PNG does not have any consumer protection legislation in place.

In addition to consumer protection, the Pacific Islands have yet to pass formal laws or regulations covering data protection and privacy. However, some provisions have been included in domestic telecommunications acts that cover a few aspects of data privacy.[24]

Another important pillar of regulation for E-commerce is cybersecurity. Fiji and PNG have recently updated their cybersecurity laws (the Online Safety Act of 2018 for Fiji and the Cybercrime Code Act of 2016 for PNG). Experts note that the cybercrime laws in Samoa (2008) and Tonga (2003) will need to update regulations to ensure consumer's protection as more and more citizens go digital; Vanuatu and the Solomon Islands do not even have a cybercrime legislation.[25]

3. **AML/CFT regulations and de-risking:** Anti-Money laundering (AML) and Combating the Financing of Terrorism (CFT) regulations in the Pacific islands are based on existing Australian and New Zealand regulations which are considered quite comprehensive and strict. Still, in recent years, many international financial institutions have been de-risking their businesses by restricting, or even terminating business relationships with Pacific Island banks. This has become challenging, especially in countries highly dependent on inward remittances. According to the Financial Stability Board (2018), the Pacific Islands region recorded the highest decline in Money Transfer Operator (MTOs) accounts from 2011-2017 due to a decline in correspondent banking.[26] For instance, in Vanuatu, the number of correspondent banks declined 59 percent from 2012 to 2018, and the Solomon Islands saw a decrease of 37 percent over the same period. PNG and Fiji also saw a decline of 35 percent and 34 percent, respectively. One of the main reasons banks shy away from managing their

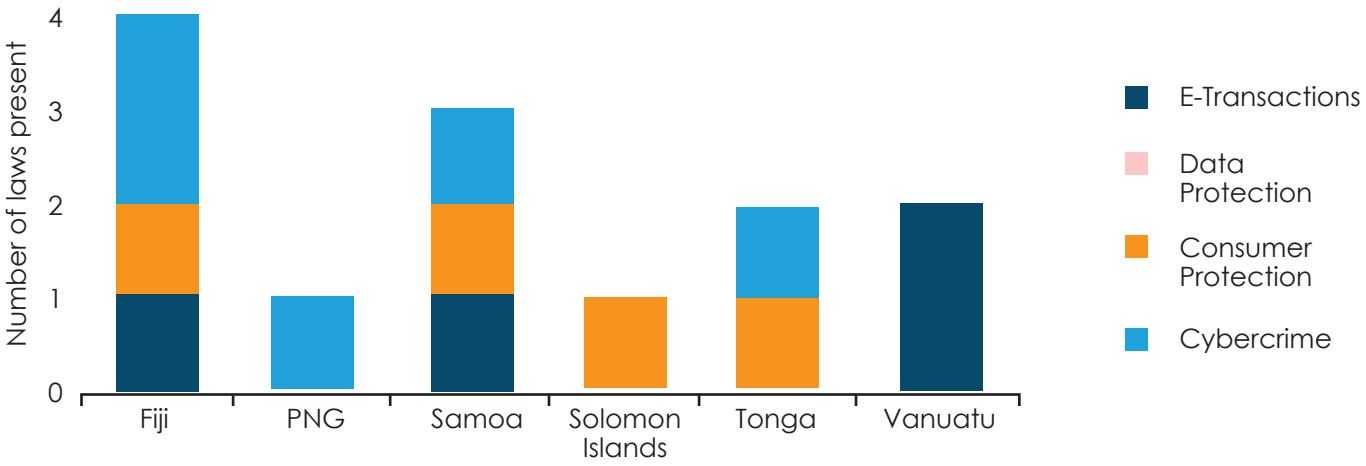
[24]Such as the Cook Islands' Telecommunications Act 2019 (Section 3, Competition and consumer protection), or Vanuatu's Telecommunications and Radiocommunications (Consumer Protection) Regulations Order n°157 of 2015 (Section 5, Protection of Consumer Information)
[25]In Vanuatu, cybercrime Bill has been drafted but yet to be enacted in the Parliament.
[26]https://www.fsb.org/2018/11/fsb-correspondent-banking-data-report-update-2/

AML/CFT related risks with the Pacific Islands is that these are relatively small markets, and thus it becomes cost-prohibitive to serve them.

To address the challenges posed by de-risking, the IMF Technical Mission to Samoa in 2017 proposed developing a KYC mechanism to strengthen MTO AML/CFT compliance. In 2019, the governors of all the central banks in the South Pacific (Australia, Fiji, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, and Vanuatu) agreed to develop a regional KYC utility. A steering committee was set up in 2020 alongside a working group. By the end of 2020, both the committee and the group were in the middle of Phase I, addressing four main issues: Consumer Due Diligence (CDD) requirements, interoperability requirements, KYC utility use, and MTO compliance capabilities. However, currently, compliance and storage of CDD information in the Pacific Island countries are challenged by the lack of digital National IDs. While some countries such as Fiji and Vanuatu have rolled out national IDs, the other countries in the region have yet to take the step, thereby stalling progress.

In essence, digital payment-related regulations in the Pacific Island countries need to be updated to ensure clear regulations and governance mechanisms are in place to include more recent developments in the digital payments space. The below figure summarizes the regulatory landscape in the six countries under study.

FIGURE 13: Number of laws or regulations in the Pacific Islands relating to digital payments[27]



Source: UNCTAD Cyberlaw tracker; Kapronasia and LFS Advisory analysis

[27]UNCTAD Global Cyberlaw Tracker; Pacific Islands Legal Information Institute. Accessed on 13 August 2020.

3.2. E-commerce payments in Pacific Island countries

As mentioned previously, several studies have explored the potential for E-commerce to help drive economic development across the Pacific Islands. However the lack of viable E-commerce payment options hinders growth in the sector and has left businesses struggling to find solutions. As discussed previously, there are a few small players providing services in specific countries, but a lack of synergy across countries regarding E-commerce payments aggregation is a missed opportunity to further boost E-commerce growth in the region.

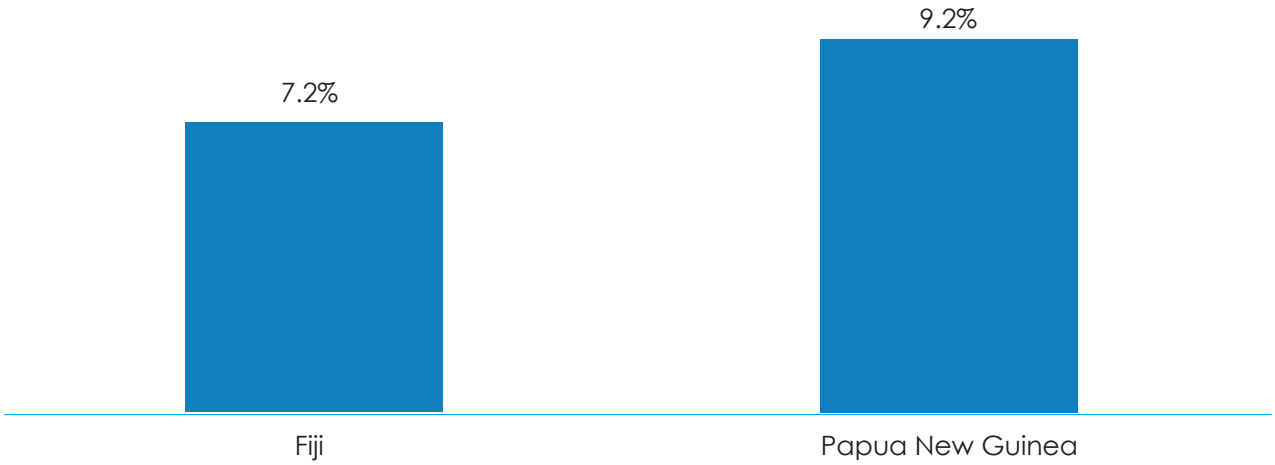
While the existing overall digital payments landscape also largely influences the provision of E-commerce payment services, it should be noted that other factors such as increased E-commerce trade also impact the future growth potential of E-commerce payments services. Therefore, in the coming section, the report will try to quantify the future demand and growth of E-commerce in the Pacific Island nations covered here.

3.2.1. Future growth of E-commerce in the Pacific Islands

Multiple factors can influence the demand and growth of E-commerce in general. However, specifically for the countries under study, certain unique factors influence the sector's growth, owing to the region's distinctive characteristics. These include GDP, population, smartphone adoption, digital infrastructure, physical infrastructure (e.g., road/port connectivity for last-mile delivery), network coverage, and personal remittances (which is also a unique factor impacting E-commerce payments in the region). Using data from these metrics, we have forecasted potential future growth rates for E-commerce by assigning different weights to these indicators based on their importance and impact on E-commerce in general and/or E-commerce payments. The methodology for the same has been detailed in the Annex.

By using three different methodologies: 1) All indicators weighted equally; 2) groups of indicators independently weighted; and 3) each indicator independently weighted, it is possible to ascertain a range within which the growth rate may fall. Given the shocks from the COVID-19 pandemic, the authors expect E-commerce growth to be slower than expected, It must be noted that this model is based on different assumptions (outlined in the Annex), and must not be taken at face value. This model's objective is to act as a guiding tool to understand what are some possible factors that could influence E-commerce growth and the extent to which each of these indicators can influence the same.

FIGURE 15: Forecasted average growth rate (2021–26) of E-commerce in Fiji and Papua New Guinea



Source: Kapronasia analysis

Overall, E-commerce is expected to grow in all the Pacific Island countries. The economic model above is used as an example to forecast the growth of the E-commerce sector in Fiji and Papua New Guinea. Due to a lack of data for Tonga, Samoa, Solomon Islands and Vanuatu, these countries have not been included in the model. However, if the required data becomes available, the same model can be easily extended to forecast the growth rate for these countries as well. What is important to note is how fast the Pacific Island countries are predicted to rebound from the shocks of the COVID-19 pandemic. Depending on the speed and efficiency of recovery, E-commerce growth rates can go higher or lower than expected. But despite the pandemic, if the appropriate steps are taken, the potential for E-commerce growth is there.

Tourism as a driver of E-commerce growth

The high dependence of the region's countries on tourism has led to the Pacific Islands Forum Secretariat acknowledging tourism as a necessary "pillar of economic growth." The Asian Development Bank (ADB) has also recognized this. A recent report by the Bank highlights how tourism is a major driver of E-commerce growth in the region. With tourism growing in these countries, many E-commerce service providers have cropped up, providing online services for booking accommodation, adventure activities, and for international tourists arriving in these islands. According to a World Bank report, the future potential of tourism growth in the Pacific is immense. By 2040, tourism is expected to generate US$ 1.8 billion in annual income and create over 120,000 new jobs. Given the growth potential of the tourism sector, E-commerce payments are also likely to gain more traction.

FIGURE 15 : International tourist arrivals (In '000s), 2010 - 2019[29]

	2010	2019	% change (2010-19)
Fiji	692	969	**40.0%**
Papua New Guinea	146	211	**44.5%**
Solomon Islands	20.5	28.9	**41.0%**
Tonga	65	94	**44.6%**
Vanuatu	237.7	256	**7.7%**
Samoa	130	181	**39.2%**

Source: World Bank Development Indicators; Kapronasia analysis

[29]World Bank Development Indicators, 2019, https://data.worldbank.org/indicator/ST.INT.ARVL
https://www.forumsec.org/wp-content/uploads/2019/09/2018-1st-Quadrennial-Pacific-Sustainable-Development-Report_final-as-of-July-4-2019.pdf
https://www.adb.org/sites/default/files/publication/430171/tourism-growth-pacific.pdf
https://documents1.worldbank.org/curated/en/168951503668157320/pdf/ACS22308-PUBLIC-P154324-ADD-SERIES-PPFullReportFINALscreen.pdf; 2017

However, with the COVID-19 pandemic, the tourism sector has faced a huge shock, resulting in heavy economic losses. For instance, Fiji employs 150,000 people in its tourism sector, contributing ~38 percent of GDP. But due to COVID-19, in 2020, the number of visitor arrivals in Fiji declined by 84 percent and the country's GDP dropped by 17 percent.[30] Before the pandemic, one of the major hurdles faced by tourism operators was the lack of access to digital platforms and E-commerce to promote their businesses. In order to help in the post-pandemic recovery of the tourism sector and help meet international standards, Vanuatu has launched the Vanuatu National Bookings Platform in 2021. The platform is expected to operate as one main E-commerce hub to help businesses list their services (including tours and activities, accommodation, transport, and handicrafts).

3.3. Key Challenges For The Adoption Of Digital Payments

Although there is a clear opportunity for digital payment adoption in the Pacific Islands, there are a few key challenges that need to be overcome which can be bucketed into three major headings: demographic, infrastructure, and regulatory.

Demographic challenges: The challenges of demography in the Pacific Islands are intertwined with the geographical characteristics of the countries.

- **Small population:** Most of the Pacific Island countries are archipelagos of dozens or hundreds of islands, and in many cases, are populated by a couple of thousand people only (on the larger islands). This, coupled with the distances between islands, is a major cost for service providers, especially if they need physical interaction to reach users through branches or agents.
- **Small revenue opportunity:** The Pacific Island population is relatively poor, and therefore many online and offline transactions are relatively low-value and volume. This lowers the revenue opportunity for payment service providers to charge fees to compensate for the high investment and maintenance costs, making it difficult to create a sustainable business model for providers.
- **Low financial inclusion and literacy:** Both low financial and digital literacy have been identified as a significant challenge in increasing smartphone uptake and penetration of DFS. However, the gap has been recognized and highlighted in the National Financial Inclusion Strategies (NFIS) the Pacific Island countries have developed, where financial literacy targets have been defined.

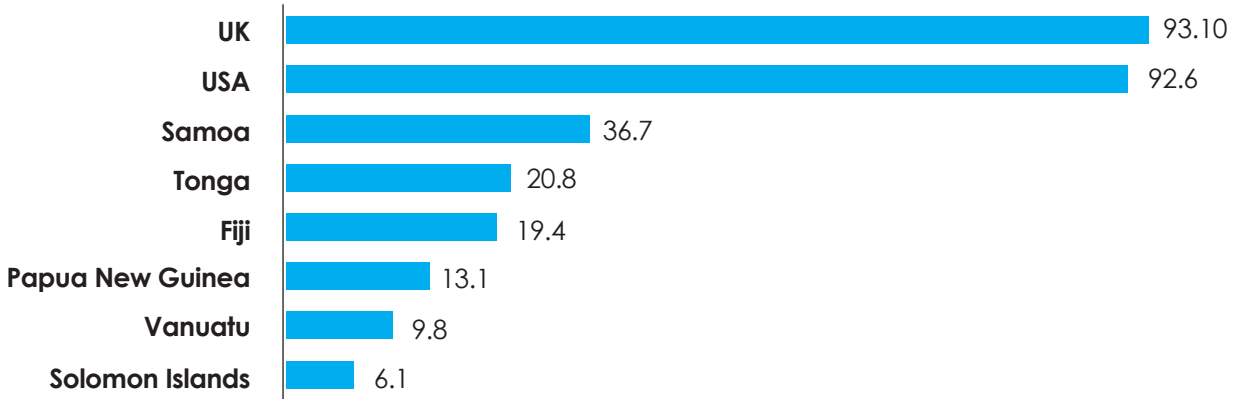
Infrastructural challenges: While it is easy to assume that bridging the infrastructural gaps could be done by investing in building/ developing new infrastructure (such as more undersea cables etc.,), it is not the most viable option for a few reasons.

- Most of these countries are ecologically fragile, making it difficult, or rather unsustainable, to recklessly increase infrastructural capabilities.
- Markets across the region are highly fragmented, which makes it difficult for individual service providers to create a sustainable business case. According to a recent report by GSMA, there are, on average, only 1.7 MNOs per country in the region, with many Pacific Island countries having only one operator. Due to the lack of national scale, many operators have focused on regional expansion. For instance, Digicel is present in six countries across the Pacific Island region. However, strong market control by a few existing service providers restricts new players from entering the market. Regional integration is also hindered by the huge disparities in digital and financial development, both cross-border and sometimes in-country (e.g., rural versus urban).

[30]Xinhuanet Asia-Pacific News, http://www.xinhuanet.com/english/asiapacific/2021-02/09/c_139732942.htm https://www.gsma.com/mobileeconomy/pacific-islands/; 2019

- Existing payment gateways are often provided by international banks, which are difficult to integrate with local E-commerce marketplaces and may require local E-commerce transactions to be conducted in foreign currency which adds cost. This highlights a gap in the offerings of local payment processors.
- Finally, promoting digital payments comes with the challenge of cybersecurity. The countries under study are not well-equipped to handle cyberattacks. According to the GSMA Connectivity Index 2019, all the countries covered in this report rank poorly in the Cybersecurity Index (see figure below).

FIGURE 16: Cybersecurity index, 2019[31]



Note: This index measures the commitment of countries to cybersecurity at a global level and ranges from 0 – 100, with 100 being the best and 0 the worst.

Source: GSMA Mobile Connectivity Index, 2019

Regulatory bottlenecks: In addition to the demographic and infrastructural challenges, there are a few roadblocks in terms of regulations and policies in these countries.

- **Lack of regulation/oversight for cross-jurisdiction and service licensing of payments and mobile money:** Given the fragmented nature of markets in the Pacific Islands, regional operability of PSPs becomes important to reap the benefits of economies of scale.. However, currently, cross-jurisdiction payments are widely unregulated and face a multiplicity of insular regulatory regimes. There is a need for more regional collaboration to incentivize PSPs to operate regionally and to facilitate cross-country payments. Further, most of the Pacific countries do not issue a specific mobile money license for PSPs, making the whole process unclear. This issue has also been identified by the IMF as one of the main challenges to overcome for a more efficient FinTech and payment regulation.[32]
- **Non-interoperable payment platforms within and between countries:** Most Pacific countries lack interoperable platforms that allow customers to transfer money from an account of one bank to another. That does not mean that transactions between banks are impossible, but that it requires manual interventions during processing. The cost is mostly borne by the customers and usually represents several percentage points of any transaction. This is a huge challenge that hinders the uptake of digital payments.

[31]Ibid.
[32]FinTech and Payments Regulation: Analytical Framework, IMF, 2020; https://www.imf.org/en/Publications/WP/Issues/2020/05/29/FinTech-and-Payments-Regulation-Analytical-Framework-49086

- **KYC requirements:** Due to strict AML/CFT regulations in place across the region, KYC requirements in the Pacific Islands are very rigid and lengthy thus further constraining the use of digital payments. While eKYC utilities seem to have made this better than it used to be, this still remains a challenge. The lack of national IDs is also a key challenge to cost-effective KYC.
- **Supporting regulations:** Apart from the lack of governance frameworks to ensure smooth functioning of digital payments, the protection systems such as cybersecurity and data privacy are also not present across all countries and are still at the nascent stage.

FIGURE 17: Summary of key challenges

Source: Kapronasia analysis

4. Recommendations

While there seem to be multiple roadblocks in achieving E-commerce payment aggregation in the region, with focus and by leveraging examples from other regions, it should be possible to achieve the goal. The recommendations on how to achieve this have been categorized under four main focus areas:

1. **Overcoming infrastructure challenges** such as lack of network infrastructure, lack of payment network interoperability, absence of local payments processors, ecological fragility and small, and fragmented markets.
2. **Overcoming regulatory challenges** such as rigid KYC requirements, lack of uniform licensing of PSPs and MNOs, lack of a common regulation to govern interoperable payments and other cross-border transactions, and an absence of ancillary regulations, including cybersecurity and data privacy regulations.
3. **Addressing digital payment economics** including who pays for the implementation and on-going fees of using digital payment platforms.
4. **Improving financial literacy and technical skillset of consumers** to overcome the challenges of poor uptake of financial services in these countries and simultaneously equip citizens with the necessary skills to access these digital financial solutions.

4.1. Overcoming Infrastructure Challenges

Currently, there is little integration and interoperability between bank and non-bank financial service operators. Mobile money service providers commonly indicate that formal banks consider them as competition rather than as potential partners. Integrating payment providers into a unified, open API-driven, interoperable national, or even regional payments ecosystem, will have multiple benefits, such as reduced transaction costs between countries, improved business sustainability for PSPs in these countries and so on. To achieve this, there are a few areas that should be focused on which will be addressed below.

4.1.1. Government-led pan-regional central payment infrastructure

The initial investment in central payment infrastructure is typically a loss leader and payment fee revenues are relatively small. Therefore, the Pacific Island governments should either expand on central infrastructure such as PNG's National Payments Switch or develop a new pan-regional payment switch to facilitate domestic and cross-border payments. Ideally, this infrastructure would incorporate real-time payment functionality, which has proven to be very effective in other Asia Pacific regions in promoting both physical POS and E-commerce transactions. Payment technology has matured significantly over the past decade, and numerous cloud-based payment solutions could be relatively easily provisioned and would provide an omnichannel approach to payments. Governments could subsidize the initial launch and the implementation and gradually introduce fees for payments—similar to other Southeast Asian countries. Infrastructure should also be open to both bank and non-bank/FinTech players to encourage adoption and innovation.

Different payment aggregation models could be adopted, such as: a single regional acquirer model, an in-country acquirer model, or combinations of the above. The regional aggregator could be a bank, a mobile money operator, or an independent digital payment processor, and oversight can be handled by the regulator of the host country.

Some key considerations for the governments in choosing the model include:

- Regulatory standing of each of these countries
- Transaction currencies and fees
- Settlement schemes,
- A regional agreement on the approach including regulatory, technical, and operational frameworks such that they can be implemented across all countries

A final key consideration is that the payments system needs to be able to handle offline settlement. Due to the geographic considerations mentioned above, stakeholders need to assume that network connectivity will not have 100% uptime. These outages need to planned into the development strategy such that if one country or network link goes down, there is a backup link and/or capacity to process transactions offline.

The challenge in this approach is achieving regional consensus. The Single European Payment Area (SEPA) is arguably the most successful regional payments initiative globally and makes sending money down the street or across the region a trivial exercise. The European Union was able to accomplish this as there was one singular regulator and central bank, the European Central Bank, driving the initiative and, at least initially, one single currency: the Euro.

In Asia, there is little regional integration at the moment outside of a handful of trade agreements and the Association of Southeast Asian Nations (ASEAN). Although the regional bloc has made progress on a number of economic agreements, they have so far failed to come to a consensus around any sort of SEPA-style regional payment hub. Without a common currency or regulator, it becomes challenging to come to any sort of consensus. For this reason, we are seeing the development of bilateral payment initiatives such as the tie-up between Singapore's PayNow and Thailand's PromptPay infrastructure.

Any development of cross-border payments infrastructure within the Pacific Islands would need to have these considerations in mind in order to ensure the smooth development and implementation of any infrastructure.

4.1.2. Open banking / API approach

The critical challenge in the adoption of a new payment hub is ensuring that traditional financial institutions can connect to the new infrastructure. An API-first approach would help in this regard as well as providing the ability to monitor payment traffic and collect transaction statistics, thus addressing data gaps, including those relating to AML/CFT. It would also allow systems to connect into future RegTech/SupTech solutions. In addition, APIs will be essential to promote better integration and interoperability between different channels such as mobile money, digital wallets, and bank accounts. Any payment infrastructure should also be based on the ISO20022 messaging format which will help futureproof the platform and enable better integration with other international payment networks such as SWIFT, which will be transitioning to ISO20022 in the next few years.

The open API banking approach will also be dependent on other considerations such as the regulator's role in each country—whether open banking will be mandated by regulation or market-driven; while regulatory recognition of ancillary functions such as e-KYC and e-signatures will also be important.

4.1.3. Interoperable QR codes

QR codes can be a useful enabler of both physical POS transactions as well as online E-commerce transactions and thus are a critical part of any future digital payments strategy. They require little or no investment in merchant infrastructure and thus allow merchants (of all sizes) to be enrolled into the developing ecosystem of E-commerce entrepreneurs. Similarly, users are alleviated from the tedious task of typing authentication and transaction information, thus removing language and literacy barriers while widening the inclusion of E-commerce participants. QR codes, when coupled with real-time payment infrastructure, provide for a seamless online and offline payment experience and require minimal hardware.

The region's governments should also come together around a QR-code standard, ideally based on the global EMV-QR standard. Having

a proprietary QR standard might lead to quicker implementation in the short run, but nearly all countries globally are moving toward global standards. Ideally, in the future, QR codes could also be made fully interoperable, insofar that a consumer using digital wallet brand #1 would be able to transact at a merchant using digital wallet brand #2 despite not using the same wallet. There are already a few QR code payment pilots on some islands. However, the trials are proprietary and not interoperable.

Some key considerations for the successful adoption of QR standards are as below:

- The QR standard should be globally acceptable to allow for interoperability
- Improving ancillary digital infrastructures such as smartphone and internet penetration rates will be imperative
- Should be cost-effective and relatively easy and quick to adapt for both consumers and merchants alike

An important further consideration around QR-codes is having a long-term view of the economic model. China was the first country to see significant adoption of QR-code payments and the economics around the model have fluctuated, not always to the benefit of the industry itself. Exploring the implications thoroughly and accounting for those in any plan will be critical.

4.1.4. National Digital ID system

Lack of proper documentation is a major challenge for people from low-income households preventing them from accessing formal financial services. Therefore, it will be critical for governments to adopt a National Digital ID system that can not only help service providers carry out customer due-diligence and digital authentication but increase adoption of digital payments. Initially, the ID can be as simple as a card and database to provide a national/regional identity to individuals but can later be incorporated into eKYC systems similar to Singapore's Singpass/MyInfo and payment systems as an overlay service, as in the case with India's UPI.

If governments do decide to adopt a National Digital ID system, there are several important considerations:

- The National Digital ID should allow for e-signatures along with proper regulatory recognition of the same
- The system should facilitate interoperability
- A robust operating model must be in place to ensure strict regulatory compliance and also to prevent any sort of fraudulent activities

4.2. Overcoming Regulatory Challenges

4.2.1. Uniform payment regulations

Having uniform regulations will be imperative to provide the basis for more effective and efficient growth of the digital payments sector across the region. Currently, interbank payments are expensive, and this cost hurts overall consumer adoption, of both digital payment services and digital financial services in general. Uniform regulations/licensing requirements across the region would not only facilitate cross-country operations for PSPs but would also open up opportunities for the license to be "passportable," thereby reducing licensing and setup costs for all stakeholders. As well as uniform regulations around licensing, merchants should also have at least one digital channel to apply for a business license (as is the case in Malawi, for instance).

4.2.2. Easing existing consumer-related regulatory requirements

Some of the existing consumer-related payment regulations are quite complex and rigid, hindering the uptake of digital payments in the Pacific Islands. For instance, current KYC requirements are onerous due to concerns about money laundering and financial terrorism. This deters customers from the uptake of newer digital solutions and is reflected in the low scores in the ease of doing business rankings/scores of these countries. Thus, governments must carefully evaluate easing these requirements, as it will not only encourage more users but will also attract more competitors—putting downward pressure on price (making digital payments more affordable).

4.2.3. Developing ancillary regulations

As Pacific Island countries move towards the adoption of digital services, it will be imperative to have regulations in place to govern the online presence of users. These fall broadly into four categories:

- **Cybersecurity** – Ensuring that technology standards are in place to help public and private sector actors implement technology systems and platforms that comply with the latest best practices around cyber-attack preventions.
- **Data/Information Privacy** – Rules and regulations to ensure the proper handling of sensitive data, including, notably, personal data but also other confidential data, such as certain financial data and intellectual property data, including both the confidentiality and immutability of the data.
- **AML/CFT** – Implement regulations and practices that ensure that individuals and companies are not able to generate income through illegal and illicit transactions, as well as ensure that funds are not being used to support terrorist funding.
- **Consumer protection** – Safeguard buyers of goods and services, and the public, against unfair practices in the marketplace in order to prevent businesses from engaging in fraud or unfair practices in order to gain an advantage over competitors or to mislead consumers.

Pacific Island governments should work towards having uniform regulations across the region for these ancillary regulations as well. A good example of a region that has deployed uniform regulations would be the European Union (EU). For instance, the entire EU follows the General Data Protection Regulation (GDPR) when it comes to data privacy. This has proven to be successful, and is considered to be a gold standard in data privacy regimes worldwide. This should be something that the Pacific Islands should have as an end-goal.

Some key considerations for governments in the region when making any regulatory changes/ decisions are as follows:

- It is important to understand and communicate different pain points and the regulatory changes to all the stakeholders involved in the process.
- Coordination of regulatory entities within and among countries, especially for regional regulations, will be of utmost importance.
- The regulations should be formulated keeping in mind the current standing of various countries.
- All of the ancillary regulations should be designed with both online and offline use cases in mind.

4.3 Addressing Digital Payment Economics

The region's governments should also focus on the economics of merchant payments and consider offsetting merchant fees either through government or third-party development agencies or networks. This could either be through subsidizing the implementation of the platform such that the payment network could provide a fee-free service on launch, or the reverse, where payment fees are subsidized, but there is an implementation cost.

In either case, the critical focus is to encourage merchant adoption of digital payments. In most jurisdictions where digital payments have been successful, this has been accomplished by incentives for both merchants and consumers for a certain period of time until digital payments become ubiquitous.

Other potential options include:

- Removing bank charges for customers and small merchants.
- Subsidizing costs of low-value transactions.
- Removing/lowering import duties on POS devices and smartphones.
- Offering tax incentives to merchants that enable e-transactions in proportion to their digital transaction volumes.

The second element of cost that needs to be considered is chargeback risk. Banks often require that online businesses put aside a somewhat significant amount of collateral, typically money, to offset any potential chargebacks. This can be challenging for SMEs and may restrict uptake. The ecosystem should look at working with a development partner or bank to provide an MSME credit facility to mitigate these risks and therefore encourage adoption.

4.4. Improving Financial Literacy And Technical Skillset Of The Population

The next set of recommendations addresses the challenge of poor financial and digital literacy among consumers, which may be limiting the uptake of digital payments and financial services in general. Focusing on addressing only the infrastructural and regulatory challenges will be futile if this particular set of challenges are not addressed—as the uptake of DFS will ultimately depend on how finance and tech-savvy the population is. Therefore, governments must actively work towards engaging end-users through a multi-modal engagement strategy.

Some key considerations for governments are as follows:

- Creating awareness and trust among citizens through public media campaigns, workshops, and short courses as part of the school curriculum.
- Making sure financial literacy is undertaken at all levels—from young adults to the older population.
- Besides financial literacy, upskilling of consumers about the usage of digital technologies, including the use of smartphones, the internet, and even how to access DFS, will be critical.
- Training of merchants and service providers about the evolving financial and digital technologies, as well as the regulatory landscape, will be important to prevent fraud and ensure compliance.

4.5. Other Ancillary Recommendations

Facilitation of regional forums and dialogues: While Pacific Island governments have to undertake different initiatives to enable smooth and interoperable payment aggregation in the region, developmental partners and the industry in general, can aid governments by providing them with technical expertise and helping with coordination. A few important functions that different stakeholders could adopt are as below:

- Take the lead in facilitating a **regional consultation forum** to develop a regional institutional framework to achieve harmonized regional digital payment regulations and standards. These regional forums will help address any potential issues and discrepancies among different actors—governments, PSPs, MNOs, development partners, and consumers before implementation of actual policies—thereby reducing future roadblocks in the process.
- **Creating FinTech sandboxes:** while Pacific Island governments are trying to standardize and clarify regulations around licensing and KYC processes, developmental partners can aid (in terms of finance and technical expertise) in the development of sandboxes for different PSPs and merchants to test their products and understand the regulatory requirements. These should be made regionally recognizable, whereby once a provider graduates from one country's sandbox, they are recognized by everyone across the region, effectively becoming 'passportable.'
- **Support existing PSPs to meet the regulatory requirements** by providing technical expertise and guidance.
- **Undertake supporting MSMEs to accept digital payments** by providing training and other necessary support.
- **Develop business requirements for a regional payment platform** and support relevant authorities in regulatory issues, tendering, and contracting.

In essence, for all the recommendations to be successfully implemented, it will be of utmost importance for the different stakeholders involved (governments, developmental partners, private companies, and merchants) to engage and collaborate towards the goal of regional payment aggregation. The responsibility assignment (RACI) matrix below translates the recommendations into activities and describes the required participation of the different stakeholder groups as follows:

FIGURE 18: RACI matrix

	STAKEHOLDER / ACTIVITY	CENTRAL BANKS	BANKS	MNOs	PSPs	PFIP / DEV PARTNERS	PRACTITIONERS	CUSTOMERS	MERCHANTS
Overcoming infrastructural challenges	Government-led pan-regional central payment infrastructure	A	C	C	C	R	C	I	I
	Open Banking/ API hubs	A	R	C	I	I	C	I	I
	Interoperable QR codes	A	R	C	C	I	I	I	C
	National Digital ID system	A	C	C	C	C	C	C	C
Bettering regulatory environment	Uniform regulations across the region	A	C	C	C	R	C	I	C
	Easing of existing regulations	A	C	C	C	C	C	C	C
	Developing ancillary regulations	A	C	C	C	R	C	I	I
Addressing digital payment economics	Reducing merchant fees and other chargeback risks	A	R	C	C	I	I	I	C
Improving financial literacy and technical skillset	Skills development	C	R	C	C	A	C	C	I
	Financial and technological awareness and literacy	R	R	R	R	A	I	C	C
Other ancillary recommendations	Facilitating regional consultation forums	R	C	C	C	A	I	C	C
	Creating FinTech sandboxes	R	C	C	C	A	C	I	C
	Support PSPs to meet regulatory requirements	I	C	I	I	R	C	I	C
	Help MSMEs to accept digital payments	I	C	I	I	R	C	I	C

Responsible: People or stakeholders who do the work. They must complete the task or objective or make the decision. Several people can be jointly Responsible.

Accountable: A Person or stakeholder who is the "owner" of the work. Success requires that there is only one person Accountable, which means that "the buck stops there."

Consulted: People or stakeholders who need to give input before the work can be done and signed-off on. These people are "in the loop" and active participants.

Informed: People or stakeholders who need to be kept "in the picture." They need updates on progress or decisions, but they do not need to be formally consulted, nor do they contribute directly to the task or decision.

5. Conclusion and way forward

The economic and financial inclusion benefits derived from the adoption of digital payments has been discussed extensively in existing literature. Digital payments can help increase economic activity, decrease the cost of doing business, and provide the groundwork for additional digital financial services such as lending and wealth management products. Despite the challenges that the Pacific Island region faces in terms of geography and infrastructure, the opportunity for developing and launching a pan-regional digital payments aggregation platform is there.

This report has put forward a number of recommendations to accelerate the adoption of digital payments. However, there are a few critical points to keep in mind that are essential to these recommendations' success:

- **Project management and coordination:** Project management and coordination are critical in deciding how to move towards implementing the suggested recommendations. Coordination is vital among different regulators and actors (such as PSPs) and the end-users of E-commerce payments to ensure they are well-equipped to take up these services.
- **Continuous monitoring, evaluation, and learning (ME&L):** To ensure the recommendations are well implemented and lead to the desired outcomes, continuous ME&L of different initiatives by different actors involved in the process will be crucial. It is not only essential to monitor and evaluate these initiatives, but also to continuously learn and improve on the methods. For this, it will be essential to have an agile and well-rounded ME&L mechanism in place.
- **Constant and effective communication:** Given that regional aggregation has been put forward as the optimal solution for greater digital payment adoption, continuous and effective communication between different stakeholders—governments, regulators, PSPs, developmental partners, sectoral associations, non-governmental organizations, and consumers will be imperative. This will also help to avoid any duplication in efforts by countries across the region.

Policy makers may also want to consider their role in the adoption of digital payments. For instance, jurisdictions where governments have adopted digital payments for items such as tax and utilities have been very successful in promoting their usage. For example, during the pandemic, the Malaysian government paid government stimulus payments out through three of the nation's largest digital wallets.

If the recommendations above are implemented with a clear focus on both addressing risks and maintaining a robust multi-stakeholder approach, implementing a regional digital payment aggregation strategy could ultimately catalyze greater financial inclusion and economic growth across the region.

6. Annex

6.1. Forecast model: Methodology

Weight	1	0.8	0.8	0.2	0.4	0.2	1	0.6	0.6	Potential E-commerce growth by volume in the next five years (2021 – 2026)
Country Name	GDP growth, CAGR, 2000 - 2019[1]	Population growth, CAGR, 2000 - 2019[1]	Smartphone adoption rate, % change, 2018 – 2025[2]	Tourism growth, %change 2010 – 2019[1]	Infrastructure growth, %change, 2014 - 2019[2]	Other enabling infrastructure, %change 2014 - 2019[2]	Network coverage growth, %change, 2014 - 2019[2]	eCommerce revenue growth rate, 2017 – 2025[3]	Personal remittance growth, as % of GDP, 2010 - 2019[1]	Growth estimate
Fiji	6%	0.5%	29%	40.0%	10.0%	5.9%	6.1%	28.3%	-0.8%	7.2%
Papua New Guinea	11%	2%	41%	44.5%	22.1%	14.4%	13.8%	22.0%	-9.4%	9.2%

Methodology: Indicators presumed to impact E-commerce the most were identified and weights were assigned based on their assumed level of importance. The growth rate is calculated as average of X1*W1 + X2*W2 + … + Xn*Wn where X refers to the indicator and W to the weights assigned. Growth projections calculated only for Fiji and PNG due to data availability for only these two countries.

Note: CAGR is calculated for indicators where all year values are available for calculation. For e.g., GDP and population have all values between 2000 and 2019 (and hence CAGR) is calculated. But for Tourism, only 2 data points were available (hence percentage change is calculated as (Y1-Y0)/Y0). For index values (Infrastructure, other enabling infrastructure and network coverage, the growth is calculated as (Y1-Y0)/100 (where 100 is the highest possible index value).

> Tourism assigned lower weightage due to disruptions caused by the recent COVID-19 pandemic, increasing the uncertainties around travel and tourism.
> Personal remittances assigned higher weightage despite negative growth rates in the past years, due to increased usage of the same during the pandemic.

Data source: 1 World Bank; 2 GSMA; 3 STATISTA

Notes and definitions of Indicators:

- **GDP and GDP growth:** GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. For the GDP growth, compounded annual growth rate (CAGR) is calculated for years 2010-2019.
- **Population:** Total population is based on the de-facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are mid-year estimates. Population growth is calculated using CAGR for 2010-2019.
- **Smartphone adoption rate** is taken projections given by the GSMA in their Mobile Economy Pacific Islands 2019 report.
- **Tourism growth** is based on the number of annual arrivals for a given year. The percentage change is calculated between 2010 and 2019.
- **E-commerce revenue** growth numbers are taken from STATISTA
- **Infrastructure growth** is calculated using the GSMA Mobile connectivity index's infrastructure index. This covers network performance, coverage, and spectrum including digital spectrum, 1-3GHZ etc.
- **Network coverage growth** is taken from the GSMA Mobile connectivity index. This includes 2G, 3G, 4G and 5G coverage of the population.
- **Other enabling infrastructure growth** is calculated using the GSMA Mobile connectivity index. It includes international bandwidth

per user, number of secure servers, access to electricity and number of internet exchange points (IXPs).

- **Personal remittance as % of GDP:** Personal remittances comprise personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from non-resident households. Personal transfers thus include all current transfers between resident and non-resident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by non-resident entities. Data is calculated as % of GDP.

6.2. Country Profiles

6.2.1. Fiji

- Fiji is one of the most developed countries among the Pacific Islands and one of seven upper middle-income countries in the Pacific. Its economy is primarily based on tourism and agriculture; the main cash crop for export is sugarcane. Remittances account for up to five percent of GDP.[33] Fijians living and working abroad are mostly in Australia, New Zealand, and the United States.
- **E-Government:** In 2018 the Government of Fiji launched its flagship digital transformation "digitalFIJI" program. The four-year program is managed by the Digital Government Transformation Office and aims to implement a number of government applications to enhance the overall ICT infrastructure as well as to build and develop capacity for digital transformation of the government. Fiji has well-developed infrastructure, and a more developed e-government as compared to many other countries in the Pacific Islands. This is seen through its ranking in different indices: The UN classifies Fiji as high on their E-Government Development Index (EGDI) which is ranked 90 out of 193 countries.[34]
- This index measures access to the digital services provided by the Government, provision of online services by the Government, telecommunication development (i.e., infrastructure) among others. It is important to note that this index is not designed to capture e-governance development in the absolute sense, but in relation to other countries. Thus, we can say that Fiji fares much better in these indices compared to most other countries in the Pacific Islands owing to a higher rank and score. Similarly, in the ITU ICT Development Index 2017 that aims to capture the level of development of ICT in these countries, Fiji is ranked 107 out of 190 countries. Poor performance in the UPU Postal Development Index 2019 (where Fiji ranked 136 out of 170 countries) shows that Fiji not only needs to improve on its digital infrastructure but also on its physical infrastructure.[35,36]

Infrastructure and connectivity

- Since deregulation and reform of the telecommunication industry began in 2003, the telecommunication infrastructure in Fiji has improved significantly.
- Fiji offers the most affordable mobile data in the region with prices for 1 GB ranging from USD 0.59 to USD 4.41. With an index score of 57.49, Fiji receives the highest GSMA Mobile Connectivity Index score in the Pacific, with particularly high scores in Mobile Consumer Readiness (79.88) and Infrastructure (66.84).

[33]World Bank Data, Personal remittances, received percent of GDP (link)
[34]UN E-Government Knowledge Base, https://publicadministration.un.org/egovkb/en-us/data-center
[35]ITU ICT Development Index, https://www.itu.int/net4/ITU-D/idi/2017/index.html
[36]Universal Postal Union, Postal Development Report 2019, https://www.upu.int/UPU/media/upu/publications/postalDevelopmentReport2019En.pdf

Fijian financial services ecosystem:

- **Regulator:** Reserve Bank of Fiji (RBF)
- **Commercial banks in operation:** ANZ Banking Group Limited, Westpac Banking Corporation (both Australian owned), Bank of Baroda (Indian owned), Bank of South Pacific Limited (Papua New Guinea), Bred Bank Limited and Home Finance Company Limited (both domestically owned).
- **Regulations:** The Fiji Interchange Network (Payments) Bill 2016 provides for the regulation of payment systems and services through the Fiji interchange network and related matters.
- The National Financial Inclusion Strategic Plan 2016–2020 provides a roadmap for financial inclusion; the RBF participated in the regional regulatory sandbox to foster financial innovation.[37]
- The ongoing payments system reform "National Payment Systems Program (NPSP)" aims to modernise the country's payment system infrastructure and provide an umbrella legislation to meet the growing needs and aspirations of the Fijian economy.
- The reform comprises the introduction of an Automated Transfer System (ATS) and a Central Securities Depository (CSD). The ATS will provide a comprehensive software-based electronic interbank payment mechanism. Using the ATS, Financial Institutions, Mobile Money Network Operators and other Payment Service Providers will be able to send a wide variety of payment instructions to each other.

Mobile money in Fiji

- Fiji was the first Pacific country to implement DFS with Digicel Mobile Money in June 2010.
- Vodafone's mobile money service M-PAiSA was also launched in 2010, and is more visible in the market compared to Digicel—especially due to its use with the public transportation system in Fiji.
- However, overall usage and activity rates for mobile money remain very low.
- Several money transfer operators are offering their services in the country and remittances have been growing over the last twenty years. In 2020 Vodafone launched the E-commerce Platform VitiKart which also offers a payment gateway (through Westpac). In line with the usage of mobile money, the usage of internet banking also remains relatively low according to the IMF Financial Access Survey.

[37]National Financial Inclusion Taskforce, Reserve Bank of Fiji, National Financial Inclusion Strategic Plan 2016 – 2020, http://www.pfip.org/wp-content/uploads/2016/09/2016-2020-Fiji-FI-Strategy-Aug26.pdf

TABLE 2: ATM and EFTPOS statistics[38]

Indicator	Fiji
Volume of ATM transactions, 2019	23.2 million
Number of EFTPOS transactions, 2019	5.4 million

TABLE 3: Use of mobile money in Fiji[39]

Indicator	Fiji
Number of registered mobile money agent outlets	367
Number of registered mobile money agent outlets per 1,000 (km^2)	20
Number of registered mobile money agent outlets per 100,000 adults	59
Number of mobile money transactions per 1,000 adults	3,912
Number of mobile money transactions (total)	2,436,008
Value of mobile money transactions, USD equivalent	139,000,260
Value of mobile money transactions (percent of GDP)	3
Volume of mobile money payments (in # of transactions), 2019	2.3 million

TABLE 4: Use of mobile and internet banking in Fiji[40]

Indicator	Fiji
Number of mobile and internet banking transactions per 1,000 adults	1,195
Number of mobile and internet banking transactions	79,633
Value of mobile and internet banking transactions, USD equivalent	18,549,134
Value of mobile and internet banking transactions (percent of GDP)	4
Value of electronic money in circulation, 2019, Fijian dollars	4.5 million

[38]http://www.xinhuanet.com/english/2021-01/23/c_139691847.htm
[39]IMF Financial Access Survey 2019, https://data.imf.org/
[40]Ibid

Over the past decade, the Fijian Government has made a strategic shift from cash and other paper-based mediums of exchanges to electronic payment forms. As of 2020, 70 percent of all government payments are made through electronic platforms. Pension payments from Fiji's Superannuation Fund are made through bank and electronic channels but there are further opportunities to digitize welfare payments. Disaster relief funds (such as the relief program after Cyclone Winston) were distributed through pre-loaded e-cards with further opportunities for linkages with mobile money.

Consumer demand:

Rates of mobile (9.4 percent) and internet (8.1 percent) banking are low in Fiji. The most important reason for opening accounts is to receive remittances and save money; only two percent of the population is eligible to receive a loan. Fijians show a strong dump & pull behavior with money, leaving the system immediately after receipt of remittances. Key use cases for mobile money are airtime recharge, customer-to-business payments, and remittances. Customer awareness of mobile money is high but adoption is limited, with most consumers relying on cash for payments.

6.2.2. Papua New Guinea

Papua New Guinea (PNG) is the largest country by land area in the South Pacific. With rich cultural diversity, it has more than 800 languages and over 1,000 ethnic groups. It has a population of over eight million, of which the majority lives in rural areas. The economy is dominated by labor-intensive agriculture and capital-intensive extraction of oil and gas, gold, copper, and other minerals. Mining and petrochemicals now account for over 25% of PNG's GDP and over 80% of exports.

While 80% of Papua New Guineans live within mobile coverage range, fixed and mobile internet subscriptions only cover around 11.5% of the population.[41] The COVID-19 pandemic has severely disrupted PNG's economy due to weakened demand and less favorable terms of trade. The economy is projected by the Asian Development Bank to shrink by as much as 3% in 2020.[42]

E-Government: The current NG has embarked on a National Digital Economic Development initiative, guided by activities are guided by the ICT Roadmap of 2019 which builds on the policy objectives of the National ICT Policy Phase 1 (2008) and Phase 2 (2009), the National ICT Act 2009, and the National Broadband Policy (2013), among other ICT policy and legal instruments. The major PNG ICT, Digital Payments and E-commerce policy and regulatory framework tools are listed in the table below.[44,45]

[41]WB Papua New Guinea Economic Updates July 20202020
[42]Asia Development Bank Papua New Guinea Country Partnership Strategy 2021- 2025
[43]www.ict.gov.pg
[45]Ibid
[46]Bank of Papua New Guinea, https://www.bankpng.gov.pg/

TABLE 5: E-Government regulations in PNG

Indicator	Policy/Regulation	Year
ICT Development	ICT Policy	2008
	National Information and Communications Technology Act 2009	2009
National Digital Development	Digital Transformation Policy	2020
E-Government Development	Public Service Digital Transformation Act, Draft	2020
Cybercrime	Cybercrime Code Act 2016	2016
Electronic Transactions, Contracts, Digital signatures	Electronic Transactions Act Draft	2020

Financial ecosystem: The banking sector is regulated by the Bank of PNG (BPNG), the country's Central Bank. The main payment policy and regulatory tools and directives are listed in the table below.[46,47] The Bank of Papua New Guinea launched its FinTech Regulatory Sandbox in December 2019.[48] The Regulatory Sandbox framework permits the accelerated development and market testing of new digital payment innovations and solutions for advancing financial inclusion in PNG.

[46]www.ict.gov.pg
[47]Ibid
[48]https://www.bankpng.gov.pg/regulatory-sandbox/

TABLE 6: Regulations enabling digital payments in PNG

Indicator	Policy/Regulation	Year
National Payment System Oversight and Regulation	National Payments System Act 2013	2013
Anti-Money Laundering and Counter Terrorist Financing	Anti-Money Laundering and Counter Terrorist Financing Act 2015	2015
Cybercrime	Cybercrime Code Act 2016	2016
Central Bank oversight powers	BPNG Directive on Oversight 01/2019	2019
Electronic fund transfers	BPNG Directive on Electronic Funds Transfer 02/2019	2019
Agent financial services	BPNG Directive on Agents 03/2019	2019
Non-paper-based retail payment instruments	BPNG Directive on Payment Instruments 04/2019	2019
Financial Technology Innovations Trials	BPNG Regulatory Sandbox	2020
Electronic Transactions, Contracts, Digital signatures	Electronic Transactions Act, Draft	2020

There are currently 59 licensed Internet Service Providers and two active mobile providers in PNG, Digicel and Bmobile.[49] A third provider, Digitech Communications has rolled out infrastructure but is not yet licensed. Digicel currently holds above 90% of the mobile market. In line with the National Payment System Act 2013, the Bank of Papua New Guinea serves as the primary government regulator for financial institutions and has responsibility for the National Payment System (NPS).[50]

As custodian of the National Payment System, the BPNG operates two key electronic payment systems:

[49]World Bank Papua New Guinea Economic Update July 2020
[50]Ibid

The Kina Automated Transfer System (KATS): Introduced in 2013 with the objective of fostering an efficient payment system for processing and settling all payments (both small and large volume payments) between all the banks and their customers. The main KATS transactions are Real Time Gross Settlement (RTGS). Direct Credits and cheque processing.

The Retail Electronic Payment System (REPS): Processes card-based transactions from ATMs and EFTPOS terminals. The REPS is driven by the PNG national switch for card payments and mobile money payments and was launched in 2019 with six founding member banks. REPS is being implemented in phases and it is hoped to enable instant person-to-person and mobile money payments as well as providing an online payments gateway by the end of 2021. Since its launch in July 2019, REPS has seen a steep increase in usage traffic and has processed over 19 million chargeable transactions valued at K3.43 billion (USD 0.98 billion) as of March 2021.[51]

6.2.3. Tonga

The Kingdom of Tonga comprises 169 islands of which 36 are inhabited. Seventy percent of the population lives on the main island of Tongatapu. The geographical location of Tonga makes it difficult for the country to access major markets. Tonga has only a small domestic market and a limited regional market. The economy heavily depends on remittances; approximately half of Tonga's citizens live abroad, primarily in Australia, New Zealand, and the United States. Tonga depends on imports to obtain the majority of processed or packaged goods. Agriculture is the main occupancy for the majority of the population and is the main sector for generating foreign exchange earnings.

E-Government: Tonga currently does not have an e-government strategy/plan, which is reflected in their poor performance vis-à-vis other countries in many of the digital readiness indices. Similar to Fiji, overall Tonga also has a low ranking in the EGDI of 108 out of 193 countries and a score of 0.56. It has an especially poor e-participation score, i.e., the level of participation by citizens in the online space with a score of 0.36 (where 0 is the lowest and 1 the highest). Tonga also performs poorly in both the ITU ICT Development Index and the UPU Postal Development Index with a rank of 110 out of 190 countries in 2017 and 115 out of 170 countries in 2019, respectively. Though the post offices in Tonga had taken an initiative to go digital through their MoneyGram bill payment project, it was put on hold as there were no public APIs with the banks.

[51] https://www.bankpng.gov.pg/payment-system/national-switch-statistics/

TABLE 7: E-commerce regulations in Tonga[52]

Legal area	Title of Legislation/Draft Legislation	Year
Consumer Protection	Consumer Protection Act 2000	2000
Cybercrime	Computer Crimes Act 2003	2003
E-Transactions	Electronic Transaction Legislation	Draft legislation to support electronic transactions, privacy and data protection, and cybersecurity with support from the World Bank. The bill has yet to be enacted.
Data protection and privacy	There is no official data protection and privacy law, however, there are a number of provisions prescribed under domestic telecommunication acts that are similar to a data protection regime such as the obligation of a telecommunication service provider to protect information about its customers or any persons, the right of the provider's customers to inspect, correct, or remove their consumer information, as well as the prohibition of unsolicited communications.[53]	

Financial ecosystem: There is no law for a national payment system, nor a national switch, though there is a National Financial Inclusion Strategy.[54] Payment gateways for E-commerce are only offered by international banks. The acceptance of debit and credit card payments requires merchants to install POS machines. However, the time, cost and deposit requirements (for merchants) are prohibitive. Therefore, the use of credit or debit cards in Tonga is limited; as a result, most transactions are cash-based.

Tonga was the second Pacific country to launch Digicel Mobile Money (in 2011). In May 2012, Digicel partnered with VeriFone to launch Beep and Go, the world's first fully inclusive mobile payment system that does not require the use of a bank account, credit card or smartphone. Digicel customers in Tonga are able to receive mobile remittances through Digicel's partnership with KlickEx Pacific.

[53]Unsolicited communications, or spam, refers to emails or mobile messages that advertise products and services to a large group of recipients without their prior request or consent. See Infocomm Media Development Authority – Unsolicited Communications. Available from: https://www.imda.gov.sg/for-community/Infocomm-regulation-and-guides/unsolicited-communications#:~:text=Unsolicited%20communications%20or%20spam%20refers,behaviour%20of%20telecom%20service%20providers.

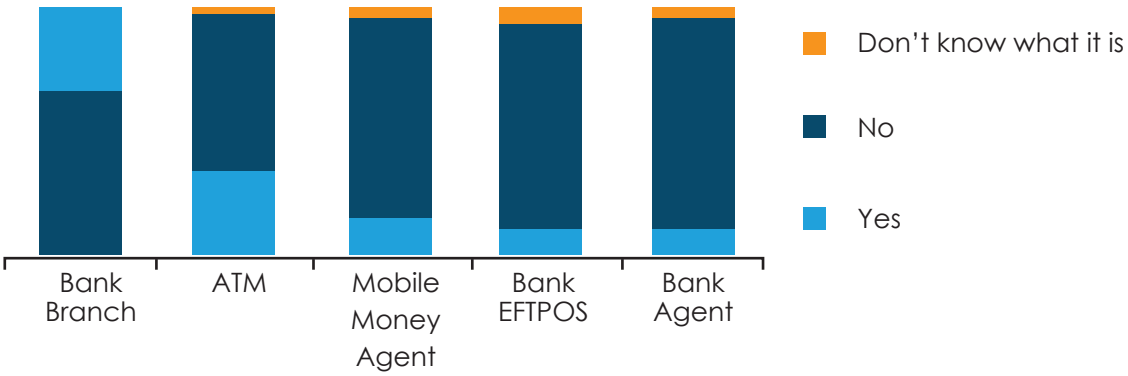
[54]http://www.pfip.org/our-work/work-streams/regulation-policy/national-financial-inclusion-strategies-taskforces/

TABLE 8: Mobile and internet banking statistics[55]

Indicator	Values
Number of registered mobile money agent outlets	5
Number of registered mobile money agent outlets per 1,000 km2	7
Number of registered mobile money agent outlets per 100,000 adults	8
Number of mobile money transactions per 1,000 adults	2,005
Number of mobile money transactions (total)	133,644
Value of mobile money transactions, USD equivalent	24,761,000
Value of mobile money transactions (% of GDP)	6
Number of mobile and internet banking transactions per 1,000 adults	1,195
Number of mobile and internet banking transactions	79,633
Value of mobile and internet banking transactions, USD equivalent	18,549,134
Value of mobile and internet banking transactions (% of GDP)	4

There is a lack of financial access points for Tongans as well as a lack of awareness about the locations of financial access points, such as bank branches, ATMs, bank or mobile money agents. This lack of access is detailed in the Financial Services Demand Side Survey Tonga (DSS).[56]

FIGURE 19: Percentage of adults that are aware of the locations of financial access points[57]



The majority of Tongan adults receive their income in cash. Only in the public sector do employees receive income via their bank accounts. In the aforementioned Demand Side Survey, 98% of the respondents report that they pay utilities and school fees with cash instead of using digital instruments like bank transfers, debit cards or mobile money. Tonga is among the top remittance-receiving countries in the world. According to survey data, nearly three-quarters of Tongan adults (70%) reported receiving remittances. It should be noted, that due to banks in Australia and New Zealand de-risking, many of the money transfer operator (MTO) agent accounts have been closed, which has had a significant negative impact on Tongans.

6.2.4. Samoa

Samoa is made up of an archipelago of nine islands, of which four are inhabited. Most of the population of the country is still rural in nature. Classified as a Least Developed Country (LDC),

[55]Central bank of Tonga internet staitistics
[56]http://www.pfip.org/our-work/work-streams/market-information/national-demand-side-surveys/financial-services-demand-side-survey-tonga/
[57]Financial Services Demand Side Survey Tonga

by the World Bank the Samoan economy largely depends on fishing and agriculture, and more recently tourism. Approximately 60% of the population works in the informal sector and in subsistence agriculture.[58]

Samoa is a member of the South Pacific Regional Trade and Economic Cooperation Agreement, the Pacific Island Countries Trade Agreement, the World Trade Organisation, the World Customs Organisation and is a signatory of Pacific Closer Economic Relations Plus. Samoa was among the first three countries in the Pacific to introduce the Automated System for Customs Data in 2002, which has helped to improve automation and reduce paperwork.

E-Government: In 2014 the Government launched the Samoa National Broadband Highway, an internet-ready fibre/mobile network linking all government offices, schools and hospitals. The Samoan Ministry of Communication and Information Technology is currently working on a plan to build a data centre which will host applications like E-Health, E-Government and E-Education. The government has also announced the establishment of the Digital Transformation Authority which will steer and implement the digital transformation agenda of the Government. Samoa ranked 149th in the UN's E-government Development Index, 172nd in the UPU Postal Development Index and 127th in the ICT Development Index, indicating poor development of digital infrastructure in general.

Financial ecosystem: The financial sector in Samoa comprises four commercial banks, of which two are locally incorporated foreign companies, while the remaining two are local. There are six insurance companies, four brokers and 17 insurance agents. The sector is regulated by the Central Bank of Samoa under the Financial Institutions Act of 1996. Despite significant attention given to initiatives like mobile money and digital financial services, there are no regulation or policy guidelines regulating these areas. Current mobile money offerings operate under a "No Objection Certificate." The Competition and Consumer Act of 2016 provides the Ministry of Commerce, Industry and Labour (MCIL) with the mandate to ensure customer protection. The act also covers credit and insurance but not payment services. In 2014, the Government of Samoa passed the National Payment Systems Act which mandates the Central Bank to regulate and supervise the payment systems in the country. In addition, the Government of Samoa is planning a digital National ID system to make public services more accessible to citizens.

TABLE 9: Key performance indicators (KPIs) of mobile money in Samoa in 2020[59]

Indicator	#
Number of registered mobile money agent outlets	116
Number of registered mobile money agent outlets per 1,000 km²	41
Number of registered mobile money agent outlets per 100,000 adults	81
Number of mobile money transactions per 1,000 adults	244
Number of mobile money transactions (total)	48,756
Total value of mobile money in circulation (USD equivalent)	530,250
Value of mobile money in circulation (% of GDP)	0.1

[58]https://www.bbc.com/news/world-asia-15655855
[59]FRED economic data, https://fred.stlouisfed.org/tags/series?t=depository%20institutions%3Bsamoa&ob=pv&od=desc

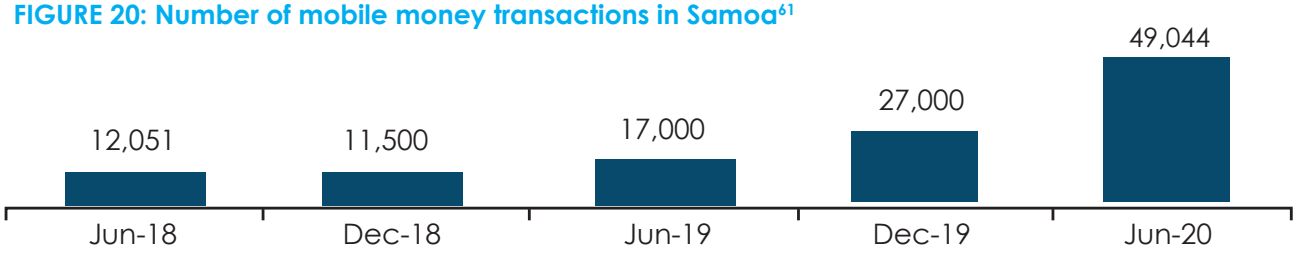
As of June 2020, there were 25 bank branches, 73 ATMs, 590 EFTPOS outlets, 33 cash-in and cash-out agents and 116 mobile money agents in the country. While the numbers of ATMs and EFTPOSs grew moderately over the past two years, the number of mobile money agents has grown strongly from five in 2018 to 116 in June 2020 indicating the growing importance of mobile money.

TABLE 10: Financial service access points in Samoa[60]

	June 2018	June 2020
Number of bank branches	24	25
Number of ATMs	65	73
Number of EFTPOS outlets	548	590
Number of Cash-in and Cash-out Bank Agents	81	33
Number of Mobile Money Agents	5	116

The number of mobile money transactions has grown significantly over the past two years which indicates that active users are performing more transactions. From June 2018 to June 2020, the number of mobile money transactions increased by 292% from 12,501 in the quarter that ended in June 2018 to 49,044 in the quarter that ended in June 2020.

FIGURE 20: Number of mobile money transactions in Samoa[61]



The monthly share of remittance inflows received through MTOs edged up to 89.2% in October 2020 from 83.7% in October 2019, while remittances received directly through commercial banks fell to 10.8% from 16.3% in the same period. The average monthly cost of sending NZ$ 200 to Samoa fell to 10.10% in October 2020 from 11.17% in October 2019, while the average cost of sending AU$ 200 also fell to 8.13% from 8.76% over the same period.

The Central Bank of Samoa Demand Side Survey (DSS) from 2015 is the only source which provides reliable data on financial inclusion in Samoa. The survey showed that about 39% of Samoan adults have a bank account, while 12% use other formal services such as microfinance insurances, credit unions or finance companies.[62] According to the survey, 34% of Samoans were excluded from both formal and informal financial services.

6.2.5. Solomon Islands

The Solomon Islands consist of six major islands and over 900 smaller islands. More than 75% of the population is engaged in agriculture and fishing. Tourism is a minor source of foreign exchange, especially when compared to some neighboring countries. Trade policies and agreements are leveraged to accelerate regional and international trade. zyje Solomon Islands signed the South Pacific Regional Trade and Economic Cooperation Agreement in 1981, The Forum Islands Countries Trade Agreement in 2001, the Melanesian Spearhead Group Free Trade Agreement (for a third time in 2017), and the Pacific Closer Economic Relations Plus Agreement in 2017.

[59]Ibid.
[60]Central Bank of Samoa, https://www.cbs.gov.ws/index.php/dmsdocument/5408
[61]Central Bank of Samoa, https://www.cbs.gov.ws/index.php/dmsdocument/5408
[62]Financial Demand Side Survey Samoa, http://www.pfip.org/our-work/work-streams/market-information/national-demand-side-surveys/financial-demand-side-survey-samoa/

E-Government: At present, the Solomon Islands does not have a dedicated E-Government strategy. The UN classifies the Solomon Islands as "middle" on their E-Government Development Index (2020), ranking it 166th. It also ranks 157th on the ITU ICT Development Index 2017 and 156 on the UPU Postal Development Index 2019.

Financial ecosystem: The Central Bank of Solomon Islands (CBSI) has established a Digital Services Financial Group (DSFG) to simplify regulatory and infrastructure issues related to payment systems.

The Solomon Islands have joined the Better Than Cash Alliance and had committed to converting 80% of payments to digital channels by 2020. Currently a National Payment System Act is being developed; the bill was drafted by the CBSI team and was tabled to the Parliament in 2020. Apart from this, commercial banks also have their own initiatives in the Islands. For instance, ANZ Bank and BSP Bank launched GoMoney and BSP mobile banking (M-banking) respectively in 2013. DFS in the country are still nascent, with MNOs due to launch mobile money services in 2021.

TABLE 11: Financial service access points in the Solomon Islands [63]

Indicators	2016	2017	2018	2019
Number of branches	14	14	15	15
Number of agencies	7	7	7	7
Number of ATMs	42	53	56	57
Number of EFTPOS-terminals	310	416	440	404
Number of EFTPOS-merchants	256	280	306	289
Number of mobile access points or agents	192	234	210	164
Total number of access points	821	1004	1034	935

6.2.6. Vanuatu

The Republic of Vanuatu comprises 83 islands of which 67 are inhabited. The most important sector in the country´s economy is small scale farming, providing employment for about two-thirds of the population. Other major sectors include fishery, offshore finance, and tourism, with the country hosting more than 330,000 visitors a year, most of them from Australia and New Zealand. Moreover, the country has a large inflow of both remittances and aid, also primarily from these two countries.

Vanuatu is a member of the Melanesian Spearhead Group, the Pacific Island Countries Trade Agreement, the South Pacific Regional Trade and Economic Cooperation Agreement, the Pacific Agreement on Closer Economic Relations Plus, the Forum Islands Countries Trade Agreement and the World Trade Organization.

E-Government: Vanuatu currently lacks a dedicated E-government strategy. However, it has ancillary regulations such as the Competition and Consumer Protection Policy (2019), a drafted Cybercrime Bill (2020) as well as an E-Business Act (2000, consolidated in 2006). Vanuatu does have a National ID which features a QR Code that is being rolled out under the Ministry of Internal Affairs. It thus far covers around 60% of the total population.

Financial sector ecosystem: There is currently no national switch and thus no interoperability between the banks and their cards, and thus all payments require manual processing. The only payment gateway that is currently in use is provided by Bred Bank. POS systems are not yet widely adopted. Debit cards, however, are very widely adopted and given out by all banks. Credit cards, on the other hand, are not widely

[63] PFIP DSS, Solomon Islands, http://www.pfip.org/wp-content/uploads/2016/08/Financial-Services-Demand-Side-Survey-Solomon-Islands.pdf

used but accepted similarly as debit cards. Besides these, the country also has a National Financial Inclusion Strategy for the period 2018 – 2023.[64] However, among the currently unbanked population, 50% have no bank branch accessible in less than one hour.[65]

Infrastructure: The network coverage in Vanuatu is below the average of the Pacific Region. While 2G coverage is available almost everywhere in the country, only 83 percent has 3G coverage and 4G is only available to about 40 percent of the population. While mobile internet prices are moderate in comparison to regional standards, fixed-line packages are rather expensive, and subscription is slightly below the regional average.[66] Mobile money usage is very limited in Vanuatu. Only 42 percent of the population are aware of mobile money and its adoption is very limited.[67] A majority of the recipients - of any kind of payments - both from within Vanuatu and from abroad, use Western Union. Only a minority of the banks' customers uses mobile money or internet banking.

[64]http://www.pfip.org/wp-content/uploads/2018/04/Vanuatu-National-Financial-Inclusion-Strategy-Rreport-2018-2023.pdf
[65]http://www.pfip.org/wp-content/uploads/2017/05/VANUATU-DSS.pdf
[66]Pacific Islands Forum Pacific Regional E-commerce Assessment

6.3. List of key informant interviewees

TABLE 12 - List of key informant interviewees

Organization	Contacts	Designation
Vodafone	Shailendra Prasad	Head of mCommerce & Corporate Affairs
	Anish Chandra	CFO
	Rebecca Maulio	M-Tala Product Manager
Digicel	Farid Mohammed	CEO
	Anup Kumar	Head of Mobile Financial Services
	Mark Witthuhn	CEO
Reserve Bank of Fiji	Poasa Werekoro	Chief Manager Financial System Development
	Christina Rokoua	Manger Policy & Research
Westpac	Yvonne Breckterfield	Head of Global Transaction Solutions
ANZ Bank	Chan Hung	Transformation Manager
	Kelita Rossi	Head of Digital
Bank of Papua New Guinea / National Payment System (NPS)	Theresa Lyon	NPS Program Manager
JiveMarket	Jaive Smare	Founder and CEO
Nationwide Microbank Limited	Tony Westaway	Chief Executive Officer
Amit Kumar	Amit Kumar	Pacific Digital Payments Consultant
Emstret Holdings	Haroun Rashid	Managing Director
Juakali	Julien Mahuzier	Pacific Mobile Payments Consultant
Digicel Pacific Group	Raj Subhag	Technical Head of Mobile Financial Service & Recharge
MBF	Heng Kooi Yeoh	CEO
Tonga Dev Bank	Leta Havea Kami	CEO
Tonga Post	James Schaaf	IT specialist / Post Code Project Manager
PFIP	Iris Kissiti	Financial Inclusion Coordinator
	Krishnan Narasimhan	Deputy Programme Manager
	Sanjay Shah	Country Representative, Solomon Islands

Organization	Contacts	Designation
Central Bank of Samoa	Lanna Lome	Manager, Financial Systems Development
BSP	Taitu'uga Maryann Lameko-Vaai	Country Head
SkyEye	Sam Saili	CEO
Solomon Islands Postal Corporation	Alfred Ghemu	CEO
UNCDF	Isaac Holly	Country Lead, Zambia
BSP	David Anderson	CEO
BOP	Upul Hettiarachchi	CEO
BRED	Owen Thomson	CEO
CBSI	Linda Folia	Manager, National Financial Inclusion Unit
Reserve Bank of Vanuatu	Serena Marum	Director
National Bank of Vanuatu	Stuart Mathison	Chief Operations Officer
ANZ Bank (Vanuatu) Ltd	Lee Sheng	Country Representative
Bank South Pacific (BSP)	Nick Regenvanu	Country Representative/ Manager
Digicel Vanuatu	Deepak Khanna	Country CEO
Vanuatu Chamber of Commerce and Industry	Nicky Barnes	Advsior
Bred Bank	James Hudson	Ex CEO
Oxfam Vanuatu	Sandra	Cash Transfer Lead
IT Vanuatu	Philippe Gardais	Owner (Freelance Consultant)
Yumiwork	Marc Gerard	Owner
Kovena	Sam Rutledge	General Manager
Kovena	Katie Smith	Marketing and Communications advisor
Kovena	Jamie Collins	Payments advisor
Klickex	Robert Bell	Chairman and CEO
WB Payment Systems Development Group	Carlo Corazza	Senior Payment Systems and Remittances Specialist


UNITED NATIONS
UNCTAD


UNDP


UNCDF
Unlocking Public and Private
Finance for the Poor