KINGDOM OF TONGA

National e-Commerce Readiness Assessment

Supported by:

PACIFIC ISLANDS FORUM SECRETARIAT

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DISCLAIMER:

The eTrade for all Initiative, launched at the fourteenth Ministerial Conference of UNCTAD in July 2016, is a practical example of how to harness the digital economy in support of the 2030 Agenda for Sustainable Development, notably Sustainable Development Goals (SDGs) 5, 8, 9, and 17. The initiative seeks to raise awareness, enhance synergies, and increase the scale of existing and new efforts by the development community to strengthen the ability of developing countries to engage in and benefit from e-commerce by addressing relevant policy areas.

As part of the initiative, demand-driven assessments are envisaged to provide a basic analysis of the current e-commerce situation in the countries concerned and to identify opportunities and barriers. The resulting reports will serve as a valuable input to these countries' involvement in various discussions related to e-commerce and digital trade, such as in the context of the UNCTAD Intergovernmental Group of Experts on E-commerce and the Digital Economy.

It may furthermore help LDCs and developing economies to identify areas in which they could benefit from assistance by partners of eTrade for all.

The following symbols have been used in the tables:

Two dots (..) indicate that data are not available or are not separately reported. Rows in tables have been omitted in those cases where no data are available for any of the elements in the row;

A dash (-) indicates that the item is equal to zero or its value is negligible;

Reference to "dollars" (US$) means United States of America dollars, unless otherwise indicated;

Details and percentages in tables do not necessarily add up to the totals because of rounding.

Tonga national currency is the Tonga Pa'anga (TOP).
For the purpose of this report: US$1 = TOP2.2 and TOP1 = US$0.70

FOREWORD BY HONOURABLE SAMIU KUITA VAIPULU, MINISTER FOR TRADE AND ECONOMIC DEVELOPMENT, KINGDOM OF TONGA

I am pleased to introduce Tonga's E-commerce Readiness Assessment which was initiated as part of the "eTrade for All" initiative launched by the United Nations Conference on Trade and Development (UNCTAD) at the Fourteenth UNCTAD Ministerial Conference in Nairobi, Kenya.

The initiative seeks to raise awareness and strengthen Tonga's ability to engage and benefit from e-commerce in alignment with the achievement of 2030 Agenda for Sustainable Development Goals, notably 5, 8, 9 and 17. The initiative further contributes to the Tonga Strategic Development Framework (TSDF) II 2015-2025 national objective of creating a more progressive Tonga, supporting a higher quality of life for all, through more inclusive and sustainable economic growth and development.

As part of the initiative, the report is modelled on UNCTAD's e-Trade Readiness Assessment which will serve as a valuable tool for Tonga in its engagement in various discussions related to e-commerce and digital trade, at the multilateral, regional and national level. Moreover, priority actions requiring support from development partners to facilitate e-commerce and digital trade can be identified under the initiative.

The report provides a basic analysis of Tonga's current e-commerce environment, identifies key constraints both internal and external, assesses current strengths, weaknesses, gaps and opportunities and provides recommendations on key actions in terms of legislation and policy framework changes, institutional reforms and capacity development to address seven relevant areas:

- E-commerce readiness assessment, vision and strategy
- Information, Communication and Technology (ICT) infrastructure and services
- Payment Solutions
- Legal and Regulatory Framework
- Trade Facilitation and Trade Logistics
- E-commerce Skills
- Access to financing

The report will be an important tool in the formulation of key reforms to facilitate successful implementation of e-commerce and digital trade in Tonga. It is with great anticipation that this report will also strengthen online trade, which reinforces the importance of ensuring that the legislative and institutional framework to implement and safeguard users and the use of their personal data is in force.

I would like to acknowledge the valuable contributions and support of the Government of Australia, which funded the project, including the support of the Pacific Islands Forum Secretariat (PIFS). I would like to further acknowledge that the successful implementation of the plan will require the dedicated support and commitment of the Ministry of Trade and Economic Development (MTED), line government Ministries and non-government stakeholders.

It is our anticipation that this plan will assist all parties to adopt a more coherent and integrated approach to achieving government strategic objectives outlined in the Tonga Strategic Development Framework II.

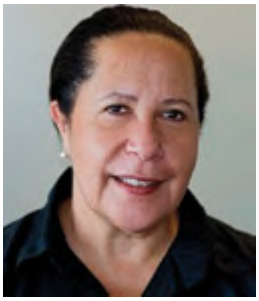
I commend this report to all our stakeholders, including our trade and development partners of the eTrade for all initiative.

Respectfully,

Hon. Samiu Kuita Vaipulu
Minister for Trade and Economic Development

Minister of Trade and Economic Development
MTED
TONGA

FOREWORD BY DAME MEG TAYLOR, SECRETARY GENERAL, PACIFIC ISLANDS FORUM SECRETARIAT



E-Commerce is expected to feature as a top regional priority in our Pacific Aid-for-Trade strategy. As such, the Pacific Islands Forum Secretariat has taken the lead in supporting Forum Islands Countries in their efforts to take part in the global digital revolution.

We consider that e-commerce presents an unprecedented opportunity to narrow connectivity distances and trade costs among Forum Members, and between the Pacific Blue Continent and the rest of the world. If conditions are right, e-commerce presents opportunities for Members to explore new ways of producing and trading and increases the diversification of our economies towards becoming services economies. The major investment in submarine cables across the region has made Internet faster, more reliable and affordable, but the extra capacity thus created have not yet been fully utilised.

Starting with a major workshop in 2017, with the support of UNCTAD and the WTO, the PIFS support to e-commerce has gained strength over the last two years. The recommendation of the 2017 Workshop on e-Commerce for the Pacific to have all PIFS members benefit from an eTrade Readiness Assessment was a first step towards developing a coherent regional e-commerce policy.

In the past two years, five national eTrade Readiness Assessments have been completed, covering Pacific LDCs: Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu.

This national e-commerce readiness report for Tonga is the first such report commissioned directly by PIFS, with support from the Australian DFAT. The report is the result of weeks of consultations in-country under the leadership of the Ministry of Trade and Economic Development of the Kingdom of Tonga. We trust that the report will guide the uptake of e-commerce in Tonga in the coming months.

With support from our development partners, PIFS expects that by the end of 2020, most Forum Island countries will be covered by a national e-Commerce Assessment and a regional e-Commerce Roadmap that will emerge, drawing upon the conclusions and priorities identified in the national assessments.

PIFS is bound to support its members in prioritising the digitalisation of government and businesses in their national development and seek the needed resources to fully benefit from their participation in the Internet revolution.

Meg Taylor, DBE

Secretary General to the Pacific Islands Forum

ACKNOWLEDGEMENTS

The National E-Commerce Readiness Assessment for Tonga was prepared by Sven Callebaut, PIFS International Consultant, in close collaboration with a local team comprising of Piveni Piukala and Kathleen Walters.

In Tonga, the Consultant wishes to express his sincere gratitude to the Honourable Samiu Kuita Vaipulu, Minister for Trade and Economic Development and to the Honourable Dr. Tevita Tu'i Uata, Former Minister for Trade and Economic Development (MTED), for supporting and providing insights on the importance of this assessment for Tonga; Pauline Siasau, Deputy Chief Executive Officer (CEO), Esterlina Alipate, Senior Trade Officer and Fofongaola 'Anisi, Trade Officer, Trade Division, MTED, for the support in arranging meetings with identified key stakeholders, including the one-day workshop for the public and private sectors during the in-country visits.

The Consultant is also grateful to the representatives of the following government agencies: The Prime Minister's Office (PMO), Ministry of Meteorology, Environment, Information, Disaster Management, Energy, Climate Change and Communications (MEIDECC), the Ministry of Education and Training (MET), the Ministry of Infrastructure (MOI), the Ministry of Public Enterprises (MPE), Ministry of Revenue and Customs (MRC), the Ministry of Tourism (MoT), the Tonga National Qualifications and Accreditation Board (TNQAB), other public enterprises as well as private sector firms for sharing their first-hand experiences in bilateral meetings.

In Geneva, the assessment was made possible through the timely support of the Permanent Delegation of the Pacific Islands Forum to the United Nations, World Trade Organization, and other international organisations in Geneva, notably through the Permanent Representative and Ambassador Mere Falemaka, and by the Aid-for-Trade and Trade Policy Adviser, Dr Andrea Giacomelli.

The Consultant also acknowledges, with gratitude, the inputs of more than 45 Tongan institutions in both the public and private sectors, through the online eTReady surveys and bilateral interviews organised by MTED in Nuku'alofa. The Consultant also expresses his appreciation for all the individuals who participated in the focus group discussions in the MTED facilities in Nuku'alofa on August 27, 2019.

The Department of Foreign Affairs and Trade (DFAT) Australia has funded the preparation of this report, which is part of its support for strengthening e-commerce capabilities in the Pacific Region and Southeast Asia.

CONTENTS

ABBREVIATIONS

ADB	Asian Development Bank
ADSL	Asymmetric Digital Subscriber Line
AfT	Aid-for-Trade
AGO	Attorney General's Office
ANZ	Australia and New Zealand Banking Group Limited
ASYCUDA	UNCTAD Automated System for Customs Data
ATM	Automated Teller Machine
AUD	Australian Dollars
AW	ASYCUDA World
B2B	Business to Business
B2C	Business to Consumer
BPO	Business Process Outsourcing
BSP	Bank of South Pacific
C2C	Consumer to Consumer
CEO	Chief Executive Officer
CERT	Computer Emergency Response Team
COD	Cash on Delivery
DFAT	Department of Foreign Affairs and Trade
DFS	Digital Financial Services
DO	Designated Postal Operator
DP	Development Partner
EFT/POS	Electronic Funds Transfer at Point of Sale
FEMM	Forum Economic Ministers Meeting
FSP	Financial Service Providers
G2B	Government to Business
G2C	Government to Consumer
GBPS	Gigabits per second
GDP	Gross Domestic Product
GEO	Geostationary Earth Orbit
GOS	Global Outsourcing Services
GSN	Government Secure Network
HK	Hong Kong
HR	Human Resources
HTS	High-throughput Satellite
ICT	Information and Communications Technology
IMF	International Monetary Fund
ISP	Internet Service Provider
IT	Information Technology
ITC	International Trade Centre

ITES	Information Technology-enabled Services
IXP	Internet Exchange Point
JCB	Japan Credit Bureau
LDC	Least Developed Country
LEAP	Leading Asia's Private Infrastructure Fund
MBPS	Megabits per second
MDAs	Ministries, Departments and Agencies
MEIDECC	Ministry of Meteorology, Environment, Information, Disaster Management, Energy, Climate Change and Communications
MET	Ministry of Education and Training
MIA	Ministry of Internal Affairs
MIC	Ministry of Information and Communications
MOF	Ministry of Finance
MOI	Ministry of Infrastructure
MORDI TT	Mainstreaming of Rural Development Innovation Tonga Trust
MPE	Ministry of Public Enterprises
MRC	Ministry of Revenue and Customs
MSMEs	Micro small medium enterprises
MTBF	Medium-Term Budgetary Framework
MTED	Ministry of Trade and Economic Development
NFC	Near-Field Communication
NIIP	National Infrastructure Investment Plan
NPL	Nonperforming loans
NRBT	National Reserve Bank of Tonga
NTFC	National Trade Facilitation Committee
NZ	New Zealand
ORE	Operational Readiness for E-Commerce
PACER+	Pacific Agreement on Closer Economic Relations Plus
PCRP	Pacific Regional Connectivity Programme
PEs	Public Enterprises
PFIP	Pacific Financial Inclusion Programme
PHAMA Plus	Pacific Horticultural and Agricultural Market Access
PICs	Pacific Island Countries
PIFS	Pacific Islands Forum Secretariat
PMC	Pacific Island Member Country
PMO	Prime Minister's Office
POS	Point of Sale
PPP	Public-Private Partnership
PSC	Public Service Commission

PSDI	Pacific Private Sector Development Initiative
PSP	Payment Service Provider
PTI	Pacific Trade and Investment
SET	Skills and Employment for Tongans
SDP8	Strategic Development Plan 8
SME	Small- and medium enterprises
SMS	Short Message Service
SOE	State-owned enterprises
SPTO	South Pacific Tourism Organization
SSS	Supply-Side Survey
ST&I	Science, Technology, and Innovation
TA	Technical Assistance
TBEC	Tonga Business Enterprise Centre
TCC	Tonga Communications Corporation
TCCI	Tonga Chamber of Commerce and Industry
TCL	Tonga Cable Limited
TDB	Tonga Development Bank
TDGSF	Tonga Digital Government Strategic Framework
TDoS	Tonga Department of Statistics
TFA	Trade Facilitation Agreement
TIHE	Tonga Institute for Higher Education
TIST	Tonga Institute for Science and Technology
TNQAB	Tonga National Qualifications and Accreditation Board
TOP	Tonga Pa'anga
TP	Tonga Post
TSDF	Tonga Strategic Development Framework (I= first; II = second)
TTPF	Tonga Trade Policy Framework
TVET	Technical and Vocational Education and Training
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNCDF	United Nations Capital Development Fund
UNESCAP	United Nations Economic and Social Commission for Asia Pacific
UPU	Universal Postal Union
US	United States of America
US$	United States Dollar
USP	University of the South Pacific
VOIP	Voice Over Internet Protocol
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization

EXECUTIVE SUMMARY

The new political era that started in the last decade in Tonga has offered the opportunity of improved governance and public service delivery and, through strategic investment in ICT infrastructure, a path towards economic growth and diversification. Recent investments in improved connectivity in Tonga—notably broadband Internet access—coupled with global trends in the development of digital technologies, have given the opportunity to rethink the government's service delivery model.

However, Tonga's remote location, small size and dispersed islands pose many challenges, such as high transaction costs and low level of formalisation of businesses, for e-commerce development. Building the enabling platform and associated institutional capacity to support a new model for digital service has become an engine for development and inclusiveness in Tonga. Further developing the private sector, by supporting access to finance of MSMEs, could raise Tonga's growth potential in the long-run. Promoting the formalisation of the economy and improving the business climate have become crucial priorities to allow for a smooth transition towards a Digital Tonga.

Vision for E-commerce and the E-commerce Ecosystem

ICT deployment and connectivity have been at the forefront of government policy for the past 10 years. The government's *Tonga Strategic Development Framework (TSDF)* addresses some structural issues, particularly the development of resilient infrastructure, enhancement of health and education to build human capital, and promotion of the diversification of domestic production. The vision of the TSDF is to promote "a more progressive Tonga supporting a higher quality of life for all." While the Tonga Trade Policy Framework (TTPF) does not specify the role a transition towards digital economy could play in accelerating economic development in the country, it does underscore the importance of e-government and ICT in trade and development.

Structural reforms are needed to further attract private investments in ICT and e-commerce and to eventually increase inclusive growth: as the ICT capacity increases, the focus has turned to E-Government, as outlined in the recently launched Digital Government Strategic Framework (2019-2024). The economic and social impact of the Internet has not comprehensively been researched or assessed in Tonga, but it has been significant - online platforms such as Facebook are popular and are a means to exchange or sell goods and services in Tonga; remittances have become easier and cheaper to transact; and businesses such as tourism operators and retailers have started to benefit from e-commerce. The e-commerce sector is still in the nascent stage and is not considered an engine of growth in the more recent trade and investment strategies, although local e-commerce platforms have been emerging in the last two years.

ICT Infrastructure

Since the introduction of the submarine cable, Tonga has experienced rapid growth in Internet access and use. There is nearly universal mobile network coverage and Internet penetration stands at 50 percent of the population on the islands. 4G has been introduced in the market and there is growing demand for faster and affordable Internet connection. Despite fast growth in data consumption, only a small percentage of the cable capacity is currently used. Internet access has improved and prices are expected to drop further alongside market growth.

The government has made remarkable progress in closing the digital divide in the country. Based on 2017 data, Tonga appears to be the third most affordable country in the region for mobile broadband access, after Australia and New Zealand. The domestic cable to Ha'apai and Vava'u contributed significantly to reducing inequalities between administrative divisions through faster Internet. The government's broader development strategy is to improve Internet and mobile connectivity in the outer islands to realize key development outcomes related to the digital economy and, in doing so, to trade and e-commerce. Liberalisation efforts are a step towards these long-term goals and bode well for the growth of the digital economy. A significant increase in mobile-broadband subscriptions followed the introduction of competition and entrance of private telecommunication operator, Digicel. With investments in the mobile network infrastructure, access and affordability of mobile-broadband services have improved. While the application of ICT and e-commerce solutions can only partially address structural and infrastructural challenges related to trade, it can also significantly reduce the administrative barriers that increase costs, delays, and unreliability.

Trade Logistics and Trade Facilitation

As a signatory to the PACER Plus agreement, Tonga is benefitting from trade facilitation related support including deployment of ASYCUDA World and the establishment of trade portals with the assistance of UNCTAD and funding from Australia and New Zealand. Upon its entry into force, the agreement will further provide opportunities to address priorities in a regional context. While performance in cross-border paperless

trade has been improving since 2015, key issues remain. First and last-mile delivery of cargo and parcels in Tonga, including through postal services, still face serious logistics challenges. The absence of a physical addressing system, postal codes, and the low automation at Tonga Post (TP) have led businesses to opt for more expensive shipping and delivery options. As Tonga does not have a de minimis threshold and applies strict risk management procedures, cross-border e-commerce is not competitive and has remained mostly informal.

Payment Solutions, Digital Financial Inclusion and Access to Financing

Cash is the main payment mechanism in the country. Tonga, like most other Pacific Islands Countries, is a cash-based economy. Card-based payment options are accepted primarily among local medium- and large-sized firms in Nuku'alofa, but not favoured by businesses with foreign trade operations who prefer Australia or New Zealand-issued cards for international payments. Despite promising growth in 2015, high annual volume of remittances, and the fact that a large proportion of the adult population is unbanked, mobile banking and mobile-money services have not been widely adopted in Tonga. Access to financing for "digital SMEs" is very limited, due to the lack of formalisation of businesses, the nascent stage of the e-commerce scene, and the lack of opportunities. Alternative funding through remittances shows considerable potential. Ample scope to develop these services for other use-cases, such as for e-commerce, and G2C and C2G transactions, will soon be available, given the strong emerging focus on digital government and digital financial inclusion.

Legal and Regulatory Frameworks

With support from its development partners, Tonga has recently made progress in enhancing its legal and regulatory frameworks for e-commerce. With some laws nearing completion, it is important to ensure that they include the most relevant and up-to-date articles to make them e-compatible. Enactment of essential legislation will enable digital government and support online transactions more broadly. A draft e-Transactions Bill (based on UNCITRAL's Model Law on Electronic Commerce and the Model Law on Electronic Signatures) is yet to be passed (as of December 2019). This was in response to the growing concern for security in using personal data and banking information in making e-transactions. The Consumer Protection Bill is currently under review.

The introduction of the submarine cable in Tonga drew attention to the enabling legal and regulatory environments to maximise consumer benefits that may be derived from the increased capacity. This is especially true as a publicly-owned monopoly is responsible for international connectivity in Tonga, which differs from usual approaches in other Pacific Islands where public-private partnerships from the outset are preferred. Key regulatory reforms should receive attention in the near future including the establishment of an independent telecom regulator and financial regulations, allowing for better Internet-based payments and the entry of fintech[1] companies in the market.

Skills development for e-commerce

Current curricula in higher education institutions and training programmes have not yet embraced modules that will make it suitable in the development of e-commerce skills. Worthwhile to note is the University of the South Pacific's (USP) regional e-learning platform accessible from its Tonga campus and plans to establish a business incubator. Further, the emerging support for digital entrepreneurship can potentially provide new opportunities for youth employment.

The present assessment is aimed at supporting Tonga's efforts to identify e-commerce challenges and leverage additional resources from development partners to address these barriers. Tonga has yet to take advantage of the potential of e-commerce. The country could benefit substantially from e-commerce if it is able to accelerate the adoption of key measures aimed at supporting the development of an e-commerce ecosystem (e.g., digital economy strategy, enhanced regulatory framework) and private sector investments (in skills and access to finance). Among other benefits, e-commerce can fuel

[1]Fintech, short for financial technology refers to the technology and innovation that aims to compete with traditional financial methods in the delivery of financial services.

development of the tourism and professional services sectors, attract FDI, and increase employment in Tonga, thus limiting the structural brain drain.

The action matrix presented in this report proposes steps towards increasing ICT and e-commerce uptake in Tonga and making sure benefits of digitalisation are shared among all stakeholders. It takes into consideration priority actions identified by stakeholders during the in-country assessment (Figure 1 below).

Figure 1: Key Actions Identified to Enhance E-commerce in Tonga

Source: PIFS, 2019

METHODOLOGY

A five-step approach was used for the national e-commerce readiness assessment of Tonga to ensure a high level of participation and engagement of key stakeholders in the consultative process:

- **Phase 1 | Stakeholder engagement and literature review, June 1-30, 2019.** This included official communications between PIFS, MTED, UNCTAD and the Permanent Representative of the Pacific Islands Forum to the WTO in Geneva. Literature review and data analysis were undertaken, with support from the MTED Trade Division.

- **Phase 2 | Online survey customisation and dissemination, July 15 to September 15, 2019**. Two (2) customised surveys for the public and private sectors were distributed to stakeholders in Tonga by the MTED and the Consultant's team. A total of 41 completed surveys were used for this report (34 received online and 7 completed during the focus group discussions).

- **Phase 3 | Consultant's mission to Nuku'alofa, Tonga, August 18-30, 2019**. Activities included focus group discussions, semi-structured interviews, and bilateral meetings. Two half-day focus group meetings were held at the MTED facilities on the 27th of August. A total of 40 bilateral meetings with interested parties were organised during the in-country mission.

- **Phase 4 | Report drafting and stakeholders review, September-December 2019.**

- **Phase 5 | In-country validation and National Launch Event, January 2020 (tentative).**

SUMMARY OF FINDINGS AND RECOMMENDATIONS

MAIN FINDINGS	MAIN RECOMMENDATIONS
Status of E-commerce Development and Government Vision	
ICT deployment and connectivity has been at the forefront of Government policy for the past 10 years. As ICT capacity increased, focus has shifted to e-Government, as outlined in the Digital Government Strategic Framework (2019-2024). However, business and consumers have yet to benefit from this emphasis. The e-commerce sector is in the nascent stage and is not yet ready to be an engine of growth. However, the dynamic C2C scene, although still informal and involving social media platforms, have proven that the market is ripe for more B2B and B2C, with local e-commerce platforms appearing in the last two years. The services sector - ICT, tourism, transport - should be among the early adopters and earners.	• Ensure all plans, strategies, and visions are sufficiently funded, implemented, monitored, and adjusted as necessary. • Mainstreaming business applications of ICT and e-commerce in future updates. • Develop a vision of what a Digital Tonga will look like in 5 or 10 years from now, with a focus on business, SME development, to increase adoption of G2B and G2C services (could take the form of a digital road map) • Foster better public-private dialogue on services trade, ICT for business and digital economy.
ICT Infrastructure, Connectivity and Affordability	
Early liberalisation of the telecommunications sector and support from donors have resulted in impressive growth of coverage and adoption of voice and data services. Mobile-broadband is also increasing albeit delays due to the dependency on the submarine cable, though cost and connectivity concerns are resulting in slower usage rates. In general, competition between TCC/UCall and Digicel is faring well for overall sector growth. Future plans for redundancy via satellite connectivity and enhancements are good developments for the digital economy due to speed/data capacity considerations.	• Finalize and agree on plans to ensure long-term nationwide connectivity and better redundancy. • Encourage telecom operators towards content development and provision of value-added services. • Accelerate deployment of e-Government services by building ICT capacity within Government institutions.
Trade Logistics and Trade Facilitation	
Tonga has a reasonably well-developed logistics infrastructure from a road, air and shipping perspective, although issues of physical addressing and ICT capacity at the Tonga Post constrain e-commerce logistics. There are important requirements that must be met for connectivity outside of the main cities towards the outer islands, especially via the inter-islands shipping routes, to be improved. Trade facilitation is an emerging priority area, considering bottlenecks in cross-border trade. The PACER+ readiness package supported by Australia and New Zealand holds the promise of faster clearance and more transparent business regulations through the ASYCUDA and Business Facilitation Programmes, respectively.	• Prioritize and sequence introduction of TFA measures and finalise ratification process. • Support rapid implementation of the ASYCUDA World Programme, ensuring users in the private sector are part of the deployment and corresponding training and awareness raising programmes. • Complete the implementation of the Operation Readiness for e-Commerce at Tonga Post and, going further, have Tonga Post and Customs work together to create an interface between existing systems to optimize customs clearance and timely delivery of postal items. • Improve traceability, delivery times and service quality for items in the postal network and allow faster and more accurate collection of duties and taxes payable.

Legal and Regulatory Frameworks

With support from development partners, Tonga has recently made progress in enhancing its legal and regulatory frameworks for e-commerce. As some laws are nearing completion, it will be important to ensure that they include the most relevant and up-to-date articles (e.g., on consumer protection, data privacy) to make them e-compatible.

- Essential legislation needs to be enacted to enable digital government and support online transactions more broadly.
- Similarly, the regulatory framework should support firms entering the marketplace and creating value through e-commerce.
- An unclear regulatory environment limits value creation through e-commerce initiatives. To address this, massive awareness campaigns on consumer protection should be deployed and existing regulations should be improved to boost confidence of both merchants and consumers.

Payment Solutions, Digital Financial Inclusion and Access to Financing

Cash is the main payment mechanism in the country. Tonga, like most other Pacific Islands Countries, is a cash-based economy. Card-based payment options are accepted among the medium- and large-sized firms at least in Nuku'alofa. Despite promising growth in 2015, high annual volume of remittances, and the fact that a large proportion of the adult population is unbanked, mobile banking and mobile-money services have not been widely adopted in Tonga. Access to financing for digital SMEs is very limited, due to the lack of formalisation of businesses, the nascent stage of the e-commerce scene and lack of opportunities. Alternative funding through remittances shows considerable potential. Ample scope to develop these services for other use-cases, such as for G2B, G2C and C2G transactions, will soon be available, given the strong emerging focus on digital government and digital financial inclusion.

- Assess capacity and needs of the private sector to use electronic payment solutions.
- Help tourism businesses to integrate payment solutions in websites for room reservations and other tourism services.
- Increase awareness of businesses on different types of payment solutions.
- Develop advocacy campaign on costs of using cash.
- Accelerate formalisation of businesses, financial literacy, and digital financial inclusion.
- Seek assistance from regional or international organisations to provide alternative types of financing for SMEs (e.g. PFIP and UNCDF).
- Accelerate adoption of Internet-based interbank settlement and Internet payment gateways. Stimulate competition by supporting the development of a Fintech industry focusing on use of remittances for productive investments.

Skills for e-Commerce Development

There are low levels of digitalisation and sophistication of MSMEs, partly due to a lack of and access to training opportunities and absence of e-commerce expertise in-country. While the Government of Tonga has prioritised training education in recent policy frameworks, parts relevant to ICT are concentrated on developing skills to use ICT (access to ICT infrastructure, basic ICT skills) and for Government officials in the context of the Digital Government Framework, but seldom on the skills needed to embrace e-commerce or the digital revolution. Initiatives of development partners do not include components relevant to the skills needed for a digital economy – e.g., digital entrepreneurship and even a focus on ICT is relatively lacking. Business associations do not have the expertise readily available to bridge the ICT and e-commerce knowledge gaps.

- Carry out nationwide ICT skills gap research.
- Boost understanding of ICT and Digital Economy by the Tonga Chamber of Commerce and Industry, which has been conservative in its outreach to the ICT-led businesses and even less so with tech start-ups. This focus can also be added gradually as the digital economy evolves and a needs-assessment can be clearly conducted.
- Leverage labor mobility schemes to increase demand for ICT-related skills, which may lead to improvements within the skills-development infrastructure.
- Set digital literacy and digital inclusion as national priorities.
- Ensure donor-funded programmes on skills development include training on ICT skills for businesses.
- Deploy massive public awareness/capacity building campaign of the general public on ICT.

1. Status of E-commerce Development and the Government's Vision

ICT deployment and connectivity has been at the forefront of the Government policy for the past 10 years. As the ICT capacity increased, the focus has turned to E-Government, as outlined in the recently launched Digital Government Strategic Framework (2019-2024). However, business and consumers have still not started to benefit from the increased capacity. The e-commerce sector is in its nascent stage and is currently not considered as an engine of growth in recent trade and investment strategies. However, the dynamic C2C scene, although still informal and mainly involves social media platforms, have proven that the market is mature for more B2B and B2C, with local e-commerce platforms developing in the last two years. The services sector - ICT, tourism, and transport - should be among the early adopters and earners.

1.1 National policies related to ICT, e-government, e-commerce

National development policies launched in the past years by the Government identified enhancement of information and communications technology (ICT) infrastructure and shift towards a digital economy as core development objectives.

Approved in April 2015, the Government of Tonga's national development strategy is set out in the **Tonga Strategic Development Framework (TSDF) 2015–25**. The TSDF sets out a medium-term vision that builds directly on the preceding development framework for the period 2011–2014. The vision of the TSDF is for "a more progressive Tonga supporting a higher quality of life for all." This vision is translated into seven (7) high-level National Outcomes and four (4) Pillars to be achieved over the next 10 years. TSDF informs all national stakeholders and development partners of the broad Organizational Outcomes that are needed to support National Outcomes and Impacts and guides the formulation of sector plans, ministries, departments, and agencies' (MDAs) corporate plans and the Medium-Term Budgetary Framework (MTBF), through which resources are allocated. It also guides the development of Government external economic relations and the country strategies and assistance programmes of development partners.

TSDF Pillar 4, Outcome 4.3 seeks to develop "more reliable, safe and affordable ICT used in more innovative and inclusive ways, linking people across the Kingdom and with the rest of the world, delivering key services by government and business and drawing communities more closely together." The strategic concepts for implementation are as follows:

a) extend the cable connection from Tongatapu to the other main centres supported by improved microwave links;
b) expand the applications of ICT to include e-government, e-commerce, e-learning, e-disaster and e-entertainment - finding ways to use them to mitigate the distance between communities;
c) expand training and skills in the use of modern ICT, including encouraging foreign investment in this area; and
d) encourage increased competition in the delivery of these services.

The Government has adopted its first **Tonga Digital Government Strategic Framework (TDGSF), 2019-2024** in January 2019. The framework has the following objectives: (i) Implement Digital Government Across All Government Agencies and Activities; (ii) Advance Digital Inclusion for All Tongans; (iii) Strengthen Governance and Efficiency; (iv) Promote Data Sharing and a Service-Oriented Information Systems Architecture; and (v) Enhance Citizen Engagement. The TDGSF sets directions for the Government's use of ICT or digital technologies, with the ultimate intent of improving efficiencies in Government business processes and workflow and improving the quality of life for citizens and residents, while reducing the complexity of transacting business with Government.

The TDGSF promotes the use of digital technologies within Government ministries and agencies. This includes an ambitious transition from paper-based transactions to digital Government. It is hoped that as Government data and information is transitioned to digital format, Tonga will benefit from a new, modern model of ICT delivery for all agencies. This model is expected to enable a far more integrated, shared, accurate, and inclusive information flow within and across all Government agencies and also supporting open data initiatives in the future.

The TDGSF provides high level strategic guidance for Government enterprises/agencies on how to build and strengthen Government processes and workflows to

support decision-making and in ways that contribute to sustainable development in Tonga. The TDGSF is also closely aligned with the TSDF.

The TDGSF and projects under this framework are led by the Prime Minister's Reform Task Force.

The National ICT Policy (2008) and its corresponding strategic plan served to unify the numerous and disparate ICT initiatives ongoing at the time as well as provide a roadmap for the future into a national development planning framework, set out in Tonga's Strategic Development Plan Eight (SDP8). The policy was drafted using a consultative and collaborative approach involving more than 75 stakeholders, representing different sectors of Tongan society, including government, the private sector, the IT community, academia, and civil society. It placed special emphasis on six (6) areas: i) provision of ICT in homes and communities; ii) education and skills development; iii) e-government; iv) industry growth and economic development; v) enabling technical infrastructure; and vi) ICT-related legislation.

Its implementation plan was sequenced in a series of implementation 'waves' or phases according to complexity. The first of these 'waves', called Pathfinder projects, consisted of a series of small but strategically important initiatives, designed to build momentum, show tangible results, demonstrate government will, and lay the strategic foundation for larger, longer-term initiatives. Pathfinder projects touched upon critical elements of the Strategic Plan, including universal access, national education policy, e-government, e-health, e-commerce, infrastructure, and legislation. There is now a need to update the policy based on the current context and based on the level of progress and implementation of the original policy.

1.2 Trade performance and national policies related to trade and private sector development

Tonga's Trade Policy Framework (TTPF) has evolved gradually over the past two decades. This is particularly important as it is in the past ten years that regional and multilateral economic integration initiatives have intensified in the Pacific region. The TTPF's objective is to help guide the Kingdom of Tonga mainstream trade into its national development strategy.

Revamping the country's trade policy framework should help the government point to policy instruments that could improve the country's trade performance, while providing guidance on how to mobilize resources to support necessary domestic reforms, trade-related adjustments, and building the private sector's productive capacity to generate and supply value-added products and services into international markets.

The Tonga Trade Policy Framework (TTPF) 2017-2025 covers entrepreneurship and skills development in Outcomes 1.3 and 1.5. Objectives and activities specific to e-commerce or digital trade are within dedicated ministries' (e.g. MEIDECC) purview. Several actions relevant to a possible future uptake of e-commerce are mentioned:

- Improve vocational training and skills development of workers
- Design and implement programmes for managerial capacity/entrepreneurial development
- Enhance and expand business development services, based on needs assessment
- Awareness raising and incentives to formalise informal businesses
- Increase awareness of businesses for the potential of ICT
- Promote innovation and R&D activities

Trade performance and competitiveness

Agriculture, tourism, and remittances are expected to drive economic growth in the short- to medium-term. The agriculture sector benefits from significant support through the development partners' programme, among others. With a narrow resource base in terms of natural resources, it lends importance to the economic role of tourism, in particular, within the sun-sea-sand tourism, sports tourism, and agro-tourism segments.

Agriculture products, comprised mainly of fresh or chilled pumpkins, yam, fisheries (tuna), coral, and similar materials constitute the country's main goods exports primarily to the following markets: New Zealand (NZ), the United States (US), Hong Kong (HK), Japan, and Australia. Total goods-based exports value amounted to USD13.4 million in 2018, reflecting a plateaued growth rate from 2012 figures. Traditional exports such as copra have been in decline, while produce such as squash has demonstrated significant growth.

Tongan agriculture exporters face significant challenges in penetrating and surviving in international markets. Maintaining volumes, on-time delivery, and high costs of transportation are key challenges, but so is quality management, particularly for countries such as Australia and New Zealand, which have stringent entry requirements. The Pacific Horticultural and Agricultural Market Access (PHAMA) Plus, funded by Australia and New Zealand is focused on promoting productivity, efficiency, and meeting standards for root crops, specifically cassava, yam, taro and sweet potatoes, and support resilience, biosafety compliance and disease management capacity for horticultural produce including watermelon, squash, butternut and butterkin. It has particular focus on providing support to women farmers. It should be noted that the programme, similar to other sector development initiatives, does not give emphasis to digital elements such as e-commerce capability development.

Tonga is highly-dependent on imports of consumer and capital goods, similar to comparable Pacific Island Member Countries (PMCs), and New Zealand, Singapore, the United States, Australia, and Fiji are the key sourcing markets.

The welfare of Tongans is highly dependent upon the high level of **remittances**. These are driven by a significant proportion of the population (almost 50 per cent) living overseas (mainly in Australia, NZ, and the US). Remittance values account for approximately 30 per cent of the GDP. The Seasonal Worker Schemes put in place by New Zealand and Australia gave remittances a boost to counter the downturn caused by the global financial crisis. Remittances also provide financial scope for the more entrepreneurial households to develop small businesses, particularly if secure access to land is available.

Compared to trade in goods**, Tonga's services** trade performance is better[2]: services exports are higher, more than five times the level of merchandise exports, and have grown at a faster rate than goods exports. At the same time, services imports are lower than goods imports. Like goods exports, Tonga's exports of services are highly concentrated: more than half of the services exports revenues are from the tourism and travel industries. Sports-based tourism has taken up precedence in the country's trade policy focus in recent years, with a spate of construction activity aimed at developing facilities for regional sports such as rugby. The International Monetary Fund (IMF) envisages the sector to constitute 15.3 per cent of the GDP in 2019. Transport and other business services have shown even higher growth rates than tourism exports. Other services sectors, including construction and financial services have shown a less clear trend over time, with high volatility of exports. Imports of services are dominated by transportation, business, and travel services. Indeed, a review of the service sector trade balances shows that it is the only sector/industry that generates net foreign exchange.

The TTPF aims at further diversifying services exports. To this end, the following sectors are deemed to exhibit potential for diversification: construction and business services, including ICT-based services. The opportunity to expand services offered by domestic providers, notably: financial and business services, will also be addressed under the TTPF's sector-specific measures. In addition, due to its importance to the economy, the tourism industry is considered a priority sector, thus, diversification through the development of new products and expansion of feeder markets, will likewise be applied."

Several economic reforms have been implemented since 2008, e.g., liberalisation of trade and investment, tax reform, opening of the mobile phone market, and reduction of the size of the public service. However, state-owned enterprises (SOEs) that impose a burden on the budget and "crowd-out" the private sector remain. Privatisation of SOEs is essential in Tonga, as is the adoption of more open and transparent investment regimes. Doing so would lower the costs of essential services and open up opportunities for both domestic and foreign investors. Many of the Tongans who have migrated to Australia, New Zealand, and the US have become successful in business and, given the right incentives, can be valuable entrepreneurial and financial resources for business development in their home country. To this end, Tonga needs to become more investor-friendly.

1.3 National coordination (e-Government, inter-ministerial task force on digital economy, Public-Private Dialogue)

The current focus of the Government is to rethink its service-delivery model in light of challenges in providing services across the country. In recent years, e-government

[2]It was not possible to obtain detailed statistics on ICT services. The statistical capacity in Tonga is weak, due to insufficient resources at the Tonga Department of Statistics (TDS), exacerbated by the large demand for all official statistics related to the sustainable development goals (SDGs) and the TSDF framework where new thematic areas appear that needs in-depth analytical skills. Bottlenecks in the compilation of external sector statistics need to be addressed

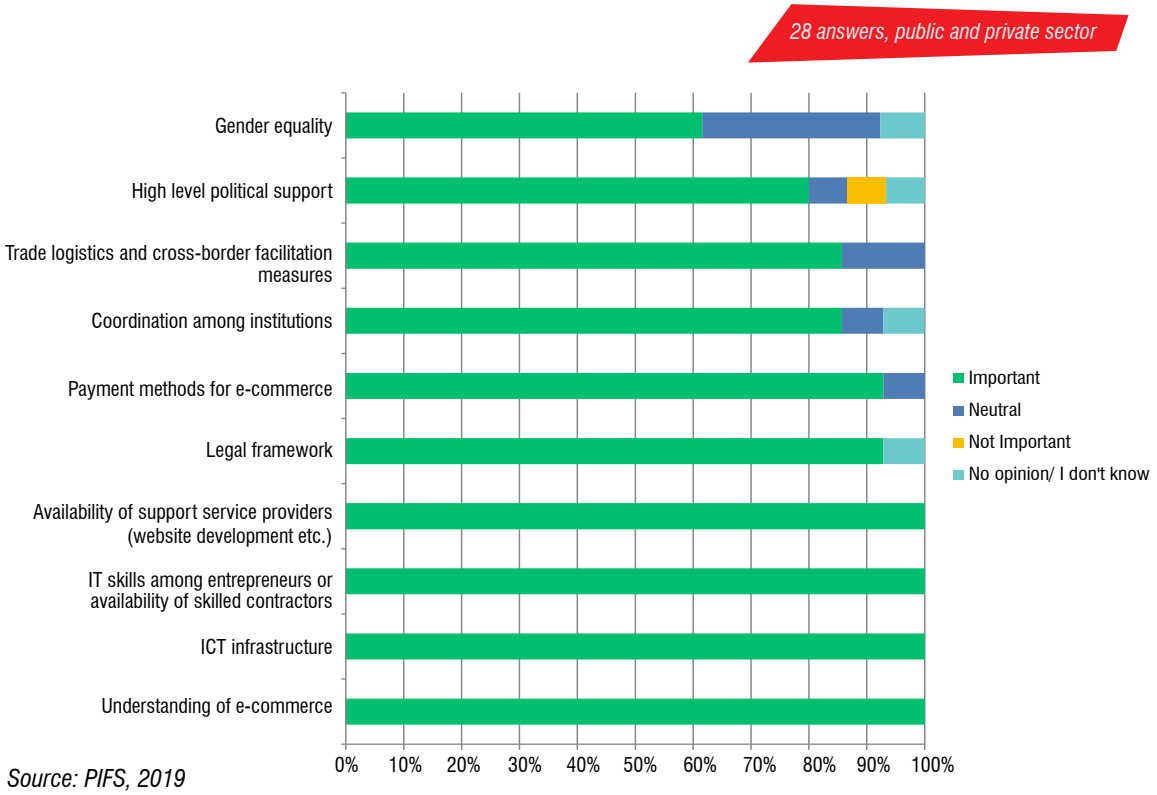
has figured prominently on the agenda in this regard. Consultations with all relevant stakeholders are taking place regularly. In regards to e-commerce, MEIDECC is indirectly consulting with some of the stakeholders as part of developing systems that will be vital for the development of a more secure and safe e-commerce environment. Consultations with the private sector on e-commerce matters appear non-existent at the present time, although the different business facilitation initiatives triggered by the signing of the Pacific Agreement on Closer Economic Relations Plus (PACER+) have created opportunities for public-private dialogue.[3]

The Government has taken the following initial steps to develop digital government:

- Establishment of a Cabinet Sub-Committee on E-Government in 2017;
- Set-up of an E-Government unit and investment in a containerised data centre and government network infrastructure by the Ministry of Meteorology, Environment, Information, Disaster Management, Energy, Climate Change and Communications (MEIDECC) through a five-year contract with Tonga Communications Corporation (TCC);
- Access to the Internet. All ministries and nearly all government agencies in Nuku'alofa are connected to the Government Secure Network (GSN), with eight (8) agencies awaiting installation; and
- Establishment of a Ministerial-level Sector-based Project Steering Committee to oversee digital government development. This is based on Cabinet Decision 822/Sept 21, 2019 and chaired by the Minister of Finance and the Deputy Prime Minister. This is in line with the "whole-of-government" approach envisaged moving forward.

While most ministries have a website, there is no common look and feel that make it easily identifiable nor are data management or data protection standards in place. Some online services, for example, business registration, customs and tax payments have been made available, but remain in the early stages of development, as issues such as online payment capabilities and data generation capabilities have been reported.

Figure 2: Level of maturity for e-commerce in Tonga under different policy areas



Source: PIFS, 2019

[3]Australia and New Zealand are funding a Trade Portal for Tonga (https://tonga.tradeportal.org/) as well as the introduction of UNCTAD ASYCUDA Programme in Tonga Customs (https://www.ocosec.org/enhancing-regional-integration-through-customs-automation/)

1.4 Current e-commerce and e-commerce marketplace activities

E-commerce activities in Tonga take similar forms to what have been observed by UNCTAD in Samoa and Vanuatu. Most online sales are done through Facebook or Instagram shops, with "Facebook online garage sales"[4] having gained a lot of popularity. While many registered businesses have websites, most do so for marketing and visibility reasons, but do not offer online ordering and payment options. This is especially true for the hospitality sector (hotels, guesthouses, travel agents, and whale-watching tours).

Besides the informal, unregistered, and traditional forms of e-commerce, some entrepreneurs, having experienced e-commerce in Australia or New Zealand, have started developing Tongan marketplaces, serving a mix of locals and expatriates in Tonga, as well as overseas Tongans wanting to order online goods for delivery in the main island of Tongatapu.

Table I: Tonga portals with integrated payment options

Business name	Website	Sector
Made in Tonga	https://madeintonga.com	Market place for Tonga-made products (export focus)
EZTonga	https://www.EZtonga.com	Retail (food, grocery shopping, delivery)
Business Registration Office	https://www.businessregistries.gov.to/	Government office
Real Tonga Airline	https://realtonga.to/	Air Transport

Information obtained through research by the author in Tonga (September 28, 2019)

Table II: Tonga trade and business associations supporting ICT and e-commerce development

Business name	Website	Actions
Tonga Chamber of Commerce and Industry (TCCI)	http://tongachamber.org/	E-commerce clinics (diagnostics of business readiness for e-commerce
Tonga Business Enterprise Centre (under TCCI)	http://www.tbec.to/	Training, planning, procurements of goods and services
Tonga Skills (a Department of Foreign Affairs and Trade (DFAT)-Australia-funded programme)	http://tongaskills.com/	Tonga Skills facilitates inclusive economic growth, particularly in rural and outer island locations, through improved skills planning and coordination. It supports entrepreneurial outcomes, micro, small and medium enterprise development.

Information obtained through research by the author in Tonga (September 28, 2019)

Two (2) separate Tongan-owned and operated marketplaces have lately gained traction in the country. Both have a vision of helping local producers and micro, small, and medium enterprises (MSMEs) get digital, sell online and therefore improve their distributions.

[4]See for instance: https://web.facebook.com/groups/162723840737340/?_rdc=1&_rdr

Made in Tonga (madeintonga.com) is an online marketplace for products "Made in Tonga." It allows manufacturers, crafters, and artisans to promote and sell authentic products from the Kingdom of Tonga, showcase the vast resources, ingenuity, and uniqueness of the Tongan culture, and by making these available online, provide access to these products outside of the Kingdom. Products sold on the platform include: handicrafts, essential oils, candles, books, and mats, among others. A family-operated platform, the website has already gone through several processes of revision in efforts to achieve a good balance between appealing to the modern and digital and maintaining its focus on local development. With its improved design, the platform has been able to attract customers from overseas – either tourists seeking to recreate their "Tongan experience" or Tongans overseas looking for quality products made in Tonga.

However, the platform faces numerous constraints, in particular: lack of skills in terms of content development and content management; online payments that cannot be routed directly to Tongan bank accounts and logistics; in terms of quality of services, timeliness; and cost-related issues. While the platform has potential for growth in attracting more local producers, shipping in greater volumes, as well as in attracting new customers, current conditions for e-commerce development in Tonga has hampered the business to flourish at the moment.

EZ Tonga (https://eztonga.com) is a family-owned company that has been gaining popularity in the main islands of Tongatapu. "Giving back," a huge part of Tongan Culture, is the company's motto. Its mission is to provide quality goods and services at affordable prices, with no hidden or extra fees as well as the fastest, most fun, and quality grocery and retail shopping that connect Tongans who live overseas with family members in Tonga 24/7. The company works with small and medium enterprises (SMEs), manufacturers, and large importers. At present, EZ Tonga has internalised all functions - from website development, digitalisation and onboarding of SMEs, to logistics and even payments.

EZ Tonga's journey began with the idea of lowering the costs of remittances from Tongans overseas, using Fintech, aimed at both reducing transactions costs and ensuring an easier and more productive use of remittances by their recipients. The struggle to change habits combined with the high cost of obtaining the license convinced the founder, Mr. Talai Tangifua, to use his ICT skills to start an online retail platform, seeing the impact Facebook shops had on local communities.

1.5 Potential for development of Tonga's e-commerce

With faster, reliable, and affordable access to the Internet, with a qualified workforce and a strong diaspora, Tonga is poised to benefit from the digital economy revolution, provided several bottlenecks identified in this report can be addressed.

The services sector is expected to benefit from improved connectivity. Services like Global Outsourcing Services (GOS), virtual assistants, and micro-tasks platforms could prosper in future years. Small economies like Tonga can benefit from the IT-enabled GOS industry, as shown by Mauritius recognised among the off-shoring leaders in Africa. In Mauritius alone, the GOS industry enabled the creation of 18,000 jobs, benefiting women and the youth. With a global market size of US$952 billion per year, the offshore GOS market size for Asia Pacific is estimated at US$140 billion per year, of which the Pacific Island Countries (PICs including Australia and New Zealand) represented US$31 billion annually.[5] This represents 17 percent of the total Asia Pacific market (World Bank, 2015). While growth from outsourcing for large companies has begun to level off, outsourcing by small- and medium-sized businesses continues to grow dramatically due to technology advancements such as Voice Over Internet Protocol or VOIP. These technological advancements have brought down costs as well as increased understanding of the benefits outsourcing offers to organizations of any size.

In Tonga, the launch of Ezia Global in 2019 was a first attempt at creating the first Virtual Assistant and Business Process Outsourcing (BPO)[6] platform. The outsourcing platform aims to provide talented and skilled locals access to overseas companies to employ them. Students, school leavers, graduates, skilled unemployed to skilled retirees have the opportunity to be hired by and work directly for companies overseas. The platform allows individuals to increase their proficiency in their respective fields of expertise and/or interests. These are envisaged to encourage entrepreneurship and increase employment, especially for digitally-literate youth.

Table III below provides an overview of the development potential of Tonga's e-commerce and digital economy component.

[5]Pacific Possible Technical Note, Robert Utz, 2017

[6]Outsourcing (BPO) is the contracting of non-primary business activities and functions to a third-party provider. BPO services include payroll, human resources (HR), accounting and customer/call centre relations to name a few. BPO is an information technology enabled services (ITES).

Table III: Digital economy opportunities in Tonga

	Digital economy component	Current activity	Development timeframe			Comments for future growth
			ST	MT	LT	
1	Software and IT consulting	Small-scale presence				Strong potential, especially for returning diaspora, who may be able to inject ideas and resources in the sector. However, market demand is currently weak, and requires an anchor sector (most likely, tourism) to drive demand.
2	Telecommunications	Early diversification facilitated expansion and adoption of voice services; however, high mobile broadband Internet costs and limited coverage are identified challenges				Serves as the backbone of the digital economy and therefore constitutes an important prerequisite for improvement. The proposed satellite connection may provide redundancy and increased coverage, and help to avoid incidents such as nationwide loss of connectivity in January 2019.
3	Fintech	Currently limited to remittance-based products				Given the rise of the mobile-money segment, there is a high level of readiness to develop innovative Fintech solutions as well as a strong focus on the national e-governance agenda.
4	Digital Services	Digital services such as online tax-payments, power bill payments are in place, but are hindered by challenges to implementation				Definitely on a growth trajectory given the government's focus on e-government and recent development activity (including that of the World Bank's).
5	Platform economy	Very lim*ited but developing since 2019.*				Unlikely to develop before significant interest/pace for e-commerce picks up. However, when this does happen, the need for e-commerce and content platforms will be essential as companies will likely not have access to skills in-house or externally to develop websites (e-commerce or otherwise).
6	Sharing economy	There is currently some activity via online accommodation platforms such as TripAdvisor				Given the opportunities this presents for Tourism, there is significant potential to develop this, at least within the accommodations segment.

[7]Platform economy is the tendency for commerce to increasingly move towards and in favour of digital platform business models. Platforms are underlying computer systems that can host services that allow consumers, entrepreneurs, businesses and the general public to connect, share resources or sell products (Source: Investopedia).

[8]The sharing economy is an economic model defined as a peer-to-peer (P2P) based activity of acquiring, providing, or sharing access to goods and services that is often facilitated by a community-based on-line platform (source: Investopedia).

	Digital economy component	Current activity	Development timeframe			Comments for future growth
			ST	MT	LT	
7	Gig economy[9]	Limited activity, given the paucity of opportunities in the country. Professionals prefer the Australian and NZ markets.				Independent consulting/contracting work will gain importance as the digital economy grows. Enterprises will experience a lag effect before they can develop in-house capacities to develop websites and other skills, giving rise to the potential of the gig economy.
8	Information services[10]	Currently underdeveloped.				With anticipated improvements in mobile-broadband costs and coverage and deployment of the Internet exchange point[11], there is potential (in the medium- to long-term) to develop local information services by entrepreneurs. However, this will most likely not take place separately, but as part of other growth areas such as tourism and e-government services.
9	Digital Transformation and Climate Change	Limited applications currently, as this is not within the scope of any of the ongoing value chain specific initiatives.				The Climate Change Policy 2035 recognises the severe vulnerabilities faced by Tonga in terms of natural disasters, and advocates for strengthening the technological element in research and analysis, monitoring and management of data related to climate and environmental risks management. Deployment of associated technologies involving early warning systems as well as immediate post-disaster recovery certainly have promising applications as well. Health and education, likewise, have a similar scope.
10	Transport and Logistics	There is very little digitalisation in the sector (shipping, airline, last mile); huge potential for online bookings, group shipping is deemed favourable.				Potential has been recognised and identified, as domestic trade and tourism increases. The lack of digitisation and electronic payment solutions have created bottlenecks and slowed down the development of supply capacity.

Sources: various, compiled by the author

[9]In a gig economy, temporary, flexible jobs are commonplace and companies tend toward hiring independent contractors and freelancers instead of full-time employees. A gig economy undermines the traditional economy of full-time workers who rarely change positions and instead focus on a lifetime career (source: Investopedia).

[10]Information services is defined as the system of keeping records, forms, statistics and data in a business. By extension, information services in the context of e-commerce is understood as keeping information in a digital format on a digital support.

[11]An Internet exchange point (IXP) is a physical location through which Internet infrastructure companies such as Internet Service Providers (ISPs) and CDNs connect with each other. These locations exist on the "edge" of different networks, and allow network providers to share transit outside their own network. By having a presence inside of an IXP location, companies are able to shorten their path to transit coming from other participating networks, thereby reducing latency, improving round-trip time, and potentially reducing costs (Source: Cloudflare).

2. ICT Infrastructure, Connectivity and Affordability

Early liberalization of the telecommunications sector has resulted in impressive growth of coverage and adoption of voice services. Tonga has the distinction of being the first country in the Pacific to liberalise its telecommunications sector, marked with the enactment of the first Communications Act in 2002. The Ministry of Meteorology, Energy, Information, Disaster Management, Climate Change and Communications (MEIDECC) is the de-facto regulator pending the establishment of an independent regulatory unit pursuant to the instructions of the Communications Commission Act 2015. Mobile broadband is also increasing albeit from a delayed start due to the dependency on the submarine cable, though cost concerns are resulting in slower usage rates. In general, the competition between TCC/UCall and Digicel is faring well for overall sector growth. Future plans for redundancy via satellite connectivity and enhancements through the South-Cross NEXT Project are positive developments for the digital economy given the scope for further development of value-added services and speed/data capacity considerations.

2.1 Sectoral and Institutional Context

INFRASTRUCTURE

The government has limited capacity to finance infrastructure development. Main sources of infrastructure financing include: grants from development partners, concessional loans from international financial institutions, self-financing by public enterprises, and limited government funding from consolidated revenues. Financing is also needed for capital investment in new and/or upgraded infrastructure.

Despite this funding limitation, the ICT infrastructure is well-developed in Tonga. A submarine fibre optic cable linking Tonga to Fiji and the rest of the world was installed in 2013 through the existing Southern Cross Cable System. In the interest of cost-efficiency and reliability, a repeater submarine cable to Fiji was preferred. Installation of the cable facilitated fast Internet access in Tonga, with Internet speeds increasing to 10 gigabits/second (Gbps) from 20-30 megabits/second (Mbps).[12] It also resulted in significant reduction in international connectivity costs. The 827-km underwater fibre-optic cable connection was extended to the Ha'apai and Vava'u islands in 2018. The Tonga Internet Exchange Point (IXP)[13] was completed in August 2018, which has significantly improved local Internet performance and use of available submarine capacity. The cable system is now operated by the wholesale operator Tonga Cable Limited (TCL) which was partially privatised in 2017.

THE TELECOMMUNICATIONS SECTOR

The enactment of the first Communications Act in 2002 liberalised Tonga's telecommunications sector. In 2009, the Ministry of Information and Communications (MIC) was established with a mandate to oversee telecom regulations and ICT policy. In March 2017, the Communications Commission Act 2015 came into force; it establishes an independent regulator for the sector, the Communications Commission, which will be mandated to enforce a regulatory framework that encourages competition among players." Until such time, the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) will remain responsible for regulating the sector.

The Communications Act of 2015 provides for two (2) forms of licenses: network operators and internet service providers (ISPs). The market is currently comprised of two (2) full-service operators, Digicel and TCC, licensed for both network and ISP; and four (4) additional ISPs. This is indicative of increased competition in the ICT sector in Tonga. However, not all licensed operators participate in the retail market.[14] A common source for market information, TeleGeography, recognises only TCC and Digicel as operators offering mobile or fixed broadband retail services in Tonga. This implies that the market is still characterised by a duopoly of the two main operators. TCC is currently the only provider of fixed broadband service in Tonga, with only around

[12]http://www.fintel.com.fj/pages.cfm/company/news/high-speed-broadband-goes-live-tonga-.html

[13]See footnote #11 for the definition of IXP

[14]According to MEIDECC, the licensed ISPs in 2018 include: TCL, Digicel Tonga Limited, Tonga Communications Corporation, University of South Pacific and EziNET, and Triesten. Out of these providers, TCL does not offer retail services while USP used its license only to provide connectivity to its academic institutions and facilities. EziNET offered satellite connectivity for Tonga while Triesten is currently not using its license.

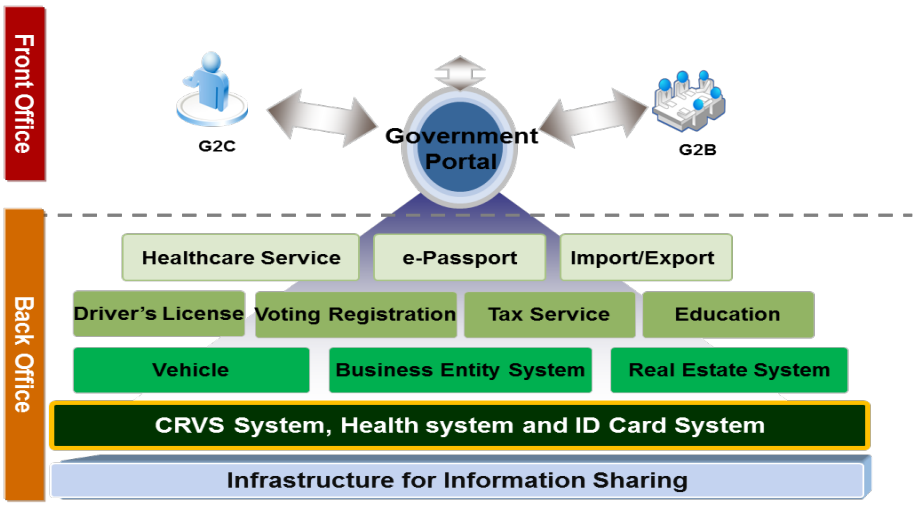
3,300 subscribers. Thus, it plays a very important role in ensuring nationwide connectivity.

e-GOVERNMENT INFRASTRUCTURE

The Government has taken steps to develop digital government as mentioned in 1.4 above. Despite this progress, more efforts are required to establish the necessary foundations and platforms and to deliver prioritised digital services to citizens and residents. Most government transactions are still paper-based and processed manually. Some work has been undertaken to digitise internal government document flows, but no standard document management system or government email exists. Thus far, development of information systems has been fragmented at the ministry/agency levels. Further, while most ministries have a website, there is no common look and feel that make it easily identifiable, nor are data management or data protection standards in place. Some online services, for example, business registration, customs and tax payments have been made available, but remain in the early stages of development and as such, issues with online payments and data generation capabilities have been reported.

In 2019, the Government launched **The Tonga Digital Government Strategic Framework 2019-2024** (TDGSF). The vision, as reflected in the TDGSF, is a "Digital Government in Tonga is dedicated to creating a responsive and robust Government decision-making through change management focused on improving the efficiency and effectiveness of Government services thus enabling a competitive business environment and to create sustainable development opportunities for the people of Tonga."

Figure 3: Digital Systems High Level Architecture



Source: TDGSF 2019-2024

The TDGSF sets the directions for the Government's use of ICT or digital technologies, with the ultimate goal of improving Government decision-making, business processes, and workflow efficiencies, as well as improving the quality and timeliness of its services to the public, while simultaneously reducing the complexity and cost of these services. It seeks to promote the use of ICT within Government ministries and agencies. This includes an aggressive transition from paper-based transactions to digital Government. The TDGSF and projects under this framework are led by the Prime Minister's Reform Task Force, as approved by the Cabinet in an iterative process informed by the needs and capacities of each enterprise at the division/department, ministry, and national levels. The TDGSF is also closely aligned with the TSDF.

Box 1: Strategic goals and priority actions supporting the e-commerce ecosystem development

TDGSF has five (5) strategic goals designed to fulfil the requirements of all National and Organizational Outcomes identified in the framework. Its strategic goals for 2019-2024 are:

1. Strengthen and build governance through change management;
2. Implement Digital Government across all government agencies and activities;
3. Advance Digital Inclusion for All;
4. Promote Data Sharing and a Service-Oriented Information Systems Architecture; and
5. Enhance public engagement.

Among its priority actions, those relevant for the e-commerce ecosystem include:

- Setting-up of a platform for electronic payments, recognising that the world is moving towards digital currencies.
- Establishment of a single web portal to make available a "Single Window" to access all government services.
- Ensure that affordable mobile or wireless Internet access is available to all Tongans by 2021.
- Incorporate digital literacy skills development into all educational programmes by 2021. This includes establishing basic levels of digital literacy needed for graduates to successfully enter the workforce.
- Provide citizen and business assistance and mentorship to help businesses and the private sector in accessing Digital Government services with a combination of call centres, support kiosks in remote locations, and service centre desks at individual ministries or agencies to address citizens' needs.
- Establishment and authentication of electronic signatures for use in public and business transactions or interaction with government agencies. At the individual level, this may be tied to the National ID Project.
- Develop and implement ePayment systems for all government-related transactions requiring payment from the public and businesses. This includes tax payments, registration payments, service fees, and all other transactions. Individuals should not be required to travel to government offices and queue to pay for government services. An ePayment system will allow a combination of cards (debit/credit cards) and off-site payment kiosks to enable the public and businesses to transact for government services, without the burden of going to the government agency/ministry.
- Establish irrefutable digital standardised civil records – births, deaths, marriages, and divorce.
- With support for mobile phones, wireless, and fixed-line Internet services, establish and implement web portal and services access to the public. Government-to-Consumer (G2C) and Government-to-Business (G2B) services must be accessible from any accepted media or device.

Source: TDGSF 2019-2024

In response to and support of the country's e-government agenda, the World Bank introduced the 'Tonga Digital Government Support Project' to enhance the government's capacity for digital public service delivery. The initiative has five (5) components: (i) Enabling Environment and Continuous Improvement, (ii) Government Enterprise Architecture, (iii) Core Registries: Civil Registration and National ID Systems, (iv) Government Digital Infrastructure, and (v) Project Management.

Box 2: Living without the Internet for two weeks: the January 2019 disruption

In January 2019, Tonga was in the global headlines as the country suffered a major disruption in its Internet connection when both the international and domestic Internet cables were broken by a foreign ship on the 20th of January. The disruption lasted from 20th of January to February 3rd. As a result, the entire population experienced no Internet for a week and very limited connectivity for another week. There was no backup to these cables, there was limited international telephone and mobile calls, very limited Facebook and no YouTube access.

The impact of the loss of international connectivity nationwide was felt on several fronts: tourism operators were unable to accept international orders as most clients make reservations online or through email. Money transfers, university enrolments, and many other 'use-cases' were likewise interrupted. Tonga had a back-up in the form of satellite Internet, but bandwidth was much more limited, leading the government to block high-bandwidth-consuming social media and video-streaming websites, to preserve connectivity for essential uses. Partial connectivity through satellite connection made available by EziNET and connected through Kacific Broadband Satellites Group was maintained through the efforts of two (2) network service operators - Tonga Communications Ltd. and Digicel Tonga Ltd. The event highlighted the challenges of Tonga's isolation and the need for a fast, reliable, as well as redundant Internet connectivity for the country. The government recently signed a 15-year deal with Kacific for satellite connectivity, which should result in high speed connectivity for 89 outer islands in Tonga.

Source: Media reports, interviews with TCC and TCL, 2019

2.2 Internet penetration, reliability and affordability

PENETRATION

The Tonga Internet Exchange Point (IXP) has significantly improved local Internet performance and use of available submarine capacity in the TCL cable. Since the submarine cable landing however, 3G services were launched in 2013, 4G/LTE services are available throughout Tongatapu and expansion is planned for the other main islands, Vava'u and Ha'apai, by TCC and Digicel.

There are currently two mobile network providers:

- the state-owned incumbent Tonga Communications Corporation (TCC), which started operations in 2001 and provides services under the brand name U-call. TCC accounts for over 50% market share of mobile services via the U-call brand with greater geographical coverage than its competitor.
- Digicel, which started operations in 2007 through the acquisition of Tonfon's mobile services business.

In addition, TCC and Digicel both provide wi-fi services in the Nuku'alofa business district. Since 2007, voice-services in terms of coverage and reliability have been a success-story, and subscription rate (unique subscribers) is estimated to be 68 per cent in 2018.

Fixed-broadband connectivity remains low at less than 2 percent. While one of the service providers has built an optical fibre backbone on Tongatapu Island, business and household deployment of optical fibre has so far been limited, and fixed broadband services are primarily provided through asymmetric digital subscriber lines (ADSL).

Wireless connectivity is limited to Nuku'alofa and other urban centres.

Table IV: Summary of ICT connectivity in Tonga by Island and Technology

MOBILE AND SOCIAL MEDIA USERS	2018 (in '000)	y-o-y growth (%, vs 2018)
Total population	109.5	0.9
Mobile subscriptions	109.8	2.7
Internet users	66	16
Active social media users	66	16
Mobile media users	63	17
Unique subscribers (number of unique subscribers who may possess more than one SIM card)	68	n/a
Fixed Broadband subscriptions (per 100 inhabitants, 2017)	2.8	n/a
Secure servers (per million people)	165.1	n/a

MOBILE CONNECTION TYPES	
Total number of mobile connections ('000)	109.8
Mobile connections as percentage of population	100
Percentage of mobile connections that are prepaid	84
Percentage of mobile connections that are post-paid	16
Percentage of mobile connections that are broadband (3G and 4G)	32

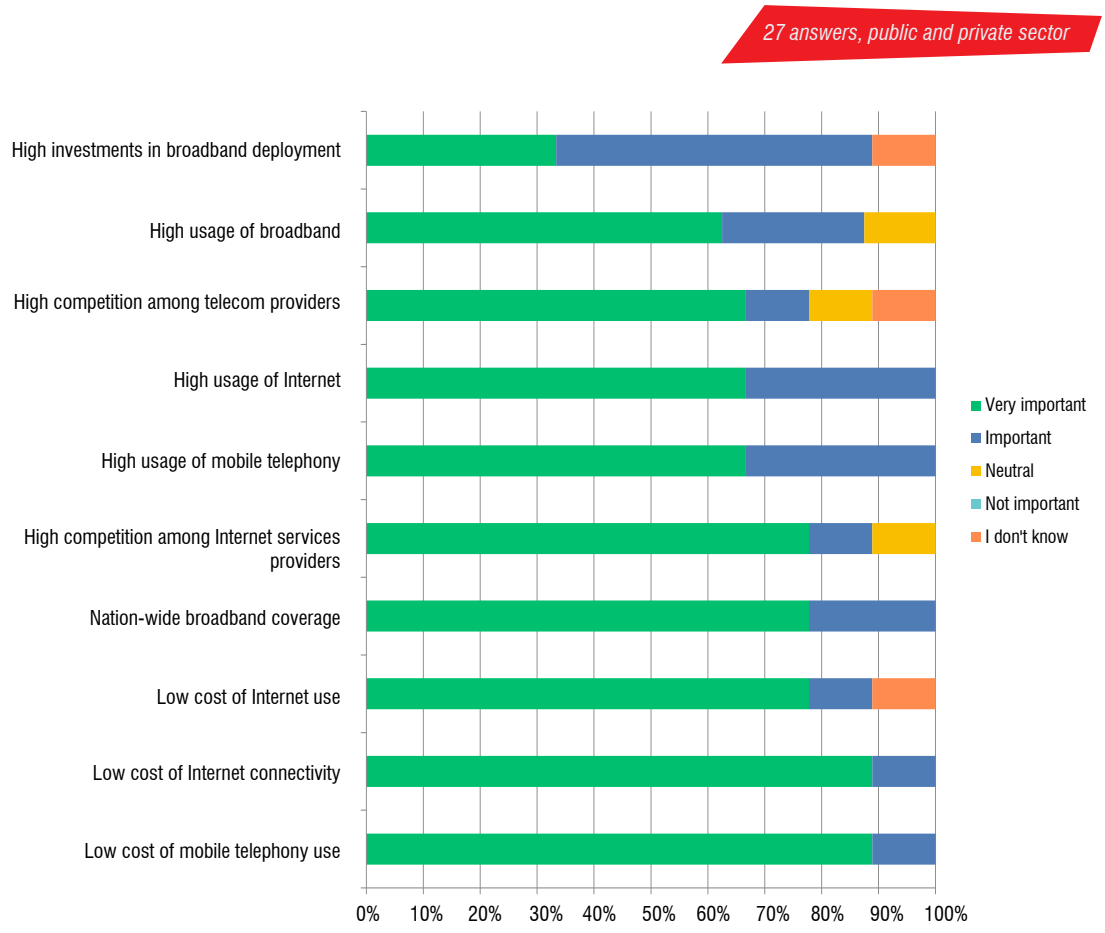
SOCIAL MEDIA OVERVIEW	
Total number of active social media users	66,000
Active social media users as a percentage of population	60%
Total number of active social users accessing through mobile devices	63,000
Active mobile social users as a percentage of the population	58%

Sources: ITU, World Bank, GSMA, WDI, Hootsuite, 2018 and 2019

AFFORDABILITY

Low costs of mobile telephony use and low costs of Internet connectivity were the most important factors affecting the use of ICT in Tonga (Figure 4). Investment in the submarine cable has led to a decrease in Internet retail prices (see Tables V and VI for current price levels). This affordability has in turn led to an increase in bandwidth use. However, private sector companies claimed during interviews that although prices had gone down, reliability was still unsatisfactory and that connectivity remains low outside the main island of Tongatapu.

Figure 4: Key factors influencing use of ICT



PIFS, 2019

The current retail price charged by Digicel and U-call are shown below (valid August 2019):

Table V: Digicel Tonga Retail Prices (in TOP)

Prepaid Normal Data Plans			
Plan Name	**Cost (TOP)**	**Bundle**	**Validity**
Hourly Plan	$1	100MB	1 hour
Day Plan	$2	200MB	24 hours
Weekly Plan	$3	500MB	3 days
Weekly Plan	$5	1GB	7 days
Fortnightly Plan	$10	2.5 GB	14 days
Monthly Plan	$20	6GB	30 days
Monthly Plan	$50	15GB	30 days

Source: Digicel Tonga

Table VI: U-CALL Retail Prices (in TOP)

Price	Data	Expiry
$3	1GB	24 hours
$4	1GB	2 days
$10	2GB	7 days
$15	5GB	14 days
$20	7GB	30 days
$45	15GB	30 days

Source: TCC

At the time of this publication, prices were lowered to TOP1 per GB of data to allow more users to livestream the Rugby World Cup matches (September – November 2019). This paved the way for telecom operators to focus more on content development rather than just bandwidth access.

2.3 On-going or planned ICT infrastructure projects (submarine cable, fibre optic, and others)

A major infrastructural enhancement has been announced in the form of the Southern-Cross NEXT cable, which will essentially be an upgrade of the existing cable system. Slated for completion in 2021, the cable - a partnership between Southern Cross Cable and Alcatel Submarine Networks - will be the largest capacity, lowest latency link between the US West Coast, Sydney, Australia, and Auckland, New Zealand. This will boost the capacity[15] and options for inter-connected cables including the Tonga submarine cable.

The benefits of submarine cables to the Pacific sub-region are significant because they not only bring high bandwidth capacity, but also lower costs considerably. However, it is important for the Pacific sub-region to continue working with satellite service providers to address the digital gaps in the region. The newest

[15]The US$350 million project will provide an additional 72 Tbit/s capacity for Southern Cross customers, adding to the existing 20 Tbit/s capacity of the current Southern Cross systems.

Accessed in December 2019: https://www.reseller.co.nz/article/659805/southern-cross-cable-taps-alcatel-next-cable-project/

submarine cable in the Pacific sub-region is Hawaiki, which connects American Samoa beginning 2018. However, even while submarine cable and more satellite technology options exist and are becoming more affordable, in Tonga and other PICs, inter-island (domestic) connectivity remains seriously constrained. A high proportion of the outer islands and remote areas are still not connected. In a context where resources are few and narrowly concentrated, improving connectivity of the Pacific sub-region with other parts of the world using submarine cable and satellite technologies is considered to be the most crucial enabler for the improvement of economic and social well-being of citizens of Tonga and the rest of the region.

Countries with several undersea cables generally experience limited adverse consequences in Internet connectivity should one of these links be damaged, as Internet traffic can be re-routed. Tonga, on the other hand, relies on a single cable to ensure Internet connectivity and is therefore at a high risk of Internet disconnection, if their sole link experiences a fault, similar to what happened in January 2019. This underscores the urgent need for redundancy in connectivity in Tonga and in the Pacific sub-region. Another dimension that will likely affect reliable resilient submarine cables is their lifespan. Since the deployment of submarine cables in PICs is costly, appropriate planning to ensure timely replacement of older cables is necessary.

In the last 30 years, satellite communications have been PICs' main means of communication with other parts of the world. In the late 70s, Tonga engaged with the British company, Cable and Wireless, for its international gateway access. It was very clear that satellite technology was the most cost-effective means of international communications in the Pacific sub-region. In fact, it was the only way to communicate with other parts of the world. One of the main advantages of satellite technology in the Pacific is the ability to cover large areas. As dozens of isolated islands are spread across large areas of water, satellite technology has been the ideal connectivity solution because of the easy installation of the antenna. Among the advantages of satellite connections, during critical conditions that affect Tonga regularly, the Earth station may be removed relatively quickly from a location and reinstalled somewhere else. In addition, mobile communications can be easily achieved with a satellite system because of its flexibility in interconnecting mobile communication mediums. Also, with satellite technology, effectiveness in sending and receiving information is independent of distance, and often, the only way to connect small, remote islands.

The downside is that satellite communications is very costly, has high maintenance costs, and can be unreliable, especially during heavy rains. Satellite communications is expensive because satellite service providers need to have a satellite in orbit – i.e., various electronic and mechanical components need to be built and the satellite launched in space, which costs millions of dollars. Apart from steep installation costs, satellites are also costly to maintain and kept in operation. To recover costs, satellite service providers need to charge high fees for satellite communications.

Tonga stands to benefit from the additional satellite connection capacity made available through Kacific Broadband Satellites Group Ltd. (Kacific) for the Asia Pacific Remote Broadband Internet Satellite Project.[16] The proposed arrangement is for wholesale satellite broadband Internet service to be sold to telecommunication operators, ISPs, and governments across Asia and the Pacific, with Kacific handling the upstream infrastructure of the satellite. This will be done through agreements with specialized teleport operators, which will connect the satellite to the Internet through existing fibre networks.

[16]This is made possible thanks to an ADB loan of up to USD25 million through its Leading Asia's Private Infrastructure Fund (LEAP). The proposed loan will support the construction, launch, and operation of a shared, geostationary earth orbit (GEO), high-throughput satellite (HTS), Kacific-1, which features Ka-band technology. It will be dedicated to low cost, high-speed, easily accessible broadband Internet in Asia and the Pacific. The project will provide wide access to broadband Internet connections in remote areas, where no or very limited Internet coverage is currently available. The project will benefit the population in remote areas of Asia and the Pacific by increasing the availability and quality of broadband Internet service, which will lead to greater sustainable socioeconomic growth and poverty reduction. The project will be ADB's first satellite financing.

3. Trade logistics and facilitation

Tonga has a reasonably well-developed logistics infrastructure from a road, air, and shipping perspective, driven by the National Infrastructure and Investment Plan and development support. There are important requirements that must be met for connectivity outside of the main cities towards the outer islands, especially via the inter-islands shipping routes, to be improved. Trade facilitation is an emerging priority area with attention required on the recommendations offered by the UN Global Survey on Trade Facilitation and Paperless Trade.

The four island groups constituting the Tongan archipelago are spread across 700,000 square kilometres (sq. km), with a total land area of 750 sq. km. Only 36 of the 172 islands comprising the archipelago are inhabited, with approximately 70 per cent of the population (105,000) living in the main island of Tongatapu. This poses significant inter-island as well as inter-country logistical challenges in terms of cargo and passenger transportation. The government's National Infrastructure and Investment Plan (NIIP) is aimed at a comprehensive overhaul of the country's transportation infrastructure, with particular emphasis on improving connectivity to the outer islands.

The main ports are on Neiafu (on Vava'u Island), Nuku'alofa (on Tongatapu Island), and Pangai (Ha'apai Group of Islands), with Nuku'alofa serving as the main entry and exit point for international imports and exports, including cruise ships. There are six (6) airports spread across the main islands, with only the Fua'amotu Airport in Tongatapu, one of two (2) international airports, with a paved runway. Passenger airlines servicing Tonga includes Fiji Airlines, Air New Zealand, Virgin Australia, and Real Tonga Airlines (mostly domestic operations but with flights to Fiji and Samoa since 2019). Tonga has some of the highest road network density in the region, and the main population areas are well connected via paved and unpaved roads. Inter-island passenger and cargo transportation services is key to domestic trade and provision of medical, educational and other social needs. These are provided by a government-owned company, Friendly Islands Shipping Company, and a number of smaller operators.

Tonga faces serious challenges in developing and maintaining sustainable domestic, regional, and international transport and communication linkages, all of which are crucial to the economic development and social well-being of its population.[17] This reflects the inefficiencies of interisland shipping in Tonga, particularly from the international port of Nuku'alofa in Tongatapu to the Outer Islands. In addition, using an index combining exposure and vulnerability, Tonga is ranked second in the world for disaster risk, with the transport sector considered to be one of its most vulnerable elements.

3.1 Mode of delivery, last mile delivery

Tonga is comprised of 172 islands, of which 36 are inhabited. The country stretches across approximately 800 kilometres (800 km or 500 mi) in a north-south line northeast of New Zealand and its total surface area is about 750 square km (290 sq. mi) scattered over 700,000 sq. km (270,000 sq. mi) of the southern Pacific Ocean. The road network, approximately 870 km consisting of about 640 km of public roads, is almost exclusively low volume roads, with only a few urban roads in the capital Nuku'alofa carrying over 1,000 vehicles per day. Over 90 percent of the public roads are sealed. The network size varies markedly between islands, with roads on the main island of Tongatapu constituting about 60 percent of the total road network. The roads in the outer islands of 'Eua, Ha'apai, and Niuatoputapu are predominantly gravel as well as some in Vava'u. Tonga has two (2) international airports: Fua'amotu International Airport, located in Tongatapu, and Lupepau'u Airport in Vava'u. There are six (6) domestic airports across Tonga, at least one per island group, which serve the domestic air services market with one national airline carrier. Communities rely heavily on ferry services for travel

[17]The World Bank. 2017. "Climate and Disaster Resilient Transport in Small Island Developing States: A Call for Action." Washington DC: The World Bank Group.

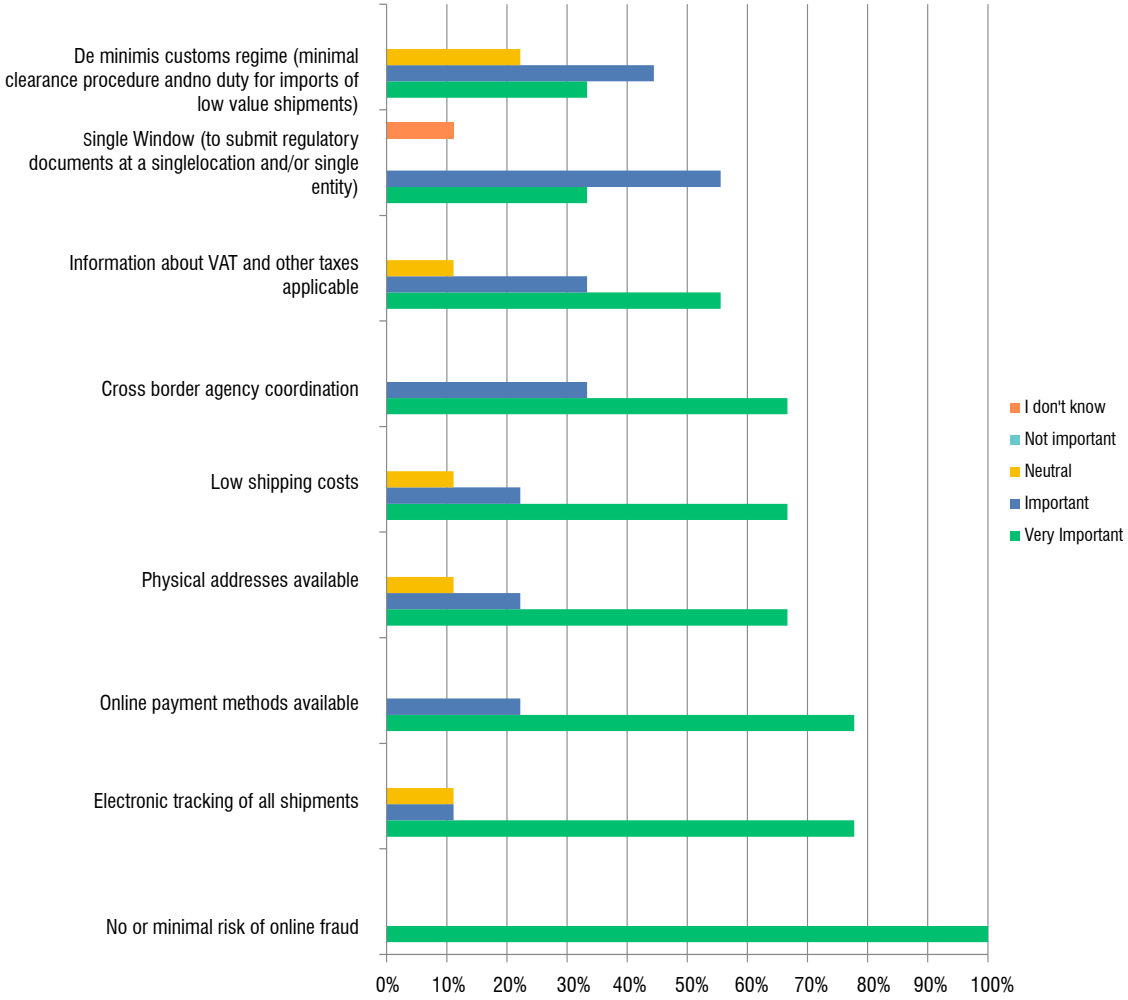
between the island groups. All island groups have a port and most of them offer both ferry and cargo services.

Five cross-border e-commerce players interviewed for the assessment stated that they use express carriers like DHL and FEDEX to deliver goods, mostly to Australia, Fiji, and New Zealand. These carriers have regular schedules with Air New Zealand and Virgin Australia for international shipments and Real Tonga for domestic deliveries. Recently, these companies have shifted their focus and operations on exports alone but continue to register steady increases in international shipments from both businesses and citizens. Shipments are in boxes provided by the companies. At present, all express parcels must be checked by Customs Officers.

In addition to protection from online fraud, businesses consider electronic tracking, online payments, and availability of physical addresses as logistical elements important for e-commerce. This is illustrated in Figure 5 below.

Figure 5: Trade facilitation areas for e-commerce development, ranked in order of importance

28 answers, public and private sector



Source: PIFS, 2019

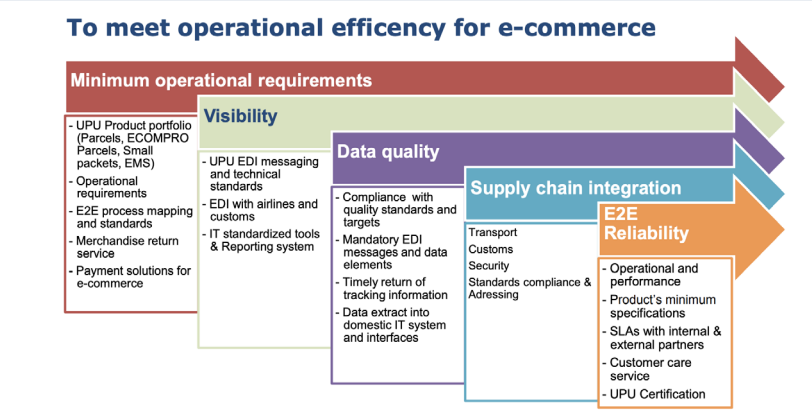
Given the unique geographical characteristics, delivering anything to anyone is a challenge in Tonga. With only a few streets with names and no post codes, delivering parcels and cargo is a constant struggle. Until recently, home delivery was restricted to express mail in the capital city of Nuku'alofa. Any other shipment would be delivered to centralised PO boxes managed by Tonga Post (TP), the nation's official postal service, with the recipient responsible for its retrieval and collection. This resulted in high volumes of undelivered parcels that take up space and incurred extra costs for the postal service. In recent years, the volume of international mail and small parcels has increased dramatically and consumption of e-commerce is rapidly rising across the islands. It will be essential for TP to have the delivery infrastructure in place to meet this demand from customers in cities to those in the smallest and more remote islands.

Tonga Post has benefited from the support of Universal Postal Union (UPU) tools to enhance e-commerce operations by designated operators.[18] Based on interviews conducted for this assessment, Tonga Post's Operational Readiness for e-Commerce (ORE) implementation has reached 65% in 2019, with the lack of/inadequate physical addressing system and an online platform as the two most important bottlenecks that still persist. At present, TP does not have the capacity to maintain an online platform to allow customers to order and track shipments online and to arrange for pick-up and delivery.

Box 3: The Universal Postal Union Operational Readiness for e-Commerce (ORE)

A seamless and efficient e-commerce environment requires effective postal services to adequately meet the needs of e-shoppers and e-retailers. With a growing volume of e-commerce transactions and parcels crossing the borders, the question of operational efficiency of delivery services has become a priority action for UPU. In 2017, the UPU began implementing regional cooperation projects to coordinate and improve the quality of delivery services through an integrated postal supply chain approach. The purpose of these projects is to help the designated postal operators (DOs) meet operational readiness targets for e-commerce in five (5) focus areas:

- Minimum operational requirements;
- Visibility;
- Data quality;
- Supply chain integration; and
- End-to-end reliability.



At the heart of the programme lies a standard onsite assessment methodology known as **Operational Readiness for e-Commerce (ORE),** coupled with an efficient use of IT standardized tools and end-to-end systems. By enhancing the end-to-end reliable delivery performance and providing consumers with more visibility, postal operators can contribute to the expansion of cross border e-commerce and achieve UPU's 2020 goal of ensuring the operational readiness of Posts for seamless cross-border e-commerce.

Source: UPU, 2016

[18]"Designated operator" refers to National Postal Operator by the UPU.

3.2 Trade Facilitation Performance

Cross-border e-commerce in Tonga could expand faster if barriers were removed and issues addressed, including: duty and tax collection, transfer pricing, smuggling, and burdensome time and effort for customs clearance in handling growing volumes of low-value shipments. The compatibility of e-transaction laws, international trade rules, and taxation procedures likewise impact cross-border e-commerce. Fostering cross-border e-commerce requires a balanced approach to resolving bottlenecks while working to ensure proper risk management, crime prevention, and addressing loopholes.

Various efforts are underway at the sub-regional, regional, and global levels to cope with growing challenges of cross-border e-commerce. Single windows are expected to help facilitate cross-border e-commerce transactions by reducing procedural, documentary, and coordination requirements for both consigners and consignees.

The World Bank's Doing Business 2020 Report states that for some elements of documentary compliance (time to export and cost to import), Tonga fares relatively low compared to other regional economies on "Trading Across Borders," as shown in Table VII.

Table VII: Trading Across Borders in Tonga and Select Regions

Indicator	Tonga	East Asia and the Pacific	OECD High Income
Border compliance			
Time to export (hours)	52	57.5	12.7
Cost to export (US$)	201	381.1	136.8
Time to import (hours)	26	68.4	8.5
Cost to import (US$)	330	422.8	98.1
Documentary compliance			
Time to export (hours)	108	55.6	2.3
Cost to export (US$)	70	109.4	33.4
Time to import (hours)	72	53.7	3.4
Cost to import (US$)	148	108.4	23.5

Source: Data from "Trading Across Borders" category in The World Bank Group's "Doing Business in Tonga 2020 Report"

On the other hand, Tonga fares above the regional average in terms of border compliance indicators: time and cost expended.

Tonga has not yet ratified the World Trade Organization (WTO) Agreement on Trade Facilitation. There is currently no National Trade Facilitation Committee (NTFC), although a proposal has been submitted to Cabinet. WTO data shows that Tonga has requested support to develop a sound legislative and regulatory framework for trade facilitation as well as improve institutional procedures, and human capital within ministries and technical agencies.

The World Customs Organization (WCO) is providing worldwide support; through its Mercator Programme, it helps countries like Tonga implement provisions of the Trade Facilitation Agreement (TFA) by applying WCO instruments and tools. WCO has also established a special E-Commerce Working Group to address these issues. The Working Group is promoting the development of international customs rules for cross-border e-commerce towards the establishment of a standard framework for cross-border e-commerce. Tonga could benefit from discussions and initiatives on e-commerce by joining said Working Group.

The new Framework Agreement on the Facilitation of Cross-Border Paperless Trade in Asia and the Pacific is a valuable tool to facilitate cross-border digital trade and better equip economies to implement the WTO TFA.

The UN Global Survey on Trade Facilitation and Paperless Trade reveals important requirements for reforms in the

area of paperless trade facilitation. As shown in Table VIII below, most measures are not implemented or are only partially implemented. The Single Window System, electronic application for customs refunds, electronic exchanges for certificate of origin, sanitary and phytosanitary certificates, and applications for letters of credit electronically from banks/insurers without lodging paper documents, are not implemented at all. Payments of customs duties and fees, Internet connectivity for customs and other controlling agencies at border crossings, electronic submissions of customs declarations and issuances of import and export permits are partially implemented, among others.

Table VIII: The UN Global Survey on Trade Facilitation and Paperless Trade, Tonga results (2019)

GENERAL TRADE FACILITATION MEASURES:

1.	National Trade Facilitation Committee or similar body:	Partially implemented
2.	Publication of existing import-export regulations on the Internet:	Partially implemented
3.	Stakeholders' consultation on new draft regulations:	Partially implemented
4.	Advance notification of new trade-related regulations before their implementation:	Partially implemented
5.	Advance ruling on tariff classification and origin of imported goods:	Partially implemented
6.	Risk management:	Partially implemented
7.	Pre-arrival processing:	Partially implemented
8.	Post-clearance audits:	Partially implemented
9.	Independent appeal mechanism:	Partially implemented
10.	Separation of Release from final determination of customs duties, taxes, fees and charges:	Fully implemented
11.	Establishment and publication of average release times:	Planning stage
12.	Trade facilitation measures for authorised operators:	Partially implemented
13.	Expedited shipments:	Partially implemented
14.	Acceptance of copies of original supporting documents required for import, export or transit formalities:	Partially implemented

PAPERLESS TRADE FACILITATION

15.	Automated Customs System:	Partially implemented
16.	Internet connection available to Customs and other trade control agencies:	Partially implemented
17.	Electronic Single Window System:	Planning stage
18.	Electronic submission of Customs declarations:	Partially implemented
19.	Electronic application and issuance of import and export permit:	Partially implemented
20.	Electronic Submission of Sea Cargo Manifests:	Not implemented
21.	Electronic Submission of Air Cargo Manifests:	Not implemented
22.	Electronic application and issuance of Preferential Certificate of Origin:	Not implemented
23.	E-Payment of Customs Duties and Fees:	Partially implemented
24.	Electronic Application for Customs Refunds:	Not implemented

TOWARDS CROSS-BORDER PAPERLESS TRADE

25.	Laws and regulations for electronic transactions:	Partially implemented
26.	Recognised certification authority:	Not implemented
27.	Electronic exchange of Customs Declaration:	Not implemented
28.	Electronic exchange of Certificate of Origin:	Not implemented
29.	Electronic exchange of Sanitary and Phyto-Sanitary Certificate:	Not implemented
30.	Paperless collection of payment from a documentary letter of credit:	Not implemented

Source: Joint United Nations Regional Commissions Trade Facilitation and Paperless Trade Implementation Survey 2019

Yet, Tonga has registered significant progress since 2015 in its overall cross-border paperless trade scores (Table IX).

Table IX: Tonga's Trade Facilitation Score, 2015, 2017, 2019

Indicator	2015	2017	2019
Trade facilitation score	36.56%	38.71%	48.39%
Cross-border Paperless Trade	11.11	11.11	11.11
Paperless Trade	29.63	37.04	40.74
Institutional Arrangement and Cooperation	66.67	66.67	66.67
Formalities	41.67	41.67	66.67
Transparency	53.33	53.33	66.67

Source: Joint United Nations Regional Commissions Trade Facilitation and Paperless Trade Implementation Survey 2019

Box 4: Providing faster clearance opportunities for cross-border e-commerce: De minimis value

De minimis is the minimum dollar value of qualifying goods for which formal customs procedures are not required and duties or fees are not collected, subject to certain legal requirements and exemptions.

This value is a significant step in facilitating global trade because importers benefit from reduced costs as the de minimis value increases. The de minimis value impacts more than just the collection of duties and fees. A higher de minimis can accelerate shipment delivery and improve business efficiency by expediting customs procedures and border clearance for certain shipments.

These commercially meaningful thresholds make it easier to import low value goods which can lead to increased orders and more repeat customers. Equally important is the reduction in documentation requirements for qualifying shipments with a higher de minimis. However, it should be noted that for certain types of goods, some government agencies in importing countries may still require specific information to be submitted with particular shipments or may decide that de minimis does not apply to a shipment, regardless of value. Nonetheless, in many cases, businesses benefit from decreased amount of required paperwork and reduced customs compliance costs. This results in lower overall costs borne by the importer, lessens the barrier for small to medium businesses to engage in e-commerce, and reduces the time it takes to get a product to market.

Last, particularly for developing and Least Developed Countries (LDCs) that are collecting most of their revenue through taxes and duties at the time of import, higher "de minimis" values theoretically reduce overall national revenue collection. It also risks making national retailers and stores less competitive in the short-term.

De minimis value has therefore a significant impact on e-commerce, because it creates faster clearance time and opportunity to sell to markets competitively. Tonga applies a de minimis value of TOP0: this means that all goods ordered online/electronically are taxed similarly to goods ordered through other means. Increasing de minimis thresholds might accelerate shipment and clearance of e-commerce goods.

Source: World Customs Organization (WCO), United Parcel Service (UPS) and author's observations.

Through funding from Australia and New Zealand, UNCTAD[21] is supporting nine (9) PICs to align their trade and investment rules and regulations with their obligations under PACER Plus, a regional free trade and development deal signed in 2017 that aims to boost regional trade and integration to support inclusive growth, prosperity, and development. The Agreement will enter into force when eight (8) signatories have ratified the agreement. To date, only Australia, New Zealand, and Samoa have ratified PACER+.

Because its provisions on customs procedures reflect those of the TFA's, PACER+ will help modernise trade processes, increase transparency and predictability, support regional harmonisation, and reduce trade costs. Importantly, countries will be supported with corresponding technical assistance and financial resources to enable them to not only implement the Agreement's provisions, but ensure that implementation actually facilitates trade and results in benefits that accrue to different stakeholder groups, including small and/or women traders/MSMEs/SMEs.

In the context of the PACER Plus Readiness Package, six (6) PACER Plus signatories, including Tonga, will be implementing ASYCUDA WORLD (AW) as part of their overall objective to modernise customs practices and contribute to their respective national economic objectives of facilitating trade and effective and efficient collection of revenue and providing accurate and timely statistics on international trade. It is expected that participation in the AW will help boost cross-border e-commerce in Tonga and will result in a better risk management applied to small value parcels ordered online.

Introduction of TFA and AW will definitely help boost the confidence of merchants, as long as dedicated support, mentoring, and coaching are provided to the business community.

[21]Australia and New Zealand provided technical assistance by contracting UNCTAD to set-up Trade Portals for signatories to the PACER Plus, of which Tonga benefited. This was to address transparency obligations under the agreement. The Trade portal reflects the necessary procedures for import and export of certain key products but will eventually cover all products exported and imported from Tonga.

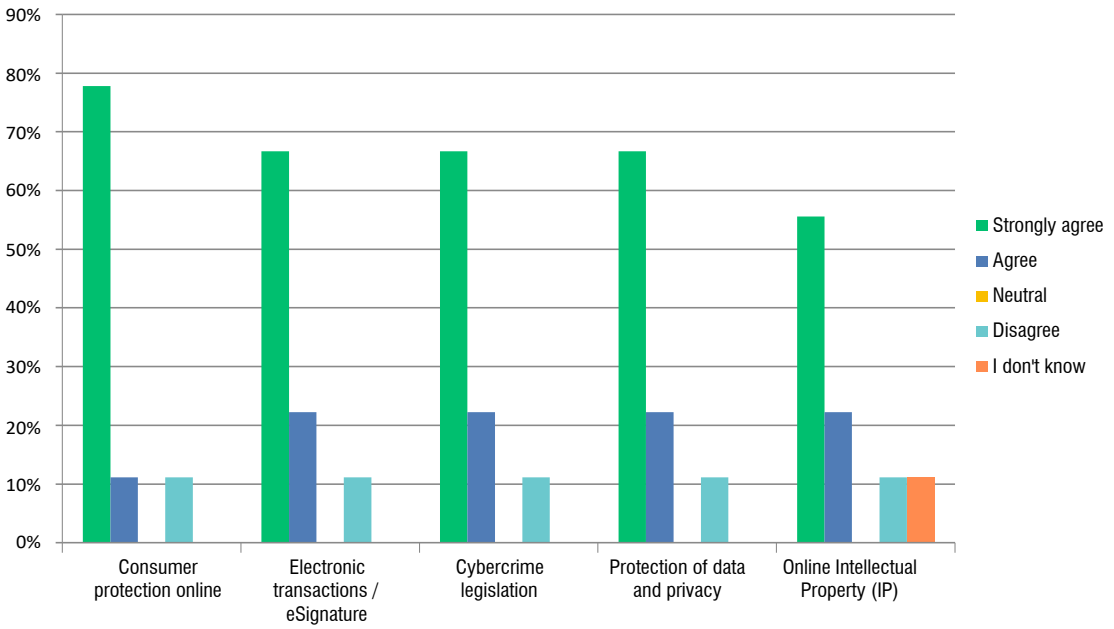
4. Legal and regulatory frameworks

The e-commerce legal framework of a country plays an important role in enabling and facilitating e-commerce transactions within the country and across its borders. Such legislation creates the much-needed sense of certainty that traditional business transactions can be carried out electronically – a requirement for the development and strengthening of a modern digital economy. With support from its development partners, Tonga has recently made progress in enhancing its legal and regulatory frameworks for e-commerce. With some laws nearing completion, it is important to ensure that these include the most relevant and up-to-date articles to make them e-compatible. Enactment of essential legislation (Box 5) will enable digital government and support online transactions more broadly. Similarly, a regulatory framework should support firms entering the marketplace and creating value through e-commerce. An unclear regulatory environment limits value creation through e-commerce initiatives.

Interviews conducted in Tonga for this assessment confirmed that concerns have been growing among businesses and consumers on the risks of transacting online (Figure 5).

Figure 6: Laws and regulations considered important for e-commerce

18 answers, public and private sector



Source: PIFS

However, based on interviews and survey responses for this assessment, it seems that government's recent efforts to improve the legal and regulatory frameworks for e-commerce and, more broadly for ICT-based transactions, are not yet familiar to private and public stakeholders consulted for this assessment.

Box 5: UNCTAD's Support to e-Commerce Law Reform

UNCTAD Cyberlaw Tracker

The UNCTAD Global Cyberlaw Tracker is the first ever global mapping of cyberlaws. It tracks the state of e-commerce legislation in the 194 UNCTAD Member States. The tracker indicates whether or not a given country has adopted legislation, or has a draft law pending adoption. In some instances where information about a country's adoption of a particular legislation is not readily available, 'no data' is indicated.

The tracker, found in the link below, is updated regularly:
https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/eCom-Transactions-Laws.aspx

UNCTAD considers four (4) different cyberlaws needed for e-commerce to develop harmoniously:

1. **E-transactions**: E-transaction laws that recognise the legal equivalence between paper-based and electronic forms of exchange is considered a prerequisite for conducting commercial transactions online. Such laws have been adopted by 145 countries, of which 104 are developing or transition economies.
2. **Data Protection and Privacy:** Information privacy law or data protection laws prohibit the unautho rised disclosure of or misuse of private information on private individuals.
3. **Cybercrime:** This law aims to address all forms of illegal acts, violations, and infringements committed online or through the Internet.
4. **Online Consumer Protection:** law to protect and safeguard economic interests of online consumers and empower them with free and informed choice and bestow rights should any problems arise.

E-Commerce and Law Reform Programme

Since 2000, the UNCTAD e-Commerce and Law Reform Programme has supported developing countries in Africa, Asia and Latin America in their efforts to establish legal regimes that address the issues raised by the electronic nature of ICTs to ensure trust in online transactions, ease the conduct of domestic and international trade online, and offer legal protection for users and providers of e-commerce and e-government services. UNCTAD helps build the capacity of policymakers and lawmakers at national and regional levels to understand the underlying issues underpinning e-commerce. In particular, the assistance targets ministry officials in charge of law reform who need to learn more about the legal implications of ICTs; parliamentarians who have to examine new cyberlaws; and legal professionals who enforce new legislation.

Source: PIFS, 2019

An **e-Transactions Bill** (based on UNCITRAL's Model Law on Electronic Commerce and the Model Law on Electronic Signatures) has been prepared but as of August 2019, is yet to be enacted. E-transaction laws are a prerequisite in conducting e-commerce transactions—as they make electronic forms of exchange legally equivalent to paper-based transactions. This constitutes a gap vis-à-vis establishing legal basis for online transactions such as electronically formed contracts. E-transaction laws alone are insufficient to give electronic transactions the same level of legal recognition as paper-based transactions. Businesses and consumers need the training, education, and awareness to improve their understanding of these laws. Some changes in court rules and procedures related to the admission of electronic evidence may be needed as well.

The Consumer Protection Bill, developed to provide for the protection of the consumer and the establishment of fair-trade practices as well as other matters connected

therewith or incidental thereto, has been passed in 2000. Dimensions of online transactions and competition have not yet been incorporated in the 2016 revised edition of the legislation. While a consumer protection law is needed to stop unfair, deceptive, and fraudulent online business practices, merely enacting consumer protection laws without establishing appropriate enforcement mechanisms will not benefit the e-commerce landscape. Enforcement agencies must develop the needed capacity to deal with anti-competitive or fraudulent online behaviour. Individuals and businesses should be aware of the need for online consumer protection.

Tonga has taken concrete steps to boost its capabilities to combat cyber-crime. **The Computer Crimes Act** drafted to combat computer crime and provide for the collection and use of electronic evidence was passed in 2003 and revised in 2016. In 2016, a Computer Emergency Response Team (CERT), the first in the Pacific, aimed at coordinating prompt response at the national level to cyber-related incidents, was established. The following year, in 2017, Tonga became the first Pacific Islands Country to accede to the Budapest Convention on Cybercrime. This allows Tonga access to the latest procedures and best practices related to battling cybercrime. In 2019, a new Computer Crimes Bill has been drafted as part of the accession process to the Budapest Convention but is yet to be enacted. Apart from the four (4) laws recommended by UNCTAD, progress has been registered in the broader ICT regulatory framework in recent years, due partly to the support of the ADB and the World Bank. The Communications Act, enacted by the Parliament in September 2015 was an important milestone. It introduced a new regulatory and licensing regime and outlined the establishment of an independent telecommunications regulator in Tonga, the Communications Commission. The government has taken initial steps to start the operations of the Communications Commission, but to date, no organization or body has been established and the MEIDECC still acts as the sector's regulator.

The World Bank's Tonga-Fiji Connectivity Project includes a regulatory technical assistance (TA) component that may be tapped/utilised for support as the government undertakes measures to modernise its legal and regulatory frameworks to facilitate digital transactions. The World Bank's assistance contributes to the TDGSF goals on ICT, particularly, Objective 1.1, *"Establish an authentication base for electronic signatures for use in public and business transactions or interaction with government agencies.*

5. Payment solutions, digital financial inclusion and access to financing

Cash is the main payment mechanism in the country. Tonga, like most other Pacific Islands Countries, is a cash-based economy. Card-based payment options are accepted among the medium-large sized firms at least in Nuku'alofa, but not favoured by businesses with international trade operations who prefer Australia or NZ-issued cards for international payments. Despite promising growth in 2015, high annual volume of remittances, and the fact that a large proportion of the adult population is unbanked, mobile banking and mobile-money services, have not been widely adopted in Tonga. Access to financing for "digital SMEs" is very limited, due to the lack of formalisation of businesses, the nascent stage of the e-commerce scene and lack of opportunities. Alternative funding through remittances has a lot of potential. Ample scope to develop this service for other use-cases, such as for e-commerce, and G2C and C2G transactions, will soon be available, given the strong emerging focus on digital government and digital financial inclusion.

5.1 Banking penetration

Compared to other PICs, Tonga leads in financial access points, particularly in the number and location of bank branches. There are three (3) bank branches for every 10,000 Tongan adults. This number is high relative to one (1) bank branch in Fiji and two (2) branches in Samoa per 10,000 adults. Tonga's lower population size compared to other PICs may have contributed to its higher access points.

In addition to Tonga Development Bank (TDB), there are three (3) commercial banks – Australia and New Zealand Banking Group Limited (ANZ Bank), Bank of South Pacific (BSP), and MBf Bank – active in Tonga. The bank network is reasonably good in the capital but coverage in the hinterland and Outer islands for physical branches and automated teller machines (ATMs) is limited. The irregular geography, costly transportation, and the low density of population dispersed among many islands make it challenging for all banks to provide relevant and affordable formal banking services in the outer islands including Ha'apai.

Table X: Types of Access Points in Tonga by Banks (2017)

Banks	Total Access Points	No. of Branches	No. of Agents*	No. of EFTPOS	No. ATMs
ANZ	153	3	0	134	16
BSP	374	4	19	339	12
MBf	3	3	0	0	0
TDB	8	8	0	0	0
TOTAL	**538**	**18**	**19**	**473**	**28**

Source: Demand-side survey, PFIP, 2017

(*) Agent services is any third party acting on behalf of a bank to deal directly with customers, e.g. retail stores, etc.

5.2 Financial and Digital Financial Inclusion

Financial inclusion plays a vital role in improving the quality of life for Tongans. This means that financial service providers make available products and services that are both affordable and responsive to the needs of the market. Access to basic financial services is essential in promoting inclusive economic growth. It integrates people and enables them to actively contribute to the economy through savings, loans, and payment systems.

In 2015, the Reserve Bank conducted a Supply-Side Survey (SSS) for the first time. It focused on access to finance as well as the usage of the banking system's financial services at the individual level. The survey was updated in June 2017 to measure improvements in access to finance in Tonga. In the same year and with support from the Pacific Financial Inclusion Programme (PFIP), the supply-side survey was complemented by a

demand-side survey.

Results of the 2017 Financial Services Demand-Side Survey showed that only 41 per cent of Tongan adults have a bank account, with 34 percent completely excluded from any type of financial services. Bank account ownership is only a first step in achieving meaningful financial inclusion. Factors such as type of employment, level of education, and sending and receiving of remittances are all correlated to the likelihood of an adult in Tonga having access to any type of financial service.

Further, the survey also showed that remittances are common across Tonga and is a very important source of financing for many Tongan adults: 70% of Tongan adults reported receiving remittances the previous year. Salaried and unsalaried Tongan adults alike receive remittances, used for personal expenses, church offerings, and emergencies. Approximately 18% of Tongan adults are reported to be sending remittances. Sending and receiving remittances mainly through Western Union, the dominant player, can be costly; fees, travel costs, and currency fluctuations cut into the amount that Tongans ultimately send and/or receive.

In general, approximately 63% of Tongan adults are reported to have saved in the past year. Savings are mainly for short-term uses such as personal expenses and emergencies, with very few who use it for purposes of business, acquisition of assets, such as housing or land. Though frequent, savings is usually through informal means – i.e., keeping the savings at home or in savings clubs.

Box 6: The 2020 Money Pacific Goals

Financial inclusion in the Pacific region has undergone significant development as a range of initiatives have been developed and/or introduced to address the challenges of geography, low population density, low levels of technical expertise, and a vulnerability to natural disasters.

A key driver of the increased focus in recent years has been the promulgation of the 2020 Money Pacific Goals. A result of PFIP and the Pacific Islands Forum Secretariat's (PIFS) advocacy at high-levels, it was endorsed by the Forum Economic Ministers Meeting (FEMM) and the South Pacific Central Bank Governors in 2009. In endorsing the goals, Pacific Island governments recognised the high levels of financial exclusion in the region, and the impact this has on financial stability and growth.

The regional goals to be achieved by 2020 include:

- All children to receive financial education through core curricula;
- All adults to have access to financial education;
- Simple and transparent consumer protection to be put in place; and
- Halve the number of Pacific Islanders without access to basic financial services.

Source: PFIP and PIFS websites

The Government has tried to address the constraints identified in the 2017 Financial Services Demand-Side Survey, through different measures. For instance, the PFIP and the TDB have been working together on several initiatives to improve access to financial services, especially women and children. One such initiative is an innovative and streamlined system to make/send payments to Tonga through a remittance product, Ave Pa'anga Pau.[23] The product has around 1,000 registered customers and is the cheapest remittance option in the market. PFIP support will allow TDB to develop new financial services and test delivery modes for an improved customer experience through the Ave Pa'anga Pau platform.

[23]Implemented in partnership with the Kiwi Bank in New Zealand, people sign up online by registering an account and sending scanned "Know Your Customer" documents to TDB, together with a mobile number. The recipient must have an account with TDB. The sender purchases a voucher through Kiwi Bank and the money is electronically transferred in Tongan dollars to the recipient's TDB account.

Moreover, financial literacy training is also offered through a number of other stakeholders, including the Tonga Business Enterprises Centre, microfinance institutions, and non-profit organisations. Typically, training covers budgeting, financial statements and analysis, and decision-making. Individuals and MSMEs are the target participants of the training. An increasing focus has been related to financial literacy and digital financial literacy training for women and youth.

5.3 Internet banking and mobile money

Income and payments revolve around cash, especially for small private businesses. In the private sector and in agriculture, the majority of Tongan adults employed by small businesses receive their income in cash, whereas an increasing number of medium and large businesses are paying employees' salaries through bank accounts. It is only in the public sector that *all* employees receive their income through a bank account. Monthly expenses like payment for utilities and school fees are almost all done in cash even though online bills-payment services (e.g., digital instruments like bank transfers, debit cards or mobile money) exist.

A wide range of credit cards (mainly Visa and Mastercard, and to a lesser extent, Amex, Diners Club, Japan Credit Bureau (JCB), Union-pay) are accepted in Tonga, at least by the main tourism operators and middle- to large-sized retailers. PayPal is also accepted by online shops, primarily within the Tourism sector.[24] ATM and debit cards, both local and international, are popular; all banks, with the exception of MBf Bank, offer them.

Digital payment and banking innovations are led by the two main banks, ANZ and BSP. There has been an uptake in mobile-money in recent years, largely led by Digicel. The evolution of mobile-money started in 2012 with the introduction of the Beep and Go system[25] by Digicel in partnership with Veriphone. The first in the Pacific, the system played an important part in improving the adoption of mobile-money services among consumers. In recent years, Digicel, in partnership with KlickEx, has also introduced a service which allows remittances to be directly sent to mobile money accounts in Tonga (i.e., to anyone with a Digicel account).

The Australian award-winning money transfer service, Rocket Remit, has recently expanded to Tonga. The service utilizes mHITs, Australia's leading fintech mobile pioneer, and the technology allows for mobile money transfer via short message service (SMS). Given that the transactions are separate from banking channels, the overhead fees are typically less than 50 per cent as those charged for money transfers done through traditional, formal channels.

Government actions to promote the adoption of electronic payments solutions can be found in TDGSF 2019-2024. Under Goal 2, *"Implement digital government across all government agencies and activities,"* it plans to establish a platform for electronic payments. It also intends to develop and implement ePayment systems for all government-related transactions including tax payments, registration payments, service fees, and all other transactions. An ePayment system makes available a combination of payment cards (ATM/Credit) and off-site kiosks that will allow public and business payments to be made, without requiring them to go to the office of the concerned agency/ministry.

5.4 The way forward on digital payments

Despite the different electronic payment solutions, both mobile and computer-based, available in Tonga, adoption of these technologies is still relatively slow. This may be partly explained by responses shown in Figure 7 below.

On the supply side, despite the absence of a national financial switch[26] in Tonga, banks have, in recent years, invested heavily in better ATM functionalities, POS equipment for merchants, and creating innovative products (online bills payment, debit cards), including capturing part of the windfall in remittances. However, banks lament the slow progress and evolution of the regulatory framework, in terms of interbank settlements and Internet gateways.[27] They do note that the country's demography is changing; a growing young, smart and IT-savvy population is anticipated to accelerate the adoption of electronic payment solutions. It is confirmed that resis-

[24]According to PayPal, residents in Tonga have the ability to link a credit card to their PayPal account and make payments. However, they do not have the capacity to receive payments, i.e., payments made through PayPal accounts held overseas, generally in New Zealand.

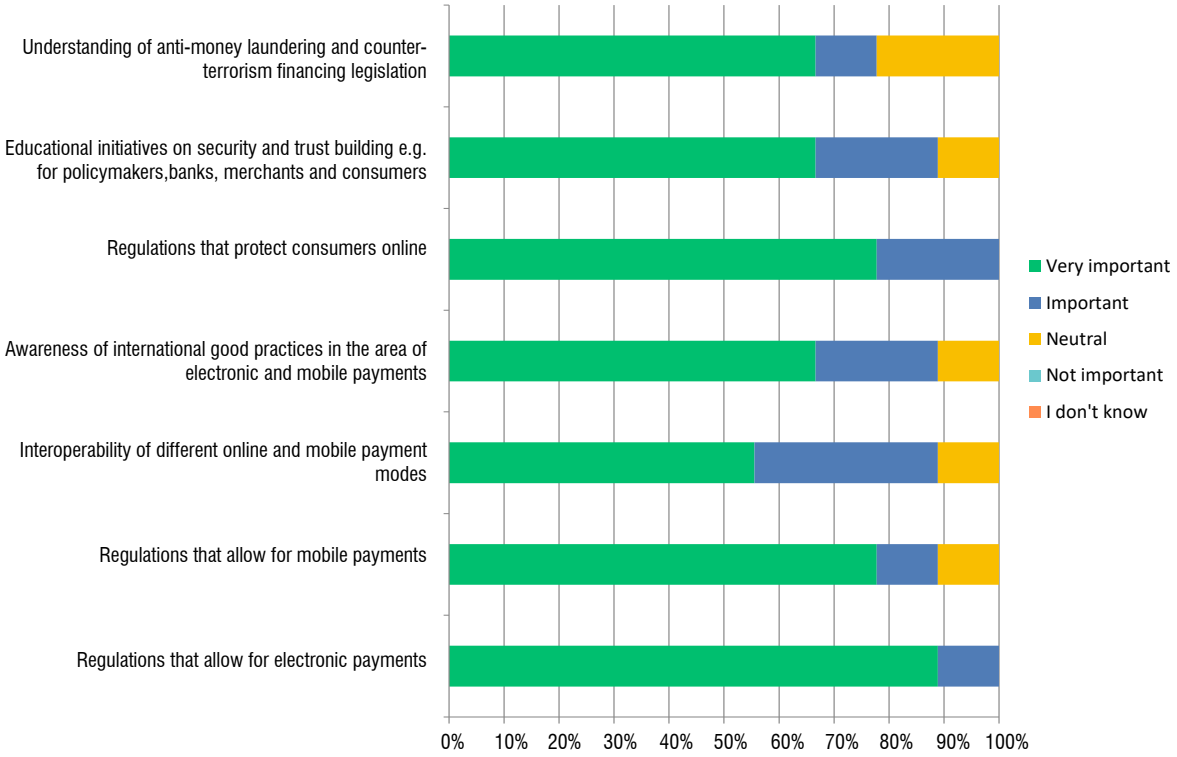
[25]Beep and Go applications enable storing, managing, and beaming of loyalty, gift, and membership cards in a single mobile phone application

[26]Financial Switch is an electronic payment software that enables interconnectivity between the bank's switches, such that transactions made at any ATM could be routed to the connected banks.

[27]Internet gateway is a network "node" that connects two different networks that use different protocols (rules) for communicating.

Figure 7: Factors considered important in creating an environment for e-commerce: mobile payments

27 answers, public and private sector



Source: PIFS, 2019

tance to change affects mostly the older generations and government employees. The lack of digitalisation of MSMEs is also a major bottleneck to overcome.

On the demand side, as shown above, there is a persistent lack of trust and understanding in electronic payment solutions, fuelled by cases of cybercrimes or cyber frauds regularly making headlines. Businesses also complain of steep Internet costs, limited connectivity (especially in the Outer islands), and the charge fees for using international credit cards that customers refuse to bear.

Advancements in mobile phone technology and introduction of mobile money systems present an alternative mode of payment and fund transfer. Mobile technology significantly lowers the cost of remittances as the need for physical points of presence and transactions are done independent of the banking system. For the first time, mobile money systems provided the ability for funds to be sent to the outer islands, where this was previously impossible due to the absence of banks and/or money transfer operators.

With the younger generation seeking more productive investments of their remittances, the adoption of mobile money systems is anticipated to increase in Tonga in the coming years. However, measures should be in place to counter increased dependence on remittances this improved service may create. To maximize the development impact of remittances, the use of new technologies

such as mobile banking for money transfer, the provision of entrepreneurial education, and financial literacy are key.

5.5 Availability and access to financing

The private sector, especially small-scale enterprises, face structural problems to access financing from commercial banks and TDB due to the perceived high commercial risk involved. Loan facilities for ICT or e-commerce firms and start-ups are almost inexistent. Stringent lending requirements such as proof of three (3) years' worth of financial security and steep penalties for overdrafts make it difficult for small enterprises and start-up firms to access finance. The private sector is of the view that relaxation of these criteria would help expand businesses and boost exports.

Access to affordable finance is also a concern in the tourism and wholesale/retail sectors, as defaults on loan repayment have occurred mainly in these sectors. The IMF, however, asserts that the banking system remains well-capitalised and profitable, and nonperforming loans (NPLs) have decreased[28].

Trade finance has an important role in Tonga's activities with its trading partners. For trade to develop and expand, reliable, adequate, and cost-effective trade finance is necessary. Currently, Tonga does not have a broad-based government-operated export finance[29] or export credit guarantee[30] scheme needed to facilitate trade.

Despite the constraints described above, the Government has sought options to increase SMEs' access to financing. The National Reserve Bank of Tonga (NRBT) committed to improve SMEs' access to finance by 20% in 2020, focusing on the agricultural, fisheries, tourism sectors, women and youth as well as to develop policies and regulations for SME finance and consumer protection and promotion of financial literacy. NRBT believes that enhancing SMEs' access to financing in Tonga plays an important role in job creation, poverty alleviation, and promotion of exports and investments. This would contribute to the achievement of the goals set out in the TSDF and support efforts to promote and achieve macroeconomic and financial stability in Tonga. This is in line with the NRBT's vision of becoming an effective and dynamic central bank that promote Tonga's economic prosperity.

The Ministry of Trade and Economic Development (MTED) has developed a credit union development scheme that aims (i) to contribute to poverty alleviation by providing grassroots communities with opportunities to generate more sustainable income through easier access to capital funding for generating business activities, (ii) to increase the participation of women, subsistence farmers and fishermen and rural communities in economic development, and (iii) to expand economic-based activities by increasing the possibility of access to finance by the subsistence and entrepreneurs in the informal sectors. The scheme has so far been applied to a small number of communities, specifically in the retail industry, for women entrepreneurs and in the squash sector. More sectors will be targeted starting 2020, based on the evaluation of the impact of the first credits.

The PFIP is working with financial service providers to create better, cheaper, and safer financial services. The Pacific-ASEAN Financial Innovation Challenge, a partnership with the United Nations Capital Development Fund (UNCDF) Financial Innovation Lab and PFIP, is an opportunity for Tongan entrepreneurs to participate in and access finance. It provides a platform for innovators from the Pacific, Malaysia, and Singapore, to develop their ideas into practical solutions for UNCDF, PFIP, and their implementing partners. The Challenge also provides an opportunity to connect innovators from the ASEAN Region and Pacific countries thereby creating a network of digital innovators in both regions. Participating innovators will work closely with UNCDF, PFIP, and their implementing partners in the Pacific to design, modify, and test their ideas to address the specific solutions put forward by the Challenge.

[28]Article IV Consultation-Press Release; and the Staff Report for Tonga, IMF, January 2018

[29]Export finance is the specialised range of finance focused on the export market. It aims to support businesses reaching an international market and to maintain positive cash-flow cycle during the gap when exported goods are in transit before they are collected by the importer.

Source: https://www.businessexpert.co.uk/invoice-finance/export-finance/

[30]Export credit guarantee is a type of insurance policy that protects an exporter against non-payment (default) by an importer.

Source: http://www.businessdictionary.com/definition/export-credit-guarantee.html

6. E-commerce skills development

While the Government of Tonga has prioritised training and education in the recent policy framework, the parts relevant to ICT are concentrated on developing skills to use ICT (access to ICT infrastructure, basic ICT skills) but seldom on the skills needed to embrace e-commerce or digital revolution. Trade associations have a role to play in this regard but have been reticent in their outreach to ICT-led businesses and even less so with tech start-ups. Initiatives of development partners do not include components relevant to the skills, such as digital entrepreneurship, needed for a digital economy. There is also limited emphasis on ICT. However, this lack of focus can be improved as the digital economy evolves and a needs-assessment can be clearly conducted. Labour mobility schemes could also be leveraged to encourage demand for ICT-related skills, which may lead to improvements within the skills-development infrastructure. Thus, for the people of Tonga to take full advantage of the potential of digital government services and the intellectual and technology skills to compete in the global economy, Tonga must set digital literacy and digital inclusion as national priorities.

6.1 Sector policy and initiatives

It is only recently that policy documents recognise and reflect the need for upgraded and enhanced skills and knowledge required to fully embrace the digital economy.

The **Tonga Education *Lakalaka* Policy Framework 2012-2017** defines the overall national education strategy, including for Technical and Vocational Education and Training (TVET). The Tonga Institute for Science and Technology (TIST) and Tonga Institute for Higher Education (TIHE) are the main TVET providers including ICT. However, these functions closer to long-duration courses, rather than short certificate type courses, which are provided by the Tonga Business Enterprise Centre (TBEC) and Mainstreaming of Rural Development Innovation Tonga Trust (MORDI TT). These certificate courses could be potential anchors for ICT skills development in the future. Universities, like the USP and Kings International University, provide undergraduate and postgraduate level ICT courses (see below).

Strategic Goal No.3 under the **TDGSF 2019-2024** focuses on "Advance Digital Inclusion for All" and digital literacy. In the TDGSF, digital literacy is defined as "the ability to use information and communication technologies to find, evaluate, create, and communicate information requiring cognitive and technical skills."

Box 7: Three Aspects of Digital Inclusion (TDGSF 2019-2024)

- **Access**: Availability and affordability, Design for Inclusion and Public Access
- **Adoption**: Digital Literacy
- **Application**: Workforce Development, Education, Healthcare, Public Safety, Civic Engagement, Social Connections

Source: TDGSF, 2019

Strategic Goal No.3 on Digital Inclusion requires the people of Tonga to develop their digital literacy skills. This is supported by three (3) distinct objectives in the Framework:

No. 3.2 Incorporate digital literacy skills development into all educational programmes by 2021 establishing basic levels of digital literacy needed for school graduates to successfully enter the workforce. As an approach in education curriculum design, digital literacy and digital skills needs for students and for the public to participate or compete in the digital world.

No. 3.3 Provide citizen and business assistance and mentorship to assist business and private sectors in accessing Digital Government services with a combination of intelligent call centres, support kiosks in remote locations, and service centre desks as individual ministries or agencies serving citizen needs. Lower income people and communities in under-served areas and vulnerable communities, or who have not been afforded the opportunity to gain digital literacy skills, must not be prevented from accessing Digital Government services.

No. 3.6 Promote adult and professional education programmes to develop Governance and management-oriented ICT capabilities.

Implementation of programmes targeting government officials in the TDGSF is partly funded by the government budget. Additional resources from private sector sources and development partners is needed to bridge the funding gap.

The TTPF recognised that both export-oriented firms and those competing with imports need adequately trained staff to become or remain competitive. Although education measures are generally not covered by a trade policy, the TTPF includes certain targeted and specific skills-building measures under its "Entrepreneurship and Skills Development" Pillar. Actions under this pillar are assigned to the MET, MEIDECC (which is currently developing a policy framework for Science, Technology and Innovation (ST&I) for Tonga), and the MTED. Together, these ministries will identify specific actions to be implemented to strengthen entrepreneurship and skills development for trade. MET will be responsible for TVET while MTED will provide support to businesses and managerial skills development.

6.2 Identification of and bridging skills gaps

All businesses in Tonga are small and many suffer from weaknesses associated with size - weak organisational structures, entrepreneurial, managerial and technological skills deficits, and limited innovation capacity and internal capacity constraints, such as limited professional and managerial capacity, technological know-how. These, together with external constraints, further reduce their ability to compete. With MSMEs constituting majority of the businesses in the Kingdom, improving their ICT readiness can have a major impact.

Programmes on ICT and entrepreneurship skills development will need to cover a wide range of activities. To this end, the TTPF comprises the following: (i) improvements in vocational training and skills development of workers as well as managerial capacity/ entrepreneurial development, (ii) business development services to support entrepreneurial skills will continue to be provided (through TBEC and other entities), (iii) awareness-raising programmes and incentives to encourage actors in the informal sector to formalise their businesses and encourage more participation in the economy; (iv) facilitation of businesses' increased awareness of ICT's potential and provision of incentives for the workforce to acquire ICT skills, equipment, and connectivity; and (v) promotion of innovation and research and development activities, including innovation partnerships among businesses and between businesses and research institutes/education institutions.

As Figure 8 shows, skills development is necessary across the board, not only with businesses. The issue of skills mismatch is a potential risk, given the low engagement of industry in curricula development and broader skills policy development. To address this, a feedback loop where industry can provide inputs to skills-providers and policy-makers needs to be established and institutionalised. The continuous brain drain and concomitant lack of ICT experts in Tonga mean that businesses need to find these resources overseas at higher costs, exacerbated by withholding taxes imposed on foreign service providers.

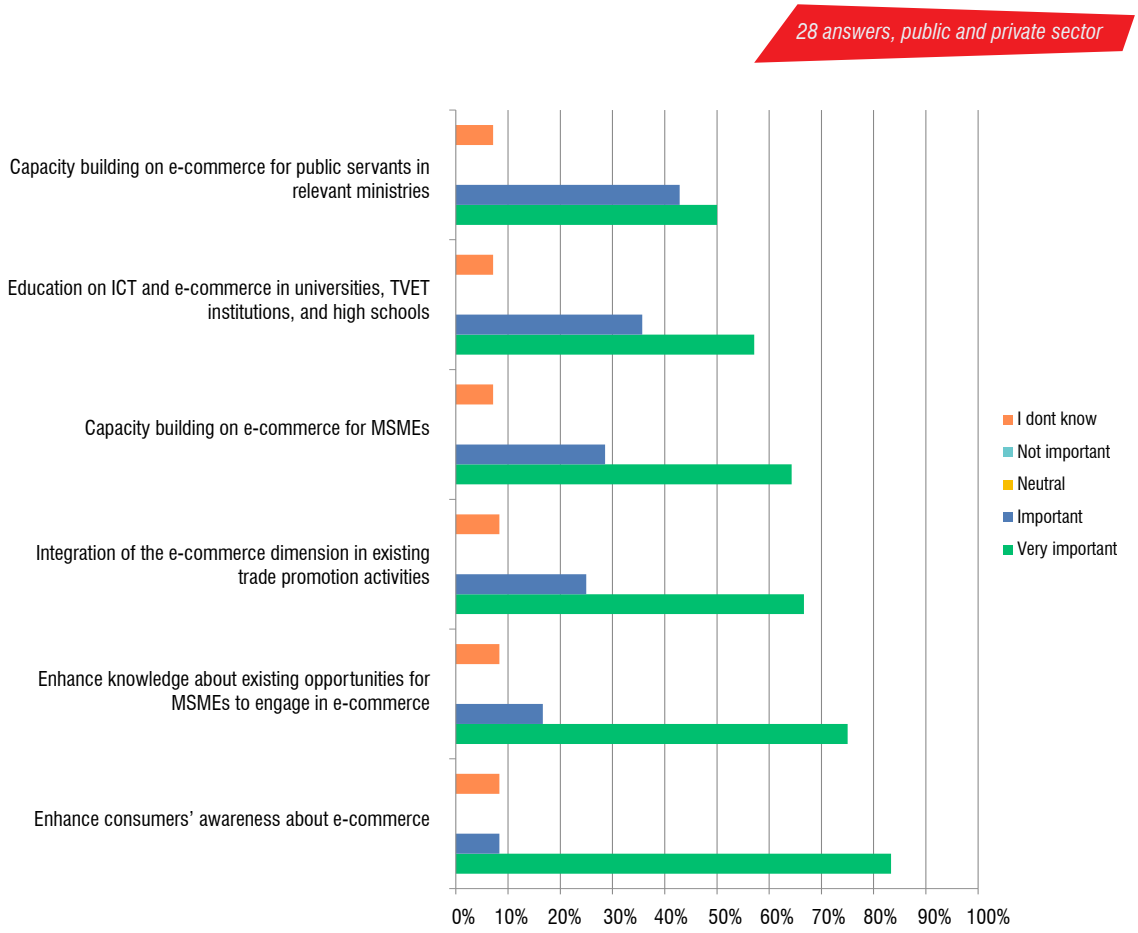
The high international demand for ICT experts and local demand from the private sector make it difficult for the public sector to recruit and retain qualified ICT personnel. Thus, ensuring access to high-quality ICT services requires creative approaches, which may include outsourcing and pooling resources. The Government needs to undertake cost-benefit analysis at the national level to determine the best options for securing necessary ICT personnel and building local capacity, where and when possible.

In this regard, options that are relevant to Tonga to secure human resources' support for "ICT for Education" initiatives in Tonga include (i) outsourcing experts on a case-by-case basis, (ii) pooling resources across ministries to establish localised ICT support units, and (iii) building in-house capacity. Since identifying and selecting appropriate human resources will be an ongoing challenge, it is essential that all stakeholders continue to share best practices and lessons learned during implementation at the regional level.

6.3 Women in ICT

Access to ICT-based services for Tongan women tends to be hindered by barriers including remoteness, costs, and in some instances, societal norms. Digital Government can offer transformative opportunities for women to access information and services on health, education, gender-based violence related services, jobs, and financial services. Therefore, it is critical to ensure that women are not excluded in digital public service delivery. To address this, the TDGSF has proposed to seek development partner assistance to support gender inclusiveness, especially for services, which will be targeted awareness-raising activities for women and a gender-disaggregated survey on the uptake and women's satisfaction in e-services. Data that will be obtained from the survey will be useful to implement improvements in the services provided. Business registration is considered to be a priority e-service. This can help facilitate female entrepreneurship and economic empowerment, access to business associations and development partner's ICT skills development programmes.

Figure 8: Capacity building needs to facilitate e-commerce adoption in Tonga



Source: PIFS, 2019

6.4 Availability of tertiary education/curriculum, professional training on ICT and e-commerce

The University of the South Pacific is the main provider of off-line, online, and blended education, ranging from TVET certificates to Bachelor's to Post-Graduate degrees on ICT. In addition, USP acts as a quasi-Internet service provider for education institutions in Tonga, through an Internet connection leased from Tonga Cable. The USP Tonga campus, has USP Centres in Ha'apai and

Vava'u that are connected to the Internet through satellite connection. The Australian government has invested in a number of skills development initiatives including the latest 5-year iteration of the programme, "Tonga Skills," launched in 2017. The initiative is aimed at building skills directly matching the requirements for inclusive economic growth and is executed in close collaboration with the MET and the Tonga National Qualifications and

Box 8: The University of the South Pacific Satellite Communication Network

The University of the South Pacific is the premiere institution of higher learning for the Pacific Region. Established in 1968, USP is one of only two universities of its type in the world. It is jointly owned by the governments of its twelve (12) member countries: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Samoa. The University has campuses in all member countries.

The University of the South Pacific (USP) was the first higher education institution in the region to establish its own satellite communication network (USPNet). The network connects USP's campuses across its twelve (12) member countries (including Tonga) and benefits from exclusive access to Australia's Academic and Research Network. USPNet started as a regional network to support the university in delivering education services to its member countries and campuses. In its first iteration, it supported USP's governance, administration, human resource management, financial services, teaching and learning, and research. In recent years, USPNet has expanded to serve more than its original educational services mandate. It now provides policy advice on ICT to support regional agencies in addressing issues pertaining to cyber security, climate change, and disaster management. Although USPNet provides access to regional organizations to support these functions, it is only in Tonga that USP shares its network connection with a few schools, as part of the deal to receiving an educational license to be a service provider.

USP is seeking to create and host a knowledge hub for the Pacific. One possible method for accelerating this process is to review the structure of USPNet to open access for other post-secondary education providers. Doing so may prevent costly and unsustainable duplication of efforts to establish parallel ICT networks, and increase the number and quality of learning opportunities for students in the region. Stakeholders in the region may explore the option of establishing USPNet as an independent entity, with a separate business and governance model. As a separate entity, USPNet could also consider options for expanding services to all post-secondary education institutions in the region. This arrangement may help USPNet access additional financing to support expanded functionality. Implementing these changes would require increasingly transparent governance and management structures to support better planning, expansion, and accountability of the network.

Source: ICT for Better Education in the Pacific - Asian Development Bank, 2018 and USP Fiji website (eportfolio.usp.ac.fj)

Accreditation Board (TNQAB). Focus areas include MSME development; skills development for women and people with disabilities; and strengthening local training supply and delivery mechanisms (through train-the-trainer and other teacher training tools). Tourism is an area of programmatic focus in terms of leveraging the potential for strong downstream and upstream linkages with agriculture, handicrafts, and other sectors. All activities are demand-driven. Interest has increased among beneficiaries to improve their digital literacy, e.g., getting access to training on basic ICT skills for businesses, including accessing websites, increasing online presence, designing for the Internet.

Skills and Employment for Tongans (SET) is a WB initiative aimed at addressing the high secondary school dropout rate (up to 20 per cent in recent years) and providing TVET opportunities for those who have already dropped out. An important facet of this initiative is that it looks at both the domestic market skills requirements, but also that for the Australian and New Zealand markets, which are open to Tongans through the labour mobility schemes. This is especially important given that Australia has recently broadened its scheme to include all Pacific Island Countries that are signatories to the PACER Plus Agreement, and has also lifted an annual quota. The initiative recognises the importance

of these two markets for Tonga, given the dependency on remittances, the less than 500 jobs created in the country annually, and with approximately 2,500 young Tongans entering the labour force. The ADB estimates an annual unemployment rate of 20 per cent.

6.5 Business incubators and business accelerators

Apart from the select development initiatives mentioned in this chapter, there are presently no discernible incubation and mentoring initiatives that are focused on the digital economy. This will hopefully gain increasing importance as the ICT sector further develops.

Trade associations can help shape e-commerce in several ways; their actions and initiatives can complement government measures. They can directly influence the development of e-commerce (for example, monitoring industry behaviour) or indirectly through persuasion and peer pressure. Their activities can include initiatives that increase e-commerce-related awareness and knowledge of firms, contribute to the formulation of cybersecurity-related legislation and policy framework, and gather accurate and relevant data on e-commerce and related indicators. These roles will likely be especially important for Tonga where e-commerce is still at a nascent stage, characterised by the absence of important e-commerce related regulative institutions.

In this context, MSMEs in the hospitality sector can benefit from the South Pacific Tourism Organization's (SPTO) support. The SPTO regularly offers e-marketing workshops for tourism SMEs with the objective of enhancing digital marketing and e-commerce knowledge of tourism SMEs, boost their long-term business viability through direct online booking, and enable real time connection with potential customers at both regional and international levels. The workshops also introduce participants to e-marketing tools and the key contents needed for a successful business website.

CONCLUSION

The Kingdom of Tonga has undergone profound changes in its political and economic context, both domestically and internationally. These changes have affected Tonga's trade performance in recent years. Like all countries, Tonga is dependent on the global economy: it imports goods and services which it cannot produce, or produces at higher costs, and in turn exports goods and services that it can provide competitively, as well as labour, to obtain the foreign exchange necessary to pay for imports.

The knowledge and technology revolution transforming the global economy offers unique opportunities to Tonga to engage in new development paths. To exploit these opportunities, Tonga has invested in appropriate ICT infrastructure, seeks to upgrade its public service delivery, and improves its business environment. These steps are needed to benefit from job creation, activity expansion, and productivity improvements that are possible in many sectors, like ICT and e-commerce.

The rapid and strong appetite for better connectivity to foster trade and communications is considered a key factor driving socioeconomic development in Tonga. Faster, cheaper, and better-quality connection can support cooperation and partnerships within Tonga and with other Pacific Island Countries. This can help achieve economies of scale and improve trade logistics and supply chain efficiencies.

While there are still connectivity challenges ahead in terms of broadband access and affordability, which will require both investments and regulatory reforms, increased connectivity in Tonga is starting to offer new opportunities. Digital technologies are key enablers for economic diversification, creating new income generating opportunities, and improving service delivery. E-commerce and new digitally-enabled businesses, such as those in the financial and services sectors, are beginning to emerge, and the Government of Tonga has taken bold steps to move its processes into the digital age and to roll out services online.

Despite these developments, Tonga still faces challenges of digital adoption, particularly in its businesses, and even more so in the very large informal sector. Similarly, constraints in payment solutions, in digital financial literacy, and access to financing for SMEs will need to be addressed if Tonga wants to take part in the digital revolution and not just watching the revolution unfold without taking part in it.

ACTION MATRIX

#	Vision for E-commerce and the e-commerce ecosystem				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
V1	Develop a private sector e-commerce focus group as the seed for a future ICT or e-commerce association, harnessing currently fragmented initiatives under one platform and stimulating coordination among the private sector associations under TCCI.	Formal and informal SMEs are able to participate in dialogues on what shapes the future Digital Tonga and are able to find resources to move online	High	MTED	PSDI, ITC
V2	Develop a national digital economy roadmap, including strategy and vision, matching the expectations and ambitious goals of the TDGSF.	A vision for a Digital Tonga supports the Government's vision and objectives in the TDGSF; increased private sector and consumers uptake of domestic and cross-border e-commerce, in line with the TDGSF and TTPF	Medium	PMO (Planning Division), MEIDECC, MTED	UNCTAD, WB
V3	Facilitate a sustained multi-stakeholder dialogue on national ICT and e-commerce by developing a single sector coordination mechanism preceded by a capacity assessment exercise aimed at defining individual agencies' and SOE's mandates on e-commerce and the Digital Economy.	Individual government agencies and business associations contribute to the country's digital economy vision and have identified their contributions/ mandate (avoiding overlap and duplications)	Medium	MTED	PSDI, ITC, UNDP
V4	Include ICT services and e-commerce under a new sources of growth approach in future updates of the TTPF and National Investment Policy.	E-commerce and digital economy are mainstreamed into national development plans and in dialogues with development partners	Medium	MTED, MEIDECC	Not applicable
V5	Improve national statistics capability for measuring trade in services, national and international ICT and e-commerce activities.	The contribution of services in general and ICT in particular to growth, GDP, and economic development is better captured in future government policies and plans	Medium	Tonga Statistics Department	DFAT, WB

#	ICT Infrastructure and Services				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
I1	Finalise plans for increased connectivity and improved redundancy, including measuring the ROI of different options (e.g., submarine cable vs satellite connection)	Wider broadband coverage of the population, reduced risk for complete Internet outage as happened in 2019	High	MEIDECC, MPE, MOI	ADB, WB
I2	Ensure remote islands in Vava'u and Ha'apai islands groups have access to fast, reliable mobile broadband (3G and eventually, 4G).	Mobile broadband connection is available for all populated areas in Tonga, increasing business use of ICT applications in tourism areas, creating new business models	Medium	MEIDECC, MPE, MOI	ADB, WB
I3	Encourage telecommunications service providers to cooperate on network and infrastructure sharing issues in remote areas to benefit from cost-sharing, as well as improving last-mile connectivity	Reduced cost of broadband extension and limited investment overlaps between the government and the private sector	Medium	MEIDECC, MPE, MOI	ADB, WB
I4	Roll out e-government/digital government applications as pilots with focus on trade processes (certificates of origin, licenses, IP registrations)	Government is taking the lead in the adoption of ICT tools by providing G2B or G2C applications, to be enhanced and upscaled through the Digital Government Framework	Medium	MTED, MEIDECC, MPE	ADB, WB
I5	Deploy massive public awareness campaigns/ capacity building activities for the general public on ICT, with ICT skills development for businesses or people which are demand-driven.	Increased digitalisation of businesses and development of a skilled workforce prepared for current and future innovations	Medium	MEIDECC, MET	WB

#	Trade Logistics and Trade Facilitation				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
L1	Ratify the PACER Plus Agreement and the WTO TFA as soon as possible; start preparing associated notifications on implementation	Tonga benefits from increased donor support on trade facilitation matters, accelerating adoption of TFA measures under Categories B and C	High	MRC, MTED, PMO & Foreign Affairs	WTO, WCO, Australia and New Zealand, PACER Plus Readiness Package
L2	Ensure deployment of ASYCUDA WORLD is inclusive and outreach actions to the private sector are part of the capacity building efforts, including the possibility of establishing a Single Window that is ASYCUDA-based	Better and faster adoption of ASYCUDA WORLD by businesses, in particular customs brokers	High	MRC	PACER+ Readiness Programme UNCTAD
L3	Support the implementation of UPU's Operational Readiness for e-commerce for Tonga Post through capacity building and implementation of relevant ICT tools	Tonga Post becomes a reliable, cheaper, and more secure alternative to express courier companies for cross-border shipments and deliveries	High	MPE, TP	UPU
L4	Accelerate readiness of Tonga officials on cross-border paperless trade through the country's participation in the WTO TFA and in the implementation of the UNESCAP Framework Agreement on the Facilitation of Cross-Border Paperless Trade in Asia and the Pacific	Relevant agencies obtain support to accelerate implementation of cross-border paperless trade measures facilitating e-commerce, such as electronic payments and use of online documentations	Medium	MRC, MPE, TP	UNESCAP, WB
L5	Develop an open national physical address system to homes, institutions and businesses to facilitate trade and logistical support for a modern postal system. As an interim measure, ensure automation and better location/ directions (IP locations to use some platforms similar to My Maps) for delivering goods to people's addresses in Tonga	Increased and improved "findability" of addresses in Tonga lead to more suitable delivery services being developed, including for e-commerce parcels drop-off and pick-up	Medium	MPE, TP	UPU
L6	Encourage Tonga Post and Customs to work together to create an interface between the existing systems to optimise customs clearance and timely delivery of postal items; improve traceability, delivery times, and service quality for items in the postal network and allow for faster and more accurate collection of duties and taxes payable	Tonga adheres fully to the UPU Customs Declaration System, which caters to all electronic customs/security treatment of postal items. Enhanced reachability and accessibility by designing postal addresses for ease of delivery of postal items	Medium	MRC, MPE, TP	UPU, UNCTAD

#	Payment Solutions, Digital Financial Inclusion and Access to Financing				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
P1	Promoting enabling regulatory environments by encouraging cross-regulatory cooperation on payment, interbank settlement, interoperability between ANZ and BSP clients. This could include the feasibility of developing a national payment switch in Tonga.	Greater investment by firms as a result of an improved legal and regulatory environment. Changes in firm behaviour as a result of more open and business-friendly regulations leading to investment in e-commerce development	High	MOF, NRBT	Not applicable
P2	Commercial banks need to actively promote Internet banking among their corporate customers through a combination of incentives and disincentives. Incentives can be lower or no fees for online banking operations (including bank-to-bank transfers). Disincentives can include increased fees for direct branch banking or use of cheques/cash	Perceived cost reductions lead to a wider adoption of online payment tools for private firms; increased formalisation of MSMEs	Medium	NRBT	Not applicable

#	Payment Solutions, Digital Financial Inclusion and Access to Financing				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
P3	The National Reserve Bank of Tonga to collaborate with financial institutions and telecommunication providers (non-financial payment system providers) for the introduction and expansion of newer mobile money services such as specialized savings and loan products, and/or tailored services for specific customer segments (e.g. squash sellers, whale watching tour operators, etc.)	More firms entering the formal economy, leading to increased productivity as a result of better access to the financial system, contracts to supply other, larger companies, and improved access to government services	Medium	NRBT	UNCDF, ADB
P4	Support integration of payment system for hotel and tourism operators to accept advance payment from overseas	Reduced risks and increased profitability for local accommodation providers and increased visibility of lodging options for visitors; reduced costs for small businesses listed on major booking sites	Medium	MOF, MOT	SPTO, UNCDF
P5	Foster the expansion of merchant networks accepting payments through ETF/POS payments or mobile money which also act as cash surplus/liquidity clearance points for smaller mobile money agents. Review the use of credit cards as a payment solution in Tonga as BSP and ANZ only offer credit cards to businesses and not individuals	Diversity of payment solutions has increased, leading to an increase of electronic payments for goods and services.	Low	MOF, NRBT	UNCDF
P6	Put in place proper business training courses for interested entrepreneurs as a pre-condition for securing loans from the banks	Increase the capacity of businesses to contract loans, with quality applications, for business and investment purposes	Low	MOF, TCCI	DFAT (Tonga Skills)

#	Legal and Regulatory Framework				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
R1	Ensure that acts and bills currently being updated or finalised include e-compatible articles (especially on consumer protection, data protection)	A robust e-commerce legal framework is available, attracting more domestic and international investors, reducing the need for costly and time-consuming amendments and updates	High	MTED, OAG, MEIDECC	ADB, WB, UNCTAD, UNCITRAL
R2	Enact legislation to ensure legal certainty and validity for electronic documents and online contract formation, and recognition of e-signatures	Tonga's e-commerce ecosystem supports development of cross-border e-commerce by having a legal and regulatory framework adhering to international best practices and enabling e-contracts and e-signatures	Medium	MTED, OAG, MEIDECC	ADB, WB, UNCITRAL
R3	Develop consumer protection regulations on specific aspects of e-commerce transactions (return policies, online IP, etc.)	Tongan e-commerce marketplaces are protecting both merchants and consumers using their services	Medium	MTED, OAG	UNCTAD
R4	Assess the potential benefits to develop an e-commerce law to address all issues concerning e-commerce in just one piece of legislation	Reduced costs and time in updating/adjusting existing legislations; spurred foreign investment in Tonga's digital economy	Medium	MTED, OAG	UNCITRAL, UNCTAD
R5	Educate consumers on electronic commerce and the corresponding legal framework (once in place) to promote awareness of online consumer rights	Increased trust of consumers and businesses to transact online and to digitalise their operations	Low	MTED	UNCTAD

#	Skills for e-Commerce Development				
	Indicative action	*Expected results*	*Priority Level*	*Lead Agency*	*Potential DP Support*
S1	Increase the capacity of the Tonga Chamber of Commerce to play an advisory role in the business community to promote e-commerce adoption and use ICT services	The business community has a single easily accessible reference point for every question and needs related to digitisation and e-commerce	High	MTED, MEIDECC, TCCI	PSDI, ITC
S2	Conduct a detailed skills gaps and assets assessment at the firm level to determine the degree to which knowledge and capabilities are present along the e-commerce value chain	Adjust education and training curricula to include contents, skills that match Tongan business needs, reducing the reliance on overseas capacity	Medium	MTED, MEIDECC	PSDI, ITC
S3	Conduct an assessment of the availability of local ICT and e-commerce support services, platforms and solutions. Evaluate their suitability to the needs of local producers and advise local firms on different solutions available on line, including using services of B2C and B2B marketplaces	Costs of digitalisation is reduced for MSMEs, increased employment, and investment opportunities	Medium	MTED, MEIDECC, MOE	PTI, PSDI, ITC, DFAT (Tonga Skills)
S4	Organize series of training and coaching activities on Internet for businesses, e.g. hands-on training for small businesses on how to move online, step-by-step guide to setting up your own e-commerce business in Tonga.	Government- and donor-supported programmes are targeted to those individuals needing to enhance their skills, making them more employable by ICT-enabled firms and organizations	Medium	MTED, MEIDECC, MET	PSDI, ITC, DFAT (Tonga Skills)
S5	Develop an incubation programme/incubator for companies that are seeking to establish an e-commerce presence. Programme scope would cover all relevant areas - infrastructure, skills, logistics, payment, legal aspects	Competencies across a broad range of topics are built; improvements in firm productivity as well as firm turnover and profit, which contribute to aggregate economic growth	Medium	MTED, TCCI	PSDI, PTI, DFAT, USP
S6	Accelerate the adoption of digital economy related curricula and online courses	Students are better equipped with knowledge and tools to fully embrace the digital transition	Medium	MET, MEIDECC	DFAT, USP
S7	Provide training to Tongan newspapers and news media -both printed and online- on how to report on digital economy, digital innovation and e-commerce to increase understanding by their audience	Business and consumers knowledge on e-commerce has increased, their confidence to shop and do business online has improved.	Low	MOE, MEIDECC	DFAT, USP

ANNEX I: BIBLIOGRAPHY AND WEBSITES USED

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- UNCTAD Cyberlaw Tracker: http://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/eCom-Global-Legislation.aspx
- UNESCAP Paperless Trade in Asia Pacific: http://www.unescap.org/resources/trade-facilitation-and-paperless-trade-implementation-asia-and-pacific-regional-report
- Universal Postal Union, http://www.upu.int
- What3Words: https://what3words.com/about/

ANNEX II: DATA FOR TONGA ON THE ETRADEFORALL.ORG PLATFORM

eTrade for all
Connecting the dots

COUNTRY PROFILE: TONGA

Contact: info@etradeforall.org

GENERAL INFORMATION - 2017

Population	GDP	Merchandise trade
0.1 Millions	427 Millions current US$	233 Millions current US$
Internet users	**GDP growth**	**Land area**
0.0 Millions	2.7 %	720 km2

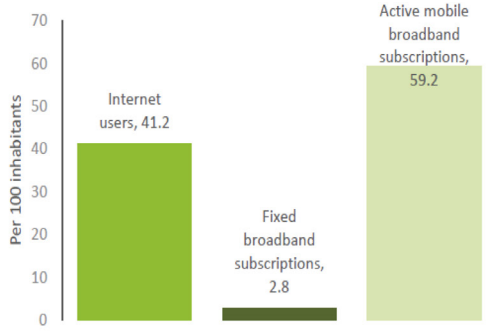
Source: UNCTAD and ITU (complete URL addresses in the General Notes)

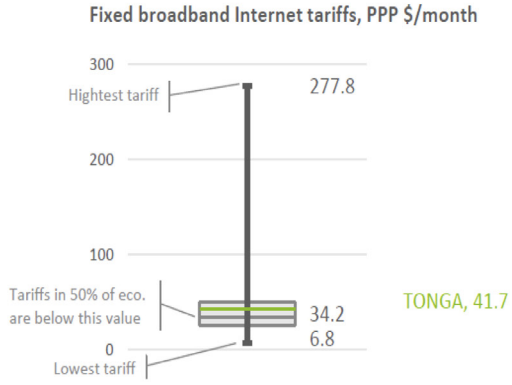
E-COMMERCE ASSESSMENT - 2016-18

Rank in UNCTAD B2C E-commerce Index	Rank in ITU ICT Development Index	Rank in WEF Networked Readiness Index
-/151	110/176	-/139

Source: UNCTAD, ITU and WEF (complete URL address in the General Notes) Note: 1 = Best

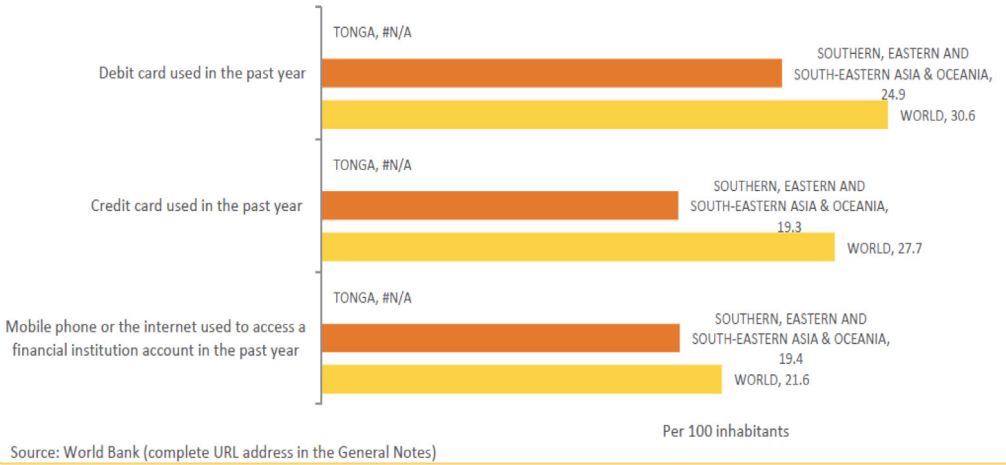
ICT INFRASTRUCTURE AND SERVICES - 2017





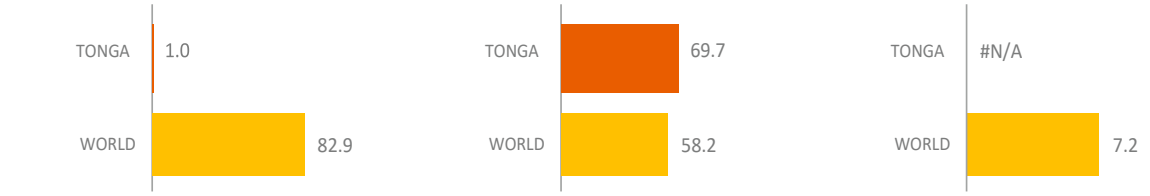
Source: ITU (complete URL address in the General Notes)

PAYMENTS - 2014-17



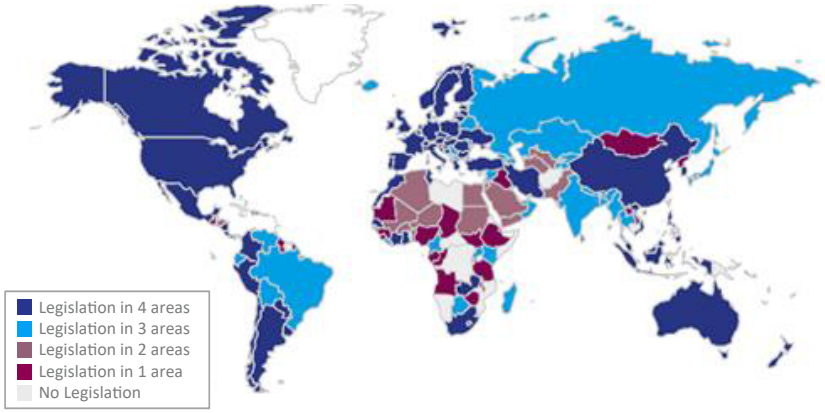
Source: World Bank (complete URL address in the General Notes)

TRADE LOGISTICS - 2013-18



Source: UPU and World Bank (complete URL addresses in the General Notes)

LEGAL AND REGULATORY FRAMEWORKS - 2019



TONGA

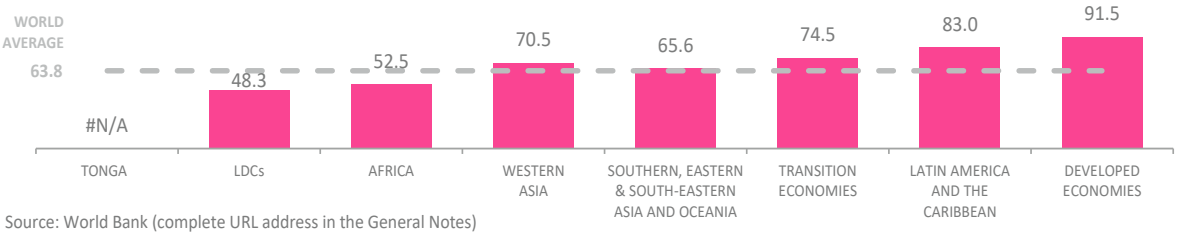
Electronic Transactions:	No legislation
Consumer Protection:	#N/A
Privacy and data protection:	No legislation
Cybercrime:	No legislation

Source: UNCTAD

For more information see: http://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/eCom-Global-Legislation.aspx

SKILLS DEVELOPMENT - 2013-17

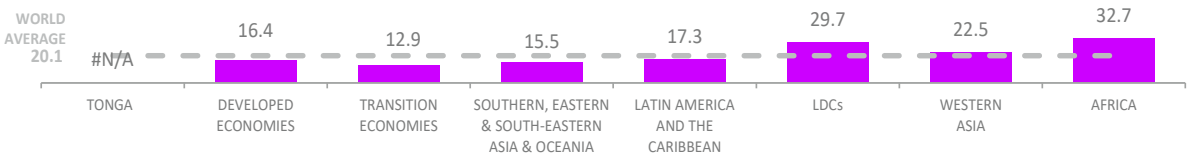
Percentage of firms using e-mail to interact with clients/suppliers



Source: World Bank (complete URL address in the General Notes)

FINANCING FOR eCOMMERCE - 2013-17

Percentage of firms identifying access to finance as a major constraint



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