DIGITALIZATION AND DECENT WORK
IMPLICATIONS FOR PACIFIC ISLAND COUNTRIES

International Labour Organization

1919·2019

DIGITALIZATION AND DECENT WORK

IMPLICATIONS FOR PACIFIC ISLAND COUNTRIES

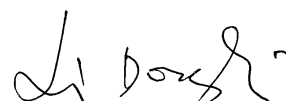ILO Office for Pacific Island Countries
July 2019

FOREWORD

As the world transitions into the digital age it will challenge the future of work, sustainability of enterprises, employment, job quality, skills, vocational education and human resource management. These important issues need to be considered and addressed by policy makers, business leaders, education agencies, workers' organisations, civil society organisations and other key stakeholders in order to develop and implement effective strategies for the future. Technological advances such as artificial intelligence, automation and robotics, will create new jobs and new possibilities for development of businesses, improvement of working conditions and management, but, it will also pose challenges to those countries, employers and employees, who are less prepared for these transitions. Some workers may lose their jobs and hardly many of them would be well equipped to seize new opportunities without taking special efforts and implementing proper policies. Today's skills may not be adequate for tomorrow jobs and newly acquired skills may quickly become obsolete, therefore, both employers and workers are interested in finding how to overcome these constraints. Digitalization offers ample opportunities for us to improve the quality of working lives, expand career choices, close the gender gap, create new jobs that did not exist before and thus help retain young workforce who would otherwise migrate to other countries, and much more. For the International Labour Organization (ILO), governments, employers and workers' organizations, we need to ensure that working people have a just share of technological innovation and economic progress through respect for rights and protection against risks in return for their continuing contribution to the economy.

During the ILO Centenary Conference held in Geneva in June 2019 the ILO Centenary Declaration for the Future of Work was adopted. The Declaration states that ILO must direct its efforts to harnessing the fullest potential of technological progress and productivity growth, including through social dialogue, to achieve decent work and sustainable development, which ensure dignity, self-fulfilment and a just sharing of the benefits for all. The digital age is a part of future of work. In the Pacific, several challenges will impact the future of work including fast-paced technological disruptions and possible job losses, climate change, demographics, instability, globalization, migration, and inequality. These challenges require us to think about the types of jobs, skills and safety nets that countries need to meet people's expectations and aspirations. A number of key questions need to be asked: what is the level of digital readiness of Pacific island countries? Do governments have a digital strategy? What are the digital skill gaps and what can be done to close these gaps? How are trade union organizations positioning themselves to organize and represent the workforce in the digital future? How can key institutional actors work together for a better digital future in the Pacific region?

To address these questions, the ILO Office for Pacific Island Countries commissioned a scoping study of 'Digitalization and Decent Work: Implications for Pacific Island Countries'. This report is the outcome of the study which provides a detailed analysis of the perspectives of different stakeholders on digitalization based on surveys and interviews with government officials, employer representatives, educationists, trade union representatives and leaders of youth organizations in the eleven ILO Member States in the Pacific. I hope that findings and recommendations presented in this report will raise attention of key stakeholders in Pacific countries and facilitate them to formulate policies and action plans without delay. The ILO calls for government strategies on digital economy which is absolutely key as there will be no other options but to take an active part in the 4th Industrial Revolution in order for the countries and people not to be left behind.

Donglin Li
Director, ILO Office for the Pacific

Table of Contents

EXECUTIVE SUMMARY

Background

The process of digitalization has taken a variety of forms and developed at different pace across nation states, sectors and occupations. Indeed, there is significant disparity in the development and deployment of digital technology, AI, and data sciences even in less developed countries. In some countries, the concepts of smart cities, distance surgery, e-government, and e-commerce, are being realized with impressive results; whereas others are still grappling to provide universal coverage of uninterrupted Internet. Four key developments are notable in the adoption of digitalization in a broad sense around the world:

1. E-government, e-governance and e-public services;

2. Automation (the use of industrial robots);

3. The creation and power of digital and network platforms; and

4. The use of digital data to inform human resource management practices.

Digitalization offers rich opportunities for economic transition and industry upgrading for nation states, especially those in developing countries. The impact of digitalization on workers is mixed, with outcomes that are both positive (e.g. job opportunities that did not exist before, and greater work-life balance due to flexi-work), but more often, negative for the majority of those affected, especially those on the lower rung of the labour market, many of whom are women. The formulation of national policies and regulations has been slow in responding to this accelerating development on a global scale. A deterministic technological approach has often been proposed in popular debates, highlighting, amongst other things, skill deficits and the disadvantageous position of women who are less technologically well trained or represented in the science, technology and engineering disciplines. Labour institutions have been slow-moving in developing a strategy for regulating new forms of labour practices associated with the adoption of digital technology. What may be the new skill requirements for the workforce of the future? How is technology changing the way work is organized and what are the implications for workers and employers? What are the different ways in which various groups of the workforce may be affected?

The increasing pace of digitalization and the adoption of digital technology by businesses in different parts of the world has led to some significant changes in the way employment and workplaces are organized, with potentially significant implications for skill requirements, labour standards, and workers' wellbeing, and ultimately for the wellbeing and sustainable development of nation states. This is particularly the case in emerging markets and other developing countries. In the light of these developments in different parts of the world, what are the situations in Pacific Island countries (PICs)? Has public debate/discussion regarding digitalization developed in PICs? If so, through what kind of discourse? How is this discourse shaped to influence policy and business decision making? And to what extent are the needs of different groups of workforce and diverse categories of the businesses being represented or their voices being heard by policy makers?

In the hope of developing an understanding of these questions, a study was commissioned by the ILO. This report, an outcome of the study, identifies emerging trends of digitalization globally and their associated impact on businesses, workforce, particular older workers, women, and young workers. It also presents findings of interviews and surveys conducted with over 60 key stakeholders: senior representatives from government organizations, the education sector, employers' associations, trade unions, and youth organizations across the eleven ILO Pacific Office member countries (see Appendix for a summary of main questions asked). While many questions remain unanswered and new ones have emerged during the research, this pilot study raises the awareness of key stakeholders and draws their attention to a number of points with policy and strategic implications.

Main findings of the study

1. There is a wide range of differences in the perceived level of digitalization in the stakeholder's sector (industries, government and education), with the highest level reported as 80 per cent and the lowest level reported as being in its infancy. Lack of continuous access to the Internet and the absence of digital training provisions are identified as the main reasons for the low level of uptake of digital technology. Most stakeholders referred to digitalization as access to the Internet and computing facilities and the use of email for communication. The use of digital technology for businesses is often referred to as on-line billing and payment systems, advertising, recruitment, and business transaction. E-government is not yet common. Stakeholders reported that digitalization is having positive impacts on governance and businesses. In short, the adoption of digital technology has been attributed to the improvement in productivity, competitiveness, employment, and employees' skills and livelihoods. At the same time, most stakeholders, particularly those from countries with limited Internet connectivity, reported that developments in the digital space are seriously held back by inadequate ICT infrastructure, for example, limited coverage of Internet, poor connection, slow speed, hacking, high cost, deficiency in digital skills, and the high cost associated with developing such skills.

2. Positive impacts of digital technology are more evident in a number of business sectors than in others, particularly those related to technology such as telecommunications and media, in terms of changing the nature of their businesses as well as business and administration processes. For instance, on-line mechanisms are being used for communications with overseas (including recruitment interviews), procurement, and transaction. In short, the adoption of digital technology has been attributed to the increase in productivity, competitiveness, employment, and employees' skills and livelihoods.

3. At the same time, stakeholders reported the downside of digital technology, including wastage of productive hours due to time spent on social media for personal use, and job losses. Moreover, most stakeholders reported that development in the digital space is seriously held back by the inadequate ICT infrastructure; for example, limited coverage of Internet, poor connection, slow speed, hacking, high cost, deficiency in digital skills, and the high cost associated with developing such skills.

4. A digital gap is evident across PICs, in that some countries are just at the early stage of digitalization and an extended coverage has yet to be established. While the majority of the stakeholders believed that digital technology will have greater impacts on public services, education, and businesses in the next three to five years, they also stressed that the potential benefits brought by digital technology will not be fully realized unless further investments are made to significantly improve the infrastructure and develop skills, in addition to introducing regulatory efforts to enhance cyber security.

5. A number of benefits of employers' HR strategy related to digitalization are perceived. These include: creation of skilled jobs, better recruitment due to on-line process, up skilling of employees, better pay opportunities, advanced training, creating new positions and increasing the workforce, ability to monitor quality, and effectiveness of work and role. A notable employer strategy observed has been the investment in hiring and training staff to create and maintain social media and marketing platforms, particularly in the tourism industry. However, an overall picture is that there remains limited visibility of employers' strategy related to digitalization or capacity building activities related to digitalization, in terms of professional and human resource (HR) development, apart from the electronization of some HR functions.

6. Views are mixed on how different groups of workers might be affected by digital technology, although there is no overall concern reported. In general, older male workers are seen to be the most affected group because of their low level of digital literacy, or illiteracy, and unwillingness/slowness to learn new (digital) technology. In addition, populations in certain rural areas and outer islands, and young people

from disadvantaged backgrounds are other groups that are perceived to be disadvantaged, due to the lack of access to the Internet. On a positive note, it was reported that women of all ages in rural areas were considered to be quite entrepreneurial in making use of the digital technology to market their products. Beyond that, there was not much report about the potential gendered impact of digitalization.

7. At least half of the government stakeholder respondents in this study reported that their government has not yet developed a digital strategy. Some felt that more research and studies are needed before formulating a government digital strategy. Moreover, less than half of the government stakeholder respondents believed that their government has sufficient digital capacity to create a digital vision to help create jobs and improve job quality in the digital age. For some government organizations, high staff turnover and the need to up skill the government officials are part of the reasons for the capability deficiency.

8. Perceived impact of digitalization on trade union representation are, again, varied across PICs and the industrial sector, ranging from no impact (not applicable) to positive impacts, due to the adoption of digital technology to communicate with union members. Trade union stakeholders reported that no job losses have occurred thus far because of digitalization. However, trade union stakeholders admitted that their organization does not have sufficient digital capacity (e.g. digital skills of union officials, financial resources for investment in digital technology) to position itself to better organize and represent the workers in the digital age.

9. Perceived effects of digital technology on employers' associations overall have been quite positive. One of the most noted positive effects is that digital technology enables employers' associations to reach members more efficiently and disseminate information much more widely and rapidly via social media and websites. Some other positive effects have been observed, including allowing the businesses to market themselves to counterparts overseas and create more alliances. It is important to note that these benefits are not universally felt because of the low level of digital technology in some PICs and sectors. There are promising signs that some employers' associations are adopting a strategic approach, or at least are aware of the need to be more strategic in embracing a digital future for business.

10. In spite of the widely reported deficiency in digital capability across the stakeholders' organizations in this study, few of them have been reported to have taken actions to raise their digital capability to help position their business sector in the global digital economy. In comparison, employers' associations were reported to be more proactive than other stakeholder organizations in raising the digital capacity of their sector; for example, by providing training to employer members such as market access via on-line selling, and by adopting digital technology to carry out association activities and thus expose members to using it.

11. Compared with other stakeholder organizations, youth organization stakeholders have few resources, which hampers their ability to do much in this area, other than continuing to call for the government's attention and investment in up skilling the young generation of the labour force. Youth organization stakeholders are also less optimistic than other stakeholders that their country's education sector is producing graduates with a sufficient level of digital skills to enable the country to benefit from a global digital economy.

12. In short, digital gap leads to digital inequality, and patterns of regional and social disparity may be reinforced by there being unequal access to the digital economy, in some societies, with salient gendered impact. Equally, digital technology can help bring the geographically and physically disperse PICs together. Investments in digital infrastructure and human resource development will facilitate PICs to integrate into the global economy more effectively and reduce unemployment. However, creating decent work in the context of digitalization requires senior government officials and business leaders at the association level to have vision and strategic planning capacity; this appears to be somewhat missing in PICs. The digitally-

enabled economy can be symbiotic, co-constructed and co-shared, but digital gaps remains large in PICs. Digital deficit is likely to exacerbate decent work deficit.

Recommendations

Recommendations for governments:

Recommendation 1: Digital policy should be an integral part of the broader social agenda and national development plans.

Recommendation 2: PIC governments should make Internet more accessible, both in availability and affordability, to the public through partnerships with the private sector and mobilization of philanthropy.

Recommendation 3: PIC government may consider ways to harness home-based talents through digital technology and employment/incentivized business schemes sponsored by the government to transition informal employment to formal and decent employment for greater benefits of the society.

Recommendation 4: PIC governments should develop strategic capability to gather and utilize big data to link climate change and policy decisions to create new forms of employment and working conditions that will contribute to decent work, just transition, and sustainable growth.

Recommendation 5: PIC governments should develop a comprehensive and gender-responsive plan of development that connect various big initiatives together, such as climate change, green economy, digitalization and decent work, to create synergy, and help them better negotiate with influential international agencies to provide support for national and regional development.

Recommendation 6: Governments should look for home-grown solutions for local problems, for example, by seeking advice from businesses and communities, in addition to seeking international good practices.

Recommendation 7: Governments need to develop social security policy and plan to take into account new forms of employment associated with digitalization. Governments should also develop regulation to address privacy and security issues associated with digitalization and raise their citizens' awareness on them.

Recommendation 8: Governments should prioritize investments in digital infrastructure building, digital education, on-line learning, and developing a life-long learning environment.

Recommendations for the education sector:

Recommendation 9: Considerable investments should be made in education to prepare a digitally competent future workforce, including curriculum reform, education workforce development, and digitally-enabled teaching and learning modes, and with specific attention to closing existing gender gaps, gender digital divide.

Recommendation 10: Intelligence-based and gender-responsive career advice schemes should be developed to better align labour market demand and supply.

Recommendations for employers:

Recommendation 11: A drive to increase the use of digital technology and artificial intelligence will help businesses increase productivity, including in the farming and fishery sector, and enable PICs to close the productivity gap with more advanced economies.

Recommendation 12: Employers in PICs can be more innovative and consider efficient ways of creating decent jobs through digital technology and socially responsible corporate practices.

Recommendation 13: Employers in PICs can play a more proactive role in facilitating policy makers to develop a digital strategy that will promote business growth, as well as in helping government develop its digital capability through sharing resources and innovative practices from the industry.

Recommendation 14: Employers should work with the trade unions and solicit workers' views in the digitalization process and business reorganization to ensure a human-centred technological change.

Recommendations for trade unions:

Recommendation 15: Global digital economy calls for trade unions to adopt a more strategic and inclusive approach to organizing, representing and servicing workers in the market place as well as the workplace, and participating in regulatory reform.

Recommendation 16: Trade unions can develop specific communication plans more creatively to engage with the new generation of the workforce, aided by new forms of social media and digital technology.

Recommendations for key stakeholders collectively:

Recommendation 17: There is a pressing need for key stakeholders in PICs to engage in dialogues and discussions regarding the potential of digital transformation in their country and the region more broadly, and implications for businesses, workers and citizens.

Recommendation 18: In particular, efforts should be made by PIC stakeholders to ensure that gender-based inequalities are not further exacerbated.

Recommendations for ILO:

Recommendation 19: ILO can facilitate PICs to develop a more holistic vision and action plan in tackling the big issues in a joint-up approach, such as gender equality, climate change, green economy, decent work, and digitalization.

Recommendation 20: ILO can initiate and sponsor further research to develop a more in-depth understanding and tailor policy advice specific to nations, industries and social groups.

In sum, digital technology is not the panacea for poverty reduction. But digital inclusion can help reduce decent work deficit caused by digital deficit and develop a new social contract.

LIST OF TABLES

ABBREVIATIONS

AI	Artificial intelligence
GDP	Gross domestic product
HRM	Human resource management
ILO	International Labour Organization
MNE	Multinational enterprise
NGO	Non-government organizations
OSH	Occupational safety and health
PIC	Pacific Island Country

Chapter 1: INTRODUCTION

1.1 Background

The increasing pace of digitalization and the adoption of digital technology by businesses in different parts of the world has led to some significant changes in the way employment and work are organized, with potentially significant implications for skill requirements, labour standards, and workers' wellbeing, and ultimately for the wellbeing and sustainable development of nation states. This is particularly the case in emerging markets and other developing countries. For example, in some developing countries, large-scale manufacturing firms have been introducing industrial robots to replace production workers in order to overcome labour shortages, improve productivity and efficiency, and to remain competitive in the face of rising labour and other costs of doing business, and pressures associated with wage hypes. In developed countries, publishers are able to take advantage of electronic technology and outsource most of their administrative tasks associated with journal article and book manuscript editing to developing countries to cut costs. According to the report "A Future That Works: Automation, Employment, and Productivity" published by McKinsey in 2017, automation will affect 1.1 billion employees globally (McKinsey Global Institute, 2017). The World Bank finds that emerging and developing economies will be at a higher risk than developed countries, with 77 per cent of jobs at risk of displacement in China, 72 per cent in Thailand, and 69 per cent in India (World Bank, 2016).

These changes are not only displacing jobs (e.g. through automation and offshore outsourcing), but also creating new industries, new higher value jobs, new skill requirements, and new ways of working. These developments have profound implications for human capital development, human resource management, and business strategy and for the organization and representation of workers. They also raise fundamental questions for key stakeholders, including:

- Governments' policy decisions (e.g., education, employment, technology);

- Employer associations (e.g., how to respond to, and lead, the changes);

- Trade unions (e.g., how to organize the workers and best serve them by overcoming the negative impact of digitalization and taking advantage of digital technology for gainful development);

- Education sector, particularly vocational and technical education (e.g., what resources gaps may exist and how to align education and training provisions with the trends of digitalization and business moves).

In 2017, the International Labour Organization (ILO) initiated "The Future of Work We Want: A Global Dialogue", which draws our attention to the question of what kind of future work we want against a context of digitalization and robotization in workplaces and marketplaces. Building on this momentum, and in order for ILO to better serve its member States, the ILO Pacific Office commissioned a research project in 2018 on "Digitalization and Decent Work in Pacific Island Countries" in collaboration with Monash Business School, Monash University, Australia. The project seeks to understand key stakeholders' views on how digitalization is affecting their businesses and their nation states, and how the ILO Pacific Office can work with its constituent states to help improve employment outcomes of their workers, and ultimately, the wellbeing of the community and society.

This report, commissioned by the ILO Pacific Office, analyses the current situation related to employment, level of digitalization, and perceived opportunities and challenges for key stakeholders from eleven ILO member PICs. It poses a series of questions aimed at stimulating public discussions and debates, and provides policy and practical recommendations.

1.2   Defining digitalization

The term "digitalization" has been defined in many ways, focusing on different aspects such as business, communication, or social life (e.g., Brennen and Kreiss, 2016; Gartner, n.d.).[1] For example, Gartner's IT Glossary defines digitization as "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities… it is the process of moving to a digital business" (Gartner, n.d. p.1). Bloomberg (2018) noted that Gartner's definition of digitalization focuses on changing business models. By contrast, academics in the media and journalism field may focus on "the way in which many domains of social life are restructured around digital communication and media infrastructures" (Bloomberg, 2018, no page number, Internet source). According to Sabbagh et al. (2012, p.7), "the extent of a country's digitization can be measured across six key attributes":

- *Ubiquity* — the extent to which consumers and enterprises have universal access to digital services and applications;

- *Affordability* — the extent to which digital services are priced in a range that makes them available to as many people as possible;

- *Reliability* — the quality of available digital services;

- *Speed* — the extent to which digital services can be accessed in real time;

- *Usability* — the ease of use of digital services and the ability of local ecosystems to boost adoption of these services; and

- *Skill* — the ability of users to incorporate digital services into their lives and businesses.

1.3   Decent work agenda

The Decent Work agenda was officially launched by the International Labour Organization (ILO) in 1999. According to the ILO, decent work involves creating and maintaining opportunities for men and women to obtain productive work under the conditions of freedom, equity, security and human dignity (ILO, 1999). The architecture of a "decent work" agenda contains four strategic pillars:

- International labour standards and fundamental principles and rights at work;

- Employment creation and enterprise development;

- Social protection; and

- Social dialogue and tripartism.

Ten substantive elements underpin the ILO Framework on the Measurement of Decent Work:

1) Employment opportunities;

2) Adequate earnings and productive work;

3) Decent working time;

4) Combining work, family and personal life;

5) Work that should be abolished;

6) Stability and security of work;

7) Equal opportunity and treatment in employment;

8) Safe work environment;

---

[1] ILO is developing its definition of 'digitalization' at the time when this report was finalized.

9) Social security; and

10) Social dialogue, employers' and workers' representation (ILO, 2013).

Decent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men. Productive employment and decent work are key elements to achieving a fair globalization and poverty reduction. The ILO has developed an agenda for the community of work looking at job creation, rights at work, social protection and social dialogue, with gender equality as a crosscutting objective.

Decent Work Country Programmes (DWCPs) have been established as the main vehicle for delivery of ILO support to countries. DWCPs have two basic objectives. They promote decent work as a key component of national development strategies. At the same time they organise ILO knowledge, instruments, advocacy and cooperation at the service of tripartite constituents in a results-based framework to advance the Decent Work Agenda within the fields of comparative advantage of the Organization. Tripartism and social dialogue are central to the planning and implementation of a coherent and integrated ILO programme of assistance to constituents in member States. As of June 2019, two PICs, PNG and Samoa, have signed up to the Decent Work Country Program, and another four are likely to sign up later in the year. It is clear PICs can play a more active role in promoting good labour standards in the process of sustainable economic and social development.

1.4   Research questions

In order to develop a better understanding about issues confronting PICs in relation to digitalization and decent work against the broader global context of digital developments, this study explores the following sets of research questions:

1) What are the emerging trends of development of digitalization? How are digital technology and AI adopted by businesses? And what impacts may these have on the workforce and prospect of decent work?

2) What is the level of digitalization in PICs? What are the key challenges and what actions have been taken to address them?

3) How can PICs better position themselves in the global digital economy and improve the livelihood and wellbeing of their workers and citizens?

1.5   Objectives

By addressing the above research questions, this study aims to deliver the following objectives:

1) To assess the influence of digitalization and its consequence for PICs' business, labour market, employment, and working conditions;

2) To identify main challenges for PICs' business, labour market, and employers due to digitalization;

3) To assess digital readiness of various national and regional actors across PICs (digital strategy and capability of business and public sector organizations);

4) To identify opportunities to enhance the quality of existing jobs and the type of new jobs that could be created, and consequent need for re-skilling or new skills in PICs;

5) To raise stakeholders' awareness and preparedness for the opportunities and impact of digitalization on business, decent work, labour market and employment (e.g., how to position PICs in the global business outsourcing process, global value chain, global labour market);

6) To provide policy recommendation to nation state governments and other stakeholders (e.g., employers' associations, trade union federations, human resource associations, education institutions, regional organizations, and so forth) on the development of business models, labour market policies, employment, and promotion of the decent work agenda in the region in the time of digitalization, in connection with other challenges in the region;

7) To facilitate the development of a digital strategy and digital capacity building in PICs.

1.6   Research methodology

This study adopts a multi-method and qualitative approach to data collection in order to solicit views from different stakeholders across the eleven ILO member PICs. The nature of the study also warrants a qualitative approach in order to capture the nuances of the topical issues explored in this study (Yin, 2014). This approach is particularly appropriate and beneficial in view of the fact that similar research has not been conducted in the region before and there is limited, if any, information available regarding digitalization and its potential impact on employment and other aspects of decent work. While ILO has previous conducted studies in the Pacific region and on topics related to decent work and digitalization respectively (e.g., ILO, 2017a; ILO, 2018b, 2018d; ILO, 2019c), they were not focused studies of digitalization and decent work in the PIC context. Given the significant differences in the economic and labour market structure, and the level of technological and economic development between the relatively more developed Asia Pacific region and PICs, and indeed within PICs, a targeted investigation on the topic is necessary to advance our understanding and tailor policy plans and actions for PICs.

A survey questionnaire was developed for each category of the key stakeholders (see Appendix for main questions asked). While the bulk of the questions asked were the same across the categories of key stakeholders, questions were tailored for them as far as possible. The questionnaire was then used as an interview schedule. More or less the same opened-ended questions were asked in both the interview and survey for the same category of stakeholders, with the interview skipping only a couple of subsets of questions included in the survey due to time constraints of the interviewees. Overall, methods of data collection include survey, interviews, focus groups and observation as outlined below (see also Table 1):

1) Interview and survey with a total of 82 key stakeholders from the eleven member States of ILO Pacific Office, including the following categories: government officials, senior representatives from employers' associations, senior representatives of trade union organizations, representatives of education institutions, and senior representatives of youth organization. Initially, survey questionnaires were emailed to 102 key stakeholders across the eleven ILO member PICs, who were mostly senior organizational leaders identified by the ILO Pacific Office. Two reminders were sent to them to fill in the questionnaire. A total of 46 were returned. ILO officers then contacted the remainder of the key stakeholders and conducted 17 interviews face-to-face with those who have not filled in the questionnaire. In-depth interviews conducted by the author with 19 key stakeholders from Fiji and Kiribati (government officials, senior representatives of employers' associations, senior trade union official, and representatives of vocational education bodies);

2) Informal interviews conducted by the author with 12 workers in the tourism industry in Fiji;

3) Focus group with six officers from the ILO Pacific Office conducted by the author face-to-face in Suva, Fiji to obtain their feedback on the draft report and also their experience and understanding related to the topic and countries of this study;[2]

4) Focus group with eight key stakeholders (government officials, employers' association representatives, and representatives from vocational education bodies) conducted by the author face-to-face in Suva, Fiji to obtain their feedback on the draft report and also additional views related to the topic of this study;

5) Observation during field trips carried out by the author related to the tourism industry in Fiji;

6) Secondary source of data related to digitalization, decent work, skills and employment, including, for example, academic journal articles, book chapters, grey literature, business and media reports on the internet, and ILO reports.

Table 1. Number of participants in interviews, surveys and focus groups conducted for this report

Stakeholders	Number of participants in interviews, survey and focus groups
Government officials in charge of IT, employment and skill development; and government officials responsible for the tourism industry	25
Senior officials of employers' associations, some of whom are business owners or CEOs	27
Trade union senior officials	13
Representatives of vocational training and education institutes	17
Youth organizations	8
Workers (informal interviews)	12
ILO (Pacific Office)	6
Total	108

Due to resource and logistic constraints, the above samples and sites of data collection draw relatively heavily from stakeholders based in Fiji (46% of the total sample), and therefore an element of sample bias exists that may influence the interpretation of the findings. However, as far as possible, efforts were made to present a balanced view across stakeholders and countries in this report. Further studies targeting at specific country, industry and social groups are necessary to develop a more in-depth and precise understanding to inform policy decisions (see Recommendations).

A brief case study is also included of the Fijian tourism industry to illustrate some of the issues related to digitalization and decent work. Tourism in selected due to its global connectivity via digital technology and its relatively large share of national economy in many PICs, with further growth potentials. It is also where many young people are/can be employed (see Chapter 3 for further justifications for the choice of the industry)

---

[2] Senior ILO Officers from Geneva and Bangkok Offices also provided feedback on the draft report but they were not counted as participants of the empirical study.

1.7   Overview of ILO Pacific Office member States

The ILO Pacific Office serves 22 Pacific Island countries, eleven of which are ILO member States (see Table 2). These member States are dispersed in the South Pacific, some with considerable logistic challenges. Tables 2 and 3 outline the size of these countries in terms of population, level of human development in world ranking, Internet penetration and usage, and level of labour market participation (also see Table 4 for level of youth unemployment by gender). It is quite clear that Internet coverage and usage levels are relatively low, as is the level of human development for the majority of these countries; this suggests the paramount challenges for digitalization and decent work in these national settings.

Table 2. Background information of ILO Pacific Office member countries

ILO member countries (year joining ILO)	Population	Human Development Index Rank*	Mean years of schooling*	Gross national income per capita* (2011 PPP $)	Internet Usage, 30-June-2018	% Population (Penetration)	Internet % users
Cook Islands (2015)	17,380	–	–	--	11,377	65.5	0.0
Fiji (1974)	912,241	92	10.8	10,103	500,958	54.9	1.8
Kiribati (2000)	118,414	134	7.9	3,042	32,947	27.8	0.1
Marshall Islands (2007)	53,127	106	10.9	5,125	21,000	39.5	0.1
Samoa (2005)	197,695	104	10.3	5,909	100,000	50.6	0.4
Solomon Islands (1984)	623,281	152	5.5	1,872	75,684	10.8	3.2
Palau (2012)	21,729	60	12.3	12,831	7,860	36.2	0.0
Papua New Guinea (1976)	8,418,346	153	5.5	3,403	906,695	10.8	3.2
Tonga (2016)	109,008	98	11.2	5,547	57,822	53.0	0.2
Tuvalu (2008)	11,192	–	–	5,888	5,170	46.2	0.0
Vanuatu (2004)	282,117	138	6.8	2,995	82,764	29.3	0.3

Source: compiled with data from ILO Pacific Office website; The United Nations Development Programme (2018); The World Bank World Development Indicators (2018)

Note: * figures in 2017; Internet World Stats (2019).

Table 3. Selected labour market indicators (figures in 2018 unless indicated otherwise in brackets)

ILO member countries	Labour force ('000)	Working age population ('000)	Labour force participation rate (%)	Labour force participation rate, male (%)	Labour force participation rate, female (%)	Unemployment rate (%)	Informal employment (%)
Cook Islands	–	–	71 (2000)	76.6 (2010)	65.4 (2010)	0.8 (2016)	–
Fiji	374	641 (2016)	60.4	79.2	40.8	4.5 (2017)	60 (2016)
Kiribati	–	–	–	86.0 (2000)	76.0 (2000)	40.9 (2015)	–
Marshall Islands	–	–	–	53.3 (2010)	29 (2010)	4.7 (2010)	–
Palau	–	–	67.5 (2005)	75.4 (2005)	58.1 (2005)	1.7 (2015)	–
Papua New Guinea	2,539	4,917 (2016)	48.4	49	47.9	3 (2017)	84 (2014)
Samoa	39	123 (2016)	33.3	40.4	25.4	5.7 (2011)	50.8
Solomon Islands	274	362 (2016)	72.2	80.9	63.4	2.3 (2009)	85 (2016)
Tonga	42	63 (2016)	75.3	75.3	47.4	16.4 (2016)	10 (2016)
Tuvalu	–	–	58.2 (2005)	69.6 (2005)	47.9 (2005)	8.5 (2016)	–
Vanuatu	128	173 (2016)	71.4	80.4	62.4	–	40 (2016)

Source: compiled from Word Bank (2019), World Development Indicators for labour force and labour force participation rate (modelled ILO estimate); ILO (2019), Key Indicators of the Labour Market for informal employment; Asian Development Bank (ADB) (2018), Key Indicators for Asia and the Pacific 2018 for unemployment rate; Asia-Pacific Employment and Social Outlook 2018—Advancing decent work for sustainable development. ILO, Bangkok.

Note: Working age population is defined as the population of 15 years and above. Unemployment rate is based on ILO modelled estimates

Table 4. Unemployment and youth unemployment rates (15-24 years old)

ILO member countries	Total %	Youth % (15 – 24 years old)		
		Total	Female	Male
Cook Islands	8.2 (2010)	15.5 (2013)	15.3(2013)	15.6 (2013)
Fiji	4.3 (2016)	15.4 (2016)	22.8 (2018)	11.2 (2018)
Kiribati	40.9 (2015)	17.1 (2015)	62 (2010)	47.6 (2010)
Marshall Islands	3.2 (2011)	_	–	–
Palau	1.7 (2015)	9.6 (2000)	10.6 (2000)	8.8 (2000)
Papua New Guinea	4.3 (2018)	4.3 (2018)	3.2 (2018)	5.5 (2018)
Samoa	5.7 (2011)	31.9 (2017)	23.8 (2018)	14.8 (2018)
Solomon Islands	2.3 (2009)	4.5 (2018)	4.3 (2018)	4.6 (2018)
Tonga	16.4 (2016)	3.4 (2018)	7.2 (2018)	1.6 (2018)
Tuvalu	8.5 (2016)	20.6 (2016)	45.8 (2016)	9.8 (2016)
Vanuatu	5 (2016)	10.9 (2018)	11.4 (2018)	10.4 (2018)

Source: ILO (2018), ILO Report Decent Work in Asia and Pacific (2018); ILO (2019), Key indicators of the Labour Market database.

Chapter 2: DIGITALIZATION AND IMPLICATIONS FOR THE WORLD OF WORK

2.1 Emerging trends of digitalization

The process of digitalization has taken a variety of forms and developed at different paces across nation states, sectors and occupations. Indeed, there is significant disparity in the development and deployment of digital technology, automation, machine learning and AI, even in less developed countries. In some countries, the concept of smart city, e-government, and e-commerce are being realized with impressive results; whereas others are still grabbling with a universal coverage of Internet. Four key developments are notable in the adoption of digitalization in a broad sense.

2.1.1 E-government, e-governance and e-public services

Advancements in digital technology present the potential for digital transformation of governments and public services. A growing number of countries are adopting the idea of smart governance and building infrastructure for smart cities and communities. Information can be gathered to identify, for example, socially disadvantaged areas, and health and safety risks in public places and workplaces. Initiatives include: smart public transportation systems; digitalization in the healthcare system (e.g., healthcare records); the digitalization and on-line publication of court ruling reports from which analysis can be made to delineate patterns of labour disputes, for example; and making policy recommendations for regulatory adjustments to enhance labour protection (e.g., Wang and Cooke, 2019). In some ways, the capacity to adopt e-government initiatives reflects the resources and strategic foresight of the government, which underpins the speed and manner of digitalization in specific nation states.

Table 5 shows the relative position of ILO member PICs in the world ranking in the United Nation E-Government Survey in 2018 (United Nation, 2018). Both this ranking and the findings of this study (reported in Chapter 3) suggest that there is a long way to go for PICs to improve their digital capacity and capability.

Table 5. United Nation E-government Development Index, 2018

Country	E-government Development Index	Rank
Cook Islands	–	–
Fiji	0.5348	102
Kiribati	0.3450	153
Marshall Islands	0.3543	149
Palau	0.5024	111
Papua New Guinea	0.2787	171
Samoa	0.4236	128
Solomon Islands	0.2816	169
Tonga	0.5237	109
Tuvalu	0.3779	144
Vanuatu	0.3990	137

Source: United Nations (2018)

2.1.2 Automation (the use of industrial robots)

According to the International Federation of Robotics, more than three million industrial robots will be deployed in factories around the world by 2020 (cited in Miles, 2019). Robots have liberated workers from dirty, dangerous and demeaning work that is often poorly rewarded.[3] In agricultural businesses, robots have also been used to replace humans as immigrant farm workers become scarce in developed countries such as the US (Jordan, 2018). In less developed countries, automation helps to promote, but is at the same time underpinned by, the commercialization of the agricultural sector and integration of it into the global value chain. Although the automation process does not necessarily cause widespread displacement of agricultural labour due to the declining interest in working in the sector, it does impact those who have no alternatives but to depend on agricultural employment, which is often highly seasonal (e.g., ILO, 2019b). Automation and job reduction may further erode employment terms and conditions for these vulnerable workers.

2.1.3 The creation and power of digital platforms

Digitalization presents enormous opportunities for capital to gather momentum in creating new markets as well as breaking into traditional markets. Competition brings consumers cheaper and more efficient services. These opportunities also bring new forms of work organization and employment mode, often through the fragmentation and informalization of employment. Propelled by the innovative use of digital technology, one area of substantial growth in the global economy in the past decade is the platform economy, and the related growth of platform employment, including the digital labour platform (ILO, 2018b; Minter, 2017). Digital labour platforms have now spread across many sectors and occupations globally, giving rise to new industries, creating new jobs and flexibility in work arrangements, providing new opportunities for access to the labour market and access to skills, and introducing new workplace arrangements that depart from the traditional employer-worker relationship. The Platform Economy is neither intrinsically good nor bad. The issue is not the sector *per se*, it is the national context and the way the platforms operate that determine outcomes.

Wang and Cooke (2019) classified digital platforms into two broad categories: autonomous platforms and organizational platforms. The positioning of autonomous platforms is to provide virtual trading places and their trading rules. Labour requesters and labour providers are registered on the platform respectively. Compared with entering the trading place, labour requesters publicize work tasks, deadlines and quotations, and labour providers select jobs. The platform, which completes the offer-committed transaction process, does not participate in labour transactions and pricing, but charges a fee after the transaction is successful. A typical example is Amazon's Mechanical Turk (AMT). The type of labour on such platforms is usually microwork that requires only basic computing and language skills, such as selecting pictures, modifying articles, paragraph translations, questionnaires, and so on (Ipeirotis, 2018). Upon the successful transaction, the labour demand side shall pay 20 per cent of the payment service to the AMT as the platform usage fee (MTurk Fee), which has a minimum of 0.01 US dollars.[4] In this operational mode, the platform is in a relatively neutral position, and the labour provider does not regard the platform as an employer.

---

[3] See also ILO (2016) for benefits of technology in the employment domain in ASEAN countries.
[4] This regulation is a general platform usage fee. If a certain service needs to be decomposed into 10 or more tasks, the labour demand side shall pay an additional fee to the platform at 20 per cent of the labour consideration. See https://www.mturk.com/pricing, 2018/8/23.

Organizational platforms, by contrast, provide not virtual trading places but remote trading access based on the Internet and trading rules. Representatives of this type of platforms include Uber and major domestic transporting and food delivery companies in China, such as Didi, Meituan, and Elema, Flashex, and Dada. Because such platforms directly participate in market development and competition, they are more proactive and expandable. Their business is related to people's daily life, with growing popularity and large and increasing numbers of participants. Organizational platforms may operate in three different modes in terms of labour deployment. One is for the platform to hire employees directly and manage them. A second type is to use employment agency for labour supply and the platform does not have a direct employment relationship with the platform labour. A third mode is to deploy labour as independent workers – this mode creates a higher level of insecurity to the workers compared with the other two and many of the labour disputes were related to this category of labour deployment.

The development of platform employment on a large scale began with Uber, Lyft and other (US-based) companies that provide online car (taxi) booking. The employment mode of such companies has led to a series of legal challenges regarding the regulation of the employment relationship and providing the worker (service provider) with a level of labour protection. As Beesley (2018, p.1) argued, defining "the nature and scope of platform labour is plagued by technical and ideological problems". ILO's (2018b) study of digital labour platforms and decent work also revealed various issues and concerns that need to be addressed.

Many of those working in the platform economy do not have a traditional employment relationship with the platform or the clients they provide services to. In some situation, this can render workers under-protected and vulnerable, as have been found the case in some types of informal employment. While platform employment may include those in high-skilled and knowledge-intensive jobs, some of the workers in this growing segment of the labour market may be engaged in relatively semi-skilled and low-paid work, such as takeaway riders and couriers. They are often labour on-demand with limited control of when and where they need to provide their services if they wish to maintain their rating and remain in the business. National and international regulations have been grappling with the legal challenges presented by this rapidly developing economic phenomenon, with regard to the ambiguity of employment status of these workers, and the forms of protection they may be afforded. Key stakeholders such as employers' associations, trade unions, and other non-government organizations (NGOs) have also been trying to find ways to participate in shaping the regulatory development with different levels of enthusiasm and capability.

2.1.4 The use of digital data to inform human resource management (HRM) practices

A number of businesses have been reported to use digital data and AI to inform their HRM practices, ranging from recruitment and performance management to dismissal. For example, an increasing number of firms are now using social media information to inform their recruitment decisions in order to, in part, better align company and individual expectations and objectives. A US-based multinational giant's on-line shopping company adopted an AI system to calculate precisely each employee's working time, and increased their performance target to the extent that employees did not have time to visit the toilet. Those who fall below certain productivity will be identified and automatically dismissed (by the AI system). Another US-based multinational retail giant has obtained a patent for a new listening system which can be used in the stores to monitor if their staff are fully deployed and working properly through audio analysis. Similarly, street cleaners employed in a municipality in China has been requested by their employers to wear a digital bracelet at work, and a reminder would be sent to them

to resume work if they have been motionless for more than 20 minutes. Such a practice has attracted considerable criticism from the public. Moreover, the use of mobile social media technology such as WeChat for work and social communications in China has been widely reported to have led to work intensification and erosion of work-life boundaries, due to the centrality of the work culture and the social pressure to respond instantaneously.

On a more positive note, Abubakar et al.'s (2019) study suggests that organizations can use AI to detect knowledge hiding from employees who felt organizational injustice, and adjust HRM practices to eliminate these dysfunctional, negative, and unintended consequences for organizations.

In geographically disperse regions such as the PICs, the availability of Internet has been proved to be useful for employers to advertise internationally and screen job candidates from an international pool and carry out interviews via Skype, although this has not yet become a widespread practice due to Internet connectivity and employers' level of digital capability (see Chapter 3 for more discussion). Digital technology and AI can also be used to improve the workforce's physical health and mental wellbeing through teleworking, real-time monitoring of health and safety hazards, and occupational safety and health (OSH) prevention measures via accurate data analytics. It is worth noting that detailed empirical examination of the positive and negative impacts of digitalization and AI associated with HRM have thus far received limited attention in both academic and practitioner circles. It is an area to which more in-depth and rigorous research and evaluation efforts should be channelled (see Stacey et al., 2018 for a comprehensive overview).

2.2   Impact of digitalization on employment

Digitalization offers rich opportunities for economic transition and industry upgrading for nation states, especially those in developing countries (see ILO, 2018f and 2018g for more detailed discussion). The impacts of digitalization on workers are mixed, with outcomes that are both positive and negative and negative (Stanford, 2017). Positive effects may include: job opportunities that did not exist before, greater work-life balance due to flexi-work, independence, variety of work, and higher level of pay (for some). Digital technology also offers a valuable means to overcome stigma, for example, workers who are physically challenged can obtain decent work opportunities from home (ILO, 2019d). Negative effects of digitalization may stem from: income and job insecurity, isolation, stress, and the lack of solidarity (although some organizations are being formed by gig workers) (e.g., ILO 2018e, 2018f).[5] The formulation of national policies and regulations has been slow in responding to this accelerating development on a global scale, especially in countries where digitalization has led to some significant changes to forms of employment (De Stefano, 2016; Stewart and Stanford, 2017). A technological deterministic approach has often been projected in popular debates, and labour institutions have been slow-moving in developing a strategy for regulating poor labour practices (Guido, 2018). As ILO (2018g, p.2) pointed out, "how to share technological gains ('technological dividends') broadly in terms of jobs and income has also become a pressing issue". In small island states where the informal sector dominates, decent work opportunities are few, and migration for a better life is common, digitalization may provide an important source of opportunity and hope. How does the growing use of digital technology affect the level of employment and job quality? What are the different ways in which this may affect various groups of the workforce? We alluded to some of these opportunities and tensions

---

[5] See also Sakamoto and Sung (2018) for detailed studies of technological change and its impacts on jobs and skills for the future and strategies for inclusive growth in Asia and the Pacific.

in the previous section. In this section, we further analyse the potential impacts of digitalization on the workers, focusing on women, older and young workers as the potentially disadvantaged groups.

2.2.1 Employment and job quality

Digitalization presents new opportunities and challenges to workers in a number of related ways. One is the opportunity to access the Internet. In many developing countries, including PICs, Internet infrastructure is of rather poor quality in terms of coverage, signal strength and speed. The ability to access the Internet is further hampered by the level of digital literacy, particularly for older people, disabled people, low income earners, and the rural population. There is a strong negative correlation between older age and digital literacy levels. In addition, women and low-skilled youth from lower economic-social backgrounds tend to be more negatively affected due to digital skill deficits or low level of accessibility.

Existing research and empirical evidence outside the Pacific islands region has pointed to the deteriorating quality of employment associated with: the use of digital technology and the growth of the gig economy, the precarious nature of work; increased exploitation through tightened performance monitoring; and the lack of regulation and protection of gig employment (Cockayne, 2016; Petriglieri et al., 2019; Shapiro, 2018). It is interesting to note that, in some locations, the rise of digital platforms and the growth of platform labour deployment has impacted traditional sectors. For example, the rapid growth of (meals) takeaway and courier delivery businesses in major cities in China has lured away thousands of young workers (average age 26-30 years) from manufacturing jobs to become couriers and on-line booking taxi drivers (e.g., CSDN Blog, 2019; Zhao and Luo, 2019). As of 2018, there were 270 million of couriers and takeaway riders, most of whom came from the rural origin were the main income generator of the family. There are numerous reasons for these young (male) workers to take on the riders' job instead of working in manufacturing plants, for example, more flexibility in working time and location, more autonomy in working for different companies and high wages. In the meantime, manufacturing companies in developed economic zones have been encountering labour shortage and recruitment problems which negatively affect their ability to maintain or expand production. However, as robot drivers were being tested on the road to make the delivery, some of rider jobs might be displaced by robots in the near future, albeit this would be a welcome technological introduction to relieve human riders from working in harsh weather conditions (CSDN Blog, 2019; Xing, 2019). For the time being, the majority of these riders are self-employed with limited social security or occupational safety or health (OSH) protection. It is important to note that the digital platforms are fine tuning their digital technology and AI to provide more accurate and useful information in real time to the riders to improve their productivity and therefore job satisfaction.

Wang and Cooke's (2019) analysis of 47 cases of court judgments (in the period of 2014 and 2018), related to disputes between Internet network platforms and labour providers (mainly courier and takeaway riders), highlighted the legal challenges in determining the employment relationship as well as the social risks for this rapidly expanding yet largely unregulated segment of the labour market. These workers are prone to road accidents due to the low level of safety awareness and time pressure to maximize earning. When serious injuries happen, self-employed riders not only place their own family in extreme poverty, but also plunge their victim's family into severe financial hardship due to their inability to cover the expensive medical bills. Platforms as the intermediaries are not liable. These incidents are by no means restricted to the Chinese context (see also Garben, 2017).

It is clear that, despite benefits of it can bring, in a less well regulated societal context, the negative consequences associated with this type of platform labour can have a wider social impact, and

there are calls for national and international regulatory reform and adjustments to extend greater protection to those who are vulnerable, and to safeguard citizens' rights. Here, legal practices in Germany may be a good example to follow. In brief, 'employment at will' in Germany is not permitted, and although the modern production and service mode has changed, the nature of the labour service under the supervision of the employer has not. Workers are relatively well protected with their rights (Wang and Cooke, 2019).

The above negative impacts associated with gig economy observed in some large economies may not apply to small island states where labour market opportunities and modes of production and employment differ considerably from the former. While the informalization of employment and de-employment relationship have occurred in some sectors and (more developed) countries, many ILO member PICs already have a relatively high level of informal employment, and the industrialization of the economy facilitated by digitalization may help develop a more formal economy with stable employment relationships. Indeed, the availability of digital technology may create new opportunities for jobs and livelihoods in the region, but this requires strategic planning and resource investment from the government and support from other stakeholders, as we shall discuss in Chapter 3.

2.2.2 Impact on women

While digital technology and social media networks have enabled a growing proportion of women, especially those with care responsibilities and those who are unable to travel safely, to participate in the gig economy via digital platforms, these jobs are largely in freelance mode, part-time and insecure. For cultural reasons, some women in developing countries, as reported in Sri Lanka, only share the fact that they work with their husband and hide their work from the rest of their family to avoid their disapproval (ILO, 2019b). Although there is no data to make any conclusions, there is growing evidence which may be suggesting that the platform economy is no more women-friendly and may maintain the status quo, for example, regarding issues like gender pay gap, occupational segregation, increase in more precarious own-account work, as well as work-family/life balance, since many women are already disproportionately "time-poor" (ILO, 2018h, 2019d). Instead of closing the gaps, inequalities may grow wider, unless there are more regulation and protection for online workers (including from online violence and harassment), and providing social protection and safety nets (ILO, 2018h).

While the use of AI and automation of jobs displace workers in diverse industries and occupational groups, women are more likely to be disproportionally affected in certain sectors where majority of women are employed; for example, in garment factories and shoe manufacturing plants where more women than men are employed. Further, plant automation and the adoption of digital technology inevitably lead to new skill requirements for the workforce, such as automatic operations, plant maintenance, and data analytics. These jobs are often classified to be more skilled than sewing work, and are more likely to be taken up by men as technical jobs. Such consequences may widen the gender gap in terms of labour market hierarchies and wage dispersions, with women being disadvantaged. Gender digital gap may also be widened for reasons due to low level of representation in sciences and engineering disciplines in education, time constraints, and so forth. A joint ILO- LinkedIn research showed that women are less likely to have digital skills, which are important skills for the future of work - and for the higher paying jobs that may arise out of increased technology - and digitalization (ILO, 2019d).

It has been reported that even when women have digital skills and education, they may not be using them because of some issues in the IT sector. For example, male dominance, which is sometimes referred to as the "toxic" environment for women, leads to high rates of turnover. Large companies like

Google and Facebook have been making efforts to retain female talent (ILO, 2019d). A clear and important message that has come through all of the centenary reports is that even if women work through digital platforms, no matter what field or format, the issue of care and paid work needs to be addressed (their disproportionate responsibility of unpaid care), otherwise, gender gaps will remain (ILO, 2018b, 2019a, 2019d). There is also a concern that platform economy may reinforce expectations that women should only take on paid work in their homes - potentially further confining them (ILO, 2019d).

Indeed, technological changes in history have not been marked by equitable outcomes. Digital transformation is likely to bring new challenges to gender equality in employment and career development. What can, and should, be done to offer a better future for women in the future of digital world (see also ILO, 2017b; ILO, 2019d)? According to the ILO PICs Future of Work report (ILO, 2017a), most workers are in informal employment, often with poor working conditions, and youth unemployment rates are considerably higher than general unemployment rates in all PICs (see also Asian Development Bank and ILO, 2017). Moreover, young women face the highest unemployment rates in many PICs (see Table 4). Providing decent work in the digital world is likely to pose further challenges to young women (and men) in this region. However, improved technological skills and labour market access can bring significant benefits to women, as ILO's (2018h, p.iii) report on women and the future of work in the Asia and Pacific region revealed that "reducing the labour force participation gap between men and women by 25 per cent could add US$3.2 trillion to Asia and the Pacific economies".

2.2.3 Youth employment

As noted earlier, digitalization has created new jobs as well as led to the reduction or changes of jobs, albeit this may not be at the scope as previous studies have predicted. The disappearance of existing jobs or changed skill requirements might exacerbate youth unemployment if they have not developed the skills needed for the future of work. As Brown and Wright (2018, p.486) argue, this affects "younger workers and those in occupations classified as low-skilled who, for one reason or another, are especially susceptible to mistreatment or being paid below their worth".

At the same time, many talented young people in PICs are migrating from rural to urban areas, from poor to more affluent regions, and from home countries to other countries to seek better employment/career opportunities. For those who are working in their home country, they may encounter labour market discrimination due to the lack of work experience or other forms of human capital and social capital. In many ways, labour market discrimination against young people is a universal problem that many countries are encountering. In several PICs, youth unemployment is relatively high (see Table 4); this problem is particularly acute for young women in some countries, as discussed earlier (ILO, 2017a). Providing decent employment for women and young workers have been identified as one of the priorities in PIC Decent Work Country Programs (ILO, 2017a). Platforms can provide access to jobs that never previously existed and reduce the number of youth migrating for employment. How are young people in PICs influenced by the employment trends underpinned by digital technology? What, if anything, has been done in PICs to promote digital-enabled employment to harness the potential of their youth today and in future? We shed light on some of the issues in the next section.

Chapter 3: CHALLENGES AND OPPORTUNITIES OF DIGITALIZATION IN PICS AND IMPLICATIONS FOR DECENT WORK

In the light of the developments in the space of digitalization that are already having profound impacts on the economy and segments of the labour market in different parts of the world, what are the situations in PICs? Has public debate/discussion developed regarding digitalization in PICs? If so, through what kind of discourse? How is this discourse shaped to influence policy and business decision making? And to what extent are the needs of different groups of workforce and diverse categories of the businesses being represented or their voices being heard by policy makers?

In this section, we report the findings of interviews, surveys and focus groups we have conducted with key stakeholders; namely, senior representatives from government organizations, the education sector, employers' associations, trade unions, and youth organizations across the eleven ILO Pacific Office member countries (see Appendix for a summary of main questions asked). The analysis of these findings are also informed by informal interviews with the workers and also the feedback from the focus groups of key stakeholders as well as officers based at the ILO Pacific Office.

Specifically, Section 3.1 reports the main findings of interviews and surveys with the key stakeholders, organized under ten sets of themes. Section 3.2 then presents an industry-focused case study – the Fijian tourism industry – as an example to illustrate in more depth the challenges and prospects of the industry in a digital work future. The tourism industry was selected for study because it is a main stake of the economy for many PICs and it is relatively more affected by, and benefits from, digitalization, which enables the industry to connect with tourists directly all over the world. Decent work in this industry may pose challenges in a number of ways, due to the unsociable and long working hours, limited unionisation or other forms of workers' organization, and low wages. Many may be working in informal employment or in a self-employed mode, rendering regulatory monitoring and intervention more difficult.

It is important to note at the outset that the sample of this study of digitalization and decent work is relatively small. The purpose of this study is to provide a snapshot overview of what is happening from the perspectives of the key stakeholders, and draw public attention to the matter, rather than providing detailed comparative studies across ILO member PICs. As such, the findings reported below may not reflect precisely the situation of particular countries, region, or industries.

3.1   Main findings of interviews and surveys with key stakeholders

Theme 1: Level of digitalization and perceived impacts and challenges

There is a wide range of differences in the perceived level of digitalization in the stakeholders' sector, with the highest level reported as 80 per cent and the lowest level reported as being in its infancy by employer association stakeholders. Lack of reliable access to the Internet and the absence of digital training provision are identified as the main reasons for the low level of uptake of digital technology. Most stakeholders referred to digitalization as access to the Internet and computing facilities and the use of email for communication. The use of digital technology for businesses is often referred to as on-line billing and payment systems, advertising, recruitment and business transaction. E-government is not yet common.

Stakeholders reported that digitalization is having positive impacts on governance and businesses, as two trade union stakeholders revealed:

Digital technology has now started to have tremendous impacts, mostly positive impacts, and has assisted employers as well as job-seekers. Apart from the trade union, the Public Service Office (PSO) has established a number of fair work initiatives and a complaint center for employees that need it. Social media plays a significant part in this as people are posting about many areas that PSO need to look at, especially since our Government is championing anticorruption and fair treatment of workers.

Technology will have great impacts on the private sector in the next three to five years, employers are now advertising to seek the right employees, and job-seekers are also using social media to look for openings. In the near future an improvement in the use of the internet will change many things. Smaller businesses will be able to have their own websites and advertise more freely; as well, it will be more convenient for everyone.

Positive impacts are more evident in some business sectors than others, particularly those related to, or/and are more affected by, digital technology such as telecommunication and media, in terms of changing the nature of their businesses as well as business and administration processes. For instance, on-line newspapers are being introduced to supplement or replace print media. On-line mechanisms are being used for communications with overseas (including recruitment interviews), procurement, and transaction. In short, the adoption of digital technology has been attributed to the improvement in productivity, competitiveness, employment, and employees' skills and livelihoods.

At the same time, stakeholders reported the downside of digitalization, including the perceived wastage of productive hours due to the time spent on social media for personal use, and job losses.

Moreover, most stakeholders, particularly those from countries with limited Internet connectivity, reported that developments in the digital space are seriously held back by inadequate ICT infrastructure, for example, limited coverage of Internet, poor connection, slow speed, hacking, high cost, deficiency in digital skills, and the high cost associated with developing such skills.

Challenges across a wide range of aspects of the society associated with the adoption of the digital technology have been noted by key stakeholders. A commonly perceived challenge is that while some sectors and social groups would be able to adapt to/embrace digitalization relatively easily, a good portion will struggle. *From the business point of view*, a perceived challenge is that local businesses may face competition from foreign-owned companies that are better equipped with the digital technology for more efficient operation and facilitation of innovation. Moreover, small business operators may find it difficult to use digital technology to market themselves – many of these owners are not IT savvy, as reported by the key stakeholders. *From the regulatory angle*, one of the main challenges identified is the lack of regulation on the digital technology now. Key stakeholders were of the view that a mechanism would need to be developed, informed by further research, to regulate how digital technology would be used in business, in regard to market and employment ethics. In addition, key stakeholders believed that digital technology will cause many challenges to businesses in terms of their financial policies, employment, and competition. *From the human resource development perspective*, challenges identified include the review of curriculum at university level, as well as investment in capacity building for IT workers at industry and government department levels. *For the labour market and employment*, perceived challenges concern the limited resources given by the government to the ministry of employment to develop projects and initiatives, which leads to the lack of overall digitization strategy and expertise to lead digitization initiatives. Another main challenge identified was the need to get familiar with the digital world and building digital-based information to suit the needs for employment and the labour market. Quotes below illustrate further challenges perceived by the stakeholders.

One of the greatest challenges that the Government of PNG faces now is lack of skilled IT personnel. Technology has changed the way the PNG Government operated in the last 35–40 years and thus requires great investment in capacity building at all levels of government to harness technological changes and digitalization and keep abreast with the digital world. (Government stakeholder)

Yes, digital technology started 10 years ago and has impacted on the hospitality and tourism industry. The main impacts are:

1. *Lack of qualified staff, for example a hospitality graduate with strong IT and digital technology skills;*

2. *Lack of specialized digital technology training for current employees;*

3. *High cost of the internet and reliability of service;*

4. *Reliability of and access to internet in rural areas; and*

5. *Lack of consultation by internet providers with business.* (Employers' association stakeholder)

A digital gap is evident across PICs in that some countries are just at the early stage of digitalization and an extended coverage has yet to be established. While the majority of the stakeholders believed that digital technology will have greater impacts on public services, education, and businesses in the next three to five years, they also stressed that the potential benefits brought by digital technology will not be fully realized unless further investments are made to significantly improve the infrastructure and develop skills, in addition to regulatory efforts to enhance cyber security.

Theme 2. Readiness of PICs in embracing digital technology as an opportunity for capacity building, and suggestions for improving readiness

Readiness of government bodies: Only a relatively small proportion of stakeholders believed that their government bodies are ready to embrace digital technology as an opportunity for capacity building; as an employers' association stakeholder remarked: "*the government is very ad hoc and in need of a centralized and coherent digital policy*". There is clearly a gap between what the government is expected to do by other stakeholders and the perception of the government officials, in that many government organization stakeholders equated digital readiness to ICT infrastructure rather than to the critical role of government agencies in leading a digital future for their country through, for example, strategic foresight and leadership. It is worth noting that the level of enthusiasm and awareness of government stakeholders in the digital space appears to vary across the PICs, judging by the responses from the government stakeholders in this study. Many of them lamented on the lack of resources needed to do anything beyond the basic provision of government services to the public, be they education, transport, or labour market planning.

A number of suggestions were put forward to improve the country's digital readiness. These include: investments in infrastructure and education; education curriculum reform; collaborating with foreign companies or government to build digital/Internet capacity; adaptation, rather than adoption, of existing digital models; consultation and legislation. In addition, some state governments may be ahead of the national government in gearing up towards a digital economy. For example, one government stakeholder remarked: "*One of the state governments just recently held a workshop in digital citizenship. The national government could take a page out of their book and hold the same type of training*". It is clear that there are scope and opportunities for cross-learning in the digital space

across different levels of government organizations to create synergy and a more coherent national vision.

Readiness of industries: Readiness of industries for digitalization is reported to be varied across industries, the size of the business, and the age of the employers. The younger generation of employers, larger firms, and the tourism industry, are perceived to be more able to take advantage of the digital technology to expand their business and to manage their business process, including marketing, online bookings and payments, than are the older generation of employers, smaller firms, and traditional industries such as construction, farming and fishery. It is believed that many industries are still unaware of the digital technology, especially the ability to carry out a substantial amount of their business online and to use online cloud services. Smaller businesses are comparatively digitally weak, as a government stakeholder observed:

> *I believe industries are somewhat in par with embracing digital technology. Most industries are business-oriented, therefore tend to have websites and databases to market their products/services and data input respectively. This only applies to the trunk organizations but not small stakeholders. For instance, Coffee Industry Corporation does have its website and database, but not all coffee mill owners and small scale farming units, therefore, they are not are able to share necessary information on employment, vacancies, production etc..*

Clearly, business associations and HR associations can take the lead to advance the digital competence agenda for businesses and the workforce. In the last year or so, several digital events have been organized by associations to raise awareness and digital competence of businesses in PICs. They represent the important first steps forward towards building a digitally-enabled economy. For example, Fiji Human Resources Institute held an event in October 2018, entitled: "HR in the Digital Age – Is HR Ready to Drive People and Workforce Innovation in the Digital Age", which discussed a range of HR aspects in the context of digitalization, including: HR leadership, HR innovation, talent management, employment laws, and health and well-being. In May 2019, the PNG Digital Marketing Summit was held to help businesses to develop their online visibility to promote their products and grow their business.

Readiness of the education sector: The general view of the stakeholders is that the education is under-resourced with ICT facilities and curricula development to keep pace with the rapid development of digital technology in order to prepare the workforce with adequate skills. While the basic infrastructure is there, and some PICs have started to introduce on-line learning, the general perception of the key stakeholders is that education is not in line with the progress of digital technology adoption. Stakeholders pointed out the need for government actions and urged:

> *The Government should introduce IT from an early age into the education curriculum along with giving all students access to the internet and modern computers and laptops. The Government needs to professionally develop teachers to ensure this is carried out.* (Employers' association stakeholder)

> *There are not enough skilled and capable graduates. Also, all degrees should have a digital technology component in them, so graduates are skilled not only in hospitality but also in digital technology. The Tourism Advisory Boards need to meet with industry to work out a strategic plan for the next five years to ensure there are enough skilled graduates with strong digital technology skills who can work in the industry. Also, salaries must be of a high enough level to retain these graduates, otherwise they will leave the country for well-paid overseas jobs.* (Employers' association stakeholder)

Readiness of the workforce: Related to the above, there is an overall consensus that the workforce is generally not sufficiently equipped with digital skills, with the exception of a small number of young people, particularly for taking on jobs that require digital skills. It is obvious that some PICs in this study fare better than others in terms of producing graduates with digital skills. In some countries, it was reported that employers had to recruit overseas workers to take up some of the skilled jobs, which could have been filled by nationals if they had the adequate training. The digital skill gap does not put PICs in a favourable position compared with South and Southeast Asian countries in moving into or expanding in the offshore business process outsourcing sector, which typically relies on digital technology. High costs associated with upskilling (e.g., the cost of mobile phone usage at personal cost) and limited availability of infrastructure are the main blockages to raising the workforce's digital literacy and competence, as a couple of stakeholders pointed out:

> *Workforces are willing to embrace digital technology, but it is a matter of financial capacity. Only if they are financially capable, they would be at the upper hand to access through smart phones and laptops; those mostly do at cost, which has a bearing on regular usage.* (Employers' association stakeholder)

> *Need more awareness and training for our employees on the digital era and the opportunity and effect on our country; there are limited opportunities for capacity training, especially employers in the private sector.* (Employers' association stakeholder)

Compared with other ILO member PICs, Samoa seems quite advanced in its digital technology thinking, strategy, policy and infrastructure, despite the fact there is still a long way to do to reach the ideal condition. A government stakeholder reflected below (see also Theme 10 and Recommendations for further detail):

> *Samoa, through the tripartite structure of the ILO, has established the National tripartite Forum in which some of the digital-related concerns are discussed. General education in Samoa through the schools has started with infrastructure, but there is a great need for the training of teachers to enable the use of digital technology in teaching and learning. Samoa still needs to plan strategically and effectively for the use of digital technology in all areas — education, e-commerce, medicine, farming and agriculture, fisheries, etc. Training facilities and programs are increasing in numbers. Government has recognized the need to be proactive in this area, and a number of activities are occurring.*

By contrast, some PICs seem to suffer from the lack of IT infrastructure (e.g. Kiribati) more than other PICs or labour shortage (e.g., Cook Islands), adding additional challenge to acquired digitally skilled workforce, as an employers' association stakeholder observed:

> *There is a serious labour shortage in the Cook Islands so finding sufficient workers is a challenge. The need to then have the added skill of digital technology may not be an option. There are also many business owners who do not have the skills or see the benefits of upskilling in this field.*

Theme 3. Employers' strategy to human resource management (HRM) in response to digital technology, and potential consequences for employment and job quality

A number of benefits are perceived from employers' HR strategy related to digitalization. These include: creation of skilled jobs; better recruitment due to on-line processes; upskilling of employees; better pay opportunities; advanced training; creating new positions and increasing workforce; ability to monitor

quality; and effectiveness of work and role. A notable employer strategy observed has been the investment in hiring and training staff to create and maintain social media and marketing platforms, particularly in the tourism industry.

However, an overall picture is that there remains limited visibility of employers' strategies related to digitalization or capacity building activities related to digitalization in terms of professional and human resource development, other than the electronization of some HR functions.

Furthermore, several potential negative impacts of employers' HR strategy on the workforce in response to digital strategies have been speculated by the stakeholders. These include: work intensification due to increased speed of work, longer working hours with less family time, and the reduction of low-skilled jobs, which may have a disproportional impact on the local workforce with low digital literacy. Below are a few selected quotes regarding employers' strategies related to digitalization and potential impacts, both positive and negative, on the workforce:

> *Digital technology may boost the productivity for workers in these occupations by allowing them to organize and implement their ideas or decisions more frequently and precisely. These jobs may be non-routine skills.* (Government stakeholder)

> *Some of the employer's strategies in response to digitalization are by an inclusive transition towards fair digital work based on good working conditions, and also the upskilling of the workforce, and training programs.* (Government stakeholder)

> *The local workforce could be edged out by migrant workers taking all the jobs.* (Government stakeholder)

> *There is no negative effect; however, the main issue is that the Internet is not cheap and at the same time it is not reliable (yet).* (Trade union stakeholder)

> *There is always a possibility that industries will opt to use machines that are controlled digitally instead of people as workers. The trends in types of jobs, the skills required for the job to be done, however, indicate that labour intensive activities are still the norm.* (Trade union stakeholder)

Theme 4. Potential effects of the digital economy on different groups of the workforce (e.g., older workers, women, migrant workers, and young people from socio-economically disadvantaged backgrounds)

Views are mixed on how different groups of workers might be affected by digital technology, although there is no overall concern. In general, older male workers are seen to be the most affected group because of their low level of digital literacy, or illiteracy, and unwillingness/slowness to learn new (digital) technology. In addition, populations in certain rural areas and outer islands, and young people from disadvantaged backgrounds are other groups that are perceived to be disadvantaged, due to the lack of access to the Internet. On a positive note, it was reported that women of all ages in rural areas were considered to be quite entrepreneurial in making use of the digital technology to market their products. As a trade union stakeholder reported: "*Women of all ages are becoming proactive in the use of the technology, and more and more rural communities, especially women, are gradually using the technology to market products, for example in Samoa*". This is an area where efforts can be made to promote women entrepreneurship through policy initiatives and intervention programs. A government stakeholder from Tonga summarized the impact on different groups of the workforce:

> *Digi-tech jobs are still few in Tonga, but an envisaged increase in digitized jobs would mean fewer opportunities for older generation workers who are not digi-savvy; it would*

allow for work flexibilities, hence women may be able to work remotely from home or have flexi hours; a likely increase in migrant workers with skills because of the lack of relevant skills in the local market, and advantageous to families who can afford the use of technology.

Findings related to this question raise a question: how can the key stakeholders in PICs develop a greater level of understanding and capability of how digital technology may be introduced to increase the benefits to business, workers and the society on the one hand, and minimize harm in the process of digitalization on the other? Findings of Questions related to Theme 5 below shed light on these issues.

Theme 5. Digital strategy and digital capability of the government to create a digital vision to help create jobs and improve job quality in the digital age

We asked the key stakeholders if they believe that their government have a digital strategy and if government have sufficient digital capacity to create a digital vision to help create jobs and improve job quality in the digital age. At least half of the government stakeholder respondents in this study reported that their government has not yet developed a digital strategy. Some felt that more research and studies are needed before formulating a government digital strategy. Moreover, less than half of the government stakeholder respondents believed that their government has sufficient digital capacity to create a digital vision to help create jobs and improve job quality in the digital age. For some government organizations, high staff turnover and the need to upskill the government officials are part of the reasons for the capability deficiency.

Theme 6. Implications of digitalization for union representation in the country and sector

Perceived impact of digitalization on trade union representation are, again, varied across PICs and the industrial sector, ranging from no impact (not applicable) to positive impacts, due to the adoption of digital technology to communicate with union members. Trade union stakeholders reported that no job losses have occurred thus far because of digitalization. However, trade union stakeholders admitted that their organization does not have sufficient digital capacity (e.g. digital skills of union officials, financial resources for investment in digital technology) to position itself to better organize and represent the workers in the digital age.

Compared with stakeholders from government organizations and employer associations, the sample size of trade union stakeholders in this study is relatively small, and therefore we may not have captured a more balanced view across national and industry settings. Below are a couple of responses which provide a glimpse of selected views of the trade union officials.

Union representation in Samoa has only just begun, therefore digital technology will not have a large effect; however, the union needs to develop their own strategy to address the impact of digital technology.

Unionism in this country is still at the infancy stage. This technology, however, is making communication much easier for getting union members to meetings, having discussions online using social media, and other apps such as Messenger, WhatsApp, Viber and etc. that are available at the cost of data. However, as a relational culture, we still prefer face-to-face communication, but this of course will change as the technology evolves in Samoa.

Nevertheless, there are signs that various national trade unions are beginning to consider ways of formulating a digital strategy, to adapt organizing strategy relevant to the younger generation of the workers and also to lead the workforce into the digital future so that '*no one is left behind*'.

Theme 7. Potential effects of digital technology on employers' associations

Perceived effects of digital technology on employers' associations overall have been quite positive. One of the most noted positive effects is that digital technology enables employers' associations to reach members more efficiently and disseminate information much more widely and rapidly via social media and websites. Some other positive effects have been observed, including allowing the businesses to market themselves to counterparts overseas and create more alliances. It is important to note that these benefits are not universally felt because of the low level of digital technology in some PICs and sectors.

There are promising signs that some employers' associations are adopting a strategic approach, or at least are aware of the need to be more strategic in embracing a digital future for business, as a couple of employers' association stakeholders revealed:

> *It has prompted our organization to change the way we do business. We are in the process of adapting how we do business to the digital age.*

> *It changed the way we prioritize our strategic approach and we are on the lookout for training opportunities to support our employers.*

As PIC countries embrace digitalization more extensively, more impact is likely to be felt for employers and business organizations in productivity enhancement, as has been observed elsewhere in the Pacific region (ILO, 2019c).

Theme 8. What is being done to raise the digital capacity and develop the workforce?

A lot of dreams, but no resources. (Employers' association stakeholder)

We asked key stakeholders what was being done to raise the digital capacity and develop the workforce. In spite of the widely reported deficiency in digital capability across the stakeholders' organizations in this study, few of them have been reported to have taken actions to raise their digital capability to help position the sector in the global digital economy. Some government organizations are at the early stage of assessing their digital readiness, for example, in collaboration with international NGOs such as the United Nations Conference on Trade and Development. In comparison, employers' associations were reported to be more proactive than other stakeholder organizations in raising the digital capacity of their sector; for example, by providing training to employer members such as market access via on-line selling, and by adopting digital technology to carry out association activities and thus expose members to using it. While the majority of the trade union stakeholders also reported a low level of activity in this space, one of two of them are aware of the need to mobilize external support to fill this gap; as one stakeholder remarked: "*We need help from ILO and other supporting organizations to help us develop a digital technology strategy for our own organization and for industries our members work*".

Compared with other stakeholder organizations, youth organization stakeholders have few resources, which hampers their ability to do much in this area, other than continuing to call for the government's attention and investment in upskilling the young generation of the labour force. Youth organization stakeholders are also less optimistic than other stakeholders that their country's education

sector is producing graduates with a sufficient level of digital skills to enable the country to benefit from a global digital economy.

Theme 9. What should the government do to develop a national digital strategy and build digital capacity? What may be the policy options?

There is a wide spectrum of views from the stakeholders regarding what their government should do to develop the country's digital strategy, many of suggestions mirror the challenges identified in Theme 1. It was suggested that digital regulations be implemented as guidelines for establishing and enforcing digital technology. It was argued that young people should be consulted for policy changes. It was also proposed that a digital strategy should be developed to guide policies and actions to improve the digital technology knowledge and skills of the labour force, and the capacity of businesses (which are mostly medium-small, and micro) to embrace and make the most of what technology has to offer. A large proportion of the key stakeholders felt strongly that heavy investments should be made in building digital infrastructure, education, and upskilling. There is a strong consensus that the government should target the education sector to provide relevant digital skills for students and awareness programs by the Ministry of Technology and Education, for instance, to educate people, especially those from socio-economically disadvantaged backgrounds.

It is believed that financial support and incentives should be provided to encourage people to pursue degrees and advanced degrees in the area of digital technology. Similarly, innovation and entrepreneurship incentive programs may be introduced and subsidies provided through tax reduction on basic digi-tech equipment that is most needed by certain sectors for development. A partnership approach is advocated for raising stakeholders' digital awareness and workforce digital competence, drawing resources from the most prominent business/employers' association. Here, tripartite consultations and social dialogue will be critical when developing digital strategies and policies, at least in parts that are related to labour issues. Rural areas, farming and fishing industry have been identified for additional government support and encouragement to go digital. Some respondents, including government stakeholders, believed that the government should open the telecommunications market for competition to increase efficiency and brings costs down. Further comments regarding what the government should do and policy options are summarized in the quotes below.

> *Government can adopt best practice models in digital technology from developed and developing countries that can work for a country like PNG, using the demographics, the geographic and socio-economic and political landscape as a yardstick to develop this model.* (Government stakeholder)

> *The government should give subsidies to companies that develop in-country APPS or solutions for the Country, which would otherwise have been developed outside.* (Employers' association stakeholder)

> *Regulatory requirements such as applicable laws to be strengthened to avoid abuse or misuse. Guidelines developed, and expectations documented. Perhaps a task force or committee can be set up with relevant stakeholders to come up with specific measures and how these can be addressed.* (Employers' association stakeholder)

> *Promote and develop the private sector, e.g. businesses* (Trade union stakeholder).

> *The government should continue to set aside ICT days for people to see what is being produced via the Internet.* (Trade union stakeholder).

When asked what specific regulatory reforms may be needed to support the development of a decent work agenda in the context of the digital economy, views from the key stakeholders in this study appear to be limited. Some had no knowledge of what decent work is. This may reflect the fact that the majority of the ILO PIC member states have yet to sign up to the Decent Work Country Program.

Nonetheless, a useful set of suggestions were put forward, which point to the need for regulatory reform to eliminate discrimination and exploitation and to improve occupational health and safety protection. There is a shared view amongst a few stakeholders that their country can examine existing good practices implemented in other countries and adapt/tailor them for their country, instead of reinventing the wheel in regulatory reform. In addition, consultation with the workforce and citizens, for example, via their organising bodies, is deemed necessary before regulatory and policy reforms should be rolled out to gain grassroots support. The quotes below illustrate some of the suggestions of regulatory reform for decent work in the global digital context:

> *It could be the "Together for a Digital Pacific" which was initiated in Samoa during the Pacific Regional Conference on ICT. If the Programs are developed under that framework, it would be easy to guide the context of the digital economy in Samoa and in the Pacific under that strategy plan.* (Vocational education organization stakeholder)

> *Conduct a comprehensive review of the current legal framework, highlighting gaps in legislation and need to upgrade laws and regulations to make them compatible, friendly, and enhance security aspects.* (Employers' association stakeholder)

> *Establish a trade and labour union that will oversee decent work agenda, and also to encourage the use of technology in the public and private sectors' Human Resource Management.* (Trade union stakeholder)

> *Appropriate digital technology to be chosen and selected wisely to support all initiatives to achieve what we perceive to be the future needs of work that create decent jobs for the people of Samoa and to gradually transform the current level of 66 per cent informal work to the formal sector.* (Trade union stakeholder)\

3.2   Industry case study example – Fijian tourism industry

So far, we have discussed the findings of this project by examining the perspectives of key stakeholders respectively. However, a digitally-enabled economy delivered by people with adequate skills and decent employment conditions requires the coordinated efforts of key stakeholders. In this section, we explore challenges and prospects of the Fijian tourism industry, which constitutes a major stake, with a 13 per cent share of gross domestic product (GDP), and 12 per cent share of total employment in the national economy (World Tourism Organization, 2016).

The tourism industry of Fiji is a mature one that is well-resourced compared with other south Pacific countries. The tourism industry of Fiji had 792,000 visitors (headcount) in 2016, a 5 per cent increase from the previous year. According to a government official responsible for the tourism industry interviewed, the Government has set a growth target of reaching 1 million visitors by 2020. While the tourism industry is being promoted by all key stakeholders, these efforts are mainly concentrating on the relatively affluent area, with no gender focus. Similarly, while a small number of initiatives are emerging, led by large and multinational tourism operators, to reach out to the disadvantaged groups,

these are of small scale, and are unlikely to have a major impact on improving skill upgrading and youth unemployment in poor rural areas. Here, digital technology can be used to promote the industry further and create more opportunities for the remote areas to towards an inclusive digital economy.

Given the international nature of the industry (measured by the proportion of international tourists), international tourism organizations to a large extent monopolize the industry, a situation reinforced by the growing use of on-line promotion and booking. Many of the tour packages offer adventure and exotic cultural experience to foreign holiday makers involving day trips to rivers, waterfalls and villages. These business operations draw a good proportion of their staff on the ground from villages, who are mostly in informal employment and engaging in seasonal work. These workers may perform multiple roles during a day's work, for example, a village woman may cook, perform folk dance, serve meals and snacks, demonstrate the handicraft making process, and sell handicraft souvenirs to the tourists. Equally, a young man may act as the tourist guide, row the bamboo raft (responsible for the health and safety of the tourists on the raft), perform war dance and folk dance, climb up the coconut tree to harvest fresh coconut for the tourists, demonstrate various agricultural craft skills, and so forth. And in the process of performing these tasks, they have to wear different costumes, such as dressing as a Fijian Warrior. On the one hand, on-line booking has helped bring international tourists to remote villages and provide the much needed job opportunity, on the other hand, it is the originality and naturalness of the villages without traces of modernity associated with contemporary (digital) technology that are the selling point. While performing the cultural traditions for their work, these workers do not have the opportunity to work with modern technology and upgrade their skills. As tourism industry has a strong seasonal element, skill deficits will affect young workers' employability.

Moreover, although these workers play a pivotal role in delivering a satisfactory cultural experience to the tourists, informal employment issues in villages/eco-tourism are not addressed by tourism organizations in the formal sector, that is, the upper end of the value chain. The ability to access digital technology further underpins the capacity for healthy growth of these rural tourist businesses, and ultimately the economic and social upgrading of these communities. How can digital technology be introduced to the rural area through tourism businesses to raise the digital competence and reap greater economic and social benefits from it? What can the international tourism operators do to facilitate this?

In the meantime, the Fijian tourism industry is experiencing skill shortages for at least two main reasons, as reported by the key stakeholders: brain drain to more developed/neighbouring countries; and the education sector is not developing the right skills for the Industry (there is a consistent calling for wider educational reforms to prevent the downward trend of education quality standards). More specifically, a number of issues are evident.

First, the educational institutions may not be getting all the students with good potential. While the government is putting in more resources in the form of scholarships and loans to encourage people to take up tourism as a career choice, these schemes will benefit those who have merit (scholarships) or are able to afford loans. Those good students from disadvantaged backgrounds may not be able to benefit from these schemes fully as they/their family are less likely to be able to repay the loan, despite their greater need to do so and the potentially broader social impact. Can the tourism education and training programs be taught via digital media, such as TV, on-line learning and so forth so that more can benefit from the rural and remote areas?

Second, there are no strategic recruitment or placement initiatives because there is no perceived need, nor is there resource to implement them. Instead, the technical/vocational education

institutions may be relying on the market and recruiting applicants as they appear, as long as they meet the enrolment criteria. Can on-line marketing be used to promote the courses and recruit students more effectively?

Third, course provision is generic rather than tailored to specific needs of employers, indicating a misalignment between demand and supply of skills. This in part reflects the wider educational ideology and policy tension between the purpose of, and desire to improve, higher education by making it more academic on the one hand, and vocational education and training that should be practically oriented on the other – a tension that is further exacerbated by the resource constraint and emerging competition of the education sector. There is considerable digital deficit in this sector that hamper its development, reflecting a wider problem encountered by the sector in general as reported above.

It is clear that a stronger partnership approach between the skill supply and demand sides will benefit the further development/expansion of the industry by streamlining training/education → skill acquisition → work placement. The following issues deserve stakeholders' attention:

1) Gender and youth employment issues – how can the issues be captured and dealt with in rural areas, which are mainly operating in an informal sector condition, as the formal sector is unlikely to be able to absorb all the surplus human resources supply despite the Government's ambition to grow the sector?

2) Inclusion of disadvantaged youth in economic growth – how can they get more opportunities for training and education to help them get started?

3) Improving skill-match – this is a productivity issue which will help improve business and workers' income.

There is clearly a huge need for capacity building through digital technology and the promotion of an inclusive development agenda. The main question that drives the examination of the above issues is how to strengthen the win-win situation for the tourism industry through the collaboration of stakeholders in the value chain, facilitated by ILO and other stakeholders? In particular, how to leverage the resources of international tourist operators for the benefit of the Fijian tourism industry, with positive spill-over effects to other sections of the economy? For example, can platform learning opportunities be created, sponsored by international operators to help young workers in the tourism industry to advanced their knowledge and skills during the quiet season? Moreover, how can the Fijian tourism authority regulate the sector by facilitating national and international businesses to grow on the one hand, and making sure that companies in the sector provide decent work to its workers? Here, the ILO MNE Declaration may be useful as a guide on how enterprises can contribute through their operations worldwide to the realization of decent work. Its recommendations rooted in international labour standards reflect good practices for all enterprises but also highlight the role of government in stimulating good corporate behaviour as well as the crucial role of social dialogue (ILO, n.d.).

Workers in the global supply chains are typically migrant, young, older, or female workers. Many of them are in informal employment with limited bargaining power and reduced labour protection due to their employment status. In PICs, those working in the village tourism businesses may fall in this category. In the global digital economy, powerful and digitally-enabled organizations may actively pursue a flexible labour strategy that departs from the traditional employment relationship. Such a strategy enables businesses to evade employer responsibility and seriously undermines the prospect of decent work for these workers. Given the significant role of foreign MNEs in shaping, and in some cases, monopolizing, certain industries through the global supply chains in less developed countries, efforts may be made by national governments and industry associations to improve

regulation in order to eradicate discrimination and exploitation, as recommended by stakeholders participating in this study (see Section 3.1).

Although the effects of international regulation will be more evident when host country governments and employers' associations champion the international regulatory initiative, some host country governments may be outside the international regulatory process (which exists in part to overcome limitations of government regulation). For example, many PICs have not yet become an ILO member. Governments can extend the regulatory space by working with international regulatory bodies, MNEs, and other key stakeholders in shared "regulatory space" (Hancher and Moran, 1989), and co-create regulatory space in order to afford a greater level of protection to workers in the digital future.

Chapter 4: TOWARDS A BETTER DIGITAL FUTURE OF WORK IN PICS

4.1   Recommendations

Digital technology is undergoing an acceleration in its application and having a profound impact on the global economy and all walks of society. PICs are by and large lagging behind this development. A digital gap is not only a technological gap; more critically, it is a political, economic, and social gap. It is clear that digital gaps (across nations, industries, and social groups) and digital deficits are likely to exacerbate decent work deficits, and political, economic and social inequality. To this end, the ILO (2019a) Report on the "Future of Work: Work for a brighter Future" calls for a human-centred development agenda for the future of work that strengthens the social contract by placing people and the work they do at the centre of economic and social policy and business practice. In the report, the Global Commission recommended a "Three Pillars of Action" Agenda:

1) Increasing investment in people to develop their skill;

2) Increasing investment in the institutions of work to reinvigorate the role of institutions such as the trade unions, employers' associations, and government departments in their work against the context of informalization of work and employment; and

3) Increasing investment in decent and sustainable work.

In particular, "harnessing and managing technology for decent work" is an important component of this Future of Work Agenda. It means adopting a "human-in-command" approach to artificial intelligence that ensures that the final decisions affecting work are taken by human beings.

Findings of this project show that there is much to be done by key stakeholders in PICs in order to prepare the country and the labour force for a digital-enabled future of work and a global digital economy. We provide several recommendations in this section in the hope that they will stimulate further discussions and actions and facilitate the rolling out of the action plan stemming from ILO's Future of Work Report (ILO, 2019a).

4.1.1 Government

Recommendation 1: Digital policy should be an integral part of the broader social agenda and national development plans.

Recommendation 2: PIC governments should make Internet more accessible, both in availability and affordability, to the public through partnerships with the private sector and mobilization of philanthropy.

Recommendation 3: PIC government may consider ways to harness home-based talents through digital technology and employment/business schemes to transition informal employment to formal and decent employment for greater benefits of the society.

Recommendation 4: PIC governments should develop strategic capability to gather and utilize big data to link climate change and policy decisions to create new forms of employment and working conditions that will contribute to decent work, just transition, and sustainable growth.

Recommendation 5: PIC governments should develop a comprehensive and gender-responsive plan of development that connect various big initiatives together, such as climate change, green economy,

It is clear that governments of PICs in this study are aware of the impact of the 4th industrial revolution (also known as the digital revolution) and are beginning to take actions to gear their countries towards a digital economy, with some governments more proactive than others. For example, the Government of Samoa is keen to promote regional connectivity and collaboration in technologies to capitalize on the infrastructure investments. It also has a vision of developing a professional and competent public administration for the digital age that provides quality, and efficient and transparent services for and to its people. In June 2018, the Government of Samoa partnered with the UNDP to host the *Pacific Digital Futures: Samoa 2018*, which focused on how digital transformation could facilitate the achievement of the Sustainable Development Goals in the region.

However, high level talks need to be translated into workable policy actions and make a tangible impact. It is evident that some states are more proactive and digitally advanced than others. By and large, no national digital strategy seems to have been formulated or communicated to the public. There is a perceived need for research to inform policy. There is also a need to prioritize areas that are not commercially viable for digital development to reduce digital gaps and the associated negative impacts. One way of promoting more rapid digitalization is to open up the telecommunication market for competition. Another way is through private partnership; for example, using public procurements to promote better digital coverage and create employment opportunities for socially and economically disadvantaged groups through e-commerce and other viable business activities. Still another way is to encourage philanthropic provision of Internet service. This does not have to be on a large scale or continuing basis. Instead, it can be small-scale and temporary provisions during events and social gatherings, for example, at community, market fairs, churches, restaurants and other hot spots. Large hotels may be gathered together to provide Internet to certain villages where tourists may visit for day trips.

More broadly, although digitalization has not yet had a major impact on employment in the formal sector, the extent to which it is already impacting the informal sector is unclear. Given the relatively large informal sector in PICs, this may be an area that needs to be monitored more closely. Digital technology has both positive impact, for instance, making the informal sector economy more organized via digital platforms, and negative impacts, such as creating new labour practices that may leave workers less well protected. The proliferation of various forms of informal employment stemming from digitalization requires governments to review and revise, where necessary, their "legal and regulatory policy which shapes labour's position in society" (Mitchell, 2011, p.59). This includes, for example, "employment policy, training and education, unemployment and accident insurance, superannuation and pensions and so on" (Mitchell, 2011, p.59). There are also privacy and security issues associated with digitalization which require legislative attention as well as raising people's

awareness, including regulations that protect workers and uphold rights, such as preventing and addressing violence and harassment, discrimination and to achieve the intentionality that is required to make sure that, no one is left behind (ILO, 2019d).

Moreover, PIC governments may consider how to harness home-grown talents in the rural area through Internet connectivity and employment/business schemes. The future of work relies on the availability of skills and human resources are the key asset for PICs. In Fiji, for instance, 60-65 per cent of the workforce are work in the informal sector. Many of the (female) workers are home-based and have lots of practical skills, such as handicraft and cooking, and would be excellent trainers for young workers. How can the Fijian economy and society reap greater benefits through the better use of these skill sets on the one hand, and through the provision of decent work to this segment of the workforce on the other? In other words, what can governments do to shift informal employment towards more formal employment by finding solutions where the problems are, and "*give the dignity of life to the region instead of looking for the best solution outside and from the West*", as one employers' association stakeholder urged.

At a more strategic and macro level, there is significant scope for PIC governments to further develop their digital vision and capability to oversee the architectural design of the economic and social development of their respective country as well as the region. For example, how can digital technology be diffused widely in an affordable manner to benefit society at large (to add value)? Governments may work with other key stakeholders to develop innovative and sustainable ways to deliver e-services to remote and disadvantaged communities and areas through local participation and co-design to tailor solutions. Equally, how can government regulate the adoption of new labour practices to ensure decent labour standards (to mitigate and reduce harm)? Innovative ways of using digital technology may be introduced to develop a digital economy to create jobs for youth to prevent further talent loss to the country and other youth unemployment related problems. Finally, how can PIC governments mobilize the concept of smart cities and develop capability to gather and utilize big data that will link climate change, an important issue confronting the region, and policy decisions to create new forms of employment and working conditions that will contribute to decent work, just transition, and sustainable growth? And how can PIC governments generate a comprehensive plan of development that will connect various big initiatives together, such as climate change, green economy, digitalization, and decent work, to create synergy? Fostering a sound understanding of the interconnectivity of these global schemes will help PIC governments negotiate with United Nations and other influential international agencies and donors to provide political and financial support for national and regional development.

All these require investments in infrastructure building, digital education, on-line learning, and a life-long learning environment. More fundamentally, it requires a holistic vision and future thinking from the government and other key stakeholders. A much more profound concern is: what can be made possible through the creative and imaginative use of the digital technology, AI, and data analytics, instead of assuming that one is digital ready if they have Internet connections? In other words, it is the digital vision (strategy, thinking), not the IT infrastructure *per se*, that is most important in shaping a nation's digital future.

4.1.2 Education sector

> *Recommendation 9*: Considerable investments should be made in education to prepare a digitally competent future workforce, including curriculum reform, education workforce development, and digitally-enabled teaching and learning modes, and with specific attention to closing existing gender gaps, gender digital divide.
>
> *Recommendation 10*: Intelligence-based and gender-responsive career advice schemes should be developed to better align labour market demand and supply.

An overwhelming feeling from the stakeholders in this study is that the resourcing and educational provision of digital skills training is inadequate, amongst other skill deficits. In particular, digital education should be more wide spread in primary and secondary schools as well as in remote areas.

Digital competence is critical in government functions (e.g., e-government, e-governance, and e-public service) and in business management. Digital data collection requires intelligent planning and foresight in how the data can be collected and used to inform public policy and business activities. Digital data collected also needs insightful interpretation to be actionable. This requires the education sector to have digitally-competent educators and develop its curriculum to keep pace with technological change and business needs by preparing and sustaining a digitally capable workforce.

Digital education, such as on-line learning and on-line courses, are critical in supporting life-long learning. There is a growing effort to use technology as a positive motor for women's entrepreneurship in training, mentoring, networking, access to markets and capital, and so forth (ILO, 2019d). Platforms can also be used for skills diffusion, where users can access training/learning from global providers anywhere anytime, and the matchmaking services offered by platforms can improve the quality/fit of these skills upgrading opportunities. In addition, intelligence-based careers advice about future skill demands is needed for school leavers. Digitalization will contribute to a reliable and efficient forecast. It is worth noting that students also need to play their part to earn their future career by having the right aptitude and attitude, a message raised by some educators and employers.

4.1.3 Employers

> *Recommendation 11*: A drive to increase the use of digital technology and AI will help businesses increase productivity, including in the farming and fishery sector, and enable PICs to close the productivity gap with more advanced economies.
>
> *Recommendation 12*: Employers in PICs can be more innovative and consider efficient ways of creating decent jobs through digital technology and socially responsible corporate practices.
>
> *Recommendation 13*: Employers in PICs can play a more proactive role in facilitating policy makers to develop a digital strategy that will promote business growth, as well as in helping government develop its digital capability through sharing resources and innovative practices from the industry.
>
> *Recommendation 14*: Employers should work with the trade unions and solicit workers' views in the digitalization process and business reorganization to ensure a human-centred technological change.

Compared with other stakeholders in this study, employers' association stakeholders appear to be the group most engaged in contemplating the implications of digital technology and how it might benefit as well as negatively affect their members. There are signs of strategic actions, albeit mostly at the early stage, in the form of discussion. However, there is considerable scope for employers to become more

proactive and strategic in developing their digital capability and position their business to take advantage of the digital potentials. Employers' associations can also make a strong business case to the government to provide affordable Internet for all. As one employers' association stakeholder put it: "*Internet is like a road, without the road, there will be no development. The Government should make the road for us*".

Given the proportion of agriculture and fishery in PICs' economy, and given the fact that a large proportion of the farms are small holdings, industrial robots, such as Digital Farmhands and drones may be introduced to assist smallholder farmers to improve productivity and yields through the use of smartphone, AI and machine learning to detect crop conditions, diseases, pests, soil condition and so forth precisely, and take targeted actions accordingly. Similarly, the concept of e-Fishery may be introduced to capture appetites and health conditions of fishes and scrimps through Smart Feeder and sensors (c.f., https://www.digitalfarmhand.org/). All these techniques may not need to be too costly, but will have considerable positive economic and environmental impacts, which ultimately will improve community and society well-being. Domestic companies may consider participating in international development programs to absorb technology and know-how and build domestic capacity for sustainable growth.

One of the key challenges identified by the employers' association stakeholders is the skill deficit, a problem exacerbated by the perceived lack of motivation of some of the young workers. Some questions need to be asked: are the employers offering the right incentives and work environment to motivate these workers? Are the businesses adopting adequate and socially responsible HRM practices? While it is inappropriate to generalize all employers across industries, fieldwork information from this study indicates that many workers in the tourism industry, particularly rural workers participating in the village tour operations, do not enjoy decent work conditions in terms of job security, decent wages, social protection or union representation. What can employers do to elevate the quality of employment for these workers through socially responsible corporate practices?

Finally, employers and business organizations may take a lead in the digitalization process, since they are "particularly well placed to help companies and policy-makers to shape the future by addressing challenges and harnessing opportunities" (ILO, 2019c, p.1). Specifically, employers in PICs can play a more proactive role in facilitating policy makers to develop a digital strategy that will promote business growth, as well as in helping government develop its digital capability by sharing resources and innovative practices from the industry. Equally, employers should embed social dialogue in the digitalization process and business reorganization to ensure a human-centred technological change. After all, technology has the biggest impact on businesses (ILO, 2019c), and businesses are delivered by people.

4.1.4 Trade unions

Recommendation 15: Global digital economy calls for trade unions to adopt a more strategic and inclusive approach to organizing, representing and servicing workers in the market place as well as the workplace, and participating in regulatory reform.

Although a significant impact of digitalization on job losses has not yet occurred to a large extent in PICs, trade union stakeholders are aware of the potential threat coming their way. Findings of this study show that trade union organizations could develop a vision and action plans on how their members and potential members can be better organized, represented and serviced in the digital world. A number of issues may be considered:

1) Reviews can be conducted to assess the extent to which digitalization has undermined or is likely to undermine jobs in terms of job reduction as a result of automation/robotization, outsourcing and subcontracting, or turning contracts of employment to contracts for service. The digital economy and the associated modes of work organization have meant that collective strength, or the ability to organize collective bargaining, at the point of production/service has been taken out (e.g., Beesley, 2018; Brown and Wright, 2018). What organising strategy should trade unions adopt?

2) The impact of digitalization on employment and formal employment relationship is likely to be felt in the near future. How can trade unions organize and represent different categories of workers, particularly those in informal employment, to defend their labour rights, improve working conditions, and set up social security schemes?

3) Digital communication techniques require trade unions to be able to use more innovative methods to communicate with their members; this has skill and other resource implications. Indeed, some union organizations in PICs have been using digital communication mechanisms to reach members and promote their agendas. For example, where not permitted to enter the company to speak to the workers, a trade union organization use a projector to project its speech on the wall outside the company to speak to the workers publicly. How can trade unions equip themselves and take advantage of the digital opportunities further?

4) In some countries, trade unions assume a dual function of organizing workers in ways to facilitate productivity improvement of the enterprise on the one hand (e.g. through suggestion schemes, problem solving teams, skill training, and welfare activities), and to represent the workers and defend their rights and interests, on the other. Digitalization and the need for digital capacity building provide trade unions with opportunities to organize skill training to help members develop digital skills and open up new representational needs and opportunities. Digitalization also enables trade unions to promote labour rights at work by disseminating information and education more effectively through social media platforms. What can be done by PIC trade unions?

5) What voice can the vulnerable groups of workers (e.g., women, youth, and workers in remote areas) have in digital-enabled growth? How can trade unions organize and represent them to enable them to have a place in the future of work? Similar, how can the trade union prepare the future generation of the workforce for their rights awareness? One of the national unions in PICs is considering reaching the school children, through their parents who are union members, to raise their awareness of their employment rights in order to prepare them for their employment. The key questions are: how to raise the digital competence of the parent union members in order for them to receive the message and pass onto their children? And

how can the trade union develop its communication materials in the language and style that are perceived to be relevant to the young people?

6) Trade unions may play a greater role in planning social and regulatory responses to digitalization to mitigate the negative impact on workers, as was found in Germany (see Beesley, 2018).

4.1.5 A co-ordinated, collaborative, and strategic way forward

> *Recommendation 17*: There is a pressing need for key stakeholders in PICs to engage in dialogues and discussions regarding the potential of digital transformation in their country and the region more broadly, and implications for businesses, workers and citizens.
>
> *Recommendation 18*: In particular, efforts should be made by PIC stakeholders to ensure that gender-based inequalities are not further exacerbated.

How to leverage opportunities and mitigate negative impacts brought about by digital technology to achieve widespread improvements in working conditions? What adjustments might be needed to actively engage in the digital economy in a productive way that is appropriate to the relevant socio-economic contexts of PIC nation states? Although some high profile workshops and events have been organized by various stakeholders and professional bodies, these seem to be *ad hoc,* and no joined-up digital-related policy or initiatives appear to have been developed. When asked about the digital capability of the country, most of the responses from the stakeholders focus on whether there is an adequate digital infrastructure and education system. What is less reflected on is the strategic capability at the higher level to formulate sound policy, to make informed choices, and to contemplate more proactively and critically on how digital technology can be used innovatively to take the nation forward.

There is a strong call for an evidence-based and consultative approach to policy making. A striking theme that has emerged from the study is that key stakeholders strongly urge their government for more consultations with stakeholders at the grassroots level to inform policy and regulatory changes. A bottom-up approach may be adopted, aided by a social communication platform, to solicit views from the citizens and different social groups (e.g., Brimacombe et al., 2018). In addition, there is a strong feeling that more research should be conducted prior to any policy decision-making in the space of digitalization.

In short, digital technology may offer an effective way to inclusive development in poor regions, and enable citizens in remote areas to participate in gainful economic, civic, and social activities which will enhance their political and cultural identity and psychological wellbeing. Digital technology has the potential to contribute to community wealth building. However, digital transformation necessitates a holistic approach that takes into account the structural, economic and cultural contexts specific to communities, regions and nations. Key stakeholders of PICs need to adopt a coordinated and collaborative approach to ensure that their workers are not left behind by the digital economy, with reference to gender, by protecting them from skill obsolescence through retraining and skill upgrading and decent work conditions. This concerns, not just the workers, but ultimately the productivity and wellbeing of the nation. It requires key stakeholders to develop a greater level of digital awareness and strategic thinking. As the United Nations (2019, p.6) urged in its report on digital co-operations, "we urgently need new forms of digital cooperation to ensure that digital technologies are built on a foundation of respect for human rights and provide meaningful opportunity for all people and nations".

4.1.6 Implications for ILO

> *Recommendation 19*: ILO can facilitate PICs to develop a more holistic vision and action plan in tackling the big issues in a joint-up approach, such as gender equality, climate change, green economy, decent work, and digitalization.
>
> *Recommendation 20*: ILO can initiate and sponsor further research to develop a more in-depth understanding and tailor policy advice specific to nations, industries and social groups.

This study has revealed a substantial deficit in digital infrastructure and digital vision in PICs. As one of the most important international organizations, ILO can play a more prominent role in leading the policy discussion and facilitating the development of strategic capability of the key stakeholders in PICs. It should also develop a more integrated and coherent vision in how different initiatives can be promoted and implemented to create synergy rather than competing for resources.

Finally, as stated at the beginning of this report, this pilot study provides only a general and partial picture of issues related to digitalization and decent work in the ILO member PICs. There are considerable scope, and needs, to develop more in-depth and focused studies to examine some of the problems/challenges identified in this study and to explore the feasibility of some of the recommendations on the ground. As the initiator and sponsor of this study, ILO may consider commissioning further studies that are:

- Country-specific;

- Sector-specific (e.g., tourism, farming and fishery);

- Social-group specific (e.g., age, gender, migrant status, and social background);

- Comparative studies of the above.

The above studies can extend those conducted by ILO offices elsewhere on related topics (e.g. ILO, 2018e) with a specific focus on PICs. In particular, the potential gendered impact of digitalization may be examined much more closely to assess the likely impact of gender digital divide – the lower rates of use of women are due to gendered factors, such as time (due to unpaid care responsibilities), mobility, and safety issues. The findings of the above proposed studies will inform ILO's work tailor policy advice to PIC stakeholders regarding labour and employment policy, labour rights and labour protection.

4.2　Concluding remarks

Application of digital technology reflects a nation state's political, economic and technological capacity, as well as cultural preference, employer strategy, ideology of governance, and strategic capability of the government. However, increasingly, development opportunities are not solely controlled by nation states because of the global mobility of capital, labour and production activities that are aided by digitalization. Decent work is an important ideology for securing good quality employment with acceptable living wages and working conditions. Digital technology offers a potentially powerful tool to achieve this agenda, but it requires the foresight and determination of the state, the willingness of businesses, and the coordination of all key stakeholders to delineate a blueprint of national development powered by digital infrastructure for the growth of a productive economy, including a green economy, service economy, and rural economy. Digitalization really has the prospect of improving the life of the citizens in some remote regions. A core question is: how can Pacific island States work together to share resources and co-create a digital future of better work and society that leaves no one behind?

Appendix: MAIN INTERVIEW AND SURVEY QUESTIONS

For this study, a number of key stakeholders, including: senior leaders from employers' associations; government organizations responsible for skill development, employment and IT policy; vocational education and training bodies; trade unions; and youth organizations, were targeted to solicit their perceptions related to digital technology, skill and employment in their respective country. Main questions asked are outlined below.

Generic questions for all stakeholders:

1. Has the digital technology started to have an impact on the industries and employers of your association? If so, what have been the main impacts? How have these impacts affected the employers?

2. Do you think that the digital technology will have greater impacts on businesses in the next 3-5 years? If so, in what ways could you envisage these impacts may happen?

3. What, if any, employment and human resource management strategies have employers adopted in response to digital technology? And what are the consequences of employers' responses for business, labour market, employment and workers' working conditions?

4. What, if any, are the main challenges for business, labour market, and employment due to the digitalization in your country?

5. How ready is your country (e.g., government bodies, industries, employers, education sector, and workforce) to embrace digital technology as an opportunity for capacity building?

6. If not ready, what do you think should be done?

7. In what ways do you think employers' strategies in response to digitalization may positively and/or negatively affect employment opportunities and job quality (e.g., employment terms and conditions, training opportunities)?

8. How may different groups of workforce be affected differently by the digital economy? E.g., older workers, women, migrant workers, (young) people from socio-economically disadvantaged backgrounds.

9. What do you think is the level of digitalization in your sector?

10. Is your country's education sector producing graduates with a sufficient level of digital skills to enable the country to benefit from a global digital economy? If not, what may be the main problems?

11. What actions has your Employers' Association taken or is going to take to help develop employers' awareness, and capability to embrace a digital economy? For example, are there any programs to promote digital skills development, and any employer educational strategies?

12. What do you think the government should do in developing your country's digital strategy and digital technology-related capacity building? What may be the key challenges for the government in doing so?

13. What may be the policy options for the country/government in terms of: policy development of business models; labour market policies; and employment and promotion of the decent work agenda in the time of digitalization in connection with other actual challenges in the country?

14. What specific regulatory reforms may be needed to support the development of a decent work agenda in the context of a digital economy?

15. What specific measures do you think the country needs for strengthening institutional and digital capacities of key stakeholders (e.g., business sector, public sector, trade unions, education, and vocational training sector)?

Questions specific to particular stakeholders:

16. What, if anything, is your department going to do to address the issues related to digitalization and skills and employment? (Question for government organizations)

17. How, if at all, has digital technology affected/influenced your Employers' Association? (Question for employers' association)

18. What has your Employers' Association done, is doing, and will do, to raise the digital capacity and to help position the sector in the global digital economy? (Question for employers' association)

19. What actions has your Employers' Association taken or is going to take to help develop employers' awareness, and capability to embrace a digital economy? For example, any programs to promote digital skills development, and any employer educational strategy? (Question for employers' associations)

20. What actions has your sector/organization taken or is going to take to help develop the sector's awareness, and capability to help employers and the workforce to embrace a digital economy? For example, any programs to promote digital skills development, and any collaborations with employers to understand their skill needs as they adapt their business towards a digital economy? (Question for vocational education and training organizations)

21. Do young people in your country have sufficient skills to work in industries that rely on IT skills and digital technology; for example, offshore business process outsourcing, and international tourist companies? (Question for youth organizations)

22. What has been done, or can be done, by using digital technology to enhance the opportunity established in networks of empowered youth to accelerate the implementation of the SDG through leadership, social innovation and entrepreneurship? (Question for youth organizations)

23. Are you a formal employee of the company? Do you receive wage/pay on the day when there is no business/tourist? Do you receive social security benefits from your employer/the company you work for? Are you required to work any time when the business needs you to? What do you do during the raining season when there are few tourist? Are you a trade union member? (Questions for workers in the tourism industry)

REFERENCES

Abubakar, A. M., Behravesh, E., Rezapouraghdam, H. and Yildiz, S. B. (2019). Applying artificial intelligence technique to predict knowledge hiding behavior. *International Journal of Information Management*, 49, 45–57.

Aloisi, A. (2016). Commoditized workers. Case study research on labour law issues arising from a set of 'on-demand/gig economy' platforms. *Comparative Labour Law & Policy Journal,* 37, 674–676.

Ashford, S. J., Caza, B. B., & Reid, E. M. (2018). From surviving to thriving in the gig economy: A research agenda for individuals in the new world of work. *Research in Organizational Behavior*, https://doi.org/10.1016/j.riob.2018.11.001.

Asian Development Bank (ADB) and International Labour Organization (ILO) (2017). Improving Labour Market Outcomes in the Pacific Island Countries: Challenges for Policy, Capstone Report of the ADB-ILO collaboration in the Pacific.

Beesley, L. (24 August 2018). Trade Unions (Germany): Worker Power in the Platform Economy. Internet source: https://www.europe-solidaire.org/spip.php?article46128, accessed 20 April 2019.

Bloomberg, J. (2018). Digitization, digitalization, and digital transformation: Confuse them at your peril. Forbes, https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confuse-them-at-your-peril/#409efe842f2c.

Brennen, J. and Kreiss, D. (2016). Digitalization. In *The Wiley Blackwell-ICA International Encyclopaedias of Communication* series, https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781118766804.wbiect111, accessed 10 March 2019.

Brimacombe, T., Kant, R., Finau, G., Tarai, J. and Titifanue, J. (2018). A new frontier in digital activism: An exploration of digital feminism in Fiji. *Asia Pacific Policy Stud*y, 5, 508–521.

Brown, W. and Wright, C. (2018). Policies for decent labour standards in Britain. *The Political Quarterly*, 89, 482–489.

Cherry, M. A. & Aloisi, A. (2017). 'Dependent contractors' in the gig economy: A comparative approach. *American University Law Review*, 66, 635–689.

Cockayne, D. G. (2016). Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy. *Geoforum,* 77, 73–82.

CSDN Blog (21 January 2019). 2018 Employment Report of Takeaway Riders. Available at: https://blog.csdn.net/weixin_36250534/article/details/88313720.

De Stefano, V. (2016). The rise of the 'just-in-time workforce': On-demand work, crowdwork, and labor protection in the 'gig economy'. *Comparative Labor Law & Policy Journal*, 37, 471–504.

Garben, S. (2017) Protecting Workers in the Online Platform Economy: An overview of regulatory and policy developments in the EU. European Union: European Agency for Safety and Health at Work. Avaiable at: https://osha.europa.eu/sites/.../Protecting_Workers_in_Online_Platform_Economy.pdf.

Gartner, IT Glossary, Internet source: https://www.gartner.com/it-glossary/digitalization/, accessed 10 March 2019.

Guido, S. (2018). Protecting the weaker parties in the platform economy. *Global Law Review,* 4, 55–68.

Hancher, L. and Moran, M. (1989). Organizing Regulatory Space. In L. Hancher and M. Moran (eds.) Capitalism, Culture and Economic Regulation, Oxford: Oxford University Press, 271–300.

Howe, J. and Landau, I. (2009). Using Public Procurement to Promote Better Labour Standards in Australia: A Case Study of Responsive Regulatory Design. *Journal of Industrial Relations,* 51, 575–589.

ILO (n.d.) What is the ILO MNE Declaration? Available at: https://www.ilo.org/empent/areas/mne-declaration/WCMS_570332/lang--en/index.htm.

ILO (1999). Report of the Director General: Decent Work, International Labour Conference, 87th session, Geneva.

ILO Manual (2013). Decent work indicators: Guidelines for producers and users of statistical and legal framework indicators. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms_229374.pdf.

ILO (2016). ASEAN in transformation. Available at: https://www.ilo.org/actemp/publications/WCMS_579558/lang--en/index.htm.

ILO (2017a). A Study on the Future of Work in the Pacific. International Labour Organization Office for Pacific Island Countries.

ILO (2017b). Towards a Better Future for Women and Work: Voices of Women and Men. International Labour Organization Office. Available at: https://www.ilo.org/wcmsp5/groups/public/@dgreports/dcomm/@publ/documents/publication/wcms_546256.pdf.

ILO (2018a). Asia-Pacific Employment and Social Outlook 2018: Advancing Decent Work for Sustainable Development. Bangkok: International Labour Organization.

ILO (2018b). Digital Labour Platforms and the Future of Work: Towards Decent Work in the Online World. Geneva: International Labour Organization.

ILO (2018c). Employment Policy Brief: Promoting Decent Work for Indigenous and Tribal People through Employment and Investment Programs. Geneva: International Labour Organization.

ILO (2018d). Digitalization to Promote Decent Work for Migrant Workers in ASEAN. ILO Regional Office for Asia and the Pacific Available at: https://www.ilo.org/asia/events/WCMS_644224/lang--en/index.htm.

ILO (2018e). Women and the Future of Work in Asia and the Pacific. ILO Regional Office for Asia and the Pacific. Available at: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/publication/wcms_645601.pdf.

ILO (2018f) Job quality in the platform economy. Issue Brief No. 5. Available at https://www.ilo.org/global/topics/future-of-work/publications/issue-briefs/WCMS_618167/lang--en/index.htm.

ILO (2018g). The impact of technology on the quality and quantity of jobs, Issue Brief No. 6, prepared for the Second - Meeting of the Global Commission on the Future of Work, Geneva, 15–17 Feb. available at: https://www.ilo.org/global/topics/future-of-work/publications/issue-briefs/WCMS_618168/lang--en/index.htm.

ILO (2018h). Game Changer: Women and the Future of Work in Asia and the Pacific. Available at: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/publication/wcms_645601.pdf.

ILO (2019a). Report of the Global Commission on the Future of Work: Work for a Brighter Future. Geneva: International Labour Organization. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_662410.pdf.

ILO (2019b) Future of Work in Sri Lanka: Shaping Technology Transitions for a Brighter Future. Geneva: International Labour Organization.

ILO (2019c). Changing Business and Opportunities for Employer and Business Organizations. Available at: https://www.ilo.org/actemp/areas-of-work/WCMS_679582/lang--en/index.htm.

ILO (2019d). A Quantum Leap for Gender Equality: For a Better Future of Work for All. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_674831.pdf.

ILO Pacific Office website: https://www.ilo.org/suva/about-us/lang--en/index.htm.

Ipeirotis, P. G. (2018). Analyzing the Amazon Mechanical Turk Marketplace, http://crowdsourcing-class.org/readings/downloads/platform/analyzing-mturk.pdf, accessed on 15 April 2019.

Jordan, M. (20 November 2018). As Immigrant Farmworkers Become More Scarce, Robots Replace Humans. *New York Times.* Available at: https://www.nytimes.com/2018/11/20/us/farmworkers-immigrant-labor-robots.html, accessed 22 November 2018.

McKinsey Global Institute (2017). A Future That Works: Automation, Employment, and productivity. Available at: https://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works-Executive-summary.ashx, accessed 12 December 2017.

Miles, T. (23 January 2019). Keep humans in good jobs in the robot era, ILO commission urges. Internet source: https://www.reuters.com/article/us-autonomous-waymo-waymo-says-it-will-build-self-driving-cars-in-michigan-idUSKCN1PG22R, accessed 20 February 2019.

Minter, K. (2017). Negotiating labour standards in the gig economy: Airtasker and Unions New South Wales. *The Economic and Labour Relations Review*, 28, 438–454.

Mitchell, R. (2011). Where are we going in labour law? Some thoughts on a field of scholarship and policy in process of change. *Australian Journal of Labour Law*, 24, 45–59.

Petriglieri, G., Ashford, S. J. and Wrzesniewski, A. (2019). Agony and ecstasy in the gig economy: Cultivating holding environments for precarious and personalized work identities. *Administrative Science Quarterly*, 64, 124–170.

Sabbagh, K., El-Darwiche, B., Friedrich, R. and Singh, M. (2012). Maximizing the Impact of Digitalization. Strategy&, Available at: https://www.strategyand.pwc.com/media/file/Strategyand_Maximizing-the-Impact-of-Digitization.pdf.

Schor, J. B. & Attwood-Charles, W. (2017). The 'sharing' economy: Labor, inequality, and social connection on for-profit platforms. *Sociology Compass*, 11, DOI: 10.1111/soc4.12493.

Shapiro, A. (2018). Between autonomy and control: strategies of arbitrage in the 'on-demand' economy. *New Media and Society*, 20, 2954–2971.

Stacey, N., Ellwood, P., Bradbrook, S., Reynolds, J., Williams, H. and Lye, D. (2018). Foresight on new and emerging occupational safety and health risks associated digitalization by 2025 — Final report. European Agency for Safety and Health at Work, https://osha.europa.eu/en/tools-and-publications/publications/foresight-new-and-emerging-occupational-safety-and-health-risks.

Stanford, J. (2017). The resurgence of gig work: Historical and theoretical perspectives. *The Economic and Labour Relations Review*, 28, 382-401.

Stewart, A. and Stanford, J. (2017). Regulating work in the gig economy: What are the options? *The Economic and Labour Relations Review*, 28, 420–437.

Sakamoto, A. and Sung, S. (2018). Strategies for Inclusive Growth in Asia and the Pacific. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/@asia/@ro-bangkok/@sro-bangkok/documents/publication/wcms_650239.pdf.

United Nations (2018). UN E-Government Survey 2018. Available at https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018.

The United Nations Development Programme (2018). Human Development Indices and Indicators 2018 Statistical Update, http://hdr.undp.org/sites/default/files/2018_human_development_statistical_update.pdf, accessed 24 April 2019.

The United Nations (2019). The age of digital interdependence: Report of the UN Secretary-General's High-level Panel on Digital Cooperation. Available at: https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf.

Wang, T. Y. and Cooke, F. L. (2019) Internet platform employment in China: Legal challenges and implications for gig workers through the lens of court rulings. Unpublished working paper.

Wood, A. J., Graham, M., Lehdonvirta, V. and Hjorth, I. (2019). Good gig, bad gig: Autonomy and algorithmic control in the global gig economy. *Work, Employment and Society*, 33, 56–75.

The World Bank (2016). Forced Displacement: A Developing World Crisis [Press Release]. Retrieved from http://www.worldbank.org/en/news/press 09/15/forced-displacement-a eloping world-crisis.

World Tourism Organization (2016). *Yearbook of Tourism Statistics*. Available at: http://statistics.unwto.org/content/yearbook-tourism-statistics.

Xing H. Y. (4 April 2019) When the streets are full of takeaway riders, are millions of labourers being deployed at the wrong place? Available at: https://blog.csdn.net/weixin_36250534/article/details/88313720.

Yin, R. (2014). *Case Study Research: Design and Methods (Applied Social Research Methods)*. Thousand Oaks: Sage Publication.

Zhao, L. Q. and Luo, N. F. (2019). Work attitudes and worker performance in the digital age. Paper presented in the *Digitalization, artificial intelligence and gig jobs: Implications for the future of business, employment, regulation and work in a global economy* International Research Symposium. Melbourne, Australia.

DECENT WORK AND THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS