



# A Rapid Assessment of the Papua New Guinean Graduate Labour Market

to inform the development of  
Western Pacific University's  
academic programs

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## **Abbreviations**

APTC	Australia Pacific Technical College
ADB	Asian Development Bank
BSP	Bank of the South Pacific
CPD	Continuing Professional Development
CV	Curriculum Vitae
DAL	Department of Agriculture and Livestock
DHERST	Department of Higher Education, Research, Science and Technology
DLIR	Department of Labour and Industrial Relations
ENBP	East New Britain Province
FDI	Foreign Direct Investment
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoPNG	Government of Papua New Guinea
HE	Higher Education
HEIs	Higher Education Institutions
HR	Human Resources
ICT	Information Communications Technology
ILO	International Labour Organisation
IT	Information Technology
KI	Key Informant(s)
KII	Key Informant Interview(s)
LLG	Local Level Government
MSME	Micro, Small and Medium Sized Enterprise
NCD	National Capital District
NGI	New Guinea Islands
NGO	Non-Governmental Organisation
PICs	Pacific Islands Country[ies]
PIQAF	Pacific Islands Quality Assurance Framework
PMV	Public Motor Vehicle
PNG	Papua New Guinea
PNGNQF	Papua New Guinea National Qualifications Framework
PRQS	Pacific Register of Qualifications and Standards
PRTCBP	Pacific Regional Tourism Capacity Building Programme
R&D	Research and Development
SMEs	Small and Medium Enterprises
STEM	Science, Technology, Engineering and Mathematics
TVET	Technical and Vocational Education Training
UN	United Nations
UNDP	United Nations Development Program
UNFAO	United Nations Food and Agriculture Organization

UNESCO	United Nations Education Scientific Organisation
UNPG	University of Papua New Guinea
USA	United States of America
WIL	Work Integrated Learning
WNBP	West New Britain Province
WPU	Western Pacific University

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## Introduction

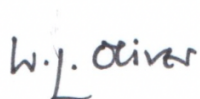
This survey, commissioned by Western Pacific University (WPU), relates to the employability of graduates in the formal and informal labour markets of Papua New Guinea (PNG). It discusses their strengths, in terms of their knowledge, skills and personal attributes and how these determine their future prospects in relation to the economy and the needs of society at all levels. The perspectives of business, provincial government, industry, public utilities, NGOs, the hospital service and the churches have been taken carefully into account.

The survey's rationale is to input research findings into the design and development of degree programs at WPU, the country's newest university, located in the Southern Highlands. It is envisaged that ground-breaking innovations in program curricula and delivery modes will transform the landscape of learning and teaching in higher education in Papua New Guinea.

The learnings from this research indicate unambiguously that the curriculum offering at WPU must bring students into the digital age of learning characterised by the attributes of the Fourth Industrial Revolution that are now transforming the world of work and the nature of employment. Rooted in the need to develop human capital for the benefit of everyone in Papua New Guinean society, particularly those mired in poverty, students will follow a formative foundation year before being immersed in work-integrated learning that is intercalated throughout their degree program.

Stakeholders were unanimous in calling for an improvement in graduate outcomes in terms of skills, personal qualities and the desire to serve communities and society. In the eyes of many, a post-colonial focus on knowledge acquisition that does not relate to economic or societal imperatives has been detrimental to the development of Papua New Guinea.

The message for WPU is clear: as a new institution, it must herald the future for higher education, not solely within Papua New Guinea but across the Pacific Island Countries.



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## **Executive Summary**

The survey seeks to reflect the candid views of individuals and organisations from many walks of public and professional life who are involved in the selection, recruitment and retention of graduates from Papua New Guinean universities into the formal and informal labour markets.

The findings of this survey will primarily inform the design and development of degrees, diplomas and certificates awarded by Western Pacific University, inaugurated in a period of renewal and regeneration for the university sector.

There was uniform agreement from within the range of Key Informants that students were often being failed by the quality of curricula on offer where abstruse, outdated and irrelevant knowledge prepared them poorly for employment opportunities. Graduates, it was said, were not exposed to the importance of transversal or 'soft skills' that are greatly valued in the majority of working environments. Surprisingly perhaps, given the considerable investment over time in education at all levels, a major concern was the relatively poor level of oral and written English of many graduates entering the labour market. Of concern also was the reticence of graduates to embrace leadership opportunities that might benefit their communities and society at large. Linked to this observation was the view that students must broaden their horizons and adopt a more international perspective in terms of the labour market. Worryingly, the attitudes of a minority of graduates that prevent them from developing appropriate work habits and professional behaviours remain a challenge for certain employers.

Balanced against these concerns there were gratifying examples of employers working in close partnership with universities to provide a bridge between education and employment. Similarly, several organisations invest heavily in induction processes, particularly where there are technical or digital processes involved. Indeed, employers look to universities to prepare graduates with skills for the digital age, not only in business and industry, but also, for example, in governance, communications, medicine and agriculture.

As the survey reveals, there are well established links between the quality of education systems and a country's economic growth and this is also true of Papua New Guinea. The influx of expatriates, albeit a declining number, to fill professional and managerial roles in-country provides a clear indication of gaps in the labour market that are difficult to meet from within the pool of graduates. Examples of these skills shortages are evident in medicine, aviation, engineering, agriculture, tourism and hospitality, construction and digital technologies.

Given that 85% of the working population are employed in the informal labour market, many of them in subsistence agriculture, self-evidently, GoPNG's current focus on micro, small and medium sized enterprises (MSMEs) is an enabling factor in this vital market. Key to its success is not only support from the financial sector but also the readiness of higher education institutions to offer students access to skills that will allow them to establish themselves as confident entrepreneurs.

Work integrated learning, intercalated throughout a course of study, was positively regarded by Key Informants as a means of providing degree apprenticeships, thus bringing employers into partnership with university teachers in the design of programs specific to their particular field of activity.

The survey team was struck by the view expressed by many that there is no time to waste in transforming Papua New Guinean universities to halt a decline in standards such as those described by Jones & McGavin in their devastating critique of tertiary education as they remark, '... the quality of university graduates in Papua New Guinea has progressively deteriorated and is significantly below the international standard' (2015: 368). The same authors call for closer involvement with universities in Queensland as a means of driving up standards.

Poor learning and teaching outcomes at university level inevitably lead to a diminution of human capital and act as a deterrent to endogenous growth. Jones and McGavin's severe treatment of Garnaut & Namaliu's universities' review is relevant when considering current causes of the poor absorptive capacity of the tertiary sector: 'The report is overwhelming for the reader and it is simply not implementable by Papua New Guinea's current public sector' (2010: 369).

Western Pacific University represents a beacon of hope for Papua New Guinea in its desire to address the aspirations of current and future generations of young people determined to lead and serve their communities and nation. The design and development of programs that acknowledge the importance of endogenous growth is crucial to the success of its graduates not only in national but also international labour markets. Fundamental to program design is the far-sighted use of digital technologies that will equip individuals for employment during the Fourth Industrial Revolution as presaged by Schwab (2016).



## Key Findings and Recommendations

1. Information Communications Technology (ICT) is at the heart of WPU's digital strategy to transform learning and teaching within the University. All degree, diploma and certificate programs must reflect, deliver and sustain this aspiration. Sufficient financial investment should ensure not only that the infrastructure is of world class standard, but also that the benefits are far-reaching for the nation as a whole, particularly those citizens in rural and remote areas. In this way, the University can exert a powerful influence on the reduction of poverty and the notorious 'digital divide'. Examples of these enabling functions for rural dwellers include powerful access to knowledge and socio-economic interactions in micro, small and medium sized enterprises (MSMEs).
2. At one and the same time, WPU should work with industry to understand which digital skills are of particular strategic importance to the nation. The University has the opportunity to develop its undergraduate and postgraduate ICT degree programs to anticipate the global demands, for example, of e-commerce, e-business and e-governance, where huge volumes of data require enhanced cyber security to prevent disastrous breaches and leakage of confidential information. The preparation of graduates and postgraduates in this field of expertise represents an employment opportunity in national and international labour markets.
3. A commitment to excellence in learning and teaching will rely heavily on the recruitment and appointment of outstanding academic staff, at every level, to the University, with a proven track record of externally audited high-quality teaching. The nature of the curriculum, already envisaged as part work and part campus based, will demand innovative thinking on the part of WPU academics who will utilise a variety of teaching methods, but primarily a problem based learning approach that seeks to ground theory in practice.
4. Careful thought must be given to the style and structure of the University as an institution. Historically, Papua New Guinean universities have, of necessity, mimicked colonial and post-colonial structures. There is now an opportunity to create a 21<sup>st</sup> century institution, for example a developmental university, one which truly reflects the country's ambitions and goals in social, economic and global terms as outlined in its Vision 2050.
5. It is abundantly apparent that many sectors of the economy are unable to appoint, with confidence, from within the current graduate talent pool. This may simply be because the country's universities do not offer teaching for example in aircraft engineering, naval architecture or biomedical technology; or, alternatively, the root

cause may be attributed to the impoverished nature of some degree programs. WPU will consistently strive to be at the leading edge of curriculum development and should note the signals from the formal labour market relating to gaps in medicine, medical research, biomedical technology, healthcare, aviation, and ICT proficiency that equates to international standards.

6. Paralleling the demand for shortage skills, increasingly employers are expecting well-developed soft skills, also known as transversal skills, from recent graduates. These skills enrich networking, teambuilding and client-facing relationships: they also contribute to the development of empathy, compassion and resonant leadership. WPU's published Graduate Qualities will clearly provide the foundation for these skills.
7. The concept of a foundation year at the commencement of an undergraduate degree program in Papua New Guinea is well understood and, in the past, has been a well-established feature of provision in some of its universities. The majority view however in the provinces surveyed is that WPU is correct, at the outset, to adapt this model, since not only does it provide a bridge between the academic norms of Grade 12 and university programs, but it also becomes a learning space within which the skills of literacy and numeracy, debate, critical thinking and problem solving and problem based learning can all be properly addressed. Key Informants were broadly supportive of the view that a purposeful and well-designed foundation year would make an overall difference to a graduate's employability.
8. Work integrated learning (WIL) is already an established feature of several degree programs in the Papua New Guinean university sector, ranging from industry sponsorship to short-term work placements or indeed degree apprenticeships. The novelty of WPU's approach is that all students will benefit from this experience, regularly intercalated with their studies, throughout the degree program. There was total agreement in the field that such a strategic move could only be of mutual benefit to both student and employer or receiving organisation. There were caveats however. Several Key Informants (Kis) took the view that they would wish to be involved in the selection of students coming to their organisation and, further, would expect a return on the investment of time and training on their part. This return would be in the form of being able to offer the best of their interns employment at the end of the degree program. Such a view undoubtedly demands consideration and the establishment of an advisory body of employers involved in WIL at WPU might be an obvious first step in a partnership approach that protects the interests of all concerned.

9. As WIL is established, WPU evidently has the potential through industry and business links to coordinate and stimulate Research and Development (R&D) agendas. Although this is likely to take time and effort it may shape the future for WPU as an entrepreneurial university that has amongst its priorities business incubation and entrepreneurship education. A closely related option for WPU, as part of its overall vision, is to consider the benefits of combining the benefits of being an entrepreneurial university with the traits of a developmental university. Such universities collaborate with a range of external agents, not solely business and industry links or for profit organisations, with the objective of contributing to the economic and social development of the country (Brundenius, Lundvall & Sutz, 2009).
10. The medical and health professionals involved in the survey spoke with great authority and feeling about the needs of their patients and their sector. A key message for WPU is the integration of medical education in its program delivery either at undergraduate or postgraduate level, possibly both. Medical education lends itself to problem based learning and the advanced use of ICT, for example the recent development in Africa of MedAfrica, Teleradiology and Cardiopad, all of which have relevance to Papua New Guinea and health care in remote areas. Key Informants called for better laboratory training, the ability of doctors to conduct research using large databases to international standards but, above all, the improvement of literacy and numeracy skills to enable medical professionals to continue their professional education beyond first degree level and well into their careers. There was a call for more specialists, biomedical technicians and radiographers, variables that bear further scrutiny.
11. The importance of WPU's degrees being accredited and thereby acceptable in other Pacific Island Countries (PICs) is crucial to both the University's mission and commitment to international outreach for its graduates. The Papua New Guinean National Qualifications Framework (PNGNQF), historically an element of the Pacific Islands Qualification Framework for several years, does not guarantee recognition of degrees gained at universities in PNG in other PICs. From the outset therefore, WPU must ensure that its qualifications meet and exceed the most recent expectations laid down in the 2017 edition of the PNGNQF (DHERST, 2017).
12. The potential for the formal labour market to expand its reach in tourism and leisure in Papua New Guinea is exponential, matching the growth in hotel and conference centre accommodation in the capital. Security and transport difficulties impinge adversely upon this growth nationally: nevertheless however, the campus of WPU, with a nearby airstrip, offers an ideal site for such niche ecotourism activities as birdwatching, cultural visits and the exploration of its rugged terrain. A tourist

facility on campus would not only fetch revenue, but also facilitate workplace training for those students majoring in this area.

13. Agriculture, beyond the informal sector's reliance on subsistence farming, represents an area of interest for WPU as it is established in the Southern Highlands. Rice, Tea, and Coffee are examples of cash crops in the Highlands as a whole. The addition or absorption of an agricultural/livestock college as a hub of the University or the development of a University farm, that includes pastoral as well as arable farming would again contribute significantly to the growth of this sector of the labour market in economic and social terms. Particular note should be taken of GoPNG's recent endorsement of e-agriculture.
14. As Papua New Guinea embraces the benefits and challenges of globalisation, it must also prepare for the era of the Fourth Industrial Revolution that is already taking us beyond the digital revolution to the 'fusion of technologies that is blurring the lines between the physical, digital and biological spheres' as Schwab (2016), founder of the World Economic Forum, puts it. For him, it is its speed, scope and impact that is affecting the pace of system change across the world. The relevance of the Fourth Industrial Revolution to PNG is clear, if we take into account the fact that 40% of its population is aged 15 or under. Life for these children and young people over the next decade as they access tertiary education and thence the labour market is likely to have been impacted by technological innovation. WPU's commitment to community engagement and the reduction of poverty must respond to the need for social innovation in the lives of future generations.
15. The evidence of this survey and other similar recent exercises, for example Jones & McGavin (2015) and Deloitte/UNDP (2017), highlights the critical importance of skills to Papua New Guinea's future. There has been an underlying assumption that education will generate high rates of economic growth; yet the exact means by which this occurs remains unclear. In labour market terms, the contrasting purposes of education at tertiary level are seen by some as skills transfer and by others as a means of ranking and sorting individuals according to their perceived capabilities. The undistinguished performance of the Technical Vocational Education and Training (TVET) sector and poor learning outcomes in higher education institutions (HEIs), as argued in powerful terms by Jones & McGavin (ibid: 368), combine to create a problematic outlook for the future in Papua New Guinea where transformative new technologies will confront workers with the need to master complex skills that demand a commitment to lifelong learning. The thrust of this argument suggests that WPU must address the delicate balance between offering programs that benefit job creation and employment in the formal sector and the changing landscape in Papua New Guinea towards micro entrepreneurship as signposted in the Deloitte &

UNDP survey (2017). A shift such as this underscores, as noted in Section 1 of this survey, the relevance of soft skills to help individuals not only to adjust to a mutable market place but also to make informed and exact choices.

## Methodology

Rather than a mere recension or retelling of the extant, and profuse, literature surrounding the labour market in Papua New Guinea, grounded theory provides the methodological approach to the survey. The research design is essentially qualitative, underpinned by a phenomenological strategy of inquiry (Cresswell, 2014). Using this approach, the survey contextualised the three broad research questions, as below, within the ambit of the various stakeholders at all levels to investigate their sense of the dynamics of graduate recruitment.

- What personal qualities, attitudes, knowledge and skills are fundamentally important to a graduate of a Papua New Guinean university for employment in current and future labour markets, both national and international?
- How can the involvement of employers in program design and delivery facilitate the reshaping of degree programs and the regeneration of work integrated learning for the 21<sup>st</sup> century?
- What are the challenges and concerns for employers in graduate recruitment both now and in the future?

A rapid survey exercise constrained on the one hand by the 2017 Easter holiday period and the commencement of national elections on the other meant that data collection in the field was confined to a three-week window across the following provinces Madang; East New Britain; West New Britain; Eastern Highlands; Simbu; Western Highlands and the Southern Highlands. In order to widen the provincial demographic of the survey, external respondents were invited to participate via social media attracting much interest at the reading level, with several lengthy submissions in response to the research questions.

Two principal methods of data collection were employed: in-depth one to one interviews and focus group discussions. The former were carefully structured individual interviews where the researcher asked the participants questions about aspects of the research questions of which they had particular knowledge or experience. The researcher was able to probe in more detail than would be possible in a focus group discussion (Creswell, 2014). The focus group discussions were facilitated by the researcher (Peek and Fothergill, 2009) during which they endeavoured to gain understanding of experiences and concepts related to the survey questions through the interplay between the participants (Morgan, 1996).

Participants for the survey were selected on the basis of their familiarity with the functioning of the formal and informal labour markets in Papua New Guinea working at multiple levels either as a manager or consumer in government, business, industry, non-governmental organisations (NGOs), the churches, civil society and higher education as reflected in the table below. Those who came to the survey via social media were from diverse interest groups.

Key Informant Interviews	ENB	WNB	WHP	EHP	SHP	Madang	Externally Selected	Total
PEA/DEAs				1				1
Public Service Organisation	1		2	1			1	5
Medical Doctors	1					1		2
Hospital Administrators					1	1		2
Public Health						2		2
Medical Education and Research						2		2
NGOs		1				1	1	3
Churches	1					2	1	4
Media						1		1
Post and Telecommunications						1	1	2
Mining						1	2	3
Agriculture/Livestock	1	2		1			1	5
IT							1	1
Banking and Finance	1			1		1	2	5
Aviation						2		2
Rural Development Agencies						1		1
Design and Construction	3			2				5
Retail	2		1	1				4
Leisure and Tourism	1						1	2
Human Resource				1			1	2
HEIs	2						2	4
Politicians	1							1
Accreditation Bodies							1	1
Law	2							2
SMEs	3	2		1				6
Total	19	5	3	9	1	15	15	68

(Table 1: Range of Key Informants interviewed)

### Data analysis

As the transcriptions were compiled and collated the researchers, all of whom had extensive experience in qualitative analysis, used inductive content analysis to investigate the emerging themes. Initially, the transcripts were open coded in relation to the fundamental aims of the research. This process was supplemented by axial coding, or the grouping

together of similar codes that led ultimately to the agreement of the final themes as shown below.

Research Questions and Facets	Themes	Examples of Discourse
Research Question 1: What personal qualities, attitudes, knowledge and skills are fundamentally important to a graduate of a Papua New Guinean university for employment in current and future labour markets, both national and international?		
Workplace and employer expectations	Performance of the organisation	'Today's graduates must be focused and purpose driven ... they must appreciate the company's vision and mission and appreciate meeting monthly targets'
Foundation year	Improving employment prospects	'Need a bridge to prepare them for further studies' 'Yes – definitely – they always have an advantage with such a good grounding'
Graduate strengths and weaknesses	A concern of the labour market	'Need a good attitude; a preparedness to continually improve; become leaders in their field; teach others; develop capacity; lead by example and maintain high standards' 'Need graduates who can solve problems; lead teams and build relationships around the organisation' 'A lot of them lack leadership skills, creativity, problem solving skills out in the field ... I have actually heard degrading comments from non-degree holders with regard to the lack of critical and logical thinking when it comes to troubleshooting ... sometimes I wonder whether



		<p>they are university graduates or not'</p> <p>'The main strengths of graduates are that many do speak good English, have the latest knowledge and skills in a particular field and possess good ICT knowledge or skills. However, there are many weaknesses and they include lack of commitment and leadership skills, more theory oriented, not confident, lack character or have low self-esteem and lack more industrial training experience.'</p>
Work ethics	Individual and organisational health	<p>'Work ethics of grooming, punctuality, respect, careful budgeting of money and time are lacking. Ethics ... must be instilled in people through the academic programs'</p> <p>'Ethics revolve around discipline, self-respect and company principles. Graduates that lack dedication and loyalty to the company are asked to leave'</p>
Research Question: 2 How can the involvement of employers in program design and delivery facilitate the reshaping of degree programs and the regeneration of work integrated learning for the 21 <sup>st</sup> century?		
Lack of knowledge, skills and competences	Degree programs not synced to workplace requirements	<p>'ICT knowledge, skills and competencies are lacking as workplaces now require the use of ICT. All programs must have an ICT component'</p> <p>'Right now, there is no significant interaction between the industry and training'</p> <p>'Graduates lack soft skills and that needs to be taught as well'</p>

Research Question: 3 What are the challenges and concerns for employers in graduate recruitment both now and in the future?		
Recruitment practices	Restructuring limiting job creation and improvement	<p>‘Frustrated and bound by recruitment regulations’</p> <p>‘The status quo of historical legacies of the 60s and 70s is maintained by the old employees compounded by non-recruitment of university graduates in recent structural changes. These problems need to be carefully analysed and steps taken to address them’</p> <p>‘If any changes need to happen they need to be subject to the legal process of amending legislation’</p> <p>‘The ageing workforce does not accept change’</p>
Organisational Culture	Lack of respect for authority and ethics of the workplace	<p>‘Like to see personal qualities or attitudes being emphasised ... we have issues of trust, dependency and owning the job. This is when theory cannot be put into practice’</p> <p>‘Work attitude is a problem. Older employees are more focused whilst young graduates are always a problem. We are producing, but quality is a problem’</p> <p>‘Intelligence is there but must come with the right attitude and work ethic’</p> <p>We need committed and dedicated people. They come with knowledge and skills but need a quality component. We need people who are dedicated, willing to learn, committed, resourceful, respectful and take ownership of the organisation’</p> <p>‘Graduates need to accept ethical behaviour in business. They have a poor understanding of cultural</p>

		norms'
ICT	Globalisation and the transformation of work	<p>'We need competent and qualified IT personnel, both software and hardware technology. The company and PNG need ICT programmers, trainers and technicians to operate different functionalities and to fix damaged equipment. With the latest technology such as ecommerce, it increases efficiency and makes marketing more globalised'</p> <p>'ICT must be brought down to the primary school level and taught throughout the whole education system'</p> <p>'Graduates have practical competencies and exposure to digital technologies and transformation of the workplace'</p> <p>'The upskilling of public servants in ICT is missing. ICT courses must be provided for the public servants'</p> <p>'IT equals globalisation and will provide resilience in the remote areas of the country'</p> <p>'Have a computer science program at WPU'</p>
Literacy and numeracy	Recruitment and Selection	<p>'Writing or literacy is a big need ... universities need to be offering writing courses'</p> <p>'Literacy is appalling and poor amongst today's graduates'</p> <p>'When reading applications ... I look for how they sell their skills ... they have to have a level of literacy to express themselves'</p>
21 <sup>st</sup> century jobs	Employability and the labour market	<p>'Need IT specialists who can manage large scale databases up to international standards'</p> <p>'From the banking perspective ... all jobs are important for the bank to function effectively ... IT is not only the job of IT specialists, it is for</p>

		<p>everyone in the organisation’</p> <p>‘PNG is a developing nation and needs more professionals in all fields – medical, engineering, business, environment, mining and oil and gas’</p> <p>‘PNG needs graduate logisticians’</p>
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(Table 2: Themes and Responses)

## Section 1: Provincial Voices

## **Madang Province**

### **1.0 Context**

1.1 In context, Madang Province, the third largest centre of population in the country, lies within striking distance of several of Papua New Guinea's main industries, for example, mining, fisheries, forestry, shipping and agriculture that are complemented by the provincial capital's historic attraction as a tourist destination and as a university town. It acts as a commercial hub for retail outlets, aviation, transport [both land and sea] together with a network of SMEs in both the formal and informal labour markets. The Catholic, Lutheran and Anglican Churches maintain a significant footprint in the locality. Madang's local hospital is vital to the area and its medical staff comprise national and volunteer expatriate staff: close links are maintained as a teaching hospital with the University medical school and the School of Nursing. A highly regarded medical research facility supplements public health provision. NGOs are active in Madang, and in the neighbouring provinces, working with, and alongside, the communities to support health, education and capacity development programs. Business links are robust as reflected in the work of the local Chamber of Commerce that draws its members from a variety of businesses, enterprises and industries. Philanthropic activities are conducted by branches of the Lions and Rotarians. The community comes together for festivals of music, culture and sport on a regular basis. Local politicians play their part in maintaining the harmony of the province and the town, for which it has been widely known.

### **2.0 Synopsis**

2.1 A rapid assessment of the labour market in Madang revealed that there is a significant demand for employment that cannot always be met either because of skills shortages or a lack of talent. Young graduates, of particular interest to this study, compete for employment in diverse occupations: banking, aviation, communications, IT, public utilities, medicine, nursing and healthcare. Their graduate specialisms are of relevance but by far the greatest discriminators in recruitment are to do with the possession of soft skills and IT literacy. Research revealed also that literacy and numeracy were of immense concern to employers who note a general decline in standards of spoken and written English. These are limiting factors and contribute to widespread concerns about youth unemployment exacerbated by urban drift.

2.2 As can be seen from the above, Madang Province, with a population approaching 500,000, and growing, is a microcosm of provincial life in coastal Papua New Guinea where many diverse cultural groups mingle to create a vibrant and robust local community. A total of fifteen Key Informants offered their views during semi-structured interviews on graduate recruitment allied to the three principal research questions as outlined in the methodology.

### **3.0 Findings**

3.1 Personal characteristics and traits dominated the discussions. Key Informants spoke volubly about the need for graduates to be forthright self-starters with initiative and openness; a willingness to learn; leading by example; committed to capacity development and the maintenance of high standards. Notably, one informant called for graduates to have compassion and 'a teachable spirit'.

3.2 The importance of an ethical perspective in both business and personal life received frequent mention, some Key Informants seeing the lack of it as the greatest problem in public service. One was of the opinion that a 'moral compass was often lacking in graduates'; for others, ethical behaviour promoted 'peace and harmony'. Christian values and outlook were rated highly alongside the importance of ethics. It was observed that good graduates, from time to time, can become involved in the pernicious social problems posed by alcohol and other substances, which impairs their performance considerably.

3.3 Proactive leadership was an important theme, particularly in relation to public service and excellence in a graduate's chosen field of endeavour. The term 'agent of change' crystallised the general expectation of graduates who would become innovators within the community. Indeed, some employers were clear that they preferred to appoint graduates who had had some international exposure.

3.4 Again, Key Informants were clear that soft skills, which were referred to as people skills or relationship building, are as important as theoretical knowledge. Some employers felt that graduates are 'flooded with theory' at the expense of such skills. There was a clarion call from the majority for universities to nurture critical, analytical thinkers, problem solvers, team workers and facilitators as opposed to the steady production of passive, submissive and dependent individuals for the labour market who are 'often out of their depth'.

3.5 Although already an acknowledged priority, information technology was regarded as being of extreme importance, not only to the needs of business and industry, but also to the nation as a whole, where some KIs argued that it was the key to bringing globalisation, for example via MSMEs and micro banks, to the remotest parts of Papua New Guinea. A feeling was expressed that IT could contribute to an increase in the Human Development Index. Specialist teaching is required in the management of large databases where graduates are able to deal with research and statistics at internationally acceptable levels.

3.6 In relation to literacy and numeracy skills, the generally expressed view was that current graduates are deficient in these areas, with many unable to communicate effectively at a reasonably advanced level in written and spoken English, with ability levels skewed towards the bottom end of the normal curve of distribution. The ability to critique

research, appraise, interpret, implement and plan effectively were all seen to be contingent upon such skills.

3.7 Graduate recruitment is sometimes frustrated by the regulatory framework in the public service where the establishment of positions is controlled, often on the basis of historic data rather than current need. Elsewhere, HR procedures need improvement and updating to encourage better selection and induction processes, since this is an area critical to preparing new graduates for workplace and organisational culture. Many more competent graduates are needed.

3.8 Work integrated learning and graduate programs received strong support, qualified only by the expectation that employers would be consulted on the nature of the partnership with the University and also the selection of undergraduates that would come to their workplace. There was also a view that a cost/benefit analysis should be applied, to the extent that employers would be able to recruit directly the best of their placement students upon graduation.

3.9 Niche employment areas were of interest to many KIs who pointed up the need for aircraft engineers and pilots on the one hand and those skilled in the physical sciences and petrochemical engineering on the other. Demands for more graduates with financial literacy, accountancy, economics and management skills were paralleled by calls for expertise in community development and project management. Medicine and the health sector are also areas of great need, for example biomedical technicians, radiographers and sonographers. Graduate logisticians, epidemiologists, laboratory staff trained to international standards and clinical researchers are all in great demand, as are social workers and care managers.

## **Highlands Provinces**

### **1.0 Context**

1.1 The Highlands region for the purpose of this survey comprised four provinces, namely, Eastern Highlands, Chimbu, Western Highlands and Southern Highlands. The Highlands region overall, densely populated and discovered in the 1930s, is the home to diverse ethnic groupings, striking flora and fauna, world famous Arabica coffee, tea, mining, gas and oil. Increasingly commercial activities are becoming common features of development in the region. The arterial Highlands Highway passes through the mountainous Central Range from Lae, with Momase to the north and Papua to the south, critical to a robust food line, infrastructure expansion and the economic boom. Within the Highlands, the Pogera Gold Mine; Hides Gas; Kutubu Oil; coffee producers; agriculture; timber milling; banking; tourism and retailing businesses all provide employment opportunities for both national and international labour markets. The University of Goroka, several teachers' colleges, nursing and theological colleges provide for higher education opportunities and local employment. The Catholic, Lutheran, Seventh Day Adventist, United, Anglican and other Churches flourish throughout the region. Small and medium sized enterprises (SMEs); Non-Government Organizations (NGOs); government offices; provincial hospitals; Church run hospitals; hotels and lodges; Private Motor Vehicles (PMVs); trucking companies; building and road construction companies, and investment by reputable companies nurture further possibilities for the engagement and empowerment of people, tangible change and an improvement in the quality of life.

### **2.0 Synopsis**

2.1 Whilst businesses, industries, construction, education, health, banking, government services, to name but a few, are rapidly expanding in the Highlands Region, human resources are required by these organizations. A rapid labour market survey was conducted to assess the nature of graduate recruitment. Informed by the findings of this research, input will be sought from employers in the design of academic programs to better align with their own needs and expectations. The challenges and concerns of employers were based on the three principal research questions, as outlined in the methodology.

2.2 Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) with twenty-four persons in all held across the four provinces, drawn from provincial governments, construction companies, public service organizations, business, banking, education and health, yielded interesting data. Whilst some organisations are constrained by tight staff quotas, the demand for highly knowledgeable, skilled, experienced and specialist professionals does exist in many spheres. Specifically, most participants expressed the view that there is high demand for more specialist doctors; specialist teachers in language, mathematics and science (i.e. chemistry, physics and biology); engineers; and technicians in many technical fields. Informants also suggested that the most demanding need in the



region is for highly skilled and competent ICT specialists who will manage and disseminate ICT education to the workforce in different settings.

2.3 However, one of the major factors in these provinces regarding the recruitment and nurturing of graduates was work ethic and it was felt that universities or training institutions must incorporate ethics into their academic learning. Participants reported that graduates come with big expectations and may be unwilling to commence work at the base level of appointment. Equally, they reported factors such as low self-esteem; absenteeism; commitment; honesty; respect and poor grooming; the inability to budget money and time; abandoning the workplace or talking on their mobiles for long periods of time. Two participants from a public service organization stated that some graduates do not integrate well in the workplace environment and, as the employer, they described the need to offload some technical training programs to universities or improve their own induction programs.

### **3.0 Findings**

3.1 Regionally, the most common challenges and concerns among all participants was the work ethic among graduates. Many of the participants expressed the view that government agencies, business, industry and private sectors are now requiring well integrated, rounded or complete graduates. From the integral human development perspective, Highlands employers require individuals who are physically, socially, spiritually, politically and economically well-grounded in their attitudes and possess a positive outlook. The participants highlighted that, at the end of the day, employers want increases in productivity, efficiency and quality outputs in the workplace. Many of the participants across the Highlands Region expressed the need for graduates to be honest, committed, dedicated, willing to learn and be deserving of the pay.

3.2 Notably, all participants wanted immediate steps to be taken to address poor work ethics and attitudes such as lack of commitment, dishonesty and involvement in dubious behaviours including drunkenness, gambling and living on borrowed money prevalent among graduates, if Papua New Guinea is to produce quality human capital for nation building and meeting global demands in the international labour markets. They emphasized that colleges and universities should include business ethics or Christian ethics in the design of their academic programs. Two informants mentioned that one university does place emphasis on Christian ethics and more graduates are being recruited from that institution.

3.3 Of related concern was the level of knowledge, skills and competencies among graduates. Participants from a range of organizations in the Highlands provinces visited, reflected their own expectations of what types of graduates they wish to recruit. Those in the health, education, power generation and construction sectors wanted qualified specialists rather than generalists. The participants further mentioned that a lack of experience and competency prevails among graduates and there should be a balance

between theory and practice to minimize this gap. This may be achieved during the course of study or during an induction program in the workplaces.

3.4 Matching the pace of development and change in Information Communications Technology (ICT) was a common concern among all the participants. One informant stated that everything is computerized and the future is with ICT. The Highlands Region is adapting to computer technology as part of a globally changing environment and the participants felt that different organizations and people of all walks of life need to become computer literate. Issues raised among participants included the need for more computer specialists; programmers; analysts; the offering of computer science programs from small to big data bases at universities and the offering of short term ICT courses for a range of different workers.

3.5 Some participants argued that through globalization, internationalization, acculturation, labour and advances in technology, PNG needs to forge ahead with technological, management and economic changes. One participant stated that with the latest technology, for instance, e-commerce, it increases efficiency and ICT makes marketing more globalized. Furthermore, as the world becomes more complex and sophisticated, many of the participants highlighted the need for educational institutions to nurture more critical and analytical thinkers, problem solvers, people with a mature understanding of the common good, effective communication skills and meaningful leadership qualities.

3.6 A concern was raised by two participants dealing with governance and administration that graduates need to become familiar with their particular organization's vision, mission, core values, policies, structures and processes for them to operate effectively and productively in the workplace. Unfamiliarity or an unwillingness to learn cultures and processes in the work environment leads to guesswork, frustration or dismissal.

3.7 Those participants engaged in the construction and business sectors, apart from wanting more highly specialized and qualified technocrats, advocated strongly that more Papua New Guinean companies should be considered and awarded contracts so that more jobs can be created to absorb graduates. Currently the awarding of big contracts favours certain foreign companies that bring their own workers and language barriers affecting proper training and grounding of graduates.

3.8 In relation to job creation, those participants from the Government sector reiterated the need for Departments of Personnel Management, Finance, Treasury and provincial governments to assess colonial or established legacies, reform structural processes and review the staff ceiling syndrome to meet not only the manpower needs of the respective organizations but provide also greater employment opportunities for graduates.

3.9 In sum, most informants expressed the view that employers need more complete, well rounded, well integrated, vibrant, competent, committed, honest and productive graduates to move this country to another level. They were of the view that universities have the responsibility to nurture a sound work ethic; provide exposure to ICT knowledge and skills; develop proficient reading and writing skills, nurture specialists such as doctors, engineers and teachers in language, mathematics and science, and quality graduates. Moreover, the informants believed that educational institutions can further promote critical and analytical thinking, problem solving skills, inquiry and eagerness to learn and thinking outside the box such as learning for self-employment. Participants argued for the creation of more jobs to absorb the ever-increasing numbers of graduates not only benefiting organizations, national development and global interrelatedness in terms of technology, business and communications but also satisfying demand in national and international labour markets.

## East and West New Britain Provinces

### 1.0 Context

1.1 East New Britain Province (ENBP) was first settled by German merchants who traded in copra and cocoa. With the arrival of the Catholic Church there was an expansion of agriculture consuming vast tracts of the tropical rainforest that were given over to growing cocoa, which was then exported to the major chocolate factories in the United States of America (USA) and Europe and, for other uses, to Singapore, USA, Philippines and Malaysia, Meanwhile, copra was crushed for coconut oil extracts.

1.2 The Catholic Church continues to make an immense contribution to healthcare and education in the province and the region, alongside the Government. The regional higher education institutions are all based in ENB, consisting of Divine Word University, in the form of Kabaleo Teacher's College, and St. Mary's School of Nursing, together with the University of Natural Resources, Kokopo Business College and Bismark Teacher's College.

1.3 Kokopo, as the main administrative, commercial and educational centre for ENB, has grown rapidly over the last 23 years from a small district town to becoming the fourth largest town in the country. The relocation to Kokopo, post the 1994 volcanic eruption over Rabaul, also generated increased construction and engineering work for the restoration of the township and the province.

1.4 The economy consists of a dual system. The modern cash economy operates side by side with the subsistence and informal farming sector. While ENBP is now the nation's leading cocoa producer, West New Britain Province has steadily risen to lead the nation in palm oil exports, and forestry and timber exports, the latter mainly to Japan, Singapore, Malaysia and Korea.

### 2.0 Synopsis

2.1 A recent rapid assessment of the labour market in East New Britain suggests that the growth and expansion of business interest in the province is reflected in an increase in basic government services. The redevelopment of East New Britain province after the volcanic destruction in 1994 and the relocation of its capital Rabaul to the town of Kokopo that has become the main business and *de facto* capital of the New Guinea islands region has seen major investments in mining (land and sea), agriculture, forestry, shipping, road transportation, road construction, bridges and with it the support services, such as schools, hospitals and shops.

2.2 This phenomenon has provided very good employment opportunities for professionals, as well as young graduates, in banking, communication, hospital services, teaching, merchandising, engineering, built industry, non-governmental organizations, small

and medium enterprises, consultancy, surveying and mining. It is evident in these NGI provinces that employers need graduates. They need professional manpower and human resource to support, guide and offer professional leadership in business and the service industries. Recent significant developments in the provinces are, for example, the investments in off-shore underwater mining and palm oil development, which will offer additional better and challenging job opportunities to more professionals, some of whom will be recruited from outside the province.

2.3 The rapid assessment of the labour market in West New Britain suggests that the major business and cash income into the province hinges on sustaining the oil palm industry in the province. Currently, the two major employers are New Britain Palm Oil, based at Mosa, receiving basic services from Kimbe Township and Hargy Oil Palm Company, accessing basic services such as hospitals, schools, banking and post and telecommunication from Bialla Township. Both investors have planted vast land areas with oil palm and the business of crude oil palm extraction for export is increasing. With such investments, businesses in the service and food industry sectors will increase and develop. Other private sector businesses, such as food suppliers, schools, the hospitality industry, banking, shipping, road transport and many MSMEs depend largely on the oil palm industry in the province. Notably, the small-scale cash economy supported by oil palm block holder growers generates a cash spin off for them and eventually the province, suggesting that a serious leaning towards MSMEs has a very high market potential.

2.4 The data and demographics confirm that the accelerated growth and expansion of business and industry in both East and West New Britain continues to generate the need for more skilled personnel. Equally, this growth is anticipated to trigger an increase in basic support services, and, thereby, a surge in the need for professional human resource

### **3.0 Findings**

3.1 A total of nineteen Key Informants (KI) offered their views in relation to the three principal research questions, as detailed in the methodology, during semi-structured interviews on graduate recruitment in East New Britain, while five did the same in West New Britain.

3.2 KIs expressed the view that they are satisfied with the professional theoretical skills graduates possess. They do realize that many graduates will need time and an internal induction program to become fully integrated into the culture and organisation of their businesses and industries. However, major concerns were raised about the deficiencies of some graduates in regard to personal confidence, respect, leadership, discipline, punctuality: many indeed, it was said, do not show sufficient loyalty and commitment for their employing organisation.

3.3 Other KIs argued that unless the graduate is ready to learn and adjust to the expectations of the work place, they will not be able to learn on the job easily. One person said, 'Today's graduates must be focused and purpose driven. They must appreciate the company's vision and mission and appreciate meeting monthly targets.' It is in this way, that many university graduates have been found wanting, because most that join carry too much 'ego' and do not appreciate company principles. For the KIs company values revolve around discipline, self-respect, respect for vision and mission, dedication and loyalty. Some graduates lacking that dedication and loyalty or who do not attempt to change are ushered out of employment as quickly as possible.

3.4 The public-sector organisations involved in the survey, largely service driven, now also face an age gap issue. The younger generation of graduates has more and updated knowledge and drive, but are suppressed, it is asserted, by the older generation, who occupy positions of authority and 'cling' to control and supervision.

3.5 Recent graduates are inducted well through a comprehensive induction program. For example, the Origin Energy program supports selected graduates by offering work place attachments for them in year 2 or year 3 of their studies. They are handpicked and schooled in the company's expectations before they graduate and join the company. A KI said, 'Without such handpicked coaching, new graduates do struggle with the working environment.' New graduates also lack people management and time management skills. Some soft skills are also missing. These may take time to master and also training may be called upon to complement the training skills. Another KI said, 'In the end, we need graduates who can solve problems, lead teams and build relationships around the organization.'

3.6 Ethics was identified by KIs as a serious deficiency, especially in the public service. One mentioned that, 'Ethics revolved around discipline, self- respect and adherence to the organisation principles.' Yet another said, 'Graduates who do not show respect and who lack confidence are asked to leave as soon as possible.' It was observed that good graduates will not take short cuts or do things dishonestly to complete a task when the manager is not watching. Excessive drinking and abuse of alcohol remain chronic problems and many graduates cannot control these antisocial habits.

3.7 Many Key Informants acknowledged that information technology is absolutely vital, not only to the needs of business and industry, but also to the nation as a whole. Some KIs argued that it was the key to globalisation. The majority views were that IT is central to all aspects of personal life as well as business. One KI said, 'Like the basic English, Maths and Science that are taught in primary schooling, ICT must also be brought down to that level and taught throughout the whole education system in Papua New Guinea. Information Technology has entered the work place and is proving more and more essential.'

3.8 Each organization audited had some kind of computerized operation. The larger operations have local computerized networks, while most government department and agencies have stand-alone computer systems, a necessary component of their business operations. Some KIs felt that many graduates cannot follow simple written instructions that come with tools or instruments to apply to a job. Many cannot even write reports or accept assigned tasks, for example the systematic write up of a report. Similarly, spoken English and grammatical usage is poor. Numeracy is also poor amongst graduates. It was said by KIs that many cannot analyse a work situation using basic numbers. Generally speaking, both numerical and literacy skills are poorer in today's graduates compared to past graduates.

3.9 In the public service, unless there is a restructure where more responsible positions are made available graduates can remain at an entry level for years, waiting for the older generation to move on. Elsewhere, HR procedures need improvement and updating to encourage better selection and induction processes, since this is an area critical to preparing new graduates for workplace and organisational culture. Within the businesses and industries surveyed, many section or department managers reported that they are happy to engage graduates. They see graduates as potential for the company and are happy to employ them and train them on the roles and responsibilities of the institution. One manager said, 'In my capacity I have taken on graduates from PNG University of Technology. The University Department has a sandwich program where an engineer comes out for field training for a full 12 months. I enjoyed imparting field knowledge and training during their stay. I am now eager to get more graduates to fulfil their degree. Head Office manages this requirement whilst we at the terminal and branch level execute training requirements.'

3.10 Work integrated learning is perhaps a better method of imparting correct skills expected by professional organizations to the young graduates, while they are still studying. Such industry-university co-training arrangements assist by focusing the graduate on the requirements of the workplace, but more so, what is expected of them by their employers.

3.11 The better graduates are more easily securing employment. The process of selection often prevents the weaker graduates from securing employment, simply because the employment market's recruitment procedures in the formal sector are robust and improving.

## **Externally Selected Participants**

### **1.0 A context driven approach to data collection**

1.1 This particular section of the report presents the approach to data collection and findings from the participants across industry and public and private sector workforces who were sourced externally.

1.2 Participants were originally approached both through traditional in-person contacts and subsequently through social media platforms such as the professional networking platforms LinkedIn and social networking platform of Facebook. Invitations to participate via social media were placed on the two platforms, whilst phone calls were made in addition to meetings in person with other potential participants. Interested social media participants were then forwarded invitation letters and Key Informant questions and offered the option to submit written feedback or have a phone interview.

1.3 The social media strategy was more rewarding than anticipated. Whereas traditional methods bind the researcher to specific geographic spaces to source participants, social media networks surmount the physical and geographical obstacles to reach participants anywhere in the country, subject to internet connectivity. The resulting number of interactions and geographic locations may be indicative of the socio-economic and digital divide in PNG that still favours the urban and multinational organisations.

1.4 There was little or no response from the Momase and New Guinean Islands regions; strikingly, most of the interest and interaction came from professionals in the National Capital District and from the mining sites in the Highlands Region. Unsurprisingly, given the global reach of social networks, the invitation's reach on LinkedIn had significant viewership from Australia. There was also interest from such distant places as the United Kingdom, New Zealand and India.

1.5 The approach delivered a total of nineteen participants in all, fifteen of whom were Key Informants, whilst the remainder took part in a focus group discussion session. Of the fifteen Key Informants, a majority of ten participants were secured through social media networks. From LinkedIn eight Key Informants out of fourteen who were forwarded invitations provided feedback by the deadline, whilst Facebook delivered three responses out of the five who were invited. Of the remaining five who submitted feedback, one was contacted externally by phone and the others were sourced in person and locally in Madang. The four who participated in the focus group discussion were all employed by one NGO at the time of the discussion, their perspectives were enriched by employment experiences from two or three other NGO organisations.



## 2.0 The Findings

2.1 The findings emerging from this data set are collated under the following themes: personal characteristics and traits; ethical perspective; proactive leadership; soft skills; Internet and ICT literacies; literacy and numeracy skills; graduate employability; graduate strengths and weaknesses; proactive leadership; theoretical knowledge; work-integrated learning and graduate niche employment areas. These themes converge on the employers' concerns with graduate preparedness for the work setting. The analysis of data around this concern helped to identify graduate strengths that enhance their chances at employment and weaknesses which diminish their chances. Identifying weak skills and attitudes represents the first step to adopting relevant strategies to enhance graduate preparedness for the work setting whilst responding to employers' concerns. This information is of value to WPU as it develops programs that are responsive to workforce student needs.

### 2.2 Personal characteristics and traits

2.2.1 Participants frequently mentioned graduate characteristics and traits that were important attributes for performance at the work place. And it is not just about having knowledge. One informant, a banker, underscored the importance of personal attributes saying: 'I will recruit those graduates who have a good attitude. Intelligence is there but intelligence must come with the right attitude and work ethics'. The same informant further said his hiring decisions would be informed by university reputation, work ethics, high moral standing, a team player and leadership skills: I would prefer [recruiting from] universities that have high standards on academic as well as the basic principle of work ethics....' Another informant stated that observation of weaknesses in some graduates led managers in the organisation to question 'whether they are university graduates or not.' Yet another said: 'A lot of them also lack leadership skills, creativity and problem-solving skills when out in the field. I have actually heard degrading and negative comments from some non-degree holders (personnel) at the workplace as well with regards to lack of critical/logical thinking in our graduates when it comes to troubleshooting.'

2.2.2 These personal characteristics and traits are presented on the table under Values, Professionalism and Behaviours. Again, the findings under this theme will inform WPU in its graduate employment preparation programs.

Values	Professionalism	Workplace Behaviours
honesty integrity transparency commitment loyalty	innovative intuitive good work ethic self-learner punctuality	of sober habit resourcefulness motivated passionate self-confidence

respect service Christian values High moral character	flexible/adaptable creativity problem-solver trouble shooter reliable ability to multi-skill reliable detail oriented efficient inter-personal skills critical thinker able to demonstrate competence in business writing	Persistence
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(Table 3: Desirable Characteristics and Traits)

## 2.3 Soft skills

2.3.1 All respondents agreed that soft or transversal skills were as important for a healthy, harmonious organisation, and in some work settings, these were even more important than theoretical knowledge. Any institution preparing the workforce should further ensure that soft or people skills are given appropriate attention in graduate training. An informant from the coffee industry had this to say when considering recruitment: 'I take into consideration both academic as well as non-academic performance, as being socially involved makes you a better team player and open to communication'.

## 2.4 Work behaviour and ethics

2.4.1 With few differences, all participants agreed on the importance of a sound work ethic and moral character. Informants agreed that appropriate workplace behaviour and ethics were extremely important for the workplace. Such a concern is indicative of the importance of organisational well-being and productivity. Universities such as WPU would be well advised to know that acquisition of these positive work behaviours and the inculcation of an appropriate work ethic increases the employability of a graduate. One informant stated: 'I will recruit those graduates who have a good attitude. Intelligence is there but intelligence must come with the right attitude and work ethics'.

## 2.5 Theoretical knowledge applied: work integrated learning

2.5.1 There was consensus amongst the respondents that, whilst the acquisition of theoretical knowledge is good, the work setting would also like to see its practical application. Participants expressed strong views on the importance of Work Integrated Learning. The findings suggest that work-integrated learning would go a long way to increase the employment prospects of graduates. There were employers who were ready to

engage with the training institution to facilitate training. In some cases, meaningful collaboration between employers and institution was absent.

2.5.2 A key informant from the media industry generally did not find the basic attributes of his profession in university graduates since he was looking for those who can think independently, have the tenacity to stay and go after news, are disciplined; who are wise managers of time, have a natural sense of curiosity and are proactive.

2.5.3 The NGO participants in the focus group discussions wanted to see universities be proactive in arranging internships or industry training. They saw this engagement as ‘... a good induction [which] means new graduates would have orientation to the work setting and not just be thrown at the deep end to survive or sink. And work placement was a good preparation for the transition into the workplace’.

2.5.4 A banker also saw integrated learning as ‘very important as it guides the graduate to think outside the box and also build on his or her skills.’ Another informant stated that: ‘I have always been passionate to ensure the necessary training that needs to be offered to the graduates is done in consultation with the relevant departments who are responsible for the work-integrated learning’. A banker informant said: ‘Without experiences/internship practicals, there is no connection between organisations, government departments and/or companies with the different strands/divisions in the institutions so that graduates should have a taste of what the workplace environment is like through practicals or internship programs.’

## 2.6 Literacy and Numeracy

2.6.1 The verdict on literacy and numeracy is loud and nearly unanimous. With the exception of a few contrary voices from organisations that recruit the cream of the graduates, it was felt many graduates enter the workforce with deficiencies in these foundational skills. Many graduates take to the workplace with bad quality writing replete with grammatical errors; or they write in a mixture of Tok Pisin and English. They lack knowledge about how to structure essays, ‘They don’t write well.’ Orally, they would rather give one-word answers to questions.

2.6.2 Some participants called on universities to do more to raise the standards of literacy and numeracy to better prepare graduates for the workforce. However, some participants place the blame on national policies such as the Tuition Free Education Policy, which they said was well-intentioned but has impacted negatively on the quality of education of the students.

2.6.3 One parent participant acknowledged that the universities can only do so much. University lecturers amongst the Key Informants would tend to agree, observing that

universities faced the same challenges of basic language and numeracy in students who enrolled. Although they tried to address the concerns, the curriculum content and structure and resources often did not allow too much scope to devote to basic skill deficiencies in students.

2.6.4 One participant in the focus group discussion pleaded with the universities to teach writing. Another said: 'Yes! Yes! Yes! They need to read a lot!' He thought past students were better as they could speak, write and read fluently: they were more outspoken as compared to new graduates. 'Students of today lack confidence in public speaking... maybe they are shy'.

2.6.5 The media industry informant lamented that the impact of education reforms in PNG on students has been terrible. 'You expect university graduates to be able to write at levels higher than high school.' The 'journalese' [poor English and professional language] taught in schools is now carried on to work. He asserted that students who progressed through the PNG public education system were not articulate, and unable to think through and make logical or cogent arguments. 'This needs to be fixed at the primary school level, as the students' arguments are shallow'. Nevertheless, he admitted that it was not the fault of universities, as 'they get students that are ill-prepared'.

2.6.6 As WPU's programs are in development, these emphatic views suggest that literacy and numeracy remain pivotal in enhancing student learning and deficiencies in these basics have to be consistently addressed at all levels of learning with appropriate strategies.

## 2.7 Internet and ICT literacies

2.7.1 Just as concerns with the traditional basic foundational skills of literacy and numeracy remain, new literacies are emerging and are equally important for effective performance in the 21<sup>st</sup> century workplace. A graduate is better work prepared if they are Internet and ICT competent. Moreover, the ICT space anticipates huge job growth internationally (Hughes & Miller, 2017). All participants across the different organisational settings cited the need for graduates to be Internet and ICT literate as the workplace environment transitions to ICT enabled work performance. A banking and finance sector informant said: 'Central Banking now involves the use of technology more than ever'. The media participants see a '... convergence of new technologies' which means graduates need to enter the workforce ICT competent. A church worker listed the following ICT jobs and competencies that his workplace would need: repair and maintenance on hardware, upgrading software and networking maintenance and computer literate in using software such as Microsoft Office products.

## 2.8 Proactive Leadership

2.8.1 As listed under workplace knowledge, attitude and behaviours, proactive leadership is an attribute that favourably positions the graduate in the workforce. Many participants said employers are looking for graduates who demonstrate initiative and a church informant said of nurses, for example, that they should not ‘... wait for instructions, but use their initiative to fully utilize their knowledge in their professional nursing practice.’ He illustrated this by saying that showing initiative is taught in the health promotion subject in nursing colleges:

... the graduates are fully aware of it, so what the new graduates do instead of providing treatment/focusing on curing they can also mobilize the village people and do health promotion, aiming at preventing the diseases from affecting people in the first place. Small initiatives like, telling the people to build clean latrines, putting animals within fences, healthy hints on personal hygiene and so on.

2.8.2 Or, as this informant from the media industry observed, ‘... their willingness to learn was not there. One came to work unprepared waiting for us to give her ideas to pursue, every morning was a blank. Not surprisingly, she quit’.

## 2.9 Graduate strengths and weaknesses

2.9.1 Obviously, graduates do not present themselves completely ill-prepared for the work setting. They bring varying skills sets subject to institutional differences in focus and quality, and other factors beyond HEIs’ control. One participant from a church community health organisation found their graduates to be competent, good team players, committed, hardworking and punctual.

2.9.2 Even with the positives, many informants have observed weaknesses in graduates which impinge on their ability to perform effectively on the job. One provincial HR advisor expressed the view that graduates from the PNG Institutions were not prepared for work. He found their expectations on salary and wage ‘too high’ lamenting that ‘money seems to be the driving force and not career and personal development’. Poor communication skills aside, he went on to say: ‘I am looking for graduates who will be honest, transparent, who have a positive attitude to the job, are respectable, owning the job, and those who have the heart to develop this NATION.’ Further, he wanted to see if graduates could work and live in the rural communities. The graduates’ preparedness to serve in rural communities was also raised by a participant in the NGO focus group as well as the respondent from the church health service. Other informants listed the following deficits: a lack of leadership skills and self-esteem; the inability to write an eye-catching CV and/or resume; having studied generalities and not being specifically in line to the job requirements in the work place environment. ‘Courses offered in the institutions must be specific for each specific job requirements out there in the work place environment,’ said one respondent from the banking sector.

### 2.9.3 Employability of graduates: Emerging new job spaces

The data set from this group of respondents reveal job market needs for systems designers; computer scientists; mathematicians; computer programmers and start-up entrepreneurs. An informant from the mining sector listed emerging engineering jobs in the area of environmental engineering; geotechnical engineering and instrument and control process engineering. The ICT informant listed a need for internet and cyber security professionals, information security experts, cloud business integration experts, data mining and big data and data analytics experts, and cloud infrastructure professionals (cf Hughes & Miller, 2017).

## **Section 2: Papua New Guinea's labour market: what does the recent literature tell us?**

### **1.0 Globalisation and the establishment of WPU**

1.1 The founding of Western Pacific University illustrates clearly the relationship between education and the future prosperity of Papua New Guinea. Globalisation in the Pacific region demands that knowledge be applied innovatively, since it impels both economic and social development. Already, modern technologies, coupled with advanced knowledge, are impacting on the needs of the labour market through the nature of work itself and the way in which jobs are being shaped and evolved. As Papua New Guinean universities begin to respond to the needs of a knowledge based economy, future graduates will help determine the extent to which their country is able to assume its place on the global stage. The extractive industries alone cannot forever sustain the country; on the contrary, it might now be argued that knowledge is now the foremost resource of the future. WPU is at the leading edge of institutions in Papua New Guinea that strive to create, disseminate and apply knowledge to provide the capacity for technological, professional and institutional development.

1.2 A key characteristic of WPU therefore is its determination to move away from what remains of the legacy curriculum of the 20<sup>th</sup> Century delivered through traditional forms of university teaching and to focus on the nature of learning that will prepare its students for work, citizenship and life in the 21<sup>st</sup> century. In this new world, as students are exposed to globalisation, ground-breaking technologies, a fluctuating economy and political and social challenges, how they acquire the necessary skills and knowledge to establish themselves in their chosen field is of immense importance.

### **2.0 21<sup>st</sup> century learning at HEIs**

2.1 Equally, it is vital to identify the generic skills and knowledge associated with 21<sup>st</sup> century learning. Wagner's (2010) widely cited Harvard study, after in-depth research with education and business leaders, argued that students needed seven survival skills in today's society and world of work:

- Critical thinking and problem solving
- Collaboration and leadership
- Agility and adaptability
- Initiative and entrepreneurialism
- Effective oral and written communication

- Accessing and analysing information
- Curiosity and imagination.

2.2 A cross-cultural assemblage of this kind typifies the early thinking on 21<sup>st</sup> century skills. Conley (2007), for example, accentuated the need for the learner to acquire ‘habits of mind’ amongst which analysis, interpretation, precision and accuracy, problem- solving, and reasoning scaffold thinking and reflection. Trilling & Fadel (2009) meanwhile claim that inquiry, design and collaborative learning, combined with direct instruction, are the foundations of a curriculum that will build knowledge, creativity and 21<sup>st</sup> Century skills. Elsewhere, the Asia Pacific Economic Cooperation group, of which PNG is an active member, (APEC, 2008) focused their attention on the development of 21<sup>st</sup> century competencies amongst youth as ‘a pressing international concern’, concluding that four competencies should be woven into educational systems: lifelong learning; problem solving; self-management and teamwork. Ananiaduo & Claro’s (2009) summary neatly focuses the discussion:

These skills and competencies are often referred to as 21st century skills and competencies, to indicate that they are more related to the needs of the emerging models of economic and social development than with those of the past century, which were suited to an industrial mode of production. (Ananiaduo and Claro, 2009:5)

2.3 With the labour market in PNG in mind, and the need for tertiary education to respond to the emerging models of development alluded to above, it is important to acknowledge a critique of 21<sup>st</sup> century skills and competences where, at the expense of holistic development, the principal goal of such an approach is merely to prepare workers for what are often described as knowledge-intensive economies. Taken a stage further, this critique also underlines a view that the majority of young persons in the developing world, graduates included, will not be employed in a knowledge-intensive economy.

2.4 Cognisant of the above, WPU however, in the foundation year and beyond, will focus on what are known as transversal competences (UNESCO, 2015a), a refinement of 21<sup>st</sup> century skills. As will be further elaborated in relation to the University’s Graduate Qualities, primarily this entails:

- Knowing how to apply acquired knowledge and being able to solve problems in new surroundings or little known, multidisciplinary, broader contexts related to their study area.
- Being able to integrate knowledge and dealing with the complexity of formulating opinions on the basis of information that, whilst it may be incomplete or limited, includes reflections about social and ethical responsibilities linked to the application of their knowledge and opinions.



- Knowing how to communicate their conclusions and knowledge to specialised and non-specialised audiences in a clear and unambiguous manner
- Possessing the learning skills that enable them to continue studying in a way that will be largely self-directed and autonomous.

2.5 Ribeiro, Severo & Ferreira's (2016) study of medical education surveyed 611 undergraduates' self-perceptions of the execution of transversal skills over their medical course. Their in-depth research identifies these skills as information technology; time management; literature searching; improving learning; oral communication; data analysis; writing communication; visual communication; English proficiency; solving problems and team work. The course structure, together with its emphasis on transversal skills, was regarded positively by the students, particularly those whose studies involved research.

2.6 Care & Luo's (2016) work across the Asia-Pacific region amplifies an understanding of exactly what transversal skills might mean in the broader educational context. As they contend, an acceptance of transversal skills, itself an evolving concept, in education systems demands a reappraisal of how we believe learning and teaching has also moved on in the new millennium. Their graphic organiser, shown below, provides a useful point of departure for discussion.

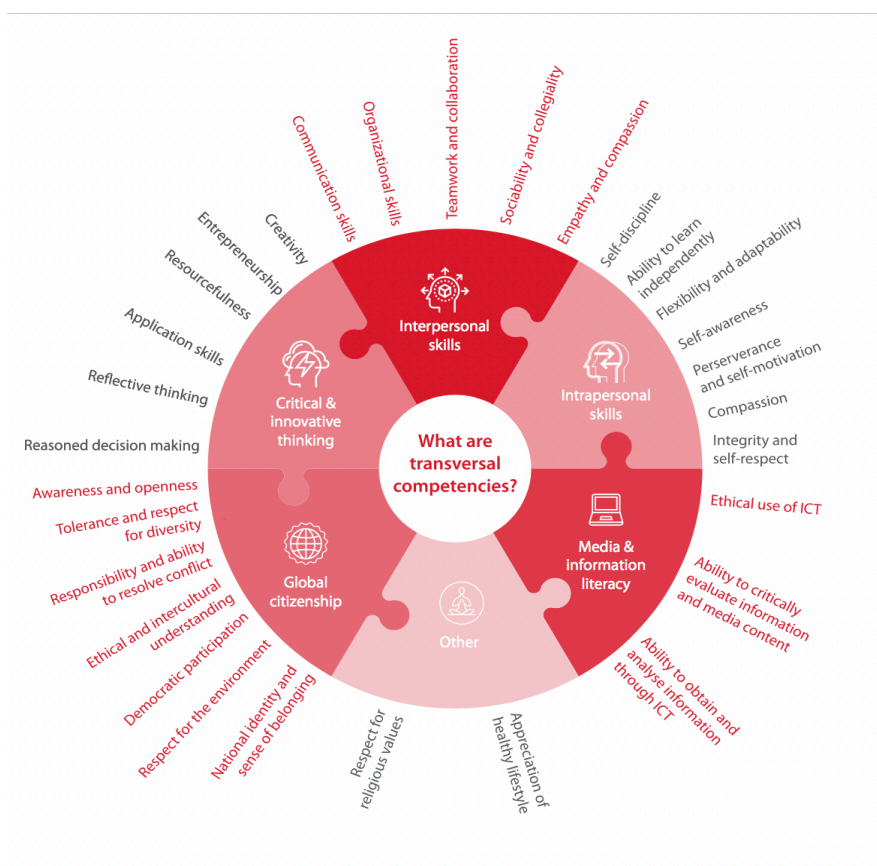


Figure 1: Transversal Skills  
(Sourced from Care & Luo, 2016:vi)

2.7 The transversal skills depicted above, as might be expected, vary from one Asia-Pacific country to another (UNESCO, 2013); however, the five main elements of the jigsaw and their descriptors resonate with the findings of our survey. Many of the descriptors fall into the category of ‘soft skills’ about which several Key Informants made mention.

2.8 What then are ‘soft skills’ and how are they relevant to the PNG context, where the informal labour market remains the employment destination for the majority of young people, including graduates? Disparities between the labour markets in developing and developed countries are unambiguously described in the economic literature. Brewer (2013:7), for example, captures the situation in these terms: ‘Developing economies have an abundance of labour, a scarcity of capital and a stark duality between the shrinking but still dominant traditional economies and the ‘modern’ economies (strongly manifested across rural and urban geographies).’ An extensive literature review carried out by Lippman et al (2015) for Child Trends that took into account employer perspectives in the developed and developing world, including West Papua and Solomon Islands, identified a set of five key soft skills that contribute to success in the workforce.

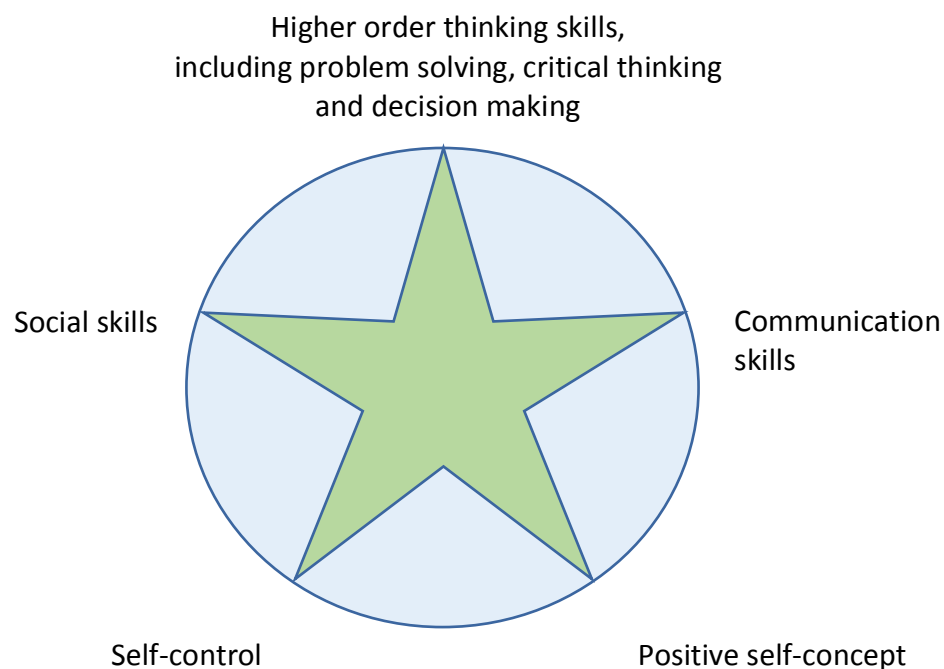


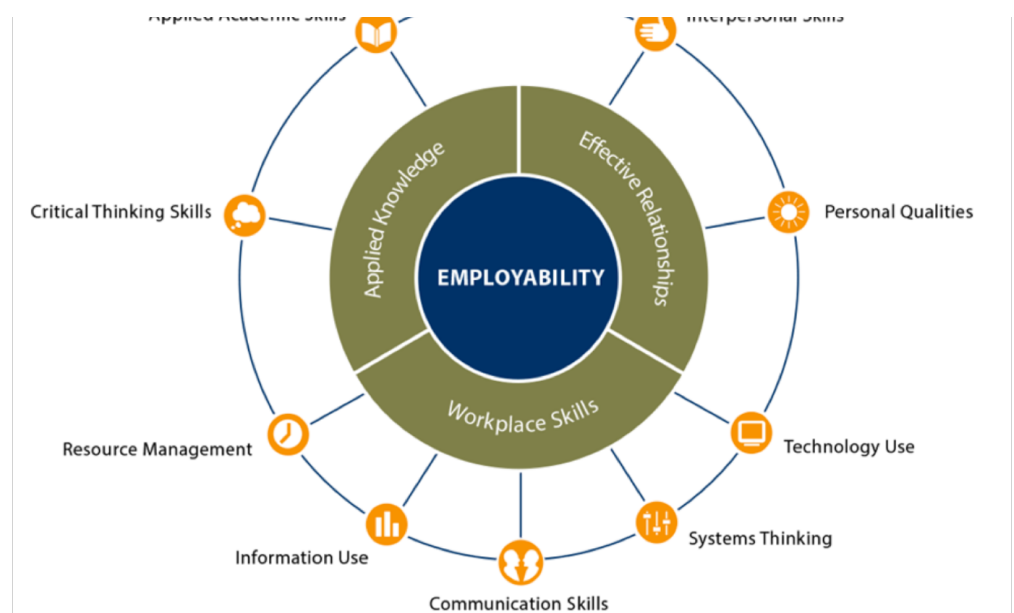
Figure 2. Soft Skills  
(Sourced from Lippman et al, 2015)

2.9 These key skills, it is argued, are interrelated and subsumed within each there are numerous sub-skills related to specific workforce outcomes, for example employment, performance, income and entrepreneurial success. Five sub-skills receive particular

attention in the literature: hard-work and dependability; self-motivation; teamwork; responsibility and positive attitude.

2.10 Interestingly, the employability skills framework from the CTE (Center for Technical and Adult Education, "Employability Skills Framework", 2017), shown below, encapsulates in iterative form much of what Lippman et al (2015) have to say about the global view from employers of desirable qualities and attributes in their workforce. CTE identify three overarching sets of skills: Applied Knowledge; Effective Relationships and Workplace Skills, linked to which are nine sub-skills again that closely parallel many of the transversal competencies emanating from research in the Asia-Pacific region (UNESCO,2013).

Figure 3: Employability Skills (Sourced from CTE, 2017)



### 3.0 Skills shortages in the PNG labour market

3.1 How might the discourse on skills affect the PNG context? Deloitte & UNDP's (2017) thought leadership paper on this topic is of considerable interest to WPU and its future. Striking a positive note, the paper argues that short term economic growth has been made possible by investment in the extractive industries; the importance of hosting the APEC summit in 2018 and continued investment in and around the capital, Port Moresby. Yet, despite this enabling environment, it remains the case that roughly 500,000 people are employed in the formal sector as compared to around 2.5 million in the informal sector.

The authors make the point that the transfer of only a small percentage of these workers to the formal sector would effect gains in revenue from taxation and productivity. Not only that, but capacity building on a grand scale will, it is argued, allow Papua New Guinea to punch above its weight in the developing labour markets in the Asia Pacific region. It is indeed this emphasis on human capacity development that connects the thinking of the paper with the thrust of this survey. The Deloitte/UNDP research makes clear that skills shortages and human factors account for up to 83% and 71% of the difficulties respectively that businesses face in recruitment and employment. The skills shortage is felt acutely throughout the country, but more so away from Port Moresby. The human factors alluded to in the report, for example poor productivity and attendance linked to employability give strong support to the view that the talent pool in the formal sector is limited by the lack of transversal or soft skills. Again, as WPU is formulating its academic programs, the thought paper's occupational analysis linked to skills gaps is of relevance since it categorises the index of difficulty employers face in recruitment with management, professional services and hospitality, wholesale and retail most problematic. Management and professional services roles in PNG invariably require the possession of a university degree for those employed as accountants, lawyers and IT professionals.

3.2 Too few graduates gain the skills they need to find work. Nowhere is this challenge more evident than in the transition to the formal sector of the labour market. Employers across the region complain of a lack of basic, technical and transferable skills. Given the pressures for expansion outlined above, the steady absorption of graduates into the labour market will be a significant undertaking.

3.3 The survey revealed that there is widespread concern about the work readiness of graduates. While employers are generally satisfied with the disciplinary knowledge of students, they perceive significant gaps in their IT skills, personal qualities, for example reliability, and transferable skills like team working and problem solving. Our research brought to light a significant 'skills mismatch' between employer requirements and graduates' display of skills in the workplace, particularly in relation to communication, decision - making and critical thinking.

3.4 The lack of robust and reliable data at all levels in Government departments dealing with the labour market in PNG is widely reported in the literature. Markedly absent is a view on the transition from university to the workplace and causal links between the disciplines studied and graduate employment prospects. The notion of 'unemployment' is context specific in PNG, and care is needed in interpreting the limited statistics at our disposal. While in some cases employers are unable to recruit because of a lack of suitable applicants, there are numerous causes of unemployment, embracing intricate macro-economic questions. Within PNG, the real extent to which graduate unemployment is due to major skills gaps, or merely to a paucity of jobs remains a major research question.

3.5 Graduate attributes are pivotal to PNG universities' program planning, but most assertions about their value are anecdotal. Beyond the completion of their degree courses, there is an acute lack of evidence about the knowledge, skills and values that graduates have actually acquired and take with them. We have relied on surveys of employer perceptions – but these, necessarily, are lacking in depth since there is little opportunity to compare across contexts, and over time.

3.6 A much stronger evidence base is needed therefore in relation to the kinds of responses that universities like WPU should make to these challenges. Without doubt, employers have significant responsibilities in the preparation of graduates; but universities nevertheless have their own critical role in ensuring that students gain the skills required by employers, taking much greater note, for example, of the effect of departmental or faculty teaching of employability skills. WPU is committed to sound teaching and quality learning in its degree programs, together with the provision of optimum conditions for learning.

3.7 As we have found, employers increasingly value global perspectives and an understanding of cultural and human diversity: these qualities can be developed through forms of engagement on campus and beyond. A subtler understanding of graduate needs is required in the rapidly changing employment markets in Papua New Guinea and the Pacific countries. As we have argued throughout, transferable skills and critical thinking that enable graduates to adapt and make a positive impact on a changing economy and society are of crucial importance to curriculum planning.

3.8 PwC (2012), with a footprint in PNG for over fifty years, by contrast strike a more upbeat note in their assessment of emerging countries and, in calling for an expansion of university education, regarding the new nation states as factories of talent. Dispassionate observers see PNG moving up the value chain in healthcare, IT, leisure and professional services. Growth of this kind is contingent upon the improvement of educational systems; the employability of graduates and is, above all, an investment in talent development. In turn, it may also be argued that such a view depends on wider enabling conditions, for example the existence of a supportive institutional governance framework and conducive national policies.

3.9 Helpfully, Jones & McGavin provide extensive recent evidence of the range of hard skills in demand in PNG with the caveat that '... a skilled employee does not necessarily mean university or trade school qualified or trade college graduate' (2015: 233). Heading the list of skills being sought after in 2014 however was sales/client service followed by specialised technical staff and driver, the latter skill illustrating the heavy reliance of business, industry and the community on road transport and passenger motor vehicles (PMVs). Hard on the heels of the top three skills were mechanical trades, electrician, finance, clerical, IT, plant and machinery operator and business management. At the foot of this list are skills connected with electrical and mechanical engineering, agriculture, fisheries

and forestry, legal and civil engineering. To some extent, this phenomenon might be explained by the Deloitte UNDP (2016) conclusion that economic factors, sometimes referred to as the enabling environment are, by far, the most limiting factor in employment growth.

#### **4.0 Signposting for WPU: graduate underemployment and unemployment**

4.1 Jones & McGavin assert that a Papua New Guinean university graduate can by no means be regarded as a skilled employee and, further, are of the view that government funded tertiary institutions are rarely awarding degrees on merit, but rather ‘on the passage of time’ (p.389). They claim also that ‘the meaning of university has been diminished ... they should be rebadged as tertiary colleges or polytechnics’ (2015: 389). In a frank critique of the university sector they claim that the quality of graduates is in decline and generally below international standards.

4.2 Of interest to this study is Jones & McGavin’s (2015) anecdotal contention that the University of Papua New Guinea (UNPG) and the University of Technology in Lae, for example, are working to obsolete Third World agendas and that it makes sense to think in terms of re-inventing tertiary education, with selected universities, in partnership with the innovative University of Queensland to confront the HR deficits of PNG. To a certain extent, they believe also that HR is constrained by a failure to deliver the essential services of the market state. Formidably and forthrightly, they go on to recommend the buying-in of educational services since, for them: ‘There is no point rolling more and more “graduates” into “universities” where they gain no tangible increase in human capital. And have little prospect of entering formal wage employment’ (ibid: 369)

4.3 Jones & McGavin (2015), if nothing else, point up the complexities of gathering reliable data and the need to accept the unique context of the country’s labour market. Their outlook on tertiary education prompts those who are developing the curriculum at WPU to guard against what is known in the development literature as isomorphic mimicry. Isomorphic mimicry becomes problematic when the pursuit of a predefined solution that has been effective in structuring modern institutions in a developed context undermines efforts to establish fresh approaches to address the particular difficulties of building institutions in the developing world. Pritchett, Woolcock and Andrews of the World Institute for Development Economics Research at the United Nations University (2012:1-2) take a sterner view, contending that isomorphic mimicry is at work when organisations in the developing world adopt ‘the camouflage of organizational forms that are deemed successful elsewhere to hide their actual dysfunction’.

4.4 WPU’s unswerving commitment to Work Integrated Learning for all undergraduates is a significant undertaking, given the nature of the labour market in Papua New Guinea, allied to major concerns about the poor quality of education (*pace* Jones & McGiven, 2015) and the lack of available funding for universities. WPU, at this very early stage, positions

itself as a teaching university where curriculum development is ongoing to revolutionise undergraduate and graduate studies and internship can be both a driver for employment and economic development. Once established, WPU has the choice of expanding either to become a research or entrepreneurial university, with the latter option firmly focused on business incubation and the teaching of enterprise education. Above all, WPU must seek to distance itself from the inertia and lack of ambition that handicap some of its sister universities in PNG.

4.5 Other authors (Brundenius, Lundvall & Sutz, 2009) add a further category, the developmental university, to this paradigm to describe collaboration and interaction with a broad range of external partners, including business, shunning profit in favour of making a contribution to social and economic development at the local and national level. WPU's mission and vision encompasses innovation and learning of a kind that would nurture the informal sector of the labour market, the main source of income for the majority of the population. Should WPU take on the mantle of a developmental university, however, the overall aim would be to move these businesses on towards a more formal, inclusive and novel set of working practices that boosted economic growth and development.

4.6 For the most part, as we have seen throughout the course of this study, within Papua New Guinea, businesses see their links with universities as a conduit for skilled graduates. The lack of skilled labour is a major hindrance to the competitiveness and innovative capacity of business and industry. WPU would do well to establish a consultative process through which the experience of successful business managers is taken into account in curriculum development so that its programs are regularly informed by the needs of the labour market, business and industry. Dialogue with these stakeholders should also provide clarity on the diversity of provision required across the University, for example on-campus, distance, online or short-course structures.

4.7 With diversity of provision in mind, the literature (OECD, 2014a&b) also points up the need to ensure that all staff in higher education institutions are equipped with the skills to use digital technologies in learning and teaching, together with the ability to integrate them into their program and course delivery. New modes of learning and teaching at WPU will therefore require from all academic staff a very different skill-set from the more conventional approaches if there is to be quality learning for undergraduates. Quality teaching will necessitate a change in role for university teachers from being beacons of knowledge and expertise in their subject to becoming facilitators and mentors of critical thinking. HEIs must also be mindful of their obligation to mirror in the online environment the softer skills that are acquired during on-campus learning experiences. Networking and interacting with peers is a vital element of the learning experience, and online platforms where this can safely and productively occur, for example Google hangouts, should become a fundamental learning space for online students.

4.8 Of relevance to the discussion of the labour market is the certification, credit and recognition of degrees and diplomas gained at Papua New Guinean Universities. WPU's aspiration is that its awards will allow its graduates not only to gain employment in their own country but also in the wider Pacific region, an intention worthy of merit and examination. Grouped alongside Vanuatu and Solomon Islands, PNG is classified as a low mobility country with 0.2% of its population as emigrants which, because of the limitations of data, currently refers only to Australia as a country of destination (Curtain, Dornan, Doyle & Howes, 2016). Putting to one side New Zealand's Recognised Seasonal Employer (RSE) scheme and Australia's seasonal worker program (SWP) and indeed its Temporary Graduate visa (Subclass 485), the main impediment to labour mobility from within Pacific islands countries in the same classification as PNG is the perceived 'low education levels of their populations' (Curtain, Dornan, Doyle & Howes, 2017: viii).

4.9 UNESCO has been at work since 2001 in drawing Asia-Pacific countries together to establish a pan Pacific Register of Qualifications and Standard (PRQS). In 2009 an Accreditation and Standards Unit, funded for five years by Australian Aid, was instituted to facilitate the project. At this point in time we have in place a PRQS database and the Pacific Islands Quality Assurance Framework (PIQAF). PNG's own National Qualifications Framework (PNGNQF) is referenced against the PIQAF. The erstwhile Office of Higher Education, now the Department for Higher Education, Research, Science and Technology (DHERST) remains the lead on these developments. The database covers all skills, trade and academic qualifications up to and including doctorate level. Political will however is still sought to bring this project to fruition, as evidenced by the efforts of the Global Recognition Convention in May 2016 that has quality higher education as a pillar of 'sustainable development of knowledge societies and relevant labour markets' (UNESCO, 2015b).

## **5.0 A solution focused approach**

5.1 What then might be a short-term solution for WPU? If we take the history of the Australia Pacific Technical College (APTC) as an example, despite by 2013 having graduated in excess of 5,600 students since its inception in 2007 (Swanton & Ong, 2013), barely 1.2% of its graduates have migrated to Australia, largely because of the very high costs there of having their qualifications recognised. The APTC is undergoing a root and branch review, one of the aims of which is to examine its original commitment to labour mobility that, lamentably, has been unfulfilled. Were WPU to establish a relationship with APTC it might gain access for its students to an existing qualification recognition framework and connections with employers and the labour market that would also be of benefit to them in Papua New Guinea. Figures from the Australian Department of Immigration, for example, indicate that, whereas in 2011 there had been 816 Papua New Guinean citizens with temporary residence visas living and working in Australia, as of as of 2012, this number had fallen to 327, 73% of whom had been sponsored by the extractive industries (Filer et al., 2012). At the time of writing the issue of low-skill immigration is being hotly debated in both



Australia and Papua New Guinea. Certainly, the messages are writ large for WPU and its international ambitions.

5.2 The Asian Development Bank's analysis of the Pacific's employment challenge (ADB, 2014), predicted that the working age population in the fourteen Pacific island countries of interest to them would rise from 6.6 million in 2014 to 9.6 million in 2030. Of that 9.6 million, on current trends, by 2030 6.6 million might be denied waged employment. Their infographic, in a few words delineates the enabling environment, 'More productive employment opportunities will be needed to raise the inclusiveness of growth' (ADB, 2014:1). Workforce growth across the Pacific, because of a steeply rising birth rate, suggests that PNG will have far more people in its workforce than any other Pacific island nation. The ADB concludes therefore that by 2030 PNG will supply the majority of new workers in the region.

5.3 There exists a superabundance of grey literature on the labour market in Papua New Guinea, but amongst the most well researched is the work of Voigt-Graf (2016), attached to the National Research Institute, who offers a meticulous analysis of the current state of play in the Pacific islands labour market that interprets PNG's stance, by contrast, as the largest labour importing country amongst the Pacific island countries and why so few Pacific islanders work in the country. Voigt-Graf's findings are of relevance to this study. Citing figures from DHERST's (2015) National and Technical Higher Education Plan, she points out that two-thirds of the population in the formal labour market were not educated beyond Grade 8. In pure numerical terms, the recent expansion in the formal labour market could accommodate the rising number of graduates year on year. Discussions with training providers and recruitment agencies correlate closely with the results of our own small-scale survey: '... at present, the quantity and quality of higher education graduates, particularly in technical fields, do not fill the needs of the private sector in PNG. Consequently, businesses fill some of their skilled positions with non-citizen workers' (Voigt-Graf, 2016).

5.4 At the formal labour market level, Pacific islanders were recruited to more than 200 occupations. The table below compiled by Voigt-Graf (2016) indicates the ten most important areas of recruitment involving Pacific islanders. Noticeably, there are no references to trade or technical skills, a reflection of the poor quality of the TVET sector in the Pacific island countries.

Occupation	Number of Pacific Islanders	% of Pacific Islanders	Number of Fijians	% of Fijians
Sales and Marketing Manager	36	7.0	36	8.7
Technicians and Trade Coordinators	27	5.3	26	6.3

Minister, Father and Pastor	26	5.1	10	2.4
Aeroplane Pilot	25	4.9	22	5.3
Operations Manager	24	4.7	24	5.8
Corporate Services Manager	23	4.5	21	5.1
Ship's Engineer	21	4.1	19	4.6
General Manager	17	3.3	16	3.9
Security Manager	17	3.3	17	4.1
CEO or Managing Director	13	2.5	13	3.1

Table 4: Top ten areas of recruitment of Pacific Islanders (Voigt-Graf, 2016:8. Sourced from DLIR, active work permit data, May 2015)

5.5 The sobering reality for all national graduates is that PNG's own formal labour market affords livelihoods to less than 12% of the working age population, whilst the informal sector engages the majority of those remaining in the working age group in forestry, fishing and semi-subsistence agriculture. Forecasters predict that, even with a steady growth in job creation, the bulk of the population will wait for decades to gain access to the formal labour market with poverty, poor social welfare and inadequate health care their constant companions. Economic growth is contingent upon an enabling environment and infrastructure where much stronger institutions can not only raise the living standards of those dependent on an informal livelihood but also provide greater access to markets and, in so doing, permit them to contribute to the country's development.

5.6 A limited amount of recent data exists on the destinations of PNG students upon graduation. Three small scale studies are of interest. Cornish (2016), surveying the employment preferences of his graduating economics class at UPNG, aged between 23 -25, reports that 50% regarded the public sector, including national government, as their first choice, with 38% seeing self-employment as the best way forward. At the other end of the scale, employment within the NGO sector was least preferred, with work in the public sector at Local Level Government (LLG) level hard on its heels. Unsurprisingly, when these economics students were pressed on their employer of choice, the Bank of Papua New Guinea was named by two-thirds of them, with the Department of Treasury and the Department of National Planning in second and third place.

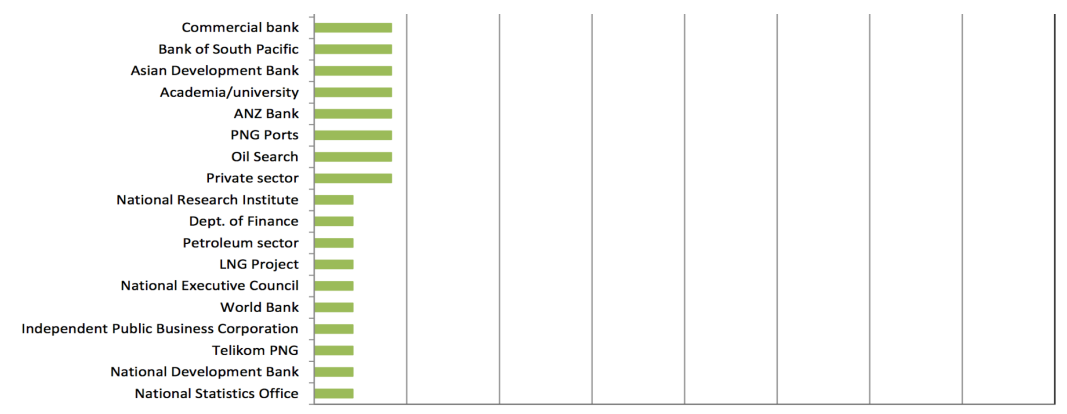


Figure 4: Employment Preferences of UNPNG Economics Graduates (Sourced from Cornish 2016:9)

5.7 Actual employment took two of the graduates to the Department of Foreign Affairs and one each to PwC; BSP; Ela Motors; Oil Search and Madang Department of Provincial Planning. Six of this number were recruited through graduate development programs. Some graduates reported that their general lack of awareness and readiness about how to make successful job applications were of concern to them.

5.8 A more detailed small-scale tracer study (Namun et al., 2016) of thirty Divine Word University (DWU) Health Management graduates reveals that the vast majority, 46.7%, have been employed by the Government, whilst 20% are with Church and Faith based organisations. This study also sought to establish to what extent their degree program had prepared them for their chosen career. Interestingly, the respondents cited their preparation for leadership and management, together with project planning and design and financial management skills as having added to their personal skills development. In common with the UNPG graduates in Cornish's (2016) paper, a significant number, 26%, indicated their wish to pursue further studies.

5.9 A third, largely statistical, study by David & Kaita (2015), of the Bank of Papua New Guinea, examined '*Needs Theory and Employment Performance*' in a group of 57 graduates drawn from four PNG universities. Here the focus was motivation, work satisfaction and performance and, to some extent, the study illuminates the discussion on organisational culture and its interaction with the values and culture of the individual graduate. Our own work yielded numerous examples of employer dissatisfaction with some graduates' work ethic and attitude, to say nothing of the cultural outlooks that they bring to their job, for example a degree of passivity and the reluctance to challenge the status quo. The authors here however conclude that it is the job of management to make efforts to understand the

needs of their graduate staff through grounded theories of their own. They arrive at this assumption through statistical methods that demand much more robust interrogation to achieve any kind of validity.

## **6.0 Micro, Small and Medium Sized Enterprises**

6.1 World Bank ("Small and Medium Enterprises (SMEs) Finance", 2017) figures indicate that up to 45% of employment in emerging countries is located in formal MSMEs that provide 33% of Gross Domestic Product (GDP). Informal MSMEs add substantially to these figures. The same source suggests that in emerging markets four out of five new jobs come about as a result of MSME activity. MSMEs across the developing world however are hampered by lack of access to formal credit facilities. Yet, GoPNG has long recognised the importance of MSMEs. Take, for example, the commitment in the Development Strategic Plan to a four-fold increase in the number of MSMEs by 2030 (GoPNG, 2010: 100; 2015). The most recent MSME policy document (GoPNG, 2016) sets out the government's ambitions: 500,000 MSMEs by 2030; employment to grow to 2 million; unemployment reduced from 84% to 49%; citizen control of the formal economy to rise from the current 10% to 70% and to grow the MSME contribution to GDP from 10% to 50%. Significantly, these measures, it is hoped, will reduce the number of the population living below the poverty line from 40%, as it is now, to 30% by the end of the same period.

6.2 Predating the release of GoPNG's (2016) quasi protectionist SME policy with an extensive Reserves Activity List for 100% PNG ownership, Tebbutt Research (2014) offered an estimate of 28,323 MSMEs in the country's formal sector. The majority of these businesses were located in the retail trade; hospitality and tourism; motor vehicle related, including retail; transportation and construction. This study also estimated that formal sector MSMEs provide paid employment for 434,634 staff and 33,868 unpaid staff. WPU would do well to take note of the potential of MSMEs to place its graduates in the forefront of this sector. Innovative thinking related to the survey of the graduate labour market suggests that leadership, financial expertise, project management and proposal writing, all in relation to development studies, would represent critical areas for consideration in the degree programs.

## **Section 3: Conclusion**

### **1.0 Introduction**

1.1 As the findings of this survey are drawn together, it is important to acknowledge that its major limitation has been the paucity of current and reliable data upon which to base firm conclusions about the state of the labour market in Papua New Guinea in respect of graduate employment prospects. This is particularly the case as we consider how WPU will work within the global development discourse, so that the meanings and purposes of developing human capital to bolster the nation state and empower all its people can be understood. There is therefore the evident danger of giving credence to, and accepting, logical fallacies of a statistical nature '*cum hoc ergo propter hoc*', where correlation implies causation. Notwithstanding this caveat, it is good to note the establishment in September 2017 of the PNG Data4Development Group hosted at [pngdata4development.org.pg/](http://pngdata4development.org.pg/)

1.2 Fundamental themes emerging from stakeholder interviews and the literature, particularly in relation to graduate employment prospects in the PNG Labour Market, and the formulation of degree programs at WPU, are elucidated below. Many spoke passionately of Papua New Guinea, in constitutional terms, as a developing state and of the fragile and changing nature of the employment market in a vulnerable, predominantly agrarian, economy. Skilled employment, it was wisely observed on many occasions, leads to prosperity and security for individuals, while unskilled employment often means the opposite. The failure to offer young people appropriate opportunities in higher education to gain the skills, knowledge and behaviours needed for the world of work swiftly eradicates their enthusiasm, potential and diminishes the life chances which their parents, university teachers and administrators have worked so hard to provide.

### **2.0 Findings**

2.1 First and foremost, the majority of stakeholders expressed the concern that graduates lack the fluency and command of oral English that underpin effective communication skills in the professional and commercial environment, where the expectation is that standards of spoken English should be commensurately high.

2.2 Similarly, the acquisition of soft, or transversal, skills is widely regarded as an area of major importance for all graduates in anticipation of their employment in the formal sector, where client facing relationships frequently dominate professional activity.

2.3 Numerous stakeholders reiterated the view that the development of human capital is fundamental to the mission of those charged with leading HEIs. This is best described by concluding that the most important output of higher education is not solely the creation of graduates in possession of augmented subject knowledge, but rather the product of what they contribute towards the advancement of local communities and PNG society as a whole.

2.4 In terms of the enabling environment in which HE is delivered, stakeholders frequently observed that PNG is a resource rich nation, where massive investments, particularly in the extractive industries have underpinned and accelerated rates of growth and international relations. Nevertheless, this phenomenon has generated only modest direct employment opportunities for graduates and, thus far, has made very little impact on the lives of those living in absolute or relative poverty, and for whom urban drift provides a tenuous escape route. Moreover, a critical fact emerging from the most recent literature (Fox, Howes, Nema & Schröder, 2017) is that the abundance of foreign exchange in the minerals and extractive industries, at the macroeconomic level, has undermined the competitiveness of other activities making it difficult to create productive jobs in other sectors.

2.5 A theme constantly restated in this study has been the aspiration of WPU to institute ground-breaking programs of work integrated learning. Stakeholders familiar with existing models of this type of provision, in general, commented favourably upon this development. Many put forward the view that such programs of work must not only be fulfilling, aspirational, clearly explained and attractive to students but also designed in close collaboration with employers in the formal and informal labour market. Previous programs of this nature, according to many respondents, have not demanded enough of undergraduates. The clear recommendation must therefore be that, if WPU wishes to lead good practice in this domain, steps must be taken to examine world-class excellence provided at the higher technical level in outstanding universities and, from there, work backwards to define the work integrated learning practices that will free it from the isomorphic mimicry currently besetting higher education in PNG.

2.6 Pursued in this manner, WPU may be confident that many more students will go on to meet the national standards required by PNG's employers. Work related learning, sometimes described as degree apprenticeships, is likely to become an attractive option ensuring there is a supply of high-quality graduates available to strong and responsive employers with the right leadership and vision. If the skills gap is to be confronted by the delivery of WPU's degree programs employers must play a leading role in their formulation. Employers, working with expert university educators, need to set the standards and, crucially, define the skills, knowledge and behaviours required for skilled employment in their sectors.

2.7 Correspondingly, there was also the unequivocal view from stakeholders that more needs to be done to support students, particularly those in the country's less prestigious institutions, where there are evident difficulties with infrastructure, the staff-student ratio and the quality of taught courses. Several stakeholders underlined the advantages and disadvantages brought by personal and family connections. Indeed, of the factors regarded

as drawbacks to employment, lack of networks and lack of connections were amongst the most significant across the surveyed provinces.

2.8 The outcomes of this survey concur with Deloitte & UNDP's (2017) findings that the PNG economy is characterised by enduring pockets of skills deficiency. Employers reported direct and damaging impacts of skills gaps and hard-to-fill vacancies caused by skills shortages. The most common types of skills shortages articulated by stakeholders were high-level technical, managerial, practical or job specific skills best gained in a workplace setting, illustrating the critical role that employers have to play in overcoming skills shortages and building the pipeline of skilled labour. Skills gaps were most commonly reported where employees were new in role and reflective of high levels of labour turnover.

2.9 For higher education planners, this reinforces the reality that the demand and supply of skills is not fully aligned. While some degree of mismatch in the labour market is common to many developing countries, persistent pockets of skills deficiency may indicate structural problems with degree programs in PNG. Self-evidently, failure to address these skills shortages is likely to hinder the nation's future economic competitiveness. Additionally, in relation to program development, it is worth bearing in mind that the futures thinking outlined elsewhere in this survey, viz the Fourth Industrial Revolution, suggests that technology alone will not drive growth, but will need to be situated alongside organisational change to augment technological gains. WPU will, therefore, need to adjust over time to meet the emerging needs of the labour market and deliver learning that crosses disciplines; focus on what employers need; optimise the use of technology and motivate and inspire young people, particularly females, to consider STEM careers. This survey unequivocally confirms that the greatest market enabler in Papua New Guinea will be technology evolution.

2.10 Academic development, seen in these terms, should be informed by a focus on skills of strategic importance to the nation. WPU must collaborate with industry and business, both in country and across the PICs, to understand which digital skills are of particular strategic importance to the region and to identify emerging trends. Program planning must take into account skills shortages in areas of strategic importance, including cyber security, big data, the Internet of Things, apps, mobile and e-commerce.

2.11 Closely allied to the current and future digital needs of business and industry are those of the nation's entrepreneurs. It is worth noting that entrepreneurship, either of necessity or opportunity, is one of the principal sources of employment in Papua New Guinea but that, in the main, these enterprises are frequently to be found in the informal economy, beyond the enabling environment of labour policies. The challenge for WPU in addressing the multiplicity of informal enterprises and their potential for graduate employment is how to open access to skills training, microfinance, e-commerce, business

advisory services, market information, productive resources, social protection and trade opportunities, all of which are now reliant on the effective use of technology.

2.12 WPU will, again over time, need to implement programs to update, on a regular basis, the digital skills of its staff. Academic staff must be supported to deliver the innovative forms of curriculum delivery, including online and workplace learning, and to develop their teaching and learning styles in keeping with developing technology. This includes retraining lecturing staff through an effective programme of continuous professional development (CPD) and ensuring that newly appointed staff are equipped with the right skills to teach the new curriculum and able to access CPD programmes to acquire and update their digital skills.

2.13 Again, the rich and extensive evidence base relating to agricultural output and its contribution to GDP in Papua New Guinea, *ceteris paribus*, suggests that further investment in this sector will reduce underemployment rather than create new jobs. In the discussion around degree programs at WPU, job creation in agriculture is likely to occur through growth in adjacent industries such as agri-business. On the basis of the most recent policy direction in official circles the Department for Agriculture and Livestock (DAL) is working with the UN's Food and Agriculture Organisation (FAO) to develop e-agriculture. Given WPU's proposed investment in IT, its future use in agriculture represents a strong area of interest of teaching and research, notwithstanding the enormous potential there exists for WIL, since almost 85% of the population are regularly involved in some form of agriculture.

2.14 Whilst evidently the extractive industries continue to attract the majority of Foreign Direct Investment (FDI), it is also clear that together with forestry and fishing, agriculture has benefited from the considerable sums that have been poured into the palm oil, sugar, copra and livestock industries. The contingent issues for WPU must be to consider how best to design its programs to assist in the development of advanced technologies, research and development and managerial expertise. In so doing, the impact of existing technical and institutional constraints to the development of human and physical capital can be lessened in favour of economic growth and the reduction of poverty.

2.15 Romer's (2017) celebrated variant of endogenous growth theory that runs parallel to technological change provides a lens through which to view the developments described in the preceding paragraphs. Dependent upon on population expansion and capital accumulation, Romer's theory robustly allies the increase of new ideas to the volume of people employed in the knowledge sector and thereby to economic growth. By extrapolation, WPU's commitment to work integrated learning, designed and delivered in collaboration with employers, will swell the numbers of those employed in the knowledge sector whose new ideas will increase local capabilities, enhance productivity and reduce reliance on expatriate leadership and management in technology and advanced skills.



2.16 Several hospitals in Papua New Guinea, including those in Tabubil, Kiunga, Kundiawa, and Port Moresby have, for many years, been involved in eHealth initiatives and telemedicine through links with the Swinfen Charitable Trust. WPU will, in time, forge partnerships with local hospitals and become a provider of medical education; however, with an eye on the graduate labour market, as the University designs and develops its prototype degree programs focused on digital technologies, support for telemedicine at the national level will be vital to aspects of their delivery. These include the transmission of x-rays, MRI scans and medical photography together with the design of databases and secure messaging platforms. The pros and cons of eHealth in transitioning and developing countries have been exhaustively debated over recent years but clear benefits are emerging, not least the capacity to use the expertise of in-country medical practitioners, as well as of those overseas, in the diagnosis and treatment of patients in remote rural areas.

2.17 A case for expanding the reach of sustainable tourism in the formal and informal labour markets was made convincingly by key informants who linked it to the need for a highly-trained and educated labour force. Both the tourism industry and GoPNG are hampered by a lack of reliable labour market data to inform policy. Milne et al (2013) however in their Pacific regional tourism capacity building programme (PRTCBP) cite the tourism training needs of PNG as language skills, business management, customer-service training, marketing, basic communication skills, tour guiding, behavioural skills, inter-cultural communication skills, conference management and niche market development. These include, *inter alia*, people skills, an understanding of consumer behaviour and administrative skills such as finance, human resources, marketing and property management. WPU is well placed to provide the rapidly expanding industry with a steady supply of graduates who possess not only skill sets in these crucially important areas but also leadership potential identified and developed through their intercalated WIL.

## References

- Ananiadou, K. and Claro, M. 2009. *21st Century Skills and Competences for New Millennium Learners in OECD Countries*. OECD Education Working Papers, No. 41. Paris, OECD Publishing.
- Asian Development Bank. (2014). *Pacific Economic Monitor: Mid-Year Review*. ADB.
- Brewer, L. (2013). *Enhancing Youth Employability: What? Why and How? Guide to core work skills*. Geneva: International Labour Office.
- Brundenius, C., Lundvall, B., & Sutz, J. (2009). The Role of Universities in Innovation Systems in Developing Countries: Developmental University Systems – Empirical, Analytical and Normative Perspectives. *Handbook of Innovation Systems and Developing Countries*. <http://dx.doi.org/10.4337/9781849803427.00019>
- Care, E and Luo, R. (2016). *Assessment of Transversal Competencies: Policy and Practice in the Asia-Pacific Region*. Bangkok: UNESCO
- Conley, D.T. (2007). *Toward a More Comprehensive Conception of College Readiness*. Eugene: Educational Policy Improvement Center.
- Cornish, M., (2016) Papua New Guinea economics graduate exit survey. *Development Policy Centre Discussion Paper #53*. Canberra: ANU
- Cresswell, J. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks: Sage.
- Curtain, R., Dornan, M., Doyle, J., & Howes, S. (2016). *Pacific Possible Labour Mobility: the ten-billion-dollar prize*. Washington: World Bank. Retrieved from <http://worldbank.org/PacificPossible>
- David, D., & Kaita, P. (2015). *Needs Theory and Employee Performance*. Presentation, University of Papua New Guinea.
- Deloitte, & UNDP. (2017). *Fulfilling the land of opportunity: How to grow employment in Papua New Guinea*. Port Moresby: Deloitte, UNDP.
- Department of Higher Education, Research, Science and Technology (DHERST). (2015). *National Higher and Technical Education Plan 2015 – 2024*. Port Moresby: DHERST.
- Department of Higher Education, Research, Science and Technology (DHERST). (2017). *Papua New Guinea National Qualifications Framework*. Port Moresby: DHERST.
- Employability Skills Framework*. (2017). *Cte.ed.gov*. Retrieved 6 May 2017, from <http://cte.ed.gov/employabilityskills/>

Filer, C., Andrew, M., Carr, P., Imbun, B., Sagir, B., & Benjamin, R. et al. (2012). *The Social and Economic Impact of the Resource Sector Job Stream in Papua New Guinea*. Canberra: ANU.

Fox, R., Howes, S., Nema, N., & Schröder, M. (2017). *2017 PNG Economic Survey: Unpublished Manuscript*.

Garnaut, R. & Namaliu, R. (2010) PNG Universities Review: report to Prime Ministers Somare and Rudd.  
Available at: <http://www.dfat.gov.au/about-us/publications/Documents/png-universities-review.pdf>,

Government of Papua New Guinea, (2010). *Development Strategic Plan 2010 - 2030*. Department for National Planning and Monitoring: Port Moresby.

Government of Papua New Guinea, (2015). *Medium Term Development Plan 2 2016-2017*. Department for National Planning and Monitoring: Port Moresby.

Government of Papua New Guinea, (2016). *SME Policy and Master Plan Summary 2016 – 2030*. Department for Trade, Commerce and Industry: Port Moresby

Hughes, D. & Miller, S. (2017). *The Quant Crunch: How the Demand for Data Science Skills is Disrupting the Job Market*. Burning Glass Technologies: Boston.

Jones, L., & McGavin, P. (2015). *Grappling afresh with labour resource challenges in Papua New Guinea: a framework for moving forward*. Port Moresby: Institute of National Affairs.

Lippman, L., Ryberg, R., Carney, R., & Moore, K. (2015). *Workforce Connections: Key "Soft Skills" that foster youth workforce success: toward a consensus across fields*. Bethesda: Child Trends.

Milne, S., Taumoepeau, S., Singh, E., Zhang, K., Huber, D., & Cooper, D. (2013). *Pacific regional tourism capacity building programme (PRTCBP): Pacific regional tourism and hospitality human resources development plan* (Ref. TA/08). New Zealand: New Zealand Tourism Research Institute.

Morgan, D., (1996). "Focus Groups." *Annual Review of Sociology*, 22(1), 129-152.

Namun, K., Irumai, A., Chakumai, K., Papapu, S., Sion, P., & Semos, I. (2016). Where are they now? A tracer study of former Health Management students of Divine Word University. *Contemporary PNG Studies: DWU Research Journal*, Vol. 25, 78-93.

OECD. (2014a). *The Teaching and Learning International Survey (TALIS) 2013*. Paris: OECD.

- OECD. (2014b). *TALIS 2013 Results: An International Perspective on Teaching and Learning*. Paris: OECD. <http://dx.doi.org/10.1787/9789264196261-en>
- Peek, L., & Fothergill, A. (2009). "Using Focus Groups: Lessons from Studying Daycare Centers, 9/11, and Hurricane Katrina." *Qualitative Research*, 9(1), 31-59.
- PNG Data4Development. (2017). *#PNGDATA4DEVELOPMENT*. [online] Available at: <http://pngdata4development.org.pg/>
- Pritchett, L., Woolcock, M., & Andrews, M. (2012). *Looking Like a State: Techniques of Persistent Failure in State Capability for Implementation*. Helsinki: UNU-WIDER.
- PwC. (2012). *Closing the talent gap in the emerging world*. PwC. Retrieved from <http://www.oxfordeconomics.com/publication/open/250697>
- Ribeiro, L., Severo, M., & Ferreira, M. (2016). Performance of a core of transversal skills: self-perceptions of undergraduate medical students. *BMC Medical Education*, 16(1). <http://dx.doi.org/10.1186/s12909-016-0527-2>
- Romer, D. (2017). *Advanced macroeconomics*. Dubuque: McGraw-Hill Education.
- Schwab, K. (2016). *The Fourth Industrial Revolution and what it means to respond*. *Foreign Affairs*. Retrieved 20 June 2016, from <http://ForeignAffairs.com>
- Swanton, T., & Ong, A. (2013). *APTC Graduates Down the Track. Consultancy Report*. Adelaide: National Centre for Vocational Education Research.
- Trilling, B. and Fadel, C. 2009. *21st Century Skills: Learning for Life in Our Times*. San Francisco, Calif., Jossey-Bass/ John Wiley & Sons
- Tebbutt Research, (2014). Report for SME Baseline Survey for the Small-Medium Enterprise Access to Finance Project. Unpublished Report prepared for the Department of Commerce, Trade & Industry, Government of Papua New Guinea. <http://www.pngsmersf.com/images/reports/SME%20Baseline%20Study%20Final%20Report.pdf> (last accessed June 6, 2016).
- UNESCO. (2015a). *2013 Asia-Pacific Education Research Institutes Network (ERI-Net) Regional Study on Integrating Transversal Competencies in Education Policy & Practice: Regional Synthesis Report*. Bangkok: UNESCO.
- UNESCO. (2015b). *Draft Preliminary Report Concerning the Preparation of a Global Convention on the Recognition of Higher Education Qualifications*. Paris: UNESCO.
- Voigt-Graf, Carmen. (2016). Why do so few pacific islanders take advantage of opportunities in Papua New Guinea's labour market? Papua New Guinea National Research Institute (PNG NRI) Issues Paper 22.

Wagner, T. (2010). *Overcoming the Global Achievement Gap* (online). Cambridge, Mass., Harvard University.

World Bank. (2017). *Small and Medium Enterprises (SMEs) Finance*. Retrieved 23 May 2017, from <http://www.worldbank.org/en/topic/financialsector/brief/smes-finance>