An exploratory study of factors influencing

the attraction and retention of skilled employees in

the digital sector in Hawke's Bay

A thesis

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Statement of authenticity

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Abstract

Introduction: This study examines why skilled digital sector labour moves to, returns to live in or leaves the regional community in Hawke's Bay, New Zealand. In the wider context, the study discusses the potential impact of these factors on the local labour pool.

Literature: The study is grounded in migration theory, with a particular focus on push and pull factors impacting the migration decision and the role of amenity (cultural differentiation and environmental quality) (Moss, 1994).

Methods: A comparative case analysis was undertaken comprising two public and two private regional organisations. A combination of face-to-face interviews with a senior executive (n=4), an online survey of skilled digital sector employees (n=51), and a survey of EIT Bachelor of Computing Systems (BCS) graduates (n=36) was undertaken. Secondary data was also used, including document analysis and longitudinal BCS graduate data (n=656).

Findings: The skilled labour force in the Hawke's Bay digital sector appears to be primarily male, middle-aged, and European, with a significant migrant component. The employees in both the public and private sectors provided similar responses as to why they moved to or returned to the Hawke's Bay. These were social factors (being near family and friends) and amenity factors (quality of life, climate, and being away from a major metropolitan area). Better salary and/or job opportunities are the main reason employees would leave the region. There is some evidence younger skilled employees are more likely to leave the region.

Discussion: Skilled digital sector labour moves to Hawke's Bay for lifestyle and social reasons and leaves for greater career opportunities and economic reasons. Interestingly, most of the employees surveyed stated they intend to stay living in Hawke's Bay for the next 10 years or more. There appears to be a lack of workforce diversity with both Māori and women being significantly underrepresented in the digital sector workforce in Hawke's Bay. A key area of future research could be to replicate the study for other regional locations in New Zealand and other industry sectors.

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Chapter One: Introduction

1.1 Introduction

This study examines skill retention and skill attraction in the digital sector in the regional community of Hawke's Bay, New Zealand. The study explores the demographic patterns of skill development, attraction and retention in Hawke's Bay and the factors that motivate skilled people working in the digital sector to live in the region.

1.2. The Digital Sector

Digital industries play an increasingly important role in regional economies, both directly driving growth and indirectly supporting growth in a broad range of industry sectors across the economy. The term "digital sector" is used interchangeably with "information technology sector". Within this context, the digital sector in Hawke's Bay appears to be characterised by a growing number of smaller businesses that appear to be principally (but not exclusively) support services, rather than being focused on digital innovation and entrepreneurship (Sibley & Narula, 2021).

Digital sector skills are in increasingly high demand globally (MBIE, 2017a). Because of this, regional economies can struggle to attract and retain highly skilled staff (McKenzie, 2011). Hawke's Bay must, therefore, be competitive to attract and retain skilled digital workers. The study focuses on three aspects relating to skilled labour and the demographics of that labour force. The first aspect is to identify the factors that motivate skilled people to stay in a regional community when the opportunity exists to move to a location with potentially better career prospects. The second aspect is to identify motivators for skilled people who leave a regional community to return, and the final aspect is what motivates skilled people to move to a regional community, in particular from a metropolitan location. The potential impact of these factors on the development of the local digital skilled labour pool is also discussed.

1.3. The Hawke's Bay Region

1.3.1. Terminology

New Zealand uses the term 'province' to denote geographic sub-regions within the country. Much like the concept of 'province' and 'state' in, for example, Canada, Australia or the United States

of America, provinces in New Zealand constitute a component of the taxonomy of governance structures within the country. For clarity, this study uses the broader and more generally recognized construct of 'region' to denote the geographic boundary and socio-economic activity within the boundary.

1.3.2. Geography

The Hawke's Bay region is located on the East Coast of the North Island of New Zealand (Figure 1). The region has a Mediterranean climate and alluvial soils. Hawke's Bay is one of New Zealand's principal regions for horticulture production and pastoral farming. The principal access to the region is by road, rail for freight only, a port and a regional airport. To reach Wellington, the nearest major metropolitan area, will take approximately four hours by road or one hour by air. Access to Auckland is also a one hour flight. These distances make access to a commuter labour force from outside the region impracticable, and equally impracticable for labour from within the region to commute to other regions. Hastings and Napier, two moderate-sized urban areas, service the local economy. Approximately 74% (125,800) of the Hawke's Bay population lives in the Hastings-Napier conurbation (Statistics New Zealand, 2020b)

Figure 1: New Zealand and the Hawke's Bay Region[1]
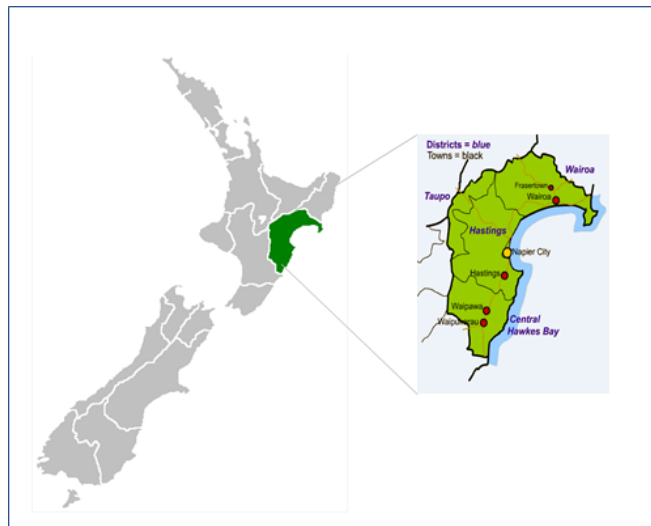
1.3.3. Population

The Hawke's Bay population is approximately 170,000 (Statistics New Zealand, 2018) with an average five-year growth rate of approximately 1.8% pa (Statistics New Zealand, 2018). Historically the population growth rate has been lower than the growth rate for New Zealand overall.

The age distribution of the Hawke's Bay population differs significantly from that of the national population (Figure 2). School leavers tend to leave Hawke's Bay, partly because there is no university in Hawke's Bay, and has a higher percentage of older people. It is expected that the rate of growth of people aged 65+ will exceed the overall growth rate of the Hawke's Bay population (Statistics New Zealand, 2018).

Figure 2: Hawke's Bay population by age relative to the national population (2018/19)[3]
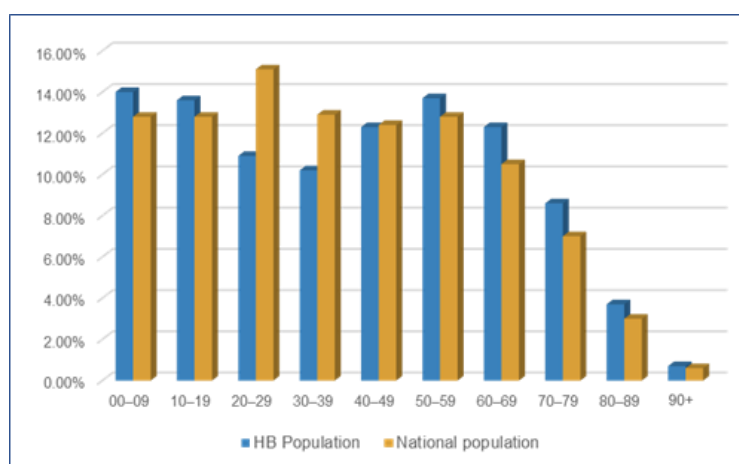
Hawke's Bay is home to a larger Māori and Pacific population relative to most other regions in New Zealand. People identifying as Māori or Pacific comprise approximately 32.5% of the regional population (Statistics New Zealand, 2018). The Māori and Pacific population is both younger and growing more quickly than the Hawke's Bay population generally. The median age of the Māori population is 25.4 years, compared to the median for the Hawke's Bay population of 40.6 years (Statistics New Zealand, 2018). Education, employment and health indicators for Māori and Pacific people in Hawke's Bay are slightly lower than those for other groups in the regional population (Statistics New Zealand, 2018). For example, the percentage of total population of Maori enrolled in full time study is lesser in Hawke's Bay as compared to the national average of. While 30.3% of the Maori people in Hawke's Bay are not in the labour force, this number goes down to 29.4% for the rest of New Zealand (Statistics New Zealand, 2018).

[3]*Note.* Source *Population of Hawke's Bay DHB*, 2021, March 23
(https://www.health.govt.nz/new-zealand-health-system/my-dhb/hawkes-bay-dhb/population-hawkes-bay-dhbl).

Hawke's Bay has a lower percentage of overseas-born residents (15%) than New Zealand generally (25%) (MBIE, 2017b). India has been the main source country of skilled international migrants in recent years, followed by the Philippines and the United Kingdom. Together, these countries represent 59% of all skilled migrants to Hawke's Bay in 2015/16. The principal occupations of migrants were in the health and hospitality sectors (MBIE, 2017b).

1.3.4. Economy and employment

In 2020, the Hawkes' Bay region contributed 3.0% of New Zealand GDP (MBIE, 2020b). From 2014 to 2019, GDP growth in the Hawke's Bay region (31.3%) was slightly higher than that of New Zealand overall (30.4%) (Statistics New Zealand, 2020a). However, over the longer term (2010 – 2020), annual regional growth has been lower than growth for New Zealand generally (5% for the region compared to 6% pa overall) (Statistics New Zealand, 2020a).

The largest industries in Hawke's Bay are primary sector production (horticulture and fruit growing, viticulture, and pastoral farming), processing and manufacturing. These industries comprised approximately 24% of the regions GDP in 2018 (Statistics New Zealand, 2020a).

Nearly all businesses in Hawke's Bay (90%) are sole proprietors or SMEs (<=20 employees). This percentage is similar to that of New Zealand generally (MBIE, 2020b).

Hawke's Bay productivity appears to be lower than for New Zealand generally. In 2019, GDP per capita in the Hawke's Bay region was $49,532. This was approximately 18% lower than GDP per capita for New Zealand generally ($60,939). In part, the lower level of labour force productivity may be due to the region's reliance on lower-skilled and semi-skilled labour. Overall, knowledge-intensive employment provided approximately 25% of total jobs in Hawke's Bay in 2019. This is lower than the national average of 32.1% (MBIE, 2020b).

In addition, in 2019 highly-skilled roles in the Hawke's Bay comprised approximately 35.2% of roles in the region. The Australian and New Zealand Standard Classification of Occupations (ANZSCO) is used to help define skill levels, ranging from one (high) to five (low) (Statistics New Zealand, 2013). The skill level is based on the complexity and range of tasks that are required to be performed in a role and is measured using a range of criteria, like formal training and education, previous experience and on the job training. The higher the complexity and range of tasks, the higher the skills level of an occupation (Statistics New Zealand, 2013).

The percentage of higher skilled roles in the Hawke's Bay is lower than the national average of 37.8%. Conversely, employment growth in knowledge-intensive industries in the region was approximately 2.9%. This is higher than the overall growth rate for New Zealand of 2.5% in 2019 (MBIE, 2020b).

1.3.5. Summary

The Hawke's Bay region is known for its primary sector production and the digital sector plays a support role. The skill in digital industries has been changing globally and the effects of this can be seen in the Hawke's Bay region as well.

The population is concentrated in Hastings and Napier, the two main cities in the region. The Hawke's Bay population is increasingly biased towards mature age people. Māori or Pacific people also form a significant part of Hawke's Bay population, higher than most other regions in New Zealand.

The education, employment and health indicators for Māori or Pacific people appear to be lower than for other ethnic groups. Primary sector production (horticulture and fruit growing, viticulture, and pastoral farming), processing and manufacturing, are the main industries in Hawke's Bay. Although productivity levels in Hawke's Bay are lower than the national average, the employment growth in knowledge-intensive industries is higher than the national average.

1.4 Overview of the Study

1.4.1. Purpose of the study

The objective of this study is to explore skill in digital industries in a regional context. It aims to answer the question of why skilled people may choose to live and work in a regional community, rather than migrating to, or continuing to live in, a metropolitan community that can potentially offer greater returns to labour and better career opportunities.

Within this context the study seeks to explore the extent to which amenity (location-based lifestyle factors) may provide a basis for the retention and attraction of skilled labour in a regional community and to discuss the potential impact of amenity migration on the local digital sector skilled labour pool.

1.4.2. Objectives of the study

The study has the following objectives:

1. To develop an understanding of the characteristics of the digital sector labour force in Hawke's Bay.
2. To explore how Hawke's Bay can attract and retain skilled digital sector workers.

3. To identify factors that may motivate skilled digital sector workers to live and work in the Hawke's Bay.

1.4.2. Research questions

The study seeks to answer the following research questions:

1. What are the characteristics of the skilled digital sector workforce in Hawke's Bay?
2. To what extent do regional factors (amenity) motivate skilled digital sector workers to stay living in Hawke's Bay?
3. To what extent do regional factors (amenity) motivate skilled digital sector workers to move to, or return to Hawke's Bay?
4. To what extent do regional factors (amenity) motivate skilled digital sector workers to leave Hawke's Bay?

1.4.3. Significance of the study

Hawke's Bay as a region has lower levels of skilled labour than New Zealand generally, tends to lose younger labour to other locations in New Zealand and offshore, and has a reliance on primary industry employing lower and semi-skilled labour. Future regional economic growth is likely to be, at least in part, a function of increasing labour productivity that is likely to require more skilled digital sector labour. This study examines several factors that may contribute to retaining and growing a skilled regional labour pool in the increasingly important digital sector industries.

1.4.4. Limitations of the study

The study has the following limitations:

- This is an exploratory study using case methodology (Becker et al., 2013). While the findings are likely indicative of the regional skilled digital sector labour force, there is no claim to generalisability to the regional digital sector skilled labour force in Hawke's Bay.
- The study is limited to Hawke's Bay and the findings are not intended to be generalisable to all regional communities in New Zealand or globally. The findings may however be relevant for other regions facing skills issues.

1.4.5. Structure of the thesis

This thesis has five chapters:

- Chapter One is an introduction to the study and provides a background and an overview of Hawke's Bay and a description of the purpose and significance of the study.
- Chapter Two reviews the literature on skill requirements in digital industries, skill retention, labour mobility and labour migration globally and with a New Zealand focus.
- Chapter Three discusses methods utilised, sample size, data collection and analysis, and the limitations and ethics of the study.
- Chapter Four presents the findings of each of the case organisations, the employee survey, and a summary of Bachelor of Computing Systems (BCS) graduate survey and Bachelor of Computing Systems (BCS) graduate profile data. This is followed by an analysis of responses to identify key themes and patterns.
- Chapter Five contains the discussions and conclusions from the study. The main themes are discussed and evaluated, with links to literature and the implications. Avenues for future research are suggested along with a summary of the key findings of the research study.

Chapter Two: Literature Review

2.1 Introduction

2.1.1 Scope and purpose of the literature review

The objective of the literature review is to explore a broad range of studies related to skill in the digital sector including relevant New Zealand studies to compare and contrast with the international context.

The literature review examines skill attraction and retention within the digital industry and uses health sciences-based studies to understand perceptions and motivations of people choosing to move to, stay in, or consider leaving rural and remote regions. Most of the literature on skill in rural and remote regions is based on health science and this is why these studies are included in the research.

The literature review also includes a discussion of labour mobility and migration, both international and national. Additionally, the review includes practitioner reports by inter-governmental and private organizations on the information technology sector global workforce and were included using published research.

2.1.2. Focus of the literature review

The literature review focuses on the following three topics:

1. Examining current skill requirements in digital industries globally.
2. Investigating skills development and labour mobility to meet the skill needs.
3. Examining differences that exist in respect to skill requirements between private sector and public sector organisations.

2.1.3. Structure of the literature review

The first section of the literature review examines skill requirement in digital industries. Beginning with defining digital industries, and understanding their origins, development and characteristics, the focus shifts to characteristics of mature and entrepreneurial firms. This is followed by the key trends in the digital sector, including workforce and possible future trends in the sector.

The second section focusses on skill movement and patterns of migration to New Zealand in the period from the second world war to present day. The trends in skill retention and labour mobility are examined next. Lastly, migration as a way to help fill the skill shortage gap is investigated, including a discussion of the key theories of migration. This section also focusses on skill retention and labour mobility in digital industries and these key concepts are investigated in connection with each other.

2.2 Method

2.2.1. Literature review method

Literature review method used for this study

The method used for this literature review is the Narrative Literature Review (NLR). This approach provides a detailed overview of the topic, covering a wide range of topics, with a focus on areas key to the research aims (Green et al., 2006).

The focus is on providing an overview of the literature. Author findings summarizing the main content are reported in condensed format. Central to the narrative review is synthesizing the information gathered from the different articles in a comprehensive format (Green et al., 2006).

Unlike a systematic literature review, the approach used in a narrative review is flexible. Narrative reviews are typically used to examine a topic and understand the gaps in knowledge. The review can also help shape the rationale for future research and guide new interventions that may be adopted to address the problems being faced. This type of a review presents a broad perspective of a topic and provides an overview of the problem being focused upon (Green et al., 2006).

This research study examined a wide variety of areas in respect to skill in the digital industries. A narrative review is considered appropriate as it allows data to be searched ranging from push and pull factors impacting migration to an overview of the trends of the digital sector (Ferrari, 2015).

Alternative literature review methods

The following literature review methods were not considered appropriate for this study:

Systematic Literature Review (SLR)

A systematic literature review adopts a well-defined, rigorous and detailed method as part of the search process, focussing on the comparison of randomised control trials. The review is usually structured with a focus on a question or topic. This type of a literature review combines search results and utilises statistics to help analyse the data. SLRs gather evidence-based data, usually

needed as part of clinical information (Green et al., 2006) and are an expanded form of meta-analysis. Given the varied nature of searches and the topics being covered, the structured SLR process and well-defined criteria is not suitable for this study.

<u>Integrative review</u>

An integrative review looks more broadly at a particular phenomenon of interest. This allows for diverse research and helps in supporting a wider range of inquiry. The approach also follows a systematic process used for SLR, seeking to identify, analyse and synthesize all the selected studies. This type of literature review was again not utilised due to its narrow scope. An integrative review does not provide an overview of a topic, rather it looks at a critical analysis in methodological manner and follows a detailed list of steps in a process (Green et al., 2006).

2.2.2. Scope of the literature review

The literature review in this study is limited to peer reviewed journal articles, conference papers, practitioner reports and government and agency reports.

Search terms

For this study, a combination of the following search terms has been used:

"skill", "attraction", "retention", "information technology professionals", "brain drain", "brain gain", "push" and "pull"

Several terms for specific geography-based search results were also applied:

"New Zealand", "Hawke's Bay", "Silicon Valley" and "Australia"

Databases used for the review

The primary databases used for the literature search were ProQuest, Google Scholar and Scopus with no specific date range defined. The focus was on peer-reviewed scholarly journals.

- ProQuest

ProQuest provides access to newspapers, journal articles, books, magazines. This database was used due to ease of access and availability of a wide variety of literature that focussed upon the topic.

- Google Scholar

A general search can be conducted in Google Scholar. The database also contains book references, chapters of books as well as journal articles and conference papers. This database was used, however, only to access material that was not readily available on ProQuest.

- Scopus

Scopus consists of abstracts and citations for various journal articles. However, it does not provide full articles and hence was not utilised.

EIT Library was also used for research. It offers a selection of books focussing on the various topics covered in the literature review.

2.2.3. Limiters and filters

Following an initial analysis, the literature review was limited to publications between 2010 and the 2021. However, earlier literature was used to review the development of migration theory.

2.2.4. Summary of the literature used for the review

The Narrative Literature Review approach was used for this study and a wide variety of search terms and filters were adopted. A combination of journal articles, books, industry and government reports were accessed through multiple online databases and the EIT Library. Table 1 provides a summary the literature by category.

Table 1: Literature review - type of sources

Digital Sector Development			Theories of Migration			Regional Development		
34			43			26		
Academic	Practitioner	Background Information	Academic	Practitioner	Background Information	Academic	Practitioner	Background Information
11	13	10	38	5	0	22	3	1

2.3. Digital sector characteristics and skill requirements

2.3.1 Introduction

This section examines digital industries globally and in New Zealand, the role of clusters and skill requirements. The discussion commences with definitions of terms used in the digital sector. This is followed by examining the tendency of digital firms to cluster and the key characteristics of those clusters. The main digital sector skill trends are explored with linkages to New Zealand. An overview of the New Zealand digital sector is discussed including various initiatives and programs adopted by the New Zealand government to help the digital industry develop.

2.3.2. Defining the digital sector

There is no universally agreed definition of either 'information and communication technology' (ICT) or 'the digital sector'. A range of constructs has been developed to define the activities and processes included in this sector.

Information and communication technology (ICT) is typically regarded as an umbrella term that includes a variety of modes of communications and information sharing and dissemination, such as computer networks, phone-fixed and cellular. The ability of ICTs to provide access to information and communication is key (Taher, 2015).

The definition developed by the UNESCO Institute of Statistics focuses on ICT from the point of view of information sharing. This definition conceptualizes ICT as a diverse set of technology tools and resources that are utilized to transmit, store, create as well as exchange information. These tools may include the internet (emails, websites and blogs), computers, and telephony (mobile fixed, satellite, audio or video conferencing) (UNESCO Institute of Statistics, 2021).

The OECD has conceptualized ICT and the digital sector in the context of various types of communications networks and the technologies used in those networks. The ICT sector is seen as a combination of services and manufacturing industries whose products mainly enable or fulfil the functions of information processing and communicating using electronic means that include display and transmission. The sector contributes to technological processes and productivity output growth (OECD, 2017b).

The Ministry of Business, Innovation and Employment (MBIE) ICT sector definition is similar to the OCED definition and includes the elements of telecommunications goods and services, but excludes items such as internet publishing and broadcasting (MBIE, 2019a). The MBIE definition includes:

a. Goods and services that enable the function of information communication and process through electronic means which includes display and transmission.
b. Goods that utilize the electronic process to help detect, measure and record physical process phenomena or try to control a physical process (MBIE, 2019a).

MBIE states, "ICT (information and communication technologies) include telecommunications, broadcast media and information technology" (MBIE, 2019a). It is, therefore, a construct that is broader than information technology and encompasses computer-based networks and software, that allows information to be shared. The ICT sector can therefore be conceptualized as a group

of firms whose primary activity is the production of computers or communication hardware, software or information communication services.

Definitions of ICT or the digital sector suggest the terms can be used interchangeably. For this study, the definition used is the one provided by MBIE as it uses a broader scope.

2.3.3. The tendency of digital firms to cluster

A defining feature of the information technology sector is the tendency of firms to cluster, with clusters attracting skill and providing spill-over benefits such as skills transfer, availability of knowledge, and access to funding.

Defining Clusters

The origins of a cluster can be traced back to the concept of "Industrial Districts", which refers to an area where a concentration of firms has settled down (Belussi & Caldari, 2009). A cluster is defined as a group of firms that are typically related by location, inter-firm, infrastructure and economic factors (Cortright, 2006). Organisations located close to each other gain an advantage in the production of goods and services, with benefits arising from mutual connections and proximity (Porter & Cluster, 1988).

The development of digital sector clusters and 'tech hubs'

Silicon Valley

The earliest digital sector cluster to emerge was in Silicon Valley (formerly known as Santa Clara Valley)[2]. Silicon Valley has developed to become the world's largest technology hub. The key characteristics of Silicon Valley include relatively easy entry, university or polytechnic connections and the presence of research institutes, reward-based risk-taking in terms of financial rewards, the presence of venture capital firms, a global search and talent attraction capability and, within this context, a young workforce (Fung et al., 2016). In 2020, there were 92 publicly traded companies including Google, HP, Oracle, LinkedIn and Adobe with a combined market capitalisation of over US$2 trillion (Williamson, 2021).

Several key elements of what can be considered to be the Silicon Valley model include:

- Ease of market entry: There are low barriers to entry for early start-ups (Klarin et al., 2021).

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[2] The name Silicon Valley emerges from a 1971 *Electronics Magazine* article and relates to the large quantities of silicon that were being utilised in order to make semiconductor chips Hardy, J. (2020, October 09). *History of Silicon Valley*. https://historycooperative.org/history-of-silicon-valley/.

- Tertiary institute connections and the presence of research institutes: The presence of university connections and the possibility of being able to work with research institutes to help develop the business (Fung et al., 2016).
- Risk culture: A culture that accepts business failure and rewards risk-taking.
- Venture capital firms and angel investors: The presence of multiple financing options including angel investors, venture capitalists and specialist venture law firms.
- Global search and talent attraction capability and, within this context, a younger and diverse workforce (Cukier & Kon, 2018).

Other Digital Sector Clusters and 'Tech Hubs'

While Silicon Valley continues to be the standard for digital clusters globally (Trauth, 2012), other tech clusters have subsequently emerged in other locations in the United States and other countries. As an example, the Tel Aviv 'tech hub' has grown alongside the development of an ecosystem of technology start-up companies. There are now more than 84 international research and development centres in Tel Aviv. Google, Apple, Facebook, Microsoft and Amazon (amongst others) have established satellite offices in Tel-Aviv (Robinson, 2019).

India has also emerged as a key global start-up ecosystem, with a growing number of start-ups and accelerators, angel investors, and venture capitalists in the ecosystem. The increased connectivity, increased consumer purchasing power and supply of highly skilled IT professionals are key reasons behind this growth (Ramkumar, 2016).

There appears to be a lack of tech hubs in New Zealand, with major technological companies located in the cities.

Key characteristics of clusters

Within the context of the digital sector definition used for this study, the discussion of cluster characteristics references Porter and Cluster (1988) and Cortright (2006).

Typical cluster characteristics include:

Industrial connections and networks

Networks play a key role in supporting cluster development and typically include (in addition to businesses) universities, research institutes that foster innovation and entrepreneurs, local governments and councils as well as national industry bodies and governments that support innovation and entrepreneurism (Fung et al., 2016).

Interfirm relationships and industrial organization

Industry clusters are typified by a network of complex relationships between firms which can include firms that both co-operate and compete (Cortright, 2006).

Firms in clusters often specialize in different steps in the production process and coordinate their activities with those of other firms, often selling their products or services within the cluster. Clusters, therefore, tend to have a high density of firms and workers within a region and extensive linkages (Cortright, 2006).

Geographic proximity

Many clusters are contained within a region (such as a metropolitan area). Clusters can however flow into adjacent areas (Cortright, 2006). Silicon Valley is an example of a cluster with close geographic proximity (Hardy, 2020).

Relationships among cluster participants

Conversely, cluster participants may exhibit no or limited interaction with other firms or actors. However, participants may benefit from the spill-over benefit of a pool of trained labour (Cortright, 2006). Within clusters, firms can exhibit both entrepreneurial or mature characteristics.

Characteristics of entrepreneurial digital firms

Entrepreneurial firms are characterised by a focus on innovation and the willingness to take significant business risks. These are often young firms and can include high technology international ventures as well as ventures more limited in scope (Veglio & Zucchella, 2015). There is often a high level of focus on research and development, with a high rate of technical change. The workforce tends to be entrepreneurs from engineering or science backgrounds and may hold technical degrees (although few entrepreneurs appear to have both commercial and technical experience (O'Connor et al., 2006)). The workforce also tends to be younger and ethnically diverse. Diversity can also be seen in skills and cooperation amongst the team members (Veglio & Zucchella, 2015).

Characteristics of mature digital firms

Mature firms are characterised by a high degree of standardisation, formalization, centralisation and stratification. Authority and responsibility are the two key aspects of relationships and employees tend to have specific jobs with relatively rigid boundaries (Green, 1992):

- Standardisation: This is the process of replacing the unpredictable with the predictable and using the knowledge of experts to help design operating procedures that are similar and followed throughout the organisation.
- Formalization: This is the process of creating a system where the flow of information and chain of hierarchy is clearly defined and adopted by the organisation (Green, 1992).
- Centralisation: This is the process of having concentrated control of power and decision making at the centre of the organisation, generally under a single authority.
- Stratification: This is the process of organising people and processes into distinct layers or groups (Green, 1992).

Importantly, within the context of the present study, smaller mature digital sector firms are more likely to dominate niche markets (Kauffman & Wang, 2008). The research and development investment made by these firms appears to be less risky than younger and entrepreneurial firms (Koutroumpis et al., 2020).

2.3.4. Digital sector skill trends

The emergence of the digital sector has created new roles (such as social media managers), new types of organizations (such as cloud computing providers) and new sectors of business (such as data science) (World Economic Forum, 2021). Digital disruption and technology are fundamentally changing how people work (Schwab, 2016).

The Emergence of Geek Culture

An interesting sidebar to the redevelopment of existing roles and the development of new roles is the emergence of 'geek culture'. The origins of geek culture can be traced back to words such as 'nerd' or 'geek' which became popular as early as the 1950s and denoted people who were perceived to be overly intellectual and socially awkward (Calkins, 2002).

The economic impact of the internet and the financial success of high-profile geeks has led to an increase in the popularity of digital skills. For the nerds or geeks amongst us, it is a way to develop their future careers. Geeks are characterised by their ability to turn digital skills into wealth (Tocci, 2009).

Digital Sector Workforce Trends

Several key trends impact the digital sector workforce. New technologies are expected to continue to impact the nature of work across a wide range of industries, including the digital sector (World Economic Forum, 2020).

Access to Skill

It is a truism that the future of work is changing and access to skilled workers is fundamental to a firm's success. Skill gaps in local labour markets globally have been experienced by many of the companies surveyed in the 2020 Future of Jobs Survey (World Economic Forum, 2020).

The European Commission estimates that there will be approximately 756,000 unfilled skilled jobs by the year 2020 in the ICT sector in the European region alone (Milano, 2019). By 2022[3], the World Economic Forum (WEF) has estimated that approximately 133 million new roles will be generated owing to a change in the division of labour between machines, humans and algorithms that help run those machines. This theme is seen in many countries. The World Economic Forum (2020) reported one-third of hiring managers in the United States are endeavouring to implement workforce development programmes to ensure their organisation can cope with anticipated disruptive change.

Issues of access to skills are leading to new approaches to resolve skill shortages. Increased focus is now being paid to a range of initiatives such as digital apprenticeships, partnering with external workforce development agencies, enhancing in-house training programmes in an effort to broaden the talent pool (Milano, 2019).

Staff retention and attraction in the digital industry is a challenge for which many organisations need to prepare. The World Economic Forum (2020) suggests this is likely to be an even greater issue in smaller, regional communities which may lack the lifestyle and financial incentives to both attract and retain talent.

Labour-Force Mobility

Labour-force mobility has increased globally, with an increased willingness to move for work and a range of new work modalities emerging, both in-office and remote (World Economic Forum, 2020). Migrants may directly contribute to labour mobility and in turn, employment and productivity. Labour force mobility adds to the supply of labour (UNECE, 2018).

The Covid-19 pandemic had a drastic impact on the global economy and labour force mobility, both locally and globally. The pandemic has brought about a significant shift in global migration patterns and thereby labour mobility as well with restricted labour movement across the globe, both domestically and internationally (Asel et al., 2021). However, the effect of this is likely to be short term.

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[3] The estimation was made before the COVID 19 pandemic.

2.3.5. The New Zealand digital sector

The digital sector has become increasingly important to New Zealand and was New Zealand's third-largest export earner in 2019, with revenue of $6.7 billion (Sorenson, 2020). The New Zealand has developed a digital strategy focused on New Zealand becoming a 'Digital Nation', referring to digital transformation from a national perspective. The term has been used to focus on the cultural, economic and social aspects of digital transformation as they relate to New Zealand (MBIE, 2019a). The aim is to create a nation that has a thriving digital sector, where the people, businesses and the government are all utilising technology to help improve productivity levels, drive innovation and overall enhance the quality of life of the people in New Zealand (MBIE, 2019a).

The success of the New Zealand technology sector is due to the adoption of a global approach rather than a local approach (Sorenson, 2020). Within the government's Industry Transformation Plan, the focus is on supporting local businesses to achieve international growth. From the start, the approach has been global with a focus on scaling up when possible. Scalable technology has been seen as a factor in the success and development of building networks and relationships. Working with local business partners to understand how different markets operate allows for developing a strong presence in the market and building relationships (Sorenson, 2020). In this way, New Zealand appears to be quite different to the US (Silicon Valley), Israel and India.

There has also been a focus on regional development in New Zealand. Through the then Provincial Growth Fund, the New Zealand Government invested in five new digital hubs located in Gisborne, Katikati, Te Takeretanga o Kura-hau-pō, Woodville and Murupara. The objective was to connect businesses and provide support, co-working space and guidance needed for skill development and business growth (Beehive.govt.nz, 2020).

The Regional Partnerships Programme (RPP) operated by the New Zealand Government is a three-stage programme, which helps fund the regional partnerships that will promote regional economic development strategies, capacity building and major regional initiatives (OECD, 2006). The objective was to lead sustainable economic development within a region. The programme, which started in 2012, was successful with a review of RRP in 2013 showing that it had performed well on most points. The Waikato Innovation Park is a good example of how a Major Regional Initiative (MRI) works in partnership between local government, iwi, crown research institutes, economic development agencies and business leaders to create regional growth and jobs (OECD, 2006).

The Clusters Development Fund was set up by New Zealand Trade and Enterprise (NZTE) to help facilitate the development of regional clusters which had strong growth potential (Toland &

Yoong, 2017). The presence of industry bodies and public institutions to support the development of the ICT sector had created many opportunities for firms to grow (MBIE, 2019b). The Growth and Innovation Framework and NZTE were established around the same time, again partnering with local government, iwi, crown research institutes, economic development agencies and business and has been largely responsible for the growth of organisations and the sector as a whole. The New Zealand Government, as part of its Digital Strategy, is working with industry to help address the challenges of digital skill shortages in New Zealand through the Digital Skills Forum (MBIE, 2019b).

With its origins dating back to 2002, the Growth and Innovation Framework was set up by the New Zealand Government with a focus on ICTs, the design sector and biotech (Toland & Yoong, 2017).

The Digital Skills Forum is a collaboration between New Zealand Government agencies and the private sector through industry groups like NZTech, NZRise and IT Professionals NZ. The objective has been to develop a skilled workforce to handle the future of work. New Zealand continues to suffer from a shortage of local digitally skilled people (MBIE, 2017a). While the number of students engaged in full-time study in information technology or computer science programmes is growing at 3% annually and reached 14,000 in 2018, the number of IT service roles continue to grow at 4%, with some specialist roles like software programming growing at an annual rate of 11% (MBIE, 2017a). There is demand for digital skills and there needs to be collaboration in terms of reskilling and upskilling current staff, investing in education, better alignment of courses to the future demand of skills and ensuring we learn from global examples like Canada and Australia to make informed decisions. With rapid digitalisation across all sectors, there need to be enough people with digital skills to meet the requirements of various industries. This report also highlights that both public and private organisations tend to underinvest in the development of their staff (MBIE, 2017a).

There were 114,450 employees in the digital sector in 2019. In 2019, 4,462 jobs were created in the digital sector in New Zealand. By 2025, around 149 million jobs are expected to be created globally (MBIE, 2021). There continues to be a skill shortage in the digital sector. This is related to the low uptake of computer science education by students at high school and university. This may be due to a low level of interest in STEM-based education, and low levels of participation of women, Māori, and Pacific peoples (MBIE, 2021).

The digital sector in New Zealand is likely to continue to grow. The government has focussed on developing a 'Digital Nation', to help people, businesses and the government to utilise technology to enhance ways of working and improve quality of life. Through programmes such as the Provincial Growth Fund and Regional Partnerships Programme, the government has tried to grow

the sector (OECD, 2006). However, there still appear to be issues around skill and availability of employees with the necessary skills.

In undertaking the literature review, there is only one study, the Hawke's Bay Growth study which focussed on the digital sector in the region. Additionally, data has been cited from Infometrics and the Hawke's Bay District Health Board as well.

2.3.6. Summary: digital sector characteristics and skill requirements

This section of the literature review has examined digital industries, the role of clusters and skill requirements.

The ICT sector can be conceptualized as a group of firms whose primary activity is the production of computers, or communication hardware, software or information communication services. These firms tend to cluster with common cluster characteristics including the presence of industrial connections and networks, interfirm relationships and industrial organization, close geographic proximity, and the existence of relationships among cluster participants.

Entrepreneurial digital firms can be characterised by a focus on innovation, proactivity and the willingness to take risks. Conversely, mature firms are characterised by a high degree of standardisation, formalization, centralisation and stratification.

New Zealand has developed a digital strategy to develop digital capability nationally. However, New Zealand continues to suffer from a shortage of digitally skilled labour.

2.4. Labour Mobility and Labour Migration

2.4.1. Introduction

This section discusses the impacts and trends of labour mobility and migration. Starting with the increasing labour mobility and talent scarcity, the focus shifts to the theories of migration.

2.4.2. Migration

Migration is an ongoing phenomenon in New Zealand. Approximately eighty-five per cent (85%) of the population of New Zealand can trace its descent to colonial or post-colonial migrants or are themselves migrants (Phillips, 2015). Most migrants to New Zealand trace their origins back to the United Kingdom.

There have been two major periods of colonial and post-colonial migration. The nineteenth century and the post-world war two era saw a major increase in immigration through assisted immigration schemes (Ministry for Culture and Heritage, 2014). Approximately 77,000 people migrated from Great Britain to New Zealand during these periods. The colloquial term used to refer to such migrants was 'Ten Pound Poms', as these migrants paid a fee of 10 pounds as a processing fee to migrate to Australia and New Zealand.

Why people migrate

Approximately 3.5% of the world's population are cross-border migrants (272 million people). The primary reason for leaving the home country is economic with people leaving for work. Other reasons for leaving are conflict, violence and more recently climate change. India currently leads as the country of origin for migrants globally, with the USA being the preferred destination (Edmond, 2020).

Approximately half of all migrants move from developing countries to developed counties (Woetzel et al., 2016). In OECD countries, inward migration is increasingly used to augment ageing populations and has become one of the main drivers of population growth (Spoonley, 2016). More than 65% of the world's migrants live in developed countries (Woetzel et al., 2016). During the period 2000 to 2014, migrants contributed between 40% to 80% of labour force growth in many developed countries (Woetzel et al., 2016). Within the digital industries, Indian students and professionals typically migrate to the UK, US and Australia, adding to diversity and helping fill the skill shortage gap (Suchandra, 2018).

Migrants tend to come from a range of countries, however, the destination tends to be concentrated in North America, Western Europe, Australia and New Zealand, as well as the developed East and Southeast Asia (Woetzel et al., 2016). These regions have attracted approximately 87% of the 160 million migrants who now reside in developed destinations.

As the most favoured destination for migrants, in 2015, the US accepted approximately, 19% of the world's total migrant population (47 million immigrants) (Woetzel et al., 2016). Migrants contributed roughly 9.4 per cent or $6.7 trillion to the global GDP in 2015. This has implications for the growth and development of the digital sector (Woetzel et al., 2016). Migration helps fill the niches in the fast-growing sectors of the economy. Migrants also contribute to labour-market flexibility, most notably in Europe. In Europe and US, new migrants often enter growing occupations such as health-care and STEM occupations (Science, Technology, Engineering and Mathematics) (OECD, 2014).

Between 2008 and 2017, migrants have accounted for about 50% of the increase in the workforce in the United States, and 70% in Europe (OECD, 2017a). There has been a major influx of students

to universities across Australia, the UK and the US (Suchandra, 2018). As an example, in 2018, 753,000 Indian students were studying abroad; a trend that has continued during the two decades from 1996 to 2015. The search for better rewards for their talent and effort has led to this migration (Saini, 2018). In 2014, there were almost 3.5 million international students enrolled in tertiary education in the G20 countries (OECD, 2017a).

Skilled migration

Initial patterns of migration favoured the mass movement of people. Skilled migration is typically used to fill job shortages. Migrants contribute to the overall economic development of the host country by adding to the skills of the domestic workers (OECD, 2017a). International student mobility has increased over the past decade or so. The host country is in a better position as the highly educated international students add value to their labour force (Bergerhoff et al., 2013).

Immigration has been a key contributor to New Zealand's workforce. The digital sector's ability to employ migrant workers is governed by immigration policy settings. The nature of migration has also changed from permanent migration to an increasing focus on temporary migration such as for temporary work or student visas. The focus appears to be on younger, skilled migrants with the key occupations of nurses, doctors and teachers (New Zealand Productivity Commission, 2021a). The proportion of jobs held by temporary migrants increased significantly in accommodation and food services, agriculture, forestry and fishing, administrative and support services, with information media and telecommunications jobs seeing a less than 10% increase in 2019 compared to 2012 (New Zealand Productivity Commission, 2021a). Nevertheless, IT occupations are on the current Long-Term Skills Shortage List (New Zealand Productivity Commission, 2021a).

New Zealand has shifted from general migration to increase the population, to skilled migration to meet skill shortages. Historically, New Zealand has witnessed an annual net migration gain. Over the past thirty years, New Zealand has used a range of skills-based and investment-based schemes to encourage migration, including international education. This is a trend in most English-speaking OECD countries.

Despite skilled migration schemes, the digital sector in New Zealand struggles to attract migrants and to develop and retain skilled technology and digital sector skill. A lack of collaborative effort could have led to a skills mismatch with the local education pathways, resulting in not enough skilled and experienced talent and a heavy reliance on immigration to help drive growth. The skill shortage appears to be structural (Williams, 2021).

Internal migration in New Zealand

New Zealand experiences strong internal migration from the regions to the main cities, in particular Auckland, depleting the regional supply of skilled labour. Over the last 10 years, New Zealand has experienced net migration of 70,000 people annually, one of the highest rates of inward migration in the OECD countries (New Zealand Productivity Commission, 2021a).

There is also a countervailing trend in recent years of people moving from metropolitan locations to regional centres. Availability of remote work and affordable housing are the primary drivers for people to move. In 2020, Auckland lost 12,600 residents, Christchurch lost 1,600 and Wellington lost around 1,400 residents to the regions (Olsen, 2020).

Brain drain and brain gain

Migration is both inward and outward. Regions in New Zealand and New Zealand generally have tended to experience outward migration of skilled labour, known as a 'brain drain'. This has a major impact on the availability of skills. Brain drain occurs when highly skilled labour leaves for better opportunities elsewhere. This is also associated with the situation when students in underdeveloped or developing countries move to developed countries for both better education and career opportunities (Baruch et al., 2007). At the heart of the brain drain is the mismatch between the supply of skill and the demand for skill, and the overall uncertainty about the future of life in the home country (Suchandra, 2018).

As an example, India has experienced a very significant sustained brain drain, beginning in the early 1960s. Outward migration has primarily seen information technology skills moving to the US for higher wages and career opportunities, although the focus has now shifted to other countries like UK and Australia (Suchandra, 2018). This has supported the development of hubs like Silicon Valley.

Conversely, the concept of 'brain gain' has also developed. Brain gain is a shift in the direction of skilled professionals, many returning to their home country with an augmented skill set and experience of working in bigger corporations (Dustmann et al., 2011). Returning migrants often tend to possess networks and knowledge as well as the skills to create new enterprises.

Suchandra (2018) points out that the factors driving this reverse brain drain in India include the growth of the Indian economy, access to local markets, stronger family ties and an overall improvement in the entrepreneurial situation in the home country. More than 50,000 New Zealanders have returned to New Zealand due to the Covid-19 pandemic. In the short term, this may end their hunt for higher wages and fast-paced careers abroad, however, may not be permanent in nature (Graham-McLay, 2021).

The presence of increased opportunities in countries such as India has led to highly skilled professionals and entrepreneurs seeking to return, which also allows for establishing links between the home country and the country of migration (Pande, 2014). The presence of world-class facilities, good salaries, emerging industry clusters and liberal government policies may also be good reasons to drive brain gain. New Zealand is also benefitting from brain gain. Immigrants to New Zealand have long been used to help offset the brain drain of skilled New Zealanders leaving the country, in particular to move to Australia. Of the adult population, immigrants accounted for 40% of individuals with tertiary education, compared to 21% of the tertiary educated New Zealand who left the country (New Zealand Productivity Commission, 2021a).

2.4.3. Increasing labour mobility

Increasing labour mobility is linked to increased migration, assisted by changes in regulation to facilitate the movement of skilled labour. New Zealand and regions in New Zealand have experienced increasing labour mobility.

Labour mobility is defined as the movement of people from one country to another, or within their own country of residence for the purpose of work (International Organization for Migration, 2011). Mobility may be temporary or permanent and has become as an important component of international trading systems and plays a key part in helping to fill skill shortages (Meredith B. Lilly, 2019). While within the European countries labour mobility is high, countries in the Association of Southeast Asian Nations (ASEAN) and Asia Pacific Economic Cooperation (APEC) tend to follow a model where countries of a similar level of economic development appear to be more open to labour mobility provisions with each other (M. B. Lilly, 2019). Increased labour mobility is often accompanied by declining skill retention.

Migration increases productivity globally (Woetzel et al., 2016). Migrants of various skill levels appear to make a positive contribution through entrepreneurship and innovation and add value to work. They contribute to the labour force, productivity and the economy as a whole (Woetzel et al., 2016).

Migration can have positive impacts on developed economies by boosting productivity and output, in both the short term and the long term. The labour market is also at an advantage with a diverse set of skills being available which, at times, may complement each other and increase productivity. Most migration takes place from emerging markets like India and China to advanced economies such as the US and UK (Engler et al., 2020).

2.4.4. Migrants and global labour markets

When migrants enter a new labour market, they tend to influence the market in several ways. Migrants impact local labour markets by adding skills that are complementary to the local pool of skill leading to productivity gains. With the changing needs of the global labour markets, migration patterns also tend to change (Özden, 2018). Destination countries tend to adopt a process of using temporary work visas to gradually integrate migrants into the local labour market (Özden, 2018). For migrants, moving to a new labour market is an opportunity to increase employment and wage levels. Migrant incomes tend to increase by a factor of three to six when they move from lower to higher-income countries (Özden, 2018).

In New Zealand, labour mobility has led to migrants contributing to the regional economies through increased output and productivity. New Zealand's immigration policy has been designed with a focus on strong economic development. Migrant labour helps fill labour shortages in the regions, with the horticulture industry being reliant on seasonal labour (New Zealand Productivity Commission, 2021b).

Labour mobility between New Zealand and Australia has created an integrated trans-Tasman labour market, with the primary flow from New Zealand to Australia. The focus of trans-Tasman agreements is not just on a smooth trade of goods and services between the two countries but also on ensuring a pathway for workers in both countries to work in the other country with ease. Allowing a person who is registered to work in an occupation in New Zealand, for example, a nurse, to work an equivalent occupation in Australia and vice versa without further having to undergo a test or examination is key to labour mobility (MBIE, 2022).

2.4.5. Talent scarcity

An issue for labour markets is talent scarcity. Talent appears to be increasingly scarce across a range of sectors in many parts of the world (Dehaze, 2022). Between the gaps left by outward migration (brain drain) and limited inward migration (brain gain) due to the border restrictions and people leaving the workforce, skill shortage has emerged. The talent scarcity problem has been caused by skills mismatch, an ageing workforce and limitations to labour mobility (Dehaze, 2022).

Within the digital sector, there is a scarcity of talent, a problem which has increased in recent years. While there continues to be a focus on flexible working arrangements and reskilling current employees, there is a heavy reliance on migrants (English, 2021).

Within the regions in New Zealand, there is a tendency for younger migrants to leave and older migrants to take their place. This does, however, create skill-shortage gaps which need to be filled and often migration is utilised to help meet this shortage (MBIE, 2017b).

2.4.6. Theories of migration

Introduction

This section explores the major theories which explain the phenomenon of migration and key factors that drive the migration process. Migration theories have been grouped by the underlying driver: economic, social and amenity. Starting with a discussion of economic theories of migration, social theories which have dominated migration literature are then addressed. The key theories are discussed focusing on Lee's Theory of Migration which is the basis for this study. The section concludes with a discussion of amenity as a basis for migration.

Economic Theories of Migration

Economic theories of migration focus on migration to increase earnings.

Ravenstein's (1885) Laws of Migration

Ravenstein's Laws of Migration (Ravenstein, 1885) was the first attempt to develop an explanation for the phenomenon of migration: 'why do people relocate from one location to another location?' Ravenstein developed seven 'laws' of migration:

1) Most migrants only proceed a short distance, and toward centres of absorption. This law states mobility is undertaken to proximate areas where there is scope to settle.

2) As migrants move toward absorption centres, they leave 'gaps' that are filled up by migrants from more remote districts, creating migration flows that reach 'the most remote corner of the kingdom'. This law states that as migrants move towards an area where there is a need for labour, they, in turn, leave a space in their place of origin, where new migrants help meet the demand, therefore spreading migrants to the remote areas as well.

3) The process of dispersion is inverse to that of absorption. This law states that the process of migrants moving from the place of origin is the exact opposite of migrants moving to the destination. Any type of migration produces a type of counter flow of migration. Migrants who travel a long distance end up going to places of commerce and industry.

4) Each main current of migration produces a compensating counter-current. This law states that as migrants move from one place to another, it creates a gap, which needs to be filled.

5) Migrants proceeding long distances generally go by preference to one of the great centres of commerce or industry. This law states that migrants who travel long distances tend to do so by focussing on areas which have higher population density and business.

6) The natives of towns are less migratory than those of rural parts of the country. People who are already enjoying the facilities offered in towns are less likely to migrate compared to those in the rural areas who are struggling with basic facilities. They may move primarily for economic reasons.

7) Females are more migratory than males. This law states that females appear to have a higher tendency to migrate when compared to males, particularly short distances and movements domestically. The reason for this appears to be that males would tend to leave the population through death or emigration and so, in the case of short distance movers and within the nation, females appear to be more migratory.

The theory was developed using data collected in the United Kingdom during the 1880s and, importantly, focussed on internal migration. The theory is economic and is grounded in the demand for labour. Ravenstein argued that improved roads and infrastructure facilities led to a flow of labour to a place where there was a high demand for labour. Ravenstein's key premise was that there appears to be an inverse relationship between the distance between the 'home' and 'target' regions which drives the volume of migration.

A key limitation of Ravenstein's theory is its assumption of the laws based on certain factors. For example, his laws about females being more migratory than men can be only seen as true for shorter distances, as men had left the population either though death or emigration (Alexander & Steidl, 2012).

Harris and Todaro's (1970) Neo-Classical Migration Theory

Harris and Todaro focus on income disparities between leading and lagging areas which can contribute to unemployment in the home area and thus lead to migration in search of employment (Harris & Todaro, 1970). Harris and Todaro hypothesized that the migration decision was based on a cost and benefit analysis, with costs being those related to the cost of migration compared to potential benefits from migration. Harris and Todaro found that labour continues to flow steadily from rural areas to urban areas (Harris & Todaro, 1970).

A limitation of this theory is that it ignored market imperfections, and does not take into account other factors as motives for migration including migrants belonging to social groups (Lee et al., 2017).

Stark and Bloom's (1985) New Economics of Labour Migration

In their New Economics of Labour Migration, Stark and Bloom (1985) discussed significant changes in international migration and the economics of labour migration. Stark and Bloom argued labour migration cannot be explained at an individual level but needs to be examined in wider social entities to understand migration. The key social unit proposed by Stark and Bloom is the household. Households tend to be risk-averse with respect to household income, and migration can supplement household income. The role of migrant workers, therefore, is to ensure the financial security of households in the home location (Stark & Bloom, 1985). A key limitation of the New Economics of Labour Migration is that conditions in the places of origin are considered, while those in the place of destination are ignored (Porumbescu, 2015). This theory may, in part, explain why seasonal workers are willing to undertake temporary migration to New Zealand from Pacific Island Nations.

Summary

The economic theories of migration explore flows of migrants for economic reasons, with the demand for labour and financial inventive being key drivers. While Harris and Todaro focussed upon the cost and benefit analysis done in the migration decision, Stark and Bloom's New Economics of Labour Migration emphasised the decision making at a household level, with an intent to reduce risk and maximise remittances. There are other aspects aside from social ones which need to be included in the migration decision and the next section focuses on the social factors.

Social theories of migration

Following the second world war, interest in migration re-emerged with a particular focus on social theories of migration.

Massey's (1956) Cumulative Causation Theory

The first of the post-World War Two theories were the cumulative causation theory developed by Myrdal (1944) and further extended by Massey and his colleagues. Myrdal and Massey were interested in international migration. The theory has a strong social underpinning (Fussell & Massey, 2004).

Myrdal's and Massey's theories are grounded in social capital and the development of migrant networks. The basis of the theory is that 'cumulative causation' is a key mechanism driving the accumulation of social capital. This allows community members to gain migration-related knowledge and resources with the assistance of family and friends. Migration, therefore, tends to create social capital amongst migrant families, relatives and friends (Massey, 1990). Social networks lower the cost of migration for the migrant by sharing information and assistance as

well as providing a support network in the destination. Therefore, community members from communities where migration tends to be quite common are more likely to migrate, compared to those who come from communities where migration is rare (Massey, 1990).

Lee's (1966) Theory of Migration

Lee's theory of migration is, arguably, the most influential migration theory developed in the post-war era. The theory is discussed in detail as it has particular relevance for the present study. Lee identified two primary types of migration: domestic migration within national borders and international migration crossing national borders (Lee, 1966). According to Lee, there are factors which discourage or encourage migration decisions and they can be both on the side of the place of origin and the destination (Lee, 1966) (Piotrowski et al., 2021).

Lee also categorised reasons for migration into two groups of factors: those linked to the region of origin and those linked to the destination. Lee categorised these factors as attracting (pull factors) or repelling (push factors). Additionally, Lee identified an additional two sets of factors: intervening obstacles and personal factors (Lee, 1966).

Push factors

Push factors are those which, from the perspective of the potential migrant tend to push the migrant away from the location in which they currently live. Push factors tend to include factors such as the presence of, or availability of a job, career development opportunities, and level of remuneration. Safety and security are also push factors (Labonte et al., 2015). Political and economic instability and limited investment opportunities are also important push factors (Unguren et al., 2021). Unemployment can also, of course, act as a push factor. A domestic workforce may be pushed out due to the rising supply of a foreign workforce which can increase the levels of migration (Hejduková & Rekova, 2020). Conversely, push factors such as urbanization and industrialization may also act as push factors that may attract professionals from urban to regional areas (Hejduková & Rekova, 2020).

Economic push factors

Economic factors have motivated or 'pushed' migrants to move probably since the dawn of history. In the contemporary era unemployment, local demand for labour, housing and education are frequent factors driving the decision to migrate (Rérat, 2016). Opportunities located 'elsewhere' are fundamental push factors. Within this context, regional and rural labour markets tend to have structural constraints and can therefore struggle to retain skills (Rérat, 2016). Further, lack of opportunity in urban areas can potentially act as a push factor (Rérat, 2016) as can prolonged and persistent unemployment (Levy et al., 2017).

In a broader context, the cost of living and the ability to purchase a home or pay rent also affects migrants (Levy et al., 2017).

Social and environmental push factors

A wide range of social and environmental factors including infrastructure and transport have been identified as push factors (Unguren et al., 2021), for example, ethnic and cultural diversity and employment opportunities. Lack of ethnic and cultural diversity can push people away from a region and the same can be said about a lack of jobs (Silvanto & Ryan, 2018). Climate and the natural environment can also be push factors, and can, for example, push people to move, including moving from urban to rural areas (Osbaldiston et al., 2020) (Bartos et al., 2009).

Crime and personal safety are key factors, especially for older migrants. This can promote a push toward safer regions, for example moving to rural eras due to perceived greater safety (Jensen & Deller, 2007).

Personal and family push factors

Personal push factors can also play an important role in the decision to migrate (Lee, 1966, as cited in Unguren et al., 2021). Two sets of personal factors appear to play a key role in pushing toward a migration decision. These are individual factors and family factors, for example, marriage, children, or living with relatives (Orji & Agu, 2018). Other personal or family push factors include personal safety, and individual or family circumstances (Lee, 1966 as cited in Unguren et al., 2021). The lack of belonging to a community has also been identified as a potential push factor (Osbaldiston et al., 2020). Family and friends are key reasons why employees from the public and private sector organisations which participated in the survey move to Hawke's Bay.

Family-related reasons can also push people to move from urban to rural areas. Professionals may move to the region as their partner may have found a job in the region or to be near family or friends (Jensen & Deller, 2007).

Formal intervention to promote push factors

Government intervention, whether financial, regulatory, personal or professional, can also lead to the development of push factors (Behera et al., 2017). In this context, the distance between the migration destination and the migrants' location makes a difference (Golebiowska, 2016). Although peripheral regions can benefit from national policies aimed at attracting skilled migrants, typically there is a lag. From a policy perspective, therefore, the strategy needs to encourage the development of the capacity of the local population which may otherwise seek to migrate to become trained and upskilled to work in a peripheral region experiencing skills shortages (Golebiowska, 2016). This may take place through the local tertiary education provider with the local council playing a supporting role.

Push factors can include strategies to encourage regional skill retention. For example, compulsory service programmes have been adopted in several countries to help retain professionals in rural and remote areas, acting as a push factor to push labour out of the city and towards the regions (Behera et al., 2017). These programmes can also include, for example, incentivised rural service for a specific period to help meet skills needs and ensure equitable distribution of services (Behera et al., 2017). The weakness of these compulsory service programmes tends to be high labour turnover once the compulsory period has been completed. Community support appears to be critical in enabling professional staff to settle into the community (Frehywot et al., 2010). Providing community support can be a potentially viable way of retaining skilled digital sector staff, however, employee survey responses see it more as a secondary reason than a primary one.

The role of non-financial incentives can also play a role in formal interventions, for example, the opportunity to achieve greater work-life balance in rural areas (Peña et al., 2010).

Planned skilled migration (a type of regulatory pull factor) has been used as a policy measure in both developing and developed nations such as Australia and New Zealand, across all sectors and skills, to help attract and retain skills and enhance regional economic growth (Taylor et al., 2014). Between 2011 to 2019, a series of studies were undertaken in Sweden, Norway, Canada, Iceland, and Scotland to develop a 'Framework for Remote Rural Workforce Stability' (Abelsen et al., 2020). The thesis underpinning the framework was to recruit and retain skilled health professionals in rural and remote areas (Abelsen et al., 2020). The focus of the studies was on assessing population needs and developing a service model to recruit skills. Within this context, there was a focus on recruitment modalities and family support. There was also a focus on retention, aiming to train future health professionals and trying to make working in rural and remote areas an attractive option. The Framework was implemented and proven to be successful in supporting both recruitment and retention in local communities. The framework has been successful, however, it does require an understanding of the real-world problems faced in recruitment and selection (Abelsen et al., 2020).

Pull factors

Pull factors are those which, from the perspective of the potential migrant tend to pull toward a new location. Lee (1966) discussed 'pull' effects as positive factors that draw an individual towards a destination. A range of key pull factors has been identified.

Housing as a pull factor

Housing facilities can be a pull factor as the lack of available and affordable housing in cities and urban areas has been an issue and this can be a pull factor for attracting and retaining labour. Housing facilities are a factor that affects the willingness of people to move to rural or remote

regions (Becker et al., 2011). The promise of cheaper housing in a rural or remote region can be a key pull factor (Chani et al., 2014).

Income as a pull factor

Economic factors have been the primary drivers of motivation as discussed in the above sections. Migration theory primarily focuses on economic factors in the initial stages (De Haas, 2008).

Salary is often the primary driver to attract people to and retain them in remote areas, with recruitment advertisements focusing on the money offered (Onnis, 2017). To attract people to a remote location, monetary incentives remain the primary factor, however, other factors such as intrinsic rewards may also have a role to play (McKenzie, 2011).

Professional development and support as a pull factor

Other factors that may attract people can be the ability to grow professionally and take advantage of job opportunities. People tend to relocate to other regions or countries for career development opportunities (Chani et al., 2014). Within the New Zealand context, career opportunities play a key role for the people in New Zealand. This can include the ability to enhance one's skills and knowledge, job satisfaction, and as well as good working relationships within the industry (Poulter & Sayers, 2015).

Development of skills is seen as a way to make working in a region more attractive for young professionals. Obtaining an education could be another good reason for young professionals to work in a region (Lori et al., 2012).

Summary

The key push factors include economic, social, personal and regulatory factors that may affect migration decisions. Key pull factors include income, housing and professional development. A combination of push and pull factors are at play when making a migration decision. Within the context of the present study, the focus is on trying to understand the factors affecting the reason an employee in the digital sector in Hawke's Bay would move to, stay in, or leave the region.

There are several recent social theories attempting to explain migration.

Mabogunje's (1970) Migration Systems Theory

Mabogunje's (1970) migration systems theory focuses on ties between the sending and receiving regions or countries. Mabogunje argues migrants are encouraged to migrate due to feedback from those who have migrated earlier, and it may lead to changes in the pattern of movement that comes from the environment. (Mabogunje, 1970).

Skeldon's (2012) Migration Transitions

Skeldon adopted a new approach to migration research with transnational and diasporic perspectives. Skeldon suggests that five regional tiers exist: the new core (migration within Japan and the East Asian Newly Industrializing Economies), the old core (migration within Europe, the US and the settler colonies), the labour frontier (nations such as Portugal and Ireland), core extensions (parts of coastal China) and potential cores (western and southern India) and the resource niche (Skeldon & Walton-Roberts, 2000). The process of identifying tiers of development gives a key overview of development and migration (Skeldon & Walton-Roberts, 2000).

Amenity migration

The concept of amenity has emerged as a third core explanation for migration, in addition to economic and social drivers. Amenity migration is the movement of people to a location for location-specific benefits (Glorioso & Moss, 2011). Early work on amenity was focused on the phenomena of people moving to communities in mountain regions (for example Queenstown and Wanaka in New Zealand). The theory has wider application, however, as amenity is not restricted to picturesque mountain landscapes.

Attributes of amenity

The environment appears to attract migrants. The natural landscape and associations with 'counter urbanization' have contributed to the creation of the concept of amenity (Pallarès-Blanch et al., 2014). This can be further expanded to include the general concept of quality of life, and proximity to nature (Vukomanovic & Orr, 2014).

Amenity migration has been defined by Moss (1994) as the movement of people from the city to attractive rural or semi-rural areas for cultural differentiation and environmental quality. The key point to note here is that it is a permanent form of migration. Amenity migration occurs for perceived superior quality of the environment as well as cultural differentiation.

Some researchers have found the climate and the natural environment can encourage movement from metropolitan to regional areas (Osbaldiston et al., 2020). This is, however, contested. Other researchers (Partridge 2010, as cited in Cameron, 2018) have found climate factors are not the primary motivator for amenity migration.

Amenity migration has economic, social, and political implications and can fundamentally transform communities, resulting in major changes in both land ownership and use, social dynamics and social composition (Glorioso & Moss, 2011).

A principal reason given by amenity migrants for their move is quality of life (Glorioso & Moss, 2011). There may also be a type of 'serial movement', involving movement from one high amenity place to another with the locations being repeated in the process. The median age of these 'permanent' amenity migrants was 66 years old (possibly retirees), with a study finding that at least 35% of amenity migrants had earlier amenity migrated to the previous location (Moss, 1994).

Long-term amenity migrants tend to be settled or have a place of residence in the new area with periods of moving away but returning. The focus of this research is on long term or permanent migrants (Moss, 1994).

For local city and council planners, the amenity migrant does present both an opportunity and threat (Moss, 1994). This creates implications for the regions which are socio-economic and cultural and offer scope for the region to grow and enhance its profile. It is necessary to understand that amenity migration is now a widespread phenomenon growing rapidly across the globe. Amenity migration remains a complex societal phenomenon and understanding its features, causes and impacts does have merit (Moss, 1994).

Economic, cultural and social aspects of amenity migration

While location-specific factors may be a principal driver in the decision to migrate, cultural and social connections also play a key role, especially in small-town and rural life (Wohlfart, 2015). If economic considerations are not the key motivators (Levy et al., 2017), the presence of affordable housing is often a key factor for amenity migration (Vukomanovic & Orr, 2014).

The concept of amenity migration therefore includes lifestyle. Interestingly, New Zealand has been promoted as a lifestyle choice to help attract highly skilled employees (Colmar Brunton, 2000, as cited in Wohlfart, 2015). Economic, cultural and social factors can act as push or pull factors in the decision to move for location-specific reasons. The following discussion focuses on factors that may push or pull potential migrants from a metropolitan location to an amenity location.

Affordability is an important factor that can push potential amenity migrants to move to lower-cost regions. In turn, of course, migrants can push up the prices in less densely populated areas (Laitos & Ruckriegle, 2013). Overall, cost considerations play a role in encouraging location-based migration (Dotzel, 2017).

The prospect of better health appears to be an emergent push factor in the decision to move, in particular the expectation that a move is likely to lead to a healthier lifestyle and improved life expectations (Jensen & Deller, 2007).

A combination of push and pull factors plays a key role in an amenity migration decision. In terms of pull factors, in addition to climate and the natural environment and rural landscape, other factors are often present. The cost of living, and the ability to purchase a home or pay rent in the destination location are key economic factors driving amenity migrants to regional areas. Pull factors include quality of life, social amenities such as good schools, and being close to family and friends. Professional reasons may not drive amenity migration but factors such as salary benefits, higher job satisfaction, career development and growth opportunities, workplace culture and recruitment strategies can impact the decision. Both in the public and the private sector responses, the role of salary and job opportunities were highlighted as motivations to leave the region.

Summary

The key motivators for amenity migration include engagement with the community, the lifestyle and the landscape. Economic gain or opportunity also remains a motivation although it appears to be a secondary factor (Glorioso & Moss, 2011). This was also found in this study.

Cost of living is another key point for amenity migrants. While historically high amenity areas with an associated lower cost of housing, rising housing costs may undermine regional attractiveness (Glorioso & Moss, 2011).

There appears to be a relationship between amenity migrants and urbanization. The typical direction of movement of amenity seekers is toward smaller centres which have proximity to high amenity areas, such as mountain regions (Lía Domínguez & Marioni, 2007). Additionally, the presence of a rural aspect may factor in to where amenity migrants live (Halfacree, 2007, as cited in Glorioso & Moss, 2011).

Wealth appears to be a weaker driver for amenity migrants (Glorioso & Moss, 2011), and technology increasingly facilitates this change. It also appears that as the reputation of a high amenity migration destination increases, so does its size due to migration (Glorioso & Moss, 2011).

The amenity migration construct has an important spatial dimension, factoring in a location focus and physical landscape or location identification (Moss, 1994).

Summary of migration theories

The theories discussed above fall into three categories of migration decision selectivity factors. These are:

1. Economic factors including expected income, job opportunities, distance, wage differential, cost of migration, the environment.

2. Social factors including the presence of networks (model communications systems, and modern transportation systems), norms and values, the presence of educational opportunities and the support system of family and friends, as well as social support and facilities (Rashid et al., 2014).

3. Amenity factors such as the location itself play an important role in the migration decision. The physical landscape, climate and lifestyle prevalent in a location can have an impact on the migration decision. An attractive location can drive migrants to rural areas for cultural differentiation and environmental quality.

Migration theories have evolved from the early economic theories to include social theories and finally amenity as a driver of migration. While the initial discussion by Ravenstein was on economic factors, it is Lee's Theory of Migration that looked at a wide range of factors under two categories, push and pull factors. Over the past few decades, there has been a shift in the patterns of migration with new patterns emerging and being followed. Amenity migration is a key theory of migration and reflects a pattern in migration from urban to rural areas.

2.4.7. Summary: Labour mobility and labour migration

Skill retention is a challenge for regions with increasing labour mobility being used to meet skill gaps.

Early migration theories focussed primarily on economic factors. Lee's Theory of Migration shifted the focus to social factors and more recently amenity has emerged as a potential factor affecting the migration decision. The combination of push and pull factors plays a key role in the amenity migration decision. In terms of push factors, climate, the natural environment and rural landscape, rising crime and safety issues in cities and costs of living, the ability to purchase a home and pay rent, are key factors driving amenity migrants. Pull factors include quality of life, social amenities such as good schools and being close to family and friends. Professional reasons may not be a principal driver of amenity migration, but factors such as salary and benefits, higher job satisfaction, career development and growth opportunities, workplace culture and recruitment strategies can affect the amenity migrant's decision.

2.5. Summary of the Literature Review

This literature review focused on a range of areas related to the topic of labour mobility and labour migration in the digital sector.

The digital sector globally continues to grow with technology related jobs being generated all over the world. Concepts such as brain drain have helped fill the skill requirements of the digital sector in countries such as the USA and UK. There appears to be a shortage of skilled professionals in the digital industry, and this becomes a bigger problem in the regions. While there are digital hubs that attract skilled digital sector professionals, that may not be the case in the regions, even in developed nations. Thus, this study aims to understand the motivations behind why digital sector employees move to, stay in, or leave Hawke's Bay.

The theories of migration provide a basis for understanding these motivations. The push and pull framework highlights that several factors impact a migrant's decision to move to, stay in and leave a region, thus indicating the complex nature of the migration decision. What appears to be evident is that amenity migration may continue to grow in New Zealand.

Migration in the past few decades has increased exponentially, both domestic and internationally, due to several political, economic, social and cultural reasons. The phenomenon of brain drain has remained key in the digital sector from the late 1990s to the early 2000s and now we can witness the reverse with a brain gain, where migrants return home to growing economic opportunities and for social and cultural reasons. This can be compared to the shift of economic migrants from rural to urban areas, which is now seeing a reverse trend with amenity migration, from urban areas to rural and semi-rural areas. These trends provide interesting insights into the thinking process of migrants and also how this plays out in different sectors.

A key gap in the literature is the lack of research to understand why skill may move to the regions, even though career opportunities may be more limited. While there is literature on health professionals and the factors that govern their choice to move to, or stay in, or leave a regional community, this is not the case for the IT industry. There is only limited literature on skilled attraction and retention of highly skilled employees in the digital sector, outside digital hubs. This study seeks to contribute to the literature by examining the reasons why skilled digital sector staff live in, move to or return to, or would leave a regional community and focuses on economic, social and amenity reasons.

Chapter 3: Research Design

3.1 Introduction and Research Rationale

This chapter discusses the study design. The study explores how a regional community can attract and retain highly skilled digital sector employees and to understand the reasons why skilled digital sector employees move to, stay in or leave Hawke's Bay. A comparative case-based mixed method approach has been adopted as it is considered this provides a basis for developing a broad understanding of skill attraction and retention within a regional community. As Bryman (2016) notes, the combination of quantitative and qualitative approaches is useful in understanding a broad area of interest.

3.2 Study Design

A comparative case study design has been used. The intention is to uncover potential factors impacting the decision of digital sector employees to move to, stay in or leave Hawke's Bay.

Case studies are used to gain insight into complex contemporary issues within the context of 'real life'. With respect to the present study, the objective is to understand contextual factors (in this case amenity factors) as they impact the success or failure of an organization's ability to attract and retain staff. Case method is also useful when it is not desirable or possible to create a controlled group or a comparison group (Yin, 2014). This is the case with the present study.

Case study research investigates a phenomenon (a case) within the context of the real world. The boundaries that may exist between the phenomenon and the context of the phenomenon may not be clearly evident. This may be because the phenomenon and the context are not always easily distinguishable in real world situations (Babbie, 2010). The use of multiple cases in the study provides an opportunity to understand the relationship between a phenomenon and the context in which the phenomenon exists. The evidence from multiple case studies is therefore likely to be more robust.

Comparative case studies typically utilise both quantitative and qualitative methods (Bartlett & Vavrus, 2017). These are helpful to understand and explain how the specific context comes into play showcasing the success of an intervention and how one can customise the intervention as per the requirements of the specific context to help achieve the desired results (Bryman, 2016). In this research study, the qualitative method has been utilised with respect to the manger interviews and the quantitative method utilised for the employee and graduate surveys.

A broad range of types of organisations can be examined with the comparative case study method. Each of the four case organisations in this study operate in the digital sector. However, the nature and type of operation differ. This creates conditions where cases can be examined individually followed by a cross case analysis.

Additionally, comparative case study analysis is also a good option when several interventions have been implemented across multiple contexts. Comparative case method is also useful when trying to inform policymakers on alternative strategies or approaches that can be followed (Goodrick, 2014). In this research study, the intent is to understand the factors affecting highly skilled employees in the digital sector and their decision to move to, stay in and leave Hawke's Bay, which may have policy implications.

Comparison between cases is undertaken to explore what has worked for these organizations with respect to the recruitment and retention of skilled staff, and what did not work. The aim is to identify any patterns which underpin success and to understand the causes of this success (Goodrick, 2014). The comparison may lead to a new set of questions about both the similarities and the differences which have been observed (Goodrick, 2014).

The cases in this study are exploratory. Exploratory case studies are typically conducted to understand how or why a condition exists (Bryman, 2016). This type of an approach enables investigation of the opinion of management and employees. In the present study, there is an exploration of the location decisions of skilled employees and the reason behind the decisions. This is contrasted with the perspective of the executive.

3.3 Sample and Data Collection

Two private sector businesses and two public sector organisations have been examined. Following the individual and sectoral analysis, a cross case analysis has been undertaken, comparing the private and public sector organisations to further explore key themes and patterns.

3.3.1 Sample

The case studies have been purposefully selected to gain a better understanding of how different types of organisation manage skill in a regional context (Bartlett & Vavrus, 2017). Purposive sampling is a form of non-probability sampling, in which cases are selected based on predetermined criteria (Babbie, 2010). While the case organisations undertake different functions in the digital sector, they share commonalities such as size and location which allows for comparison.

Both executive and staff of each organisation participated in the study. As an additional point of comparison, Bachelor of Computing graduates from the regional polytechnic were also surveyed. This contrasting source of data assists in creating a comprehensive picture of each case (Bell & Waters, 2014).

The cases have been anonymised. Pr1 was selected as the company provides digital support services. Pr2 provides robotics solutions for the primary and other local industries. Pu1 is a local city council. Pu2 is the regional tertiary education provider.

Table 2 provides a summary of the four case organisations

Table 2:Case organisation overview

Organisation	Pr1	Pr2	Pu1	Pu2
Type of work	IT support services	Robotics and support services to primary industries	Local Council's digital department	Regional tertiary education provider digital department (and computing lecturers)
Number of employees in the organisation/digital department	11	40	25	18
Number of employees surveyed	8	15	15	13
Number of students/ past students surveyed	NA	NA	NA	36

The executive of each organisation was interviewed to discuss hiring and retention strategies, education and training, industry issues and challenges. Organisation documents and websites were also reviewed. The same data collection method was used in each of the four case organisations.

Employees were surveyed to understand individual reasons behind the decision to move to, stay in or leave Hawke's Bay and to provide a demographic profile of the workforce. Past Bachelor of Computing students were surveyed to understand if graduates work in the digital sector and live in Hawkes' Bay.

3.3.2 Data collection

Data collection was undertaken in three-stages:

Stage one

The first stage was to conduct interviews with the organisation executives.

Initial meetings were arranged with the executives. The objective was to discuss the study, complete the consent, provide the participant information sheet and to arrange for the employee survey to be distributed to staff. Each executive was sent a copy of the qualitative interview questions prior to the interview.

The interviews were semi-structured (Bryman, 2016). Following the completion and review of the initial executive interviews, a follow-up interview was undertaken with each executive, either face to face or online.

Stage two

The second stage was to conduct employee surveys. All employees in the organisation (or IT/digital department) were asked to participate in the survey. An email was sent to the executive with a link to the survey. This was then distributed by email to staff.

Stage three

The third stage was a survey of Bachelor of Computing Systems (BCS) graduates. The survey was conducted online with a link posted on the School of Computing Facebook page. While responses are indicative, they provide insight into the current location and employment of graduates. In addition, the demographic profile of past (2017-2021) BCS students was analysed.

3.4. Data Collection Instruments

The semi-structured interviews with the managers of the digital departments or organizations were conducted to understand the policies and issues from a macro point of view. The employee and graduate surveys were conducted to understand the motivations and behaviour from an individual's point of view. The BCS Facebook survey was done to investigate graduate current location and employment of graduates. Each of the instruments were pre-tested.

The executive survey covered the following topics (refer Appendix 4 for the Interview Guide):

- current hiring and retention strategies to understand the current process in place and its focus (domestic or global) as well as methods used to recruits (online, word of mouth).
- future plans for human resources to help examine the short term and long-term focus of human resource planning.

- education and training to investigate the policies and processes in place for employee training and development and in its role in employee attraction and retention.
- organizational plans for human resources to understand the how human resource plans fit into the organization's overall strategy.
- issues and challenges faced at an industry level to understand the trends and patterns in the issues faced by all case organisations.

The employee survey used primarily closed questions (refer Appendix 5 for the survey instrument), with several open questions to explore key topics in more detail. The survey comprised the following sections:

- Demographics to help create a profile of an employee, with a focus upon key areas like gender, age, ethnicity, educational qualification and birthplace.
- Reasons why employee live in the region to examine the reason why employees move to, stay, and leave Hawke's Bay.
- Duration and intention of stay in Hawke's Bay to understand how long the employees have been living in the region and whether they will continue doing so in the future.

The graduate survey was shared on the EIT School of Computing Facebook page. The questions examined:

- Current location to understand if they are working in the digital sector.
- Current occupation to understand if they are working in the digital sector.
- Demographics (gender/ year of graduation) to create a demographic profile and examine whether graduates tend to leave the region.

3.5. Field work

The fieldwork commenced April 2021 and concluded August 2021. Initial contact was made with the executive in each organisation. Field work followed agreement to participate.

There were several issues encountered during the fieldwork:

1. Recruiting organisations to participate in the research: While the public sector organisations readily agreed to participate in the research study, this was not the case for the private sector organisations. Assistance from EIT was needed in order to obtain approval from the private organisations to participate in the study.
2. Low response rate of the employee surveys: Repeated follow-up was required with the executive to encourage employees to complete the survey.

With respect to responses, four face-to-face interviews with a senior executive were undertaken, the online survey of employees resulted in 51 surveys (55% completion rate, based on staffing at the commencement of data collection). The survey of graduates yielded 36 responses (as noted above these responses are indicative only). There were 656 Bachelor of Computing Systems graduates over the period 2017-2020 whose anonymised demographic data was analysed.

3.6. Data Analysis

Each of the four cases were examined individually, in two groups: private sector cases, and then public sector cases. A cross case comparison was subsequently undertaken to identify differences between private and public sector digital organisations.

3.6.1. Executive interviews

Qualitative coding was used to analyse the semi-structured interviews. Key themes were identified and then compared and contrasted. The focus of the thematic analysis was hiring and retention strategies, future plans for human resources, education and training, and finally the issues and challenges faced at an industry level.

The interviews were analysed using thematic analysis to identify the key themes in each interview. The themes from the four interviews were compared and contrasted to find the commonalities and the key differences. The approach might differ, but in a general form, thematic analysis is a method in which one identifies, analyses and then records patterns or themes using the available data (Braun & Clarke, 2006). In a step by step manner, the researcher familiarized themselves with the data, starting with generating the initial codes, searching the key themes, reviewing the themes, and then defining the main themes (Braun & Clarke, 2006).

3.6.2. Employee survey

Quantitative and qualitative analysis was used for the employee data. Closed questions were analysed using statistical software SPSS. Qualitative coding and analysis was undertaken using Excel. The objective of the analysis was to explore patterns in employee perceptions of push and pull factors and the demographic profile of employees.

The employee survey data was combined, and private and public sector cases compared against the combined data. The cases were not weighted for analysis. Fifty percent (50%) of the sample

comprised private sector responses and 50% public sector responses. There was no basis for weighting against the population, and the analysis is exploratory.

3.6.3. Graduate survey and graduate student demographics

Quantitative analysis was used to analyse the graduate survey data. The objective was to understand trends. Questions were analysed using statistical software SPSS.

Student enrolment data was also analysed using SPSS to gain an understanding of the graduate demographic profile.

3.7. Reliability and Validity

3.7.1. Reliability

As the study is exploratory and is not testing hypotheses, data reliability is not a primary focus. Verbal reports can be accepted as data (Ericsson & Simon, 1985). Scale data has not been used, therefore tests for reliability were not appropriate (Lincoln & Guba, 1985). The student survey data is indicative and no claim to generalisability is made, although it is considered likely the data will be broadly representative of BCS students, based on the experience of the School of Computing.

3.7.2. Validity

Validity is a function of the data being collected and analysed. This research study focuses principally on the validity of qualitative data (Lincoln & Guba, 1985).

Validity can be conceptualised using four constructs:

1. The truth value refers to confidence that one can have in the findings of the particular inquiry of the participants. There is written and audio documentation to help prove this point, and verbal reports can be classified as data. For all the cases, the same structure of questions was followed. The data was collected from multiple participants to compare the findings (Ericsson & Simon, 1985).
2. The applicability of the findings of the particular inquiry in other contexts. The findings of the research study can be applied to other contexts as a consequence of the range of sources used. There is no claim to generalisability, however, it is considered the findings are likely relevant in other regional contexts.

3. The <u>consistency</u> of the findings of the study. All sources have been confirmed. Multiple case organisations were interviewed and surveyed and findings were compared (Lincoln & Guba, 1985).

4. The <u>neutrality</u> of the findings (the extent to which the findings are not directly influenced by the researcher but are determined by the participants and the conditions of the inquiry). Since the participants had the option of not sharing their name, bias and motivation is considered to be more limited (Lincoln & Guba, 1985). Triangulation was utilised for each case: executive interviews, employee surveys, organisation documents. Comparative case analysis was also used.

3.8. Ethical Considerations

The study was undertaken under the auspices of the EIT Research Ethics Approvals Committee. The approval number is: NO05110321.

The following conventions were observed:

1. All participants provided informed voluntary consent to participate in the study. The executive in the case organisations and the employees were provided with comprehensive information about the study.

2. No private or sensitive company information was collected. All data was anonymised (Zikmund et al., 2012) (Babbie, 2010).

3. The student survey was posted on the EIT School of Computing Facebook page. The page administrator gave their consent and posted the survey on behalf of the researcher.

3.9. Summary

This study is an exploratory a case study. Multiple cases have been developed. The study has examined four organizations located in the Hawke's Bay region, operating in the digital sector. A mixed-method data collection approach is used. A combination of semi structured interviews with executives of the digital organizations/departments, surveys of employees, surveys of recent BCS graduates and student data was collected along with public organisation documents. Each of the four cases was analysed individually, followed by a cross case analysis. The data is valid within the context of the study.

Chapter 4: Findings and Analysis

4.1. Private Sector Cases

4.1.1. Introduction

This section focusses on private sector digital organisations. Two private sector cases are discussed and have been anonymised (Pr1 and Pr2). The cases were selected as they are broadly representative of the private sector of digital sector firms in Hawke's Bay, with the average firm size being less than 20 employees (Sibley & Narula, 2021).

- Pr1 is a customised technology solution provider and has been providing digital support services to local businesses in Hawke's Bay for the past 28 years.
- Pr2 provides robotic and automation solutions to primary industry in the region, including the horticulture sector, for the past 20 years.

The cases are structured with the discussion commencing with a company overview followed by a workforce and human resource environment analysis. The data for the case is derived from interviews with management and company documentation and websites.

Following the company overviews, the employee survey findings for the two-private sector organisations are presented and discussed. The survey results are combined due to sample size and to enable comparison of the private and public sector organisations. Significant differences in responses between employees of Pr1 and Pr2 are discussed where relevant.

4.1.2. Case One: Pr1

Company overview

History

Pr1 commenced operations 1993 and is privately owned with its main office in Napier. Shares are owned by four groups of shareholders, of which two are working in the company in senior positions. The company has been trading profitably since business operations commenced. The company has not changed ownership and is still owned and managed by the founders[4].

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[4] Note. New Zealand companies. Pr1 Limited (976765) Register.
(https://app.companiesoffice.govt.nz/companies/app/ui/pages/companies/976765).

Pr1 began operations with three staff and initially provided digital support services to local companies. Over the past twenty-nine years Pr1 has progressively expanded operations across the Hawke's Bay region and now employs 11 staff.

The core business of Pr1 continues to be providing a range of digital services and technology solutions to support local businesses in Hawke's Bay. The company has extended operations to Palmerston North, Taupo, the Wairarapa and Tauranga by aligning with quality digital service providers located locally. Pr1 collaborates with smaller companies located in other regions of New Zealand to work on projects which may require work to be completed in multiple regions.

The range of solutions provided by Pr1 are set out in Table 3:

Table 3:Pr1 Digital services and technology support

Service Type	Details
Accounting software support	This includes installation, training, and servicing for the Xero online accounting solution and other accounting software.
Cloud Services	Pr1 provides cloud-hosted services (both local and third-party servers).
Network and Servers	Network and server support services include managed network services, as well as consultation and implementation of network infrastructure.
Hardware Support	Pr1 installs and supports a range of information technology hardware including desktop workstations, monitors, laptops, network equipment and servers.
Data Security Services	These services include support with ensuring data security through antivirus and backup services by creating backups and multiple copies of your data.

Pr1 has established business partnerships with small and medium businesses in Auckland for sharing knowledge and technologies. The executive management team travel to Auckland regularly to ensure the company is up to date with the latest technologies in the digital sector working with other small and medium enterprises. The organisation plans to place a higher emphasis on database and application development within the financial software space (financial and management solutions such as Infusion Business Software) for small and medium enterprises.

Staffing

PR1 currently has 11 full-time employees (including management). Of the 11 employees, only one staff member was not born in New Zealand. There are two women employees and two employees who identify as Māori.

Figure 3:Pr1 organisation structure
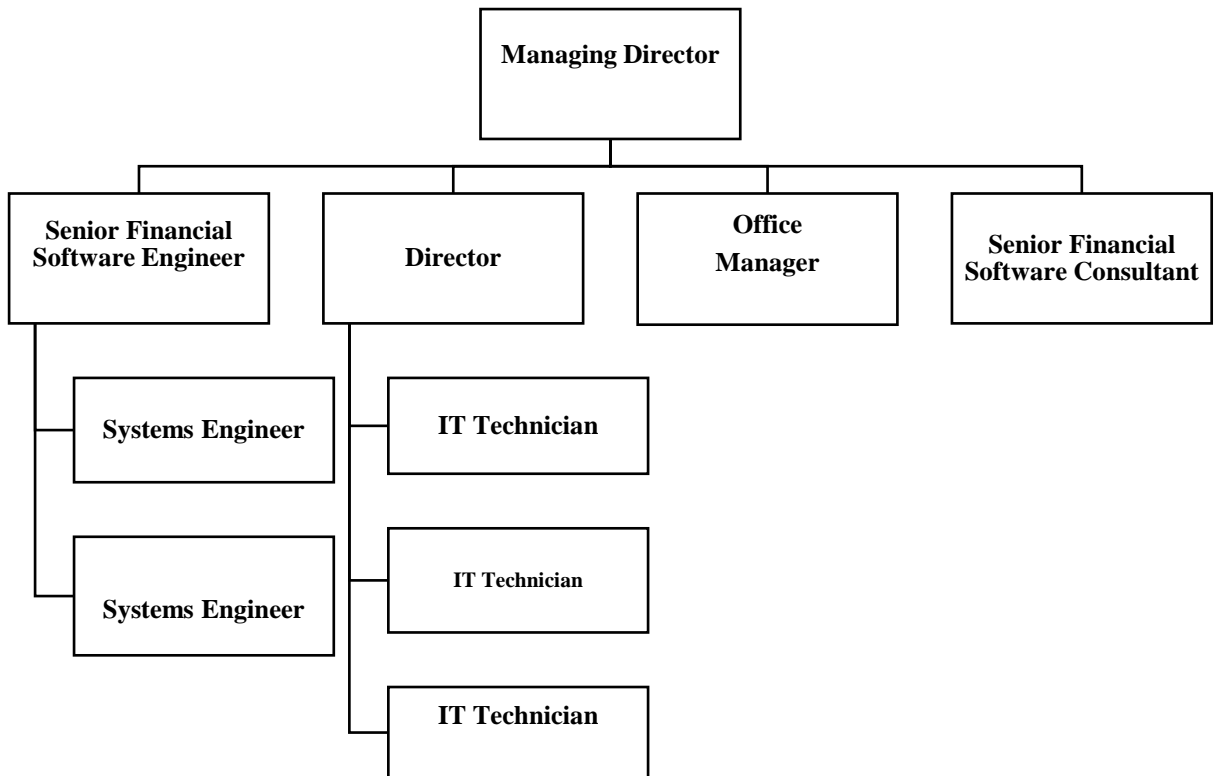
Pr1 also uses contractors for individual projects. Contractors tend to be hardware technicians and other skilled contractors who can provide support for hardware and software issues, such as projects in rural areas. The organization hires contractors to undertake projects on behalf of Pr1. The contractors are both local and national.

Pr1 defines a highly skilled employee as an employee with a tertiary level diploma/degree (typically undergraduate) and who also holds industry certification reflecting the line of the digital sector they work in. For example, Microsoft Certified Systems Engineer (MCSE) and Fortinet. The skilled qualifications sought by Pr1 are principally in cloud computing, hardware management and systems engineering. In addition, Pr1 considers highly skilled digital sector staff to typically require more than three years IT industry experience.

Pr1 management considers the majority of staff employed by the business to be highly skilled; while they may not have degrees, they have relevant industry certifications. Management reported skilled staff tend to remain with the organisation for around 5 years, longer than is typical (around 2 to 3 years) in the digital services sector. In the last two years during Covid-19, where mobility has been restricted due to lockdowns and temporary border closures, no highly skilled employees have left the organisation.

Recruitment

Pr1 seeks to hire new employees from Hawke's Bay in the first instance, with recruitment practices also being focused on local talent. The company does not currently have any employees who have joined the business from outside of Hawke's Bay.

The principal reason for regional recruitment appears to relate to regional economics rather than labour pool issues. There appears to be a reluctance by potential staff to move to the region due to the lack of housing[5], rather than a desire to develop the regional labour pool. Pr1 executives consider that, if they were to recruit outside the region, candidates would most likely move from larger cities.

Pr1 uses a range of channels when recruiting. Channels are principally online through Seek, Trade Me, and LinkedIn. Pr1 also contracts a recruitment agency for some roles. The hiring process typically takes between one to two months, with around 20 applicants for an average role.

Strategic human resource management

Pr1 focuses on employing staff who can undertake a broad range of tasks, generalists rather than specialists.

Pr1 work streams tend to differ from those of a larger digital sector organisation. System architecture, work practices and infrastructure are different, the technology is newer and more complex in large digital sector organisations. Pr1 only has a few clients with more than 100 employees. Most of their clients are small businesses and their digital services needs are less complex when compared to larger businesses located in larger cities like Auckland.

Pr1 management also suggested employees who may consider the option of moving to Hawke's Bay may also have to consider that they will have to work with different products including routers, switches and even different wireless gear, "everything is different". The organisation would have to either re-train or employ someone who is experienced in working in provincial digital services.

Given Pr1's small size, there is a risk in situations where an employee leaves or a new employee is hired. Specifically, the organisation may be unable to deliver on service level expectations with clients and/or complete contracted projects to the required standard. Pr1 prefers to hire graduates and upskill them. Management do not expect the current human resource strategy to change unless the company loses experienced staff. To some extent this risk may be offset by the spread of small

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[5] At the time the fieldwork was undertaken (April 2021-August 2021)

clients which means that the loss of one client may not have a major impact on the business, as advised by the manager.

Training existing staff and, if necessary, hiring is used to fill skill and resource gaps. As noted above, the preferred path is to upskill existing staff. While the company does not have a formal career development plan for each employee, there is a focus on internal employee training and development. The training modality is centred on using online training for a range of skills development including soft skills, time management, and leadership. Technical skills training for project management, and various IT industry certifications for tools (such as Fortinet, Microsoft and Ubiquity) is also provided to employees as required for a project or client they are working with. Training is also provided for specific software skills such as VOIP software 3CX).

The strategy going forward is to train graduate employees with the skills required.

Attraction and retention of highly skilled employees

Pr1 was an early adopter of partnering with EIT. Pr1 is a member of the School of Computing Local Advisory Committee and has worked with the school to provide internships for EIT Bachelor of Computing students for more than a decade.

The partnership has contributed significantly to the successful recruitment of local graduates and may in part explain why Pr1 has been able to successfully recruit new staff without needing to go out of the region. Interestingly, the practice of organisations partnering with EIT and providing student internship opportunities, is now being adopted by a growing number of organisations across Hawke's Bay.

Pr1's future plans are to retain staff by providing competitive remuneration packages and a collaborative workplace environment and work culture. As part of the focus on retaining and developing staff, regular employee training is undertaken to upskill the employees. Pr1 seeks to provide staff with certainty about their future with the organisation. This enables staff to plan their life, both at work and at home.

Management considers the reasons skilled staff stay with Pr1 include:

- Remuneration: The organisation offers the industry average regional remuneration. Company vehicles are also provided for most staff to be used for company work.
- Work Environment: There is a collaborative work environment and workplace culture. Work-life balance is emphasized for the employees with periods of high and low volumes of workload for staff members.

- Amenity: Lifestyle factors in Hawke's Bay, including lower population density, less traffic congestion and a fast-growing economy are also considered to be key contributors to staff retention.

Overall, management considers staff are committed to staying with the organisation and living in region for the foreseeable future.

Reasons highly skilled employees move to Hawke's Bay

Pr1 has no employees who have moved Hawke's Bay. Management, however, suggested several reasons potential new recruits may elect to move to the region:

- Amenity: Hawke's Bay has (until recently) had lower cost housing than larger cities. In addition, population density is lower, and there is less traffic congestion. In the wider context, lifestyle and low population density have been key in attracting people to move to Hawke's Bay. Rising house prices in Auckland have also been a factor.
- Work Environment: There are potentially greater job opportunities emerging in specialist areas as the sector develops. As an example, the demand for application developers is significantly higher in Hawke's Bay than was the case 10 years ago.

Reasons highly skilled employees may leave Hawke's Bay

Pr1 has no employees who have left Hawke's Bay. Management, however, suggested several reasons staff may elect to leave the region:
- Remuneration: While the organisation has been able to match the regional industry average, salaries tend to be lower when compared to larger cities.
- Decreasing Amenity: The cost of housing in the Hawke's Bay is now rising and it is likely this will reduce the attractiveness of the region.

The changing interplay of salary and house prices may play a significant role when current or potential employees compare living in Hawke's Bay with living in a larger metropolitan area. While salaries in Hawke's Bay have increased, they have not increased at the same rate as house prices. Pr1 management noted that ten years ago there was a considerable difference in house prices between Hawke's Bay and, say, Wellington and this margin seems to have decreased with a house in Hawke's Bay now costing approximately the same as a house in Wellington.

Summary

Pr1 is a small local digital services organisation and is typical of local digital sector organisations. The staffing is stable, and the organisation proactively pursues a policy of local recruitment, in part through linking with the local polytechnic, and then developing staff, paying particular attention to the work environment and work-life balance. The organisation has not had employees

join from outside the region or leave the region. However, management hypothesised regional amenity and the PR1 work environment would be attractors, while decreasing amenity due to house price increases relative to metropolitan locations, better job opportunities and higher salaries in larger cities were likely to be factors that would cause staff to leave the business and the region.

4.1.3. Case Two: Pr2

Company overview

<u>History</u>

Pr2 commenced operations in 2002 and the company is privately owned with the main office in Havelock North. Shares are owned by two groups of shareholders. The company has been trading profitably since business operations commenced. The company has changed ownership over time and the shareholders of the company have changed as well[6]. The principal shareholders are the owner and managing director of the company. Pr2 provides automation, robotic and post-harvest solutions to businesses in Hawke's Bay and works with a range of food and beverage sector organizations, as well meat and wool processing and material handling businesses.

Pr2 was originally a system integration company setting up a combination of hardware and software to help make a complete digital system for organisations to utilise. In 2011 the company undertook its first robotics project in partnership with another organization. In 2016, the company established an in-house mechanical design, installation, procurement, and automation team specifically for robotic and turnkey machinery projects (a turnkey project is constructed in a manner so that it may be sold to a buyer as a complete project). In 2017, the company designed its first medium and high-pressure washers in the horticulture industry.

The range of solutions provided by Pr2 are outlined in Table 4:

Table 4:Pr2 Post harvest technology and capabilities

Solution Type	Details
Post-Harvest Technology	The organization helps businesses with products including water filtration systems, produce washers and end of line paletizing.
Technical Capabilities	The technical capability covers a wide range of areas, including but not limited to automation, project management, machine safety, electrical, process and software engineering and mechanical design and business intelligence.
Automation	Pr2 supplies and integrates high speed and high payload robots.

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[6] New Zealand Companies Register. Pr2 Limited (1240996).

Project Management	The organization provides project management support for any industrial installation including the instrumentation, electrical, control and industrial IT scope of the project.
Engineering	Pr2 provides support for electrical, process, reverse and software engineering for effective implementation of automation solutions.
Industrial IT	The organisation has experience in a range of industrial IT systems being able to assist with enterprise-wide networked systems and smaller stand-alone supervisory control and data acquisition (SCADA) systems.
Business Intelligence	Pr2 assists with data mining, statistical analysis and predictive analysis to find patterns and anomalies in large datasets to help predict outcomes.

In addition to utilizing in-house capability, Pr2 works with a range of trusted and strategic partners to utilize specialized equipment, skills and resources to help meet their clients' needs.

Staffing

Figure 4:Pr2 organisation structure
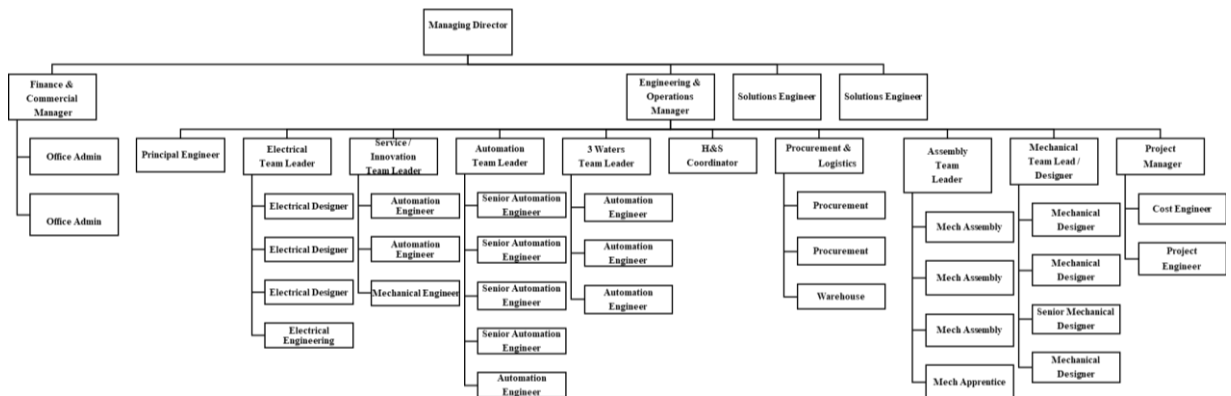
Pr2 has 40 employees (36 permanent staff and four contractors); 40% of the company staff participated in the survey, and 12% of the employees were born outside New Zealand; 5% are women and 5% identify as Māori.

The company hires mechanical contractors as required to assist with the installation of new machine-based solutions at packhouses.

Organisational Definition of Highly Skilled Employees

Pr2 defines two groups of highly skilled employees:

- Staff working on software and converting this to tangible and working physical machines.

- Staff working on specialised machinery in the factory, working closely with the design team.

The manager considers all 40 staff to be highly skilled, even those with only trade qualifications as they have the experience to deliver complex projects.

It can be seen that when compared to Pr1, both organisations appear to have a similar view that a combination of practical experience and academic qualifications contribute to employees being seen as highly skilled. The ability of staff to be able to deliver projects does contribute to them being skilled. The experience could be both in the Hawke's Bay region or broader. Holding industry certifications with a few years of experience may be the qualities the highly skilled employees possess.

Recruitment

Recruitment strategy

Pr2 is experiencing recruitment issues. Pr2 endeavours to source skills locally, and the preference is to hire locally as candidates who have a base in Hawke's Bay tend to settle in easily. However, the inability to find appropriately skilled and experienced local staff to fill the roles is causing the company to lose potential business, due to a lack of capacity.

To source skills, Pr2 is currently actively discussing employment opportunities with overseas candidates to recruit them once Covid-related travel restrictions are lifted. An international approach is often adopted in the recruitment process since the required skill is often not available locally.

Recruitment process

Pr2 uses Seek and external recruitment agencies and advertisements typically promote the variety of technical work here and the amenity benefits of living in the region.

It also uses LinkedIn but does not use Facebook for recruitment. Wider advertising through conventional channels and recruitment consultants are also used.

Strategic human resource management

Pr2 is seeking to expand the workforce by 25% to 50 staff, because of business demand. Given the recruitment issues, Pr2 is considering recruiting lower-skilled and experienced staff locally. The business has multiple workstreams ranging from automation and robotics to engineering and business intelligence. This requires having a pool of staff who can undertake a wide variety of tasks. Overall, the strategic objective is to develop a balance of software knowledge and hardware expertise.

While requiring skill sets and experience (as discussed above), Pr2 also focuses on employee attitudes. The business seeks staff who are 'solution-focused', even new staff may lack some areas of knowledge.

Management identified that, if Pr2 cannot hire new staff or retain the existing staff, there are significant implications for workflow and the number of clients the business can accept. Working from the strategic business plan, management plans to identify gaps in the skillset and organisation structure.

Part of the solution is expected to be engaged with tertiary institutions to attract talent while students are still studying and to hire graduates and commence in-work training. This model may also include on the job learning experiences such as placements and internships. Pr2 hosts an engineering intern every summer from domestic tertiary education institutes or universities. Some interns have returned for a second year.

Pr2 also focuses on balancing work and life. Employees have the flexibility of designing their work schedules around other life commitments and are given the autonomy to do their work as long as they can deliver on the deadlines set for them. Since employees tend to work end to end on a project, they are responsible for completing the work and have the flexibility to do the work in their own time.

Employee development

The company provides refresher training to employees as the software develops continuously through this year. They have a training plan for each employee, and new employees go through a training programme when they join the organisation. While this may include a combination of hardware and automation training as well as software training, the intent is to help employees become trained to work on the entire project. For example, employees go through electrical competency refreshers to keep them to speed with the latest in using electrical equipment.

Attraction and retention of highly skilled employees

Attraction

Attracting potential employees from overseas has been an issue during the Covid lockdowns. In the wider context, the key challenge in hiring employees has been to determine whether candidates have the required skill set. Pr2 considers it needs staff who can multitask.

Pr2 plans to improve the company website and social media presence to allow future employees to see the variety of technical projects that the organisation delivers to clients, which will attract individuals who are motivated by technology. Management considers this could be a way to

engage with external stakeholders in a meaningful manner and try to streamline the process of recruitment as well.

Management stated that Pr2 has found good candidates from all over New Zealand. However, it appears that candidates cannot afford to move to Hawke's Bay due to rising house prices. As an example, a machinery engineer role has been advertised for the past 19 months, and only three suitable candidates have been interviewed. None of the candidates accepted the role.

Retention

Management considers the reason staff remain at the firm is the organisation's culture. A key strategy adopted to retain employees is to allow employees freedom and not micro-manage their work.

Two staff members have been with the organisation since the business commenced, and this is considered to be a good reflection of the culture. Despite house prices, management considers the regional lifestyle and climate and absence of a metropolitan commute to be reasons staff stay living in Hawke's Bay. The reasons to move to the region include being near family and friends and to enjoy a better quality of life.

Management noted that the organisation's culture is flexible, with employees having autonomy to plan and manage their work timings and calendar. The focus on work-life balance also allows employees to take a break during the workday and come back to finish their work later.

Management considers the reasons skilled staff stay with Pr2 include:

- Work environment – The team celebrates with a meal at the end of each project, and birthday cakes and gift cards are a tradition to foster a team spirit and help the employees to bond. These mechanisms are often utilized to help build a work culture that encourages employees, and this also enhances employee loyalty.
- The right attitude of people – A key reason to select a candidate is that they have the right attitude, which is being a team player, being humble, open to asking questions and having a solution-oriented approach. While technical skills can be taught, having the right attitude is necessary for individual success and the success of the team.
- Flexibility – The employees have the freedom to plan their work schedule around their family and other life commitments, enabling them to create find a work-life balance.
- Hawke's Bay as a region – The weather, landscape and lifestyle offered by the region also attract employees.

Reasons highly skilled employees have moved to Hawke's Bay

Management suggested several reasons staff have moved to the region:

- Amenity: The quality of life offered in Hawke's Bay tends to be a major attraction for new staff and is widely recognized as a good place to raise a family. The environment also provides opportunities for activities including beaches and mountains. Lifestyle, climate and the lack of a commute are considered by management to be popular reasons to move to Hawke's Bay.

- Close-knit work culture: While larger organizations offer a higher salary, management considers these organisations may not be able to offer the close-knit work culture at Pr2.

There are also reasons why candidates may decide not to move to Hawke's Bay. These include

- Rising housing prices in Hawke's Bay: Rising house prices are a disincentive for candidates to move to Hawke's Bay.

Reasons highly skilled employees have left Hawke's Bay

Management suggested several reasons staff leave the region:

- Remuneration: The main reason employees leave is for a higher salary. This appears to be particularly true for younger employees who want to work for a larger firm or earn a higher salary.

Summary

Pr2 is a medium-sized digital services firm that provides robotics and automation solutions to the horticulture industry in Hawke's Bay. Recruitment is both domestic and international. There is a focus on work-life balance enabling staff work freedom. The reasons for employees to move to Hawke's Bay includes amenity (quality of life, the weather, and the landscape), and the reasons employees leave the region includes salary and the opportunity to work in a larger organisation based in a metropolitan location.

4.1.4. Summary of private sector cases

Pr1 and Pr2 are two different types of organisations working in the digital sector in Hawke's Bay. Pr1 provides digital sector support services to firms in the region, and Pr2 provides robotic and automation solutions primarily to the horticulture industry in the Hawke's Bay region.

The similarities and differences between Pr1 and Pr2 are summarised in Table 5:

Table 5:Pr1 and Pr2 similarities and differences

Category	Similarities	Differences
Organisation set- up	• Organisations are privately owned.	

	• Organisations function primarily within the region. • Organisations have been in operation for at least 20 years. • Organisations provide support to local businesses with digital services.	
Operations	• Organisations have developed a partnership with businesses for knowledge transfer and working on projects in other regions of New Zealand. • Organisations use contractors for individual projects.	
Definition of Highly skilled employees	• Organisations appear to have a similar view that a combination of practical experience and academic qualifications contribute to employees being seen as highly skilled.	
Training	• Organisations have a focus on upskilling staff through training.	
Recruitment/Attraction	• Organisations prefer to have employees who are generalists rather than specialists. • Organisations believe engagement with tertiary institutions attracts talent. • Organisations appear to utilize Seek and external recruitment agencies to recruit employees.	• Recruitment for Pr1 is primarily domestic and from the region, Pr2 adopts a more domestic and international approach to recruitment. • The focus of attraction for Pr1 has been on the recruitment of local graduates, with Pr2 talking to several candidates located both within the region and nationally
Retention	• Key focus areas of retention for organisations are on the work environment and amenity offered by the Hawke's Bay region. • Close-knit work culture as seen in both Pr1 and Pr2 is a key factor in retaining employees.	
Reasons for Leaving the region	• Remuneration remains the key reason why employees have left or may leave the organisation.	• Decreasing amenity (due to house price increases relative to metropolitan locations) leads to employees leaving Hawke's Bay in the case of Pr1; the rising house prices act as a disincentive for candidates to move to the region in the case of Pr2.

4.1.5. Private sector employee analysis

Introduction

All employees in the organisation (or IT/digital department) were asked to participate in a survey to better understand employee demographics and motivations to move to, stay in, or leave Hawke's Bay. An email was sent to the executive with a link to the survey. This was then distributed by email to staff. Multiple emails were sent to employees to encourage as many staff as possible to participate in the survey. In total 23 employees across the two organisations participated, representing approximately 50% of the employees in the two private sector case organisations. The findings are considered broadly indicative of the staff in both organisations. The results have been collated and analysed below.

Employee demographics

The workforce in the private sector case organisations appears to be predominately male. The percentage of the women in the workforce (13%) is less than the percentage of women studying for the Bachelor of Computing Systems degree at EIT (19%) and is lower than the percentage of women in the digital sector workforce in New Zealand (27%) (MBIE, 2021). The reasons for this disparity are not known but are consistent with the general finding of this study that the digital sector workforce in Hawke's Bay exhibits a greater demographic bias than the digital sector generally or the comparable Hawke's Bay population.

As shown in Figure 5 below, approximately two-thirds of participants (65%) in the private sector case organisations were younger than the median age (42.4 years) for the four organisations that participated in the study. This indicates that employees in the private sector sample are younger than the public sector sample. Interestingly, 22% of participants were in the 35-44 years age group. This is comparable with Hawke's Bay population (22.3%) in that age group.

Figure 5:Age distribution (private sector)
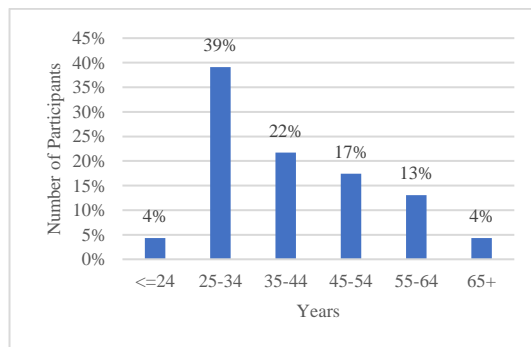
N=23

The overwhelming majority of employees identified as European[7] (83%). This is higher than the percentage for Hawke's Bay (75%) (MBIE, 2021). There appears to be a significant gender and ethnic bias in the employees of the private sector case organisations. Ethnicity also appears to be more concentrated into a single group than is typical for the industry globally (Cortright, 2006). Thirteen per cent (13%) of private-sector employees identified as Māori. This is considerably higher than the New Zealand digital sector percentage (4%) (MBIE, 2021). However, this is significantly lower than the percentage of the Hawke's Bay population that identifies as Māori (27%). This suggests that while the sector in Hawke's Bay is employing Māori, the level of employment continues to be lower than that reflected in the overall regional population.

Approximately two-thirds of employees were born in New Zealand (Figure 6). In total 43% of employees stated they were born in Hawke's Bay. Given the scale of migration over time and increased employee mobility, the percentage of employees born outside Hawke's Bay is to be expected. A very significant percentage of the workforce was not born in the region but has migrated to the region. A significant percentage (62%) of those born elsewhere in New Zealand have moved to or returned to the region.

Figure 6:Place of birth (private sector)
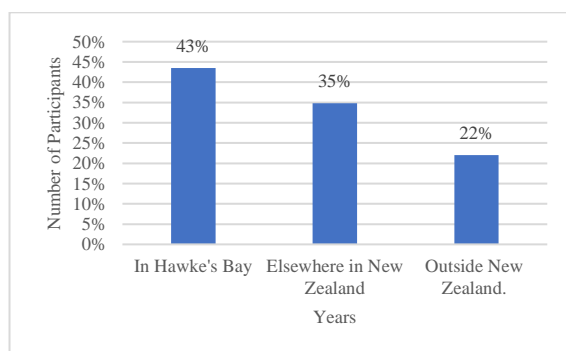
N=23

Academic qualifications

Almost half (48%) of the employees were qualified to certificate/diploma level (L4 or L4 on the NZQA Framework) (Figure 7). This perhaps reflects comments made by the executive of both private sector case organisations that they considered staff to be highly skilled when they combined academic qualifications and work experience. Importantly however, the digital sector in Hawke's Bay may be using a different construct for skill than the industry generally, placing greater emphasis on practical experience than formal qualifications.

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[7] This includes NZ Europeans and people identifying as European but born outside New Zealand.

Figure 7:Academic qualifications
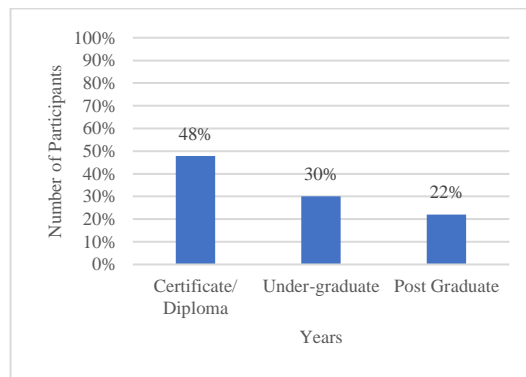
N=23

Importantly, 22% of employees stated they had a postgraduate qualification. This is higher than the wider Hawke's Bay population, of which 6.2% have a postgraduate qualification. Younger employees appear to be more highly educated, compared to those aged 45 and above. A third of the employees under the age of 34 are postgraduates. It is considered likely that the youngest age group (<=24) have recently completed their academic qualifications. However, the overall level of qualification is low when compared with major digital hubs such as Silicon Valley where 71% of adults aged 25 or older have at least some college education, 47% have a bachelor's degree or higher and 21% have a postgraduate degree or higher (Deruy, 2017).

While half of the participants have qualifications in development and innovation-based roles (52%), the other half (48%) participants have qualifications in support-based roles. This reflects the nature of the businesses and the type of work being done by the firm.

Employment in the digital sector

Employees in the private sector organisations appear to bifurcate in respect to the time they have been working in the sector (Figure 8). Younger, more highly qualified staff appear to be relatively inexperienced in the digital sector, while older, less highly qualified staff are likely to have greater experience. A significant portion of the participants (44%) are aged between 25-34 years and have either less than five years or between five to 10 years of experience in the IT/digital sector.

Figure 8:Duration of employment in the IT/digital sector (private sector)
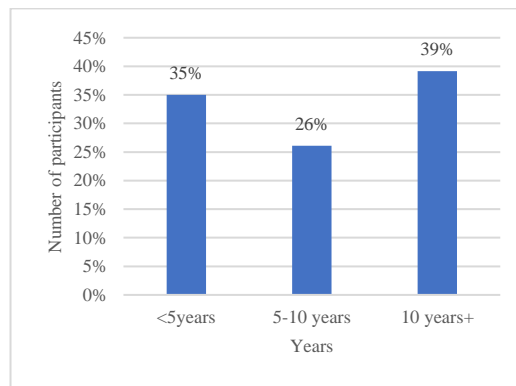
N=23

Seventy percent of the employees surveyed stated they had been working in their current organisation for up to five years (Figure 9). This suggests that the digital sector labour force, even in a region such as the Hawke's Bay, may be relatively mobile. This may also have implications for digital sector organisations seeking to build longer term employee loyalty, which appears to be the case with the organisations in this study.

Figure 9:Duration of employment in current organisation (private sector)
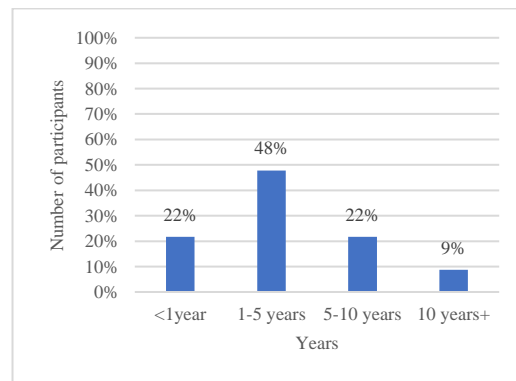
N=23

Potential employee mobility is further evidenced by the 44% of employees who have been working in the IT/digital sector for more than 10 years, but only 9% have been working with their current organisation for more than 10 years. However, of the participants who have been working in the sector for more than 10 years, 60% have been working in their current organisation for between 5-10 years. This may suggest older employees tend to be less mobile.

The employee responses suggest a difference between employee perspectives and executive perspective. This may also imply that within the subgroup of private sector employees in Hawke's Bay, younger graduates may be more likely to leave within five years, and older employees may tend to have greater sector experience and to stay with their organisation.

70

Sixty one percent (61%) of the employees stated they work in development and innovation-based roles and 39% in support-based roles. Support-based roles are those that help the organisation by providing support services to other organisations within the digital sector or other sectors. The development and innovation-based roles are those related to innovation and developing primary products or services for the digital or other sectors. Interestingly, of the employees who have industry qualifications for development and innovation, approximately 82% work in development and innovation-based roles, but of all the employees trained in industry qualifications for support-based roles, 42% work in development and innovation-based roles. This suggests that even though the employee may be trained in development and innovation-based roles, there may be a prevalence, either by the employer or the employee for support-based work.

Why private sector digital industry employees live in Hawke's Bay

As shown in Table 6, the main reasons for living in the region are social or amenity driven. Social reasons are primarily family related. Amenity reasons include the climate and the regional lifestyle, including the lifestyle in smaller cities. Cost of living and the specific role were also cited as economic reasons for living in the region. It is possible, however, that cost of living factors may recently have been superseded by the increasing cost of housing in the region (as stated in the executive interviews).

Importantly, nearly half the respondents stated they live in Hawke's Bay for family reasons and a third for amenity reasons. This is a key finding of this study. It appears most skilled digital labour does not work in Hawke's Bay for career or entrepreneurial reasons, rather the proximity of family and friends works both as a reason for attraction and retention for professionals in rural areas (Hegney et al., 2002).

Table 6:Reasons for living in Hawke's Bay (private sector)

Factor	Reasons for Living in Hawke's Bay	% Respondents
Social	Family and friends	48%
Amenity	Climate	30%
Amenity	Lifestyle	30%
Amenity	Life in smaller cities	17%
Economic	Affordable living	17%
Economic	Role	13%
Social	Raising a family	13%
Amenity	Less densely populated	9%
Amenity	Quality of life	4%
Other	Covid-19	4%
Social	Born in the region	4%
Social	Work-life Balance	4%

N=23

Why private sector digital industry employees move to or return to Hawke's Bay

The majority of the employees (69%) have been living in Hawke's Bay for more than five years (Figure 10), with two thirds of whom (Figure 11) have moved to or returned to the region.

Figure 10:Duration of living in Hawke's Bay   *Figure 11:Moved or returned to Hawke's Bay*
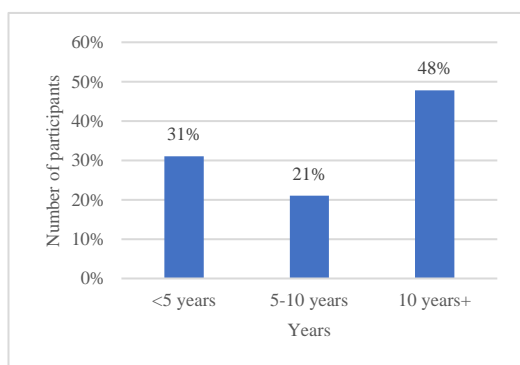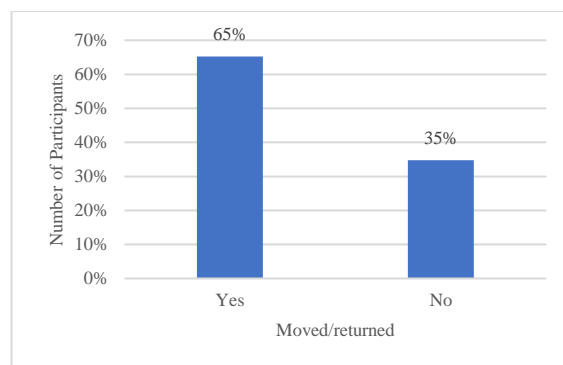
N=23

As shown in Table 7, the primary reasons for moving to or returning to the region include being near family and friends, enjoying a better quality of life, and to move away from a major metropolitan area (this is similar to the reasons stated for living in the region) and reflects the role of amenity and social reasons for migration. Slightly over half the employees who had moved to or returned to the Hawke's Bay did so for family reasons and over 40% for quality of life reasons, or to leave a metropolitan location (35%). These responses strongly indicate employees working in the private sector case organisations who have moved to or returned to the Hawke's Bay, did not do so for career development reasons. This has potentially significant implications for the development of the digital sector in Hawke's Bay and indicates the skilled digital sector labour pool may not be suited to the development of entrepreneurial organisations.

Table 7: Factors motivating employees to move to/ back to the region (private sector)

Factor	Reasons for moving to in Hawke's Bay	%Respondents
Social	To be near family and or friends	52%
Amenity	To enjoy a better quality of life	43%
Amenity	To move away from a major metropolitan area	35%
Social	To enjoy a better work environment	22%
Economic	Better professional development and or job	17%
Economic	To access better housing	13%
Other	Others	9%
Amenity	To be near social facilities or amenities such as schools	4%
Economic	Better salary and or benefits	0%
Social	To access better community support	0%

N=23

Why private sector digital industry employees stay in the Hawke's Bay

When asked why they stay in the Hawke's Bay, a similar pattern emerges. Social and amenity factors dominate (Table 8). The primary reasons stated for staying in the region include to enjoy a better quality of life, to be near family and or friends, and to enjoy a better work environment. As stated above, this may constrain the development of the digital sector in the Hawke's Bay.

Table 8:Factors motivating employees to stay in the region (private sector)

Factor	Stated Reason-Stay-in	% Respondents
Amenity	To enjoy a better quality of life	28%
Social	To be near family and or friends	23%
Social	To enjoy a better work environment	21%
Economic	To access better housing	8%
Amenity	To move away from a major metropolitan area	8%
Economic	Better professional development and or job	5%
Economic	Better salary and or benefits	3%
Amenity	To be near social facilities or amenities such as schools	3%
Social	To access better community support	0%

N= 23

Why private sector digital industry employees would leave Hawke's Bay

The study has not sought to interview employees who have left the region because of difficulties with sampling. Employees were asked to provide reasons which could cause them to leave the region (Table 9). The principal reasons given were economic, namely better salary or benefits, and better professional development opportunities and to enjoy a better, presumably urban, quality of life. This is a longstanding issue for regions such as Hawke's Bay and reflects comments made by executive in respect to the difficulty in matching remuneration offered in larger cities and related job opportunities.

It is considered likely those most likely to leave are younger employees. This fits with a common pattern in Hawke's Bay and, importantly, two thirds of employees (67%) who had moved to or returned to Hawke's Bay stated they intended to remain living in Hawke's Bay for 10 years or more.

Table 9:Factors motivating employees to leave the region (private sector)

Factor	Stated Reason-Leave	% Respondents
Economic	Better salary and or benefits	23%
Economic	Better professional development and or job	21%
Amenity	To enjoy a better quality of life	18%
Social	To be near family and or friends	11%
Social	To enjoy a better work environment	10%

Amenity	To move away from a major metropolitan area	8%
Economic	To access better housing	6%
Social	To access better community support	2%

N=23

Summary

The skilled private sector workforce appears to be European and male. There are a significant number of younger employees who are more likely to be more highly educated than their more mature colleagues. A significant percentage of employees were born outside the region, either elsewhere in New Zealand or offshore, and two thirds of employees had moved to or returned to the Hawke's Bay.

It appears, when considered in conjunction with the executive interviews, that the case organisations seek to hire recent graduates locally and these graduates have generally higher qualifications than the mature workforce and appear more likely to leave the region, probably for economic or career reasons. The mature workforce is less well educated, but is experienced and is settled in Hawke's Bay, primarily for social and amenity reasons. Interestingly, the executive in the case organisations appear to use a definition of 'skill' that orients toward a combination of experience and academic and industry qualifications.

It is reasonable to conclude the profile of the stable workforce (male, middle aged, European, moderately well-educated with significant industry experience) does not match that of major digital sector clusters. If the industry is to develop in the Hawke's Bay there may need to be a focus on offering salaries and opportunities which will bring younger, more highly educated and more entrepreneurial employees to the region.

The underlying reasons for the gender and ethnic bias are outside the scope of this study. However, they are important as they suggest that, while the Hawke's Bay is employing more Māori than the sector in New Zealand generally, Māori are significantly under-represented in the workforce.

4.2. Public Sector Cases

4.2.1. Introduction

This section examines the digital departments of two public sector organisations. The cases have been anonymised (Pu1 and Pu2). The cases were selected as they are broadly representative of the public sector of digital support units in Hawke's Bay.

These organisations will be contrasted against the private sector cases in the cross-case analysis. While the case organisations are different, Pu1 and Pu2 provide similar services to similarly sized organisations:

- Pu1 is the digital services department of a local tertiary education provider and has been providing IT and related support for the past 47 years.
- Pu2 is a digital services department of a local city council in the region. The department has been providing information technology support for the past 70 years.

The cases are structured with an initial discussion providing an overview of the organisation and the department, followed by a workforce and human resource environment analysis. The data for the case is derived from interviews with management and organisation documentation and websites.

The employee survey findings for the two cases are then presented and discussed. The survey results are combined due to sample size and to enable comparison of the private and public sector organisations (23 responses for the private sector and 28 responses for the public sector). Significant differences in response between the employees of Pu1 and Pu2 are discussed where relevant.

4.2.2. Case One: Pu1 (Digital Services Department)

Organisation overview

<u>History</u>

Organisation

The history of tertiary education on the East Cost of New Zealand stems back to 1958, when Margaret Heely declared her intention to gift the Otatara estate in Taradale to be the site for a university (Matthews & Johnston, 2015).

The origins of the local tertiary education provider can be seen in the country's first experiment with Community Colleges, in Hawke's Bay (1975) and Tairāwhiti (1978). Pu1 is a part of the local tertiary education provider and provides digital support services for the institute which began as a community college (a form of regional polytechnic), in Hawke's Bay in 1975. In 2011 these two institutions merged to form the current organization. The local tertiary education provider has three main campuses located in Napier, Tairāwhiti (Gisborne) and Auckland (for international students) (Matthews & Johnston, 2015). After the merger with Tairāwhiti polytechnic in 2011, teams from the Tairāwhiti polytechnic joined the local tertiary education provider, along with managers to help manage those teams.

Pu1 digital services

The helpdesk at the Digital Services department provides support services to all Pu1 staff and students. They assist with troubleshooting and resolving issues as well as guiding on new software updates and issues. The infrastructure team sets up new software and hardware solutions and provides support. The solutions team provides training on new software solutions being implemented by the department across the organisation.

Strategy and operations

The Information Technology (IT) infrastructure in Hawke's Bay campus is well developed, set up in a strategic and planned manner in recent years with ample facilities having the hardware and software support to assist the growth of the organisation. Although the facilities and timetable teams report to Director of IT and Facilities, they are not part of the Digital Services Department.

The range of support services provided by Pr1 is outlined in Table 10:

Table 10:Pu1 IT services digital services and technology support

Service Type	Details
Helpdesk	Provides support to all staff and students on campus with digital services related queries.
Hardware support	Pu1 provides hardware, application and network set-up and support services.
Implementing new solutions	Pu1 helps with wires, cables, and project work on deploying new systems.
SharePoint functions	Setting up and maintaining SharePoint, application and database design/development and providing support for these services.
Project Management	Pu1 undertakes project management work along with business analysis and setting up of IT architecture.

Client base

The sole client for Pu1 is the institution, with operations across the three principal teaching locations of Napier, Tairāwhiti (Gisborne) and Auckland. No support is provided to other organisations. There is no team in Auckland; support services are outsourced to a local organisation. However, at the Napier and the Tairāwhiti (Gisborne) campuses, digital services support is provided onsite.

Staffing

The digital services executive has a team of three managers. Two managers oversee the support and helpdesk in Napier and Tairāwhiti (Gisborne), and a third manager oversees the delivery team that manages the infrastructure and SharePoint (Figure 12).

The solutions team has three reports including a project manager, business analysts, and technology roles.

There are a total of 22 staff in Pu1, three in Gisborne and 19 in Napier. Out of these, 21 are full-time employees and one is part-time.

Figure 12:Organization chart - digital services, Pu1
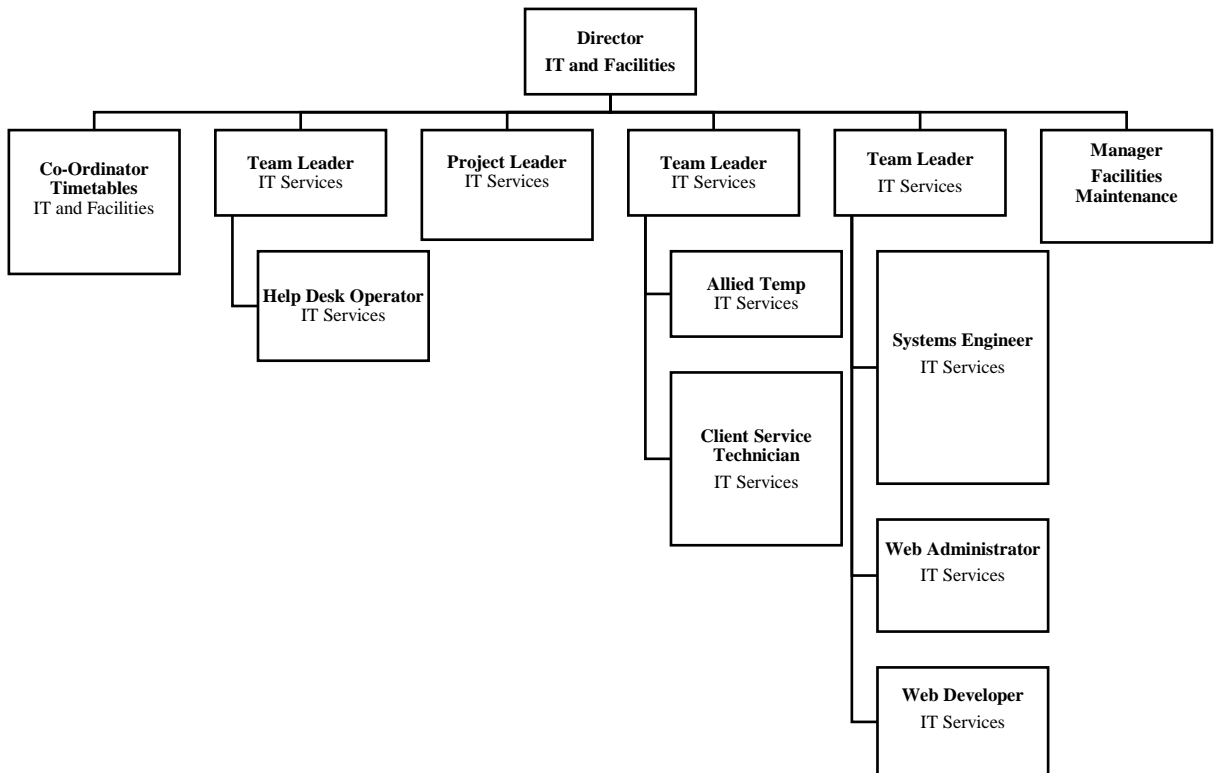
Definition of highly skilled staff

Pu1 defines a highly skilled employee as someone who has the balance between skillset and attitude or "fit", although there is no mention of academic qualifications and work experience.

While most of the employees have formal academic qualifications, emphasis is also placed on industry certifications such as Microsoft Certified Systems Engineer (MCSE) and Project Management Institute (PMI) certifications.

Recruitment

Recruitment strategy

Pu1 uses the organisation's HR processes for advertising and recruiting for all departments, which are also consistent with public sector standards and practices. The executive noted that there is a potential talent pool of qualified graduates from the organisation's Bachelor of Computing graduates.

Advertised roles tend to attract a broad range of applicants, most of whom are desktop engineers aged between 30 and 40, as these jobs attract people who are looking for a good work-life balance. Half of those who apply are simply looking for a permanent job, without checking the job application. A small percentage of applicants have skills, have experience and are a good fit technically.

<u>Recruitment process</u>

Hiring a new staff member takes approximately two to three months, including a couple of weeks to advertise, one or two weeks to book interviews, one or two weeks to do the interviews, one or two weeks to finalise the preferred candidate, and, depending on the availability of the successful candidate, it could be another month before they start work.

Pu1 is very particular about who they employ. To date, the recruitment process has been effective. The executive noted it is important to ensure they are people of the calibre they are seeking and that there is a fit between the CV and the person. While the CV may show that the individual has the experience, they may not have the attitude which Pu1 is looking for in that role and within the team.

Word of mouth also plays a role as managers generally advertise vacancies on the internal notice board and if an employee knows someone who might be a potential candidate for the role, they can then refer them to the executive.

Pu1 uses the organisation's human resources team as its recruitment consultants. The HR department manages the process, and if necessary, supports Pu1 in using external professional recruitment consultants.

Strategic human resource management

The Pu1 executive used the term "fit" on several occasions. The work culture is considered to be very important. Fit is, of course, not a quantifiable term and the executive noted a candidate for a role must align with the current work culture, and have required soft skills, people skills, and communication skills.

Importantly, the executive stated technical skills can be learned or training provided. However, if a person is not a good communicator, it is much harder to train them. Team building activities, for example, shared morning tea, are a key component of developing and maintaining team dynamics. Team members, in particular new team members, must be relaxed, have a sense of humour, be focused, and committed, be prepared to work collaboratively and constructively and be willing to construct a written document.

Pu1 does not expect a significant change in skill requirements over the next 1-3 years.

Employee development

New employees are supported to adjust to working in the department using a buddy system. The work culture in Pu1is open and transparent. For example, the minutes of each meeting are available for staff to view through email and on the notice board.

All staff are provided with the training. This is, in part, because of the specialist needs around continuing to grow and support the technical environment in the organisation.

Training is also part of the strategy of keeping staff engaged, and the training itself can vary. It could be, for example, spending a few days in the IT lab, doing a course in-house, or going to another city (usually Auckland) for a course. Every staff member has a Personal Development Plan. Personal development and training needs are discussed as part of the annual performance appraisal.

Attraction and retention of highly skilled employees

Attraction

The challenges faced by the digital services department at the organisation in Hawke's Bay to attract and retain employees include the inability to match the pay range of major metropolitan cities such as Auckland and Wellington.

The strategies adopted to attract employees include fit, getting a mix of social and technical skills, as well as some motivation to move to Hawkes Bay. The organization offers employees free education and training, creating a good work-life balance and being a family-focused organization. Digital services no longer try to recruit employees from outside Hawke's Bay. Factors that are key in attracting people to working in these roles in Hawke's Bay include job, family, returning home, or local people looking for a better opportunity.

The executive advised that Pu1 offers a good work environment and the ability for staff to continue to study. Further, Pu1 provides the opportunity to work on projects which most organizations would not be able to offer, such as deploying Skype for Business and Teams across two main campuses.

Overall, salary and remuneration packages are much lower in Hawke's Bay. Apart from the work environment, the attraction of working in the organisation is the lifestyle in the region with less traffic congestion, wineries, green and open spaces, good weather and food.

Hiring has been a challenge; Pu1 is struggling to attract applicants with skills that match what they are seeking. In the recent past, Pu1 has had fewer applicants due to Covid-19 and the lack of international students in New Zealand. For example, pre-Covid-19 the role of system engineer

would attract 30 to 40 applicants. This has reduced to 10 to 12 during Covid-19, with three to four applicants from Hawke's Bay and the rest from elsewhere in New Zealand, with none offshore (Thompson, April 22, 2021).

The last two recruitment rounds have been difficult. The executive advised that if Pu1 cannot retain or recruit skills, they will need to revisit their recruitment strategy, including higher salary, increased advertising, and other strategies for recruitment.

Retention

The inability to offer a higher salary package is however a drawback. Within the salary range, librarians are paid the same as system engineers as they both deal with information. Remuneration is currently at the bottom two-thirds of the pay scale for the IT industry in Hawke's Bay. When compared to the IT industry in New Zealand, the Pu1 pay range tends to be at the bottom 20% of pay scales.

Strategies adopted to retain employees are focused on the work culture within the team. The executive described the work culture as a mix of professional and friendly and fun. Pu1 seeks to create a work/life balance as well as offer opportunities for professional development. The executive advised the wider organization tries to offer a family-friendly environment and support to employees participating in tertiary education.

Engagement is also used to retain staff. Team leaders and managers have regular meetings with their staff to engage employees.

The executive considered the key reasons why employees stay at Pu1, as:

- Family-focused employer: Pu1 offers a flexible work environment, helping employees create their schedules around other life commitments. The intention is to create a work environment that is flexible and supportive of the employee.
- Offering opportunities to undertake study: The organisation offers educational opportunities for employees to upskill. Employees have the opportunity to start or continue studying even in areas outside their current professional experience.
- Work culture: There is a focus on creating a balance between work and a fun environment, with team outings and morning tea sessions being utilized to help build a team spirit within the department.
- Lack of Micro-Management: Lack of micro-management is another reason why employees stay with Pu1. Unlike private firms where all time is required to be accounted for, Pu1 is more relaxed and flexible. The executive noted that in part this is likely to be due to the department providing support services, rather than billable time.

Reasons highly skilled employees have moved to Hawke's Bay

There have been a few employees who have moved to the region. The executive suggested several reasons for staff to move to the region:

- Family: Employees may move to the region as their partner may find a job here or for other family reasons.
- Employment: Employees may have to move to the region as they are looking for a job and are open to moving as required for the role.
- Flexible and collaborative work environment: The organisation offers a good work-life balance and the ability to design work schedules around other life commitments. There is also a focus on creating a collaborative work culture and team spirit within the department.

Reasons highly skilled employees have left Hawke's Bay

There have been a few staff who have left the organisation. The executive suggested several reasons staff may choose to leave the region:

- Remuneration: The salary range offered by the organisation is lower than the regional industry average and significantly lower than the national industry average.
- Being unhappy: A couple of employees have left as they were unhappy in their roles and responsibilities.
- Family reasons: The employees have left at times being unhappy in their current roles or due to family reasons where their partner may have found a new job that requires them to move away from the region.
- The impending merger of the polytechnics: Recent issues with the retention of skilled staff include the impending merger. This has created stress for the team, which has resulted in a few people moving away from the organization when they wouldn't have otherwise. However, no details are available about where they went.

Summary

Pu1 provides digital services for the local tertiary education provider in Hawke's Bay. Pu1 provides a range of services including helpdesk, hardware and network support, SharePoint solutions and project management support. There has been a focus on the work environment within the organisation, with the term 'fit' being focused upon when hiring a new staff member. Through activities like morning tea, the management has tried to build a team spirit within the company as a whole. Training is also part of the strategy of keeping staff engaged. Depending upon the staff and the role and any special needs, the organisation has to help grow and support the technical environment. Pu1 does have access to the talent pool of local graduates and looks to

offer these graduates roles within the organisation. The reasons why skilled staff move to the region are considered to be primarily social (family), economic (job seeking) and a flexible and collaborative work environment. The reasons why employees stay at the organisation are centred on the work environment, being a family-focused employer, offering opportunities to undertake study, the work culture and a lack of micro-management. The reasons why employees might leave the region are economic (remuneration), dissatisfaction with their role and the impending organisation merger), or social reasons (family).

4.2.3. Case Two: Pu2 digital services department - corporate services-information services

Organisation overview

History

The settlement of Napier dates from the mid-nineteenth century. The town was granted municipal status in 1858 and granted city status in 1950. The current population of Napier city is 65,000[8]. The city encompasses approximately 100 km^2. The local authority covers both urban and rural areas.

Pu2 is the local authority for the city and provides a range of standard local authority services and infrastructure, including water, roads rubbish, licensing, parking, properties, and rates.

The Pu2 Corporate Services-Information Services has 25 employees. They provide information technology support and digital services to Pu2, located in the city centre.

Strategy and operations

The primary services provided by the Corporate Services-Information Services of Pu2 are outlined in Table 11:

Table 11:Pu2 digital services and technology support

Service Type	Details
Helpdesk	Provides support to all staff and students on campus with digital services related queries.
Hardware support	Pu1 provides hardware, application and network set-up and support services.
Implementing new solutions	Pu1 helps with wires, cables, and project work on deploying new systems.
Technology Support	Training the Council staff and helping implement new systems, working with vendors for providing third party support as per the requirements of the Council and being available to assist with changing technology needs.

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[8] Note. The Population of Napier. http://population.city/new-zealand/napier/

Project Management	Pu2 provides support to other departments undertaking projects where project management support may be needed.

Client base

The client base for the Corporate Services-Information Services is within Pu2, including support for the local libraries, sporting facilities, event venues, museum and galleries, and all government offices under the City Council.

Staffing

The department comprises 25 staff. The department executive expects to increase staffing slightly during 2022. Eighty per cent (80%) of staff were born in New Zealand; 78% are male and 4% identify as Māori.

Figure 13: Organization chart - corporate services-information services, Pu2
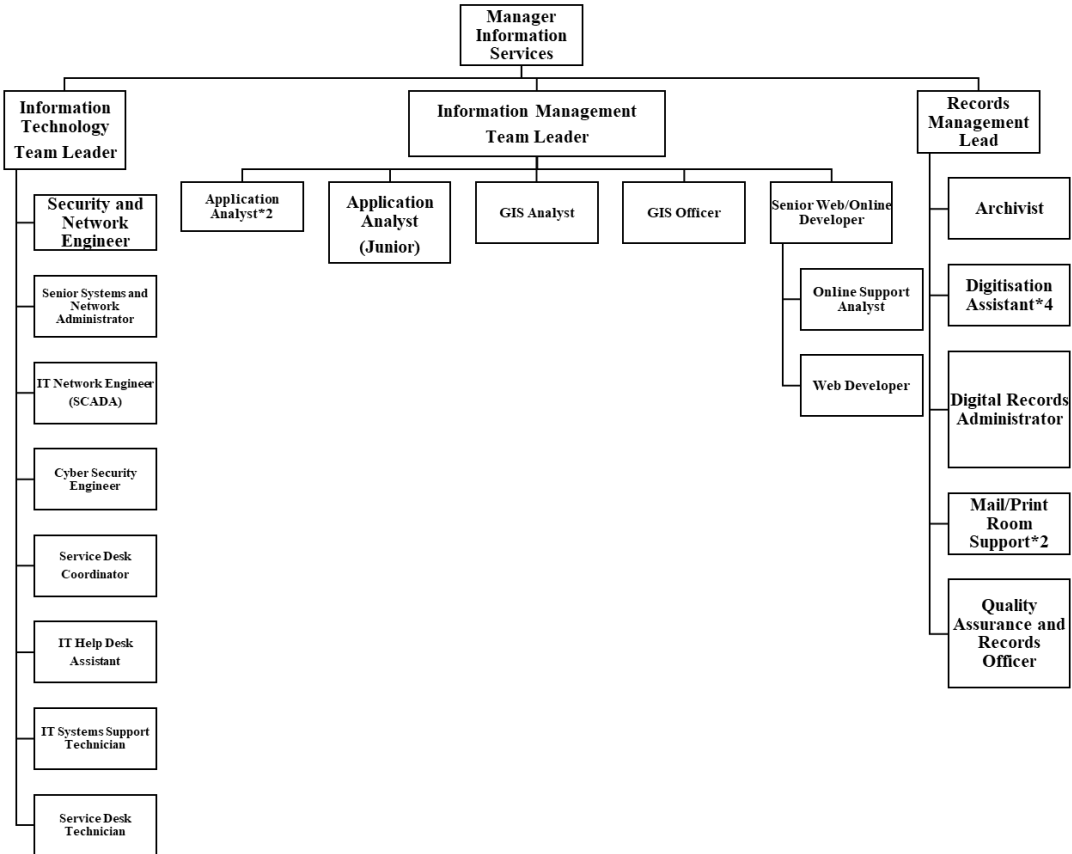
<u>Organisational definition of a highly skilled employee</u>

In terms of a definition of highly skilled employees, there is no formal process to define this, but the job evaluation methodology used to determine the salary of a position does require the organisation to specify what education and experience are required for each role.

With a mix of academic qualifications in the workforce, there is also a focus on industry certifications, for example, Agile Project Management and Fortinet. Thus, there is no formal process in place to determine which employee qualifies as being highly skilled and this depends on the roles.

Recruitment

<u>Recruitment strategy</u>

The executive advised that Pu2 does not have a formal recruitment strategy and all jobs are advertised on the careers section of the Pu2 website. In addition, Seek, Trade Me Jobs and recruitment agencies are also used. Pu2 uses standard branding and a video of the city to attract candidates. There is no particular incentive provided for non-Hawke's Bay applicants, and all applicants are treated equally.

The executive considered the next one to three years are likely to present Pu2 with skill challenges. There is likely to be a need for more data analytics and business intelligence skills to build dashboards for departmental reporting. Digitisation of processes is likely to require staff to learn and use new methodologies. The Council will train for this as part of the transformation program. The executive also considered a shift towards remote working which is underway and expected to be ongoing. It is expected staff will increasingly work in virtual teams and be capable of troubleshooting technology issues.

<u>Recruitment process</u>

The typical recruitment process takes approximately eight to ten weeks. This includes the initial interviews as well as the notice period for a current employer.

Strategic human resource management

The executive considered the current digital transformation underway in Pu2. Currently, employees often need to focus on simple tasks and do not have the time or opportunity to help develop the systems and look analytically at the digital services.

The organisation plans to enhance digital literacy across all PU2 departments. Pu2 also has plans to build a centralised data warehouse, thereby ensuring better reporting and analytics. This creates a need for more data analysts, data scientists, data architects and enterprise architects.

Employee development

Training

The executive advised training and development of employees is currently somewhat ad-hoc and relies on managers to identify individual training needs, or the staff member to seek training. Pu2 plans to establish a Learning and Development role and a Learning Management System; however, this may be two years away.

In order to retain staff, there is a focus on professional development. Pu2 regularly invests in training for managers and team leaders to lead and empower teams. Employees who aspire to lead teams are encouraged to upskill. Across Pu2 there is a strong training and development culture, with ad-hoc cross-training for employees in different processes a common practice.

The manager has a budget for training and there is support available for training with both free and paid courses being undertaken by staff. Pu2 also subscribes to the local government IT Group and has training and development webinars and seminars.

All staff have an annual performance review which includes a review of training and professional development requirements. The Corporate Services-Information Services is now at a stage where an employee does not need to have all the skills required for a role, relying on skill development included in the staff member's training plan. The goal is to help employees upskill themselves.

Training employees is used as a way to help create a rapport with them, which in turn builds employee commitment. Lack of training for employees may create a situation where the Council may lose them. Investment in people is used to make staff feel valued and enhances employee loyalty and happiness.

A significant percentage of digital training is derived from application vendors (new business applications), contractors (Agile training) and industry-based training companies. Management skills training, vendor training and internal 'train the trainer' approaches are other training options being adopted by the Digital Services department.

Work environment

There is strong health, safety and well-being culture at Pu2, and this is supported at a senior leadership level. In addition, offers flexible Pu2 working hours and the ability to work from home.

The organisational culture and employee engagement are gauged using a Council staff survey, with questions focussing on the employee's team, the department, and the organisation overall.

Attraction and retention of highly skilled employees

<u>Attraction</u>

Recent years have seen a major change in the digital sector which, in turn, has made it harder to attract employees to Pu2. A key issue faced by the Corporate Services-Information Services in attracting talent has been the inability of Pu2 to match salaries offered by the private sector. This has resulted in a shortage of project management engineers.

While to date Pu2 has not had to offer any incentives to candidates to move to Hawke's Bay, they do have the option to do so as part of the recruitment process if the need arises.

The executive advised that, in order to attract employees, quality of life in Hawke's Bay is often discussed. While larger cities may offer a higher salary, the cost of living in these cities is also higher. In Hawke's Bay, salaries may be lower, but the cost of living may be lower as well. However, candidates are not always attracted by the quality of life. Instead, family or friends may be a motivating factor.

The executive considered Hawke's Bay an attractive destination to those who want to raise a family. However, he also noted that people who have lived in cities such as Auckland and Wellington are usually not motivated by the quality of life in the regions. For those attracted by the quality of life, the rising cost of housing in Hawke's Bay can make it difficult to attract employees to Hawke's Bay.

In order to ensure that Pu2 is able to attract good quality applicants, the organisation is working to ensure branding is relevant and vacancies are displayed attractively on LinkedIn and other social media sites. This allows for direct targeting of advertisements.

<u>Retention</u>

Pu2 faces significant risks if the organisation is not able to retain or hire skilled staff. This can result in project risks, and work tasks not being completed, which can have flow-on effects in local communities. Contractors, therefore, need to be employed to fill these roles, usually at a higher cost.

The executive advised the principal reason why highly skilled employees have left Pu2 is better job opportunities with larger salary packages in other organisations. Pu2 is exploring how it can better meet salaries being offered by the private sector.

Within the Digital Services department, staff typically stay for around six years, which reflects the work environment within the organisation. Staff tends to leave for a role that offers more responsibility. This appears to differ from the views of the staff from the results of the employee surveys.

The executive considered the reasons skilled staff stay with Pu2 Corporate Services-Information Services to include:

- Work Environment: Pu2 offers an employee-centric work environment and culture with a focus on employee well-being, including physical and mental wellbeing.
- Impact on community: Pu2 also allows the employees to be able to have an impact on the wider community through their work for the Council. Being able to play a positive role in the community is important for some employees.
- Passionate about work: The employees who stay at Pu2 are passionate about the work that they do. They enjoy the type of work they do, and it is related to their area of expertise.

Reasons highly skilled employees have moved to Hawke's Bay

The executive considered people do not move to Hawke's Bay for a role in particular region. This can mean that Pu2 may not be able to attract candidates for the roles. However, staff do move to Hawke's Bay and the executive considered the reasons skilled staff move to the regions to be primarily amenity based (lifestyle and climate in particular).

Reasons highly skilled employees have left Hawke's Bay

Some staff have left the organisation and the executive suggested several reasons staff leave the region:

- Remuneration: The salary range offered by Pu2 is competitive with the regional industry average for councils, it is less compared to private organisations and those located in larger cities.
- Better job opportunities: The employees have left as they have been offered better job opportunities with increased responsibilities to help them further develop their skillset and experience.

Summary

The Corporate Services-Information Services provides a range of services including helpdesk, hardware support, implementation of new solutions, technical support, and project management support. All of these are internal services where the focus is on supporting Pu2. The reason why employees may move to the region includes amenity (climate and lifestyle). Skilled staff may stay with Pu2 for the work environment, the ability to enhance the community and being passionate for their work. Highly skilled employees may leave Hawke's Bay for higher remuneration and better job opportunities.

4.2.4. Summary of public sector cases

Pu1 and Pu2 are two digital services departments in public sector organisations: a local tertiary provider and a local city council. The size of each department is similar, and both have evolved to support the wider organisation. The similarities and differences between Pu1 and Pu2 are summarized in Table 12.

Table 12:Pu1 and Pu2 similarities and differences

Category	Similarities	Differences
Organisation	• The digital services departments are part of public organisations. • The digital services departments operate primarily within the region.	
Operations	• The digital services departments provide internal support services to their organisation.	• Pu2 does not have a definition of highly skilled employees. • There appears to be a difference in the nature of support provided by the digital departments, as one is not working in the education sector and the other supports the local city council.
Definition of Highly skilled employees		• Pu1 defines a highly skilled employee as someone who has the balance between the skillset and attitude or the 'fit'. • Pu2 does not have a definition of highly skilled employees.
Training	• Employees in Pu1 are provided training as part of the day-to-day operation. Pu2 has a strong culture for training and development, with ad-hoc cross-training a common practice.	
Recruitment/Attraction	• Both departments both tend to take approximately two to three months to hire an employee. • Both departments find the salary range they can offer to be a barrier to attracting candidates. • Both organisations use public sector (i.e., government) standards.	
Retention	• Key focus areas of retention for organisations focus on the work environment and amenity offered by the Hawke's Bay region. • Work culture is a key factor in retaining employees.	

Reasons for leaving the region	• Remuneration is the key reason why employees have left the organisation or may leave the organisation. • Better job opportunities are another key driver for employees of both organisations	• For Pu1 the reasons for leaving may also include uncertainty resulting from the Te Pūkenga merger.

4.2.5. Public sector employee analysis

Introduction

All employees in the organisation or IT/digital department were asked to participate in the survey to better understand employee demographics and motivations to move to, stay in, or leave Hawke's Bay. An email was sent to the executive with a link to the survey which was then distributed by email to staff. A total of 28 employees participated in the survey, representing approximately 40% of the employees in the two public sector case organisations. As with the private sector cases, the findings are considered to be broadly indicative of the staff in both organisations. The results have been collated and analysed below.

Employee demographics

Within the public sector, the workforce appears to be principally male. The percentage of women (29%) was higher than the digital workforce average in New Zealand where 27% of the workforce are female (MBIE, 2021).

As shown in Figure 14, most participants (67%) in the public sector organisations were aged between 35 and 54 years. A subset (21%) of these fell into the 35-44 years age group which is higher than the Hawke's Bay population (Ministry of Health, 2021).

Figure 14:Age distribution (Public sector)
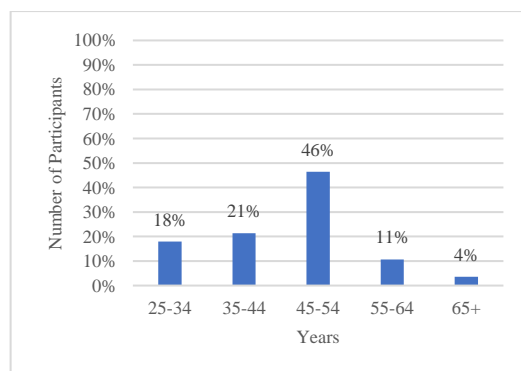
N=28

The majority of the participants identified as European (82%), which includes New Zealand Europeans and people identifying as European but born elsewhere. This is higher than the percentage of people in the Hawke's Bay identifying as European (75%) (MBIE, 2021). There appears to be a strong ethnic bias in these organisations, similar to that of the private sector organisations. When compared to a cluster like Silicon Valley, where there is an ethnically diverse workforce, this does not appear to be the case in Hawke's Bay. The percentage of Māori in the public sector sample is the same as the industry average of only 4% of the digital workforce being Māori (MBIE, 2021). This is significantly lower than the percentage of the Hawke's Bay population identifying as Māori and the percentage of BCS graduates identifying as Māori (refer below).

As shown in Figure 15, only 18% of employees were born in Hawke's Bay. A key point to note here is that that 82% of employees were not born in Hawke's Bay, a much higher percentage than the private sector organisations. Half of the employees were not born in New Zealand, originating in Africa, India and the US. The majority of the participants (89%) have come to the region from outside the country which may indicate a reliance on migrants to help fill the skill shortage gaps and may also suggest these organisations are not focussing on hiring local skilled labour.

Figure 15: Place of birth (public sector)
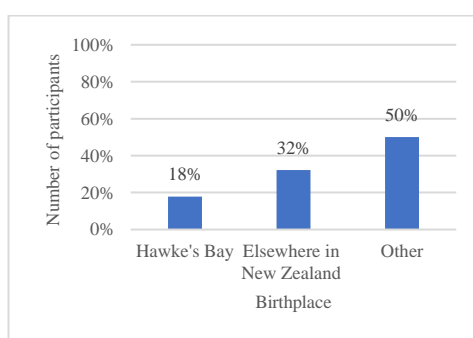
N=28

Academic qualifications

A significant portion (36%) of the participants hold certificate/diploma qualifications (Figure 16). Postgraduates including masters and doctorates make up the highest group of qualifications (39%). This may suggest that older or highly educated skilled employees may move to the region. This is very different to the private sector, and higher than the industry generally Almost half (48%) the participants belong to the 25-34 years age group, while 30% belong to the 35-44 age group. Most of those in the 25-34 years and 35-44 years age groups have under-graduate or postgraduate qualifications. It is likely staff aged less than 24 years old have recently completed academic qualifications and are more likely to be local. The majority of the participants (82%) have qualifications in support-based roles.

Figure 16: Academic qualifications (public sector)
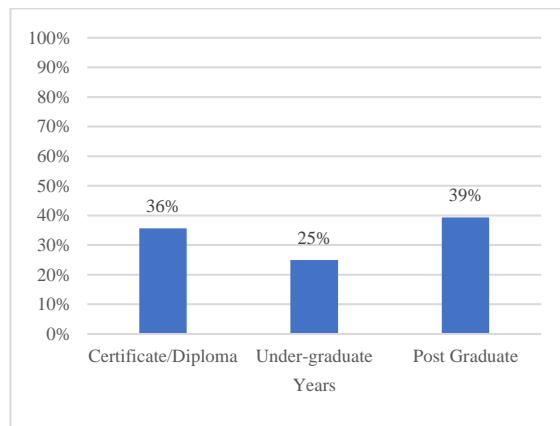
N=28

Employment in the digital sector

Employees in public sector organisations appear to be older, highly qualified staff in the digital sector. A significant portion of the participants (71%) have been working in the IT/digital sector for more than 10 years (Figure 17). This may suggest that these employees may be less motivated to leave the sector or the region. A significant portion of the employees (60%) belong to the 25-34 years age group and have less than 10 years of experience in the IT/digital sector. This is expected for this age group and suggests a large number of employees are early-mid career.

Figure 17:Duration of employment in the IT/digital sector (public sector)
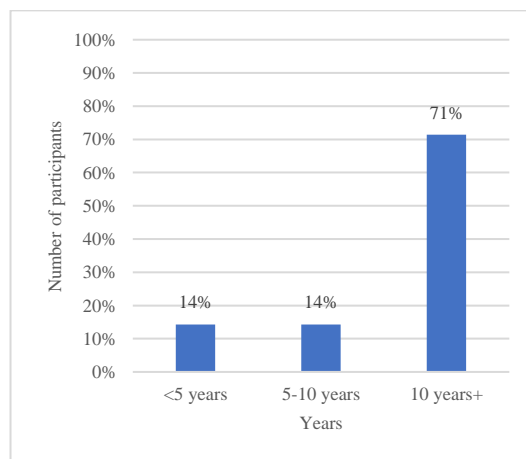
N=28

Two thirds of the employees stated they have been working in their current organisation for less than five years (Figure 18). Importantly, the majority of participants who have been working in the IT/Technology/Digital sector for more than 10 years (60%) stated they have been working in their current organisation for less than five years. This indicates that employees tend to be mobile, both between regions and within the region. It may also imply that organisations are unable to

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build long term employee loyalty. There is a contradiction between the employee surveys and manager interviews in terms of the staff turnover. This may also imply that within the subgroup of the Hawke's Bay digital sector employees, young graduates may be more likely to leave within five years, and older employees tend to have greater sector experience and to stay with their organisation.

The workforce in the public sector organisations appears to be oriented to support roles. Eighty-two percent (82%) of the employees stated they work in support-based roles. The bias to support-based roles is likely to be because the departments support the wider organisation. Interestingly, while few staff work in development roles, 87% of employees trained in industry qualifications for development and innovation and work in development and innovation-based roles.

Figure 18:Duration of employment in current organisation (public sector)

N=28
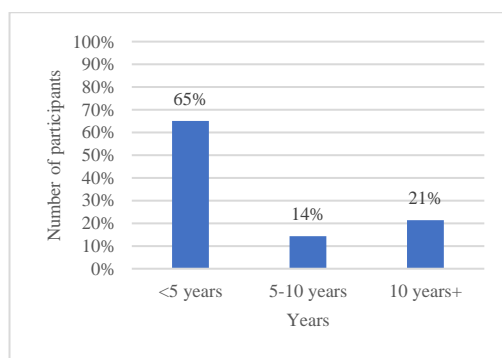
Why public sector digital industry employees live in Hawke's Bay

The public sector employees stated the main reasons for living in the region were amenity (lifestyle, climate, quality of life) and social (family and friends) (Table 13). Nearly one third of respondents stated they live in the Hawke's Bay for amenity reasons. The social life available in the Hawke's Bay, including the open spaces, fresh air and lack of traffic are often seen as factors that attract people from large urban centres (Becker et al., 2013). This appears to be the case for public sector employees working in IT and digital departments. Moving to the region to be close to family and friends appears to be a key reason to live in the Hawke's Bay and can be utilised to attract and retain professionals in the region (Hegney et al., 2002).

Table 13:Reasons for living in the region (public sector)

Factor	Reasons for Living in Hawke's Bay	% Respondents
Amenity	Lifestyle	39%
Amenity	Climate	36%
Social	Family and friends	25%
Amenity	Quality of life	18%
Amenity	Life in smaller cities	14%

Amenity	Less densely populated	14%
Economic	Role	11%
Social	Born in the region	11%
Economic	Affordable living	4%
Social	Raising a family	4%
Social	Work-life balance	4%
Other	Covid-19	4%

N=28

Why public sector digital industry employees move to or return to Hawke's Bay

Most participants (68%) have been living in Hawke's Bay for more than five years (Figure 19). This indicates that participants do not tend to leave the region once they move. A significant number of employees have recently returned to the region. It can be seen that around two-thirds of the participants have moved/returned to Hawke's Bay (Figure 20).

Figure 19:Duration of living in Hawke's Bay
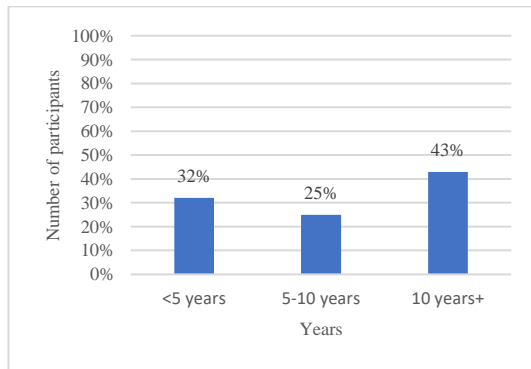
Figure 20:Moved or returned to Hawke's Bay
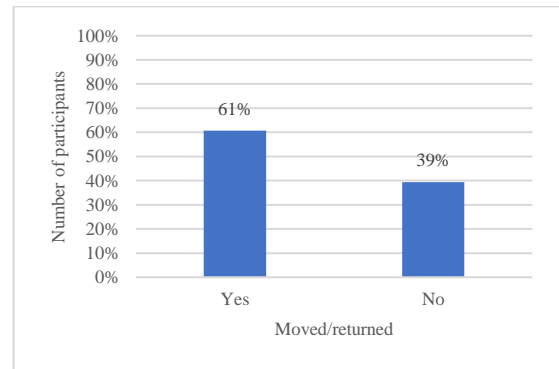
N=28

As shown in Table 14, the main reasons for moving to Hawke's Bay or returning to Hawke's Bay include being near family and or friends, enjoying a better quality of life, and enjoying a better work environment. This reflects the focus on amenity and social factors. Career or professional opportunities do not appear to be the primary reasons for the participants to move to the region. This may impact the digital sector and the workforce of the Hawke's Bay region as a whole and a digital sector skilled worker may take roles that may not necessarily lead to the development of the sector, but which provide social or lifestyle benefits.

Table 14:Factors motivating employees to move to/ back to the region (public sector)

Factor	Reasons for moving to in Hawke's Bay	% Respondents
Social	To be near family and or friends	46%
Amenity	To enjoy a better quality of life	46%
Social	To enjoy a better work environment	18%
Amenity	To move away from a major metropolitan area	9%
Economic	Better professional development and or job	7%

	To be near social facilities or amenities such as schools	7%
Amenity		
Other	Other	4%
Economic	To access better housing	4%
Economic	Better salary and or benefits	0%
Social	To access better community support	0%

N=28

Why public sector digital industry employees stay in Hawke's Bay

The primary reasons for staying in the region are similar to the reasons stated for living in the Hawke's Bay or moving to/ returning to the Hawke's Bay. Reasons include to enjoy a better quality of life, to be near family and or friends, and to enjoy a better work environment (Table 15).

Table 15:Factors motivating employees to stay in the region (Public Sector)

Factor	Stated Reason-Stay in	% Respondents
Amenity	To enjoy a better quality of life	82%
Social	To be near family and or friends	75%
Amenity	To move away from a major metropolitan area	43%
Social	To enjoy a better work environment	32%
Economic	To access better housing	21%
Amenity	To be near social facilities or amenities such as schools	11%
Social	To access better community support	4%
Other	Others	4%
Economic	Better salary and or benefits	0%
Economic	Better professional development and or job	0%

N=28

Why public sector digital industry employees would leave Hawke's Bay

As discussed in the private sector employee analysis, this study did not include employees who have left the region, due to the difficulty in sampling. The primary reasons employees stated as reasons for leaving the region were to obtain a better salary or benefits, better professional development and to enjoy a better quality of life (Table 16). This reflects the focus on economic factors which show that the regions may not be able to compete with the cities in terms of both remuneration packages as well as job opportunities.

Table 16:Factors motivating employees to leave the region (public sector)

Factor	Stated Reason-Leave	% Respondents
Economic	Better salary and or benefits	71%
Economic	Better professional development and or job	61%

Social	To be near family and or friends	32%
Economic	To access better housing	25%
Amenity	To enjoy a better quality of life	21%
Social	To enjoy a better work environment	11%
Amenity	To move away from a major metropolitan area	11%
Others	Others	7%
Amenity	To be near social facilities or amenities such as schools	4%

N=28

Summary

The gender bias evident in the private sector cases may not be the case in the public sector. However, the employment of Māori is very low. The age profile of the participants is similar to that of the Hawke's Bay population. The public sector employs far more graduates and postgraduates than the private sector. Employees in the public sector organisations appear to be older, highly qualified staff in the digital sector. There is a focus on support roles rather than innovation and development roles.

The primary reasons for moving to the region or staying in the region include being near family and or friends, enjoying a better quality of life, and to enjoy a better work environment. This reflects the focus on amenity and social reasons for living in Hawke's Bay. The primary reasons for leaving the region are similar to those stated by the private sector employees: better salary or benefits, better professional development.

4.2.6. Bachelor of Computing Systems (BCS) graduate profile 2017-2021

EIT Bachelor of Computing Systems student demographic data for the years 2017 and 2021 were analysed to understand the demographics of graduates entering the workforce. The data was anonymized. The objective was to better inform the findings from the case analysis.

Graduate age

Most graduates were relatively recent. The largest group consisted of those under 24 (Figure 21). Furthermore, 96% of all graduates were under the age of 45. It appears that most graduates enrolled at EIT from secondary school, or after a brief period in the workforce. The graduates are unlikely to be adults who have undertaken part-time study.

Figure 21:Graduate age
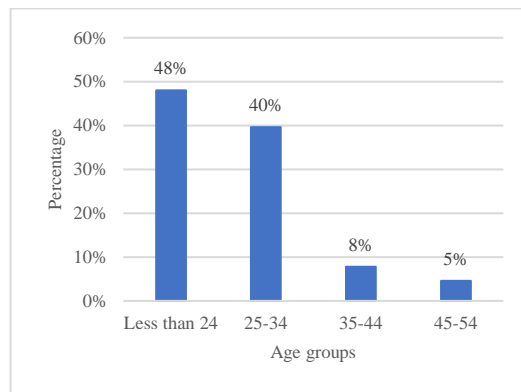
N=656

Graduate gender

The great majority of computing graduates (81%) were male (Figure 22). This does raise the question of why there are so few women enrolling in the Bachelor of Computing Systems (BCS). The lack of women in the student population will inevitably flow through to fewer women in the working population.

Figure 22:Graduate gender
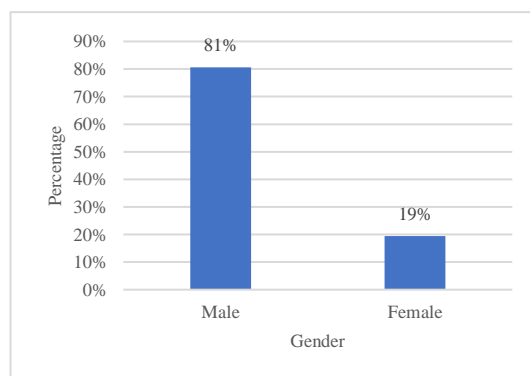
N=656

Graduate ethnicity

Most students identified as European. Māori and Pacific people made up less than 20% of the graduate population (Figure 23). These percentages are lower than the percentage of Māori in the Hawke's Bay population (apx. 25%) and in the EIT student population (apx. 50%). They are, however, higher than the percentage of Māori in the case organisations (10%) and raises the question of why so few Māori chose to study computing systems where Māori BCS graduates are working.

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Figure 23: Graduate ethnicity
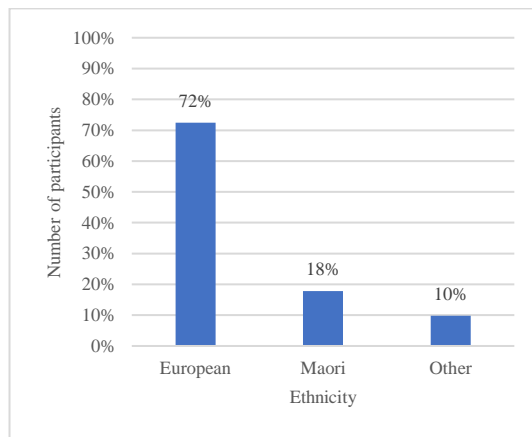
N=656

4.2.7. EIT Bachelor of Computing Systems (BCS) survey

A small-scale qualitative survey was conducted with EIT BCS graduates. The survey was posted on the EIT School of Computing Facebook page. The questions sought to understand whether the graduates are working in the digital sector and whether their current location is in Hawke's Bay.

Graduate current location

A significant group (one third) have moved elsewhere in New Zealand and overseas (Figure 24). The survey did not seek to establish why graduates have moved.

Figure 24:Current location
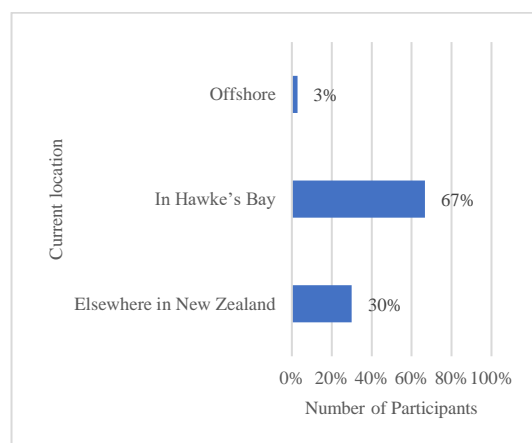
N=36

Year of graduation

The data suggests that approximately 40% of BCS graduates left the region within five years (Figure 25). This aligns with a wider trend of younger graduates leaving the region (Ministry of Health, 2021).

Figure 25:Which year did you graduate?
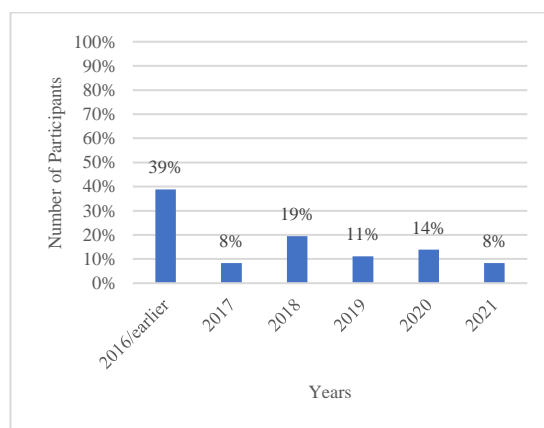
N=36

4.3. Cross Case Analysis

This section compares the findings from the private sector and public sector organisations. The focus is on identifying similarities and differences. The analysis begins with a comparison of the executive interview findings and is followed by a comparison of the employee survey findings. Where appropriate, the BCS student findings are also discussed.

4.3.1. Executive perspective

The key similarities and differences from the interviews between the private and public sector executives are summarised in Table 17.

Table 17:Public and private sector similarities and differences

Category	Similarities	Differences
Organisation	• The digital services departments are part of public organisations and operate within the region.	
Operations	• The digital services departments provide internal support services to their organisation.	• While private organisations operate to make a profit, public sector organisations operate to provide service to the community.
Definition of Highly skilled employees	• Private organisations appear to have a similar view that a combination of practical experience and academic qualifications contribute to employees being seen as 'highly skilled'.	• While one of the public sector organisations was concerned about the 'fit' which relates to culture, this was not mentioned by the private sector organisations.

Training	• Organisations in both sectors provided training as part of day-to-day operations.	
Recruitment/Attraction	• Organisations/departments both tend to take approximately two to three months to hire an employee. • Organisations/departments find the salary range they can offer to be a barrier to attracting candidates.	• Public sector organisations use public sector standards. • Private sector organisations are less prescriptive.
Retention	• Key focus areas of retention for organisations focus on the work environment and amenity offered by the Hawke's Bay region. • Work culture is a key factor in retaining employees.	
Reasons why staff may leave	• The executive in all organisations considered remuneration to be the key reason why skilled employees would be likely to leave the organisation or leave the region. • Better job opportunities are another key driver for employees of both private and public sector organisations.	

4.3.2. Employee perspective

Gender

The public sector organisations appear to be more willing to employ women than the private sector. There are significantly more women working in the digital/IT departments of the public sector organisations (27%) compared to the private sector (13%).

Age profile

There appear to be fewer early career employee (aged 20-29) in the digital sector in Hawke's Bay (Figure 26) relative to the Hawke's Bay population and a larger percentage of mid-career employees, particularly staff aged between 40-49. This is very different to the digital sector globally, which tends to employ a younger workforce (Fung et al., 2016).

Figure 26:Comparison of digital sector age profile to Hawke's Bay age profile (20 - 59 Years)
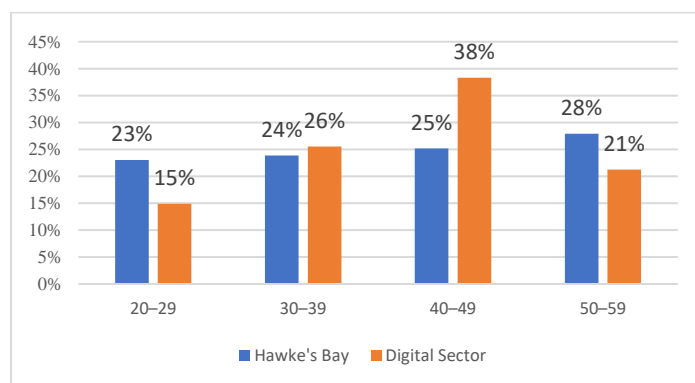
There is a major difference between the private and public sector employee profile. When taken in combination with other findings, younger people tend to be employed by the private sector (backed up by case findings) and then tend to look to leave for economic reasons (Figure 24).

There are contracting findings between the sample from the public and private sector cases. Employees in the private sector are much younger than those in the public sector (Figure 27). Overall the employee population approximates the median age for Hawke's Bay (Statistics New Zealand, 2018).

Figure 27:Comparison of age profile private and public sector
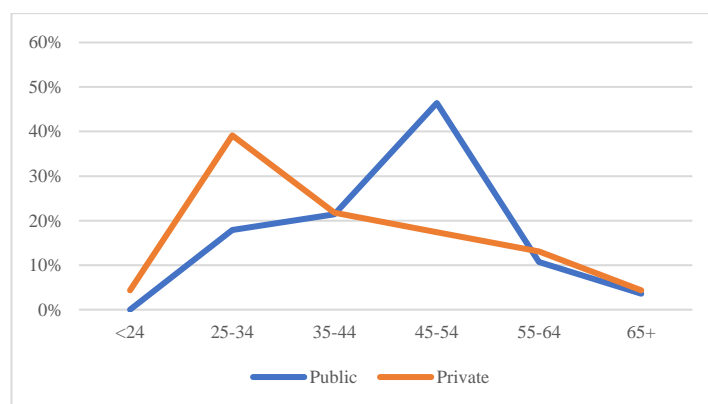
N=51

Ethnicity

The digital sector in Hawke's Bay does not exhibit the ethnic diversity evident in other digital centres, or in the region generally. The majority of employees (82% and 83%) in both sectors identified as European (Figure 28). This suggests a significant concentration in employee ethnicity, which may be self-reinforcing. The LinkedIn 2019 Workforce Diversity Report (LinkedIn, 2020) found 65.2% of the employees working in the digital sector in the US were Asian. Even compared to the population of New Zealand generally the lack of ethnic diversity in

the Hawke's Bay is high. On average, 72% of the digital sector workforce in New Zealand identifies as European.

The percentage of the workforce identifying as Māori is very low. Approximately 25% of the Hawke's Bay population identifies as Māori and 18% of BCS graduates are Māori, yet only 4% of public sector employees and 13% of private sector employees identified as Māori. The reasons for this significant disparity warrant further research.

Figure 28:Ethnicity
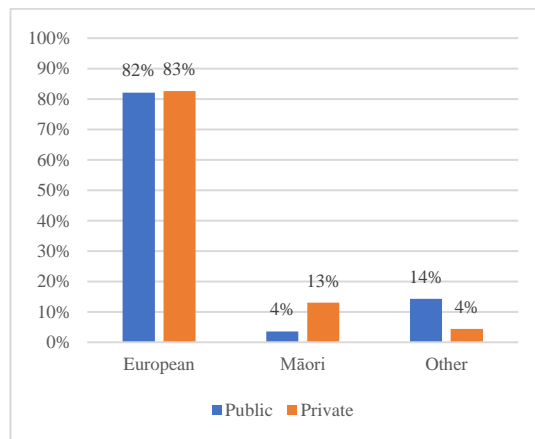
N=51

Place of birth

While the majority of the private sector participants were born in the Hawke's Bay (83%), surprisingly 82% of the public sector employees were born outside Hawke's Bay or outside New Zealand (Figure 29). The reasons for this very significant disparity are not known, and it was not possible to re-interview executive or employees.

Figure 29:Place of birth
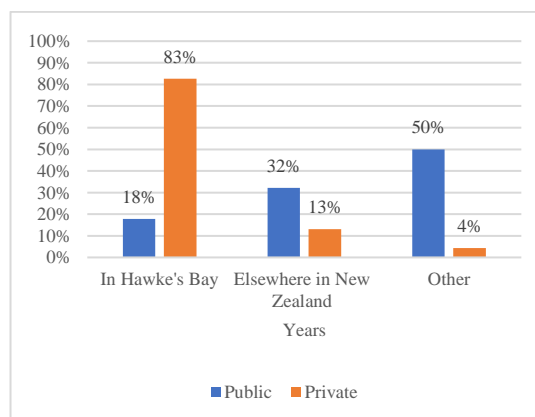
Qualifications

The qualification profile for both sectors is broadly similar, although the private sector tends to employ more staff with sub-degree qualifications and the public sector employs more staff with postgraduate qualifications.

The percentage of employees for both the public and private sector who have a postgraduate qualification (Figure 30) is higher than the percentage in the digital sector in New Zealand (10%) (MBIE, 2021). This is comparable to digital hubs such as Silicon Valley where 71% of adults have at least some level of college experience, 47% have a bachelor's degree or higher and 21% have a graduate degree or higher (Deruy, 2017).

Figure 30:Academic qualifications
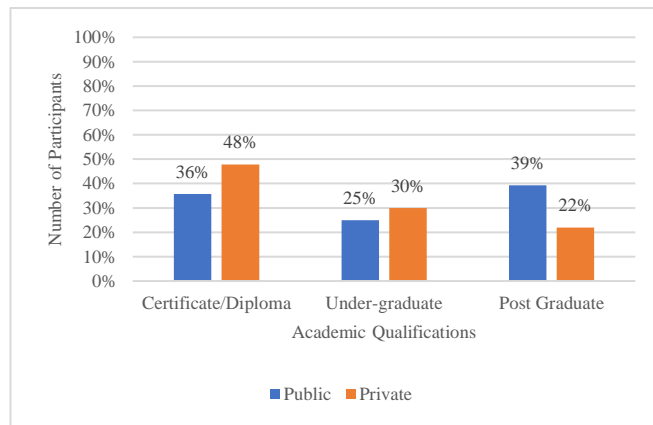
N=51

Relationship between age and highest level of qualification

As shown in Table 18, younger employees tend to have degrees. Mid-career participants have a mix of qualifications, including postgraduate qualifications. Older employees tend to have sub-degree qualifications.

Table 18: Relationship between age and the highest level of qualification

Age-groups	Certificate/Diploma		Under-graduate		Postgraduate	
	Public	Private	Public	Private	Public	Private
25-34	40.00%	0.00%	20.00%	100.00%	40.00%	
35-44	16.70%	22.20%	33.30%	44.40%	50.00%	33.30%
45-54	46.20%	40.00%	23.10%	20.00%	30.80%	40.00%
55-64	0.00%	100.00%	33.30%	0.00%	66.70%	0.00%
65+	100.00%	66.70%		33.30%		

N=51

Older participants in the survey appear to be highly educated (Table 18). This can be compared with digital hubs like Silicon Valley, where 71% of adults aged 25 or older have at least some

level of tertiary education experience, 47% have a bachelor's degree or higher and 21% have a graduate degree or higher (Deruy, 2017).

Support roles are those which support the organisation (or other organisations). Innovation and development roles are those which design or create new technologies. While a significant portion of public sector roles are support based, for the private sector this constitutes half of the roles (Figure 31). The difference in role mix is to be expected given the difference in focus between private sector digital organisations and public sector IT/digital departments.

Figure 31:Type of industry qualifications
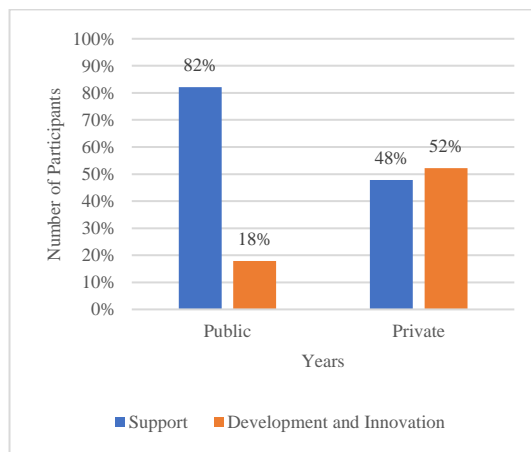
N=51

There are strong similarities between the public and the private sector in terms of the duration of employment. However, slightly more participants in the public sector have worked in the IT/Digital sector for more than 10 years (Figure 32).

Figure 32:Duration of employment in the IT/digital sector
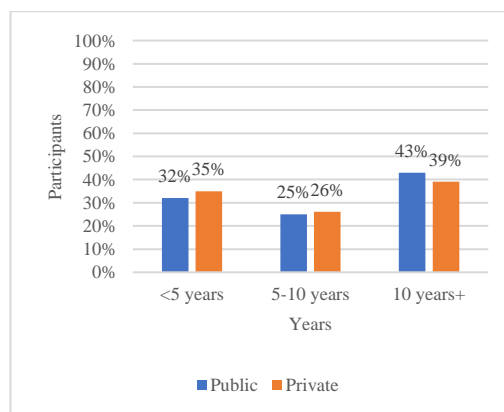
N=51

Employee turnover appears to be higher than that stated in the executive interviews (Figure 33). While nearly all employees with less than five years' experience in the digital sector worked for

one organisation (87%), and employees with between 5-10 sector experience (83%) had been working in their current organisation for less than five years.

Figure 33:Duration of employment in current organisation

N=51
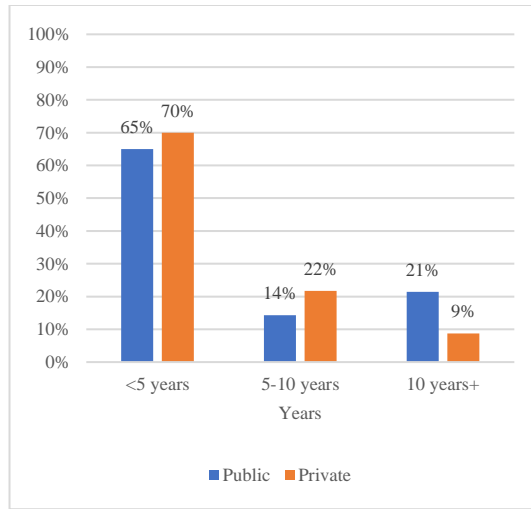
Why digital sector employees live in Hawke's Bay

The reasons for living in the Hawke's Bay are consistent across both sectors (Table 19). These are dominated by amenity (lifestyle, climate and quality of life) and social (family and friends) factors. It appears digital sector employees do not live in the Hawke's Bay primarily for economic reasons.

Table 19:Reasons for living in the Hawke's Bay

Factor	Reasons for living Hawke's Bay	% Private Sector	% Public Sector	% All
Amenity	Lifestyle	30%	39%	35%
Amenity	Climate	30%	36%	33%
Social	Family and friends	48%	25%	37%
Amenity	Quality of life	4%	18%	11%
Amenity	Life in smaller cities	9%	14%	12%
Amenity	Less densely populated	9%	14%	12%
Economic	Better role	13%	11%	12%
Social	Born in the region	4%	11%	8%
Economic	Affordable living	17%	4%	11%
Social	Raising a family	13%	4%	9%
Other	Covid-19	4%	4%	4%
Social	Work-life balance	4%	4%	4%

N=51

Why digital sector employees move to or return to Hawke's Bay

Slightly more private sector employees have been living in the region for more than 10 years than public sector employees (Figure 34). Between 60-65% of employees across both sectors have moved to or returned to the Hawke's Bay (Figure 35).

Figure 34:Duration living in Hawke's Bay
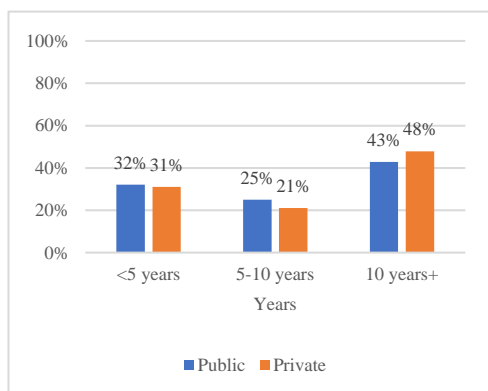
Figure 35:Moved or returned to Hawke's Bay
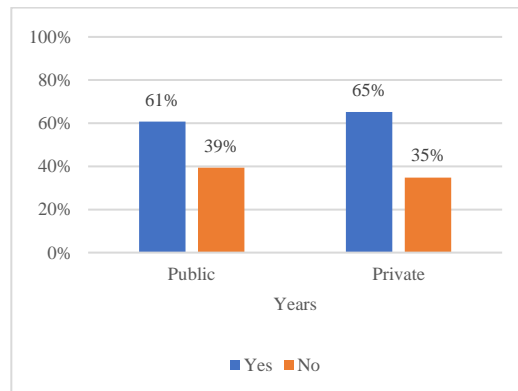
N=51

Social and amenity factors also appear to be the primary drivers behind moving to or returning to Hawke's Bay for employees in both sectors (Table 20). However, while being near family or friends appears to be the main reason for private sector participants, for public sector participants this was enjoying a better quality of life.

Table 20:Factors motivating employees to move to/ back to the region

Factor	Reasons for moving/ returning to Hawke's Bay	% Private Sector	% Public Sector	% All
Social	To be near Family and or Friends	52%	46%	49%
Amenity	To enjoy a better Quality of life	43%	46%	45%
Amenity	To move away from a major metropolitan area	35%	9%	22%
Social	To enjoy a better work environment	22%	18%	20%
Economic	Better Professional development and or job	17%	7%	12%
Economic	To access better Housing	13%	4%	9%
Other	Others (To escape crime and violence in South Africa)	9%	4%	7%
Amenity	To be near Social Facilities or Amenities such as schools	4%	7%	6%
Economic	Better Salary and or Benefits	0%	0%	0%
Social	To access better community support (be consistent in capitalisation)	0%	0%	0%

N=51

Why digital sector employees stay in Hawke's Bay

Social and amenity factors are the primary reasons why employees in both the public and private sectors remain in the region (Table 21). Enjoying a better quality of life and being near family or friends appear to be the main reason for public sector participants with most employees stating these options. Private sector employees, however, while still choosing the options of enjoying a

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better quality of life and being near family or friends as primary reasons to stay in the region, the proportion of participants choosing these options is lower. The reasons why fewer private sector employees stated specific factors is not known and may benefit from further research.

Table 21:Factors motivating employees to stay in the region

Factor	Stated Reason- Stay in Hawke's Bay	% Private Sector	% Public Sector	% All
Amenity	To enjoy a better quality of life	28%	82%	55%
Social	To be near family and or friends	23%	75%	49%
Social	To enjoy a better work environment	21%	32%	27%
Amenity	To move away from a major metropolitan area	8%	43%	26%
Economic	To access better housing	8%	21%	15%
Amenity	To be near social facilities or amenities such as schools	3%	11%	7%
Economic	Better professional development and or job	5%	0%	3%
Other	Others (give examples)	0%	4%	2%
Social	To access better community support (be consistent in capitalisation)	0%	4%	2%
Economic	Better salary and or benefits	3%	0%	2%

N=51

Why digital sector employees would leave Hawke's Bay

Economic reasons are the primary reason why participants in both the public and private sectors leave the region (Table 22). Better salary and/or benefits and better professional development and/or job are the main reason for the public sector participants with an increasing majority choosing these options (Onnis, 2017). Private sector participants still choose the options of better salary and/or benefits and better professional development and or job as primary reasons to stay in the region, but the proportion of participants choosing these options is lower. The reasons why fewer private sector employees stated specific factors is not known and may benefit from further research.

Table 22: Factors motivating employees to leave the region

Factor	Stated Reason- Leave Hawke's Bay	% Private Sector	% Public Sector	% All
Economic	Better salary and or benefits	23%	71%	47%
Economic	Better professional development and or job	21%	61%	41%
Social	To be near family and or friends	11%	32%	22%
Amenity	To enjoy a better quality of life	18%	21%	20%
Economic	To access better housing	6%	25%	16%
Social	To enjoy a better work environment	10%	11%	11%
Amenity	To move away from a major metropolitan area	8%	11%	10%
Other	Others (give examples)	2%	7%	5%
Amenity	To be near social facilities or amenities such as schools	0%	4%	2%

Social	To access better community support (be consistent in capitalisation)	2%	0%	1%

N=51

Intention to stay living in Hawke's Bay

In both the public and private sectors, most employees intend to stay living in Hawke's Bay for more than 10 years (Figure 36). This suggests that once people settle to the region they tend to want to stay here.

Figure 36:Intention to stay living in Hawke's Bay
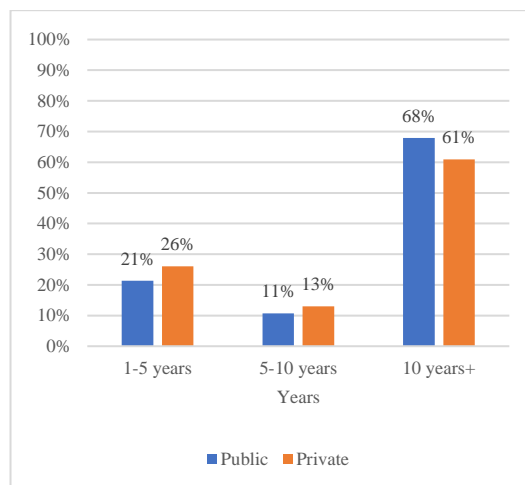
N=51

4.3.3. Summary of employee characteristics and perspectives

The key similarities and differences in the employee perspectives have been summarised in Table 23.

Table 23:Public and private sector similarities and differences (employee characteristics and perspectives)

Category	Similarities	Differences
Employee Demographics	• The majority of employees in organisations appear to be male and European. • The organisations/departments have similar qualification mixes.	• The age profile of the private sector appears to be significantly younger than that of the private sector participants. • The majority of the public sector employees were born outside Hawke's Bay, which is quite different to the private sector participants where the majority are born in Hawke's Bay. • The share of postgraduates in the public sector participants is

		higher than the private sector participants.
Employment in the Digital Sector	• Organisations appear to be similar in terms of the duration of employment.	• The public sector organisations do appear to have more participants that have worked for more than 10 years. • The focus of the private sector is on development and innovation and of the public sector on providing support.
Why Private Sector Digital Industry Employees Live in Hawke's Bay	• Participants in all organisations appear to stay in the region for amenity (lifestyle, climate and quality of life) and social reasons (quality of life).	
Factors motivating employees to move to/ back to the region		• While being near family or friends appears to be the main reason for the private sector employees, for public sector employees, enjoying a better quality of life is key.
Factors motivating employees to stay in the region	• Enjoying a better quality of life and being near family or friends are the main reasons for participants to stay in the region.	• The proportion of participants choosing these options is higher in the public sector.
Factors motivating employees to leave the region	• Better salary and/or benefits and better professional development and/or job are the reasons why employees leave the region.	• The proportion of employees choosing these options is higher in the public sector.

Intention to stay in the region	• There appears to be a strong intention by most employees to stay in the region	

4.4. Summary

It appears skilled digital sector employees are not likely to be living in the Hawke's Bay for entrepreneurial or business development reasons. The findings from this study suggest that skilled digital sector employees choose to move to or return to Hawke's Bay, or to continue to live in Hawke's Bay for amenity and social reasons. Conversely, economic factors are most likely to cause employees to leave Hawke's Bay. This has obvious implications for the potential development of the digital sector in Hawke's Bay beyond providing support for local organisations.

The digital sector labour force is strongly biased towards men who identify as European, have moved to (or returned to) the region and intend to stay here. The regional labour pool is underutilized with Māori and women significantly underrepresented in the labour force. This has significant implications for regional growth and development.

The quality of life, being able to raise a family, and the engagement in the local community are the main reasons keeping people in Hawke's Bay. Career is not the primary factor for keeping people in Hawke's Bay.

Chapter 5: Discussion and Conclusion

5.1 Introduction

This chapter summarises the findings from the study within the context of the research questions the study has sought to explore and answer. The implications of the findings for public policy and regional digital sector employers are discussed using Lee's (1966) construct of push and pull factors. Limitations and suggestions for future research are identified.

5.2. Research Question: Characteristics of the skilled digital sector workforce in Hawke's Bay

5.2.1. Digital sector

The digital sector is increasingly important to New Zealand and was one of the highest export earners in 2019, with a revenue of $6.7 billion (Sorenson, 2020). The New Zealand Government has developed a digital strategy focused on New Zealand becoming a 'Digital Nation' to guide the digital transformation from a national perspective, considering cultural, economic and social factors (MBIE, 2019a).

Digital firms tend to operate within clusters, benefiting from financing opportunities and knowledge spill overs. The situation in Hawke's Bay in the cluster life cycle appears to be 'pre-cluster'. There are no relevant research institutes or venture capital providers in Hawke's Bay. There is little evidence of a growing number of start-ups and there are no accelerators. It is possible a digital sector cluster may be beginning to emerge, and elements of Cortright's (2006) model may be occurring with an increasing number of new firms, rapid growth, and frequent changes in firms and products.

The sector in Hawke's Bay exhibits characteristics associated with smaller mature digital sector firms that dominate niche markets (Kauffman & Wang, 2008).

A key feature of major digital sector hubs such as Silicon Valley is the presence of radical paradigm shifts, followed by periods of minimal change. This is not something that can be seen in the IT industry in Hawke's Bay, which takes on the role of a support industry, rather than being a hub of innovation and entrepreneurism (Sibley & Narula, 2021). The characteristics of the sector in Hawke's Bay influence skill requirements and employment patterns.

5.2.2. Digital sector workforce

Globally the digital sector workforce is ethnically diverse, young and linked to global search and talent attraction capability (Fung et al., 2016). 'Geek culture' tends to dominate digital sector firms (McCain et al., 2015). There appears to be a close relationship between digital entrepreneurs and technology geeks in situations where technology is at the centre of the innovation process.

The digital sector workforce in Hawke's Bay exhibits different characteristics. The executive of the four case organisations each offered varying definitions of 'highly-skilled. Some focussed on academic qualifications, others emphasised work experience, and one even used the term 'fit' as a key attribute of being highly skilled.

The employee demographics of the public and private sectors appear to be quite similar: primarily male, middle-aged, European, with a significant migrant component. Māori and Pacific people and women are underrepresented in the workforce in the digital sector in Hawke's Bay, in both private and public sectors.

The labour force appears to be generally well educated, primarily to sub-degree level. However, a comparison of the digital-sector labour force and the EIT Bachelor of Computing Systems student cohorts suggests the overall labour force, whether student, local or migrant, exhibits significant gender and ethnic bias relative to the working-age population in Hawke's Bay generally. A significant percentage of younger locally trained skilled digital sector labour may no longer be working in the region but are still working in the digital sector; and older skilled labour has migrated into the region or returned to the region to pursue lifestyle (amenity) opportunities.

Significantly, 83% of survey participants identified as European, including New Zealand European. By comparison, in the US, 65.2% of the employees working in the digital sector are broadly defined as 'Asians' (LinkedIn, 2020). The digital sector in Hawke's Bay does not appear to attract or employ the full potential of the regional labour pool. Overall, the labour force does not appear to exhibit characteristics commonly associated with 'geek' culture.

5.3. Research Question: The role of amenity, social and economic factors in attracting and retaining skilled digital sector labour in Hawke's Bay

The three research questions for this study relate to the decisions of highly skilled employees to move to, stay in and leave Hawke's Bay. The research questions explore different aspects of the same topic, the role of amenity.

1. To what extent do regional factors (amenity) motivate skilled digital sector workers to stay living in Hawke's Bay?
2. To what extent do regional factors (amenity) motivate skilled digital sector workers to move to, or return to Hawke's Bay?
3. To what extent do regional factors (amenity) motivate skilled digital sector workers to leave Hawke's Bay?

Accessing and retaining digital sector skills is an issue globally. The World Economic Forum (2020) suggests this is likely to be an even greater issue in smaller, regional communities which may lack the lifestyle and financial incentives to both attract and retain talent. The results of this study indicate that accessing and retaining talent in the digital industry is an issue faced by all four case organisations. The managers have stressed this issue with some pointing out that roles are still unfilled.

Migration to fill skill gaps has a long history and is both inward and outward. Regions in New Zealand and New Zealand generally have tended to experience outward migration of skilled labour, labelled a 'brain drain'. This has a major impact on the availability of skills. Conversely, the concept of 'brain gain' has also developed. Brain gain is a shift in the direction of movement skilled professionals who return to their home country or region with an augmented skill set and experience of working in bigger corporations (Dustmann et al., 2011). The graduate and employee survey results suggest younger local skilled employees are more likely to leave the region, and older migrants from outside the region or the country are more likely to fill roles longer term.

Access to skills is leading to new approaches to resolve skill shortages. Increased focus is now being paid to a range of initiatives (digital apprenticeships, partnering with external workforce development agencies, enhancing in-house training programmes) to broaden the talent pool (Milano, 2019). There is evidence these initiatives are being used in Hawke's Bay. While two executives stated they are utilising the talent pool of interns at the local tertiary education provider, one stated they intend to do so in the future.

Interestingly, the majority of the employees intend to stay living in Hawke's Bay for 10 years or more. This appears to be driven by the desire for a stable life and the opportunity to work in a digital sector that is based on support services and some innovation.

These findings may imply that older and/or highly educated skilled employees may be attracted to move to the region. This would help meet skill shortages created by younger graduates moving away from the region after an initial period of employment in a local organisation.

The migration theories discussed in Chapter Two suggest three fundamental drivers of migration:

1. *Economic factors*: These factors include expected income, job opportunities, distance, wage differential, cost of migration, and the environment.
2. *Social factors*: These factors include the presence of networks (model communications systems, and modern transportation systems), norms and values, the presence of educational opportunities and the support system of family and friends, as well as social support and facilities (Rashid et al., 2014).
3. *Amenity factors*: These are factors unique to the location. Within Amenity, factors such as the location of a place play an important role. The physical landscape, climate and lifestyle prevalent in a location can have an impact on the migration decision. Location can drive migrants to attractive rural areas for cultural differentiation and environmental quality.

The interviews with executives and employee survey responses both highlight the role of the natural environment, including climate, as key reasons for living in Hawke's Bay. Overall, the study concludes amenity (quality of life, climate or the desire to leave a major metropolitan area) and social factors (being closer to family or friends) are the principal 'pull' factors bringing skilled digital sector labour to Hawke's Bay or facilitating the retention of skilled labour in Hawke's Bay. By contrast, economic (both salary and career) factors appear to be the principal 'push' factors which can cause skilled digital sector labour including younger skilled labour to leave the region.

Career and economic factors do not appear to be the principal reasons why skilled digital sector employees live in Hawke's Bay. Lifestyle, climate, family and friends and quality of life are the main reasons why employees live in the region.

The employees had similar responses in terms of reasons to move to or stay in Hawke's Bay. These were social (being near family and friends) and amenity (quality of life, climate and to be away from a major metropolitan area). This has implications for Hawke's Bay as an attractive region for those looking to migrate for amenity reasons.

Better salary and/or job opportunities are the main reasons to leave the region. This implies that the region is not competing with the salaries offered by larger metropolitan areas and hence should focus on social and amenity aspects to try and retain employees.

The digital sector in Hawke's Bay appears to source skilled labour locally (60% of the employee pool surveyed) and through migration (40% of the employee pool surveyed).

There is a difference in how employers defined 'highly-skilled', with a mix of work experience and academic qualification and the 'fit', indicating organisations tend to have a varied understanding of what constitutes a highly skilled employee.

5.3.1 Implications for Public Policy

The findings from this study have potential implications for public policy.

Immigration

As discussed, brain drain is a common phenomenon in smaller, regional communities as younger people leave in search of employment in bigger cities (Baruch et al., 2007). Globally, the digital sector has witnessed high-skill workers migrating, often for economic or entrepreneurial reasons, or the ability to achieve a better standard of living or to pursue activities not available in the home region (Chacko, 2007).

Within many countries, there is a long, documented history of working-age migrants moving between labour markets. The findings from this study support the literature which suggests economic reasons are not the sole basis for migration. Social and amenity factors can also play a major role and can generate a willingness to move to smaller, provincial regions like Hawke's Bay. This study is evidence that skilled labour tends to move to the region for lifestyle, including housing, or family reasons.

Economic and career factors are nevertheless key drivers of migration. Within this context, the difficulty of matching metropolitan salaries or private sector salaries in the case of the two public sector cases in the present study can be a driver for migration (Morrison & Clark, 2011). Economic factors may force regional employers to increase wages. While it may not be possible to compete with larger cities, Hawke's Bay can remain competitive with other similar regions for highly skilled IT talent.

Workforce diversity

The findings from this study indicate the digital sector in Hawke's Bay does not have a diverse workforce and does not reflect the Hawke's Bay demographic, with minimal diversity in terms of gender and ethnicity. Migration patterns appear to re-enforce this lack of diversity. It appears digital sector migration to the region is not for innovation, entrepreneurism or work, but due to amenity and social factors, in particular family and lifestyles.

This issue is not restricted to Hawke's Bay. The recent Digital Skills Aotearoa Report (MBIE, 2021) shows that out of 98,583 workers in IT occupations across all the sectors in New Zealand, only 4% are Māori. Locally, only 10% of the 3,265 students who graduated at a degree level in Information Technology or Computer Science are Māori (EIT dataset). The findings from this study suggest greater effort is required to encourage more Māori to pursue a digital career.

Education

Tertiary institutions are key to knowledge transfer. The presence of tertiary institutions assists the development of networks, linking academics with industry and providing research capability. Tertiary institutions frequently provide a hub for innovation activity (Fung et al., 2016).

In Hawke's Bay, the Eastern Institute of Technology (EIT) is the sole tertiary education provider and offers degree, postgraduate and research capabilities. The findings from this study suggest EIT plays a key role in providing an entry-level skill for the digital sector. This has extended to the provision of partnership and internship arrangements with digital sector organisations in the region. The findings from the study suggest this can be further enhanced to focus on pathways between education and industry.

The role of pull factors

The study has identified several potential pull factors to attract skilled digital sector labour to the region. Hawke's Bay is a region which offers abundant 'amenity resources'. The findings from this study suggest these resources 'pull' people to live in or return to the region.

Quality of life

The study has found the attraction of a regional lifestyle is a key reason why people have moved to Hawke's Bay.

Family, friends and community

The study has found that, for both employers and employees, lifestyle expectations and family integration are key factors. Family is a key reason people move to or return to Hawke's Bay. Each of the case organisations noted this was a key component of their approach to employment (work-life balance, flexible work environment). Adoption of family-friendly work practices appears to have been important in attracting skills to the region. The proximity of family and friends is both a reason for attraction and retention in regional communities (Hegney et al., 2002). The availability of support facilities and amenities such as schools also has an impact on people's choice of moving to regional communities. The role of factors such as being able to raise a family or going back to the region to stay with family is highlighted in most responses as to why employees move to or stay in the region.

The role of local government in adopting strategies and initiatives that help attract professionals to regional communities is also important. Right from social support groups to clubs that can help in building networks, understanding the local nuances and developing knowledge about the remote community or region, different types of community support can be provided (McKenzie, 2011).

Housing

Housing impacts the willingness of people to move to regions (Becker et al., 2011). The likelihood of cheaper housing in a region can be a key pull factor (Chani et al., 2014). Lack of housing can be the reason why people may decide not to join an organization in regional areas. The executives interviewed emphasised the attraction of affordable housing that would pull professionals in the digital sector to move to Hawke's Bay. However, recently this has not been the case as housing prices and rent in the regions have increased significantly. The current lack of access to good quality affordable housing may act as a barrier to moving to Hawke's Bay in their opinion.

Professional development

People can relocate for career development opportunities (Chani et al., 2014). This includes the ability to enhance skills and knowledge, job satisfaction and as well as good working relationships within the industry (Poulter & Sayers, 2015). The results of the study indicate that while professional development was not a pull factor for the participants, it was utilised by the organisations as a way of retaining/developing skilled staff.

The Role of Push Factors

The study has also found one factor which may be a disincentive to inward migration, and may act as a push factor leading skills to leave the region:

Income and career development

It appears remuneration and career progression opportunities are major factors potentially pushing digital skills away from the region.

Employees may be willing to trade salary for a supportive work and management environment. Hence, non-financial factors do have a role to play. The presence of a supportive manager can help determine where the students might want to work (Rockers et al., 2012). There appears to be a link between recruitment and retention strategies (Onnis, 2017). Manager support can be useful in helping retain staff (Rockers et al., 2012), and digital sector organisations in Hawke's Bay appear to be aware of this. The executive interviews focused on the importance of the work environment, the role and the lack of micro-management.

Autonomy in decision making is a key reason for professionals to stay in regional areas. The manager can help the formation of perception about a position which is essential during the employee attraction stage (Ojakaa et al., 2014). Lack of control and power can lead to an employee becoming disgruntled and can decrease their retention levels (Ragusa & Crowther, 2012). The executive interviews highlighted the role of flexibility and autonomy given to the

employees, allowing them the freedom to design their work schedules in and around their other life commitments.

Good workplace relationships with co-workers and supervisors can lead to commitment and enhance retention levels. Operating a mentoring programme and the 'buddy' system can increase the likelihood of success of a new employee, which in turn enhances their commitment levels (Collings et al., 2011, as cited in Poulter & Sayers, 2015). Another key point that was emphasised by the executives was the importance of creating a working culture in organisations which is employee-centric.

Feeling a sense of pride in their work is a strong motivator to work in the industry. This, when coupled with an industry with a good reputation, is often regarded as key to employee retention (Hausknecht et al., 2009, as cited in Poulter & Sayers, 2015). Working in a public sector organisation and being able to make an impact within the community through their work did motivate employees, as advised by the managers of the digital services department of the public sector organisations in the research study.

Summary

Hawke's Bay offers attractive amenity and social resources. These appear to be the principal drivers for people moving to or remaining in the region. These factors are also biased toward employees with digital skill who want to stay in the region, in particular mature men with families.

A combination of push and pull factors plays a key role in amenity migration decisions. In addition to climate and the natural environment, other factors are frequently present, particularly social factors. Pull factors include quality of life, social amenities such as good schools, and being close to family and friends. Professional reasons may not drive amenity migration but factors such as salary benefits, higher job satisfaction, career development and growth opportunities, workplace culture and recruitment strategies can impact the decision. The results of the employee surveys and manager interviews show that while professional reasons may not be the key drivers, these factors, especially job satisfaction and career development, are being utilised to retain employees by both public and private sector organisations (Behera et al., 2017).

5.3.2. Implications for organisations

Industry focus

The digital sector in Hawke's Bay appears to focus primarily on support for local industry. There is little evidence of clustering or the emergence of 'geek culture' often associated with digital sector hubs. The case organisations that participated in this study are considered to be typical of

the digital sector in Hawke's Bay. The organisations, either as commercial providers or digital services, provide solutions to other organisations. The role of digital technologies in the regional ecosystems has been primarily to support the growth and development of other local industries while creating a platform for digital growth through local skills and education (Ana & Tulla, 2019). This appears to be the case in Hawke's Bay.

The organisations appear to work within the region, with the private sector organisations having some part of their operations spread outside the region. This reflects that organisations are primarily focused on work within the region.

There is some focus on innovation and development-based work within the region. However, this also is primarily to support other industries, in particular the horticulture industry, which is key in Hawke's Bay.

Leadership, management and organisation culture

The findings from this study suggest prior research identifying non-financial factors as key to employee satisfaction and retention apply with respect to employment in the digital sector in Hawke's Bay.

Digital sector salaries are lower in the region. However, most employees who participated in the study stated they intend to remain in the region for the next decade, or longer. The executives in the case organisations placed significant emphasis on work-life balance, flexible work culture and developing and maintaining a positive work environment. This aligns with the literature which has found workplace culture can be key to employee retention (Ragusa & Crowther, 2012). The literature has also identified that a sense of pride in their work can be key to employee retention (Hausknecht et al., 2009, as cited in Poulter & Sayers, 2015). The executives interviewed stressed they had given employees control over their jobs. This may serve to limit staff becoming disgruntled and leaving (Ragusa & Crowther, 2012).

Within this context, the use of mentoring programmes and internships may increase the likelihood of success of local applicants, which in turn can enhance their commitment levels (Collings et al., 2011, as cited in Poulter & Sayers, 2015).

Remuneration

Remuneration in the digital sector in Hawke's Bay is lower than that available in metropolitan locations. Remuneration has been a driver of migration from one region to another within New Zealand (Morrison & Clark, 2011) and appears to have impacted the ability of the four case organisations to attract employees from other regions. There is some evidence from this study that managing salary expectations and balancing salary against other workplace factors may be key to retention. Remuneration and related career opportunities appear to be the principal reason

skilled digital sector staff would leave Hawke's Bay. In terms of job attributes, organizations, particularly those in the health field, might offer an increased salary to new graduates to incentivize them to move to remote locations (Lori et al., 2012).

Although the role of economic factors was quite important, it was factors such as education and training opportunities as well as working conditions, management and supervision that affect the decisions, aside from the salary and benefits being offered. The literature also highlights the importance of creating the right mix of financial and non-financial incentives to help attract and retain workers in rural and remote areas (Henderson & Tulloch, 2008).

5.4. Future research

A key area of future research could be to replicate the study for other regional locations in New Zealand and other industry sectors. It is also suggested the scope of future studies could be expanded to cover more organisations.

An additional important area of future research is to explore underrepresented groups in the digital sector labour force, in particular Māori and Pacific communities, to better understand the barriers to study and employment in the sector and how these barriers can be removed.

5.5 Limitations

The following limitations should be noted when considering the findings of the study:

1. This research study has been conducted in one region (Hawke's Bay) and is therefore not generalisable for other regions or all of New Zealand.
2. The research study is case-based, and again, while considered to be typical for the region is not generalisable for all of New Zealand.
3. The data has been collected during the Covid-19 pandemic. This may have impacted responses in ways which cannot be determined from the data.

5.6. Summary

This study has examined the characteristics of digital sector organisations and the digital sector workforce in Hawke's Bay.

The Hawke's Bay digital sector skilled labour force appears to be primarily male, middle-aged, and European, with a significant migrant component. The digital sector labour force does not, however, appear to exhibit characteristics commonly associated with 'geek' culture, in particular, those aspects focussing on innovation and entrepreneurship.

There is evidence for digital sector labour flows with indications that younger locally trained skilled labour is more likely to leave the region and older, male skilled labour to move to or return to the region for lifestyle (amenity) and social reasons. The sector appears to source skilled labour locally (60%) and through migration (40%). Skilled employees appear to remain primarily for amenity reasons.

There appears to be a lack of utilisation of the potential regional labour pool. The digital sector in Hawke's Bay does not appear to be training or employing the full potential of the regional labour pool. There are few Māori or women studying or working in the sector.

5.7. Reflection

Aligning with my research goals of trying to understand skill development in regions, this study looks at several areas including skill development in regions, skill attraction and retention as well as the development of information technology hubs in regions. It considers the views of employees and management. The research focused on both public and private sector organizations, providing a wider range of perspectives and lays down the base for further research.

My research into regional economic and skill development has been enhanced by my previous work on the Hawkes Bay Growth Study. This was a project that looked at the skill requirements across the Hawke's Bay region of medium-sized and large private organizations. I worked as a research assistant for part of that project which paved the way for this study. A key finding of the earlier project was the indication of the presence of very early stages of digital cluster hubs in Hawke's Bay.

In my research, I wanted to gain a better understanding of how the human resources side of the development of a digital cluster might work. Hence, I started to explore in detail why highly skilled employees in the information technology industry would come and stay in Hawke's Bay. This was also an opportunity to reach out to the digital sector and get their views on what brings them to Hawke's Bay, what makes them stay and what might incentivize them to leave.

This research would provide me with a platform to undertake future research in the area of skill development in regions. By understanding the views of management and employees, it is possible

to get a complete picture of the situation. It is hoped this will incentivise future action needed by the local councils and government to improve the situation.

My goal is to be a research academic, and this project has provided first-hand experience of the research process. It is only by doing research that we comprehend the issues and challenges in a research study and the steps to be taken to overcome these issues. I have undertaken this study during the Covid lockdowns and have learned a lot about the need to be flexible and adaptable, but persistent when undertaking field research.

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Appendix One-Low Risk Research Questionnaire (Postgraduate)

LOW RISK RESEARCH QUESTIONNAIRE (Postgraduate)

Applicant details

Name of Applicant(s)	Jaikaran Narula
Applicant's email address	Narulj1@student.eit.ac.nz

Applicant enrolled qualification	Master of Applied Management (Research) - Level 9

School and Faculty	School of Business and Computing

Contact Phone	0220328694

Supervisor(s)	Associate Professor Jonathan Sibley and Dr Emre Erturk
Supervisor(s) email addresses	jsibley@eit.ac.nz , eerturk@eit.ac.nz .

Project Title	An exploratory study of factors influencing the attraction and retention of highly skilled employees in the Digital Industries in Hawke's Bay.

Project Start Date and Duration	05/10/2020 and 11 months

Part A

The statements below are being used to determine the risk of your project causing physical or psychological harm to participants and whether the nature of the harm is minimal and no more than is normally encountered in daily life. The degree of risk will then be used to determine the appropriate approval procedure.

Does your Project involve any of the following?

(Please answer all questions. Please indicate either YES or NO for each question)

Risk of Harm

1.	Situations in which the researcher may be at risk of harm.	YES NO
2.	Use of questionnaire or interview, whether or not it is anonymous which might reasonably be expected to cause discomfort, embarrassment, or psychological or spiritual harm to the participants.	YES NO
3.	Processes or results that are potentially disadvantageous to a person or group, such as the collection of information which may expose the person/group to discrimination.	YES NO
4.	Collection of information of illegal behaviour(s) gained during the research which could place the participants at risk of criminal or civil liability or be damaging to their financial standing, employability, professional or personal relationships.	YES NO
5.	Collection of blood, body fluid, tissue samples or other samples.	YES NO
6.	Any form of exercise regime, physical examination, deprivation (e.g. sleep, dietary).	YES NO
7.	The administration of any form of drug, medicine (other than in the course of standard medical procedure), placebo.	YES NO
8.	Physical pain, beyond mild discomfort.	YES NO
9.	Any EIT teaching which involves the participation of EIT students for the demonstration of procedures or phenomena which have a potential for harm.	YES NO

Informed and Voluntary Consent

10.	Participants whose identity is known to the researcher who give oral consent rather than written consent (if participants are anonymous, you may answer No).	YES NO
11.	Participants who are unable to give informed consent.	YES NO
12.	Research on your own students/pupils.	YES NO
13.	The participation of children (seven (7) years old or younger).	YES NO
14.	The participation of children under sixteen (16) years old where parental consent is not being sought.	YES NO
15.	Participants who are in a dependent situation, such as people with a disability, or residents of a hospital, nursing home or prison or patients highly dependent on medical care.	YES NO

16. Participants who are otherwise vulnerable.	YES NO
17. The use of previously collected information or biological samples for which there was NO explicit consent for this research.	YES NO

Privacy/Confidentiality Issue

18. Any evaluation of services or organisational practices where information of a personal nature may be collected and where participants may be identified.	YES NO

Deception

19. Deception of the participants, including concealment and covert observations.	YES NO

Conflict of Interest

20. Conflict of interest situation for the researcher (e.g. is the researcher also the lecturer/teacher/treatment-provider/colleague or employer of the research participants or is there any other power relationship between the researcher and the research participants?)	YES NO

Compensation to Participants

21. Payments or other financial inducements (other than reasonable reimbursement of travel expenses or time) to participants.	YES NO

Procedural

22. A requirement by an outside organisation (e.g. a funding organisation or a journal in which you wish to publish) for EIT's Research Ethics and Approvals Committee approval.	YES NO
23. This research contributes towards an EIT Postgraduate or Master's thesis / applied research project.	YES NO

Use of proprietary internet survey software (e.g. Google Forms, SurveyMonkey, Zoomerang)

24. Any staff or graduate students who develop internet-based surveys as part of their research at EIT must complete the Internet Survey Software Agreement form included in the RAD or Research Notification forms.	YES NO

Part B

The flowchart on the last page should be used to determine if your project requires ethical approval by a Regional Health and Disability Ethics Committee.

Determine the type of approval procedure to be used (choose one option):

If you answer YES to any of the questions 1 to 23 (Part A) and the HDEC flowchart result is "NO. HDEC review is NOT required for your study", then **Prepare an application for the EIT Research Ethics and Approvals C'tee using the RAD (Postgraduate) form.**	If you follow the HDEC flowchart and the result is "YES. HDEC review is required for your study", then **Prepare an application using the Health & Disability Ethics Committee Application Form**

The HDEC website is:

http://www.ethics.health.govt.nz/applying-review

Key Information	
Review Frequency	36
Last Review	12/1/2015
Next Review	12/1/2018
Related Items	AG200-6: Research Requiring Ethical Approval and Notification; : Application for Research Approval (Postgraduate); AG104-6: Code of Conduct Postgraduate Research: Code of Conduct Postgraduate Research Supervision Agreement; AG104-5: Code of Conduct Postgraduate Research Supervision Contract; : REAC Flow (Postgraduate); AG102-2 : Recognition of Authorship; QA102: Recognition of Authorship; AG102-1: Recognition of Authorship Agreement; AG200-5: Research Protocol for Working with Māori; AG200-7: Student Participants in Research

Health and Disability Ethics Committees

Does your study require HDEC review?

1. Main criteria

Will your research use or create a human gamete, a human embryo or a hybrid embryo? — para 20
- yes → Your study must be approved by the Ethics Committee on Assisted Reproductive Technology (www.ecart.health.govt.nz).
- no ↓

Does your study involve human participants recruited in their capacity as:
- consumers of health and disability support services, or
- relatives/caregivers of such consumers, or
- volunteers in clinical trials? — para 27.1
- yes →
- no ↓

Does your study involve the use, collection of storage of human tissue (as defined by the Human Tissue Act 2008)? — para 27.2
- yes →
- no ↓

Does one or both of the exceptions at paras 27.2.1 and 27.2.2 of the SOPs apply to this use, collection or storage?
- no →
- yes ↓

Does your study involve the use or disclosure of health information (as defined by the Health Information Privacy Code 1994)? — para 27.3
- yes →
- no ↓

Does one or both of the exceptions at paras 27.3.1 and 27.3.2 of the SOPs apply to this use or disclosure?
- no →
- yes ↓

2. Exemptions

Does your study involve a medical device that is (or would be) classified as a low risk (class I) medical devices by Australia's Therapeutic Goods Administration? — para 28
- yes →
- no ↓

Is your study a minimal risk observational study? — paras 29, 30
- yes →
- no ↓

Is your study an audit or related activity? — para 31
- yes ↓
- no →

Does your audit or related study involve the use, collection or storage of human tissue without consent?
- no →
- yes ↓

Does a statutory exception to the need to gain informed consent apply to this use, collection or storage?
- yes →
- no ↓

Is your study an observational study that is to be conducted for the purposes of an educational qualification at Masters level or below? — para 32
- yes →
- no ↓

YES.
HDEC review is required for your study.

NO.
HDEC review is NOT required for your study.

3. Inclusions

Does your study involve the use of Guthrie cards? — para 33.1
- yes →
- no →

Is your study:
- funded by the Health Research Council, and
- not able to be reviewed by an HRCEC-approved university ethics committee? — para 33.2
- yes →
- no →

Does your application involve the establishment or maintenance of a tissue bank? — para 33.3
- yes →
- no →

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Appendix Two-Research Ethics approval

26 March 2021

Jaikaran Narula

<u>School of Business</u>

Our reference: NO05110321

Dear Jaikaran,

This is to confirm that we have received your research ethics notification 'An exploratory study of factors influencing the attraction and retention of highly skilled employees in the digital industries in Hawkes Bay'.

As per the process stated in the PA214 QMS document, this does not require a full application.

As you continue with your research, please refer to the EIT Code of Research Ethics. As a reminder, if your proposal changes in any significant way, you must inform the Committee. Please quote the above reference number on all correspondence to the Committee. Please send all correspondence to REACapprovals@eit.ac.nz.

The Committee wishes you well for the project.

Yours sincerely,

Megan Allardice

p.p. Research Ethics Approvals Committee

Appendix Three-Participant Information Sheet

An exploratory study of factors influencing the attraction and retention of highly skilled employees in the Digital Industries in Hawke's Bay

PARTICIPANT INFORMATION SHEET

Introduction

The study explores why highly skilled people choose to live and work in regional locations and how Hawke's Bay as a region can attract and retain highly skilled people in the digital industries. The research will explore three areas: firstly, why do highly-skilled employees stay in a regional community; secondly, why do people who leave regional community return and thirdly, what motivates people to move to a regional community.

It is important that the Hawke's Bay business community, and support services, have a strong understanding of the challenges and issues faced in the attraction and retention of employees and also develops an understanding of potential issues with skills shortages in the digital sector in the region.

The research is important due to ongoing changes in the composition of the workforce and the impact on jobs. The findings from the study will be of interest to business and local government organisations as it would allow them to plan and put in place policy measures that will help both attract and retain highly skilled people in Hawke's Bay.

The study is being undertaken as part of a Master thesis by a research student at EIT. The study is being supervised by Associate Professor Jonathan Sibley and Dr Emre Erturk.

Participant Recruitment

We are using a case method and are seeking to work with four organisations to develop a detailed picture of what Hawke's Bay business people see as an effective approach to attracting and retaining staff for the future growth of their businesses. Findings and organisations will be anonymised.

We are asking you to participate in the study because you are one of the people in your business who are responsible for making employment and hiring decisions on behalf of the business. This means you are well placed to be able to tell us what skills requirements your business has now and may have in the future.

Project Procedures

The researcher will be doing the interviews. Each interview will take between 30 to 45 minutes. The researcher is an experienced interviewer.

Participant involvement

We will interview in a place chosen by you. If you would like to be interviewed at your business - that is where we will do the interview. If you would like to be interviewed at a place other than your business, please say and we can make alternative arrangements

Participant's Rights

You do not have to accept the invitation to participate in this research study. If you do decide to participate, you have the right to:

- Decline to answer any particular question
- Withdraw from the interview at any time
- Ask any questions about the study at any time
- Provide information on the understanding that your name will not be used unless you give permission to the researcher
- Be given access to a summary of the project findings when it is concluded.

Project Contacts

If you wish to discuss this study, please contact us at the EIT School of Business:

Associate Professor Jonathan Sibley	Dr Emre Erturk	Jaikaran Narula
jsibley@eit.ac.nz.	eerturk@eit.ac.nz.	jnarula@eit.ac.nz.

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

1. I have read the Information Sheet. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

2. I wish/do not wish (delete one) to have data placed in an official archive.

3. I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: **Date:**

....

Full Name - printed

....

Project Details

Project Title- An exploratory study of factors influencing the attraction and retention of highly skilled employees in the Digital Industries in Hawke's Bay

Introduction

The study explores why highly skilled people choose to live and work in regional locations and how Hawke's Bay as a region can attract and retain highly skilled people in the digital industries. The research will explore three areas: firstly, why do highly-skilled employees stay in a regional community; secondly, why do people who leave regional community return and thirdly, what motivates people to move to a regional community.

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The study is being undertaken as part of a Master thesis by a research student at EIT. The study is being supervised by Associate Professor Jonathan Sibley and Dr Emre Erturk.

Appendix Four-Manager Interview Questions

1. Human Resources

1.1 Current Hiring and retention strategies

Q1. What are the strategies adopted to attract employees from outside Hawke's Bay to your organisation?

Q2. What are the strategies adopted to retain employees from outside Hawke's Bay to your organisation?

Q3. Have there been recent Issues with the hiring/retention of skilled staff?

Q4. What are the key risks associated with if they cannot be retained or hired?

1.2 Future plans

Q5. What are your plans for employee hiring and retention over the next 1-3 years of your organisation?

Q6. What are the likely changes in skill requirements over the next 1-3 years expected by your organisation?

1.3 Education and Training

Q7. Does your organisation partner with an education providers/ industry training organisation/ other to undertake training for the employees? If yes, please share the details.

Q8. Does your organisation undertake employee training and development in-house? If yes, please share the details.

Q9. How does your organisation help employees upskill or reskill to meet organisational needs?

Q10. How does your organisation undertake the training and development of employees?

1.4 Hiring Policies

Q11. How do you define highly skilled employees in your organisation (skills, qualifications, and experience)?

Q12. How many highly skilled staff does your organisation currently have as a percentage of the total staff?

Q13. How long do staff tend to stay at the organisation?

Q14. Have any highly skilled employees left the organisation in the last 2 years? If yes, why?

Q15. Of the highly skilled employees who have been with the organisation for more than 2 years, why do they stay?

Q16. How many Highly skilled employees were not born in New Zealand?

Q17. How many Highly skilled women employees' does your organisation employ?

Q18. How many Highly skilled Māori employee's does your organisation employ?

Q19. How many Highly skilled Pasifika employee's does your organisation employ

2. Executive

2.1 Organisation

Q1. What measures have been adopted by your organisation to hire and retain highly skilled employees to support your current business model?

Q2. What measures do you currently intending to adopt, given the ongoing changes in the Digital industries?

2.2 Industry

Q3. What are the key challenges faced by the Digital industries in Hawke's Bay to attract and retain employees?

Q4. What is required to help overcome these challenges?

Q5. What role do you consider government or local authorities can play in helping create a local Highly skilled Digital labour pool?

Q6. What role can you expect the tertiary sector to play in helping create a local labour pool?

3. Employees

Q1. Why do you live here?

Q2. What are the factors that motivated you to move to Hawke's Bay?

Q3. What are the factors that motivate you to stay in Hawke's Bay?

Q4. How long do you plan to stay in Hawke's Bay (Less than 1 year, 1-3 year, 4-7 years, 7 years or more)?

Appendix Five-Skill Retention Survey-Graduate Survey

Skill Retention Survey-Graduate Survey

This study explores why highly skilled people choose to live and work in regional locations and how Hawke's Bay as a region can attract and retain highly skilled people in the digital industries.

1. Which year did you graduate from EIT? *

   Mark only one oval.

   ◯ 2017

   ◯ 2018

   ◯ 2019

   ◯ 2020

   ◯ 2021

   ◯ Before 2017

2. What qualification did you graduate with from EIT? *

   Mark only one oval.

   ◯ Bachelor of Computing Systems (BCS)

   ◯ Other: _____

3. Are you currently working in an Information Technology or Digital sector role? *

   Mark only one oval.

   ◯ Yes

   ◯ No

4. Where are you currently located? *

Mark only one oval.

- ⬭ In Hawke's Bay
- ⬭ Elsewhere in New Zealand
- ⬭ Offshore

Appendix Six- Skill Retention Survey-Employee Survey

Skill Retention Survey-Employee Survey

This study explores why highly skilled people choose to live and work in regional locations and how Hawke's Bay as a region can attract and retain highly skilled people in the digital industries. The research will explore three areas: firstly, why do highly-skilled employees stay in a regional community; secondly, why do people who leave regional community return and thirdly, what motivates people to move to a regional community.

* Required

1. Q1. What is your gender? *

    Mark only one oval.

    ◯ Female

    ◯ Male

2. Q2. What is your age in years? *

    _____

3. Q3. What is your ethnicity? *

    Mark only one oval.

    ◯ Māori

    ◯ Pasifika

    ◯ European

    ◯ Indian sub-continent

    ◯ Chinese or S-E Asia

    ◯ North American

    ◯ Latin/South American

    ◯ African

    ◯ Middle Eastern

    ◯ Other: _____

4. Q4. Where were you born? *

Mark only one oval.

○ In Hawke's Bay

○ Elsewhere in New Zealand

○ Other: _____

5. Q5. What is the highest level of qualification you have completed? *

Mark only one oval.

○ NCEA or equivalent

○ Certificate (Level 5)

○ Diploma (Level 6)

○ Bachelors degree or Graduate Diploma (Level 7)

○ Honors or Post Graduate (Level 8)

○ Masters (Level 9)

○ PHD (Level 10)

○ Other: _____

6. Q6. Please list all industry qualifications you have completed *

_____

_____

_____

_____

7. Q7. How long have you been with working in the IT/Technological/Digital sector? (please specify in years) *

_____

8. Q8. How long have you been with your current organisation? (please specify in years) *

_____

9. Q9. What is your current role in your organisation? *

_____

10. Q10. How long have you been in your current role? (please specify in years) *

_____

11. Q11. Why do you live in Hawke's Bay? (please be as detailed as possible) *

_____

_____

_____

_____

_____

12. Q12. Have you moved/returned to Hawke's Bay to live? *

Mark only one oval.

◯ Yes (Go to Q13)

◯ No (Go to Q14)

13. **Q13. What are the factors that motivated you to move to/move back to Hawke's Bay? (please select all that may apply)**

Check all that apply.

- [ ] To be near Family and/or Friends
- [ ] To access better Housing
- [ ] To be near Social Facilities or Amenities (such as schools for children)
- [ ] To access better community support
- [ ] Better Salary and/or Benefits
- [ ] Better Professional development and/or job opportunities
- [ ] To enjoy a better Quality of life
- [ ] To enjoy a better work environment
- [ ] To move away from a major metropolitan area

Other: [ ] _____

14. **Q14. What are the factors that motivate you to stay to Hawke's Bay? (please select all that may apply)**

Check all that apply.

- [ ] To be near Family and/or Friends
- [ ] To access better Housing
- [ ] To be near Social Facilities or Amenities (such as schools for children)
- [ ] To access better community support
- [ ] Better Salary and/or Benefits
- [ ] Better Professional development and/or job opportunities
- [ ] To enjoy a better Quality of life
- [ ] To enjoy a better work environment
- [ ] To move away from a major metropolitan area

Other: [ ] _____

15. Q15. What are the factors that could motivate you to leave to Hawke's Bay? (please select all that may apply) *

Check all that apply.

☐ To be near Family and/or Friends
☐ To access better Housing
☐ To be near Social Facilities or Amenities (such as schools for children)
☐ To access better community support
☐ Better Salary and/or Benefits
☐ Better Professional development and/or job opportunities
☐ To enjoy a better Quality of life
☐ To enjoy a better work environment
☐ To move near a major metropolitan area
Other: ☐ _____

16. Q16. How long have you lived in Hawke's Bay? (If you have returned to Hawke's Bay, please state how long have you been back in Hawke's Bay) *

Mark only one oval.

◯ Less than 1 year
◯ Between 1-5 years
◯ Between 5-10 years
◯ 10 years or more

17. Q17. How long do you want to stay living in Hawke's Bay? *

Mark only one oval.

◯ Less than 1 year
◯ Between 1-5 years
◯ Between 5-10 years
◯ 10 years or more

18. Q18. How long do you think you will you actually stay living in Hawke's Bay? *

Mark only one oval.

- ( ) Less than 1 year
- ( ) Between 1-5 years
- ( ) Between 5-10 years
- ( ) 10 years or more

19. Q19. Please provide any comments, if you wish to make

_____

_____

_____

_____

_____

Thank you for taking the time to complete the survey