

**An Industry Training Organisation perspective of  
strategic planning for future workplace learning and  
assessment innovation in New Zealand**

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## Abstract

Industry Training Organisations support workplace training by engaging with employers to provide training that meets industry needs. Research alludes to a changing workplace environment that is characterised by technological innovation, globalisation and changing demographics. The government is encouraging the tertiary education sector to be flexible and adaptive in responding to change. However, research points to today's workers having less than five minutes a day to devote to professional development, yet learners are expected to have additional skillsets. This study aims to understand how middle-level and senior-level management interpret the Tertiary Education Strategy in the context of future workplace learning and assessment innovation, to explore strategic planning for future workplace learning and assessment innovation and to understand the challenges in implementing future workplace learning and assessment innovation in Industry Training Organisations in New Zealand. An interpretive approach was adopted for this qualitative study involving an in-depth investigation of eight participants' views across five Industry Training Organisations. The research method used was semi-structured interviews. This research identifies innovation was unanimously defined as, "different ways of doing things". However, it was applied subjectively. A key finding is that Industry Training Organisations believe they work closely with employers, clients and learners as part of their role despite there being no legislative requirement to plan for skills leadership. Another key finding confirms that Industry Training Organisations have experienced changes through advancements in technology, a changing workforce and globalisation themselves or within the industries they work with. Findings also indicate that regulatory quality assurance processes are viewed as one of the barriers to innovation. An implication of the study is that the government's intended outcomes for innovation may or may not be met as innovation is applied subjectively. The study concludes that stringent regulatory quality requirements could stifle innovation and instil fear of the consequences of non-compliance within the Industry Training Organisations.

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### Table 1: Data codes for interview participants

#### List of abbreviations

NZQA	New Zealand Qualifications Authority
UNESCO	United Nations Educational, Scientific and Cultural Organisation
TEC	Tertiary Education Commission
ITO	Industry Training Organisation
ICT	Information and Communications Technology
STEM	Science, Technology, Engineering, Mathematics
CE	Chief Executive
TEO(s)	Tertiary Education Organisation(s)
EPI	Educational Performance Indicators
EFTS	Equivalent Full - Time Student
VARK	Visual, Audio, Read - write, Kinaesthetic



## CHAPTER ONE: INTRODUCTION

### Introduction

My research topic is 'An Industry Training Organisation perspective of strategic planning for future workplace learning and assessment innovation in New Zealand'. The impetus for this research came from my experience as an Assessment Solutions Advisor with an Industry Training Organisation. In my practice I have observed a demand for innovation in learning and assessment. An independent audit of our organisation revealed the demand for innovation came from industry, learners and within our Industry Training Organisation itself. My role requires I recommend, create or customise fit-for-purpose assessment solutions for clients, integrating technology where needed. Further, our organisational strategy promotes innovation in assessment. The conversations and discussions in my workplace include the delivery of fit-for-purpose learning and assessments solutions for clients. My observations of the types of projects undertaken organisation-wide involve the integration of technology, both in the creation and delivery of innovative learning and assessment solutions. Additionally, as part of my post-graduate study, I examined the government policies and strategies that impact on New Zealand's tertiary sector. I found 'delivering skill needs' identified as a priority, with an expectation of Industry Training Organisations to identify and train for new skills that meet emerging needs. My practical experiences resonated with the priorities outlined in the policy. Hence, my experiences shaped my assumption that Industry Training Organisations are experiencing a demand for learning and assessment innovation.

My research topic is examined from the viewpoint of Industry Training Organisations. The Industry Training and Apprenticeships Act (1992) asserts Industry Training Organisations in New Zealand are responsible to engage with industry to determine skill needs and are required to develop fit-for-purpose qualifications with suitable

learning resources. In addition, they are expected to maintain national standards for assessment. However, data collected through an Organisation for Economic Cooperation and Development (OECD) 2014-15 report suggests that New Zealand workers' qualifications and skills are poorly matched to their occupations (Kankaraš, Montt, Paccagnella, Quintini, Thorn, Denis, Zambrano and Keslair, 2016). What does the 'mismatch of skills' imply for the role played by New Zealand's Industry Training Organisations? The scope of Industry Training Organisations is restricted to learning and assessment. The Ministry of Education (2017) asserts that Industry Training Organisations can support learning and assess learning, but they do not teach or provide training themselves as they are not recognised or funded as teaching organisations. The scope of the Industry Training Organisation role limitation thus guides my research focus on exploring the strategic planning for future workplace learning and assessment innovation.

Workplace learning and assessment can be interpreted in multiple ways. Understanding the concept of workplace learning and assessment is integral to my research as this is my core area of focus. Yorks and Barto (2015) assert learning has been thought of as the acquiring of specific skills and methods that expand one's range of knowledge and experiences within existing frames of reference, and as a transformative change in one's frame of reference through reflection on assumptions and the re-framing of one's experiences. Vaughan, O'Neil and Cameron (2011) view workplace learning as part of the framework of lifelong learning. A paper commissioned by the Global Education Monitoring Report, as background information for their report, states there are multiple definitions of lifelong learning across the United Nations Educational, Scientific and Cultural Organisation (UNESCO) regions. The UNESCO Institute of Lifelong Learning (2016) claims that most of the European countries define lifelong learning as learning at any stage in people's lives within formal, non-formal and informal contexts. Doyle, Simota and Werquin (2009) define formal learning as learning in courses or programmes leading to nationally and internationally recognised qualifications. Non-formal learning is learning that occurs in structured programmes but does not lead to accredited final qualifications by itself, and informal learning is learning acquired through everyday work and life. Similarly, the New Zealand Qualifications Authority (2018h) define formal learning as, "Planned

learning that normally takes place in a structured setting and leads to a full or partial qualification” (p. 89); non-formal learning as, “Learning that takes place in a formal setting (e.g. workplace training) but does not lead to a formally accredited qualification” (p.90); and informal learning as, “Opportunistic learning that is not structured in terms of content or assessment method but gained through work or social experiences” (p.90). Malcolm, Hodkinson and Colley (2003) indicate there is much disagreement about how to distinguish between the formal, informal and non-formal learning categories, and claim evidence suggests that they are nearly always overlapping to some extent. Doyle, Simota and Werquin (2009) state workplace assessment includes assessments on formal and informal learning that contribute to the achievement of nationally recognised qualifications. For this research, workplace learning is lifelong learning: the acquiring of skills, knowledge and abilities gained through formal, informal and non-formal learning that is assessed in the workplace and contributes to the achievement of nationally recognised qualifications or skillsets.

There is growing interest in the concept of innovation within the tertiary sector. Lindfors and Hilmola (2016) define, “Innovation as a concept refers to the use of inventive ideas and novel ways to act and create solutions” (p. 374). Porter (1990) refers to innovation in its broadest sense as, “Including both new technology and new ways of doing things” (p. 75). I recently attended an Assessing Learning Conference that was targeted to the tertiary sector. The conference was co-sponsored by the New Zealand Qualifications Authority and focussed on the latest in assessment thinking, practices, challenges, rapidly changing technology and new opportunities in learning assessment (Open Polytechnic, 2017). It had ‘innovations and trends in assessment’ as one of the themes. At the conference, presentations were made by various types of tertiary education organisations including a few Industry Training Organisations. Each organisation shared a part of their journey, throwing light on their responses to their experiences of a changing environment for tertiary education. This brought to the fore the demand for future workplace learning and assessment innovation as being topical and real across the tertiary sector. It strengthened my assumption and aroused my curiosity to explore the topic further in the context of Industry Training Organisations.

## The regulatory influencers on Industry Training Organisations

Strategic planning within organisations is influenced by various factors. Industry Training Organisations are not autonomous and do not operate in isolation. Gaining an insight into their influencers is essential to my research because Industry Training Organisations' strategic plans, which is a key area I investigate in my research, are impacted by their influencers. There are multiple strategies and strategic documents that are produced by and impact on the Industry Training Organisations, which have a rippling effect on their assessment practices. Some examples of external strategic documents that influence Industry Training Organisations include the Tertiary Education Strategy, industry-produced skills or workforce strategies and other government agency strategies. Some examples of internal strategic documents used within Industry Training Organisations include investment plans, business strategic plan, workforce development strategies (qualifications and career pathways) and industry sector skills strategies (industry and skill needs). This research focusses on the impact of the Tertiary Education Strategy 2014- 2019 (2014) on the strategic planning for future workplace learning and assessment innovation within Industry Training Organisations in New Zealand.

The Industry Training and Apprenticeships Act (1992) states Industry Training Organisations are governed by it and are expected to meet their obligations under it. The Industry Training and Apprenticeship Act (1992) is legislative and is administered by the Ministry of Education. The Ministry of Education (2018a) states its role is to be the government's lead advisor on the education system. However, the Tertiary Education Commission and the New Zealand Qualifications Authority have a more direct interface with the tertiary education sector. These government bodies act as regulators who examine the laws passed and work out details to enforce the laws. Broadly, the Tertiary Education Commission (2018a) states it provides the strategic direction and the funding (Tertiary Education Commission, 2018b) for the tertiary sector. The New Zealand Qualifications Authority (2018a) identifies it monitors the performance of the tertiary sector. Oosterman, Sedgwick and Grey's (2017) findings of a survey conducted by Tertiary Education Union revealed concerns around the quality of tertiary education imparted in New Zealand showing, "An orientation towards

commercial gain and away from the broad aims of education” (p. 24). This draws attention to the importance of quality in considering the strategic planning for learning and assessment innovation in my research.

The Tertiary Education Strategy 2014–2019 (2014) outlines its expectations of Industry Training Organisations to be flexible and adaptive to changing skill needs. The Tertiary Education Commission (2018c) highlights that in order to receive government funding, Industry Training Organisations are expected to submit a plan to the Tertiary Education Commission describing how they intend to meet the priorities identified by the New Zealand government. The planning undertaken by Industry Training Organisations is thus influenced by its legislative role and the strategic direction, funding and quality parameters defined by its regulators. Cardno (2012) presents the view that there are some limitations to being strategic in an educational context. The formulation of a vision and strategy is steered by the direction, boundaries and funding parameters set by government or state policies, strategies and expectations. Similarly, Shaw and Eichbaum (2005) state while tertiary organisations enjoy a certain amount of autonomy and flexibility in their operation, the Tertiary Education Commission uses funding levers to steer the direction of the tertiary organisations to be in line with the Tertiary Education Strategy. Understanding the regulatory influencers for Industry Training Organisations is critical to my research because my research explores the ‘strategic planning’ for future workplace learning and assessment innovation.

### **Future workplaces: a dynamic landscape**

A knowledge of trends that depict future workplaces and changing learner needs is critical to my research because a key role of Industry Training Organisations is to ensure workplace learners have the skillset required by industry and workplaces, thereby contributing to a productive and strong New Zealand economy. The Industry Training Federation (2018a) states Industry Training Organisations are expected to work with tertiary education providers to develop skills that benefit the learner, the

employer and New Zealand's economy. Modern workplaces are perceived to be in a dynamic and transformative stage where technology is spurring change. Leopold, Zahidi and Ratcheva (2016), reporting on a study conducted for The World Economic Forum state, "We are at the beginning of a Fourth Industrial Revolution (where) developments (in technology) are all building on and amplifying one another. This will lay the foundation for a revolution more comprehensive and all-encompassing than we have ever seen before" (p.v). O'Lawrence (2017) observes the pace of change is accelerating in the workplace primarily because of rapid technological changes. He asserts technology has been a significant catalyst in increasing the demand for a highly educated workforce. It has changed educational requirements and skill content significantly. Thus, the advancement of technology appears to be a catalyst for changes in the workplace environment.

Technological advancements have transcended geographical boundaries and appear to have changed learner demographics. Yorks and Barto (2015) present the view of the contemporary workplace environment experiencing an, "intensifying pace of technological innovation, subsequent globalisation, (and) changing demographics" (p.35). Similarly, Graham (2016), in a report on an environmental scan conducted for the Tertiary Education Commission to consider the future trends that impact on the future of education in New Zealand, indicates the pace of technological innovation is widespread; there is an aging trend and the market for international students is growing in New Zealand. The New Zealand Qualifications Authority (2013) cites the drivers for the development of its The Future State 2012 – 2022 Strategic Plan include global trends reflecting (i) increased change: driven and supported by technology, introducing new and different ways to deliver learning, (ii) increased globalisation: the breaking down of traditional ideas about institutions and the delivery across institutions, (iii) increased individualisation: raising expectations on what is possible, and (iv) increased financial constraints: driving the need to prioritise and provide innovative technical solutions. Thus, trends indicate that learner demographics in New Zealand's workplaces are projected to have increased international learners and an aging population. Identifying learner and industry needs is critical to Industry Training Organisations as it enables them to respond appropriately to the current and future demands of the New Zealand economy. It is important to my research because ideally, the implication of these trends must be considered by Industry Training Organisations

when engaging in the strategic planning for future workplace learning and assessment innovation.

When planning for the future, it is important to consider the challenges brought about by change. This is key to my research as the current environment for Industry Training Organisations appears to be transformative, subjecting the organisations to numerous pressures. To fully understand the viewpoint of Industry Training Organisations, it is imperative to unearth their tensions. The Tertiary Education Commission (Tertiary Education Strategy 2014–2019, 2014) recommends that tertiary organisations be responsive to the changing skill needs and demands of industry and workplaces, yet according to Davenport, Scott and Sherwin (2017) the New Zealand Qualifications Authority is not as enabling of innovation as it could be. Further, there appears to be a dichotomy of demands on workplace learners as research shows on one hand they are time-poor, but on the other hand, they are required to have increased skillsets. A study by Bersin (2016) suggests today's workers can devote less than five minutes a day to professional development and learning; yet the World Economic Forum asserts that discipline-specific skills are no longer sufficient for workplaces - learners are expected to have additional workplace skills (Soffel, 2016). Interestingly, Silva (2009) claims critics strongly oppose the push for additional skills, stating these skills are not new, just newly important. Technology, too, brings with it its own challenges. O'Lawrence (2017) emphasises that technology is only as good as the ingenuity of those who can both maintain and use it to its fullest potential. Hays (2015) affirms preparing people for uncertainty and change can bring with it tensions and contradictions and evoke a range of responses ranging from scepticism, frustration, resentment through to joy and transformation. Understanding the challenges and pressures of workplace learners can provide insights for Industry Training Organisations and trigger future learning and assessment innovation. Delving into the difficulties experienced by Industry Training Organisations allows for a deeper understanding of their perspective.

In view of the above, this research is set in a context where the workplace environment is perceived to be changing rapidly with technology, globalisation and changing learner

demographics and needs. Through my research I would like to ascertain the Industry Training Organisations' strategic planning for future workplace learning and assessment innovation. Vaughan and Cameron, who have researched New Zealand Industry Training Organisations, note workplace learning (Vaughan and Cameron, 2011) and workplace assessment (Vaughan and Cameron, 2009) have been under-researched.

The research will directly benefit the Industry Training Organisations as the findings could inform strategic decision-making. The new knowledge created through the research may help Moderation and Assessment Managers make effective change and improve practice in their field. It may provide feedback to regulators on their expectations of Industry Training Organisations to be flexible and adaptive to change and provide a glimpse into their practice and challenges in adopting an innovative approach to workplace learning and assessment.

## **Research aims**

The purposes for conducting this study are stated in the following aims.

1. To explore how Industry Training Organisations have interpreted Tertiary Education Commission's strategy with reference to future workplace learning and assessment innovation.
2. To examine the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations.
3. To explore the challenges Industry Training Organisations are experiencing in the strategic planning for future workplace learning and assessment innovation.

## **Research questions**

This study is guided by three research questions.

1. In what ways do Industry Training Organisations interpret Tertiary Education Commission's strategy with reference to future workplace learning and assessment innovation?
2. What is the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations?
3. What are the challenges experienced by Industry Training Organisations in relation to the strategic planning for future workplace learning and assessment innovation?

## **Thesis organisation**

### **Chapter One**

This chapter introduces the research topic which is about the strategic planning for future workplace learning and assessment innovation from the perspective of Industry Training Organisations in New Zealand. A rationale is provided for this research study and the research aims and questions are presented.

### **Chapter Two**

Chapter Two provides a critical review of the literature. First, the scope, role and accountability of Industry Training Organisations is examined. Next, the New Zealand

Industry Training Organisation reform and strategy is discussed. Then, the concept of future workplaces is explored which includes future trends, future skills, the concept of innovation and the challenges to innovation. This is followed by a discussion on workplace learning innovation which includes the definition of workplace learning, workplace learning innovations and the challenges of future workplace learning innovation. Last, workplace assessment innovation is discussed which includes the definition and principles of workplace assessment, workplace assessment innovations and the challenges of future workplace innovation.

## Chapter Three

This chapter provides an overview of the research design which includes a justification for the interpretive approach and the qualitative methodology adopted in this study. Next, the research method of semi-structured individual interviews is explored, which includes a rationale for the sample selection, a discussion on the principles and practice of individual interviews and a self-reflection. This is followed by a discussion on data analysis which includes the integrity and validity of the data and the ethical considerations for this study.

## Chapter Four

This chapter presents the findings from this research study. Data from the leaders of Industry Training Organisations is presented under the categories and sub-categories: (i) interpreting innovation, (ii) strategy and its impact (a) the importance of strategic planning (b) the impact of the strategy (c) other influencers on strategic planning, (iii) the drivers of change, (iv) learning innovation (a) definition (b) methods, models and delivery (c) challenges to learning innovation (d) responses to the challenges, (v) assessment innovation (a) definition (b) methods, models and delivery (c) challenges to assessment innovation and (d) responses to the challenges.

## Chapter Five

Chapter Five is a discussion on the key findings from Chapter Four in the context of the literature from Chapter Two. The findings discussed in this chapter are presented under the categories: (i) interpreting innovation, (ii) strategy and its impact, (iii) drivers of change, (iv) learning innovation, (v) assessment innovation, (vi) challenges to future workplace learning and assessment innovation. This chapter then presents the conclusions drawn and the recommendations offered based on the findings of this study. Next, the strengths and limitations of this study are discussed, and further areas of research are provided.

## CHAPTER TWO: LITERATURE REVIEW

### Introduction

In this chapter the literature that is relevant to my research questions is critically reviewed and examined. This examination of the literature is presented under the headings: the scope, role and accountability of Industry Training Organisations, New Zealand Industry Training Organisation reform and strategy, future workplaces, workplace learning innovations, and workplace assessment innovations.

### The scope, role and accountability of Industry Training Organisations

My research is conducted from the perspective of Industry Training Organisations. The Industry Training Federation (2018b) states industry training includes trades and apprenticeship training and involves learning and earning on-the-job. Employers and Industry Training Organisations are at the heart of the workplace training system. They work together to provide training that meets the needs of each sector and industry. Industry Training Organisations are industry owned and recognised by the government. Their key role is to connect the skills and needs of industry and the labour market with the vocational education and training system.

Industry Training Organisations are recognised by the Associate Minister of Education (Tertiary Education) under the Industry Training and Apprenticeships Act (1992). The Industry Training and Apprenticeships Act (1992) defines an Industry Training Organisation as, “a body corporate for the time being recognised under section 5 or section 8 (1)” (p. 6). Section five details the conditions and considerations for a Minister to recognise a body corporate as an Industry Training Organisation. One of the

considerations here include whether the organisation has, or will have, the capacity to (i) monitor demand for training within its industries, and (ii) respond to the demand at the skill level required by employers in the specified industries. Section eight (one) deals with the conditions and considerations to grant provisional recognition to an industry training organisation that does not satisfy certain conditions under section five. The Ministry of Education (2018b) states Industry Training Organisations are recognised for a period of five years, after which they have to apply for re-recognition. The Industry Training Federation (2018b) claims that in 2016, 148,000 people were training in 25,000 businesses nationwide, and 50,000 New Zealand qualifications are gained each year through industry training. It states that industry training is funded by both government and industry. It also receives other non-governmental income. In 2016, industry training received a total of \$243.56 million in funding.

### ***The scope of Industry Training Organisations***

Scopes identify the boundaries or parameters that are relevant in a given context. Understanding the scope of Industry Training Organisations is critical to my research because while Industry Training Organisations operate in a high trust environment, there are legislative limitations on the areas within which Industry Training Organisations can function. The scope of Industry Training Organisations is restricted to industries and excludes some professional services like Medicine and Law. There are eleven Industry Training Organisations in New Zealand. The Tertiary Education Commission (2018d) states:

The industry coverage is set out in the gazetted coverage statement. This is a 'licence to trade' within this industry coverage – to set skill standards and to arrange the delivery of industry training leading to the achievement of those standards. (p. 1)

The Tertiary Education Commission (2018e) recognises the gazetted industry coverage for the eleven Industry Training Organisations as below:

1. Building and Construction Industry Training Organisation

Building, construction, flooring, masonry, glass and glazing, joinery, interior systems, and painting and decorating.

2. Careerforce (Community Support Services Industry Training Organisation Limited)

Health and disability support, social and community support, cleaning, caretaking, and pest management.

3. Competenz (Competenz Trust)

Engineering, manufacturing, forestry, communications and media, maritime and rail transport, and other trades (locksmithing, fire protection, refrigeration, heating and air conditioning).

4. Connexis (Infrastructure Industry Training Organisation)

Civil construction, electricity supply and transmission, water, and telecommunications.

5. HITO (New Zealand Hair and Beauty Industry Training Organisation Incorporated)

Hairdressing, barbering and beauty.

6. MITO (MITO New Zealand Incorporated)

Automotive, commercial road transport and logistics, stevedoring and ports, freight forwarding and distribution, industrial textile fabrication, extractives and drilling, gas, protective coating, and resource recovery.

7. New Zealand Marine and Composites Industry Training Organisation (Boating Industries Association of New Zealand Incorporated)

Boat building design and manufacturing, composite manufacturing, marine support services, and sail making.

8. Primary Industry Training Organisation (Primary Industry Training Organisation Incorporated)

Agriculture, horticulture, sports turf, equine, dairy manufacturing, meat processing and seafood, and petrochemical, energy and chemical plant.

9. ServielQ (Service Skills Institute)

Tourism, travel, retail, hospitality, museums, aviation and wholesale goods operations.

10. Skills Active Aotearoa (Skills Active Aotearoa Limited)

Sports, fitness and recreation, snow-sport and performing arts.

11. The Skills Organisation

Plumbing, gas-fitting, drain-laying, roofing, electrotechnology, real estate, financial services, local government, public sector (with some exclusions), security, contact centre, offender management, cranes and scaffolding, ambulance, emergency management, and fire services. (p.1)

The Industry Training and Apprenticeships Act (1992) states the scope of the Industry Training Organisations is restricted to learning and assessment. Industry Training Organisations cannot engage in training as they are not recognised for it. Thus, the scope has defined what Industry Training Organisations can and cannot do and has guided the focus of my research.

### ***The role and accountability of Industry Training Organisations***

An understanding of role and accountability is fundamental to evaluating performance. Industry Training Organisations operate in a high trust – high accountability environment. Understanding their role is critical to my research because planning for future skills is part of their responsibility and aids in gauging their performance in view

of their purpose. The role of Industry Training Organisations is wide and varied. The New Zealand Qualifications Authority (2018b) state:

Industry training organisations are responsible for setting national skills standards for their industry, providing information and advice to trainees and their employers, arranging for: the delivery of on and off-job training (including developing training packages for employers), arranging the assessment of trainees and arranging the monitoring of quality training. (p.1)

Davenport, Scott and Sherwin (2017) state that skills standards are, “a specification of skills and a level of performance in skills” (p.112). Skill standards are developed in consultation with employers, industry associations and education providers to ensure training arranged by Industry Training Organisations is relevant to the employer. The Ministry of Education (2018b) states Industry Training Organisations are also required to lead qualification development to meet industry needs and to provide industry leadership, including the analysis of current and future skill needs. The Industry Training Federation (2018a) asserts Industry Training Organisations are expected to work with learners to develop skills that benefit the learner, the employer and New Zealand’s economy.

Responding to industry skill needs is an important function of Industry Training Organisations. The Ministry of Education (2018c) states that industry training organisations were formerly legislatively required to undertake skills leadership for their respective industries. This included, “identifying current and future industry needs, developing training plans to meet those needs, and promoting training to employers and employee” (p.1) The New Zealand Qualifications Authority (2018c) suggests Industry Training Organisations have a unique role to make decisions based on industry knowledge and experience about the supply of, and demand for, relevant and high-quality training opportunities that meet the needs of trainees, industries, and the wider economy. Interestingly, data collected through Organisation for Economic Cooperation and Development (OECD) 2014-15 Survey of Adult Skills suggests that New Zealand workers’ qualifications and skills are poorly matched to their occupations

(Kankaraš, Montt, Paccagnella, Quintini, Thorn, Denis, Zambrano and Keslair, 2016). The Ministry of Education now wants to restore the skills leadership role of Industry Training Organisations legislatively and is currently in consultation with the public on how Industry Training Organisations should demonstrate skill leadership for an industry, including through Industry Training Organisation recognition and quality assurance processes (Ministry of Education, 2018c).

Responsibilities and accountabilities go hand in hand. Industry Training Organisations are accountable for their performance to the New Zealand Qualifications Authority. Understanding the accountability of Industry Training Organisations is important to my research because it highlights their key performance indicators and outlines the possible consequences for non-performance of their role. The New Zealand Qualifications Authority (2018c) states its role is to monitor the performance of Industry Training Organisations by conducting periodic external evaluation and reviews. Following an external evaluation review, the New Zealand Qualifications Authority makes statements of confidence in an Industry Training Organisation's performance and capability in self-assessment. Where compliance issues are identified, the Industry Training Organisation is responsible for taking corrective action. In serious cases, where more definitive action may be required, key levers such as withdrawal of consent to assess unit standards and reporting non-compliance to the Tertiary Education Commission may be used to manage the non-compliance.

As standard setting bodies, Industry Training Organisations enjoy a sense of autonomy within their gazetted coverage. They are not moderated by the New Zealand Qualifications Authority for the qualifications within their scope of industries. However, if they offer qualifications that are within the scope of other Industry Training Organisations, they may be moderated by the respective Industry Training Organisation. This is relevant to my research because quality is of paramount importance in exploring the strategic planning for future workplace assessment, particularly in a context where Industry Training Organisations engage in large volumes of assessment and receive performance-based funding. In addition, Industry Training Organisations enjoy more latitude (in comparison to tertiary providers) as they

are not subject to the New Zealand Qualifications Authority's moderation of their own qualifications. Interestingly, a survey conducted by Oosterman, Sedgwick and Grey (2017) indicates the tertiary sector has an orientation to commercial gain as opposed to the broad aims of education expressed in the Education Act; inadequate and misguided funding approaches and performance management tools which lead to a compromise in quality education. They also claim quality assurance in the tertiary education system inhibits innovation, with some of the New Zealand Qualifications Authority's regulatory processes not being as enabling of innovation as they could be. The New Zealand Qualifications Authority (2018c) states that Industry Training Organisations are obliged to govern and manage themselves effectively and efficiently and be accountable to their funders and relevant stakeholders such as industry, business, employers and communities.

## **New Zealand Industry Training Organisation reform and strategy**

### ***Industry Training Organisation reform***

History shapes and influences thinking and behaviour. Gaining an insight into the historical reforms is critical to my research because it provides the context for understanding the journey and perspectives of people working in the Industry Training Organisation sector in New Zealand. Industry Training Organisations have been through considerable reforms. The Ministry of Education (2018b) state up until 1992, the government subsidised workplace training mainly through the apprenticeship system which was highly regulated, lacked flexibility, had a disconnect between on-job experience and off-job training and was slow to adapt to employers' changing training requirements. Employers needs changed significantly in the 1980s along with the New Zealand economy. The establishment of the Industry Training and Apprentices Act (1992) captured the government's aspirations for a new industry training system that was industry-led, founded on competency-based training, provided flexibility for

employers and unions and allowed expansion to include new areas of training. The establishment of the National Qualifications Framework in 1990 meant that on-job training and assessments could count towards national qualifications for the first time. This lay the foundation for the industry training system as it is known today.

The Ministry of Education (2018d) confirms that a comprehensive review of the industry training system was carried out in 2001 resulting in minor changes, including the addition of a leadership role to the core functions of Industry Training Organisations. The Ministry of Education (2018c) point out that from 2004 to 2014 it was a statutory requirement for Industry Training Organisations to undertake skills leadership for their respective industries, “this included identifying current and future industry needs, developing training plans to meet those needs, and promoting training to employers and employee” (p.1). However, in 2014, the Industry Training and Apprenticeships Act (1992) was amended to remove skills leadership as a legislative function of Industry Training Organisations. The government believed Industry Training Organisations continued to support skills leadership as required by industry, even though it was not a legislative requirement.

Another major review of the Industry Training Organisations took place in 2010. The Ministry of Education (2018b) suggests a decline in industry training coupled with Industry Training Organisations being non-compliant with funding rules in 2010 triggered the review:

Qualification completion and credit attainment in industry training is relatively low. A significant number of trainees achieve no credits – between 2000 and 2010, an average of 53% of industry trainees and 36% of modern apprentices achieved no credits although they attracted a government subsidy. In response to evidence of poor performance and non-compliance with funding rules, the TEC reviewed and revised the operational policy settings for industry training in 2010. (p. 2)

The Tertiary Education Commission (2010) thus announced changes in policy including shifting funding parameters from learner participation in qualifications to learner completion of qualifications. In the Tertiary Education Performance Report (2010) it stated the new rules aimed to clarify the expectations of Industry Training Organisations, to emphasise performance and ensure funding was provided at rates that reflect actual learner progress. The review also identified the financial constraints some Industry Training Organisations were experiencing and recommended a mergers programme, designed to result in fewer and more capable Industry Training Organisations.

The legislative reforms above had a direct impact on the Industry Training Organisations and resulted in a changed environment. By 2016, the rapid mergers and acquisitions resulted in only a handful of Industry Training Organisations - 32 in 2012 (Tertiary Education Commission, 2012) to 12 in 2016 (Tertiary Education Commission, 2018e). Performance-based funding resulted in the highest number of qualification completions. The Ministry of Education (2017) declared, “the number of trainees awarded a qualification increased in 2016 by 7.7 percent to the highest number recorded” (p.5). However, there were questions raised around the integrity of quality in tertiary education. Oosterman, Sedgwick and Grey (2017) conducted a survey on behalf of the Tertiary Education Union on tertiary staff to document their experience of working in a system where there has been reform over the last decade. The survey painted a picture of a sector under pressure, with an orientation towards commercial gain - with inadequate and misguided funding and inappropriate performance management tools, eventuating in the quality of education being impacted negatively. Oosterman, Sedgwick and Grey (2017) recommended the need for urgent action. Although Industry Training Organisations were not represented in the survey, the same funding and performance criteria apply to them. The Tertiary Education Commission (2018f) identifies organisations they support through their funding as stated below:

The Tertiary Education Strategy guides all our funding decisions. Part of our role is to make sure our funding helps tertiary education organisations (TEOs) achieve the Government’s priorities for tertiary education...The different types of TEOs we fund include: universities,

institutes of technology and polytechnics, wananga, industry training organisations, private training establishments and other TEOs. (p.1)

Referring specifically to the performance-linked funding, the Tertiary Education Commission (2018g) asserts, “Performance-linked Funding encourages all Student Achievement Component funded Tertiary Education Organisations to reach an acceptable standard of educational performance” (p.1). It also describes qualification and course completion rates as one of the educational performance indicators considered for a tertiary education organisation to receive performance-linked funding. Some of the key features of performance-linked funding are stated as follows:

A maximum of 5% of a TEO’s funding is based on the TEO’s performance in the previous year(s) against up to four of the following educational performance indicators (EPIs): (i) Qualification completion rate: measures the successful the proportion of students in a starting cohort who go on to complete a qualification at the same level at the same TEO. (ii) Course completion rate: measures the proportion of course enrolments (based on EFTS delivered) ending in a given year that have been successfully completed. (p.1)

In 2016, the Ministry of Finance and the Ministry for Tertiary Education, Skills and Employment engaged the New Zealand Productivity Commission to inquire into how New Zealand’s tertiary education system can better support new models of tertiary education, to help the system respond effectively to future trends and changing needs. Davenport, Scott and Sherwin (2017) found the tertiary education system to be in a state of inertia, being unresponsive and inflexible to changing demands and identified it was the system that prohibited innovation with its prescriptive funding rules and regulatory requirements:

The tertiary education system is not well-placed to respond to uncertain future trends and the demands of more diverse learners. The system is not good at trying and adopting new ways of delivering education and does not have the features that will allow it to respond flexibly to changing circumstances. The system stymies or prohibits

innovations, punishes risk-takers, and reinforces existing practices. Prescriptive funding rules and regulatory requirements have the cumulative effect of tying the system down. (p.3)

Armstrong (2014) notes that in education, ideas of quality come to be defined by existing practice. When an organisation has been successful for a considerable length of time, the people in the organisation believe that their practices define quality. Thus, quality assurance processes can reinforce existing practices, rather than supporting new ones. Equating traditional models of delivery with quality also reinforces cultural resistance to change.

The Government of New Zealand (2017) responded to the recommendations in the Productivity Commission report by highlighting its desire to promote, “greater innovation, flexibility and responsiveness across the tertiary education system” (p.2). Amongst other considerations, it acknowledged the need to do this by balancing the benefits of innovation yet ensuring high-quality education, to maintain a balance between flexibility and rigour while enabling innovation, and to support more innovative forms of delivery for students from different backgrounds.

New Zealand saw a change in government in 2018 from the National Party to the Labour Party. The Minister of Education has indicated funding from 2019 will return to be based on student enrolments (Government of New Zealand, 2018). Thus, Industry Training Organisations have experienced considerable reform over the last decade and are currently in a state of flux awaiting the reforms the new government will thrust upon them.

## *Industry Training Organisation strategy*

Governments use strategies and funding to steer the direction of organisations to meet the priorities they identify for their economy. Understanding the current strategies that affect Industry Training Organisations is critical to my research because it influences the strategic planning undertaken by the Industry Training Organisations, which is a key area I explore in the context of future workplace learning and assessment innovation. Cardno (2012) asserts strategy is the direction the organisation intends to take in the long term. David (2011) defines strategic management as the art and science of formulating, implementing and evaluating systemic decisions made that enable an organisation to achieve its goals. He describes strategic management as an art because it requires managers to have the art of interpersonal skills, as it is by encouraging and motivating their staff that managers can implement the achievement of organisational goals. He views strategic management as a science because the strategic management process relies on a logical, systematic, objective approach to major organisational decision making. He recognises the place of intuition within this process and believes an effective strategic management process blends intuition with analysis. Cardno (2012) presents the view that there are some limitations to being strategic in an educational context. The formulation of a vision and strategy is steered by the direction, boundaries and funding parameters set by government or state policies, strategies and expectations. Sallis (2002) draws attention to how it is often difficult to ensure that the primary customer's views are paramount as there are strong forces like those that are exerted through funding processes and mechanisms that are pulling against it. Sergiovanni, Burlingame, Coombs and Thurston (1999) present the view that competing values in education add tension and conflict to the achievement of goals and that too much emphasis on one hinders the other.

The Tertiary Education Commission is a Crown entity that leads the government's relationship with tertiary education. The Tertiary Education Commission (2012) describes the Tertiary Education Strategy as, "the government's high-level set of strategic priorities and associated strategies for tertiary education, as required by legislation" (p.9). The Tertiary Education Strategy 2014 - 2019 (2014) emphasises the

need to plan for the future, “this is not just about existing organisations and the way the system works now. We need to think more about how we can deliver the results we will need in the future” (p.2).

The Tertiary Education Strategy 2014- 2019 (2014) states the tertiary sector needs to be responsive to the changing patterns of competition, demand and work as well as a borderless world enabled by digital technologies, “these technology-driven changes will require New Zealand’s tertiary education sector to advance its thinking quickly on new delivery models” (p.2). It encourages the sector to be more flexible and adaptive:

Our next steps must lead the tertiary education system to become more flexible and strategic by ensuring the system can adapt more quickly to change, including changing technologies and changing patterns of demand, addressing changing skill needs. The tertiary education system will need to build to support business and innovation through development of relevant skills and build international relationships that contribute to improved competitiveness. (p.6)

One of the six priority areas in the Tertiary Education Strategy 2014-2019 (2014) is delivering skills for industry. The strategy states that employers are finding it difficult to attract people with an appropriate range of specific and transferable skills. The strategy indicates that tertiary education organisations need to support learners make informed decisions on up-skilling and re-skilling, address new and emerging skills shortages in specific areas, such as information and communications technology (ICT) and the science, technology, engineering and mathematics (STEM) skills needed for innovation and economic growth. It should also support the development of transferable skills. These skills include, “the ability to communicate well, process information effectively, think logically and critically and adapt to future changes” (p.10).

Davenport, Scott and Sherwin (2017), based on their findings of the Productivity Commission inquiry, question the effectiveness of the Tertiary Education Strategy. They present the view that the Tertiary Education Strategy gives no sense of the

relative importance of its priorities nor does it outline the government's plans to achieve its priorities. In addition, there is no reference to lifelong learning, which is a key area in a changing job market where workplace learners need to continually build skills and retrain for new areas of work and expanding industries. They also observe there is little incentive to promote innovative new models or add efficiency in the working of the sector.

To obtain funding, Industry Training Organisations are legislatively required to submit an investment plan to the Tertiary Education Commission. Section ten (one) of the Industry Training and Apprenticeships Act (1992) stipulates that an Industry Training Organisation that seeks funding under a funding mechanism that provides for funding via plans must prepare a proposed plan, specify the activities set out in relation to which the funding is sought and submit the proposed plan for consideration of funding approval. The Tertiary Education Commission develops a Plan Guidance, a document that explains to the tertiary education organisations what their proposed investment plans must contain to receive funding. Industry Training Organisations are also guided by the Supplementary Plan Guidance for Industry Training Organisations. The Tertiary Education Commission (2018c) in its Supplementary Plan Guidance for Industry Training Organisations highlights the high expectations the Tertiary Education Commission has of Industry Training Organisations in, "demonstrating that they understand their customers, businesses and industries by identifying and responding to skill needs, arranging training in flexible and responsive ways, developing standards, programmes and qualifications that industry value" (p.3). This plan elaborates on the role it expects Industry Training Organisations to play, in asserting that:

Skills need be continuously updated to keep pace with the changing world of work, including shifts in technology and the emergence of new tasks and occupations. Industry Training Organisations should be skill brokers and facilitators, working closely with industry and enterprises. [...] They should encourage employers to make the best use of existing skills and prevent skill waste and attrition due to mismatch or lack of use. Industry Training Organisations should also help

businesses identify and train for new skills that meet emerging needs.

(p.2)

In addition, the Tertiary Education Commission has expressed its intent to reserve a percentage of the Industry Training Fund, “to support innovative approaches to growing industry trainee numbers” (p.5).

However, funding conditions can impede innovation. Davenport, Scott and Sherwin (2017) highlight the impact of prescriptive conditions of funding on innovation saying that:

Inquiry participants noted some of the controls specified in funding mechanisms make it difficult to introduce new or innovative offerings. The most frequently cited examples were the requirement that students be enrolled in a qualification, and restrictions on the provision of short courses or micro-credentials (smaller packages of learning designed to meet particular learner needs). (p.134)

Thus, understanding the reforms and strategies of New Zealand Industry Training Organisations provides the context and highlights the influences on the strategic planning that the Industry Training Organisations undertake, which is a key aspect I explore in my research.

## **Future workplaces**

It is imperative for the education sector to look ahead, plan and prepare for the future to maximise the chances of success for an economy. An insight into the preparation for future workplaces is integral to my research because Industry Training Organisations are responsible for and expected to meet industry demands and prepare workplace learners to meet current and future skill needs. The dynamic environment

requires Industry Training Organisations to be innovative to adapt to the change. In this section future trends, future skills and the concept of innovation are explored in the context of future workplaces.

### *Future trends*

Trends and forecasts help predict the future. Understanding trends and forecasts for future workplaces provides an indication of what the future may hold. This is important to my research because my research focuses on the strategic planning for future workplace learning and assessment innovation. Eaton (2010) identifies four key global trends in 21<sup>st</sup> century education: (i) the use and integration of technology, “technology will not only enhance education, it will drive all kinds of learning” (p.6); (ii) the expansion of mobile technology, “technology will become increasingly mobile: opportunities for learning will and already do – exist everywhere, anytime” (p.7), (iii) global approaches, “shared interests, curiosity and a hunger for learning are driving us to reach beyond our borders” (p.10), and (iv) borderless education, “the barrier of geography is being transcended by technology, creativity and a desire to go global” (p.12). Similarly, Davenport, Scott and Sherwin (2017) state while it is difficult to predict the future trends that will affect the tertiary education system with certainty, the following four broad trends are anticipated:

- (i) A more diverse student population, (ii) increasing demand for mid-career upskilling or retraining, and for qualifications that can be applied in a range of settings, (iii) increasing competition for international students and staff, and the growing importance of internationally relevant course content, and (iv) continuing advances in technology.
- (p.316)

Graham (2016), reporting on an environmental scan conducted for the Tertiary Education Commission to consider the future trends that impact on the future of education and careers in New Zealand, observes a changing landscape for workplace

learners. Firstly, the aging population in New Zealand is growing, “in common with all developed societies, New Zealand’s population is aging with the vast majority of territorial authorities now expected to experience growth solely in the over-65 age range” (p.2). Secondly, technological advancements like artificial intelligence are triggering change. However, there are diverse views about the extent to which technology will impact on workplaces. A minority believe that beyond the immediate transitory pain, new roles will be created in areas yet conceived. The alternative is more challenging with a view that technology will remove both knowledge roles as well as manual labour. Thirdly, Graham (2016) observes that technology is being integrated into educational delivery saying that:

Traditional industrial approaches to teaching are being reduced to obsolescence. Delivery was far more straightforward in a past where students could amass a body of knowledge. These elements are now being challenged, and the delivery of education will be forced to adapt accordingly. (p.18)

Technological advancements offer promise of a better tomorrow. Davenport, Scott and Sherwin (2017) indicate technology, including online learning, offers a significant potential to improve the personalisation of learning and assessment and to reduce the barriers to access education. There is an emergence of disruptive innovations that combine technology with new ways of delivering value.

Thus, future workplaces are predicted to have changing demographics including international learners and an aging population, technological advancements and globalisation.

### ***Future skills***

Changing workplace environments implies the need for new skillsets in the workplace. Understanding the skillsets required of future learners is integral to my research

because Industry Training Organisations are responsible to meet the demand for future skill needs and support workplace learners with learning resources and assessments of their skills, knowledge and abilities. According to Pellegrino (2014), achieving the goal of having learners work-ready, “will require a transformation in teaching, learning and assessment” (p. 66). The changing nature of work in the 21<sup>st</sup> century demands more from learners than merely acquiring information: it requires learners to be able to analyse, synthesize and apply what they have learnt to new problems, design solutions, collaborate effectively and communicate persuasively (Gordon, 2013; Pellegrino & Hilton, 2012). This suggest that future workplace learners are required to have a range of skills that extend well beyond discipline-specific knowledge.

Soffel (2016) states the World Economic Forum declared there are 16 most critical 21<sup>st</sup> century workplace skills, which have been broadly categorised as: foundational literacies, competencies and character qualities. Foundational literacies are basic skills upon which learners build more advanced skills. They represent how learners apply core skills to everyday tasks. This category includes (i) literacy, (ii) numeracy, (iii) scientific literacy, (iv) information and communication technology literacy, (v) financial literacy and (vi) cultural and civic literacy. Education has traditionally focussed on the acquisition of these skills. However, in the 21<sup>st</sup> century, being able to understand written texts and basic mathematical concepts is no longer sufficient to enter the workforce.

Competencies describe how learners approach complex challenges. In the 21<sup>st</sup> century, four key competencies are identified, known as the 4Cs: (vii) critical thinking, (viii) creativity, (ix) communication and (x) collaboration. Critical thinking is the ability to identify, analyse and evaluate situations, ideas and information in response to problems. Creativity is the ability to imagine and create innovative ways of addressing problems, answering questions or expressing meaning through the application or synthesis of knowledge. Communication and collaboration involve working together with others to convey information or solve problems. These competencies are essential to the 21<sup>st</sup> century workforce, where being able to critically evaluate and convey knowledge, as well as work well with a team, is the norm (Soffel, 2016).

Ancient Maori culture has emphasised the importance of Whanaungatanga and Manaakitanga – building and maintaining meaningful and respectful relationships; which continues to be relevant to the 21<sup>st</sup> century learners (Ministry of Education, 2018e).

Character qualities describe the learners' approach to their changing environment. Character qualities like (xi) persistence and (xii) adaptability, ensure greater resilience and success in the face of challenges. (xiii) Curiosity and (xiv) initiative are the basis for discovering new concepts and ideas. (xv) Leadership and (xvi) social and cultural awareness involve meaningful interactions with others in socially, ethically and culturally appropriate ways (Soffel, 2016).

Silva (2009) asserts critics strongly oppose the push for 21<sup>st</sup> century skills referring to it as a meaningless term and a distraction from the more important work of focussing on core educational content. They believe there is nothing new about these skills and emphasising them will water down the standards and weaken teaching. They claim that the century specific label is misleading because knowing how to think critically, analytically and creatively are not skills specific or unique to the 21<sup>st</sup> century, as much of the same has been argued by philosophers and educators like Socrates, from ancient times onwards. In addition, a challenge with these types of higher skills is that they cannot be measured in reliable, cost-effective or scalable ways. In conclusion, some critics believe that the 21<sup>st</sup> century skills are not new, just newly important.

## *The concept of innovation*

Understanding the concept of innovation is integral to my research because it is a core aspect I explore in my research in the context of workplace learning and assessment innovation. Lindfors and Hilmola (2016) state, “innovation as a concept refers to the use of inventive ideas and novel ways to act and create solutions. Innovation is also something people strive for in order to cope in life, not just today but also in the future” (p.374). Porter (1990) refers to innovation in its broadest sense as, “including both new technology and new ways of doing things”. Lindfors and Hilmola (2016) assert the word innovation was first introduced by Schumpeter in 1939 and became popular in the 21<sup>st</sup> century. Schumpeter (1939) defined innovation as, “new combinations of ideas”. Rogers (2003) sees innovation mostly as an invention in the form of a new technical or technological product, as well as an idea, a new practice, or a new object which people consider to be new. A common theme across all the definitions is that innovation includes some component that is fresh and novel.

Innovation is considered to be a collaborative process which provides solutions that are appropriate, relevant, practical and valuable. Sawyer (2007) claims innovation can no longer be the work of an individual as the basis of innovation is multi-disciplinary collaboration. Barak (2010) emphasises solutions must be appropriate, correct, useful or valuable. Skogen (2006) considers innovation is developed by changes in practice in relation to objectives and quality assessment. Skogen and Sjøvoll (2010) state innovation is created from a combination and implementation of creative ideas, problem solving, expertise, knowledge and practical solutions made in material, digital or social spaces. Lindfors (2002) asserts use and usability are key elements in creating and making innovation, a solution that is novel, functional and usable in practice. Usability means a solution has the function it should have and is easy to use. Salavou (2004) suggests newness and uniqueness, differences between new and existing are important in regard to the functionality of the solution. Innovation always includes something new or novel, whether it uses technology or reflects a modified practice. For this research, innovation refers to new ways of doing things that add value, are practical and effective.

## *Challenges to innovation*

There are many challenges to innovating for the future. Education has been criticised for not promoting creativity, innovation and technology, despite the need for these skills in society (Bencze, 2010; Cropley & Cropley, 2010; Lindfors & Hilmola, 2016; McLellan & Nicoll, 2011). In the context of the New Zealand's tertiary system, it is suggested that the regulatory processes and the system itself inhibit innovation (Davenport, Scott and Sherwin, 2017; Oosterman, Sedgwick and Grey, 2017). Davenport, Scott and Sherwin (2017) claim the system is slow and unresponsive to change. They observe regulatory settings do not easily allow innovative new models of delivering tertiary education and that there are also few rewards for being innovative.

Another challenge to innovating for the future is the uncertainty associated with it. Graham (2016) highlights it is impossible to predict the future. Hays (2015) observes preparing people for uncertainty and change can bring with it tensions and contradictions and evoke a range of responses: scepticism, derision, frustration, anger, resentment through to joy, thrill and transformation.

While technology offers many potentially creative opportunities for innovation, there are also several challenges and risks. O' Lawrence (2017) suggests the accelerating pace of change of technology poses a challenge to innovation, technology is only as good as the people who can maintain and use it to its fullest potential. Davenport, Scott and Sherwin (2017) also exercise caution in the use of technology referring to the hype cycle. New technologies are often subject to considerable hype early in their development. However not all technologies reach the plateau of productivity, "some things go into the 'trough of disillusionment' and do not come out of it" (p.310). Similarly, Overton and Dixon's (2017) research findings reveal some of the barriers to using technology as reported by over 50% of Australasian workplaces. They include the cost of set up, the lack of skill to manage one's own learning, unreliable technological infrastructure and the accelerated pace of change of technology. Timmis, Broadfoot, Sutherland and Oldfield (2016) highlight, "ethical concerns over

social exclusion and new forms of digital dividedness and the increasing risks associated with big data and the rise of learning analytics” (p. 454). Ethical concerns on big data include, “those of consent, of data protection, of ownership and of the control of information” (p. 466). Davenport, Scott and Sherwin (2017) describe learning analytics as using data about students’ learning to build better methods and practices of teaching, to, “empower students to take an active part in their learning, target at-risk students, and address factors affecting completion and success” (p.309).

However, sometimes it is the very challenges that innovation brings that serve as a catalyst for successful innovation. Porter (1990) observes:

With few exceptions, innovation is the result of unusual effort. The company that successfully implements a new or better way of competing pursues its approach with dogged determination, often in the face of harsh criticism and tough obstacles. In fact, to succeed, innovation usually requires pressure, necessity, and even adversity: the fear of loss often proves more powerful than the hope of gain.  
(p.75)

In summary, future workplaces are projected to be diverse with international learners, varied age groups and a range of learner characteristics and preferences. Workplace learners are expected to have increased skillsets. There is a need to innovate to meet future skill needs, despite the challenges to innovation. This is important to my research because it is a core area of focus as I explore the strategic planning for future workplace learning and assessment innovation.

## Workplace learning innovation

### *Definition*

The concept of learning has undergone a change over time. Davenport, Scott and Sherwin (2017) refer to the traditional concept of learning as, “something a person does only in childhood and early adulthood” (p. 306). However, today, learning is lifelong. The UNESCO Institute of Lifelong Learning (2016) claims that most of the European countries define lifelong learning as learning at any stage in people’s lives within formal, non-formal and informal contexts. Similarly, Davenport, Scott and Sherwin (2017) state, “lifelong learning refers to formal and informal learning that is pursued throughout a person’s life, to foster the continuous development of their knowledge, skills, competencies and interests” (p.16). Hawke (1988) highlights the expectation of the tertiary education system to play an increasing role in lifelong education where learners maintain their skill level, acquire new skills to modernise methods and practices in line with technological and social change, and retrain to permit movement into more specialised areas of a current profession or trade or to move into an allied trade or profession. Thus, workplace learning today is lifelong, focussing on transferable skills that allow for the mobility of the learner across different organisations or industries.

The profile and expectations of learners in the workplace appear to have undergone a dramatic change. Workplaces appear to have a new generation of learners who have grown up using technology and are thus technologically savvy and accustomed to information being accessible both easily and at all times. Workplace learners also appear to be increasingly time poor. Bersin (2016) asserts that today’s workers can devote only one percent of their workweek to professional development and learning. Assuming a 40-hour work week, that leaves less than five minutes a day to focus on learning. He claims learning today is very different from only a few years ago:

(i) Learning is untethered as employees work from several locations and structure their work in non-traditional ways; (ii) learning is on-demand: employees are accessing information and learning differently. Most are looking for answers outside of online learning; (iii) learning is collaborative: learners are accessing personal and professional networks to obtain information about their industries and professions – they are asking others and sharing what they know; and (iv) learning is empowered: rapid change in business and organisations means everyone needs to be constantly learning. (p. 23)

Graham (2016) suggests an aging population will see the demographic of workplaces include the older age group that will seek re-skilling or up-skilling as they return to work. In addition, globalisation will see workplaces becoming more culturally and ethnically diverse.

### ***Workplace learning innovations***

The changes described above are likely to result in new approaches to workplace learning. Some aspects that may change include the introduction of new courses that focus on soft skills, shorter courses as opposed to full qualifications and innovation in the design and delivery of the qualifications. Davenport, Scott and Sherwin (2017) suggest the following trends are likely in future:

(i) Further creation of new courses and qualifications where there is an opportunity to attract students, (ii) innovation in qualification design and programme delivery around adult education as more people seek re-skilling or up-skilling mid-career (iii) more pressure to offer smaller programmes targeted and customised to particular segments of the student population (iv) further collaboration with overseas jurisdictions and qualification frameworks on recognition of New Zealand

qualifications, increasing student mobility and the international standing of New Zealand university qualifications. (p. 316)

The New Zealand Qualifications Authority (2018d) observe globalisation and digital technology are changing customer expectations. Teaching and learning are becoming more **learner-centric** and **personalised**. Davenport, Scott and Sherwin (2017) claim that the New Zealand Qualifications Authority also anticipates a growing role for alternatives to full qualifications with an increase in the use of micro-credentials especially for mature learners who are **upskilling**. **Components of learning** may become important as learners draw on formal and informal, domestic and international learning experiences, **work based and experiential learning** to build a diverse record of achievement.

The design and delivery of learning has changed with the changing times. Technology has been utilised to make learning accessible and engaging to learners. Bersin (2016) describes, “the evolution of learning and development has been blindingly fast - from e-learning to digital learning in one generation” (p. 19). He defines **digital learning** as, “learning that meets you where you are” (p.39). Some of the new learning innovations include the formats of digital learning called micro-learning and macro-learning. Bersin (2016) defines **micro-learning** occurs when a learner needs help right away, the duration of the learning is two minutes or less and the learning content is topic or problem based. Learners can search for micro-learning by entering a question on the platform. On the other hand, **macro-learning** occurs when a learner wants to learn something new and the learning duration could extend to several hours or days. Macro-learning is suited for learning definitions, concepts, principles and practice. The learner may engage in exercises that are graded by others. The learner may have people to talk to and learn from and is provided with coaching and support as needed. Similarly, a survey conducted by Computer Generated Solutions (2016) amongst nearly 200 departmental organisational leaders and learning and development professionals showed, “to address the time crunches, sharing knowledge and skills digitally is a transformative trend that businesses will want to capitalise on” (p.18). The survey findings revealed:

Organisations are ensuring format meets function. workplace learning, that is both timely and easily digestible is increasingly important. Micro-learning is becoming more and more attractive because it aligns with modern decreases in attention span and the increasing tendency to multi-task. Focussing on one single learning objective with shorter bite-sized videos, games, podcasts, micro-courses enables information to be delivered anytime, anywhere. (p. 18)

Overton and Dixon (2017) suggest newer technologies like augmented reality, virtual reality and artificial intelligence tools have started to emerge for use in workplace learning and development. Merriam Webster Incorporated (2018a) defines, **augmented reality** is an enhanced version of reality created by using technology to overlay a digital image of something being viewed through a device. **Virtual reality** is an artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment (Merriam-Webster Incorporated, 2018b). **Artificial intelligence** is the capability of a machine to imitate intelligent human behaviour (Merriam-Webster Incorporated, 2018c). Graham (2016) observes early education virtual reality applications are showing the potential power to immerse students in their subject world. In addition, products such as **Google's Cardboard** show how this can be achieved at relatively low cost. "The capability to develop insight and understanding through online education (and work) will be significantly enhanced as physically remote participants engage closely in the virtual world" (p.21).

Other new technologies that are predicted in the near future include adaptive learning, makerspaces, affective computing and machine learning. Davenport, Scott and Sherwin (2017) identify **adaptive learning** technologies as one of the predicted developments in technology over the next two to three years. They define adaptive learning technologies as, "software and online platforms that adjust to an individual student's needs as they learn" (p. 309). They also predict **makerspaces** will be used in this period.

Makerspaces are physical learning environments that are equipped with the tools and resources needed to help people carry out their

ideas. Proponents of makerspaces for education highlight the benefit of engaging learners in creative, higher-order problem solving through hands-on design, construction, and iteration. (p. 309)

In the four- to five-year span, they predict **affective computing**, artificial intelligence and **machine learning** to be in use. Davenport, Scott and Sherwin (2017) describe affective computing is:

The programming of machines to recognise, interpret, process and simulate the range of human emotions – for example a computerised tutor reacts to students' facial cues; and machine learning is when computers that are able to act and react without being explicitly programmed to do so. (p.309)

Graesser (2013) highlights that computers empower learners to achieve new levels of mastery, motivation, inquiry and self-regulated learning. Deterding, Dixon, Khaled and Nacke (2011) assert designers of educational technology are developing **game-based learning** where the focus is on engaging learners, boosting the competitive spirit and motivating learners to participate in the learning process using tools like points, badges and levels. The National Research Council (2011) observe learners in the **social media** generation communicate with friends through Facebook, chatrooms, instant messaging, blogs and tweets. These advances in technology influence question generation, hypothetical reasoning, self-regulated learning and social interaction – the foundational knowledge and future skills. A survey conducted by Taylor (2017) amongst 885 respondents in 60 countries shows the top three technological priorities for organisations are personalisation or adaptive delivery, collaborative or social learning and micro-learning respectively. This was followed by the use of new digital technologies - virtual and augmented reality, mobile delivery and artificial intelligence. Graesser (2013) highlights that technology is evolving at a rapid pace and is available through the internet at low costs to the users and hence could have a revolutionary impact on education.

## ***Challenges to workplace learning innovations***

Workplace learning innovations bring with them their own challenges. Kirschner, Sweller and Clark (2006) suggest learning is not enhanced by learning environments that promote unguided discovery, inquiry and constructivism compared to traditional methods and practices of teaching. Adams, Mayer, MacNamara, Koenig and Wainess (2012) allude to some features of games, such as the narrative, that detract from the serious learning of important material and focus on irrelevant activities. Graesser (2013) informs that empirical research has not evolved to provide adequate meta-analyses of the impact of games on learning. Hays (2015) highlights the challenges associated with future workplace learning include the uncertainty, the problems of scale, rapidity and complexity that the future brings with it. There is always a potential danger of assessing problems and situations as preconditioned by the past and failing to see things as they are.

In conclusion, many technological advancements are underway to support the current and future learning needs of workplace learners. However, alongside the promise technology holds, there are also associated challenges. An insight into future workplace learning innovation is key to my research because it is a core aspect I explore in my research.

## **Workplace assessment innovation**

### ***Definition and principles***

Assessment sits at the heart of the learning process. An understanding of workplace assessment innovation is essential to my research because it is a key area of my

research on the strategic planning for future workplace learning and assessment innovation. Workplace assessment is the process of assessing a learner's skills, knowledge and competencies on the job. Fadel and Bialik (2017) state it is useful to redefine assessment to broadly mean, any source of evidence of learning. For this research, workplace assessment innovation means new ways of evidencing learner competency through assessments that occur in the workplace (including off-job training that supports the achievement of workplace qualifications or skillsets) on formal, non-formal and informal learning that contributes to the achievement of nationally recognised qualifications or skillsets. Qualification achievement holds importance because the core business of Industry Training Organisations is to deliver national qualifications. Skillsets have been included because in response to meeting the changing needs of workplaces, the New Zealand Qualifications Authority (2018e) has acknowledged the importance of micro-credentials (a new way of credentialing small packages of learning and the recognition of the achievement of a defined set of skills and knowledge) and has successfully piloted it across a few organisations.

Interestingly, while workplace environments and concepts of learning have undergone dramatic changes over time, some critics believe that the concept of assessment appears to have remained the same. Fadel and Bialik (2017) suggest there is a strong consensus that assessments are not comprehensive enough to measure what really counts for future learner success. Timmis, Broadfoot, Sutherland and Oldfield (2016) observe while future skills have been identified as aspirations for organisations, approaches to assessment of learning remain unchanged: These approaches include:

Creativity, problem-solving, adaptability, resilience, resourcefulness, even spiritual and moral literacies are found in the aspirations of countries and organisations across the world where such competencies are seen to be essential for success in future society. Yet, despite these aspirations and priorities, approaches to the assessment of students' learning often appear lacking in imagination and overly focused on procedures, particularly in highly competitive assessment situations. (p. 454)

Timmis, Broadfoot, Sutherland and Oldfield (2016) suggest there is an uncritical acceptance of the current role of assessment which is at odds with the need for new assessment thinking required to meet future skills and priorities. They assert, “There needs to be a re-evaluation of both the purposes and processes of assessment that will prompt the development of new assessment methods, leading to assessment that is more meaningful and relevant for learners” (p. 454).

As Industry Training Organisations develop assessment resources and conduct assessments on learners, an insight into the principles of assessment holds importance. The New Zealand Qualifications Authority (2018f) states well-constructed assessments are essential to support learning, and to provide good evidence of achievement. It is critical to have assessment materials and decisions be fair, valid, consistent and appropriate for the level the learner is being assessed to and the given learning outcomes. These values are elaborated as follows:

*fair* - assessment processes and products should be without barriers, providing equity of opportunity for all students

*valid* - assessment should sample fairly the objectives and content of the course, should have clarity and appropriate marking criteria for the task and level of students. It should be ‘fit for purpose’

*consistent* - assessment that is a reliable and accurate measurement of student learning will provide consistent results regardless of when the assessment occurs or who does the marking. Consistent assessment can be used for multiple cohorts with similar results

*appropriate* - assessment should only be of the intended skills, knowledge and attributes of the graduate profile the qualification the assessment leads to or objectives of the programme (if not based on a New Zealand qualification on the New Zealand Qualifications Framework. It should be at a level appropriate to the stated learning outcomes and should be sufficient to provide certainty about the level

of competence of those being assessed. (New Zealand Qualifications Authority, 2018f, p.1)

Similarly, Darling-Hammond, Herman, Pellegrino, Abedi, Aber, Baker and Steel (2013) describe five elements of an effective assessment system fit for the modern environment as (i) the assessment of higher order cognitive skills - the tasks designed for learners must tap higher level skills that are transferable, (ii) high-fidelity assessment of critical abilities - assessments must include critical abilities like communication, collaboration, complex problem solving and research, in addition to subject matter concepts, (iii) standards that are internationally benchmarked - assessment tasks, content and performance standards should be rigorous and benchmarked to international standards, (iv) the use of items that are instructionally sensitive and educationally valuable - preparing for assessments should engage learners in valuable activities and the assessment results should provide useful information, and (v) assessments that are valid, reliable and fair - assessments should measure what they aim to measure, they should be accurate in evaluating the learner's abilities, be bias-free and support improved learner outcomes.

In the specific context of Industry Training Organisations, Vaughan and Cameron (2010) outline four high-level principles to support good assessment structures and systems in Industry Training Organisations (i) Industry Training Organisations and workplaces should have a clear purpose for assessment and work together, (ii) The Industry Training Organisation's assessment structures and systems must support the learning process, (iii) good assessment requires appropriately recruited, trained and professionally developed people and (iv) moderation contributes to the validity and reliability of assessment decisions. They assert that assessment is an on-going process not a one-off event. It is the evidence-gathering process that is carried out by learners, verifiers and assessors that supports learners to achieve the criteria required in the qualification. These principles are important to my research because they serve as quality benchmarks for workplace assessment innovation.

## *Workplace assessment innovations*

While it is believed the purposes and processes of assessment have not been reviewed, there are some new assessment methods used in workplace assessments like holistic assessments, digital assessments and electronic portfolios. **Holistic assessments** require the use of professional judgment to focus on the assessment of the complete work activity rather than specific elements as described in the outcome requirements. According to the Gordon (2013) to support learning in the modern context, assessments must represent the competencies that the complex world demands. They must be holistic, go beyond the narrowly defined cognitive or academic achievement to include a full range of value outcomes. To do so, tasks and activities in the assessments must appeal and have relevance to the learners, the assessment systems must be robust enough to drive changes required to meet the standards. Assessments should do more than document what learners know and what they are capable of. They should provide information on why learners think the way they do, how they learn and the reasons for misunderstandings.

The New Zealand Qualifications Authority (2018d) defines **digital assessment** as the presentation of evidence, for judging learner achievement, managed through the medium of computer technology. Technology provides the opportunity for assessment to be integrated with the learning process, with a focus on critical thinking skills applied to real world situations and for digital assessment to occur.

**Micro-credentials** are emerging as a new form of credentialing small packages of learning (Computer Generated Solutions, 2016; New Zealand Qualifications Authority, 2018e). According to the New Zealand Qualifications Authority (2018e) micro-credentials recognise the achievement of a defined set of skills and knowledge (as opposed to a full qualification). They are also known as badges, nano-credentials and nano-degrees. The component of learning undertaken is validated in a micro-credential and is important (not simply as a stepping stone to any subsequent qualification). In response to the changing nature of work, the New Zealand

Qualifications Authority (2018e) suggests it is currently piloting micro-credentials with three organisations in New Zealand.

Van der Schaaf, Donkers, Slof, Moonen-van Loon, van Tartwijk, Driessen, Badii, Serban and Ten Cate (2016) affirm **electronic portfolios (e-portfolios)** containing selected evidence of a learner's performances and associated evidence accompanied by their comments and reflections are increasingly used to assess workplace-based learning. Meeus, Van Petegem and Van Looy (2006) assert an electronic portfolio generally aims to monitor the development of a learner's competencies (for example, knowledge, skills and attitudes in planning and collaborating). It also aims to stimulate the learner's self-assessment and reflection, which is a prerequisite to become a lifelong learner. Thus, new assessment methods have been introduced in recent times.

### ***Challenges to workplace assessment innovations***

Innovative workplace assessment brings with it its own challenges. Bersin (2016) highlights the notion that today's learners have less than five minutes a day to dedicate to learning, yet Soffel (2016) claims learners need to be assessed on increased skillsets. This dichotomy poses challenges to innovation in workplace learning and assessment as traditional models of learning and assessment are delivered as full qualifications. Another challenge to workplace assessment innovation is the regulatory quality assurance requirements. Davenport, Scott and Sherwin (2017) reveal some of New Zealand Qualifications Authority's regulatory processes are not as supportive of innovation as they could be. On one hand, the New Zealand Qualifications Authority aims to refine the quality assurance activities to better meet client needs (New Zealand Qualifications Authority, 2018g), yet it is simultaneously incorporating stronger educational achievement measures as part of External Evaluation and Review to manage the quality of educational performance (New Zealand Qualifications Authority, 2018c). Thus, balancing flexibility with rigour poses challenges.

Designing and conducting assessments for an unforeseen future can be daunting too as there is uncertainty associated with the future. Soft skills and transferable skills are difficult to assess. Davenport, Scott and Sherwin (2017) reveal the tertiary sector expressed the challenge it faced in integrating the transferable skills into the assessment processes. Hays (2015) highlights assessing educational outcomes is not straightforward because the attributes to be measured are mental representations and processes that are not always outwardly visible. Pellegrino (2014) concurs that designing an assessment and making decisions on what to assess and how to assess is not as easy as it appears. Preparing people for change is not easy. Gunn and Hollingsworth (2013) note some of the challenges for workplace assessment include the likely anxiety and resistance to change as traditional instructional approaches are replaced by new ones. Understanding the challenges associated with workplace assessment innovation is critical to my research because it throws light on the pressures Industry Training Organisations may experience as they plan for innovation in workplace assessments.

In conclusion, the themes relevant to my research include the scope, role and accountability of Industry Training Organisations, New Zealand Industry Training Organisation reform and strategy, future workplaces, workplace learning innovations, and workplace assessment innovations. An understanding of these issues provides an insight into core areas of my research, provides an understanding of the journey of the research participants and creates opportunities for rich data analysis.

## CHAPTER 3: METHODOLOGY AND METHOD

### Introduction

This chapter presents the research design, the research method and the data analysis adopted in this research about the strategic planning for future workplace learning and assessment innovation within Industry Training Organisations in New Zealand. The research design discusses the interpretative approach and qualitative methodology used in this study. Next, the research method, semi-structured individual interviews, is discussed with regard to sample selection, the principles and practice of individual interviews and self-reflection on the interviews conducted. Lastly, data analysis is described and the integrity and validity of the data and the ethical considerations in this study are explained.

### Research Design

#### *Interpretive approach*

Epistemology is concerned with deciding what counts as legitimate knowledge (Bryman, 2012; Davidson and Tolich, 2003). Davidson and Tolich (2003) elaborate that epistemology answers questions like, “How do we know?” or “How will we ever know?” My epistemological position is post-positivist interpretivism. The creation of knowledge in my research stems from the minds of human participants. As my research involves human participants, it is classified as social research.

Cohen, Manion and Morrison (2011) observe that post-positivists reject the scientific research approach as they believe it does not apply to social science. According to Davidson and Tolich (2003), the post-positivists believe that the social world can only be understood by engaging in the direct experiences of people who are part of the action being investigated. Social scientists unearth the social reality through the eyes of different participants. The participants themselves construct their social reality as their perception is their reality.

On the other hand, Bryman (2012) states that positivists uphold the importance of applying the principles, procedures and ethos of the natural sciences to research. Davidson and Tolich (2003) highlight positivist methods are only concerned with observable phenomena which is used to generate law-like relationships through the accumulation of pure, factual knowledge. The research, if repeated, results in the same findings. The approach is explicitly objective and neutral as the researcher is removed from the process of process of data collection. As the research I conducted is social research which is concerned with the perceptions of people; the principles, methods and exactness of the positivists does not apply to this research.

Bryman (2012) asserts that interpretivism considers the subject matter of the social sciences – people and their organisations - as fundamentally different from that of the natural sciences. Davidson and Tolich (2003) concur and elaborate that the interpretive approach uses direct and detailed observation of people in their natural settings to systematically analyse, understand and interpret how people create and maintain their social worlds. Cohen, Manion and Morrison (2011) refer to interpretivism as a subjectivist approach. According to them, subjectivists believe the world exists, but different people perceive it in different ways, thereby creating their own social reality. They suggest that the subjectivist approach is characterised by a concern for the individual with efforts being made to get inside the person and understand them from within. I prefer the way that Bryman (2012) and Davidson and Tolich (2003) reference the approach as interpretive because in this research, I have endeavoured to observe people in their natural settings to analyse, understand and interpret how my

participants have created their beliefs on the research topic. Hence, I will refer to it in this way for my research.

To gather the information on the strategic planning for workplace learning and assessment innovation within Industry Training Organisations, I engaged in discussions with the Moderation and Assessment Manager (or equivalent or as advised) within their natural work environment. This is because I needed to gain an in-depth understanding of the topic as they perceived it. The research I undertook is not pure or based on empirical statistics. Rather, it is concerned with people's ideas and perceptions, their thoughts and feelings. As the participants shared their views, opinions and experiences; they reflected their social reality as they had constructed it. Their ideas, concepts and beliefs were very different and were likely influenced by what they thought, and what they thought others thought about the topic. In this way, the participants created their own social reality. This subjective and inter-subjective nature of the data required I use an interpretive approach to my research. The findings from my research are relative, rather than absolute. As a researcher, I have presented a specific version of social reality, which is subject to change. In view of the above, my epistemological position is post-positivist interpretivism.

### *Qualitative methodology*

I adopted a qualitative methodology for my research. Bryman (2012) asserts qualitative data emphasises words as opposed to quantification in the collection and analysis of data. Merriam (2009) alludes to qualitative researchers as being involved in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences. As my research was concerned with understanding the Moderation and Assessment Manager's (or equivalent's) experiences in the strategic planning for future workplace learning and assessment innovation, it called for a qualitative design. Cresswell (2007) highlights the use of qualitative research when exploring an issue that requires a complex and

detailed understanding. The focus throughout the research is on learning the participants' meaning about the problem or issue (Cresswell, 2007; Merriam, 2009). Merriam (2009) elaborates that with the focus of research on quality, the product of a qualitative inquiry is richly descriptive. Words and pictures are used to convey what the researcher has learned about the phenomenon. The design of qualitative research is emergent and flexible as the researcher can adapt their questioning in response to changing conditions of the study in progress (Creswell, 2007; Merriam, 2009). The research questions used in this study centred on the constructed realities of Moderation and Assessment Managers (or equivalents or as advised) in their work environment, their interpretation of innovation and the Tertiary Education Strategy, their experience of the strategic planning for future workplace learning and assessment innovation including their challenges and responses to it. These are complex issues which required a detailed understanding of the area explored. Hence, a qualitative methodology was best suited to my research.

## **Research Method; semi-structured individual interviews**

### ***Sample selection***

A purposive sampling approach was adopted for this research. Purposive sampling ensures access to the right participants to provide the detailed data. Bryman (2008) suggests purposive sampling allows researchers to select participants who are relevant to the research questions being explored. Creswell (2014) alludes to the importance of purposive sampling in qualitative research when he states that purposefully selecting participants and sites can help the researcher understand the problem and the research question. Merriam (2009) states the sample selection in qualitative research is usually purposive, non-random and small. I conducted eight individual interviews, face-to-face wherever possible, with the Moderation and Assessment Manager (or equivalent or as advised) within five Industry Training

Organisations in New Zealand. There are eleven Industry Training Organisations in New Zealand. My eligibility criteria included Industry Training Organisations that offered a minimum of at least ten qualifications. One of the Industry Training Organisations were therefore excluded as it offered only two qualifications. I also excluded the Industry Training Organisation I work with. Therefore, I approached nine Industry Training Organisations. I engaged in opportunity sampling. Opportunity sampling is a sampling technique which consists of taking the sample from the people who are available at the time of the research and who meet the criteria set out by the researcher. Of the nine Industry Training Organisations, five of them were willing and available to participate in the research. I obtained organisational permission for conducting the research from the Chief Executive Officers of the five participating Industry Training Organisations. I searched the Industry Training Organisation's website to obtain the name of the Moderation and Assessment Manager (or equivalent) where possible and contacted them with a request to participate in the research. I sent them the participant information sheet to enable them to have a complete understanding of what the project entailed and their potential role in it. In this way I obtained six participants. An additional two participants were recommended as part of the interview itself, where the Moderation and Assessment Manager (or equivalent) thought I would benefit from obtaining views from other departments of their Industry Training Organisation. Where additional interviews were conducted, permission to conduct the additional interview was first obtained from the Chief Executive Officer.

I interviewed one or two participants from each of the five organisations with a total of eight interviews. All participants were over the age of 18 years, were fluent in English and had worked in their role for at least a period of one year. I selected the Moderation and Assessment Manager (or equivalent) as the participant because as part of their role they held specialist knowledge and had the experience of the strategic planning for future workplace learning and assessment innovation within their workplace. Wellington (2015) suggests key informant is the term used to describe the person who may be the key figure in providing the researcher with insights and detailed information. Compte and Goertz (1984) describe key informants as individuals who possess special knowledge, status or communication skills and are willing to share their experiences with the researcher. Of the eight participants, six of them were middle-level leaders

(two from Quality, one from Quality, Moderation and Assessment, one from Policy and Quality, one from Qualifications and Quality, one from Learning Solutions) and two were senior-level managers (one from Standards Leadership and one from Industry Engagement).

My experience of working within a Moderation and Assessment team of an Industry Training Organisation indicated that the departments within the Industry Training Organisation worked in silos. For example, the strategic team worked independently of the Moderation and Assessment team. As my research primarily explored the specifics of future workplace learning and assessment including models, challenges and responses to it, I thought it was imperative to interview with the Moderation and Assessment Manager. However, my research also addressed the strategic planning for future workplace learning and assessment. Based on my experience, I anticipated that the Moderation and Assessment Manager (or equivalent) may or may not be fully aware of the strategic priorities for tertiary education and have an in-depth involvement with the organisational strategy. Hence, I thought it best to provide a background document on the strategy for the participant to review, prior to the interview. I was thankful to have obtained interviews with two senior-level leaders to obtain more information on the topic from a strategic viewpoint.

### ***Principles and practice of individual interviews***

Lather (1986) defines interviews as a conversation with a purpose. To gather information, he suggests the use of a relatively informal and interactive approach which may involve a two-way exchange of views. Similarly, Lichtman (2013) highlights in an interview a researcher gathers information as the participants share their feelings, intentions, meanings and thoughts on a topic, situation or idea that the researcher is studying. I chose individual interviews as my method of data collection because I needed in-depth, detailed data to support my research. To fully understand the participants' subjective concepts, ideas and experiences on the strategic planning for

future workplace learning and assessment innovation, it was important to interview them in their environment, so they felt safe and comfortable to share their story with me. Where possible, I went to the participant's office to conduct the interview in their natural setting. Cresswell (2007) alludes to qualitative researchers as having a naturalistic approach to the world as they study things in their natural settings.

The main principles of interviewing apply to the process before, during and after the interview. The importance of planning and preparation cannot be understated because it provides the researcher with an opportunity to consider potential pitfalls and avoid them thereby increasing one's chances for success. A strong, well thought out interview schedule allows for valid data-gathering as the questions in a good interview schedule support the research aims. Wellington (2015) suggests translating research objectives into interview questions when preparing the interview schedule. Wellington (2015) highlights four key aspects in preparing the interview schedule: (i) translating the research objectives into interview questions, (ii) deciding the degree of structure, (iii) ordering the questions and (iv) deciding how the responses will be collected. Krueger and Casey (2014) recommend five categories of questions: opening, introductory, transition, key and ending questions. The opening question is designed to be easy to answer. Introductory questions introduce the topic and get people thinking about their connection with the topic. Transition questions move the conversation into the key questions that drive the research. They serve as a logical link between the introductory questions and the key questions. They ask participants to go into greater depth about their experiences, than the introductory questions do. Key questions are the drive for the research. Ending questions bring closure to the discussion and enable participants to reflect on their comments.

With the principles of interviewing in mind, I created and designed the interview schedule (Appendix A). The questions in this study were ordered in a way that the introductory questions allowed participants to get thinking about the topic, transition questions helped move the questioning into the key areas and key questions explored the crux of the research. Participants were given an opportunity to add any further comments at the end of the interview.

The interview schedule comprised three sections that corresponded to my three research aims. The first section explored how Industry Training Organisations have interpreted Tertiary Education Commission's strategy with reference to future workplace learning and assessment innovation. Within this section I explored the participants' responses to the concept of innovation, the Tertiary Education Strategy and its impact and the demand for learning and assessment innovation from other sources. I used three introductory questions where participants could share their experience of the very familiar environment they work in and their own definition of the concept of innovation in the context of learning and assessment. These questions aimed to introduce the topic and get the participant thinking about it. I then used a transition question to get the participant to delve a bit deeper into the topic before I moved to the two key questions on the Tertiary Education Strategy and demands for innovation from elsewhere.

The second section of the interview schedule examined the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations. In this section, I examined the Industry Training Organisation's strategic plans and discussed examples of learning and assessment innovation. I began this section with a transition question to set the scene by enquiring about the role that strategic planning plays in the planning for workplace learning and assessment innovation. I then moved directly to the key questions on the Industry Training Organisation's strategy and examples of future workplace learning and assessment innovation.

The last section of the interview schedule explored the challenges Industry Training Organisations are experiencing in the strategic planning for future workplace learning and assessment innovation. In this section, I explored the challenges, the responses to the challenges faced by industry training organisations in the context of future workplace learning and assessment innovation, and how the Industry Training Organisation maintained quality in the face of innovation. I continued this section with four key questions relating to the challenges in workplace learning and assessment and the responses to the challenges in workplace learning and assessment. I inserted

a transition question on how the Industry Training Organisation met quality in the face of innovation before I brought the interview to a close. In my closing question, I enquired if the participant had anything additional to add to the interview. By including this question, it enabled me to capture everything the participant wanted to say. Hinds (2000) asserts that by providing the participant an opportunity to share any last thoughts before closing the interview eliminates the participant adding vital information once the recording device is turned off and the interview is officially over. Further, to gain the authentic views of the participants and reduce my personal views and bias in the process, open-ended questions were used throughout the interview schedule. Creswell (2002) asserts that by asking open-ended questions, the researcher can carefully listen to what the participants are saying about their context.

During the interview, the role of the researcher is of paramount importance as it is important for the researcher to build a rapport and create a safe, non-judgmental environment for the participant to willingly and freely share their views and experiences. Wellington (2015) states one of the first tasks of an interviewer is to establish a rapport with the participant and indicates a skilled interviewer is able to assess the balance between task involvement (involvement with research questions and answers) and social involvement (involvement with the participant at a personal level). In practice, I built a rapport with my clients by being friendly yet professional.

The semi-structured interview schedule enabled me to probe the participants further within the interview and amend the order of the questions. Wellington (2015) asserts semi-structured interviews allow the researcher the flexibility to decide the range and order of questions within a framework or guide. It gives the interviewer more control and flexibility as it is not entirely pre-determined. Similarly, Merriam (2009) states the design of qualitative research is emergent and flexible as the researchers can adapt their questioning in response to changing conditions of the study in progress.

A strong questioning strategy is critical to the success of the interview as the questions direct the participant's thinking and thereby impact on the data collected. Lichtman

(2013) recommends good questioning strategies include elaboration (used to get participants to expand on ideas), probing (used to elicit more information from participants) and neutral (the researcher maintains a neutral stance, asking questions in a non-directional manner). He recommends questioning strategies to avoid include leading questions (questions that set the participant to answer in a certain way), complex questions (convoluted questions that confuse the participant) and questions using jargon. These principles guided my thinking and approach when interviewing my participants. They encouraged me to ask neutral questions that allowed the participant to expand and elaborate on their thoughts, without being led.

Wellington (2015) alludes to the importance of upholding the quality of the interview after the interview is complete. This assumes importance because the quality of the interview is dependent on the accuracy of the recording methods and the perceptions and interpretations in transcribing interviews. Accurate recording of data adds the robustness to findings that are generated from the interview. Several writers (Bryman, 2012; Fontana & Frey, 2005; Neuman, 2003) suggest interviews are recorded so that the transcripts accurately reflect the participant's views. Hinds (2000) states that the importance of the accuracy of the recorded interview transcript is crucial as it reduces bias. In practice, these principles encouraged me to record my interviews and to transcribe them verbatim. Further, I sent the transcripts to my participants for verification. Wellington (2015) emphasises the importance of accurately recording the data at an interview to improve the quality of data. I believe that the data I recorded was accurate because I provided my participants with an opportunity to review and correct the data to ensure it was an accurate representation of their view. A couple of my participants made minor corrections, which I considered and amended as recommended by the participants.

Lichtman (2013) has designed a checklist to help researchers with their preparation for conducting interviews which includes (i) what a researcher must consider before the interview, (ii) when the researcher arrives at the interview, (iii) during the interview, and (iv) on completing the interview. It involves minute details of what the researcher must ensure they have with them (for example, consent form, laptop, recording device),

through to the researcher's mental composition (for example, review tasks to feel prepared, maintain a high level of interest in the participants views even if you find it boring, be prepared to deal with interruptions) and tips on managing the post-interview administration (record the time of interview completion, label the interview recording with date and time). This checklist helped me plan, prepare and manage my interviews in a timely and efficient manner.

### ***Self-reflection***

On reflecting on the interviews, I was thankful that I was able to establish a good rapport where participants felt comfortable to share their ideas and perceptions freely. I used questioning strategies appropriately as I probed using neutral terms and was comfortable with silences and longer wait times. Lichtman (2013) and Wellington (2015) suggest probing should be neutral and non-directive to be valuable in data gathering. Lichtman (2013) refers to wait time indicating interviewers need to wait silently allowing the participant time to think and respond to the question. On the other hand, one or two participants did not understand what exactly was being asked for in Q.7 "Can you describe the role strategic planning plays in supporting workplace learning and assessments innovation?" It was probably a slightly long sentence. Wellington (2015) highlights rigour is enhanced when interview schedules do not contain ambiguous questions and are not too long. If I were to re-do it, I would perhaps rephrase that to, "Do you think it is important to plan strategically for workplace learning and assessment innovation?" One of the eight interviews extended beyond the scheduled time by twenty minutes. However, the data was rich and invaluable, and the participant did not seem to mind the additional time. I was discerning about probing in this instance.

## Data Analysis

Wellington (2015) states that information collected through interviews is often termed as data. It is important to first interpret data before assigning it any meaning. Lofland, Snow, Anderson and Lofland (2006) suggest data analysis is essentially the process in which raw data is translated into findings or results. Basit (2003) alludes to data analysis as the most difficult and most crucial aspect of qualitative research. Lichtman (2013) suggests data analysis is an ongoing process where interpretations are made from the process, making it both inductive and iterative. Creswell (2014) highlights researchers need to winnow the data as they analyse it, so that they can focus on the data that is relevant to their research and disregard the rest. He describes a six-step approach to data analysis: (i) organise and prepare the data for analysis, (ii) read and look at all the data, (iii) start coding the data, (iv) use coding to create a description of categories or themes (v) consider how to represent the themes in a narrative and lastly (vi) make an interpretation of the findings. Similarly, Lichtman (2013) recommends the 3C's of analysis: coding, categorising and concepts. According to him, a systematic approach to analysis and interpretation brings order and understanding to research. Lofland, Snow, Anderson and Lofland (2006) define coding as sorting the data into meaningful categories from one or more frameworks or sets of ideas.

Guided by the principles of data analysis described above, as I read through my verified transcripts, I coded the data into categories relating to my literature review. I used five broad categories, with sub-categories for some: (i) defining innovation; (ii) future workplaces (a) advancement in technology, (b) changes in demographics, (c) globalisation; (iii) strategy and its impact; (iv) learning innovation (a) definition, (b) models, (c) challenges, (d) responses; and (v) assessment innovation (a) definition, (b) models, (c) challenges, (d) responses. I created an Excel spreadsheet with a separate tab for each of these categories and sub-categories. I transposed the data from the transcript onto the relevant tab of my Excel spreadsheet for each participant. I then identified key themes that emerged within each category and sub-category. As I scrutinised my data I winnowed it to focus on the information relevant to my research.

### *The integrity and validity of the data*

Integrity and validity of the data are the cornerstones of qualitative research. Integrity is honesty and probity within the conduct of qualitative research, and it underpins ethical practice in all activities that comprise data collection and analysis. Data integrity refers to the maintenance of and assurance of the accuracy of data. Davidson and Tolich (2003) define validity as the extent to which a question or variable accurately describes or measures the concept the researcher is looking for. To establish validity, we must ask the question, “Are we investigating what we claim to be investigating?” In this research, the questions in the interview schedule were categorised by the research aims, thus ensuring validity.

Respondent validation is important to strengthen validity and integrity (Cohen, Manion and Morrison, 2011; Cresswell, 2014). Similarly, Wellington (2015) draws attention to interview records being inaccurate due to errors in transcriptions. To ensure accuracy of data, the interviews in this research were digitally recorded, extreme care was taken to transcribe the content of the interview verbatim and the interview transcriptions were sent through to the participants to validate the data. In this way, rigour, integrity and trustworthiness was enhanced in this research.

Cohen, Manion and Morrison (2011) highlight the attitudes, opinions and expectations of the interviewer, the tendency of the interviewer to see the participant in one’s own image, the interviewer’s preconceived notions must be minimised to strengthen the validity and integrity of the research. Similarly, Wellington (2015) asserts the need for an interviewer to take a critical and reflexive approach to interviewing. Cohen, Manion and Morrison (2011) caution against poor coding, drawing inferences outside of the data gathered and in using data selectively. Cohen, Marion and Morrison (2011) recommend researchers avoid using data selectively and unrepresentatively, avoid misinterpreting the message and making claims that are unsubstantiated by the data. They observe the importance of answering the research questions in strengthening validity. As a researcher, I endeavoured to be neutral, distant and as objective as

possible. Given that I work within the Industry Training Organisation setting, my experiences had shaped my beliefs about the strategic planning for future workplace assessment and innovation. It was easy to go into the research field with preconceived ideas. It was an education for me to adopt a neutral stance and interview participants without bias. I also made every effort to be circumspect not to discuss my research at work. I have aimed to answer the research questions and analyse the data objectively. However, in qualitative research it is important to acknowledge that the information is not objective, but rather a subjective reality (Cresswell, 2014; Lichtman, 2013). Similarly, Bryman (2012) acknowledges research cannot be value or bias free as the researcher's personal views are inevitably inextricable from the research.

Wellington (2015) states the role of the researcher who is gathering evidence is to elicit extensive and naturally expressed information. This may be needed to support communication with the reader, to whom the researcher appeals for verification of his/her own judgments, by presenting the evidence. In doing so the researcher provides the reader with interpretations accessible to reflection or discussion. In this research, in the findings chapter the data has been quoted verbatim, thereby displaying the data for readers to make their independent judgements, thereby lending authenticity to my study.

### ***Ethical considerations***

Bryman (2012) observes ethical issues cannot be ignored as they relate directly to the integrity of the research. Diener and Crandall (1978) have identified four ethical principles to be considered by researchers: whether (i) there is harm to participants, (ii) there is a lack of informed consent, (iii) there is an invasion of privacy and (iv) deception is involved. Harm includes physical or emotional harm, harm to participants' development, stress, loss of self-esteem and inducing participants to perform reprehensible acts. Ethical guidelines advocate that a researcher should minimise disturbance to the participants themselves and to the participants' relationship with

their environment. They should anticipate and guard against consequences where harm can be predicted for research participants and carefully consider if participating in the research may be a disturbing experience for them. As this study on the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations is a generic topic, I did not anticipate any emotional or physical harm to the participants. However, I paid heed to the sort of questions I asked and how I revealed the responses to ensure sensitivity of all is considered.

According to Bryman (2012) the principle of informed consent implies that even when people know they are being asked to participate in research, they should be fully informed about the research process. It is the researcher's responsibility to explain as fully as possible, in terms that are meaningful to the participants, what the research is about, who is undertaking it, why it is being undertaken, and how it is to be promoted. Bryman (2012) indicates in voluntary inquiries, participants should not be pressured to participate and must be aware of their right to refuse, for whatever reason, and to withdraw data supplied. Researchers should not withhold information that may affect a participant's willingness to partake in the research as it would not protect the participant's interest. For this study, I provided my participants with a participant information sheet (Appendix B). The participant information sheet provided details about my research as it outlined the purpose, method, intended use of the research, what the participation entailed. This allowed the participants to be fully informed of the nature of the research and the implications of their participation at the outset. I did not coerce any participant into partaking in the research. They were fully aware it was voluntary.

According to Bryman (2012) the third ethical concern relates to the issue of invasion of privacy. The issue of privacy is linked to anonymity and confidentiality in the research process. In this research, I requested my participants to sign a written consent form (Appendix C). Informed consent is about informing participants, gaining their consent, recording the information and recording their consent to partake in the research. It includes information on data protection, anonymity and confidentiality of

the data and permission to record the interview. Personal information about participants and their Industry Training Organisation has been kept confidential.

Bryman (2012) indicates the fourth ethical concern relates to deception. Deception occurs when researchers represent their work as something other than what it is. I have been open and honest in my communications with the participants and declared that I work as an Assessment and Solutions Advisor with an Industry Training Organisation. In order to avoid a conflict of interest the Industry Training Organisation I work with was not used in this research study. In addition, I had no personal relationship with any of the organisations or participants involved in this research.

## Summary

In this chapter I have presented the research design including a rationale for the post-positivist interpretative approach and qualitative methodology for data collection and analysis used in this research. I have discussed the research method including sample selection, the principles and practice of individual interviews and self-reflection on the interviews conducted. Data analysis and the principles and practice of the integrity and validity of the data has been examined. Lastly, ethical considerations have been explored including informed consent, confidentiality, anonymity and minimising harm to participants. In the next chapter, the findings from the individual interviews are presented.

## CHAPTER 4: FINDINGS

### Introduction

This chapter presents the data gained from the interviews with six middle level leaders and two senior level leaders from across five Industry Training Organisations in New Zealand on the strategic planning for future workplace learning and assessment innovation. The eight participants were individually interviewed. The semi-structured interview data findings are organised in five categories. The first category focusses on how the participants (i) interpreted the concept of innovation. The second category explores (ii) strategy and its impact on strategic planning in Industry Training Organisations. The third category examines (iii) the drivers of change for future workplace learning and assessment innovation. The drivers of change are investigated under three sub-categories: (a) technological advancements, (b) changes in demographics, and (c) globalisation. The fourth category deals with (iv) learning innovation and has four sub-categories: (a) definition, (b) methods, models and delivery, (c) challenges to learning innovation, and (d) responses to the challenges. Lastly, the fifth category is (v) assessment innovation. This is discussed under four sub-categories: (a) definition, (b) methods, models and delivery, (c) challenges to assessment innovation, and (d) responses to the challenges. Within each of these categories and sub-categories, the themes that emerged are discussed and supported by verbatim data to provide authentic evidence.

To maintain the privacy and confidentiality of the Industry Training Organisations and the participants, the data codes in Table 1 have been adopted.

Table 1: Data codes for interview participants

Industry Training Organisation	Participant	Management Level
1	A	Middle-level
	G	Senior-level
2	B	Middle-level
3	C	Middle-level
	D	Middle-level
4	E	Middle-level
	H	Senior-level
5	F	Middle-level

### Category one: Interpreting Innovation

On analysing the participant's interviews with regard to how the middle and senior level managers in the Industry Training Organisations understood the concept of innovation, the following three themes emerged: (i) innovation as different ways of doing things, (ii) innovation as continuous improvement, and (iii) self-assessment as being critical to innovation. All eight participants alluded to innovation involving a different way of doing things. Some of the ways in which this was expressed includes, innovation is, "new ways of doing things" (Participant A), "thinking of doing things differently" (Participant E) and "how we could do things differently" (Participant F). In the educational context, the different ways of doing things related to replacing traditional ways by adopting new approaches and new methods of learning and assessment, new products being introduced and the use of new technology. Some of the ways this was expressed includes, "doing something that hasn't traditionally been done" (Participant B), "totally different to how they (learners) were doing it before" (Participant D), "then there's innovation where it is a brand-new product, and we've never had it before" and "thinking of putting things online and doing things electronically" (Participant E). Participant G, however, thought that innovation was the most overused word in education, and that although it meant doing something new, there really was nothing

new that was invented - merely improved on through increased knowledge. This participant commented that:

It's (innovation) the most overused word just about there is, in education more so than in many areas. In a general sense, innovation is really a simple word that means doing something new. But there is nothing new, nobody has invented anything that hasn't been invented before...it's not innovation at all, it's improvement...we can do things better because we know more.

The concept of innovation relating to doing things differently to continuously improve on the current, was shared by two other participants (E, H) as well. Participant H stated that innovation was about, "exploring, identifying and encapsulating new ways, new things and new methodologies to enhance and improve on the current".

Two of the eight participants viewed self-assessment as critical to innovation. Participant B alluded to the importance of honest self-assessment to determine the root cause of the problem before looking at different ways of doing things. Participant G referred to the importance of self-assessment and review in quality assurance by reviewing the innovative ways adopted, as innovation involved trial-and-error approaches.

Participant E spoke of the subjective nature of innovation as it meant different things to different people. Two of the eight participants indicated they actively used a collaborative approach to discuss the concept of innovation. Both participants (E, F) stated they had organisation-wide consultations and Participant F stated their organisation engaged with external stakeholders too.

Participant E stated innovation, if not implemented, remained just a great idea, stating that, "nothing is innovative if we don't actually give it some legs. If we don't actually put it into practice, it remains a brilliant idea."

Holistically, innovation is an action taken that involves exploring, identifying and adopting different ways of doing things, either because new knowledge is available or self-assessment indicates a need for change, which results in continuous improvement for the organisation that engages in it.

### ***Interpreting innovation: Key findings***

All participants defined innovation as different ways of doing things. For some, this meant moving away from traditional methods, for others it meant adopting new approaches, new products or the use of new technology. A few participants viewed innovation as continuous improvement. A participant stated the importance of innovation in terms of an idea being implemented.

### **Category two: Strategy and its impact**

The leaders' perspectives on strategy and its impact were analysed in relation to their views on (a) the importance of strategic planning, (b) the impact of the Tertiary Education Strategy 2014 – 2019, and (c) other influencers on strategic planning within their Industry Training Organisation. It is important to note that of the eight participants only two of the participants (G, H) were senior level managers. The five middle level managers did not have direct involvement with strategic planning and decision-making and have presented their views as they have experienced it from their middle level managerial roles. In terms of Industry Training Organisations, two of the Industry Training Organisations (1,4) have provided their views both from senior level management as well as middle level management. One of the Industry Training Organisations (5) did not engage in strategic planning, and two of the Industry Training Organisations (2,3) have presented views of middle level management only.

## *The importance of strategic planning*

The themes that emerged in regard to (a) the importance of strategic planning are: (i) strategic planning plays a directional or guidance role, (ii) strategic planning is a regulatory requirement, and (iii) the challenges to strategic planning.

Most of the participants (seven out of eight) perceived strategy to play a guidance or directional role. Some of the ways in which this was expressed includes, “it plays a directional or guidance role” (Participant A), “it is an aspiration” (Participant B), “if you don’t think of where you want to go or about where you’re going, sometimes you become a bit rudderless so and that leads to fighting more fires and working harder and harder” (Participant F). One participant (C) stated strategic plans helped the organisation determine its priorities. With the many industries the Industry Training Organisation caters to, it helped them consider the need of employers versus the benefit to the Industry Training Organisation.

All eight participants stated the importance of strategic planning in informing business plans. Some of the ways this was expressed includes, “We align it (the strategy) to our business plans” (Participant B). Participant E commented:

We have a Board that obviously inputs into the strategic planning. And then we have our CE (Chief Executive) and CE(Chief Executive) management team that also inputs, and then we as staff are also asked for our input into the strategic plan...so, I guess there is a feed up and a feed down...and once the business plan is developed, then it’s made available to all staff.

Participant H stated:

We ensure that each of our annual business plans and our investment plans align to and address the needs of the strategy, whether it’s

around the particular focus areas or around the more broader objectives of that strategy.

While Participant F considered strategic planning to be an important function, it was acknowledged that unfortunately strategic planning was a low priority for their organisation, as their organisation was busy focussing on routine work to stay afloat. Participant D considered strategic plans being supported by operational plans as important but acknowledged that it is sometimes the missing piece. Participant D stated, “You get your Senior Leadership Team say, “Here’s our strategy”, and you go, “Great, how are we going to get there?” And they go, “Uh, you do that bit and we’ll just get here.” Participant B thought ideally self-assessment should inform the business and strategic plans.

Two of the eight participants (D, H) addressed the importance of being agile and flexible in strategic planning as the operating environment is dynamic. Participant H commented:

Our strategic planning gives us a general sense of what we want to see when we get to the top of the mountain. And though the reality of what we see might be different or it might change as we go on that strategic journey, it provides people with that vision that we can then apply in our...development processes. And if the two go hand-in-hand, if the journey and the development and that vision are co-created and are continuously adapted as we go from milestone to milestone, then we can be sure that our practices are meeting the needs of our workplaces and learners, then we can be sure we’re all still heading to that same vision at the top of the mountain.

Two of the eight participants (B, C) viewed strategic planning as a regulatory requirement. Participant C considered the need for strategic plans that support the delivery of value qualifications and timely learner completions, to be a condition for availing funding from the Tertiary Education Commission and also in terms of meeting the needs of the industry. “Strategic planning has to be a part of the needs analysis or

needs assessment for the qualification because we have to be meeting the needs of whatever the industry needs” (Participant C). Interestingly, Participant G stated funding was never a criterion for decision-making at their Industry Training Organisation, where their decisions were led by education best practice principles. Participant B viewed strategic planning as a trigger for continuous improvement to help identify areas that can be improved on. In this regard, the participant viewed self-assessment as part of a regulatory requirement for the New Zealand Qualifications Authority’s monitoring of Industry Training Organisations through the External Evaluation Reviews.

Two of the eight participants (B, F) shared their challenges with engaging in strategic planning. They felt at their Industry Training Organisation strategic planning did not take precedence over daily operational requirements. The activities prioritised over strategic planning included the New Zealand Qualifications Authority’s regulatory requirements of regular review of qualifications and the establishment of the new New Zealand Certificate qualifications that replace the national qualifications. Participant F stated their Industry Training Organisation was busy in trying to meet the Tertiary Education Commission’s targets in increasing sales and learner numbers, as if this was not met, there would be financial repercussions to the organisation. A participant addressed the size of the Industry Training Organisation impacting the amount of funding received and perceived a limited budget to be a constraint in the ability to plan strategically. Participant B shared the reluctance from internal staff to engage in self-assessment and the challenges with divergent views on engaging in honest self-assessment, stating that:

There’s not a buy-in from all of the staff that is necessary to do a self-assessment report, and I think it’s key. If you don’t know what you’re doing well, and what you can improve on, we can all pretend we’re doing really, really well but I think we’ve got to analyse it. I did one (self-assessment report) and one of my bosses said, “Oh, you can’t say that. It doesn’t make us look very good”. And I thought, “But it’s true!” “Oh no, I don’t think you should put that in”. So, change the mindset for that as well, really. I don’t know, there is a little bit of a phobia in some areas, “If I put that in a document, then NZQA might

see it or TEC might see it". Well, they're going to see it anyway. They should see it. For me, it's a strength (to analyse critically). But perhaps other people see it as it's not. So that's a bit of learning there as well.

Two of the eight participants (B, G) considered the global financial crisis had a cascading effect on the Industry Training Organisation's ability to spend and therefore plan strategically. One participant (F) acknowledged that implementing change is a slow process and thus poses a barrier to strategic planning. One participant (B) believed that internal operational inefficiencies led to a mismatch in terms of the timing for developing strategic plans across different business units. This resulted in plans for departments being asynchronous to the strategic plan for the organisation.

### *The impact of the Strategy*

The themes that emerged in regard to (b) the impact of the Tertiary Education Strategy 2014 – 2019 on the strategic planning for future workplace learning and assessment innovation, are in relation to (i) the workforce development strategy, and (ii) the digital strategy. Seven of the eight participants believed the Tertiary Education Strategy 2014 – 2019 had an impact on the organisation. Participant B believed there was no impact of the strategy because as an Industry Training Organisation they performed the functions required of them by the strategy routinely as part of their role. "I don't think Strategy has (guided innovation). We do a lot of those things anyway" (Participant B). Three of the eight participants (F, G, H) who believed the Strategy had an impact on their organisation's strategic plans, also believed their organisation routinely performed such functions. This was evident through comments such as, "I think as ITOs we've generally been doing these things that are in the strategy anyway" (Participant F).

The Tertiary Education Strategy 2014- 2019 has directed the focus of the workforce development strategy in three of the five Industry Training Organisations (1,3,4) that participated in the research. Although the other two Industry Training Organisations

(2,5) did not have a formal strategy that focussed on workforce development, they believed they catered to the changing industry needs as part of their regular role as an Industry Training Organisation.

A predominant topic discussed across three of the five Industry Training Organisations (1,3, 4) and across six of the eight participants (all except Participants B and F) centred on preparing for the future skill needs of learners. Industry Training Organisation 1 is engaging in conversations with industry on the identification and response to future skills both in terms of the strategy as well as the realities of the world. Citing an example, Participant G stated, “We’ve got the lowest birth rate in this country that we’ve ever had per woman, the lowest you’ve ever had, and so how do you respond to that if you want to continue employing European males?” Participant A from the same Industry Training Organisation (1) alluded to the Industry Training Organisation’s focus on including transferable skills as part of the strategy so that the organisation can support future learners move from one industry to another or even to an entirely new profession. Industry Training Organisation (1) want to follow their learner’s progress over their lifetime. Similarly, one of Industry Training Organisation 3’s values is learners for life. Their strategy focusses not just on what learners need to know today but on how their skills can be built on, by gaining additional skillsets. They too want to be able to follow learners well beyond the immediate qualification completion, till the learner has realised their full capacity of what they want to achieve. Participant C stated this as follows:

And you get a person that starts off as an apprenticeship whereas our vision is that one day they’ll own their own business, and so they’re generating money for the economy and for themselves and so we’re not just going to give them the four-year apprenticeship and go, “Thanks a lot”. We want to be able to follow them through their entire lifetime until they reach their full capacity of what they want to achieve.

Industry Training Organisation 3 is also contemplating the types of skills the workplace learner needs to be competent in for an unforeseen future. Participant D commented:

My methodology has always been 70 -20 -10. Working with people who have a job, you know, 40 - 60 hours a week, they've got managers, they've got supervisors, so actually what is that ten percent I need to give them to make them competent in their job, thinking about what might be coming for them in their sector that they don't know about and that I don't know about.

Another key topic discussed across two of the five Industry Training Organisations and four of the eight participants was on personalised learning. These organisations are considering learner needs at a strategic level and are considering the best suited options to meet the needs (The specifics are covered under the learning innovation and assessment innovation categories of this chapter). The idea of being responsive to individual learner needs was the core fabric of the participants views from Industry Training Organisation 1. One of its eight principles that guide strategic decision-making is, "Every learner is an individual and every learning context is unique". Participant G remarked:

So, if you're making a decision about how to do something in the future, you say, "Well, does it comply with these eight principles?"... So, if the proposal we are thinking about or gathering ideas about or trying to sell to people, is one that doesn't acknowledge the individual learner then clearly it doesn't meet our principles. So, I think our education principles are clearly a part of that (strategic decision-making). They completely are. Some of them, like every learner is an individual, is sometimes quite challenging for people.

Similarly, Participant H from Industry Training Organisation 4 stated they were studying global trends and determining where the workforce needs to go. Participant H commented, "We have a number of groups and forums to encourage staff members and (we are) also working with our clients to identify the best ways to meet individual and workplace needs". Other aspects covered in the workforce development strategy included strategic planning to cater to the needs of individual businesses and small-medium enterprises (Industry Training Organisation 4) and strategic planning

contributing to improving the performance of the system or economy at large through improving the performance of individual learners (Industry Training Organisation 1).

The establishment of a digital strategy was discussed by three of the eight participants across two of five Industry Training Organisations. Participant A from Industry Training Organisation 1 believed this was driven partly by the Tertiary Education Strategy and partly through the demand from learners who are younger and more digitally savvy. Industry Training Organisation 3 has a strategy to be fully digitalised by 2020 and is keeping abreast with international trends in digital technology. They are reviewing their technology to deliver their training not just to survive but also to be of value to industry. Participant D, however questions the emphasis on digitalisation, when there are learners who do not meet the basic literacy and numeracy levels, stating the below:

These kids are coming out of school with (low) literacy, who can't read or write, or subtract or add... actually from a baseline, thinking about changing technologies and patterns, if they can't read, write, have very little digital literacy, then training technology doesn't matter. The impact is bigger than that across the board. We keep it in mind, because we know we have a requirement to provide businesses with information that is going to make a difference.

### *Other influencers on strategic planning*

The other influencers on the strategic planning in Industry Training Organisations included the feedback from the industry, clients and learners. All eight participants from across all five Industry Training Organisations believed they collaborate closely with industry, clients and learners, proactively seeking feedback through multifarious ways such as one-on-one meetings with learners, surveys with employers and graduates, and industry and sector specific group discussions. They see this as their core function as an Industry Training Organisation. However, Participant H

commented on how there are no strategic drivers to show industry skills leadership, an aspect that was taken away from Industry Training Organisations historically, stating that:

One of the things that Industry Training Organisations are missing out on is the mana that comes along with skills leadership which is something that was taken from them at one point... there are some really good parts of the strategy...but what it's missing is giving ITOs that role to actually champion with the industries the skills leadership, which would in turn impact and see us lead, leading the innovation in that space in terms of how those skills are demonstrated and assessed. It's a job that all ITOs do anyway because it is the only way we can function is working with industry to determine what are the current needs, what are the future needs and how do we get there at national levels and regional levels and at organisational levels...but there's no strategic drivers to encourage that and to encourage best practice in that area, though some ITOs are doing that in any case.

Participant G considered their role as an Industry Training Organisation to be an expert in the educational field, providing advice and taking actions that are consistent with their educational best practice principles. However, Participant G expressed concern about the commercial objectives of some Industry Training Organisations, stating their initiatives are contrary to the purpose and intent of the Industry Training Act. Participant G commented as below:

To remember that we are a tertiary education organisation and not some kind of business, I don't think. When you look at the strategic plans of ITOs you often think, "Where's the learner in all this?" And with no disrespect to (one of the) ITOs but my Board from time to time talks about alternative revenues streams from overseas. And I say, "That's not what our legislation says." It's not doing what we are here for, and if you can't justify it in those terms, you can't justify it... Does your strategic planning match the requirements of the Industry Training Act? And does it meet our obligation as a TEO? ... Effectively

if you think of education as a commodity, you will come out with a failed system.

### ***Strategy and its impact: Key findings***

Most of the participants considered strategy played a directional or guidance role and a few of the participants viewed strategic planning as a regulatory requirement. One of the participants considered the lack of honest self-assessment to be a challenge of strategic planning.

Most of the participants considered the Tertiary Education Strategy 2014 – 2019 had an impact on their Industry Training Organisation. Some Industry Training Organisations had a workforce development strategy which focussed on additional, future skills (most participants discussed this) and personalised learning (half the participants discussed this). A few participants stated their Industry Training Organisations had a digital strategy. A few participants shared their strategy included a focus on following a learner's progress to track lifelong learning and a focus on transferable skills.

All the participants believed that as part of their role, they collaborated closely with industry, clients and learners to determine their needs and meet them. One of the participants alluded to the commercialisation of objectives by Industry Training Organisations.

### Category three: The drivers of change

The data from the participants revealed that the drivers of change for future workplace learning and assessment innovation stem from the following: (i) technological advancements, (ii) changes in demographics and (iii) globalisation. All eight participants across the five Industry Training Organisations acknowledged the role that advancements in technology played in driving innovation and change. Two of the eight participants (F, D) stated the extent of change was industry dependent, where some industries still preferred to rely on traditional, manual methods of operation rather than use technology.

Holistically, all the participants agreed that advancements in technology have resulted in new tools and machinery, new materials and computer-based operations being used in workplaces. This has led to time and cost efficiencies (Participants A, C) and has led to process improvements both in the workplaces and within the Industry Training Organisations themselves (Participant C). While Participant G observed that within their industries, technological advancements have led to task specialisation, Participant H noted the contrary for their industries, emphasising the need for learners to hone generalist skills rather than be technically focussed in one area.

The data from half of the participants (four of eight) revealed that technological advancements have propelled Industry Training Organisations to review their qualifications and their delivery of it. Participant G commented, “smarter ways of doing things has completely changed the way that people learn, the way people perform their tasks and the way that workplaces are structured”. Participant A observed a change in learner demographics with the young, more digitally savvy learners has changed the way people communicate and has propelled learning and assessment innovation. Participant F too alludes to the implication of new technology being used in the workplaces resulting in Industry Training Organisations modifying or creating new qualifications and assessments of new skillsets. Participant C affirmed Industry Training Organisation 3 was reviewing their technologies and the way they delivered

their qualifications so that they can survive. Participant D marvelled at the potential that technological advancements hold, citing for example, the ability of the 3D printers to revolutionise the industry.

All the Industry Training Organisations have experienced some change in learner demographics either across all industries or in some industries only. An aging population was observed by four of the five Industry Training Organisations (1, 3, 4, 5). In addition to an aging population, Industry Training Organisation 3 and 4 also experienced an influx of younger people. Diverse ethnic and cultural representation was observed in all Industry Training Organisations except Industry Training Organisation 2. Participant F from Industry Training Organisation 5 asserted that they always had a good mix of ethnicities. Three of the five Industry Training Organisations (1, 2, 5) observed an increase in the women in the workforce, though in Industry Training Organisation 2, the change was slow. An example of the way some of the above ideas were expressed includes, “We’re seeing more women come into the workforce, a lot more cultures and ethnicities...a handful of staff who are over the age of 65 years. There are older people in the workplace now” (Participant A).

Most of the participants (six of eight) considered a changing demographic profile of learners to be another driver of innovation and change in learning and assessment innovations. The changing demographics presented different learner needs including the need for integrating technology in learning and assessment innovations. Some of the ways the changing needs were expressed include the following comments. Participant E asserted, “The demographic in terms of the age group of the trainees that we are dealing with, they’re younger and have different expectations”. Similarly, Participant C stated, “The type of learners that are coming through...the next generation of learners, they need the more interactive learning, they need the online type learning.”

The participant data revealed that globalisation has also driven learning and assessment innovation. Seven of the eight participants (all except Participant A from

Industry Training Organisation 1) observed the impact of globalisation in their Industry Training Organisation and/ or in the industries and clients they work with. However, Participant G also from Industry Training Organisation 1, observed an impact of globalisation in terms of the international influence on the styles followed within their industries and asserted globalisation was partly responsible for the task specialisation within their industries. Half of the participants (E, F, G, H) alluded to an increase in the international workforce either because of a skills shortage in their industries or because New Zealand has had an influx of people from overseas. Participants E and F observed an increase in the number of people that wanted to have their overseas qualifications recognised in New Zealand. Two of the eight participants (D, F) noted the effect of globalisation as global technologies are now accessible and available to the New Zealand market. Participant C alluded to the international recognition their Industry Training Organisation 3 gained, as they were approached by international organisations for their resources and were collaborating to develop international partnerships. In addition, at the stage of resource development, considerable thought was being given to the transferability of skills to support learners with skills that are recognised globally. Participant B stated their Industry Training Organisation 2, experienced an international demand as well and attributed this to the outstanding contribution of an individual and an intrinsic characteristic of a New Zealand made product.

### ***Drivers of change: Key findings***

All the participants acknowledged the role that advancements in technology played in driving change and innovation. Half of the participants considered technological changes within their industries have propelled their Industry Training Organisation to review their qualifications and the delivery of it.

All the Industry Training Organisations have experienced some change in demographics either across all their industries or in some of their industries. Most

Industry Training Organisations observed an aging population and an increase in ethnic and cultural diversity within their industries. Most of the participants revealed that the changing demographics indicated different learner needs including the need to integrate technology in learning and assessment.

Most of the participants observed an impact of globalisation within their Industry Training Organisation or in their industries. Half of the participants alluded to an increase in the international workforce either because of a skills shortage in their industries or because New Zealand has had an influx of people from overseas.

#### **Category four: Learning innovation**

Learning innovation as relevant to the strategic planning for future workplace learning and assessment innovation is explored under four sub-categories: (i) definition, (ii) methods, models and delivery, (iii) challenges to learning innovation, and (iv) responses to the challenges.

#### ***Definition***

The participants' data for the definition of learning innovation centred on two themes: (i) learner-centric and (ii) learning solutions including qualification and resource development. Participant A defined learning innovation as, "new ways to meet learner needs". The focus on using different ways to keep learners engaged and meeting their needs was discussed by six of eight participants (A, B, D, F, G, H). Half of the participants (A, E, G, H) emphasised the importance of treating every learner as an individual and using innovation to meet their needs. They alluded to learning

innovation being personalised learning. Participant G suggested learning innovation could perhaps imply the recreation of the guild system of the 19th century and earlier where workplaces directed both the learning, the assessment of the apprentice's skills, identified the skill gaps of individual apprentices and supported them appropriately. Participant G asserted that the worst thing that has been done is divorcing the employer from making active decisions for their learners:

We kind of de-personalised that (employers taking responsibility for upskilling their apprentices) in the 20th century to the extent that we effectively, we being the educators, had governments that were going to decide how it all works. And we did terrible things...we put budding apprentices into classrooms and tried to teach them things there. And then we tested them with exams and things, and so we divorced the whole thing.

Three of the eight participants (F, G, H) considered understanding learner needs and how people learn on the job as critical to learning innovation. Three of the eight participants (B, D, G) viewed learning innovation as focussing on learner engagement and retention of learning.

Some participants defined learning innovation with reference to the learning solutions including qualification and resource development. Two of the eight participants (B, G) stated learning innovation involved the use of new technologies to support learner-centric solutions. Participant C emphasised the importance of identifying and delivering on additional, future skillsets and considering business and industry needs as well as learner needs. Similarly, two of the eight participants (G, H) encouraged the development of resources that required learners to demonstrate future skillsets, such as critical thinking and problem-solving, to achieve competency. Participant G also suggested that learning innovation involved the development of qualifications that matched industry needs rather than funding criteria. Participant C considered learning innovation to include the development of internationally recognised qualifications.

Three of the eight participants (C, E, H) considered learning innovation to include customising of resources and programmes for clients. Participant E stated their Industry Training Organisation would like to provide customised resources to all their clients in the future. Participant H emphasised the importance of creating viable career pathways for learners. Participant H asserted innovation in developing resources included resources that support VARK (visual, audio, read-write, kinaesthetic) learning styles as opposed to the traditional written words. Participant A highlighted the importance of delivering flexible solutions so that the innovation used for one individual may not be the same as the innovation used for another.

Two of the eight participants (E, G) discussed best practice as part of learning innovation. Participant G referred to learning innovation as developing qualifications that are aligned with educational best practice principles. Participant E cited the development of a resource for best practice in workplaces and an industry training guide to be an example of learning innovation.

Two of the eight participants (B, D) commented on the sequence of learning being available to the learner as part of learning innovation. Participant B endorsed the sequencing of learning to match the naturally occurring on-the-job learning to make learning more relevant to the learner. Participant D emphasised providing the learner with flexibility to own their learning and lead themselves as opposed to imposing a sequence of learning on them.

Participant G considered offering the same level of service to clients, irrespective of whether they attract funding or not, as learning innovation. Participant G also viewed learning innovation as improvements in the way material was presented to the learners, learners were engaged with and their competency assessed, often driven by increased knowledge of people and education. Participant G stated the below:

The way I see innovation is by using new technologies, by using our growing understandings of peoples, capabilities and the way people

learn, and how they prefer to engage with the education processes and all of that, using all of that to improve the way we go about presenting material to them, engaging with them, assessing their capabilities and so on.

Holistically, learning innovation involves different ways of understanding individual learner, business and industry needs, identifying future skills, gathering naturally occurring workplace evidence to demonstrate learner competency, delivering internationally recognised qualifications through flexible, personalised learning and assessment solutions, and using technology to support the solutions.

### ***Methods, Models and delivery***

The learning innovations within the Industry Training Organisations can be expressed as a continuum that ranged from simple innovations through to the more complex learning innovations. Some of the learning innovations centred on new methods, some involved new models of learning, while others focussed on learning delivery.

On the simple innovation end of the continuum for learning methods and models, Participant H remarked their Industry Training Organisation 4 collaborated with polytechnics to offer the theoretical component of the qualification, while the learner gained the practical experience on-the-job. Participant C asserted their Industry Training Organisation 3, arranged night classes to support learners who had no access to computers, and recruited a support person to address the challenges learners had with computer literacy. Another model they used was job-share. Learners are sent to two different workplaces, each of which have unique set of new technological tools. Rather than have learners engaged with just one workplace (as is in the traditional approach), job-share exposed learners to obtain hands-on experience with new tools by engaging with two workplaces. Participant E stated learning innovation for them

included educating workplaces and developing best practice guidelines to embed or improve the existing learning culture.

Moving along the continuum towards the mid-point, three of five Industry Training Organisations (1, 3, 4) are either currently offering or are intending to offer micro-learning packages. Micro-learning packages are described as, “additional bites of knowledge that might provide additional context to people without being directly linked to the qualification” (Participant H). Half of the participants (A, C, D, H) provided examples of additional skills which included health and safety, time-management, work-life balance.

At the complex innovation models end of the continuum, two Industry Training Organisations (1, 3) were either considering or experimenting with augmented reality. Industry Training Organisation 3 was also considering virtual reality. However, Participant D considered it important to determine the application of virtual reality carefully as the participant held the view that it was not suitable for assessment purposes. Two Industry Training Organisations (1, 3) were impressed with the potential of 3D printers and modelling, however, found it cost-prohibitive.

On the simple end of the continuum for the delivery of learning, Participant (G) observed that as learners in their industries preferred manual learning material, paper-based resources were predominantly used in their Industry Training Organisation. Participant A from the same Industry Training Organisation 1, added they also offer learner resources on a USB stick. Participant G claimed consideration was being given to the resources currently being developed about how it could be converted to e-resources. Similarly, Participant D indicated their Industry Training Organisation 3, had successfully piloted converting print books into e-books

Moving along the continuum to the mid-point, all the Industry Training Organisations have a learning management platform or an online learning tool. Two of the eight participants (C, F) remarked their Industry Training Organisations offered learning

resources partly through a digital platform and partly manually. Two of the eight participants ( A, C) asserted they used or were in the process of developing their online learning platform to support after hours learner queries as well.

At the complex end of the continuum, Industry Training Organisation 3 offered learning on digital devices like mobile phones and tablets and was looking to be fully digitalised (offering all learning and assessment resources online for all its industries) by 2020. They also collaborated internationally, sharing both knowledge and resources with another country (Participant D).

### ***Challenges to learning innovation***

Many challenges to learning innovation were described by the participants. However, there is no unanimous challenge across all the Industry Training Organisations. The themes that emerged for challenges to learning innovations are covered under (i) Industry Training Organisation constraints, (ii) external constraints, and (iii) dealing with the future.

In discussing the Industry Training Organisation constraints, three of the eight participants (B, C, D) from across two of five Industry Training Organisations believed there were financial constraints to engaging in learning innovation. Participant C cited the importance of commercial viability within the Industry Training Organisations stating, “even though we’re not-for-profit, we’ve got to be able to make money to sustain, so we can put money into development”. Three of the eight participants (A, B, C) across two Industry Training Organisations (1, 2) considered communication to be a challenge. Participant A considered communicating across multi-cultural and age diverse groups to be challenging stating, “we have to be very aware of how we communicate...we’re not just talking to a homogeneous room”. Participant B alluded to the challenges in communicating with today’s learners who are very busy.

Participant B suggested finding alternative communication methods to reading as a possible solution to overcome this barrier. Participant C focussed on the challenges of communicating with age-diverse groups as the aging population and younger generation have different preferred methods of communication. Two of the eight participants (C, H) claimed that assigning priorities to the needs across their multiple industries posed a challenge. They also felt their learners had diverse and sometimes opposing needs, with for example, some preferring online solutions while others preferred tactile learning resources. Two of the eight participants (F, G) expressed their difficulty in getting things done quickly in their field, partly because of the high volumes of qualifications that require review and development as part of a regulatory process. Participant B stated some of the challenges at their Industry Training Organisation 2 included the lack of Information Technology in-house expertise and capability, the challenge in selecting an appropriate digital platform that meets multiple needs and the low literacy and numeracy amongst their learners. Participant C alluded to the challenges faced at their Industry Training Organisation 3, which included getting internal staff to think outside of the square to support learning innovation and highlighted the need to conduct research thoroughly before deciding on a technological solution, to avoid being reactive and following what was fashionable. Participant E shared there were sometimes differing views between different departments (for example, the moderation team and resource development team) on what was considered robust learning and assessment, and this posed a challenge to innovation in learning.

Some participants drew reference to external constraints that impacted on their Industry Training Organisation's ability to support learning innovation. Participant G stated the global financial crisis affected the spend in their Industry Training Organisation 1. Participant G also felt the inertia of the tertiary system also contributed to slowing down innovation stating, "You've got the thinkers and the movers and shakers, and they are way ahead of the doers". Another barrier described by Participant G included the representatives on industry consultations being affluent individuals who were removed from the operational aspects of organisations and hence do not represent the industry effectively. Also, the subject matter experts were conservative and preferred traditional methods of learning and assessment, including

examinations. Participant C cited the limited funding to Industry Training Organisations over the years, to be a barrier to learning innovation. Participant H believed that the higher level of theoretical knowledge or other requirements needed by the new qualifications or industry to achieve the qualification are not naturally provided in a workplace environment, thus posing a challenge to learning. Participant H commented, “If you’re not giving people those additional, new experiences, which they might not have in their current role, it’s much more difficult for them to then meet that New Zealand standard”.

The data revealed that dealing with the future posed some challenges. The two key challenges considered by the participants were people’s reluctance to change and keeping up with constantly changing technology. Five of the eight participants (A, B, C, F, G) felt that people felt overwhelmed by change. Participant G stated, “There’s so much weight of experience and belief and passion...it can be quite challenging for people to accept change”. Three of the eight participants (C, D, F) highlighted the accelerated pace of technological change and the associated challenges in keeping up with it. Participant D commented, “Technology is advancing incredibly, and it’s so fast...how do you keep ahead of it. Participant A highlighted that preparing learners for transferable skills posed a challenge as there is uncertainty about the future. Similarly, Participant D remarked that the future was so uncertain that the businesses and industry themselves do not know what to expect.

### ***Responses to the challenges***

The participants shared how their responses to the challenges they faced in learning innovations within their Industry Training Organisations. To bridge the barriers of financial constraints and competing industry needs, Participant C asserted they develop business cases to determine and agree on their priorities as an Industry Training Organisation. Two of the eight participants (G, H) highlighted the leadership role they played in terms of advocacy and leadership for their industries. Participant H

stated, “One of our key roles is to promote the value of workplace-based learning, to promote the value of New Zealand standards, and the value of qualifications and with any business, it’s a slow but steady job”.

To overcome the difficulties of working with diverse learners, Participant A asserted their Industry Training Organisation 1, was proactively creating cultural awareness, staff had professional development promoting cultural competency. Participant B made a concerted effort to engage more in face-to-face communication so that it provided opportunities to build stronger relationships and improved communication. Participant H remarked their Industry Training Organisation 4, addressed the challenge of working with diverse learners by setting up mentoring groups for learners and offering peer support in learning, ensuring their resources were written in plain English and catered to the Visual – Audio – Read-write – Kinaesthetic learning styles. Two of the eight participants (B, E) stated people worked as a team to brainstorm solutions to the challenges they faced as an Industry Training Organisation.

In response to dealing with the challenges associated with the future, two of the eight participants (E, H) stated that at their Industry Training Organisation 4, they have a workforce action plan where they look at the different needs of the industries, both current and future, and therefore plan for the unforeseen as best they can. Participant B alluded to working slowly to change the mindsets of people when introducing change and dealing with innovation.

### ***Learning innovation: Key findings***

Learning innovation was defined by most participants as different ways of keeping a learner engaged and meeting their needs. Half of the participants considered learning innovation to mean treating the learner as an individual and personalising learning to meet individual needs. Some participants revealed that understanding learner needs

and how people learnt on-the-job was critical to learning innovation. A few participants thought learning innovation involved the use of new technologies to support learner-centric solutions and the development of learner resources should consider how learners can demonstrate competency in future skillsets.

The learning innovations within the Industry Training Organisations can be expressed as a continuum that ranged from simple innovations through to the more complex learning innovations. All the Industry Training Organisations have a learning management platform or an online learning tool. Half of the participants provided examples of supporting learners with additional skills (other than those required by the qualification). Some Industry Training Organisations are either currently offering or are intending to offer micro-learning packages. Few Industry Training Organisations are either considering or experimenting with augmented reality and one is also considering virtual reality.

There were no unanimous challenges in the strategic planning for future workplace learning across the Industry Training Organisations. Some of the challenges presented include financial restraints, communicating across diverse clients and busy learners, people's reluctance to change and the pace of changing technology. Some of the responses to the challenges included the development of a workforce action plan to deal with the diverse clients and their needs and performing their leadership role to determine industry and client needs ( a few participants shared these).

### **Category five: Assessment Innovation**

Assessment innovation as relevant to the strategic planning for future workplace learning and assessment innovation is explored under four sub-categories: (i) definition, (ii) methods, models and delivery, (iii) challenges to assessment innovation, and (iv) responses to the challenges.

## *Definition*

There is unanimity from the participants in the Industry Training Organisations on what assessment innovation means. The key themes on defining assessment innovation included (i) different ways of verifying learner competency, (ii) focussing on naturally occurring workplace evidence, (iii) personalising assessment to meet individual learner needs, and (iv) integrating technology where appropriate. Five of the eight participants (B, C, D, G, H) across four of the five Industry Training Organisations (1, 2, 3, 4) considered assessment innovation to include different ways to verify learner competency. One of the ways this was discussed was for learners to be able to demonstrate their competency other than through writing. Participant G remarked, “Innovation is about stripping away all of the trappings we built up in the 20<sup>th</sup> century around the learning and the assessment processes...people’s progress has got to be quite formalised, but it doesn’t have to be in writing.” Participant D commented, “We’re stuck in a time warp around (i) the words we need to put into them (assessments) and (ii) how we need to ask them”. Participant H stated in the context of some of their industries wanting “to move away from written exercises to being able to do them more interactively”.

All participants suggested assessment innovation focussed on gathering naturally occurring workplace evidence to verify the learner’s competency and practical skills. Some of the ways in which this was expressed included, “picking out what’s already happening in the workplace in terms of naturally occurring evidence” (Participant E). Participant H remarked:

Innovation in workplace assessment for me is how we can, and how people are striving to create assessment infrastructure systems and processes that enable people to demonstrate their skills and competencies in the most naturally occurring way, while remaining within that on-job training structure.

Six of the eight participants (A, C, D, E, G, H) across three of the five Industry Training Organisations (1, 3, 4) indicated personalising assessment by exploring and identifying ways to assess that meets individual learner needs as an important part of assessment innovation. Some of the ways in which this was expressed included, “Looking at ways to assess in the workplace that meets individual needs” (Participant A). Participant E stated assessment innovation at their Industry Training Organisation 4 meant continuously improving the ways in which they can serve their client and learner needs better. Participant E remarked:

What we’re looking at is not having a one-size fits all assessment approach but looking at a range of workplaces. Some workplaces have a very strong learning culture in them, and some need support to get to that place. So, we’re looking at the continuum of workplaces, the continuum of then the trainee within that workplace.

There was unanimity amongst the participants that assessment innovation or improvements included the use of new technologies to provide assessment solutions to learners. Participant H suggests the demand for the use of technology often comes from clients or learners themselves, stating the below:

So, what we’ve been seeing is a drive for new ways of working and new ways of supporting our workplaces, and a lot of that has come from our workplaces directly. And so, it’s a lot to do with the shift in technology and shift in learning that people have experienced, so people want more stuff online, they want seamless experiences.

Participant A distinguished between assessment innovation and quality assessment, stating assessment innovation did not imply quality assessments. Participant A remarked:

All this technology is wonderful, but I suppose that our key role is that with these wonderful technologies...we don’t misinterpret what quality actually is. Quality does not mean that new-fangled technology...innovative way of assessment in the workplace and all

the rest of it... that is not quality. Quality, as far as our role is concerned, is consistency.

Holistically, assessment innovation is exploring, identifying and using different ways of verifying individual learner competency by gathering the naturally occurring workplace evidence where possible, and personalising assessment solutions to meet the individual learner needs, using technology where appropriate.

### ***Methods, models and delivery***

The assessment innovations within the Industry Training Organisations can be expressed as a continuum that ranged from simple assessment innovations through to the more complex assessment innovations. Some of the assessment innovations centred on new methods, some involved new models of assessment, while others focussed on assessment delivery.

On the simple innovation end of the continuum for assessment methods and models five of the eight participants (A, B, C, F, G) suggested engaging in *verbal discussions* to gauge learner competency, as opposed to written forms of assessment. Some ways in which this was expressed includes, “Even if an assessment task is set around a worksheet that’s not the only way. You can do other things as well - verbal discussions, take the learner aside and just have conversations” (Participant A), “(at) the upper levels we’re encouraging more professional discussions” (Participant F). Participant G stated:

The best assessment is the simplest assessment...rather than asking a learner to write an essay about the characterisation of Macbeth, it is way better to sit down into a room and say, “Tell me everything you know about Macbeth...it’s my job to figure out what you need to know and what you don’t”.

Three of the eight participants (A, B, D) recommended the use of *holistic assessment* focussing on the overarching outcomes as opposed to the prescriptive unit standard range statement requirements. Three of the eight participants (C, E, F) focussed on providing clients and learners with *customised solutions* where a gap-analysis is conducted to benchmark the competency of a cohort of learners or an individual learner and gaps are bridged through verification, on-site assessment or assessment development to meet the requirements of a qualification. This process has been referred to by different names: mapping, qual-mapping, gap-analysis, benchmarking are amongst a few. This bespoke solution is built on the naturally occurring workplace evidence. Participant E states this process of mapping against a qualification sometimes considers additional skills that are outside of the qualification but are part of the future planning for the workplace. They are built in over and above the qualification requirements. This method of assessment is also used for the assessment of experienced learners or those who may want to transition across from the National qualifications to the New Zealand qualifications (Participants C, E, F). Participant E discussed an innovative model of assessment for assessors of brand-new qualifications through attending a *workshop* where there was a combination of peer-assessment, self-reflection and industry-assessment.

Moving along the continuum towards the more complex assessment innovation is a *different way of writing qualifications*. Participant G stated a new way of writing qualifications focusses on the critical thinking and problem-solving skills:

It's really crucial when it comes to how things would be in the future because...there are tools, for example, being invented right now we don't know about, but we would expect the guy who works on your car to pick up and understand and learn and apply in two years' time. So, if we say, here's a whole lot of tools we want you to learn about, we're doing them a dis-service, aren't we? More and more in the future, we'll be helping people to understand what the tools are, what they are for, how you would use something you've never seen before.

Moving along the continuum to mid-point, three of the eight participants (A, B, F) stated they were accepting aids such as photos and videos as *evidence* in an assessment discussion. Participant F asserted their Industry Training Organisation 5 was trialling the use of GoPro cameras to video record learners performing tasks in remote areas where it is difficult to arrange access to assessors. Participant C remarked that their Industry Training Organisation 3, is experimenting with *online assessments* with question banks. This method of assessment is useful to support remote learners and reduces the heavy reliance on workplace assessors or roving assessors being always available.

At the complex end of the assessment innovation continuum, were ideas that Industry Training Organisations were considering but had not yet trialled or implemented. Participant B discussed the use of the *talk-to-text application* to support learners with learning difficulties in writing their assessments. Participant D shared the idea of *badging* – the use of credit card sized badges that learners could wear as a badge to show they were ‘licenced’ or qualified to work. Participant D also discussed building *three-dimensional images into assessments* in a way that the image could be manipulated, moved and rotated. This would allow learners to experiment with it as part of the assessment. Participant D would like to use *real life videos as a tool for assessment* by including hotspots, or exercises such as spot the differences or tell me what’s wrong as part of the assessment.

In terms of assessment delivery, three of the five Industry Training Organisations (1, 3, 5) had an *online platform*. Industry Training Organisation 2 and 4 were exploring the possibility of having one. The degree to which the online platforms were used varied between the Industry Training Organisations. Industry Training Organisation 3 appeared to use a lot of the functionalities of the online platform. The online platform was used as a repertoire of learning and assessment resources that were available to their learners which learners could download as a pdf file or assessments could be complete within the online platform itself (Participant D). The online assessment tool also allowed for moderation and assessment processes to occur and for assessors to directly report credits to the New Zealand Qualifications Authority (Participant C).

Industry Training Organisation 1 used the evidence platform for evidence gathering, communication with the learner and to record-keep a learner's lifelong learning. The ability of the learner to upload evidence on the online platform helps the assessor to prepare for the assessment activity, as the assessor can view the evidence before planning for the assessment activity (Participant A). Industry Training Organisation 5 has experimented with offering assessment online in one of its sectors. However, most of the assessments are largely paper-based, though the look and feel of the paper-based assessment has changed. It now has more diagrams, more white spaces and more colour (Participant F).

Industry Training Organisation 3 has experimented with the launch of a qualification on *mobile phones*. This can also be accessed through other devices such as laptop or desktop (Participant D). Industry Training Organisation 2 is looking to use mobile phones both as an evidence gathering tool as well as for taking assessments in the future (Participant B).

### ***Challenges to assessment innovation***

There were various challenges to assessment innovation that were cited by the participants. The majority of the challenges were unique to the Industry Training Organisations. However, there were a few commonalities. Five of the eight participants (A, B, C, F, G) considered *people's mindsets* to be a barrier to assessment innovation. Participant F remarked, "I think everybody wants to do things but it's hard to move people from what they're doing now to something new". Participant B stated, "Trying to get people to have a different understanding of what the old world was...to the new world (is challenging)". Three of the eight participants (B, F, G) alluded to the challenge of *training assessors* on the assessment innovations like working with digital evidence as opposed to tactile assessments, understanding the idea of holistic assessment and the use of critical thinking skills. Some of the ways this was expressed included, "We're having a big job of training our assessors to rely more on naturally

occurring evidence...it's a paradigm shift for them to move from a hands-down, writing down , collecting loads of paper to...online assessments" (Participant F) and "Getting the assessors to actually understand and use other strategies besides seeing something written on paper" (Participant B).

Three of the eight participants (D, E, F) considered the *New Zealand Qualifications Authority's moderation requirements* to be a barrier to assessment innovation. Participant D remarked that the focus on assessment meeting the hard ranges and soft ranges of unit standards limited holistic assessment. Participant E stated, "We found over the years that NZQA has changed but sometimes they are a bit slower than us, and sometimes because they have got the role there of a moderator, we sometimes have to explain how we do things." Similarly, Participant F asserted, "It's problematic to move too quickly with all the NZQA requirements...they do have quite strict guidelines that we have to meet...their requirements and what industry want are sometimes quite different".

Two of the eight participants (E, G) commented on the importance of *moderation practices moving along with assessment practices* in being innovative. Participant G maintained, "If you are innovative about the learning bit, if you are innovative about the assessment bit, you do have to be innovative about the overlying quality assurance parts too". Two of the eight participants (F, G) considered the absence of guidelines for moderation in a digital world also posed a barrier to assessment innovation. Similarly, concern was expressed on the challenges of mitigating academic fraud for online or digital assessments (Participants C, D).

Two of the eight participants (B, F) expressed that *financial restrictions* posed a challenge to assessment innovation as dealing in technological solutions was cost-prohibitive. They considered their Industry Training Organisation was short-staffed, had limited access to information technology experts and lacked in-house capability. In addition, they believed their organisations lacked strategic planning that could have

helped with assigning business-wide priorities, and that posed a barrier to assessment innovation.

Two of the eight participants (F, G) acknowledged that the challenge with assessment innovation included it was *hard work to implement the change and change takes time*. These ideas were expressed as, “It’s a hard and slow process” (Participant F) and “Innovation is quite often a step-by-step, it’s actually quite plodding sometimes...it’s a really hard and slow transformation” (Participant G).

Some of the other challenges to assessment innovation are uniquely expressed by participants. Industry Training Organisation 1 found a challenge in prioritising the different needs for the different industries and offering solutions across its diverse learners with individual needs. Additionally, they found implementing innovative assessment platforms and sometimes the technology itself and its pace of change to be a barrier (Participant A). Industry Training Organisation 2 dealt with some reluctant learners and employers who posed challenges to assessment innovation. In addition, some of their learners were hands-on people who did not excel at written skills (Participant B). Industry Training Organisation 3 found being innovative a challenge as they acknowledged that finding different ways to keep learners engaged meaningfully with content that is exciting, relevant and that meets qualification requirements is no small feat. They also found their subject matter experts trapped in traditional ways of thinking and doing (Participant D). Industry Training Organisation 4 expressed their challenge in getting the right assessment infrastructure including finding the right people with the right set of educational and practical skills in the industry to conduct assessments. This had a ripple effect on workplaces that needed to use contract assessors at an additional cost because workplaces assessors did not have the theoretical knowledge required of an assessor (Participant H). Industry Training Organisation 5 had differing ideas within the organisation on the best way to deliver assessment solutions, lacked processes to support the implementation of innovative assessments and felt the conflicting pressures of quality and innovation. They believed their response time to industry needs was slow as things took time to implement at their organisation. They felt the industry did not clearly articulate what

they wanted. In addition, they considered the New Zealand Qualification Authority's dual system of programme approval, with different rules for Industry Training Organisations and providers, was an uneven field. Industry Training Organisations are more challenged to offer innovative assessments as opposed to providers. This is because providers have more flexibility in the way their qualifications are offered as they are not bound by the links to the prescriptive unit standards (Participant F).

### ***Responses to the challenges***

The participants shared their responses to the challenges they experienced. To overcome the challenge of *working through change with people*, the idea shared was to work through change very slowly (Participants B, F). Three of the eight participants (B, C, E) reviewed their concept of moderation. Participant B stated they discussed what was considered as acceptable evidence collectively as a group. Participant C described how they worked with *moderators who were accustomed to traditional ways* by educating them on the benefits of the new ways, exploring the cause of resistance, coaching and mentoring as needed and providing the right tools. Participant E identified the focus of adapting moderation to meet the changes in assessment at their Industry Training Organisations. The views of these participants reinforce the understanding that assessment is not being viewed in isolation. Industry Training Organisations have understood the wider implications of assessment innovation and are taking steps in the right direction.

Two of the eight participants (B, C) shared how they overcame their *financial constraints*. Participant B alluded to their organisation reviewing options and selecting the cheapest and best suited solution within their budget. Participant C shared their organisation's process for submitting business cases where the return on investment was part of the criteria for its approval. Participant C also stressed the importance of having workarounds as often the landscape keeps changing.

Three of the eight participants (C, E, G) stated that where there were *internal challenges* identified, they collaborated across teams to arrive at solutions. Some of the ways this was expressed included, “There’s a lot of collaboration...we’ll sort of brainstorm and come up with solutions on how we can meet those particular needs or that issue” (Participant C), “We can’t really do things in isolation, which is good here because we have a culture of working across teams” (Participant E).

There were some specific actions that individual Industry Training Organisations took to overcome the challenges they experienced. Industry Training Organisation 1 looked at new or alternate ways to assess, integrating technology in assessments where appropriate, trained staff, assessors and moderators on new practices and conducted moderation workshops to discuss the idea of what should be considered as best practice in moderation (Participant A). They also looked at showing leadership as they worked proactively with external stakeholders, educating and consulting with them to achieve the best outcomes for their learners (Participant G). Similarly, Industry Training Organisation 2 also focussed on educating employers about the benefits of workplace training and qualifications, thereby consulting with industry and employers to overcome challenges and add value to the learning and assessment of their learners (Participant B). Industry Training Organisation 3 exercised caution by conducting research before launching into the use of new technology and innovation (Participant C). They also have internal discussions on what can be considered as acceptable evidence to determine the authenticity of learners for online assessments, to minimise the possibility of academic fraud (Participant D). Industry Training Organisation 4 had a dedicated workforce planning team that focussed on determining the future skills as needed by the industry and employers (Participant E). They engaged routinely with their stakeholders as part of their advocacy and leadership role (Participant H) thereby overcoming challenges proactively.

## *Assessment innovation: Key findings*

There was a strong agreement on how assessment innovation was viewed. Many of the participants across most of the Industry Training Organisations considered assessment innovation to be different ways of verifying learner competency. All participants thought assessment innovation focusses on the use of naturally occurring workplace evidence to demonstrate learner competency. Most of the participants across many Industry Training Organisations believed personalising assessment to meet learner or client needs was an important aspect of assessment innovation. All the participants concurred that assessment innovation involved the use of technology where applicable and appropriate.

The assessment innovations within the Industry Training Organisations can be expressed as a continuum that ranged from simple innovations through to the more complex assessment innovations. Many of the participants considered engaging in verbal discussions as an innovative way to assess learner skills and competencies. Some participants highlighted the use of integrated or holistic assessment and offering customised assessment solutions for their learners or clients as an innovative way of assessing learners. One organisation offered workshops that included peer-assessment, self-reflection and industry assessment to evaluate learner competency. One organisation focussed on a different way of writing the qualifications and resources to evaluate learners on additional future skills. Some participants accepted digital evidence to demonstrate learner competency. One organisation offered online assessments with question banks. At the complex end of the continuum were ideas that were being considered but not yet implemented. These included the use of talk-to-text applications, three-dimensional images used in assessment and using real life videos for assessment. In terms of assessment delivery, some participants discussed the use of an online platform for assessment purposes. This ranged from the online platform being a repertoire for uploading or downloading resources, assessment and evidence, allowing assessment and moderation processes to occur and the direct reporting of credits to the New Zealand Qualifications Authority. One organisation had

experimented with designing assessment material for use on mobile phones for one of their industries.

The biggest challenge as expressed by many of the participants was changing the mindsets of people to adapt to innovative ways of assessment. Some participants identified training assessors to adapt to new ways as a challenge. Some participants also identified the New Zealand Qualifications Authority's moderation requirements as inhibiting innovation. A few participants highlighted the importance of moderation practices adapting alongside innovative assessment practice to support change. Few participants raised the challenge posed by digital assessment in terms of academic fraud. Amongst the other challenges were the difficulties of being innovative by coming up with different ideas, selecting processes and people to support innovation and having conflicting pressures of engaging in innovation yet upholding quality of assessments. The responses to the challenges include working through changes slowly with people to change their mindsets, reviewing the concept of moderation, and working through internal differences by communicating and collaborating with the wider organisation. Few participants discussed their response to financial constraints. The responses included reviewing of options to find the best suited one within the budget, presenting business cases to help identify business priorities and having workarounds if the plans did not progress as expected.

## Consolidated key findings

**Innovation** is a subjective concept. While all participants defined innovation as different ways of doing things, the different ways related to new approaches, methods, and the use of technology. Some participants viewed *innovation* as continuous improvement. A participant stated the importance of innovation in terms of an idea being implemented. Most participants considered *learning innovation* to mean different ways of keeping a learner engaged and meeting learner needs. Many participants considered *assessment innovation* to be different ways of verifying

learner competency. Key aspects considered by participants on future workplace learning and assessment innovation involved individualising or personalising learning and assessment, encouraging on-job learning and using naturally occurring workplace evidence to demonstrate learner competency in assessment, and using technology to support workplace learning and assessment where applicable and appropriate.

Most of the participants considered **strategy** played a directional or guidance role and a few of the participants viewed strategic planning as a regulatory requirement. One of the participants considered the lack of honest self-assessment to be a challenge of strategic planning. Most of the participants considered the Tertiary Education Strategy 2014 – 2019 had an impact on their Industry Training Organisation. The priorities of the Strategy guided their workforce development plan which also focussed on current and future skill needs for learners (most participants discussed this), personalised learning (half the participants discussed this) and a digital strategy which aimed at integrating technology in learning and assessment where appropriate and possible (some participants discussed this). A few participants also discussed the focus of their strategy on following a learner's progress through lifelong learning and on transferable skills for their learners. Other influencers driving change within Industry Training Organisations were identified as advancements in technology (all participants discussed this), globalisation (most participants discussed this) and changes in demographics (all Industry Training Organisations experienced this). Changes in demographics included diverse learners, an aging population and an increase in migrant population, amongst others. All eight participants stated they collaborated closely with industry, clients and learners to determine their needs and deliver value by meeting their needs. One of the participants alluded to the commercialisation of objectives by Industry Training Organisations.

In **practice**, the workplace **learning innovations** were viewed on a continuum of simple to complex innovations. All the Industry Training Organisations have a learning management platform or an online learning tool. Half of the participants provided examples of supporting learners with additional skills (other than those required by the

qualification). Some Industry Training Organisations are either currently offering or are intending to offer micro-learning packages. Few Industry Training Organisations are either considering or experimenting with augmented reality and one is also considering virtual reality.

In **practice**, workplace **assessment innovations** were also viewed on a continuum of simple to complex innovations. Many of the participants considered engaging in verbal discussions as an innovative way to assess learner skills and competencies. Some participants highlighted the use of integrated or holistic assessment and offering customised assessment solutions for their learners or clients as an innovative way of assessing learners. One organisation offered workshops that included peer-assessment, self-reflection and industry assessment to evaluate learner competency. One organisation focussed on a different way of writing the qualifications and resources to evaluate learners on additional future skills. Some participants accepted digital evidence to demonstrate learner competency. One organisation offered online assessments with question banks. At the complex end of the continuum, were ideas that were being considered but not yet implemented. These included the use of talk-to-text applications, three-dimensional images used in assessment and using real life videos for assessment. In terms of assessment delivery, some participants discussed the use of an online platform for assessment purposes. This ranged from the online platform being a repertoire for uploading or downloading resources, assessment and evidence, to the platform allowing for assessment and moderation processes to occur and the direct reporting of credits to the New Zealand Qualifications Authority. One organisation had experimented with designing assessment material for use on mobile phones for one of their industries.

There were no unanimous **challenges** to the strategic planning for future workplace **learning innovation** across the Industry Training Organisations. Some of the challenges presented include many Industry Training Organisations experienced financial restraints, some participants discussed their challenge with communicating across diverse clients including busy learners, many participants found people's reluctance to change a be a barrier to innovation and a few participants considered the

pace of changing technology to pose a challenge. Some of the responses to the challenges included the development of a workforce action plan to deal with the diverse clients and their needs and performing their leadership role to determine industry and client needs.

The biggest **challenge** to the strategic planning for future workplace **assessment innovation** as expressed by many of the participants was changing the mindsets of people to adapt to innovative ways of assessment. Some participants identified training assessors to adapt to new ways as a challenge. Many participants considered the New Zealand Qualifications Authority's moderation requirements as inhibiting innovation. A few participants highlighted the importance of moderation practices adapting alongside innovative assessment practice to support change. Few participants raised the challenge posed by digital assessment in terms of academic fraud. Amongst the other challenges were the difficulties of being innovative by coming up with different ideas, selecting processes and people to support innovation and having conflicting pressures of engaging in innovation yet upholding quality of assessments. A few participants considered the responses to the challenges included working through changes slowly with people to change their mindset, reviewing the concept of moderation, and working through internal differences by communicating and collaborating with the wider organisation. A few participants also discussed their response to financial constraints. Responses included reviewing of options to find the best suited one within the budget, presenting business cases to help identify business priorities and having workarounds if the plans did not progress as expected.

## CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

### Introduction

This chapter analyses the key findings from Chapter Four and discusses them in the context of the literature presented in Chapter Two. The discussion on the findings are structured to reflect the categories: (i) interpreting innovation which includes the participants' interpretation of innovation, learning innovation and assessment innovation, (ii) strategy and its impact, (iii) the drivers of change as revealed by the participants, (iv) learning innovation, and (v) assessment innovation. Within these headings the key findings that emerged from the data are presented. The chapter ends with the conclusions, recommendations and limitations of the research.

### Discussion of findings

#### *Interpreting Innovation*

My study indicates that innovation involves a different way of doing things. In addition, the establishment of digital strategies was discussed as part of innovation. Porter (1990) refers to innovation in its broadest sense as including both new technology as well as new ways of doing things. Similarly, it is acknowledged that there is an emergence of disruptive innovations that combine technology with new ways of delivering value (Davenport, Sherwin and Scott, 2017; Oosterman, Sedgwick and Grey, 2017). Thus, the descriptors of innovation referring to different ways of doing

things and the use of technology as part of innovation as indicated in my study, are consistent with literature.

My study reveals that the concept of innovation related to doing things differently to continuously improve on the current. In the literature, innovation has been referred to as reflecting a new (Rogers, 2003) or changed practice (Salavou, 2004; Skogen, 2006). Therefore, the interpretation of innovation as continuous improvement in my study resonates with the definition of innovation as reflected in the literature.

Another aspect of innovation highlighted through my study is that if innovation is not implemented, it remains just a great idea. This draws attention to the importance of innovation equating to action, not merely ideation. Skogen and Sjøvoll (2010) assert that innovation is created from a combination and implementation of creative ideas, problem solving, expertise, knowledge and practical solutions. Thus, the concept of innovation including the implementation of an idea as revealed in my study, is confirmed by literature.

In my study there was no reference to innovation being thought of as the development of skills. Interestingly, the Tertiary Education Strategy 2014 – 2019 (2014) discusses the need for the tertiary education organisations to be flexible and adaptive to change, including changing technologies, changing patterns of demand and in addressing changing skill needs. It emphasises the need for tertiary education organisations to support business and innovation through development of relevant skills including up-skilling, re-skilling, transferable skills, and skills that support innovation. Although in my study, some of these skills were discussed as part of the impact of Strategy, innovation was not defined in terms of the development of skills.

### ***Strategy and its impact***

My study suggests that strategy was considered to play a directional or guidance role in the organisation and strategic planning was considered a regulatory requirement. Cardno (2012) asserts that strategy is the direction the organisation intends to take in the long term. Section ten (one) of the Industry Training and Apprenticeships Act (1992) stipulates that an Industry Training Organisation that seeks funding under a funding mechanism that provides for funding via plans must prepare a proposed plan, specify the activities set out in relation to which the funding is sought and submit the proposed plan for consideration of funding approval. Hence, the suggestion in my study that strategy plays a directional role and strategic planning is a regulatory requirement, is confirmed by literature.

My study shows that the Tertiary Education Strategy 2014 – 2019 (2014) has impacted on Industry Training Organisations. My study reveals that the Strategy directed the focus of the workforce development strategy in many of the Industry Training Organisations with predominant discussions on preparing for the future skill needs of learners. It indicates that half the Industry Training Organisations were focussing on additional skills (for example, health and safety, time-management, work-life balance), skills that go beyond the specific skillset required for a job. My study reveals that a few Industry Training Organisations considered future skillsets (for example, critical thinking and problem-solving) when developing resources. The concepts of lifelong learning and transferable skills were also being considered by a few Industry Training Organisations. Further, my study indicates that there are no strategic drivers to show industry skills leadership, an aspect that was taken away from Industry Training Organisations historically. This is important because it highlights that though the Strategy encourages Industry Training Organisations to consider future skill needs, a formal assessment of skills leadership is not currently a regulatory requirement for Industry Training Organisations. It is at best, a recommendation. Soffel (2016) states the World Economic Forum declared there are 16 most critical 21<sup>st</sup> century workplace skills which have been broadly categorised as foundational literacies, competencies and character qualities. These include skills like time-management, critical thinking and problem-solving. The changing nature of work today demands more from learners than merely acquiring information. It requires learners to be able to analyse,

synthesize and apply what they have learnt to new problems, design solutions, collaborate effectively and communicate persuasively (Gordon, 2013; Pellegrino & Hilton, 2012). However, Silva (2009) states critics strongly oppose the push for 21<sup>st</sup> century skills referring to it as a meaningless term as they believe there is nothing new about these skills. They claim that the century specific label is misleading because knowing how to think critically, analytically and creatively are not skills specific or unique to the 21<sup>st</sup> century but have been in existence since ancient times. Hawke (1988) highlights the expectation of the tertiary education system to play an increasing role in lifelong education where learners maintain their skill level, acquire new skills and retrain to permit movement into more specialised areas of a current profession or trade or to move into an allied trade or profession. Further, some of the conditions and considerations for a Minister to recognise a body corporate as an Industry Training Organisation under the Industry Training and Apprenticeships Act (1992) include whether the organisation has, or will have, the capacity to monitor demand for training within its industries and respond to the demand at the skill level required by employers in the specified industries. The Strategy encourages the sector to become more flexible and strategic by ensuring the system can adapt quickly to changing patterns of demand and changing skill needs. To summarise, according to my study, the Strategy shaped the focus of the workforce development strategies of the Industry Training Organisations to consider industry and future skill needs, including additional skills, the concept of lifelong learners and transferable skills. This is confirmed by literature.

My study indicates that the Strategy impacted on some Industry Training Organisations by contributing to the establishment of a digital strategy. It reveals the role that advancements in technology played in driving innovation and change within the Industry Training Organisation itself as well as in the industries they support. A concern was raised on the importance given to digitalisation when New Zealand has learners who do not meet the basic literacy and numeracy levels. This encourages us to pause and ponder over our priorities as nations; to determine the fundamental direction we choose to take in terms of equity and access to basic education. Sergiovanni, Burlingame, Coombs and Thurston (1999) present the view that competing values in education add tension and conflict to the achievement of goals and that too much emphasis on one hinders the other. The Tertiary Education Strategy

2014 – 2019 (2014) states the tertiary sector needs to be responsive to the changing patterns of competition, demand and work as well as a borderless world enabled by digital technologies. Two of the key global trends of the 21<sup>st</sup> century as identified by Eaton (2010) include (i) the use and integration of technology, where it is predicted that technology will enhance education and drive all kinds of learning, and (ii) the expansion of mobile technology will increase the opportunities for learning everywhere and at any time. Similarly, Graham (2016) states that the technological advancements like artificial intelligence are triggering change and technology is being integrated into educational delivery. Thus, as revealed by my study, the Strategy has contributed to the establishment of a digital strategy within Industry Training Organisations and that technological advancements are spurring change. This is supported by literature.

### *The drivers of change*

My study shows that globalisation has driven learning and assessment innovation. Global impacts were experienced through international influences on style, an international workforce and the demand for overseas qualifications to be recognised in New Zealand. Eaton (2010) identifies two key global trends in 21<sup>st</sup> century education: global approaches where shared interests, curiosity and a hunger for learning are driving us to reach beyond our borders, and borderless education where the barrier of geography is being transcended by technology, creativity and a desire to go global. Similarly, Davenport, Scott and Sherwin (2017) state some of the trends include continuing advances in technology, increasing competition for international students and staff, and the growing importance of internationally relevant course content. Thus, as found in my study, globalisation influences changes in learning and assessment innovation. This has been reinforced by literature.

My study indicates that changes in demographics also drove learning and assessment innovation. It reveals that all Industry Training Organisations have experienced some change in learner demographics either across all industries or in some industries only. Changes in demographics included changes in learner age groups with increases in both young learners as well as the aging population, a more diverse ethnic and cultural

representation and an increase in the number of women in the workforce. Davenport, Scott and Sherwin (2017) state the broad trends anticipated include a more diverse student population, an increasing demand for mid-career upskilling or retraining and for qualifications that can be applied in a range of settings. Similarly, Graham (2016) suggests the aging population in New Zealand is growing and there are more international learners. Therefore, my study showed that the changing and diverse demographic is triggering learning and assessment innovation, and this is supported by literature.

My study points to the strong influence of feedback from the industry, clients and learners on the strategic planning in Industry Training Organisations. Working closely with key stakeholders was viewed as their core function as an Industry Training Organisation. The New Zealand Qualifications Authority (2018c) suggests Industry Training Organisations have a unique role to make decisions based on industry knowledge and experience about the supply of, and demand for, relevant and high-quality training opportunities that meet the needs of trainees, industries, and the wider economy. However, data collected through Organisation for Economic Cooperation and Development (OECD) 2014-15 *Survey of Adult Skills* suggests that New Zealand workers' qualifications and skills are poorly matched to their occupations (Kankaraš, Montt, Paccagnella, Quintini, Thorn, Denis, Zambrano and Keslair, 2016). My study seems contrary to the literature at first glance because if all the Industry Training Organisations are working closely with industry and responding to their need, then the workers qualifications and skills should be well matched to their occupations. However, my study also reveals that one of the challenges to learning and assessment innovation is the time taken to respond to implement change in the business was generally slow. Therefore, there is a possibility that the reason why the Organisation for Economic Cooperation and Development survey depicts a mismatch between workers' qualifications and their occupations is because the Industry Training Organisations take time to deliver the solutions needed by industry. Perhaps this may explain the inconsistency between my study that Industry Training Organisations work closely with their stakeholders and the literature which reveals that there is a mismatch between workers' qualifications and their occupations.

## *Learning innovation*

My study reveals that learning innovation was interpreted as new ways to meet learner needs, using different ways to keep learners engaged, and meeting individual needs through personalised learning. The New Zealand Qualifications Authority (2018d) observed that globalisation and digital technology are changing customer expectations, making teaching and learning more learner-centric and personalised. Thus, my study which indicates that learning innovation focuses on personalised learning, is consistent with the New Zealand Qualifications Authority's view of learning becoming more learner-centric and personalised

My study indicates that the learning and assessment innovation in the Industry Training Organisations ranged from simple models to the more complex ones. In practice, micro-learning packages, augmented reality, virtual reality were either in use or intending to be used. International collaborations were engaged in to share learning practices and methods. Overton and Dixon (2017) suggest newer technologies like augmented reality, virtual reality and artificial intelligence tools have started to emerge for use in workplace learning and development. Davenport, Sherwin and Scott (2017) suggest the trends likely in the future include the innovation in qualification design and programme delivery with more pressure to offer smaller programmes targeted and customised to particular segments of learners and further collaboration with overseas jurisdictions and qualification frameworks on recognition of New Zealand qualifications, increasing student mobility and the international standing of New Zealand university qualifications. Trends indicate that workers have less time to dedicate to professional learning and development (Bersin, 2016), advancements in technology can be used to enhance educational services and borderless education with global learners is predicted in the future (Eaton, 2010) Thus, my study which reveals that technology being integrated into learning solutions, the development of micro-learning packages and the engagement in international collaborations, is supported by literature. In this

environment, by taking the initiatives described above, New Zealand's Industry Training Organisations appear to be preparing for the future.

There are a few aspects that were not mentioned in my study. Firstly, my study did not refer to artificial intelligence, adaptive learning, makerspaces, affective computing and machine learning. Davenport, Scott and Sherwin (2017) mentioned these as new technologies predicted in the near future. Secondly, though my study reflects an increase in the aging population, there was no discussion on how that would impact on learning or assessment, in terms of re-skilling or upskilling the aging workforce. Graham (2016) suggests an aging population will see the demographic of workplaces include the older age group that will seek re-skilling or up-skilling as they return to work. Thirdly, my study did not indicate that learners are looking for information outside of online learning and accessing personal and professional networks to engage in collaborative learning. Bersin (2016) claimed workplace learners are accessing information and learning differently where most are looking for answers outside of online learning, are accessing personal and professional networks to obtain information about their industries and professions – they are asking others and sharing what they know. Thus, my study is dissimilar to the literature in the above-mentioned ways.

### ***Assessment innovation***

My study reveals that *assessment innovation* is defined as new ways of verifying learner competency. Personalising assessment by exploring and identifying ways to assess that meets individual learner needs was considered an important part of assessment innovation. Davenport, Scott and Sherwin (2017) indicate technology offers a significant potential to improve the personalisation of learning and assessment. Thus, as found in my study, the definition of assessment innovation includes personalising assessments to meet individual learner needs. This is confirmed by

literature which indicates technological advancements offer the potential for personalisation of assessments to occur.

My study reveals the definition of assessment innovation as focussing on gathering naturally occurring workplace evidence to verify the learner's competency and practical skills. One of Vaughan and Cameron's (2010) four high-level principles to support good assessment structures and systems in Industry Training Organisations includes the Industry Training Organisation's assessment structures and systems must support the learning process. They emphasise assessment is the evidence-gathering process that is carried out by learners, verifiers and assessors that supports learners to achieve the criteria required in the qualification. This shows the engagement of workplace verifiers such as managers, team leaders and supervisors in supporting the naturally occurring workplace evidence used by a learner to demonstrate competency. Thus, my study which revealed the use of naturally occurring workplace evidence as part of assessment innovation, is supported by literature which states that workplace verifiers contribute to the evidence gathering process for workplace learners.

In practice, my study reveals that Industry Training Organisations have implemented some new ways of assessing learners and are also exploring others. The findings reveal (i) the use of *holistic assessments*, (ii) *customised solutions for clients* (iii) a *workshop-based* assessment model with a combination of peer-assessment, self-reflection and industry-assessment (iv) a *different way of writing qualifications* with a focus on critical thinking and problem-solving skills, (v) *photographs and videos* as being accepted as assessment evidence, (vi) the use of GoPro cameras to self-record learners as they perform assessment tasks, (vii) experimenting with *online assessments* with question banks. There were a range of ideas that Industry Training Organisations were exploring but had not yet trialled or implemented including (i) the use of the *talk-to-text application*, (ii) *badging* to show learners were 'licenced' or qualified to work, (iii) building *three-dimensional images into assessments* in a way that the image could be manipulated, moved and rotated, (iv) the use of *real life videos as an assessment tool*. This shows that the Industry Training Organisations have actively sought assessment innovations. Their thinking is futuristic and practical steps are

being taken to innovate in the both the writing of assessments as well as the delivery of it. However, according to Timmis, Broadfoot, Sutherland and Oldfield (2016), while future skills have been identified as aspirations for organisations, approaches to assessment of learning remain unchanged. My study contradicts this belief.

Gordon (2013) states that assessments must be holistic to support learning in the modern context. Industry Training Organisations are integrating and customising assessment for clients. These assessment models use a holistic approach to assessment. The New Zealand Qualifications Authority (2018d) asserts digital assessment is the presentation of evidence, for judging learner achievement, managed through the medium of computer technology. Technology provides the opportunity for assessment to be integrated with the learning process, with a focus on critical thinking skills applied to real world situations and for digital assessment to occur. My study shows that Industry Training Organisations are accepting digital evidence such as videos and photographs, are delivering online assessments and hence are integrating the advancements in technology to promote innovation in assessments. Further, an Industry Training Organisation has also considered a new way of writing qualifications to embed critical thinking and other skills considered as important in the future. Van der Schaaf, Donkers, Slof, Moonen-van Loon, van Tartwijk, Driessen, Badii, Serban and Ten Cate (2016) affirm electronic portfolios (e-portfolios) containing selected evidence of a learner's performances and associated evidence accompanied by their comments and reflections are increasingly used to assess workplace-based learning. My study indicates this method of assessment, which includes self-reflection and a portfolio of evidence, is in use within Industry Training Organisations. One of Darling-Hammond, Herman, Pellegrino, Abedi, Aber, Baker and Steel's (2013) five elements of an effective assessment system fit for the modern environment includes the assessment of critical abilities - like communication, collaboration, complex problem solving and research, in addition to subject matter concepts and standards that are internationally benchmarked. My study is supported by this principle as Industry Training Organisations are considering future skills in the writing of assessment. Thus, the assessment innovations in practice at Industry Training Organisations as found in my study, are consistent with literature.

### *The challenges of future workplace learning and assessment innovation*

My study reveals that the two key challenges to future workplace learning and assessment innovation were people's reluctance to change and keeping up with constantly changing technology. Other challenges included financial constraints, the regulatory quality assurance requirements and designing and conducting assessments for an unforeseen future. Gunn and Hollingsworth (2013) note some of the challenges for workplace assessment include the likely anxiety and resistance to change as traditional instructional approaches are replaced with new ones. Overton and Dixon's (2017) research findings reveal some of the barriers to using technology as reported by over 50% of Australasian workplaces include the cost of set up, the lack of skill to manage one's own learning, unreliable technological infrastructure and the accelerated pace of change of technology. Davenport, Scott and Sherwin (2017) reveal some of New Zealand Qualifications Authority's regulatory processes are not as supportive of innovation as they could be. On one hand, New Zealand Qualifications Authority aims to refine the quality assurance activities to better meet client needs (New Zealand Qualifications Authority, 2018g), yet it is simultaneously incorporating stronger educational achievement measures as part of External Evaluation and Review to manage the quality of educational performance (New Zealand Qualifications Authority, 2018c). Thus, balancing flexibility with rigour poses challenges. This is because innovation suggests doing things differently, being flexible and adaptive to industry needs. Rigour suggests quality and consistency. These concepts are juxtaposed as to in doing something differently one needs to deviate from the accepted, consistent and conventional way. It thus poses a challenge. It is suggested that the regulatory processes and the system itself inhibit innovation (Davenport, Sherwin and Scott, 2017; Oosterman, Sedgwick and Grey, 2017). This is because the system is thought to be inflexible and stringent with the New Zealand Qualification Authority's regulations not being as enabling of innovation as they could be. Hays (2015) highlights the challenges associated with future workplace learning include the uncertainty, the problems of scale, rapidity and complexity that the future brings with it. There is always a potential danger of assessing problems and situations as preconditioned by the past

and failing to see things as they are. Thus, the challenges experienced in the strategic planning for future workplace learning and assessment innovation as revealed in my study, are consistent with literature.

One of the aspects in which my study differs from literature is my study did not refer to the use of technology to support learning analytics where learner data is tracked to improve teaching and learning methods. Davenport, Scott and Sherwin (2017) describe learning analytics as the use of data about students' learning to build better methods and practices of teaching and learning and address factors affecting learner completion and success. While my study reveals that Industry Training Organisations use technology to offer new models of assessment and to deliver assessment, there is no evidence in my study to suggest they use technology to track student learning data and use it to improve practices of teaching and learning.

## **Conclusions**

Industry Training Organisations are under-researched and there is limited research on the strategic planning for future workplace learning and assessment innovations. The New Zealand government is encouraging the tertiary sector to be flexible and adaptive to change and support business and innovation. This study aims to contribute to this area of research and possibly help educators who read the research findings learn about the concept of innovation, the strategic planning on workplace learning and assessment innovation and the challenges of workplace learning and assessment innovation. The purpose of the research was to answer the following questions:

1. In what ways do Industry Training Organisations interpret Tertiary Education Commission's strategy with reference to future workplace learning and assessment innovation?

2. What is the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations?

3. What are the challenges experienced by Industry Training Organisations in relation to the strategic planning for future workplace learning and assessment innovation?

From my study it can be concluded that while there is agreement that the term innovation means a different way of doing things, the “things” done differently were subjective. To different people, “thing” referred to a different approach, a new product, a different method and the use of technology. One of the six priorities of the Tertiary Education Strategy 2014 – 2019 (2014) is delivering skills for industry. The strategy emphasised the need for tertiary education organisations to support innovation through development of relevant skills including up-skilling, re-skilling, transferable skills, and skills that support innovation. An implication of the subjective interpretation of innovation is that as people are likely to interpret innovation in their own unique way, this may or may not result in the intended outcome as expected by the Government or the regulatory bodies when they encourage innovation in this sector.

This research reveals that Industry Training Organisations believe they engage closely with industry, clients and learners to determine and meet their needs, yet acknowledges Industry Training Organisations are “missing out on the mana that comes with skills leadership”. However, data collected through Organisation for Economic Cooperation and Development (OECD) 2014-15 *Survey of Adult Skills* suggests that New Zealand workers’ qualifications and skills are poorly matched to their occupations (Kankaraš, Montt, Paccagnella, Quintini, Thorn, Denis, Zambrano and Keslair, 2016). Since 2014, the Industry Training and Apprenticeships Act (1992) was amended to remove skills leadership as a legislative function of Industry Training Organisations, although the current government has indicated its intent to restore it. An implication of the lack of legislative requirement for skills leadership is that the Industry Training Organisations are likely to be responding to industry, client and learner needs intuitively, without conducting a formal assessment of the global and

local trends or any market or commercial analysis. As educational experts, they may not be providing informed and considered advice.

This study indicates that the regulatory quality assurance processes pose a challenge to the strategic planning for workplace learning and assessment innovation. If innovation is interpreted as a different way of doing things, then it implies experimenting with new things. This understandably poses a challenge to upholding quality as there is a fine line between being flexible and maintaining the credibility of assessment. An implication of moderation practices not being flexible and adaptive in the face of innovation, could mean that Industry Training Organisations feel stifled when innovating or fear the regulatory consequences of not meeting the prescribed standard.

## **Recommendations**

The following are some recommendations for senior and middle level leaders within Industry Training Organisations to help them plan for strategic workplace learning and assessment innovations.

1. It is recommended that Industry Training Organisations follow the example of Industry Training Organisations 4 and 5 and engage in a collaborative approach to brainstorm what the concept of innovation means. This will minimise the risk of interpreting innovation in a narrow way and create a shared understanding of what innovation means within the Industry Training Organisation. The Tertiary Education Strategy could also provide a clear definition of the term innovation so that Industry Training Organisations can work with a shared understanding in the direction desired by the regulator thereby contributing to the needs of the New Zealand economy.
2. There are several new models and deliveries of learning and assessment innovation in use and being explored for the future by Industry Training

Organisations in New Zealand. It is recommended that each Industry Training Organisation first explore the potential of their current learning and assessment models and technology, conduct a needs analysis by consulting internal (including other departments in larger Industry Training Organisations) and external stakeholders (including learners, industry, regulatory bodies) to determine fit for purpose solutions for workplace learners. Industry Training Organisations may want to follow Industry Training Organisation 1's example in exploring a different way of writing qualifications so that it embeds the skills that are considered as critical in the future. It is also recommended that Industry Training Organisations work towards national partnerships and international collaborations to better support global workplace learners.

3. It is imperative that moderation practices adapt alongside assessment innovation. It is recommended that Industry Training Organisations proactively engage with regulatory bodies like the Tertiary Education Commission and the New Zealand Qualifications Authority to confirm their innovative practices are considered rigorous. It is by engaging in direct, proactive, upfront conversations that negotiations for change with the regulatory bodies can occur without a backlash. Collaborations and consultation with other Industry Training Organisations could strengthen the voice. Similarly, it is also important to bring assessors and moderators on the same page with new ways of thinking. This can be done by providing adequate training, support and guidance to employers, verifiers, learners, assessors and moderators when using new models and delivery of learning and assessment innovation.

### **Strengths and limitations of the research**

A strength of this research is that it has contributed new insights to literature on the strategic planning for workplace learning and assessment innovation from an Industry

Training Organisation viewpoint. The findings have been analysed with reference to literature. Other Industry Training Organisations can apply the findings and recommendations to their own settings to bring about effective change. The findings from the literature may be of interest to regulatory bodies like the Tertiary Education Commission and the New Zealand Qualifications Authority to gauge the responses of Industry Training Organisations to their regulatory requirements.

A limitation of this research is that a relatively small sample size was used as only five of the eleven Industry Training Organisations were represented in the research. In addition, the study only considered two senior-level management views. Further, the views of other stakeholders such as regulatory bodies, employers and learners have not been considered.

### **Suggestions for future research**

This study has explored the strategic planning for workplace learning and assessment innovation. The focus of educational leadership is to engage in activities that improve student learning outcomes. To this end, further research could be conducted to track whether workplace learning and assessment innovations lead to improved learner outcomes.

The Industry Training and Apprenticeships Act was written in 1992. There have been drastic changes in workplaces over the last few decades. An area for future research could relate to a review of the learning and assessment workplace structures and legislation to determine if they are fit for purpose in the current context.

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## APPENDIX A

### Interview Schedule



#### INTERVIEW SCHEDULE

**Title of Thesis: An Industry Training Organisation perspective of the strategic planning for future workplace learning and assessment innovation: in New Zealand.**

Researcher	Reena Patel
Participant	
Position	
Industry Training Organisation	
Date of interview	

#### Key

(I)	Introductory question
(T)	Transition question
(K)	Key question
(C)	Closing question

<b>Research Aim 1: To explore how Industry Training Organisations have interpreted Tertiary Education Commission's strategy with reference to future workplace learning and assessment innovation.</b>		
Q.1 (I)	It is believed that the workplace environment has changed with technological advancements, globalisation and changes in demographics. Has this been your experience?	If yes, ask: In what way If no, probe why?
Q.2 (I)	What does 'innovation' in the context of workplace learning mean to you?	
Q.3 (I)	What does 'innovation' in the context of workplace assessment mean to you?	
Q.4 (T)	Do you discuss the idea of innovation in workplace learning and assessment in your Industry Training Organisation?	If yes, go to Q.4a If no, skip to Q.4b
Q.4a (T)	Could you elaborate on those discussions?	Skip to Q. 5
Q. 4b (T)	Why do you think these discussions are not happening in your Industry Training Organisation?	
Q.5 (K)	Here's an extract of the Tertiary Education Commission's strategy 2014 – 2019. (Allow time to read).	

	Are there any implications of this on the strategic planning for future workplace learning and assessment innovation at your Industry Training Organisation?	
Q. 6 (K)	Is there a demand for learning and assessment innovation from elsewhere in your Industry Training Organisation?	If yes, ask participant to elaborate. If no, probe why?
<b>Research Aim 2: To examine the strategic planning for future workplace learning and assessment innovation in Industry Training Organisations.</b>		
Q. 7 (T)	Can you describe the role strategic planning plays in supporting workplace learning and assessments innovation?	
Q. 8 (K)	At a strategic level, is there any planning for workplace learning and assessments innovation at your Industry Training Organisation?	If yes, go to Q.8a If no, skip to Q.8b
Q.8a (K)	Could you elaborate on the strategic plans about workplace learning and assessments innovation.	Skip to Q.9
Q. 8b (K)	Tell me about your strategic priorities.	
Q. 9 (K)	Describe some examples of learning and assessments innovations that are in use at your Industry Training Organisation, if any.	If yes in Q.4 go to Q.10a If no in Q.4 skip to Q.10b
<b>Research Aim 3: To explore the challenges Industry Training Organisations are experiencing in the strategic planning for future workplace learning and assessment innovation.</b>		
Q.10a (K)	Describe some of the challenges with innovation in workplace learning at your Industry Training Organisation.	
Q.11a (K)	Tell me about the challenges with innovation in workplace assessment in your Industry Training Organisation?	Skip to Q.12
Q.10b (K)	Thinking back to a time when there was innovation in workplace learning in your Industry Training Organisation, tell me about the challenges you experienced with it?	If never had any innovation, go to 10c
Q.11b (K)	Thinking back to a time when there was innovation in workplace assessment in your Industry Training Organisation, tell me about the challenges you experienced with it?	If able to describe, go to Q.12 Else, go to Q.11c
Q.10c (K)	What do you imagine might be possible challenges in introducing innovation in workplace learning in your Industry Training Organisation?	Go to Q.11b
Q.11c (K)	What do you imagine might be possible challenges in introducing innovation in workplace assessments in your organisation?	
Q. 12 (K)	Describe the ways in which your Industry Training Organisation has responded to the challenges in workplace learning	
Q. 13 (K)	Describe the ways in which your Industry Training Organisation has responded to the challenges in workplace assessment	
Q. 14 (T)	How do you manage quality in the face of innovation?	

Q. 15 (C)	Is there anything more you would like to add?	
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Thank you for your time and input, most appreciated. Here are my contact details if you would like to discuss anything further. I will get a transcript to you within 15 days for your verification.

Reena Patel [rbrainchild@hotmail.com](mailto:rbrainchild@hotmail.com) 02102773304

## Background information

### **Tertiary Education Commission Strategy 2014 – 2019 extract**

The Tertiary Education Strategy 2014 – 2019 identifies what New Zealand needs from tertiary education as:

Our next steps must lead the tertiary education system to become more flexible and strategic by...ensuring the system can adapt more quickly to change, including changing technologies and changing patterns of demand. Over the coming decades, the tertiary education system will need to build to...support business and innovation through development of relevant skills. (p.6)

According to Tertiary Education Commission, its first priority is delivering skills for industry. It states:

Employers are [...]starting to find it difficult to attract people with an appropriate range of both specific and transferable skills' (p.10). The Government needs to ensure 'tertiary education supports the development of transferable skills. These skills include the ability to communicate well, process information effectively, think logically and critically and adapt to future changes. (p.10)

The Supplementary Plan Guidance for Industry Training Organisations 2017 affirms:

Skills need be continuously updated to keep pace with the changing world of work, including shifts in technology and the emergence of new tasks and occupations. Industry Training Organisations should also help businesses identify and train for new skills that meet emerging needs. (p.2)

It highlights the high expectations it has of Industry Training Organisations in, “demonstrating that they understand their customers, businesses and industries by identifying and responding to skill needs...arranging training in flexible and responsive ways, developing standards, programmes and qualifications that industry value” (p.3). In addition, the Tertiary Education Commission has declared its intent to reserve a percentage of the Industry Training Fund, “To support innovative approaches to growing industry trainee numbers” (p.5).

## APPENDIX B

### Participant information sheet



## INFORMATION SHEET FOR PARTICIPANTS

**Title of Thesis: An Industry Training Organisation perspective of the strategic planning for future workplace learning and assessment innovation in New Zealand.**

My name is Reena Patel. I am currently enrolled in the Master of Educational Leadership and Management degree at Unitec Institute of Technology and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is to explore the strategic planning for future workplace learning and assessment innovation within Industry Training Organisations in New Zealand.

I request your participation in the following way. I would like to conduct a one-on-one interview with you. I will be collecting data using an interview schedule and would appreciate being able to interview you at a time that is mutually suitable. The interview venue will be your Industry Training Organisation (or as mutually agreeable) and the duration of the interview will be approximately one hour. I will also be requesting you to sign a consent form regarding this event.

Neither you nor your organisation will be identified in the thesis. I will be recording your contribution and will provide a transcript for you to check before data analysis is undertaken. You will be asked to verify this within a week of receipt of the transcript. You have the right to withdraw yourself or any information from the research at any time up to two weeks after the return/ confirmation of your verified transcript.

I do hope that you will agree to take part and that you will find this participation of interest. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology. My supervisor is Professor Carol Cardno and may be contacted by email or phone.

Phone: (09) 815 4321 ext. 8406

Email: [ccardno@unitec.ac.nz](mailto:ccardno@unitec.ac.nz)

Yours sincerely,

Reena

**UREC REGISTRATION NUMBER: 2018 -1006**

**This study has been approved by the Unitec Research Ethics Committee from 27 March 2018 to 27 March 2019. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 8551). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.**

## APPENDIX C

### Consent form



## CONSENT FORM – ADULT PARTICIPANTS

**RE: Master of Educational Leadership and Management**

**THESIS TITLE: An Industry Training Organisation perspective of the strategic planning for future workplace learning and assessment innovation in New Zealand.**

**RESEARCHER Reena Patel**

### **Participant's consent**

I have been given and have understood an explanation of this research and I have had an opportunity to ask questions and have had them answered. I understand that neither my name nor the name of my organisation will be used in any public reports. I also understand that I will be required to participate in a one-on-one interview which will be recorded.

I agree to this interview being recorded. I understand that I will be provided with a transcript of the interview for verification and that I may withdraw myself or any information that has been provided for this project up to two weeks after the return/confirmation of my verified transcript.

**I agree to take part in this project.**

**Signed:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**UREC REGISTRATION NUMBER: 2018 - 1006**

**This study has been approved by the Unitec Research Ethics Committee from 27 March 2018 to 27 March 2019. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 8551). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.**



## Declaration

**Name of candidate: REENA PATEL**

This Thesis/Dissertation/Research Project **entitled:** AN INDUSTRY TRAINING ORGANISATION PERSPECTIVE OF STRATEGIC PLANNING FOR WORKPLACE LEARNING AND ASSESSMENT INNOVATION IN NEW ZEALAND

is submitted in partial fulfillment for the requirements for the Unitec degree of  
MASTER OF EDUCATIONAL LEADERSHIP AND MANAGEMENT

**Principal Supervisor: PROF. CAROL CARDNO**

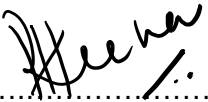
**Associate Supervisor/s: STEPHANIE SHEEHAN**

### CANDIDATE'S DECLARATION

I confirm that:

- This Thesis/Dissertation/Research Project represents my own work;
- The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
- Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: **2018-1006**

Candidate Signature: .....Date: **1/11/2018**

Student number: **1471808**



**Full name of author:** Reena Patel

**ORCID number (Optional):** .....

**Full title of thesis/dissertation/research project ('the work'):**

An Industry Training Organisation perspective of strategic planning for workplace learning and assessment innovation

**Practice Pathway:** .....

**Degree:** Master of Educational Leadership and Management (MEdLM).

**Year of presentation:** 2018

**Principal Supervisor:** Prof. Carol Cardno

**Associate Supervisor:** Stephanie Sheehan

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Date: 1/11/2018