The Relationship between Workplace Innovation and Organizational Culture: A Case Study of a Victorian Public Sector Organization

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed– BCHEAN project approval number: 1000447.

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Abstract

To improve public sector innovation more understanding is needed about the impact of organizational culture on workplace innovation. This has been neglected in literature despite the public sector representing up to 30 per cent of local economies and Workplace Innovation contributing well over 30 per cent of Sector innovation.

This thesis investigated the relationship between Workplace Innovation and Organizational Culture within the context of a large Victorian Public Sector Organization. Culture in this study is treated at three levels; public sector culture, organizational culture, and group (department) level culture. The thesis utilized a case study approach within a Victorian State Government Department and an explanatory sequential mixed methods approach was undertaken. A survey of 479 employees was analyzed using correlation, ANOVA, T-Tests, regression and structural equation modelling. Public Sector Culture was shown as a significant antecedent of Workplace Innovation predicting 24.6 per cent of variation and identifying significant variation in Individual Innovation, Organizational Innovation, Team Innovation and Workplace Innovation Climate. Analysis of Demographic and Employment Characteristics found considerable variation between groups. Group level culture was particularly influential in the relationships identified. Triangulation with qualitative data corroborated the findings, and a final mixed methods integration including a second triangulation of findings identified additional factors explaining the relationships including sustained organizational change that reinforced the strength of subcultures.

This thesis accessed as its subject organization a Department of State, an entity which is rarely available for research. For the first time to date the results empirically identified a significant relationship between Public Sector Culture and Workplace Innovation. As an unusual and critical case the findings could be generalized to public sector theory.

The findings identified significant correlations where culture was an antecedent to workplace innovation which impacted on employee's capacity to innovate. The research extended the theory of public sector innovation by proving a relationship between Public Sector Culture and Workplace Innovation. In addition, the thesis extended the theory of Public Sector Culture

highlighting its importance to Workplace Innovation and the negative impact on innovation of constant organizational change. The thesis built on the theory of public sector management identifying culture as important when managing public sector innovation. The research has implications for management of innovative public sector workplaces and cultures.

Keywords: Empirical, organizational culture, public sector culture, public sector innovation, public sector management, workplace innovation,

Chapter 1. Introduction

1.1 Objective

The purpose of this chapter is to provide an overview of the thesis and its structure. This chapter sets out the objectives and the theoretical background of the thesis; justification for the research; the research questions; the methodologies selected; the structure of the thesis; the definitions used; the limitations of the research; the key assumptions; and this thesis' contribution to the literature

1.2 Introduction

Understanding the process for innovative change within Public Sector Organizations provides ideas and approaches on how to facilitate and foster workplace innovation. An improved ability to innovate will allow such organizations to become more flexible and innovative in response to a rapidly changing operational environment. Workplace innovation outcomes assist governments that work through Public Sector Organizations to implement policies and programs, and to change the dynamics within an economy for the benefit of the State and the population.

A number of researchers have written on innovation within the public sector (Damanpour & Schneider 2009; Osborne, S & Brown 2013; Walker 2014). The author has participated and reported on research in Victoria that has identified that change and innovation has been achieved within the organization studied which benefitted the citizens of Victoria (Newnham 2004, 2005; Newnham & McMurray 2007; Newnham, Millner & Sventgyoryi 2005; Newnham, Spall & O'Keeffe 2001) . This thesis supports systematic data gathering, analysis and reflection at the organizational, workplace climate, individual and team level that led to understanding and improving workplace innovation practices and understanding the relationship between workplace innovation and organizational culture. Studying the process for innovative change within public sector organizations provides ideas and approaches on how to facilitate innovation within them (Newnham & McMurray 2007).

Organizational culture underpins how an organization works and ‘how we do things’ around here (Hofstede 1998; Schein & Scheiner 2016). This culture is created over time and changes slowly, creates an environment that enables or hinders workplace innovation. This thesis examines how Department A and its culture developed as an organization and how this relates to workplace innovation. Through the review of these aspects of the organization the thesis provides a way to integrate Public Sector specific aspects of innovation that are of importance. These include the political context for Public Sector Organizations as innovations in public organizations need to consider the wider policy context and the public sphere (Hartley 2013, p. 48). In particular, service delivery in Department A was altered by a merger of two other Departments named for this research as X and Y, so initiating a new organizational mental model which created an innovation force acting on the organization leading to a paradigm innovation (Bason 2010). The overarching paradigm change and the push to create a new organizational culture is contrasted with the existing workplace level culture which needed time to change and was persistent in nature.

The researcher has been employed in the organization for over twenty years and researched and commented on its operations over many years as outlined in publications listed in Appendix E. This provides access to a rich range of information and data that would have been difficult for someone outside the organization to access and interpret. An insider has a deep understanding of the culture of the organization from having observed and experienced it. Often the significance of processes and studies make more sense within the context of organizational history. The study did encounter temporary difficulties with the organization as it underwent major change with the management delaying elements of the data gathering to suit their needs which may not have happened if an outside researcher had negotiated a set timeline.

In addition, such organizations are not static. Over the last twenty years this organization has been substantially altered by Government implementing new major organizational arrangements five times and in addition a few smaller changes. In the same time it had to respond to major emergency events disruptive to its operations such as bushfires and floods.

As a State Government entity, the Department is responsible for working with the industry sector it represents. How it relates to industry is affected by Departmental organizational culture and its ability to connect operationally to the industry group it serves. There is a close relationship between the industry group that is serviced and the organizational culture that is developed within the Department. Two main industry groups were serviced by Department A; the Environment and Natural Resource Management Industry Sector, and the Primary Industries Sector.

To date, there has been no similar research undertaken in a Public Sector Organization in Victoria. It is very difficult to gain permission to undertake research in Public Sector Organizations. Kelman (2005) posited there is a paucity of information on Public Sector Organizations due to a focus on the private sector which is only now changing as 'countries face serious challenges of managing public organizations effectively, and of solving intractable public problems that have a strong management component' (Kelman 2005, p. 967). A similar focus of business schools on the private sector has been observed in the United Kingdom (Liddle 2017). Kelman had earlier reviewed the development of public management as an academic stream and identified that over the past thirty years there have been shortcomings with 'not nearly enough good prescriptive (or even explanatory) research being produced about how to achieve high performance in government organizations' (Kelman et al. 2003, p. 4). There had been a reduction in effort as fifty years ago 'a good part of the work on organizational theory grew out of public-sector empirical material or issues' (Ibid p. 4). With the lack of focus by current management research 'organizational issues especially relevant to public organizations … receive grossly insufficient attention from the mainstream of academic management research' (Ibid p. 4).

Departmental organizations are complex with multiple layers of management to engage, and there are always many different issues running at a point in time. The complexity leads to a resistance or reticence to allocate time to research studies. The author is grateful for the opportunity given by the Department to undertaken this study. This research will add to the literature about innovation and organizational culture in a State Government Organization and

provide ideas and approaches on how to facilitate workplace innovation in such an organization.

1.3 Research Objectives

The researcher studied the relationship between Workplace Innovation and Organizational Culture within a Victorian Public Sector Organization.

This thesis has a main objective with two supporting sub-objectives:

The main objective is the investigation of the relationship between Organizational Culture and Workplace Innovation. This focuses the thesis and guides the research. The research undertaken in the context of a case study of a Victorian Public Sector Organization. It brings together theory on organizational culture, workplace innovation and public sector management.

The supporting sub-objectives are:

(a) to investigate the moderating effect of Demographic Characteristics on the relationship between Organizational Culture and Workplace Innovation; and,

(b) to investigate the moderating effect of Employment Characteristics on the relationship between Organizational Culture and Workplace Innovation.

1.4 Background and Research Rationale

Governments and Public Sector Organizations that undertake governance and deliver products and services have ‘created an environment where we can in our everyday lives normally take the reliability and trustworthiness of others for granted’ (Kelman 2017). The public sector provides the underpinning physical and social infrastructure to enable society to function, so having a well performing public sector is important. If the process for innovative change within Public Sector Organizations is studied, it provides strategies on how to facilitate innovation and assist government in operating efficiently and effectively. An effective public sector is important as it typically accounts for between one quarter and one-half of all economic activity of most nations (Potts 2009, p.14). In Australia, the latest Organization for

Economic Co-operation and Development (OECD) figures published on the public sector workforce (OECD 2015) showed Australia's Public Service had 18 per cent of total employment in 2013, against the OECD average of 22 per cent (OECD 2015, p. 85). It is a significant proportion of the country's workforce and contributes significantly to the success of Australia's economic, social and environmental activities. In addition, public sector operations contribute a large amount of Australia's economic activity with the OECD (2017a) reporting in 2016 the Australian General Government sector spent approximately 22.5 per cent of the GDP of Australia. Approximately 42 per cent of this total was for employment costs and 48 per cent was for the cost of goods and services used and financed by government (Ibid p.80).

The need for Public Sector Organizations to be more innovative has been outlined in several Government Reports at the Commonwealth and State levels. The current Commonwealth Government Innovation Policy highlights the importance of Public Sector Organizations themselves being innovative and 'leading by example' (DPMC 2015). Understanding the relationship between Organizational Culture and Workplace Innovation within this type of organization can provide ideas and approaches to facilitate workplace innovation. Having a better understanding of how to support innovation activities will allow such organizations to become more flexible and innovative in response to rapidly changing operational environments and the expectations of stakeholders.

1.4.1 Research questions and hypotheses

The literature review identified omissions in the literature pertaining to the relationship between Workplace Innovation and Organizational Culture within a Public Sector organizational context. For this thesis culture is treated at three levels; Public Sector Culture, Organizational Culture, and Group (Department) Level Culture. Demographic groups used in the thesis include; gender, marital status, age, and educational levels. The specific employment characteristics used include; tenure, job type, workplace, work role, and flexible working.

Research opportunities were identified to deal with the omissions resulting in the development of the following research questions and their supporting hypotheses. The aim of this thesis is

to answer the five Research Questions (RQ) and the associated 13 Hypotheses (H) including 1a to 1d, shown below:

RQ. 1. What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization?

H1: Public Sector Culture has a significant effect on Workplace Innovation.

H1a: Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.

H1b: Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.

H1c: Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.

H1d: Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.

RQ. 2. What are the differences in perception among Demographic Groups towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.

H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H5: Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.

RQ. 3. What are the differences in perception among staff having specific Employment Characteristics towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

H6: There is a difference in perceptions among staff with specific Employment Characteristics towards the aspects of a Public Sector Organization's culture.

H7: There is a difference in perceptions among staff with specific Employment Characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H8: Employment Characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H9: Employment Characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.

RQ. 4. What ways do Victorian public sector organization reports corroborate with Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization?

RQ. 5. In what way does the mixed methods analysis contribute to understanding Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization?

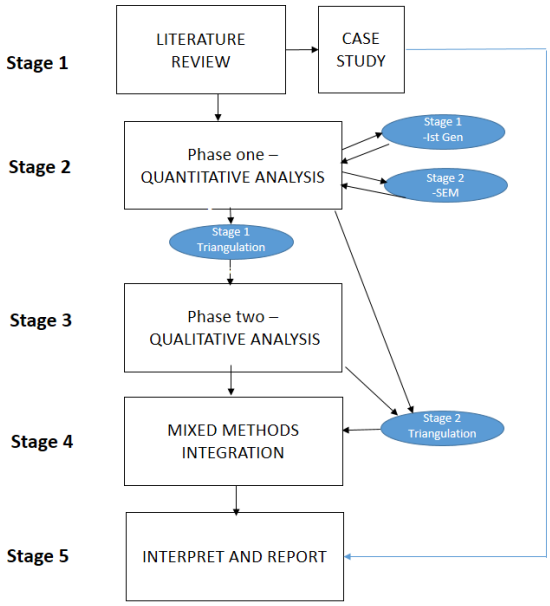
1.5 Research Methodology

The researcher used a pragmatic philosophical outlook where it was possible to review innovation objectively and its relationship to the more subjectively defined organization and culture (Cook & Reichardt 1979; Creswell 2010; Miles, MB & Huberman 1994). This thesis used a pragmatic philosophical approach that recognized the differing philosophical paradigms for researching the subject matter as organizational culture is based on a constructivist paradigm, workplace innovation is based on a post-positivist view and public sector management fits in the continuum between these two views. The research is framed in a mixed methods approach to recognize the complementary strengths of the methods used (Teddlie & Johnson 2009).

An explanatory sequential mixed methods approach was used with a deductive Phase one quantitative analysis producing outcomes which informed the inductive Phase two qualitative stream of research. The two phases were linked as the final part of the mixed methods approach integrating understandings from the quantitative and qualitative research, identifying significant themes underlying the research and combining them into meta-inferences

For Phase one, data was collected in a web-based survey available to all members of the organization. This was considered appropriate to collect quantitative primary data used in semi-natural settings where respondents are asked to report with 479 out of 3,470 responding. Qualitative data was collected in the thesis survey and through an analysis of documents externally and internally published by Department A, and externally published documents relating to the Department published by related Organizations. These decisions were based in assessing methodology options from the research methods literature (Bazeley 2018; Creswell 2014; McMurray, Pace & Scott 2004; Neuman 1997). Conducting a detailed group analysis or interviews was not within the scope of this thesis. An illustration of the research methodology process is shown in Figure 1 below:

Figure 1 - Research Methodology Process



Source: Author adapted from Creswell (2012)

The process is summarized in five stages. The first stage began with the literature review of private and public sector innovation, workplace innovation, organizational culture in a private

and public sector context, public sector management and the case study of Department A, a Victorian Public Sector Organization. It included identifying the research problem, the main theoretical models; developing a conceptual framework, research questions, and the hypotheses for the quantitative analysis.

The second stage included the undertaking of the Phase one quantitative analysis with the questionnaire selection and development. The process of the analysis comprised (1) data preparation, (2) reliability test and exploratory factor analysis (EFA), (3) criterion-related validity assessment, (4) a Stage one analysis using correlation and regression testing and (5) a Stage two analysis using covariance-based structural equation modelling (SEM).

The third stage included the undertaking of the Phase two qualitative analysis of documents externally and internally published by Department A, and externally published documents relating to the Department published by related Organizations. A Stage one triangulation of the concepts and findings from Phase one was used to initiate the development of qualitative themes. The process of analysis comprises (1) triangulation with the qualitative findings to develop initial themes, (2) data analysis of the data sources, (3) development of additional themes and the development of models for overarching themes, (4) analysis of findings using thematic models, (5) analysis of overarching themes.

The fourth stage includes the integration of the mixed methods approach by undertaking a Stage two triangulation of the findings from Phases one and two of the research and linking the understandings and combining the findings into meta-inferences. The fifth stage is interpreting and reporting.

1.5.1 Case Study approach

The Case Study of a Public Sector Department of State used for this thesis provides access to an organizational type difficult to access for research so presenting an unusual case (Yin 2014). Department A was a Department of State in the Victorian Government. It had 3470 employees delivering Environment and Natural Resource Management and Agricultural Policy and Services across Private and Public land and water. The organization had been created after a merger of two other Departments. As a critical empirical case it was able to

empirically confirm and measure for the first time to date the relationship between organizational culture in the particular form of Public Sector Culture and Workplace Innovation. As both an unusual and critical empirical case it was possible to generalize the findings to extend knowledge in the public sector research literature (Eisenhardt & Graebner 2007; Schein & Scheiner 2016; Schwandt & Gates 2017; Yin 2014).

1.6 Structure of the Thesis

Chapter two reviews the research literature of the two primary concepts in this thesis, Workplace Innovation and Organizational Culture within the context of the public sector, and considers the literature exploring related concepts including public sector management and Victorian Public Sector Organizations. The chapter identifies omissions in previous research and formulates research questions and hypotheses.

Chapter three describes the Victorian Public Sector Organization that is the subject of this case study. It defines the type of organization, gives the historical context to its development and summarizes its operational arrangements including an overview of the organization's culture.

Chapter four explains and justifies the methodology used in this thesis for an explanatory sequential mixed methods approach with a Phase one quantitative → Phase two qualitative study where the theoretical drive or priority in the core methods was quantitative comprising 70 per cent of the research effort and a supplementation qualitative method comprising 30 per cent built on the findings from Phase one. It explains the quantitative data collection, the pre-test and data analysis techniques for the quantitative and qualitative components. It further explains how the author dealt with issues such as ethics and data screening. A description of the sample used in this thesis is included. There is a brief discussion about survey translation and potential bias.

Chapter five contains the analysis of the quantitative component of this thesis and the survey data. The chapter is structured according to the research questions one to three and the hypotheses articulated in chapter two.

Chapter six contains the analysis of the qualitative component of this thesis and the data gathered. The chapter is structured to answer Research Question 4 as articulated in chapter two.

Chapter seven contains the analysis of the mixed methods integration of the Phase one quantitative analysis and the Phase two qualitative analysis of the explanatory sequential mixed methods research approach used, triangulating the results and linking the understandings and combining them into meta-inferences. The chapter is structured to answer research question five as articulated in chapter two.

Chapter eight contains the findings of this thesis wherein the analysis of chapters five, six and seven is contextualized with the literature reviewed in chapter two. This chapter explains how this thesis has added to previous research in management and organizational science studies by filling existing omissions in the literature or by confirming previous research.

Chapter nine provides a summary of this thesis. It draws conclusions from this research and explains how it has met its objectives and answered the research questions and confirmed or disaffirmed the hypotheses of this thesis. The chapter sets out recommendations for future research.

1.7 Terms and Definitions

The terms and definitions including abbreviations that are used within this thesis are given in Appendix A: Terms and Definitions.

This thesis deals with the concepts and terms of Demographic Groups, staff with Employment Characteristics, Group Culture, Individual Innovation, Organizational Culture, Organizational Innovation, Public Sector Culture, Public Sector Organization, Team Innovation, Workplace Innovation, and Workplace Innovation Climate. These terms will be capitalized except when the thesis is discussing these as generic concepts when they will be depicted in lower case.

1.8 Theoretical Framework

This thesis was based on extending the Theory of Public Sector Innovation by empirically proving the relationship of Public Sector Culture to Workplace Innovation. The thesis extends the Theory of Public Sector Innovation by identifying that culture is a significant antecedent to Workplace Innovation. The findings empirically identified the relationship measuring the relationship of Public Sector Culture to the Workplace Innovation Scale as an operationalization of Workplace Innovation (McMurray & Dorai 2003).

The results extend the Theory of Public Sector Culture highlighting the importance of this as an antecedent of Workplace Innovation and its four dimensions. The thesis extended Schein's Theory of Culture (Schein & Scheiner 2016) that identified the importance of context in understanding cultural manifestations in organizations by proving this within a Department of State and in relation to the impact on Workplace Innovation. The findings contributed and enhanced the small body of literature on aspects of culture within Public Sector Organisations. These findings extended earlier research considering cultural aspects within the public sector in relation to innovation capacity that established they had predominately hierarchical cultures (Bradley & Parker 2006; Harrison & Baird 2015; O'Connor, Roos & Vickers-Willis 2007; Parker, R & Bradley 2004) and later research finding a mix of both an innovative and performance oriented culture (Wipulanusat, Panuwatwanich & Stewart 2017). This thesis connected for the first time to date the relationship between Public Sector Culture and Workplace Innovation.

The thesis contributes to the Theory of Public Sector Management (Hill & Lynn 2004; Hughes 2012, 2017) by identifying culture as a significant contributor to innovation in a Public Sector Organization and so an important function to be considered when managing these types of organizations. This thesis extends the Theory of Public Management and provides evidence that Public Sector Managers can develop conditions to support workplace innovation in public sector organizations by building organizational culture.

The study for the first time investigated: demographic characteristics such as gender, marital status, age, education level; and employment characteristics of tenure, job type, work groups,

work role and flexible working and their relationship to Workplace Innovation and Organizational Culture, from a population sample of 479 employees in a Victorian Public Sector Organization. The findings added to literature on subcultures in Public Sector Organizations (Geva-May 2002; Osborne, S & Brown 2005); the role of professional groups in a public sector context (Dunn & Jones 2010; Ferlie et al. 2005; Hinings 2012); gender (Alsos, Hytti & Ljunggren 2016; Van Acker, Wynen & Op de Beeck 2017), age (Chomley 2014), and work role characteristics in the public sector context (DiTomaso & Hooijberg 1996; Ekvall & Arvonen 1994; Elenkov, Judge & Wright 2005; Hooijberg & DiTomaso 1996).

Public sector organizations are created to provide public services as largely not for profit organizations and so their culture varies significantly from private sector organizations that are motivated to make profits for owners. This thesis addresses the omission of the 'Workplace Innovation' and 'Organizational Culture' relationship in the current public sector literature.

1.9 Delimitation of Scope

The thesis has limitations as the research for this thesis was conducted within one Department of State in Victoria, Australia and the sample from which data was gathered was all from this organization. The nature of the major concepts included is context specific phenomena and the quantitative survey was collected via self-reporting. For these reasons, the generalizability of the findings in this thesis are limited.

1.10 Thesis Contribution to Literature and Practice

In certain circumstances change and innovation are achievable and have great benefits to the citizens of Victoria. This research systematically gathered data, analyzed and reflected on results at the organizational, workplace climate, individual and team level that led to proposals for understanding and improving workplace innovation practices. If innovative change within Public Sector Organizations is studied, it provides ideas and approaches on how to facilitate innovation (Newnham & McMurray 2007).

This thesis provides an analysis of Department A which has not been done before, and allows a review of the culture that had developed from connecting or reconnecting two organizations.

Departments of State can be ephemeral organizations that are subject to regular changes to support political platforms. A further machinery of government change in November 2014 after the election of the Andrews Labor Government led to several changes in Departments and their functions. The Environment, Land and Water functions of Department A were joined with the Planning and Local Infrastructure groups of the former Department of Transport, Planning and Local Infrastructure The new Department was the Department of Environment, Land, Water and Planning (DELWP) and 'was created on 1 January 2015 with a mandate to support Victoria's natural and built environment and to ensure economic growth and liveable, sustainable and inclusive communities that are resilient to the impacts of climate change' (DELWP 2015a, p. 2).

Understanding and improving workplace innovation practices has direct implications for an organization's sustainability and key performance indicators (KPIs). This in turn can assist in developing appropriate KPIs for measuring innovation in the larger Victorian Public Service (VPS). These are currently not available and the Australian Public Service (APS) is working to identify the distinctive measures for innovation needed for the public sector to try to develop an evidence-based understanding of public sector innovation (APSC 2011, p. 213).

1.11 Summary

This chapter provided an overview of this thesis. It set out the objectives of the research, research questions, research methodology, and the justification and contribution of this thesis. Moreover, the chapter presented the need to investigate the relationship between Workplace Innovation and Organizational Culture within the case study of a Victorian Public Sector Organization.

The next chapter reviews the research literature of the two primary concepts in this thesis, Workplace Innovation and Organizational Culture, and considers the literature relating to related concepts in this thesis including Public Sector Management, and Department A which is a Victorian Public Sector Organization.

Chapter 2. Literature Review

2.1 Objective

The purpose of this chapter is to systematically review and analyze the extant literature relevant to this thesis, and to identify oversights in existing research. This introduces the development of the research questions, hypotheses and conceptual framework model that form the basis for this thesis.

Section 2.2 provides an overview of the components parts of the literature review and key features. Sections 2.3 to 2.8 define and review aspects of private and public sector innovation, the importance of the innovation to the public sector, public sector innovation policy at the Commonwealth and State Government level, workplace innovation and measuring innovation. This Section is summarized in Section 2.9. Sections 2.10 to 2.14 define and review aspects of organizational culture including aspects of private and public sector culture, outline the relationship of organizational culture with innovation and review measurement of organizational culture. The Section is summarised in Section 2.15.

Sections 2.16 introduces the management of Public Sector Organizations with 2.17 discussing the public sector context and 2.18 describing Public Sector Organizations. Section 2.19 reviews the differences between public and management, organizational structures and roles. Section 2.20 reviews developments in Public Sector Management with 2.21 summarizing Victorian Public Sector organizational management.

Section 2.22 reviews the demographic and employment characteristics within a public sector environment. Section 2.23 considers any omissions identified during the literature review and the scope for further research with 2.24 outlining how the omissions will be addressed within this thesis. Section 2.25 describes the Conceptual Framework Model (p. 106 below) that will be used and 2.26 provides a summary of the chapter.

2.2 Introduction

The focus of this Literature Review chapter is to review and analyze the literature addressing the relationship of Workplace Innovation and Organizational Culture within a Public Sector

Organization to lead to an understanding of the relationship between Workplace Innovation and Organizational Culture in a government agency. The form of Public Sector Organizations creates a particular organizational culture that impacts on workplace innovation. There is a lack of literature on the relationship between organizational culture and workplace innovation in Public Sector Organizations, especially within an Australian context. This work required a search for literature from a variety of sources including government reports and publications.

This Literature Review is aimed at informing this thesis, to identify the particular relationship between Workplace Innovation and Organizational Culture in a Public Sector Organization, to address the neglect of the public sector in Workplace Innovation Theory and provide new evidence to build theory about workplace innovation and organizational culture in Public Sector Organizations. The Conceptual Framework Model (Figure 2) provides an overview of how all the elements of the research fit together to build the proposed outcomes of the research.

Using Government and Public Sector Innovation Advisory Sector Reports

The literature on public sector innovation is not exclusively from academic sources. A diverse body of material is available in literature developed outside traditional academic peer review processes and can make a variety of positive contributions to management and organizational studies inquiry and practice (Adams, Smart & Huff 2017). The public sector and Public Sector Managers traditionally makes extensive use of reports to guide practice and develop policy. The reports provide direction and guidance on government direction often not available in academic literature until sometime after the publication of reports. They often contain the most up-to-date information and access to expert views with the potential contributions of such literature becoming apparent to researchers in this and other research fields (Benzies et al. 2006; Rothstein, Sutton & Borenstein 2006).

Much of the information is in report format, the work of think tanks or specialized innovation and other groups supporting government development. Large consulting companies can be involved in producing these reports and running the specialist groups as a way of supporting and extending their client base (Pollitt 2010). Others innovation groups are run as not for

profit enterprises that are focussed on improving innovative practice such as Nesta, the innovation foundation in the United Kingdom, and The Australian Centre For Social Innovation (TACSI) in Australia. A range of large Universities have centres of Government such as the John F. Kennedy School of Government at Harvard in the United States of America, and the Melbourne School of Government at the University of Melbourne. Reports are a traditional way for governments to respond to issues and a range are produced by various government agencies and reporting bodies. International bodies such as the Organisation for Economic Co-operation and Development (OECD) formed in 1960 to stimulate economic progress and world trade, and the European Union research and contribute regular reports on developing government practice.

Public Sector Agencies consistently generate many reports on innovation through working with consultants as part of their organizational improvement efforts. A proportion of the literature is generated by practitioners and tends not to be guided by scholarly conventions when compared to the work of academics (Wear 2015).

The dominant proportion of the 'grey literature' used in this thesis has been defined as tier one grey literature where 'content is produced, moderated or edited in conformance with explicit and transparent knowledge creation criteria and source expertise' (Adams, Smart & Huff 2017, p. 435). This categorization recognizes that experts generate a range of material that may be of scholarly interest and that it is possible to establish the authority of the producer of the content. All grey literature used for the literature review was tier one literature. The grey literature used for the document analysis undertaken in the qualitative analysis was further defined by providing a table identifying when it was published, the purpose, author and source of information.

Given the issues around risk and media management for public managers, maintaining control of messages by using consultants to generate reports allows the sponsoring organization to be gatekeepers of the findings that are generated. Lynn (2013) suggests that the practitioners find 'the applicability of theoretical and theory-base empirical research is obscure'. Further that to get to the intended practitioner audiences, 'significant effort is devoted to distilling the findings of systematic investigations by scholars and practitioners into

artefacts such as playbooks, field books, checklists and lessons' (Lynn 2013, p. 33). Earlier work by Lynn (1997) had found that 'public officials tend to trust other public officials more than they do more codified academic literature' (Lynn 2013, p. 36).

The types of information gathering or reporting listed above do not follow the systematic processes of academia including approval through ethics committees and the rigorous process that demonstrates the integrity of data. The researcher chose to use the grey literature in this thesis as not using it would have excluded the significant contribution that can be made by its use and especially as it is a common way of sharing information on public sector activities (Adams, Smart & Huff 2017).

2.3 Definitions of Private Sector and Public Sector Innovation

Innovation definitions have evolved as researchers have explored the different types of, and components of innovation. The wide range of definitions reflect in part the number of academic disciplines that study aspects of innovation including sociology, psychology, social psychology, economics, anthropology, political science, information and communications technology, communication studies, health studies, and organization and management studies (Greenhalgh et al. 2004). Having a consensus on definitions and what are the component parts allows for understanding of the types of innovation and how innovation is affected by the context in which it is delivered. This provides the ability to more accurately understand what is happening, and to develop measurements to compare what is occurring between countries, industry sectors and organizations.

The academic literature discussing innovation suggests that innovation has to be more than just ideas: innovations are new ideas and practices brought into implementation (Dorenbosch, Engen & Verhagen 2005; Moore & Hartley 2008). This has been adopted by organizations in their innovation definitions (DTI 2003; VicGov 2017). Innovation emerges from past changes and is therefore a cumulative process and relies on building blocks already put in place Bartos (2003). Innovation is different from continuous improvement or other minor changes, Lynn (1997) as cited in Moore and Hartley (2008,p.4), argues that 'innovation must not simply be another name for change, or for improvement, or even for doing something new lest

almost anything qualify as innovation'. 'Innovation is properly defined as an original, disruptive, and fundamental transformation of an organization's core tasks' (Ibid, p. 4). The novelty element of innovation has been specified by defining innovation as the successful exploitation of new ideas, distinguishing between 'innovation' and incremental development that is indistinguishable from 'improvement' or 'change' (DTI 2003). It identified that innovation must involve an inventive step and result in meaningful improvement in the business or organization concerned. However innovation, improvement and change are so related that the description of an innovation might in particular instances be described as improvement and change (Hastings & Finch 2007). This causes problems when working with practitioners on classifying and measuring innovation (Arundel & Huber 2013; Tidd 2001).

Studies in the innovation literature had confirmed innovation was categorized into categories of either 'process' and 'outcome' (McMurray et al. 2013). Several studies have suggested process literature is under researched however recent work on service innovation is building more understanding in this area which is important for the public sector as it predominately delivers services (Djellal, Gallouj & Miles 2013; Miles, ID 2013). Other new areas of interest continue to be added to the overall innovation concept for example organizational and marketing innovation were new additions identified by Bloch (2007) when updating the *Oslo Manual* for assessing innovation. This led to an extended definition of innovation as 'the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations' (Bloch 2007, p. 28).

Public sector innovation occurs in a different context from private sector innovation and this has been a neglected area of study (Hartley 2013). Innovation is increasingly recognized to be important to public sector success the Organization for Economic Co-operation and Development have created a definition on public sector innovation for their regular publication *Government at a Glance* (OECD 2017a). This was:

> New *ideas* that work at creating *public value*, with the following characteristics: *novelty*: innovations introduce new approaches, relative to the context where they are introduced; *implementation*: innovations must be implemented, not just ideas; and

impact: innovations aim for better public results including efficiency, effectiveness, and user or employee satisfaction (OECD 2017a, p. 196).

This definition highlights a particular public sector focus on the need to create public value. In addition it included a number of characteristics including novelty, it needs to be implemented and to have a measured impact. The definition of innovation has altered over time and of particular interest to this research is the growing focus on public sector innovation. This can be seen demonstrated in Table 1 with private sector innovation definitions dominating the earlier definitions of innovation with increasingly more public sector specific definitions in later years.

Table 1 - Innovation Definitions

Definition	Focus	Source
'the introduction of new elements into a public service - in the form of new knowledge, a new organization and/or new management or processual skills - that represent discontinuity with the past'.	Public Sector	Bekkers and Tummers (2017, p. 2) Based on Osborne, S and Brown (2005)
'new ideas that work at creating public value, with the following characteristics: novelty: innovations introduce new approaches, relative to the context where they are introduced; implementation: innovations must be implemented, not just ideas; and impact: innovations aim for better public results including efficiency, effectiveness, and user or employee satisfaction'.	Public Sector	OECD (2017a, p. 196)
' innovation as change that adds value'	Public Sector	VicGov (2017)
'a new or significantly improved service, communication method, or process/organizational method'.	Both Public and Private	Arundel, Casali and Hollanders (2015, p. 1271) Adapted from the OSLO Manual.
Workplace Innovation - The implementation of new and combined interventions in the fields of work organization, human resource management and supportive technologies.	Both Public and Private	Pot (2011)
'Public sector innovation is the process of creating new ideas and turning them into value for society'.	Public Sector	Bason (2010, p. 34)
Innovation is the generation and application of new ideas.	Private Sector	MAC (2010) (*Empowering Change*, Australian Government)
Innovation in Government consists of two types: 'top-down' innovation around policy and governance and 'bottom-up' innovation that uses the creative energies of those in the system to cultivate innovation.	Public Sector	Gruen (2009)
An original, disruptive, and fundamental transformation of an organization's core tasks.	Both Public and Private	Moore and Hartley (2008)

Definition	Focus	Source
An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.	Private Sector	Bloch (2007)
Public sector innovation is defined within public sector management and innovation is frequently defined as a desirable trait of the modern public manager.	Public Sector	Considine and Lewis (2007)
Doing new things or doing things in a new way: drawing on knowledge and creativity to add value in products and processes.	Private Sector	Green (2007)
'Innovation is doing something differently and deliberately in order to achieve certain objectives. And rationale for doing so is shaped by the environment of the individual'.	Both Public and Private	Koch and Hauknes (2005, p. 9)
Four types of innovation including: process that focuses on the inner life of the organization; product innovation that has to do with the changes in what is delivered to individuals and entities outside the organization; positional innovation when a product or service is placed in a new context, and therefore gains new significance for users, or targets new user groups; paradigm innovation is when the organization's mental model is changed completely.	Private Sector	Tidd, Bessant and Pavitt (2005)
Innovations are new ideas and practices brought into implementation.	Private Sector	Dorenbosch, Engen and Verhagen (2005)
Innovation emerges from past changes and is therefore a cumulative process and relies on building blocks already put in place.	Private Sector	Bartos (2003)
Successful innovation is the creation and implementation of new processes, products, services and methods of delivery which result in significant improvements in outcomes efficiency, effectiveness or quality.	Both Public and Private	Mulgan and Albury (2003)
The successful exploitation of new ideas.	Private Sector	DTI (2003)
Adaptive change goes beyond what is technically possible within current options, and is directed towards a longer-term purpose or goal.	Public Sector	Heifetz (2003)
Perception of **workplace innovation** as a multi-dimensional, subjective and context specific phenomenon and includes the dimensions of organizational innovation, organizational climate for innovation, team and individual innovation.	Both Public and Private	McMurray and Dorai (2003)
Something that is new or improved done by an enterprise to create significantly added value either directly for the enterprise or indirectly for its customers.	Private Sector	Carnegie et al. (1993)
'the successful implementation of creative ideas within an organization'.	Private Sector	Amabile (1988, p. 125)
Process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating the new one.	Private Sector	Schumpeter (2010)

The innovation definitions begin with Schumpeter (2010) who is recognized as one of the first to describe innovation in his work beginning in the first half of the twentieth century. He described innovation as an ongoing creative destruction process that altered the economic structure from within. While his focus was on the private sector as a generator of innovation, he identified government as having a role in regulation and supporting economies (Schumpeter 1968, 2010). The early focus in the innovation research area was on private enterprise, this expanded to looking at a system wide perspective and finally included the recognition that Public Sector innovation is important in creating innovative economies (Carnegie et al. 1993; DTI 2003; Green 2007; MAC 2010; OECD 2017a).

A range of first private sector and later public sector definitions looked at aspects of innovation originally focussed on the creation of value with product and processes. These evolved to include how innovation occurs, what part of the organization it applies to, how it impacts on the goals of the organization and lastly whether it changes the overall organization (Bartos 2003; Bekkers & Tummers 2017; Bloch 2007; Carnegie et al. 1993; Dorenbosch, Engen & Verhagen 2005; Heifetz 2003; Moore & Hartley 2008; Tidd 2001). Public sector innovation had focussed on products and services with the emphasis on services as they are the main output of the public sector. The definition has been expanding to include other aspects of service delivery in terms of how the service is delivered, stakeholders it is delivered to, and the special categories of governance, policy and the creation of public value (Bason 2010; Considine & Lewis 2007; Gruen 2009; Heifetz 2003; Moore & Hartley 2008; Mulgan & Albury 2003). Attention has been given to aspects of the individual within the organization recognizing that innovation changes either begin or are put into effect at the workplace level (Koch & Hauknes 2005; McMurray & Dorai 2003; Pot 2011).

Another dimension of process innovation has been called ‘hidden innovation’ (Hastings & Finch 2007) that was identified as an area where useful research would release a great deal of innovation capacity in economies. This was identified by others as management innovation: ‘anything that substantially alters the way in which the work of management is carried out, or significantly modifies customary organizational forms, and, by doing, advances organizational goals’ (Breen & Hamel 2007, p. 19). Management innovation has been identified as a

prerequisite for an organization's sustained performance and growth, and the successful introduction of other innovations (Damanpour 2014; Volberda, Van Den Bosch & Mihalache 2014). Damanpour (2014) posits that it has a wide domain and 'research on it is multidiscipline and multilevel' (p.1266). Management innovation is important in the success of organizations and research that assists in the understanding of the interplay between components of management innovation will add to the current knowledge base (Hamel 2006).

The discussion above indicates that omissions are demonstrated in the literature in understanding how innovation works in service industries and within organizations around the range of management innovation. Much of the existing innovation research and definitions have been developed by researchers based on work on product innovation in the private sector (Hartley 2013). This results in the literature being 'context blind' (Hartley 2013, p. 45) which has not allowed for understanding and explanation about innovation in the public sector. Increasingly the literature available has developed a greater understanding of innovation activities in other sectors such as the services area. However, there is limited integration between the existing innovation literature focussed on the private sector and its applicability to the public sector. New research has argued for a framework to integrate the private and public sector innovation research while being aware of considering the differences in how innovation works in public and private sector organizations (Hodgkinson et al. 2017).

2.4 The Importance of Public Sector innovation in Delivering Modern Government

Public sector innovation is vital to allow governments to response effectively to continuous economic, societal and environmental change. National governments are facing:

> A political, economic and social environment that is increasingly unpredictable, complex, and that extends beyond national borders. Many are under pressure to address the impact of globalisation and to respond to a backlash among significant segments of the population (OECD 2017a, p. 26).

Others have identified the need for more systematic efforts to create innovation to maintain the delivery of government services in the face of the changing economic and social context

and to address economic and societal challenges (Bloch & Bugge 2013; Borins 2001; Eggers & Singh 2009; Koch & Hauknes 2005).

The Government or public sector is a large component of most nations and typically accounts for between one quarter and one half of all economic activity (Potts 2009,p.14). In Australia the latest OECD figures published on the public sector workforce (OECD 2015) had Australia's public service having 18 per cent of total employment in 2013, this was against the OECD average of 22 per cent (OECD 2015, p. 85). It contributes significantly to the success of Australia's economic, social and environmental initiatives and activities. It is a large employer at the State level, with the Victorian Public Sector which includes all employees working for the State comprised of 385,567 employees in June 2016. The Victorian Public Service itself including departments, offices and authorities but excluding Public Sector Agencies, had 36,567 employees (VPSC 2016). These figures demonstrate the importance of the Australian and Victorian Public Service as employers.

The public sector contributes a large amount of Australia's economic activity. In 2016, the Australian General Government sector spent approximately 22.5 per cent of the GDP of Australia with approximately 42 per cent of this total for employment cost and 48 per cent for the cost of goods and services used and financed by government (OECD 2017a, p. 80).

Innovation is a contributing factor to positive change for many different economic and social issues. The public sector is seen to have a key role in driving national innovation performance which in turn is seen as a driver to economic productivity. This has been identified by a number of countries including the United Kingdom (Hastings & Finch 2007), countries of the European Union (Koch et al. 2006) and Australia (Cutler 2008; DIISR 2009; DPMC 2015). There is a growing awareness that innovation is a key component in building economies so that they can deliver effectively in the current world environment.

The need to find new and innovative ways to deal with the major problems facing the world is driving change. The OECD (2017a) reported that 'rapid technological change, disruptive innovation and shorter economic cycles are hallmarks of today's world. They create new opportunities, but make people's lives more unpredictable and insecure' (p. 9). The OECD

(2017a) further identified that public sector innovation is seen as essential ‘to ensure that government can successfully address governance challenges and deal with crises, while benefitting from technological advancements that facilitate more effective and efficient government’ (p. 26).

The importance of innovation for Australian Government to successfully deliver in the current environment is reinforced in its Innovation Policy. The most recent innovation statement *The National Innovation and Science Agenda* issued in 2015 reported innovation to be an essential policy for the development of Australia (DPMC 2015). This asserts that the government’s own activities will form a ‘vital’ part of the Agenda. It identifies the Government as an exemplar for the practice of innovation and stresses the importance of culture in achieving outcomes (DPMC 2015).

Government policy has evolved in the last decade to having a stronger role in fostering innovation within the public sector. National Innovation Policy in the past focussed on supporting private sector innovation. The National focus began to change to recognize the role of multiple sectors in achieving innovation outcomes. The Commonwealth reinforced the important role of the public sector by identifying in the 2015 statement the key role government organizations play in the delivery of innovation, and the need for an innovative public sector to be a key determinant of an innovative Australia (DPMC 2015).

There is recognition that Australia has a tradition of being innovative in advance of other countries (Gruen 2009, p.96). However the initiative for innovation was originally at the political level and the change has been to increase the focus on the role of Public Sector Managers and Public Sector Organizations in taking responsibility for innovative performance. The reforms proposed by existing policies provide strategic direction but lack details on how this is to happen. This is compounded by a lack of information on how innovation works within Public Sector Organizations and a corresponding lack of approaches for how this can be enacted (Demircioglu & Audretsch 2017; Moussa, McMurray & Muenjohn 2018).

2.5 Difference between Private Sector and Public Sector Innovation

Innovation is increasingly seen as an essential component for organizational survival in a rapidly changing economic and social environment. The search for competitive advantage has led to the recognition of innovation as a vital ingredient for survival, profitability and maintaining relevance in the current 'Knowledge Age' for both the public and private sectors.

One of the earliest description of the concept of innovation was found in the work of Joseph Schumpeter who in *The Theory of Economic Development* in 1934 connected the concept to the seeking of profits in the economy (Schumpeter 1968). This work principally was concerned with the private sector however Schumpeter recognized a role for Government in establishing an innovation climate for its economy. Government's role in generating innovation through Public Sector Organizations has taken time to develop. It has increasingly been recognized they need to be innovative to support economic change and because they are significant contributors to local economies.

The Not for Profit and Government Sectors are significant employers and economic value generators in the Australian economy, however they are both under-represented in innovation literature. There are a number of researchers who have written on innovation within the public sector (Damanpour & Schneider 2009; Osborne, S & Brown 2013; Walker 2014). There is a feeling progress is being made despite 'innovation theory relating to the public sector remains underdeveloped' (Brown & Osborne 2013, p. 563). There is a noticeable lack of research information on the public sector contrasted with the many works written about the private sector. Not only is there a 'paucity of innovation research in public management theory …and the neglect of the public sector in innovation theory' (Hartley 2013, p. 44) much of the innovation literature is based on the private sector, with little appreciation that it is (Hartley 2013). Hartley identified three sector specific aspects of innovation which appear in public sector innovation literature, the importance of the political context for public sector organizations and that innovations in public organizations need to consider the wider policy context and the public sphere (p. 48). Non-profit organizations in the social sector have been neglected with McMurray et al. (2013) researching this area to cover an omission in the

literature around the relationships among leadership, organizational climate and workplace innovation.

Innovation in the public sector is identified in different ways and does not fit easily to commonly understood definitions. Six groups of innovation types were identified by Windrum and Koch (2008): Services innovation—a new or improved service; Service delivery innovation—a new or different way of providing a service; Administrative or organizational innovation—a new process; Conceptual innovation—a new way of looking at problems, challenging current assumptions, or both; Policy innovation—a change to policy thinking or behavioural intentions; and Systemic innovation—a new or improved way for parts of the public sector to operate and interact with stakeholders. While the services and service delivery innovation would apply to the private sector services industries; and it could be argued that administrative or organizational innovation or conceptual innovation may apply to the private sector, policy and systematic innovation are very specific to the public sector. Public sector innovation has been described by Bartos (2003) as a 'change in policy or management practice that leads to a lasting improvement in level of service or quantity or quality of output by an organization' (p.10). Drivers for public sector innovation are very different from that of the private sector as they are not driven by market forces and more complex motives apply (Koch et al. 2006).

The additional dimensions of the impact of public sector innovation on society widens the scope of innovation and this leads to the incorporation of citizens in the development of product innovation in this sector (Bason 2017). Public sector innovation can be seen as similar to but different to the definitions about commercial or industry innovation. There is a need to consider the value of service delivery with 'public sector innovation as the process of creating new ideas and turning them into value for society' (Bason 2010, p. 34) and 'creating, developing and implementing practical ideas that achieve a public benefit' (Mulgan 2014, p. 5).

In contrast, others believe there are similarities to private sector innovation. Tim Kastelle (Stewart-Weeks & Kastelle 2015) connected the five forms of innovation identified by Joseph Schumpeter's to public sector activities and found all could be applied. Bason (2010) used

innovation typologies developed by Tidd, Bessant and Pavitt (2005) to translate product and process innovation to a public sector context. While public sector innovation can be translated to private sector forms for the purpose of explanation, there is a significant difference is in why the innovation has been carried out. In all instances public sector innovation is driven by the public good or the need to create public value which is different from the profit motive of the private sector (Bason 2010; Koch et al. 2006; Moore 1995; Mulgan 2014).

Innovation is context specific and it operates and works organically so it can change from one environment to another. This has implications for how it is generated and the leadership of its effort. There are context differences between the private and public sectors and similarities in how they deliver products and services. The differences have been outlined in the section above and included the importance of the political context for Public Sector Organizations; and that innovations in public organizations need to consider the wider policy context and the public sphere (Hartley 2013).

Further developments in the literature around service innovation are highlighting the differences between products and services. The growing body of literature on service innovation has found there is a very different production logic for products compared to services. The relationship is more complex and a service can have both elements of a product and a process. The public sector mostly delivers services and the innovation process 'used for these is very distinctive from that of product innovation' (Osborne, S 2013, p. 60). A service is defined as being intangible as it is a process. 'The core characteristics of the *service delivery process* play a dominant part in determining the perceived value of a service' and services have 'production and consumption occurring simultaneously' with the 'consumer *(being)* a co-producer of the service' (Ibid p. 63).

There were a further two components developed by Tidd, Bessant and Pavitt (2005), positional innovation is when a product or service is placed in a new context, and therefore gains new significance for users, or targets new user groups. Paradigm innovation is when the organization's mental model is changed completely (Bason 2010, pp. 42-43). These last two components provide a useful way of looking at public sector innovation, especially the latter as organizational changes are common in the public sector particularly with the inner

government agencies supporting Ministerial responsibilities. In Victoria, these are State Government Departments. Political changes in leadership create changes to government political agendas and lead to Departmental changes. This process can be related to an innovation force at play on the organization and the development of what has been called paradigm innovation (Bason 2010). This changing of structures can result in operational efficiency however too many changes, too often, have been found to create a reduction in capacity (Wynen, Verhoest & Kleizen 2017). This is because they are often undertaken for political means without considering how to effectively achieve organizational and cultural change (Ferlie, Hartley & Martin 2003).

2.5.1 Differences in delivering innovation at the organizational level

The differences to how innovation occurs in the public and private sector affects how innovation occurs within Public and Private Sector Organizations. A very different historical pattern with the development of innovation has occurred within these different types of organizations. The initial explanation of innovation by Schumpeter connected it clearly with the private sector (Schumpeter 2010) as did most early innovation research (Fagerberg, Mowery & Nelson 2006). From this a rich field of research developed on many aspects of private sector innovation. By contract, public sector innovation is not well represented in the literature (Brown & Osborne 2013; Hartley 2013). Two recent reviews of the development of literature in this area have concluded this is partly due to the relatively short time public sector innovation has been described (Boukamel & Emery 2017; De Vries, Bekkers & Tummers 2016).

Innovation in organizations was studied by Schumpeter when he began to consider the importance of innovation in large organizations which he typified as privately owned (Fagerberg, Mowery & Nelson 2006). Innovation at the organizational level both for the public and private sector is vital in creating an innovative economy. While the firm or organization is the central mechanism for converting innovation into economic action, the understanding of innovation in firms is an area that remains a mystery with little detailed understanding of how it works and where further conceptual and applied research is needed (Dodgson 2017; Fagerberg, Mowery & Nelson 2006). There is a lack of understanding on how innovation will

work as a positive force within a Public Sector Organization and contribute towards delivering its mission statement (Nählinder & Eriksson 2017).

Organizations are the principal places where innovation is carried out. There is a rich body of literature covering innovation aspects around organizational issues in the private sector but a lack of information on the public sector (Balfour & Demircioglu 2017; O'Connor, Roos & Vickers-Willis 2007). However a Public Sector Organization's ability to innovate is regarded as a vital factor in its overall success (Arundel, Casali & Hollanders 2015; Rosenblatt 2011; Stewart-Weeks & Kastelle 2015). In a study reviewing data from the 2012 Census conducted across the Australian Public Service it was observed that the likelihood of innovative activity in the Public Sector context is related to experimentation, responding to low performers, feedback, and motivation to make improvements. Another observation was that budget constraints do not have any statistical effect on public sector employees' innovation (Demircioglu & Audretsch 2017). Further, it was found that the two factors related to the work of employees; experimentation and motivation to make improvements had a higher effect on innovation. Managers' actions in responding to low performers and giving feedback still had a positive and statistically significant effect on innovation but with a small effect size.

There are aspects of innovation that apply and are important to both the public and private sector. It has been identified that one of the greatest area for productive change is in how organizations are managed (Birkinshaw, Hamel & Mol 2008; Breen & Hamel 2007) and how the culture to support innovation is embedded into organizations. Management innovation has been defined as 'the generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals' (Birkinshaw, Hamel & Mol 2008, p. 829). Understanding this assists in analyzing the effects of changes on an organization and how the organization changes in response. This is a factor that has a large impact on the ongoing delivery of innovation. A study looking at the actors involved in public sector innovation found that there was very different perspectives held by managers and works officers on innovation, which could be used to support more effective organizational change (De Vries, Tummers & Bekkers 2017). The study found that managers were more likely to be optimistic and encouraging about

innovation and work officers wanted to be more hands on in implementing innovations and trialling them before adoption.

Different innovation patterns in terms of the characteristics of the innovation process have evolved in different industry sectors (Fuglsang & Rønning 2015). By reviewing the literature on innovation patterns Fuglsang and Rønning (2015) contended that there was a need to identify particular patterns or taxonomies for public sector service innovations as they did not fit easily into the existing European taxonomies for the private sector because there were different values driving innovation and impacting the pattern of delivery. For example, economic value is important as for the private sector but is not the only value sphere for innovation within the public service, where agencies have other values to fulfil as part of their remit including intellectual, political, communal and aesthetic values. It was concluded there were clear differences in the value drivers for public sector innovation and the need for organizations to be able to combine different patterns of innovation. Fuglsang and Rønning (2015) were not able to identify what actions would be needed at the actor level and considered additional research was needed to do this.

The concept of innovation has linkages to knowledge and learning and is frequently viewed as an organization's capability, knowledge asset and resource. In a global marketplace, these provide new platforms for competitive advantage that others find difficult to replicate (McMurray & Dorai 2003). Innovations are created in environments where 'people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together' (Senge 1992, p. 3).

Public sector innovation is different from private sector innovation and this is particularly evident at the organizational level. However, innovation by public sector organizations has been affirmed by researchers as increasing the efficiency, effectiveness and performance of organizations (Balfour & Demircioglu 2017; Damanpour, Walker & Avellaneda 2009; Demircioglu & Audretsch 2017; Torugsa & Arundel 2016a, 2016b; Verhoest, Verschuere & Bouckaert 2007). One approach in understanding innovation within public sector organizations is to review the characteristics of public sector organizations, how they evolved

and how innovation was enacted and explained within them (Boukamel & Emery 2017). This differs from private sector innovation where innovation is often considered in terms of the product or services they produce and the markets they serve (Koch et al. 2006). However Schein in his studies over many years on organizational culture (Schein & Scheiner 2016) found instances where particular Private Sector Organizations are connected to how the organization was created and their cultures do not easily alter to incorporate changed requirements. This can lead to an organizational climate that does not support creativity and experimentation.

Three common historical periods identified by Boukamel and Emery (2017) were argued to have shaped the current form of public sector organizations. The first, the Bureaucratic Period lasting until the 1970s with organizations managed under Public Administration with the dominant paradigm being classical bureaucracy and having very structured approaches to service delivery. In this environment, innovation was not encouraged within organizations and was mainly evident through the actions of the political realm. The second was called the Managerial Period from the 1970s to the 1980s when it began to be perceived that Public Sector Organizations needed to innovate and the dominant paradigm was managerial approaches. This period is often referred to as the beginning of the New Public Management era (Lægreid & Verhoest 2010). It began to see the introduction of business approaches from the private sector with the aim of increasing the efficiency and effectiveness of public sector organizations. The last period was from the first decade of the twenty-first century when the expectation was that public sector organizations needed to be innovative and the dominant paradigm was 'post-managerial approaches, open governance' (Boukamel & Emery 2017, p. 16) .

Through each of these stages, there were identified barriers to the implementation of innovation such as; bureaucratic rigidity, operating in silos, procedural and resource constraints, lack of organizational slack and of flexibility and most recently uncertainty in meeting innovation expectations when transitioning to new arrangements (Boukamel & Emery 2017; Moussa, McMurray & Muenjohn 2018; Mulgan & Albury 2003). This history influences Public Sector Organizations and how they innovate. The historical background is reflected by

barriers still existing from earlier periods as well as uncertainty about how to progress to meet new delivery expectations (Boukamel & Emery 2017).

The Public Sector is typified by older life style organizations that are larger and operate in a risk adverse environment. Within these organizations a particular type of innovation is undertaken by intrapreneurs who are described as agents for ongoing change (Ren & Guo 2011). These are individuals who operate as an entrepreneur within an existing organization by championing and sponsoring new ideas and through this find pathways through an organization and its structure to gain funding and implement change. They operate in both the public and private sectors. Given the structure of the public sector their role is significant as there are few rewards for innovative behaviour and many career limiting consequences for project failures. It has been observed that 'business has a freedom to experiment that is missing in the public sector' (Senge 1992, p. 15). A public sector variant of internal changes agents is the policy entrepreneur (Mintrom & Luetjens 2017) a particular type of actor who work with others around policy making to promote significant policy change. They can work within and outside the organization and particularly work with complex policy areas such as climate change and building a state knowledge economy (Mintrom & Luetjens 2017; Mintrom, Salisbury & Luetjens 2014).

The type of innovation action that works in private and public sector organizations varies across the sectors. McMurray et al, (2013) found that in the not-for-profit sector 'leadership can foster a healthy (organizational) climate and promote workplace innovation' (p. 383). Understanding the different drivers to innovation provides guidance to managers of non-profit organizations in responding to changing economic and customer requirements. Identifying the type of innovation activity that works in Public Sector Organizations will have a corresponding ability to provide guidance to public sector managers.

A longitudinal study of the Canadian and USA Public Sectors found that multiple actions built innovation in organizations, such as establishing clear organizational goals that motivate staff to achieve, having regular consultation with staff and providing innovation awards for reward and to provide informal recognition (Borins 2002). It was found to be important to relax the constraints on innovators and give them the freedom to innovate (Borins 2002; Maddock

2002) and this included protecting innovators by allowing them the time needed to show that their projects work and providing the necessary resources (Borins 2002).

New business models and organizational strategies are needed to deliver modern government and respond to the demands of citizens. Treadwell (2007) asserted that:

> 'relationships between people, communities, governments, organizations and business are changing, with blurred boundaries and substantial information flows effecting shifts in experiences, business models, service delivery processes, roles, responsibilities and governance' (p.6).

Collaborative cultures are emerging however there is need for management frameworks that will sustain this (Maddock 2002). Innovation is not only about the innovators, it includes involving people in change processes and working in a sustainable and conducive environment (Maddock 2002). It requires openness and willingness to divert from set procedures.

The recent Australian Public Service open data policy has allowed access to data sets including the Australian Public Sector Employee Census and employee satisfaction surveys undertaken within the Australian Public Service. Researchers have used this data to review: the complexity of innovations undertaken at the work group level (Torugsa & Arundel 2016b); the relationship of employee empowerment to barriers of innovation (Demircioglu 2017a); an ambidextrous culture for innovation in Public Sector Agencies including a supportive culture and one that was performance oriented (Wipulanusat, Panuwatwanich & Stewart 2017); and the existence of conditions specific to public organizations influencing the likelihood of innovative activity such as experimentation, responding to low-performers, the existence of feedback loops, and motivation to make improvements (Demircioglu & Audretsch 2017).

This research was guided by the questions asked by the Australian Public Service (APS) when collecting the data set which constrained the findings. It was carried out across the APS and does not assess the relationship of innovation to particular types of APS organizations or have the ability to fully understand the context in which the data was

collected in relation to specific organizational culture. This research was able to report on aspects of innovation at the workgroup which is akin to workplace level by using Australian Public Service wide information. One omission from this body of research was that it could not distinguish how this is related to particular public sector organizational types which vary greatly from Departments of State to service delivery agencies. This thesis will be undertaken within the context of a Department of State, a type of organization which is very specific to the public service, and that has not to the author's knowledge had a study undertaken of workplace innovation.

2.5.2 Identified barriers to public sector innovation.

The public sector because of its particular operational drivers and its common bureaucratic organizational forms, has a number of structural barriers and challenges connected to innovative activity (Borins 2001; Demircioglu 2017a; Moussa, McMurray & Muenjohn 2018). These identified barriers which included the implementation of innovation such as bureaucratic rigidity, operating in silos, procedural and resource constraints, lack of organizational slack and of flexibility and uncertainty in meeting innovation expectations when transitioning to new arrangements (Borins 2001; Boukamel & Emery 2017; Demircioglu 2017a; Kelman 2005; Moussa, McMurray & Muenjohn 2018; Mulgan & Albury 2003).

There is an ability to overcome the barriers with a high rate of public sector innovation reported by managers in research undertaken to build a public sector innovation survey instrument. Managers are capable of innovating in what seems like difficult circumstances and it was proposed that assumptions about risk adversity in the public sector and lack of suitable incentives can be misleading or that Public Sector Managers are able to get around these (Arundel & Huber 2013, p. 158).

2.5.3 System wide view of public sector innovation

Public sector innovation is often perceived in a system wide context. This has a very different context to private sector innovation. The scale of public sector innovation can be large. When considering innovation policy, Hastings and Finch (2007) outlined that maximum economic productivity requires a sector-wide view on innovation 'led by industry, supported by

government and bringing in users and suppliers where appropriate. Sometimes it will involve the extension of existing policies beyond their historic focus on science and technology' (Hastings & Finch 2007, p. 4). Traditionally innovation policy was focussed on science and technology and it is now being expanded into government having a role as an innovation force or agent.

Bloch (2007) in his work regarding the *Oslo Manual*, comprising data from innovation surveys at firm level on technological product and process innovation in manufacturing industries, states that the definition of national innovation systems should include a wide range of factors. Including those that influence the development, diffusion and use of innovations at the economic, social, political and organizational levels. The evolution of innovation as a Public Policy concept is evolving and increasingly commentators, practitioners and academics are identifying that there is an element missing, the 'humanities, arts and social sciences' are critical to changing the culture of countries (Carr 2008). Concepts of National Innovation Policy have evolved and the importance or moving to a broad definition of innovation policy that considers all policy instruments that influence innovation in a non-trivial way has been emphasized (Fagerberg 2017; OECD 2013).

Alternative options for government were outlined by Gans (2011) who explored gaps in the current economic analysis of innovation that primarily 'deals with how the market and governmental systems provide incentives for economic agents to engage in innovative activity' (p. 82). He identified flaws in the existing system and proposed more success with government offering to buy solutions with technologies relating to government policies 'especially where there are areas of active reform such as health, education and the environment' (Gans 2011, p. 101).

Another dimension is to consider larger system changes or 'innovation in governance' which are different from innovation in products, services or processes. Kooiman (2004) defined governing as:

> The totality of interactions, in which public as well as private actors participate, aimed at solving societal problems or creating societal opportunities in markets as needed;

> attending to the institutions as contexts for these government interactions; and establishing a normative foundation for all these activities (p. 4).

Another innovation process is around public value which potentially allows government to reclaim a level of legitimacy as a value-creating institution by making it more responsive to the needs and aspirations of citizens and users of services (Hartley et al. 2015; Moore & Hartley 2008).

Changing the way a whole system works can be termed ‘systematic innovation’ denoting a series of related innovations that change a way a whole system works (Mulgan 2014). System change has four interacting elements of: technologies, products and services; new laws and policies; new types of market; and changes in behaviour and social norms. One example is the how waste management is moving from landfill and towards recycling due to the pressures from the four elements above. Another is the use of waste water in Australia given water shortages and the occurrence of drought.

Innovations in governance are a particular feature of the public sector and are not the process and product innovations that have been the ‘meat and potatoes of innovation in the private sector’ (Moore & Hartley 2008). The lack of studies in this area leads researchers to describe it in diverse ways as a residual category that does not fit the usual categories of product, process or technology. Moore and Hartley (2008) reported that Walker, Jeanes and Rowlands (2002) called it ‘double quotatiancillary innovation’ and defined it as involving ‘organization-environment boundary innovations’ (p. 6). Mulgan and Albury (2003) talked about ‘systematic innovation’ that is a result of developing new underpinning technologies and/or organizational forms needed to run new production systems. Hartley (2005) has seen it as a dimension of innovation and not a category. Governance innovations can be described as ‘innovations in the governance of society and social conditions, not simply as innovations in government operations’ (Moore & Hartley 2008, p. 18). When considering innovation in government, it is possible that innovations will

> ‘continue to evolve in ways which go to the heart of democratic government - the processes by which a community discovers its own interests, and begins to speak

> coherently as a collective about its aspirations of justice, prosperity, social relations and ecological sustainability' (Ibid p. 18).

Social innovation or social entrepreneurship is a form of innovation linked to public sector innovation (Leadbeater 1997). Many models of public sector change are driven by activities and demands for reform of aspects of society (Handy 1995). New models of public services include many instances where innovative service approaches integrate with other parts of society using non-traditional service delivery forms. Social innovation does not concern the Public Sector exclusively: it includes new ideas that meet unmet needs with many examples evident including; fair trade and restorative justice, at risk child services, distance learning and caring for the elderly (Mulgan et al. 2007). This type of innovation opens opportunities for many initiatives with societal groups outside government creating hybrids of what were primarily government services being delivered with other organizations. This blurs the boundaries of existing services and institutions and changes existing patterns of economic activity (Nicholls & Murdock 2012). This has destabilized a range of previously static government service delivery areas and introduced the opportunity to deliver in innovative ways. Changing social conditions with more and different actors joining in service delivery has been an ongoing trend with this expected to continue leading to the innovation generated from external pressures and co-design of services (Bason 2017; Edwards-Schachter & Wallace 2017).

From the above analysis and research, it is apparent that there has been a long term emphasis on the key role the public sector has in developing innovation for the economy and its critical place in the workings of the National Innovation System (Cutler 2008; Fagerberg 2017; OECD 2013). Bason (2010) identifies this as 'public leaders around the world...demonstrating how a significantly more conscious and systematic approach to creating innovative solutions can effectively address some of our most pressing societal challenges' (p. 4). The public sector is responsible for ameliorating seemingly intractable social challenges or 'Wicked Problems' (Churchman 1967; Rittel & Webber 1973) such as chronic health problems, an ageing population, new mobility patterns, growing immigration, environmental sustainability, unemployment and, in particular countries, increasing income

disparity and poverty (Bason 2017; Head & Alford 2015). These complex problems do vary in their level of complexity and it has been argued that finding a better way to define the scope of the problem and to focus on better managing them will be beneficial (Alford & Head 2017).

The complexity faced by the public sector in delivering services is greater than that faced by private organizations (Tsoukas & Papoulias 2005). The twenty-first century is in fact getting 'complexer and complexer' (Colander & Kupers 2014, p. 47) and public sector management has to deliver services in highly interconnected systems (Bason 2017). Increasingly complex societies force the adoption of new models of governance. Delivery of public sector outputs has to balance both internally and externally with increased complexity dealing with factor such as human behaviour, cultural traits, ideals, values, physical principles, and perceived facts (Handy 2011). This implies that a significant set of the problems faced by public managers calls for different kinds of innovative policy and public service responses.

Less is known about how innovation is applied in the organizations that are part of the sector. Kelman (2005) identified that after a rich history of organizational research into public sector organizations undertaken by pioneers such as Weber (1947), and also Selznick (1953) and Simon (1937), 'research about public sector organizations become ghettoized' (Kelman 2005, p. 967). Social trends in the 1970s had resulted in a large difference between the salary levels of private and public sector management (Donahue 2008) which as a flow on led business schools and scholars focussing on private sector organizations. There has been a paucity of information in the research literature about this sector however several writers are trying to review how innovation in the Government Sector works and the different drivers that apply compared to the private sector. The interest level is changing as 'countries face serious challenges of managing public organizations effectively, and of solving intractable public problems that have a strong management component' (Kelman 2005, p. 967).

A review of public sector innovation research recently completed a systematic review and investigated 181 articles and books on public sector innovation, published between 1990 and 2014 to review the themes that had been covered, research methods and possible areas for future research (De Vries, Bekkers & Tummers 2016). Earlier work undertaken in Europe and the United Kingdom had found there was a paucity of information (Hastings & Finch 2007;

Koch et al. 2006) as had Kelman (2005) in the USA. De Vries, Bekkers and Tummers (2016) did find that research was undertaken around five types of innovation; process innovation, product innovation, service innovation, governance innovation and conceptual innovation. A large majority of research was on process innovation (47 per cent) which included administration and technical processes. Certain types of public sector innovation were less well described or identified as most attention has been given to process innovation (De Vries, Bekkers & Tummers 2016; Gruen 2009). The antecedents of innovation were confirmed for these studies at various levels including; at the environmental level political mandates and at the organizational level aspects that include the structural and cultural features of an organization such as organizational slack resources and leadership.

Within organizations this included: innovation level; intrinsic attributes of an innovation including complexity of the innovation and individual/employee level; and characteristics of individuals who innovate such as empowerment. The most commonly researched antecedent was the organizational level, however while culture was identified as an aspect of this, no research was undertaken that addressed culture as a construct. The cultural aspects were identified though representative components of culture such as leadership style. Within Australia, Gruen (2009) reviewed the existing situation and recognized that the Australian Government has been effective in system-wide change driven by policy and governance changes from the top. He emphasized that 'no governments seem to have distinguished themselves in encouraging bottom-up innovation' (Gruen 2009, p. 98).

Innovation is not embedded in the public sector and how it operates. Mulgan and Albury (2003) suggested that 'innovation in the public sector is typically seen as an optional extra or an added burden' (p.5). It is not embedded in the culture and the lack of a culture of innovation in organizations is not seen as a glaring gap in operations.

Others have maintained that public sector innovation research is a small field and this further is addressed through a number of research areas that fragments findings and reduces the impact of the results (Gallouj & Zanfei 2013; Potts & Kastelle 2010). This was demonstrated by the recent review of public sector innovation by De Vries, Bekkers and Tummers (2016). Potts and Kastelle (2010) have posited on public sector innovation research that:

> The standard Schumpeterian definition is squarely focused about a context of market competition through innovation. Yet this competitive incentive is a very weak force in the context of public sector innovation. The public sector… (is)… an institutionalised monopoly and monopsony. The public sector 'sells' to government and government only 'buys' from the public sector' (Ibid p. 123).

This point is open for debate considering the many different forms of service delivery that are in place and increasingly diverse models that combine public and private service delivery arrangements. Potts and Kastelle (2010) identify this themselves in outlining 'numerous shadings' with 'public-private partnerships or institutions or services that underpin private markets' (p. 124). However, considering the special nature of the public sector it is useful in considering how innovation within the sector develops within this context.

There have been developments in the thinking around public sector innovation. The discussion highlights that there is a lack of connection to how innovation works through the public sector at all its levels of operation, from policy setting for the State, economic and social development; to service delivery; and through the management of Public Sector Organizations. There is a lack of agreement about how various elements work, what is included in the public sector and the characteristics of public sector innovation. Research focussed particularly on process innovation with less focus on other types such as workplace innovation. While there was mention made of organizational culture no study had been connected directly that focusses on the direct impact of culture itself on public sector innovation, particularly that at micro-level in organizations and the integration between workplace innovation climate, individual, team and organizational innovation.

2.6 The Public Sector in Australia and its Innovation Roles

The Government Sector in Australia has three levels of operation: Commonwealth, State, and Local. The Commonwealth Government has powers over defence, foreign affairs, trade and commerce, taxation, customs and excise duties, pensions, immigration and postal services. Other powers are the responsibility of state and territory governments, such as health, education, state transport networks, town and rural planning, land administration including

cadastral system and land registration and natural resource management (Parker, J & Newnham 2004, p. 2). The local level of government has responsibility for the delivery of certain specified services within local government boundaries. Each level has a different role to play in the innovation system in relation to their specified powers under the federated system. The focus of this thesis will be the role of the Commonwealth and State Governments in developing innovation.

There are formal collaboration mechanisms with the Advisory Group on Reform of Australian Government Administration being led by the Commonwealth. This group envisaged the establishment of mechanisms for incorporating joint Commonwealth and State service delivery reform and innovation into major Commonwealth and State funding agreements (ANAO 2009,p.23).

2.6.1 The evolving role of the Commonwealth Government

The connection between all elements of the public sector around innovation has been developing over time. Initially the role of government was seen to be as an enabler for private sector innovation (Schumpeter 1968). Reports completed by the Economic and Industry Departments of the Commonwealth Government identified actions for government to support developing an innovative economy. For example reports recognized the important role the public sector played in increasing Australia's innovative performance by support for education, science and innovation investment (Cutler 2008; DPMC 2015).

The *Venturous Australia* review of the National Innovation System of 2008, Cutler (2008) introduced the concept of government supporting innovation within the public sector, given it was a major contributor to the economy and included a significant percentage of the workforce. This had been supported by research completed by OECD leading to an ongoing development project around public sector innovation. This reinforced the importance of governments being innovative to support the creation of innovative economies and gain benefits from a more innovative public service (OECD 2010, 2012). This was affirmed by a review of national innovation systems worldwide (Crespi 2004).

The *Venturous Australia* Report provided an increased recognition of the importance of the role the public sector could play by becoming more innovative and in being an exemplar in undertaking innovation. The Government response to this, the *Powering Ideas* Report (DIISR 2009) undertook to support the development of the Australian Public Service (APS) and a number of actions were recommended that led to reviews of and strategies about innovation within the APS. This led to the development of the *National Innovation and Science Agenda Report* of 2015 that contended that government needed to become more innovative in delivering services (DPMC 2015).

It is evident that there has been an evolving understanding that the Commonwealth Government has not only a role to play in supporting the economy being more innovative, but in building an innovative public sector to support and lead innovative performance in the economy (Hastings & Finch 2007). Over the last decade, innovation policies have discussed the public sector being more innovative but were not clear on how this would happen, this lead to a series of reports from the Commonwealth Government on the components of creating a more innovative sector, building on OECD work and case studies examples from other countries. The public sector professional organization produced a report on public sector innovation and co-creation to support the public sector becoming a leader and enabler of innovation in Australia. It recommended the public sector has the 'capacity to prototype and diffuse models of change and innovation as well as work with the private and community sectors to address the major challenges we face' (Katsigiannis et al. 2014, p. 4).

Several initiatives were created by the *Powering Ideas* Report to support an innovative public service. It published *Innovation in the Public Sector: Enabling Better Performance, Driving New Directions, Better Practice Guide in 2009,* through the National Audit Office (ANAO 2009). This guide affirming that developing public sector performance is a key goal of governments around the world. 'Innovation in the public sector, particularly in policy development, program design and service delivery is a necessary element in public services becoming better targeted, more responsive to community needs and more efficient' (ANAO 2009, p. iii).

The Australian Public Service Management Advisory Committee in 2010 analyzed where innovation was operating in Australia and identified barriers that public servants face when innovating. It produced a report called *Empowering change: fostering innovation in the Australian public sector*. It looked at sources of innovation worldwide and those who can help design, implement and deliver it and delved further into what agencies, team, and individuals could do to foster innovation. It included five themes including; strategy and culture; leadership; systemic/structural issues; resourcing and managing innovation in the Australian Public Service; and recognition, sharing and learning (MAC 2010). In the following year, the Australian Public Service published an *Innovation Action Plan* to provide further direction support change within the Commonwealth Public Sector (DIISR 2011a).

The APS Plan was 'designed to assist the APS to develop an innovative culture' (DIISR 2011a, p. 10). The aim was to build innovation performance within the APS to provide better outcomes. It had four action areas being: developing an innovation consciousness; building innovation capacity; leveraging the power of co-creation; and strengthening leadership so there is the courage to innovate at all levels. There was a separate project initiated to develop Innovation Indicators that began in 2011 and published interim outcomes in 2012 (DIISR 2011b). The Plan provided a number of initiatives none of which were directly connected with building culture at the organizational level. The aim was to continue to build skills and innovative organizational capacity through the Executives of the APS while at the same time initiating a number of cross APS actions such as innovation networks and awards to reach out to all levels in workplaces. Most of the detailed work to change culture would need to occur at the organizational level however there was limited information on how this could be done.

The Management Advisory Committee which supported the Innovation Plan acknowledged the key role of the Commonwealth Government in the delivery of products and services and the need to innovate to provide the best outcomes identifying 'all levels of public administration, both in Australia and overseas, face similar challenges and a similar need to innovate in an ongoing and systematic fashion' (MAC 2010, p.iv). It was considered that this would take a number of years of effort, 'because concepts of public sector innovation are still

young and many lessons are still being learned, and because different agencies will have different capabilities and states of readiness, the process of advancing public sector innovation must be iterative' (MAC 2010, p. 2).

A number of researchers of public sector innovation had concerns with government innovation planning. Leadbeater (1997) suggests that a proportion of our public sector systems are so broken that they cannot be fixed from within but need to be changed from without with radical rethinks about the basis of service delivery. Commenting on the innovation agenda put in place by the Commonwealth Government, Cutler (2010) identified a need for a, '… continuing discussion and re-examination as circumstances change, as our understanding of the innovation challenge deepens, or as new opportunities emerge' (p. 2).

The next major Australia wide innovation publication was the *National Innovation and Science Agenda* (DPMC 2015). While this connected issues around innovation to science, it had as its main focus areas of culture and capital; collaboration; talent and skills and Government as an exemplar. This wording connected it with the earlier policies intention to foster public sector innovation. However the initiatives connected with the focus areas tend to connect very strongly with traditional innovation and science policy initiatives. The culture and capital focus areas initiatives were predominately connected to providing better funding support for innovators. There are no detailed initiatives for supporting innovation within the public sector or its organizations.

Public policy has focussed on various components of innovation and it is not comprehensive or holistic in how it tackles it when compared with work undertaken in other countries (Crespi 2004). For example, the creation of a *National Innovation Plan* did not clarify the role of the wider public sector in its delivery or identify how the outcomes would be measured. Government reports outlining the development of innovation policy tend to focus on certain aspects of innovation and ignore others. Earlier reports ignore the key role of government organizations as a necessary component to support innovation in the economy. There has been a lack of connection to all parts of the government sector in leading innovation and while the planning is iterative it does not clearly establish the building blocks to creating an

innovation APS, and does not give clear direction on how to take action at the organizational level or how to measure results.

Commonwealth Government innovation at the organizational level

The Australian Public Service (APS) embarked on a major reform of the APS to create a more innovative public service based on the results of research and reports as outlined in the section above. The research indicated that the level of innovation in the public sector has a big impact on innovation in the economy. Formal policy and advisory mechanisms have been created to support desired changes to innovation practice and an informal network created to provide opportunities to collaborate and share.

The Commonwealth Government is concerned with innovation in the APS. Adoption of innovation practice by other levels of government is not mandated by the Commonwealth but is governed by how State and Local Public Sectors work and the innovation policies they put in place for their jurisdictions.

2.6.2 State Governments: a source of significant innovation

Under the Australian system of Government, State Governments each retain the power to make their own laws over matters not controlled by the Commonwealth under Section 51 of the Constitution. State Governments have their own constitutions, as well as a structure of legislature, executive and judiciary. State bureaucracies within Australia are often the source of significant innovation because they are responsible for running large sectors of the economy including; health services, education, public transport, policing and natural resource management and for overall economic development of the state. Goldsmith cited in Eggers and Singh (2009) identified that considering recent economic challenges...'now more than ever, government needs to embrace innovative approaches to daunting problems… (because) existing practices will not suffice' (p. 2). State Governments are required to respond to changes in the national and global economies and support the development of new industries and new approaches to business to support local economic growth.

Reports within Australia and overseas are identifying that Government working through its Public Sector Organizations can change the dynamics within an economy for the benefit of

the state and the populace (Cutler 2008; DPMC 2015; MAC 2010; OECD 2017a, 2017b). This has a connection with an improved focus on delivery that can generate innovative service delivery and sustainability outcomes (Newnham & McMurray 2007). However, the body of research on how innovation occurs within government organizations is small and has significant gaps (Brown & Osborne 2013; Hartley 2013). There is even less research contextualized around functional areas such as agencies that have a role in supporting Natural Resource Management, and how this connect with overarching innovation policies at the Australia wide or State level. Building a strong economy requires a healthy environment to allow the production of primary industry products, allow other industries access to resources for their operations, and provide a healthy environment for the benefit of all Victorians.

2.6.3 Victorian Public Sector Innovation Policy

The Victorian State government initially focussed on delivering and developing innovation to improve the economy, that was supported by the public sector (Boukamel & Emery 2017; De Vries, Bekkers & Tummers 2016) rather than focussing on creating a more innovative public sector. The Government published Technology and Innovation Statements which were led by the politicians through Departments that had the responsibility for the State's economic development. These statements identified a need for innovation but focussed on economic changes to 'develop a civic culture that promotes the creative discussion of possible futures, around the sharing of a belief in the value of doing things better' (DIIRD 2002, p. 15). This early work identified innovation in the public sector purely in terms of adopting new technologies and systems to deliver government services. The next iteration of an Innovation Statement focussed on the development of the economy identifying innovation as Victoria's future and connected it with being healthy, sustainable and productive (DIIRD 2008). The role of Government was seen primarily as developing innovation in the economy. Public sector innovation applied to its own organizations was identified as delivering services more effectively using new technologies. No direction was given through these strategies as to how this might happen although case studies were used to illustrate how it had happened in certain parts of government.

Victoria was recognized for its innovative approach when it initiated work to develop a more innovative public sector (Eggers & Singh 2009). They led the public sector in Australia with the launch of the '*VPS – Innovation Action Plan'* (DPC 2009). This work had been developed with input from a range of well-known innovators across Government and from the private sector. This plan aimed to create new and bold ideas to tackle the challenges the Public Service faces in a constantly changing and increasingly complex environment. A broad definition of innovation was used of implementing new ideas that work. This acknowledged that innovation was crucial to the future of the Public Service. The Plan sought to foster a culture of innovation that led to better outcomes for the community and more effective and efficient processes in the Public Service, with the intention of putting in a sustained effort to stimulate the Victorian Public Service (VPS) capacity to innovate.

The plan focused on four action areas: creating connections between people; ideas and opportunities; building innovation capability; and generating ideas and rewarding good practice and sharing information and data. Each action area had a suite of initiatives. It focussed largely on building awareness and interest in innovation at a whole of service level. Real change was identified as being undertaken at the Departmental or service delivery level, in other words within organizations (DPC 2009). When the plan expired in 2011, a new one was not developed and a new approach was taken for developing innovation that did not signal intentions through a formal VPS wide published document. Several of the actions from the initial 2009 Strategy were later adopted by the Commonwealth Government in their innovation planning.

Further action since 2009 included the development of an innovation fund to fund innovation actions in agencies. The long running Victorian Public Sector Continuous Improvement and Innovation Network recently renamed the Innovation Network, continued operation throughout this time delivering various skill development and education programs. A new behavioural economics group called the Behavioural Insights Unit was established to act as a centre of expertise and training and development for government departments and agencies in this new social economic policy area. There were ad hoc initiatives and programs undertaken in

Departments however innovation activities tended to be temporal in nature and one of the first functions to be cut if staff or budgets were reduced.

Victorian Government Innovation Policy evolved through a number of iterations. This included a 2013 framework created by the Secretaries of all Victorian Government Departments which connected innovation development to the development of a VPS wide capability framework. Initial work had been undertaken by the writing of a discussion paper on *The 21st Century Public Servant* (MSG-DPC 2013). With the capability framework, the:

> intent was to transform the Victorian Public Service into a future-oriented, directional service that responded to the challenges of the twenty-first century, maximised value to the tax payer, promoted Victoria to the world and met stakeholder and community expectations (DELWP 2015b, p. 4).

This was stimulated as was the initial Innovation Plan, by identified challenges facing government including climate change; building Victoria's economy; a growing and aging population; community expectations for government service delivery to be delivered in a more seamless, personalized and accessible manner and the advance of new technologies. This was within the constraints of reduced budgets and increased public scrutiny.

The central approach developed identified the capabilities of: Leading and Performing in a Time of Change; Governing in Complex Environments; Strategic Financial Management; Commercial Acumen; Strategic Commissioning; Digital Literacy and Engaging with Asia. Departments were asked to create their own framework based on the central framework and including any special capabilities that belonged to their Department. Department A added five areas which were important for its business delivery; collaboration, science, public policy, programs and emergency management. The capabilities identified did have a relationship to innovation within the department particularly those connected with change, digital literacy and collaboration. The planning was finalized however a change of government in 2014 led to a change of direction so the framework was not implemented.

A new VPS Innovation Strategy was published in 2017 (VicGov 2017). The focus was on doing things differently to be able to better service the people of Victoria by: a collaborative approach to policy and services; organizing around results; embracing technology, data and evidence; having a learning mindset, and making the most of our diversity. This approach built on the need to build innovative capability development within the public services and connected to earlier themes of embracing technology. There was a move to looking at outcomes or results and the inclusion of diversity to broaden ways of thinking. The move in policy has been to build on existing themes of development and introduced results as an important part of innovation action as well as the inclusion of diversity as a factor. The new policy encouraged innovation but did not set priorities or targets. Investment decisions on innovations are more likely to be supported if there were set priority targets (Salaman & Storey 2002).

At the time the research was collected for this thesis, the Victorian Government had begun to develop a stronger focus on creating public sector innovation within its organizations. However, there was no central policy that provided support on how to stimulate innovation at the organizational level. Since the development of initial focussed planning about VPS innovation in 2009 at the central level, there was a continued change in emphasis. In 2014 the main government initiative was around capability development to develop the innovation capacity of staff. This was for the purpose of meeting a rapidly changing service delivery environment including gaining skills for dealing with major societal change. None of this had been introduced at the Department level when the initial analysis for this thesis was underway. There were no targeted whole of government initiatives driving innovation at the department level.

The literature identifies that public sector innovation is a relatively young field of study, Public Sector Organizations have evolved in their thinking and commitment to innovation in the last forty years. The Victorian Government had moved into recognizing that Public Sector Organizations needed to be innovative however as the literature suggested the policies and strategies developed to support this demonstrated uncertainly in how to transition to the preferred state (Boukamel & Emery 2017; De Vries, Bekkers & Tummers 2016). The

development of Policy at the Commonwealth and State levels consisted of bursts of activity that changed directions or lapsed before another attempt at policy development was made. There was recognition that change would take a number of years of effort (MAC 2010). At the time the data was collected for this thesis there was no formal policy in place at the Victorian State level supporting public sector innovation and Commonwealth policy was directed towards the Australian Public Service alone.

2.7 Workplace Innovation

Workplace Innovation is a term that encompasses the elements of innovation within an organization, which collectively enable the creation of products and services. It has been described as the implementation of new and combined interventions in the fields of work organization, human resource management and supportive technologies (Pot 2011). Workplace Innovation is a multi-dimensional, subjective and context specific phenomenon (McMurray & Dorai 2003) that included the dimensions of; organizational innovation, organizational climate for innovation, team and individual innovation (Muenjohn & McMurray 2017).

The innovation context within an organization has two conceptual identities; being either considered as a tangible organizational outcome, or as a process through which new ideas; objects and practices are created, developed or reinvented (Slappendel 1996; Von Treuer & McMurray 2012). Workplace Innovation is a process within organizations that is specific to the organizational context. Employees through undertaking their roles connect innovation across all levels of the organization. How this happens is very connected to the organizational context because administrative and process innovations have been found to be organization specific because they have a connection to the structure, culture and systems (Damanpour, Walker & Avellaneda 2009). Innovation occurs throughout organizations and viewing it at various levels within an entity provides a more comprehensive view of how it works in that particular organization (Scott & Bruce 1994; Von Treuer & McMurray 2012).

When reviewing employee roles as determinants of organizational learning and innovation in Australia, McMurray and Dorai (2002) developed an instrument, the Workplace Innovation

Scale that measured four dimensions of Workplace Innovation being; Organizational Innovation, Innovation Climate, Team Innovation and Individual Innovation. The findings suggested that employee roles have a significant impact on the learning and innovation process. There was a difference in the roles that were played in carrying out workplace innovation with the activities of individuals at the workplace being found to have a fundamental role in shaping innovation processes (Salvato 2009). It highlighted the importance of organizations fostering learning and innovation at all levels 'to ensure that it achieves its goals and objectives effectively' (McMurray & Dorai 2002, p. 10). Further research on the relationship of workplace innovation and organizational climate inferred that they are context specific constructs so researching them at an individual entity level provides rich information for managing organizational innovation (Von Treuer & McMurray 2012). Context is important in understanding workplace innovation and it has even been described as another actor in the innovation process (Fitzgerald et al. 2002).

Workplace innovation climate was found to be important for individual action with Koch and Hauknes (2005) European study on the public sector asserting that the rationale for innovation 'is shaped by the environment of the individual' (p. 9) that 'results from continuing interaction between different actors and organization' (p. 4). Adding to the importance of workplace innovation in the public sector, Campbell (2017) in a study on the Korean Public Sector concluded that innovation climate is influenced by transformational leadership and performance based objectives. These impact through innovation climate to provide public sector workers with a felt responsibility for change. This demonstrated that climate at the workplace level can influence how likely public sector workers are to undertake change by being innovative, it introduced measurement as a factor in encouraging innovation.

The importance of 'bottom-up' innovation for the public sector was affirmed by (Arundel, Casali & Hollanders 2015). A study using applied factor and cluster analysis on a 2010 survey of European Public Administration Agencies across 27 countries with 3699 respondents found that the public sector use three innovation methods 'bottom-up', 'knowledge-scanning', and 'policy-dependent' methods' (p. 1272), the first two methods correlated with better outcomes. Understanding innovation environments at the organizational

level would contribute particularly to supporting ‘bottom-up’ innovation which was measured as the source of 34.3 per cent of innovation. The ‘knowledge scanning’ approach showed it was heavily reliant on management and staff as information sources for innovation and they were also a smaller but still important source for ‘policy-dependent’ methods. This infers that all variants of public sector innovation have an important connection to workplace innovation.

The initial development of the WIS instrument was undertaken in the private sector with the manufacturing sector. It has been used successfully in studies in other parts of the private sector to identify the relationship between workplace innovation and organizational politics (Baxter, 2004), organizational climate within consulting firms (von Treuer & McMurray, 2012), and knowledge management in a transnational organization (Chomley, 2014). Further work by McMurray, Islam, Sarros & Pirola-Merlo (2013) researched non-profit organizations to cover an omission in the literature around the relationships among leadership, organizational climate and workplace innovation. They found that ‘leadership can foster a healthy (organizational) climate and promote workplace innovation’ (p.383). This thesis will be the first time it is used in the public sector to measure workplace innovation.

2.7.1 Workplace Innovation in the Public Sector

Workplace innovation has not as yet been the subject of research in a Public Sector Organization and this is an omission in the research literature. Public Sector Organizations differ significantly from private and not for profit organizations. They tend to be older, more mature organizations and subject to political influence from Government and their focus is delivering services for the public good. They are rarely driven by any even partial profit motives and have varying values that drive service delivery. Although increasingly they are driven by the need to manage tight budgets through operational efficiency, similar to the current environment faced by the not-for-profit sector. They exist in a political environment where they are risk adverse and need to manage public messages about their operations. They undertake a range of activities and are largely focused on service delivery rather than product development (Bekkers & Tummers 2017; Borins 2002; Koch et al. 2006; Koch & Hauknes 2005; Moore 1995).

Workplace innovation has been described in a range of ways that connects it to innovation being carried out within organizations. There is a connection to those developing products and delivering services and so it has an alignment to frontline service delivery. This has been observed by a number of researchers however it is often not described in detail, the component parts identified or its complexity as a multi-dimensional phenomenon recognized (Arundel, Casali & Hollanders 2015; Borins 2002; Thompson & Sanders 1997). For the Public Sector its significance is highlighted by the historically important collaboration and team basis of public service delivery (Ferlie 2017a).

The public sector is more focussed on service delivery (Osborne, S 2013) and workplace innovation can be connected to delivery of services by and within these organizations. Research into types of innovation in the USA and Canadian governments found that a large proportion (70 per cent) of the 2010 applications were around 'improving a management or production process that were interpreted broadly and reported frequently' (Borins 2014, p. 10). The research analyzed the applications for the Harvard University's Kennedy School's Innovations in American Government Awards 2010 comparing these to a similar analysis of an earlier set of applications from the years 1990 to 1994. The results supported earlier studies (Borins 1998, 2000, 2001, 2006; Thompson & Sanders 1997) that had identified a large number of reported innovations were delivered by frontline service deliverers. Given that a large proportion of Public Service innovation was generated at the organization level, by frontline service deliverers and applied within organizations it is surprising that more analysis has not been undertaken on how and why it occurs and the conditions that support it.

A need for skill development for practitioners focussing on 'strategic people management functions, (and)…on open and collaborative organisational cultures, leadership and management' to building innovation skills was identified by the OECD (2017b, p. 114). However, it was silent on how to build the appropriate organizational culture apart from it requiring a people focussed approach to management as part of strategic human resources management. Building human capital to facilitate innovation including appropriate attitudes has been declared to be important by O'Connor and Roos (2006) with major internal barriers

to innovation being found with attitudes such as conservatism, conformity and risk-avoidance which were often found in Public Sector Organizations (Neely & Hii 1998).

Existing research literature has been found to focus on other aspects of innovation and does not focus on the components at the workplace level (Von Treuer & McMurray 2012). Understanding how workplace innovation works in Public Sector Organizations provides important ways to foster and promote workplace innovation in these organizations (Arundel, Casali & Hollanders 2015). There is agreement about the importance of workplace innovation but little guidance on how it works in practice or how to foster it in Public Sector Organizations.

2.7.2 Workplace Innovation Scale (WIS)

The Workplace Innovation Scale (WIS) was used to capture the process of innovation at Department A. This scale was developed to include four dimensions of Workplace Innovation; Organizational Innovation, Workplace Innovation Climate, Team Innovation and Individual Innovation. The instrument was developed when researching employee roles as determinants of organizational learning and innovation in Australia. The study researched three general employee roles 'as determinants of organizational learning and innovation in the Australian service and manufacturing industries' (McMurray & Dorai 2002, p. 3). The findings suggested that employee roles have a significant impact on the learning and innovation process and there was a difference in the roles undertaken.

The 24 item WIS was designed to measure Workplace Innovation using the four dimensions of Organizational Innovation, Workplace Innovation Climate, Team Innovation and Individual Innovation. McMurray and Dorai (2003) found that the scale had consistently shown high reliability Cronbach Alpha scores from a = 0.89 to a = 0.94 in numerous industry and business contexts. A number of other studies using this scale in the last fifteen years have continued to show high reliability scores in other industry studies in the private and not-for profit sectors establishing the instrument's reliability and validity (Baxter 2004; Chomley 2014; McMurray et al. 2013; McMurray et al. 2010; Von Treuer & McMurray 2012)

Most of these studies relate to the private sector however McMurray and others (2013) did successfully use this in a study in the not-for-profit sector. The study had been used in the services industry and the public sector does have a large service component to its work. The Workplace Innovation Scale (WIS scale) was chosen for this thesis as a reliable, valid and proven measure of Workplace Innovation. It was used to compare the relationship between Organizational Culture and Workplace Innovation in the context of a Public Sector Organization which is a new use for this instrument, building on the earlier work done in the private sector.

2.8 Measuring Innovation

Measuring innovation is important to understand as it explains what innovation is happening at the organizational level, how it is happening and provides data for developing innovation capacity. Difficulties have been identified with measuring innovation at the organization level for both the private and public sector with Tidd (2001) affirming that it is difficult to gauge innovation at the organization level with generally accepted approaches such as evaluating patents and inputs in terms of research expenditure. This provides a level of information but can underestimate effort as it does not measure all innovation activities in organizations .This has additional complications in the public sector with difficulties with measuring of outputs in general and in finding quantitative metrics in the public sector with no profit factors available to be measured. Traditional public sector methods like program evaluations or cost-benefit analyses take time to deliver information (Moore 1995; Townsend 2013). There is no commonly agreed measurement process for either private or public sector innovation (Pandey, Pandey & Miller 2017).

Another complicating fact in measurement is that the many different types of innovation in the public sector can require measurement across systems rather than within the organization to adequately identify the interactions of factors that deliver innovation (Bloch & Bugge 2013). Tidd (2001) commented that this problem was evident to a lesser degree in the private sector where complex relationships between innovation inputs and outputs were easier to identify at the industry level rather than at the organization level. However, as innovation outputs are

supported from a range of areas and processes within an organization, measures could be created from a range of areas (Tadeu & Silva 2014).

The use of traditional methods such as surveys to measure innovation in the public sector raise problematic issues highlighting the difficulties presented by the lack of a formal reporting mechanism. In a survey undertaken with Australian Public Service managers Arundel and Huber (2013) found that they were reporting high rates of innovation which the researchers determined was due to reporting a range of different innovations at various organizational levels. A clarification was sought by asking managers to only report on significant innovations. This indicated a need for any survey collection methods to be very clear in what information they were seeking. Similar problems were described when using a survey for reviewing public sector innovation across Nordic countries (Bloch & Bugge 2013). Preferred data collection methods in public sector studies of innovation are surveys, interviews, and secondary data about policy and program adoptions (Pandey, Pandey & Miller 2017) so clarity of purpose would improve measures received.

The private sector has two main approaches to measuring innovation at the organization level with indicators available in the public domain and the capture of a broad range of indicators internally (Tidd 2001). External indicators included research and development expenditure, number of patents and new product announcements, none of which were commonly used by public sector indicators. Internal indicators include the use of surveys to obtain information, identifying those involved in technical or design functions and the proportion of profit or sales accounted for by recent product launches, the first two actions were potentially able to be used in the public sector. These measures do provide a level of information however have weaknesses as there are variable definitions used in innovation surveys (Arundel & Huber 2013; Tidd 2001).

For the private sector product announcements being used as indicators can ignore other measures of in-house innovations and incremental product improvements. Tidd (2001) advocates that contingency theory offers the potential to better understand how differing organizational contexts affect innovation management. He contends that innovation performance is improved the greater the degree of fit between environmental uncertainty and

complexity and the degree, type, organization and management of innovation. This contingency theory has not been considered in relation to the public sector so the implied relationship for this sector is unproven.

Given the difficulties in measuring innovation satisfactorily within organizations, finding a way to do this successfully has been a key interest of both academia and the management community. A review of measurement on innovation identified the complexity of measures that could be used and emphasised that those organizations with the best results on innovation had clearer measurement processes (Tadeu & Silva 2014). A number of people have been researching how innovation works at different levels within Private Sector Organizations. This was through using the construct of Workplace Innovation as a way to provide information which can be used to implement management strategies to build innovation capacity and so improve outcomes at the organizational level (Baxter 2004; Chomley 2014; McMurray & Dorai 2003; McMurray et al. 2013; Von Treuer & McMurray 2012). Researching how workplace innovation applied in the public sector by undertaking the Workplace Innovation Survey and providing additional information to support management would help overcome a number of the existing measurement difficulties.

2.9 Innovation Summary

Innovation has been defined in many ways and there is no common agreement about this in the literature. This is because innovation has many components and is complex in how it operates in organizations and industry. Much of the analysis has been done in the private sector, however there is a growing literature on public sector Innovation. There are distinct differences between innovation in the private and public sectors. The public sector has a role at the economy level in promoting and fostering innovation. Only in recent times has there been a focus in Australia on the important role that government can play by becoming an innovative sector. At the organization level, there are major differences between the sectors including that that the work of the public sector is largely on services delivery or innovation across sectors within the context of multiple stakeholders. In addition, the lack of profit motive creates difficulties for measuring innovation in the public sector.

Within organizations there are many levels of interaction that together promote workplace innovation. This relates to the organization, teams, workplace innovation climate and individuals. The Workplace Innovation Scale has been developed to measure the innovation environment at the organizational level. This has been widely used to measure innovation within private sector firms across a range of types, consulting, manufacturing and information technology and in the not-for-profit sector. As yet, the public sector has not been the subject of analysis and this provides the opportunity to identify how this level of innovation operates in this context. Measurement of innovation is difficult because of the complexity of developing innovation within organizations. This is due to it being a multi-dimensional, subjective and context specific phenomenon (McMurray & Dorai 2003). Measurement of innovation is more difficult in the public sector because of the increased complexity of innovation processes and the nature of Public Sector Organizations and structures that provide barriers to innovation and find it hard to measure outputs. There are no common agreements about how to measure innovation however use of the Workplace Innovation Scale has worked well in the private and not-for-profit sectors and this thesis will extend its use to the public sector.

2.10 Organizational Culture

Academic studies have identified organizational culture as an important factor in understanding how organizations work as a collective system, particularly in the last 30 years (Jung et al. 2009; Pettigrew 1979; Schein 1985, 2015; Schneider et al. 2017). There is yet to be a consensus on all the elements of organizational culture. Schein (2015) posits that 'culture appears to be a popular concept because it does capture the whole of a system, but it will be some time before we have a common set of definitions and insights into what it means to describe and work with such a holistic concept' (p. 10).

The field developed as part of modernist organizational theory (Hatch & Cunliffe 2006) developing from the initial work of cultural anthropologists. Earlier work on organizational theory had alluded to culture by considering organizations were in part adaptive social structures (Selznick 1948). The early conceptualization by Jacques (1951) included the human side of organizations by studying the concept of culture which inspired a range of researchers (Morgan, G 1997; Pettigrew 1979; Smircich 1985). Pettigrew (1979) drew the

important connection between the social anthropological perspectives of culture to the study of work organizations. A surge of mainstream interest occurred in the 1970s and 1980s with a number of books on organizational culture becoming bestsellers and gaining public attention (Deal & Kennedy 1982; Ouchi 1982; Peters, T, Waterman & Jones 1982). Culture was argued to be impactful on organizational functions such as strategy and change management (Handy 1976; Ridder, Bruns & Spier 2005). Organizational culture was identified as a factor that could be managed to enhance organizational effectiveness and competitiveness.

Originally, qualitative research was used to undertake organizational cultural studies but this changed with the surge of interest in organizational culture leading to a burgeoning consulting industry offering a wide range of services and tools to assist in measuring culture (Jung et al. 2009). Research into the tools available found that there were over 70 that were readily available, covering many different concepts of culture and were able to focus very broadly or on very discrete elements. Understanding the purpose of reviewing organization culture and the outcomes wanted are important given this range of options (Jung et al. 2009, p. 1088).

Organizational culture is a relatively new area within organizational theory that has expanded from its early roots in the 1950s. The study of culture in organizations was expanded greatly by a surge in popular interest in organizational culture in the 1980s. Research on this topic was originally by qualitative research but a number of quantitative research tools were developed with their production peaking in the 1990s and this method of research is now common.

2.11 Definition of Organizational Culture

A definition of Organizational Culture is important for this work as it is one of the central concepts being investigated by this thesis. Identifying the differences between private and public sector organizational culture will establish the different nuances that apply in the differing organizational types.

The definition of Organizational Culture has developed in the last thirty years and as the related academic field grows additional subtleties have been identified. An often cited and influential definition is from Schein (1985) work who says organizational culture is:

> The pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid. Therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (p. 3).

Over time additional research has established the dynamic nature of culture and Schein and Scheiner (2016) has adapted the definition to cover this:

> The culture of a group can be defined as the accumulated shared learning of that group as it solves its problems of external adaptation and internal integration; which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, feel, and behave in relation to those problems. This accumulated learning is a pattern or system of beliefs, values, and behavioural norms that come to be taken for granted as basic assumptions and eventually drop out of awareness (p. 6).

Culture is a construct that is not readily identified by observation but can be inferred by verbal statements and other behaviours and from this inferences can be used to predict and measure other cultural behaviours. Hofstede (1993) defined it as 'the collective programming of the mind which distinguishes one group or category of person from another' (p. 89). He described culture at the national level as represented by deep seated values held by the majority of citizens with national culture affecting innovation because it influences both the inquisitiveness of the members of a society and their tolerance for change (Hofstede 2003). In comparison, organizational culture is much more superficial, resides in the visible practices of the organization, is acquired by the socialization of new members and can be consciously changed if not always easily. Culture exists at different but overlapping and interrelated contextual levels. It is often described as consisting of three levels being national culture (Hofstede 1993), corporate culture and professional/occupational culture (Mitchell et al. 2002; Ulijn et al. 2000).

When working in particular organizational situations the ‘focus on different elements’ will change to make sense of what is encountered (Schein & Scheiner 2016, p. 6). The dynamism of organizational culture was identified by Morgan, G (1997) who contended culture was ‘an ongoing, proactive process of reality construction’ and ‘an active, living phenomenon through which people jointly create and recreate the worlds in which they live’ (p. 141). Understanding how culture works in organizations is important for understanding how they and their systems worked and in undertaking successful organizational change (Handy 1976). The culture within an organization determines how organizational members determine what it is acceptable to do, it is a set of shared assumptions that guide what happens in by defining appropriate behaviour for various situations (Ravasi & Schultz 2006). Organizational members share many aspects of organizational life including objects, talking, behaving and have similar emotional reactions to events. If work goals conflict with the existing accepted culture they have less chance of success (Hatch & Cunliffe 2006; Pace 2002). Organizational life is constructed symbolically through creating a joint cultural meaning and from a subjective perspective focuses on symbols and interactions between people (Dubina, Ramos & Ramos 2016; Smircich 1985).

Defining culture can be difficult because while there are cultural artefacts or concrete things that can be clearly seen, other things like stories and rituals make sense of the culture. These have been created by the weaving together of cultural meaning over time (Hatch & Cunliffe 2006; Pace 2002). Another important aspect is that cultural meaning differs within an organization, ‘there may be a variety of cultures, shaped by characteristic differences in professional orientation, status, history, power, visibility, or other factors’ (Balthazard & Cooke 2004, p. 8). Beliefs, values and systems of meaning are shared between actors and shape fields, organisations and institutional work. Within organizations there can be other cultures or subcultures that have been shaped by particular local differences and the background of the organizational actors. These may be competing cultures that have developed distinctive ideologies and structures of meaning (Pfeffer 1981). One very well known definition that is used by many to summarize the complexity of culture is, ‘the way we do things around here’ (Lundy & Cowling 1996).

The role of professions can influence cultural concepts (Hinings 2012) as they have sets of shared rules and beliefs and plural logics that provide actors with vocabularies, identities, and rationales for action (Dunn & Jones 2010). Cultures within organizations are complex creations developed over time by the actors creating shared meaning. Organizational culture has been translated into models by firms operating in the organizational development industry. For example the firm Human Synergistics defines organizational culture as values and behaviours that determine the expectations of actors within the organization, and which governs the ways people approach their work and interactions with each other (McCarthy 2006). Both academia and the consulting industry acknowledge that the background and history of organizations is important in interpreting their culture. However many of the tools used to measure culture and the ways management scholars interpret culture, focusses on specific elements of culture so not allowing it to be described holistically (Alvesson 1989).

2.11.1 Sub-cultures

Various parts of public sector organizations can have differing connections to service delivery and distinct operational requirements. Differing sub-cultures exist within organizations, these identify as a group within the institution, share common operating conditions and act on the basis of collective understandings unique to their group (Van Maanen & Barley 1983). In common with all organizations, public sector organizations might have a number of subcultures within them (Geva-May 2002; Osborne, S & Brown 2005). This can be accentuated in State Departments as they have discrete functional delivery responsibilities that exist as departments or divisions of the larger organizations (Trice & Beyer 1993). The functions are often moved as part of the Government desire to deliver on political agendas that change particularly after elections and reinforce the identification of members with the functional area rather than a new home department.

Sub-cultures can be created with the role of professions undertaking certain functions influencing cultural concepts (Hinings 2012) as they have sets of shared rules and beliefs and plural logics that provide actors with vocabularies, identities, and rationales for action (Dunn & Jones 2010). The sub-cultures can interpret attempts for change as threats to the status quo and strongly resist organizational change (Molinsky 1999). Strong and competing professional

groups within an organization can compete for resources and create internal dysfunctions impacting on culture and having other impacts such as stopping the spread of innovations (Ferlie et al. 2005). Research into how different behavioural aspects of culture affect knowledge management asserted that in organizations dominated by professional culture, individuals emphasize and respect their professional domain rather than contribute knowledge sharing to the larger organization (Chang & Lin 2015).

In the Public Sector Departments, those with specially defined functions like those connected with Natural Resource Management and Primary Industries have a large concentration of particular professional groups that work together over many years, possibly in many different organizational configurations, that develop strong subcultures (Ferlie 2017b). Sometimes certain professional groups will be in conflict with each other for resources and power within an organization (Ferlie et al. 2005). Difficulties have been acknowledged with sub-cultures assimilating knowledge from management in general with restricted knowledge sharing outside their sub-cultures thus undermining organizational wide programs (Chandler, Csepregi & Heidrich 2018; Chang & Lin 2015).

2.12 Differences between Private and Public Service Organizational Culture

There are differences between private and public sector organizational culture with the common perception being that the public sector is more bureaucratic, less innovative, more risk adverse and inwardly focussed compared with the private sector. Recent studies have supported this view finding the public sector exhibits many of these characteristics in Australia, and this has persisted over time despite changing public management approaches (Bradley & Parker 2006; Harrison & Baird 2015; O'Connor, Roos & Vickers-Willis 2007; Parker, R & Bradley 2000). There are variances because Private and Public Sector Organizations differ in their purpose. The private sector is driven by the need to make a profit for its owners and is driven by competitive forces. The public sector has a range of legislative requirements as parts of governance responsibilities, develops policy and provides services on behalf of the state for citizens, driven by a need to create public value (Alford et al. 2017; Hartley et al. 2015; Moore & Hartley 2008).

There has been debate on whether the unique characteristics of the public service and its different accountabilities would allow its organizations' operations to be considered in the same way as Private Sector Organizations (Yeatman 1994, 1998). There is an interplay between the culture of Public Sector Organizations and the institutional, governance and political-administrative arrangements that are characteristics of public sector operations (Veenswijk & Hakvoort 2002). Public Sector Organizations serve citizens and have a high standard to uphold including building public institutions marked by integrity and responsiveness (Liddle 2007).

The difference between the public and private sector has been recognized and considered by highlighting the importance of context in considering organizational culture (Schein & Scheiner 2016). Schein's earlier work to demonstrate his cultural model of three levels of culture: artefacts; espoused beliefs and values; and basic underlying assumptions, reviewed the model in two private sector firms and one Government Organization. He demonstrated the importance of context in understanding the cultural manifestations in organizations. This research was extended by establishing his model would work in the public sector by undertaking an analysis of a developmental Government Organization in Singapore, the Singapore Economic Development Board. An important difference was that the political vision of the leaders was used to direct the actions of the organization rather than a profit motive and the political vision 'can be thought of as the "espoused beliefs and values" of the culture model' (Schein & Scheiner 2016, p. 61).

Public Sector Organizations are influenced by the political vision or ideologies of the Government and this has an impact on their culture (Considine 1990; Hood 1991). Given the often volatile nature of government and the changes of ideology that can occur between election cycles, it can be inferred that it will have an impact on the culture of the organization delivering government services. Implementing government reform agendas has been identified as creating opportunities for agency actors to advance their policy goals within organizations at the expense of others parts of the organization so negatively impacting on culture (Durant 2008). A study by Wynen, Verhoest and Kleizen (2017) affirmed that organizational turmoil generated by repeated structural reforms affects culture and that too

many structural reforms imposed in a too short time span will have detrimental side effects particularly on innovative capacity. Often changes are undertaken for political means without considering the impacts on organizations and their culture (Ferlie, Hartley & Martin 2003).

The Singapore case studied by Schein (Schein & Scheiner 2016) was unusual as the Singapore Government had been very stable for a number of years which had allowed a strong connection between the political vision and the culture of this organization. This is not always the case. A more common case is one of increasing change and complexity as reported by the OECD 'governments in OECD countries face a political, economic and social environment that is increasingly unpredictable (and) complex…' (OECD 2017a, p. 32). The dimensions of this include; financial restrictions, reduced service provision, greater demands from citizens, and new obligations from international agencies that combine to create a culture of continuous change (Waterfield 1997). In certain jurisdictions an additional change pressure is caused by having less long term governments and an increasing number of single term governments. For example, in Victoria there was a change of government in 2014 replacing a government that had only served one four-year term resulting in major changes to the structure of Public Sector Organizations.

There is little published in the literature directly about public sector organizational culture, it is often referred to and related aspects studied, however a detailed exploration or explanation has not been developed (IPA 2011). A connection to employee organizational commitment in the public sector was found to be similar to the private sector around the cultural dimensions of Outcome Orientation, Team Orientation and Respect for People (Su, Baird & Blair 2013). Another study found a positive association between Team Orientation and the effectiveness of performance management systems (Munir, Baird & Si 2012). Research undertaken to review the effectiveness of management tools in Public Sector Organizations concluded that organizational culture was an important contextual factor in the use of such tools (Verhoest et al. 2010). Public sector organizational culture is often used as a factor to explore other phenomenon. The measures used vary markedly reflecting the complex nature of culture and the many ways it can be defined.

A review was undertaken to test cultural change after the rise of New Public Management thirty years ago introduced practices from private sector management to Australian Governments, with the aim to make the public sector more responsive to both the demands of government and citizens. From this, many expected that the culture would have altered to be more aligned with the private sector, the findings were that it wasn't, and hierarchical and bureaucratic cultures were evident (Bradley & Parker 2006; Parker, R & Bradley 2000). This research was the first of a small number of empirical studies in Australia that aimed to measure culture in Public Sector Organizations compared to that exhibited in the private sector.

Later research used a version of the Organizational Culture Profile (OCP) measurement developed by O'Reilly, Chatman and Caldwell (1991) as adapted by Windsor and Ashkanasy (1996). This measured variables of Outcome Orientation, Respect for People, Attention to Detail, Team Orientation and Innovation. Public sector culture in Government Departments and Agencies compared to Private Sector Organizations was found to be less outcome oriented, less innovation oriented but having a higher respect for people, more team orientation and slightly more attention to detail (Harrison & Baird 2015). This study had used data sets from the Private and Public Sector Organizations as a comparison to see if there was change across the years. This allowed a direct comparison with Australian private sector cultural research undertaken using the same instrument (Baird, Harrison & Reeve 2004; Sarros, Gray & Densten 2002; Sarros et al. 2005; Su, Baird & Blair 2009).

The findings were there had been little change in public sector organizational culture in 2013 compared to research undertaken 13 years ago (Bradley & Parker 2006; Parker, R & Bradley 2000). It was contended that public sector organizational culture in Australia remained reflective of the 'internal process' culture of bureaucracy and hierarchy, with attendant emphasis on rules, conformity and attention to technical detail. The bureaucratic form was one that was traditionally connected to public administration and as Weber (1947) asserted was a resilient and persistent organizational form. The particular elements of a public sector culture connected to the bureaucratic form, having been identified as achieving a high level of conformity with actors likely to look to higher authority, resulting in passiveness and a lack of

new ideas. In addition, this culture was relatively impervious to change (Claver et al. 1999; Osborne, S & Brown 2005).

The research of Harrison and Baird (2015) did have design limitations as they used a single respondent research design that asked Senior Managers to respond on behalf of the organization. Hartnell and Walumbwa (2010) had noted that this was common in empirical research on Organizational Culture however considered that it weakened research design as one person was not able to represent all the different understandings about culture across the organization. It used data collected for different studies and in different years from the private and public sector to compare results (Baird, Harrison & Reeve 2007; Munir, Baird & Si 2012). However despite the limitations the results did give indicators of the differences between aspects of public and private sector organizational culture and provide comparable results with research done in smaller numbers of organizations by surveying multiple people within the organizations (Bradley & Parker 2006; Parker, R & Bradley 2000).

Differing organizational cultures between the private and public sector can impact on the success of types of change and management initiatives within organizations. Understanding this can provide knowledge that can be used to propose organizational change to support strategies being more successful. Research showed differences between Public and Private Organizational Cultures revealed that certain management strategies such as Total Quality Management and Activity Management were more successful in Private Sector Organizations and connected to a higher outcome orientation. However, if Public Sector Organizations exhibited the higher outcome orientation it was likely to be successful (Baird & Harrison 2017). Employee empowerment as a strategy was equally adopted between sectors but was more evident in Public Sector Organizations where culture measured higher in respect for people and innovation.

2.13 Relationship between Organizational Culture and Innovation

Organizational culture research has developed as a field since its early beginnings pre-1971 from the study of culture in the field of anthropology (Daher 2016; Hatch & Cunliffe 2006; Schein & Scheiner 2016) Since then, the field has evolved through many major growth

periods with the first identified by Schneider et al. (2017), as the modern foundation from 1971 to 1985 that created the basis for much contemporary work. The connection between the social anthropological perspectives of culture to the study of work organizations was made by Pettigrew (1979). There was a period of growth in interest with the term culture gaining popular status in the late 1970s and into the 1980s (Pace & Faules 1994, p. 59).

As the interest grew and with the acceptance of the importance of understanding culture to organizational development studies, the period of 1986 to 1999 focussed on ways to aggregate survey data to simplify and speed up analysis. A proliferation of instruments for exploring and assessing organizational culture were created, and Jung et al. (2009) identified that the majority of these were created in the 1990s (Ibid p. 1090). A new aspect of organizational climate was introduced into academic analysis and the scope and definition of climate was further developed.

Research developed from 2000 to 2014 included multi-level studies that linked culture, climate and various organizational processes including innovation (Schneider et al. 2017, p. 469). This began to clarify the connections between organizational culture and organizational processes including innovation. Schein and Scheiner (2016) posits that 'internal cultural analysis reveals important mechanisms by which groups and organizations function in completing their tasks' (p. 349). However, the lack of a common definition of culture and the proliferation of different measurement tools create confusion in the studies undertaken because of the variability in measures used (Jung et al. 2009; Schein 2015)

The relationship between organizational culture and innovation has since been inferred or commented on by many researchers (O'Connor, Roos & Vickers-Willis 2007; Osborne, S & Brown 2005). Existing studies in the private sector had reviewed aspects of organizational culture with the aim of determining capacity for innovation (Büschgens, Bausch & Balkin 2013; Lin et al. 2013; Naranjo-Valencia, Jiménez-Jiménez & Sanz-Valle 2016) with Von Treuer and McMurray (2012) focussing on the aspect of workplace climate. One study by Daher (2016) reviewed the influence of organizational culture on innovation from the context of the private sector through studying the roots of organizational culture studies and connecting this to innovation models. He looked at types of organizational culture and the

relationships to innovation and suggested a conceptual framework that connected a range of values leading from organizational culture that led to the creation of organizational innovation. Given the proliferation of measures available this framework only connected with one aspect of culture.

A number of organizational behaviour consultants have identified the connection between culture and innovation as part of their service offering to organizations. The connection has been made that innovation is undertaken by people and is related to processes and as organizational culture impacts on individuals and processes, which affects the ability to innovate (McCarthy 2006). One of the models described by McCarthy (2006) ties in components of organizational culture to promote innovative outcomes by building on academic analysis undertaken by a group of researchers (Balthazard, Cooke & Potter 2006; Cooke & Szumal 2000). The components that had been identified as important included: building shared meaning with mission and values; an inclusive organizational structure; shared meanings becoming the basis for human resources practices; rewarding wanted behaviours; jobs redesigned to be autonomous; communication promoting learning: and strong leadership existing at each level. These would promote innovation predictors such as co-operative teamwork, cross-functional co-ordination, motivation and employee satisfaction.

There was an interest in changing culture to build desirable characteristics such as innovation in organizations and this interest has supported research into changing culture both by academia and consultants. Merging organizations has been found to be problematic because the change to the new culture can often create clashes between the existing cultures (Alvesson & Sveningsson 2007; De Gooijer 2009; Schein & Scheiner 2016). Cultures within organizations are complex creations developed over time by the actors creating shared meaning and they take time to change and it is widely accepted that any culture change would take a number of years to happen (Schein & Scheiner 2016).

There are cultural aspects that have been identified as impacting on the delivery of innovation with national culture being identified as important for leaders to understand to support people in delivering innovation (Prabhakar, Liddle & Twain 2012). Dimensions of culture differ between nations Hofstede (2003) which then impacts on innovation within organizations. For

example, Cultural Collectivism and Individualism are two dimensions of culture identified by Hofstede (2003) where a difference in innovation capacity is seen between groups. Cultural collectivism is when the culture values the needs of a group or a community over the individuals and this been identified as an inhibitor of creativity development (Dubina, Ramos & Ramos 2016). However, other studies have identified in certain circumstances and with appropriate organizational structures and management techniques this is not the case (Chen, Chen & Meindl 1998; Yang, Zhou & Zhang 2015) and moderate levels of cultural collectivism do not unduly restrict innovation in firms (Szymura-Tyc & Kucia 2016). As a nation Australia exhibits a more individual oriented culture, however within organizations in the public sector there may be other factors of organizational form that promote local collectivist cultures.

There has been a lot of inferences about the connection of organizational culture to innovation performance however the research to date has not empirically connected organizational culture with workplace innovation. Public sector organizational culture was often used as a factor to explore other phenomenon. The measures used vary markedly reflecting the complex nature of culture and the many ways it can be defined.

2.13.1 Organizational Culture in the Public Sector and its connection to Workplace Innovation

The section above outlines the differences between private and public sector organizational culture. Public sector organizations have characteristics that influence organizational culture and so its connection to workplace innovation. Different elements of public service culture including socio-political culture, bureaucratic, civil 'public' service organizational culture and the culture of local accountability all connect to create the culture within individual Public Sector Organizations (Geva-May 2002). The organizations tend to be older and more mature organizations, they are subject to political influence from government to deliver services for the public good and are less likely to be driven by profit motives. Increasingly they are driven by the need to manage tight budgets through operational efficiency (Bloch & Bugge 2013). They exist in a political environment where they are risk adverse, subject to significant external regulation, are wary of creating adverse media attention, and need to manage public messages about their operations (Bekkers & Tummers 2017; Borins 2002; Koch et al. 2006;

Koch & Hauknes 2005; Moore 1995). They mostly deliver services, research and policy, and understanding about workplace innovation in these organizations was less developed as outlined in section 2.7.1 above.

These factors have been perceived as impediments to innovation within Public Sector Organizations (Bekkers & Tummers 2017). However, despite this the public sector does innovate as affirmed by researchers (Damanpour & Schneider 2009; Osborne, S & Brown 2013; Walker 2014). The author has participated in a range of studies on public sector innovation focussed on the Victorian Public Service that demonstrated innovation outcomes (Newnham 2004, 2005; Newnham & McMurray 2007; Newnham, Millner & Sventgyoryi 2005; Newnham, Spall & O'Keeffe 2001).

Studies indicates that a particular organizational culture is needed in Public Sector Organizations to foster workplace innovation. This is particularly so given that they tend to be more mature organizations that demand accountability against well established criteria, are risk adverse and have funding constraints. A longitudinal study on the results of the Organizational Cultural Inventory on Public Sector Organizations in Australia and New Zealand reported cultures show a range of behavioural characteristics exhibited from slightly constructive to very defensive. There was less evidence of constructive characteristics compared to the patterns found in other industries (HSI 2015). This suggested that the relationship of organizational culture to workplace innovation in a Public Sector Organization was different to that within the private sector. Organizational culture does take time to develop and if a change was needed to provide the optimal environment for innovation, that would take time to build.

There was an identified lack of explicit thinking about the organizational elements that supported or hindered innovation in Public Sector Organizations including culture which led to a call for additional research in this area (Yapp 2005). A few studies reviewed aspects of organizational culture in the public sector in Australia highlighting particular aspects of culture that applied to workplace innovation. Research into innovation take up in Public Sector Organizations had found a predominately hierarchical culture that was strongly orientated towards outcomes and preferred a stable environment with a prevalence of rules and policies

(Bradley & Parker 2006; O'Connor, Roos & Vickers-Willis 2007).This was opposed to having what was identified as an innovation friendly culture with a more open system, dynamic and entrepreneurial, where leaders were risk takers, and organizational rewards were linked to individual initiative. The Department studied by O'Connor, Roos and Vickers-Willis (2007) had introduced projects to develop innovation capacity, however the evaluation had asserted that a level of cultural build up for change had happened but a more open systems way of working was only evident in those with defined roles in the innovation program. Changing innovation capacity within a Public Sector Organization would need training and support at the workplace level and realigning of roles and relationships to have a long term impact (O'Brien 2002). This was accentuated by 'antecedent organizational and strategic routines' acting to 'restrict, refine or support implementation processes' (Ridder, Bruns & Spier 2005, p. 456).

In a study across a number of Public Sector Agencies Harrison and Baird (2015) measured variables of; Outcome Orientation, Respect for People, Attention to Detail, Team Orientation, and Innovation using the Organizational Culture Profile of O'Reilly et al. (1991) which focused on specific factors or attributes of organizational culture. Team Orientation and Innovation were the factors that related to the construct of Workplace Innovation. However, there were limitations with the factors used as the components of the Innovation factor were connected both to Organizational and Individual Innovation being: a willingness to experiment; not being constrained by many rules; quick to take advantage of opportunities, being innovative and risk taking. On these two aspects, the results found less Innovation Orientation in the public sector compared to Private Sector Organizations but more Team orientation (Harrison & Baird 2015). This study had made a comparison across years and found there was little change in public sector organizational culture in 2013 compared to research undertaken 13 years ago in smaller numbers of organizations by surveying multiple people within the organizations (Bradley & Parker 2006; Parker, R & Bradley 2000) so implying this was a trend over these years. There was a difference in the cultural factors used for the latter analysis that were based on measures of internal/external orientation and control/flexibility based on a measure developed by Zammuto and Krakower (1991).

A study looking at the relationship between culture and public sector innovation using data available from the Australian Public Service Census of 2014 concluded that an ambidextrous culture existed where two separate cultures were in place supporting organizational innovation: one named innovative culture and the other a performance-oriented culture (Wipulanusat, Panuwatwanich & Stewart 2017). It was ambidextrous as on one hand there needed to be encouragement by management and support at the workplace for innovation to occur, however a performance-oriented culture was needed to implement the innovative ideas.

The researchers identified this by using an existing data set gathered to undertake a Census of the Australian Public Service. They had not been able to formulate research questions to guide collecting the data. They applied an Exploratory Factor Analysis on the data set to identify if there were any latent constructs in which they found two. Then they applied a Confirmatory Factor Analysis to confirm the model that was found. This study was restricted to the results of 3570 respondents who reported their type of work as being in the Engineering and Technical Family. It was maintained that it would be important to establish an innovation culture supported by a performance-oriented culture within organizations to support innovation (Wipulanusat, Panuwatwanich & Stewart 2017). Given the limitations identified with the research method, the results may only be applicable to the category of worker studied and the ambidextrous culture identified might apply only to this group as a subculture within organizations.

The idea of cultivating a culture of innovation in public organizations has been recommended by Casebourne (2014) identifying leaders play a critical role in overcoming barriers presented by bureaucratic and risk adverse organizations by providing clear direction and promoting support for innovation. Leaders can encourage risk and experimentation, insulate innovators from attacks from vested interests and the media, ensure an innovation is given time to develop, or to fail and start again. Leadership was therefore about ‘giving people the encouragement to experiment along with permission to fail’ (Hambleton & Howard 2012, p. 40). To do this new skills are needed to enact innovation which are not the same as those

required for business as usual operations and frontline service delivery (Carstensen & Bason 2012).

Other research has established the important role of innovation agents in the public sector to progress innovations through various management and organizational layers to take an idea from conception to action (Bankins et al. 2017). Individuals at various levels of Public Sector Agencies were found to be important in championing and promoting innovation to assist in overcoming organizational barriers, gaining resources and buy in from Senior Managers. This research identified that that connections with champions and promoters could influence an organization having a culture of innovation however additional research would be needed to establish this (Bankins et al. 2017, p. 135).

Public sector organizational culture influences on organizational innovation has been inferred by a number of studies. They have not shown a direct relationship to workplace innovation as defined by this thesis. Many use models to measure aspects of culture that relate to how the organization works and only partly represent the culture within the organization. There is a difficulty in representing organizational culture as it is a construct of the organization and its actors, using models that identify only certain aspects of culture provide an incomplete picture of what is happening within the organization (Schein 2015).

Organizational culture only truly makes sense in the organizational context in which it exists so comparisons across organizations can be indicative only (McCarthy 2006). A longitudinal study of Australian and New Zealand organisations measured by the Organizational Culture Inventory (OCI), a culture assessment tool, has been underway for a number of years and indicative comparisons have been made by comparing the results from many companies undertaking the OCI. Public sector organizational culture differs from the private sector and cultural aspects identify it is less conducive to innovation (HSI 2015; McCarthy 2006). This identified a number of aspects of culture that were connected to public sector culture across a number of organizations over time. It was able to be compared to a similar collection of information from Private Sector Organizations. From this study inferences were made about cultural elements that would support innovation however the relationships have not been proven through an academic process (McCarthy 2006).

Research in Australia has highlighted various aspects of organizational culture in the public sector in relation to innovation. One indicated the need to support an innovation culture existing with a performance management one (Wipulanusat, Panuwatwanich & Stewart 2017) others establishing the importance of an innovation culture with team orientation (Bradley & Parker 2006; Harrison & Baird 2015; Parker, R & Bradley 2000). Leadership and the role of champions and promoters has been considered as playing a role. However if innovation roles are allocated to a select group in the organization, this is believed to restrict the development of open cultures to foster innovation at the workplace level (O'Connor, Roos & Vickers-Willis 2007).The research to date indicates that organizational culture is assumed to effect workplace innovation, but does not clarify how or provide details about what an innovation culture at the firm level looks like or how it relates to innovation within the organization (Harrison & Baird 2015). This thesis empirically proves the relationship between Public Sector Culture and Workplace Innovation as defined in this thesis and extends existing theoretical knowledge on culture at the public sector organizational level.

2.13.2 How the connection of behaviours at the organization level creates climate that impacts innovative behaviours.

The study of organizational climate has progressed in parallel with that of organizational culture (Schneider et al. 2017). Climate is a component of organizational culture and is considered to be a more targeted level of analysis within a larger cultural setting. A few researchers have seen this as a false divide as they are both metaphors used to describe the complex social systems that are organizations (Schneider et al. 2017). Others view climate as distinctive from culture with climate measures perceived 'to determine and examine the states of the psychological life within organisations' (Von Treuer & McMurray 2012, p. 296). It has been perceived to be heavily influenced by internal factors such as management input (Ostroff & Schmitt 1993).

Organizational climate has been defined as a descriptive construct that reflects agreement by organizational members on organizational elements such as systems, practices and leadership style (McMurray 2003). These situational and organizational elements have significant influence on employee behaviours and attitudes (Bamel, Budhwar & Bamel 2013).

Researchers looking at the climate within innovative organizations have found key elements that influence innovative behaviours such as support for creativity (Siegel & Kaemmerer 1978) and innovation (Koys & DeCotiis 1991)

As with organizational culture, research that explored organizational climate found it to be a complex and multilevel phenomenon (Glick 1985). Multiple climates may exist within an organization at any one time, since organization life may be perceived differently for members in different work groups, at different organizational levels, at different locations, from different and diverse backgrounds (Koys and7 DeCotiis, 1991).

Organizational climate is a way to describe behaviours at the workplace level that influence such things as innovation processes. Having a climate that adopts, implement and diffuses innovations and provides things like psychological safety to workers provides an optimal environment for innovation. The amount of research examining the link between organizational climate and innovation has been scant (Wei & Morgan 2004). There was little empirical evidence that supported a link between organizational climate and innovation (Baer & Frese 2003; Von Treuer & McMurray 2012).

A positive organizational climate was reported to improve work aspects therefore identifying how climate could influence behaviours at the workplace including supporting innovation practice (Bamel, Budhwar & Bamel 2013). While empirical research has not been undertaken on the connection between organizational climate and innovation in the public sector, empirical research undertaken in the public sector in the Victorian Police Agency found that organizational culture, organizational climate and managerial values were all inter-related (Wallace, Hunt & Richards 1999). The particularly strong link between managerial values and organizational climate was supported by other research (Ostroff & Schmitt 1993). The researchers affirmed that this could lead to greater understanding of how the organization could best respond to changing operational requirements which could include becoming more innovative (Wallace, Hunt & Richards 1999).

2.14 Measuring Organizational Culture

The growth in Organizational Cultural research since 2000 has expanded the interest of academics and practitioners in finding effect ways to measure it in organizations. Jung et al. (2009) completed a literature review of existing qualitative and quantitative instruments and identified 70 instruments of which 48 could demonstrate psychometric assessment. The instruments were found to have been created for measurement of different aspects of culture and the authors posited 'that tools were only useful if they are "fit for purpose" and it depends on the reason it was used and the context in which it was applied' (p. 1087).

This thesis identifies the relationship between Workplace Innovation and Organizational Culture in a Public Sector Organization and as outlined above there are many ways of describing culture and its component parts. This research followed Schein's conclusion on the need 'to focus on different elements of that formal definition to make sense of the particular organizational situation you encounter' (Schein & Scheiner 2016, p. 6). For example, that focus can be on 'the origins, manifestations, outcomes, and management of cultures' (Pace & Faules 1994, p. 325).

Gaining an understanding of organizational culture to identify the manifestation of culture in the particular entity can be generated by members of the organization using a method outlined by Pace and Faules (1994). The measure of culture was developed to support the Organizational Communication Profile (OCP) which required a cultural context to review organizations' overall communication systems. The measure of organization culture captures information on 'the perceptions of organization members of the key values and shared concepts that constitute the image they have of the organization' (p. 334). The data captured was descriptive and a sense making evaluation was applied in this instance using the associative group analysis (AGA) method. The AGA attempted to 'discover the shared constructs comprising an organization's culture by means of word associations' (p. 341). The authors stated that the words generated 'reveal the subjective meanings they (*respondents*) have for the focus concept'. Grouping and classifying the words provided shared constructs of the organization that Pace and Faules refer to as the 'culture' of the organization (p. 341). An adapted Pace and Faules (1994) measure asking survey respondents for a one word

description of an organization and department to which a sense making analysis was applied has been used successfully in other organizational research conducted across a range of organizational types. Most recently to gauge organizational culture perceptions in an multinational organization (Chomley 2013).

2.14.1 Organization Cultural Inventory measurement tool

The Organizational Cultural Inventory© (OCI), measurement tool was used by Department A to obtain a measure of its culture in 2014 and by its predecessor Department X to measure culture in 2009. This was one of the instruments using psychometric assessment developed in the 1990s when there was a break from the anthropological tradition of qualitative case studies to study culture, and when researchers began to apply survey methods (Jung et al. 2009). It was a normed commercial product produced by Human Synergistics. Since its introduction, the inventory has been used by thousands of organizations and millions of respondents throughout the world and translated into many languages (Balthazard, Cooke & Potter 2006). It measures 12 distinct but interrelated sets of behavioural norms and expectations that describe the thinking and behavioural styles that might be implicitly or explicitly required for people to 'fit in' and 'meet expectations' in an organization or sub-unit. The 12 sets of norms measured are categorized into three general 'clusters' of four components and identified as organizational cultures that are have elements of Constructive, Passive / Defensive, and Aggressive / Defensive thinking and behaviours (Balthazard, Cooke & Potter 2006).

A number of academic researchers assessed the components of the instrument and it has been used successfully to undertake a number of academic research projects to assist in analyzing various aspects of organizational culture (Hatch & Cunliffe 2006). A sample of these includes three separate studies across respectively a multinational organization, many industries and two manufacturing firms (Arbour et al. 2014; Balthazard, Cooke & Potter 2006; Yauch & Steudel 2003). In addition an ongoing longitudinal study was completed on the overall results across organizational groups by the company that owned the measure. This provided an opportunity to review differences across industry sectors that used the instrument including the Government Sector (HSI 2015).

2.15 Organizational Culture Summary

Organizational culture studies have evolved from the fields of anthropology and psychology prior to1971 into other fields including management (Pettigrew 1979; Schein & Scheiner 2016). The initial studies were completed using more qualitative approaches but in the 1980s to 1990s a range of assessment tools were developed building on what has been called the modern foundation of the subject from 1971 to 1985 (Jung et al. 2009; Schein & Scheiner 2016; Schneider et al. 2017). Pettigrew (1979) drew the important connection between the social anthropological perspectives of culture to the study of work organizations. A large field of study has developed from the 1990s with a rich academic analysis, but in addition a proliferation of consultants hence knowledge has been fragmented.

Initially the public sector was the subject of many important organizational analyses that would likely have provided information on their culture however this has not been the case in recent years. Kelman (2005) inferred this is due to the focus of management schools on major private sector industries. This has been accentuated by much organizational culture work being undertaken by the consulting industries. Researchers were making connections between the influence of organizational culture and organizational innovation. However this has been no empirical work undertaken that this researcher has found to date on measuring the direct relationship between culture and the micro-level of the organizational innovation covered by Workplace Innovation and its four dimensions (Daher 2016; Schein & Scheiner 2016).

There are important differences between public and private sector organizational culture. (Kelman 2005; Schein & Scheiner 2016). There is a lack of academic research on Public Sector Organizations particularly with organizational types like Departments of State. This hinders the understanding of the connection between organizational culture and workplace innovation in these organizations. Measurement of organizational culture has developed with the advent of tools that allow studies to be conducted quickly using specially developed instruments. However there is a need to be particularly careful in choosing an instrument that measures what is needed to be measured (Jung et al. 2009). Certain instruments provide an analysis that is difficult to interpret and translate into meaningful management actions to

create desired change. This impedes organizations that have goals to build a more positive culture but cannot connect measurement with actions needed.

Pace and Faules (1994) advocated a way to measure organizational culture that allowed researchers to capture information from entity members on key values and shared concepts that create their image of the organization. Connecting into the organizational members understanding of the culture gives a strong basis for understanding the context in which they work. Understanding the context within a Public Sector Organization and measuring organizational culture from the perspective of the members of the organization, provides additional academic research to fill the omissions in current research and help answer outstanding questions.

Understanding there is a difference in public and private sector organizational culture can be used to consider what management strategies will be more successful in particular cultural settings and ways to create desired change. Creating cultural change takes time and research has indicated that public sector organizational cultures in Australia have not changed much over the last two decades (Bradley & Parker 2006; Harrison & Baird 2015; Parker, R & Bradley 2000).

There has been an assumption of culture being important for innovation that has been the sources of a number of studies in the private sector and has been widely embraced in the public sector literature but has rarely been tested empirically. Given culture is such a broad concept there are many aspects that can be analyzed with a number of private sector studies using the competing values theory. Academic studies in Australia dealing with the relationship of culture and public sector innovation consider an aspect of culture and to date have not considered the culture of the organization being studied (Baird & Harrison 2017; Bradley & Parker 2006; Harrison & Baird 2015; Parker, R & Bradley 2000). They often focus on aspects of culture by using models and measures that are not sourced from the organization itself. This ignores researchers that argue that organizational culture only truly makes sense in the organizational context in which it exists (McCarthy 2006; Schein & Scheiner 2016).

2.16 Management of Public Sector Organizations

This research has as its subject a Victorian Public Sector Organization, Department A. Departments are part of core or central State Government (Verhoest, Verschuere & Bouckaert 2007). This is an unusual organizational form within the larger public sector as it is a creation of the Victorian State Government to undertake the delivery of its responsibilities to the citizens of Victoria as part of legislative requirements. This includes the delivery of services, the enforcement of rules and regulations and the setting of standards. These organizations are created by the State Government and are part of the political process through the Minister establishing a political agenda that drive policies. The overall management of the organization is through the Departmental Secretary, equivalent to the Chief Executive of Private Sector Organizations.

This type of organization is difficult to access. As an organization operating in a political environment their management are aware of the importance of managing the organization's reputation with the public and tend to avoid risky actions. Public Services tend to reflect the political and institutional behaviour of the governments that they serve (Lane 2000). Research studies where outcomes are not predictable would present a risk of adverse public comment. It is more common for reports on these organizations to be undertaken by consultants where the brief can be controlled by the organization and any controversial findings dealt with by internal actions. The researcher was very grateful for the access and support provided by the organization.

Certain Departments are subject to ongoing organizational change as highlighted by the VPSC (2016) reporting, 'The composition of the Public Sector is determined by the Government and reflects the Government's policy priorities and choices as to the structure for delivering government administration and services' (p. 11). The structure of Departments can often change with little warning to meet the political decisions on service delivery made by Government. This has an impact on their longevity as organizations and impacts cultural and innovation development (Ferlie, Hartley & Martin 2003; Wynen, Verhoest & Kleizen 2017).

The researcher had access as an insider which allowed her to utilize resources and reports for this thesis not known or easily accessible to an outsider. However, it allowed management within the organization to have a gate keeper role on the timing of access to the organization to deliver the research survey. With the research being undertaken at a time of unusual levels of organizational change and challenges the survey delivery was delayed to meet management requirements for a time that met their priorities.

2.17 The Public Sector Context

Overview – the Australian Context

Australia has three tiers of government. At a National level, it is a Federation of States and Territories. There are eight jurisdictions at the second level, six States and two Territories. Victoria is the smallest in area of the mainland States: at 227,420 kilometres squared it accounts for only three per cent of the country's area, although its population of 6.3 million people (ABS 2017) makes it Australia's second most populous State (Newnham, Parker & Spall 2000, p. 2).

There are a range of issues that impact the form and direction of public sector management. Few industries or businesses can escape the influence of a globalized economy that demands constant changes in business and government operations (Kotter 1996; Newnham 2004). Increasingly there is a need to develop new approaches to seemingly intractable social challenges such as climate change, inequality and an ageing population in Western countries (Handy 1995, 2011; Hastings & Finch 2007). Other countries face the challenges of rapid development and rapidly growing populations.

This includes declining revenues for governments in the Western world due to changing economic business models. In the environment area, there is increased recognition of the need and the value in preserving the environment as a hygiene factor that allows for healthy populations and providing natural infrastructure such as water and land for other economic activity.

Within Australia, more than 30 per cent of the country's gross domestic product is derived from the public sector. Consequently, the public sector is an important contributor to the National and State Economies and part of the National Innovation System. In response to a review of the national innovation system Cutler (2008) found the role of the public sector included 'two ambitious tasks: first, to drive an innovation agenda within its own agencies; and second, to participate and, where appropriate, lead innovative change in collaboration with other sectors' (APSC 2011, p. 211).

The nature of public sector service delivery is dynamic and change has occurred with ever increasing speed. The public sector evolved in the late 1980s and early 1990s in several countries, notably Britain, Sweden, Australia and New Zealand (English & Guthrie 2001). A 'new' public sector management (Boston 1996; Guthrie, Olson & Humphrey 1999) developed that was attuned to governments with a market orientation. Hughes and O'Neill (2001) observed that the new public management was similar across nations and in the direction of the reforms however the detailed reforms varied. This led to the adoption of reforms to make the public sector less large and cumbersome and change its principles for organization. It was seen as needing renewal and reinvention (Osborne, D & Gaebler 1992, 1993). The reform was based on the adoption of managerial reforms to structure public organizations more like businesses and use managerial principles to run them.

2.18 Public Sector Organizations

Government through its Public Sector Organizations operates to change the dynamics within an economy for the benefit of the state and its populace. Service delivery is carried out with participants in this delivery area. For example, the Land Management Industry that is an important activity area for Department A; included academics, public servants, land management professionals, and land users participating in and creating service delivery changes. The author has observed and participated in the longitudinal innovation resulting in organizational change that has had desirable outcomes in sustainable service delivery. Through this it was identified that innovative change within the Public Sector Organizations facilitated innovation and improved focus on delivery that generated innovative service delivery and sustainability outcomes (Newnham & McMurray 2007).

There has been little focus in research literature on Public Sector Departments of State and their particular characteristics. Organizational culture was proved to be a determinant of performance of Public Sector Organizations by a few researchers (Boyne 2003; Brewer & Selden 2000). However it was emphasized that the range of organizations studied was limited which affected the quality of the findings (Boyne 2003). The paucity of research in this area was described in a case study to evaluate a Victorian Public Sector Department's innovation capacity. It highlighted that the organization struggled to identify attributes that would contribute to an innovative public policy organization as this area was completely under researched (O'Connor, Roos & Vickers-Willis 2007).

2.19 The Differences between Public Sector and Private Sector Management

The Australian government operates on a three-tiered government system – there are the Federal, State and Local Levels. The Australian States and Territories operate within a Westminster tradition although significant changes to government operations have been made over the last thirty-five years. Halligan (2001) identified that the 'states have been at the cutting edge of public sector reform in Australia for much of the past 20 years …the states are the main public service delivery system within the Australian Federation' (p. 9). They have a strong departmental tradition and this has led to the development of specialist departments. This has supported the need to improve Departmental co-ordination and the efficiency and effectiveness of service delivery.

Government has a different mission to commercial organizations. It produces goods and services but the aim is to benefit citizens and provide public value rather than make profits. Hughes (2012) identified five particular differences why the public and private sector 'are not alike and can never be so' (p. 7), which are outlined below:

First, public sector decisions can be *coercive* as citizens are forced to comply with decisions, and subject to sanctions relating to coercive powers of the state. Private enterprises have more freedom to be *arbitrary* when delivering services such as choosing to charge customers different prices and refusing to deal with others.

Second, there are different forms of *accountability* compared to the private sector with the public employee accountable to the political leadership, parliaments, and the public and to various parts of the judicial system. Company management is accountable to its board and shareholders.

Third, there is an *outside agenda* largely set by the political leadership. This is different from the profit motive being the shared motivation of a private organization. 'Politicians may require actions that detracts from good management practice, change their minds frequently, and require administrative action to be taken for quite blatant political reasons' (Hughes 2012, p. 8). One example of this is the regular changes in the organizational scope of the Victorian Environment Department over many years. Managers can have a large part of their operating agenda imposed which reduces their scope for action even though the public manager is responsible for results.

Fourth, there are *difficulties in measuring output* or efficiency in production. There is not the bottom-line criteria that relates to profit as is in the private sector. There are approaches to doing this however there can be a lack of agreement on goals or ways of measuring them and further in ensuring every person in the organization works to them.

Lastly, the public sector's large *size and diversity* make control or co-ordination difficult. There are tradeoffs between funding different activities for example choices to invest in schools, hospitals or the environment. Co-ordination across portfolios can be a matter of political choice and this is not always informed technically. These difficulties are not seen in the private sector.

Government uses power to compel those within its jurisdictions to do what it wants with citizens mostly willingly complying with the law (Alford & Hughes 2008). This contrasts with business that provides choice and operates to persuade consumers to buy its products to return a profit to its owners. Given the differences between the public and private sector outlined above management varies within both sectors varies. This difference was demonstrated by Alford and Greve (2017) contrasting the use of strategy in each sector. For example, in the 1980s the most common model for the development of private sector strategy

focused on a single organization determining what products to offer and to what markets. Within this it considered the value to be created; the environment; and organizational capability. The New Public Management strategy model that evolved from this strategy frame was deficient in including public value concepts and the need to work with many different constituencies. Private sector management practices can not necessarily be translated into the public sector context without modification to suit the different role of the Public Sector (Alford & Greve 2017).

Management theory and research can make a contribution to public policy and public organizations especially by using management theory to describe and analyze case findings (Hitt 2005). Public policy makers and leaders of public organizations are important constituencies of management research as they manage up to a third of organizations across the world (OECD 2015). The policy implications of the work by management scholars are important to emphasize, communicate and to be translated into recommendations that can be used by managers and public policy makers to benefit their day to day work (Hitt 2005). Management theory is broad in scope and coverage and public sector management can be analyzed from a number of perspectives reflecting the multidisciplinary background of public management studies. Public sector management has been found to have been studied in relation to a number of dimensions including: citizen preferences and interests; public choice matters; structures of formal authority; discretionary management, organization, and administration; primary work and core technologies; consequences outcomes, outputs, results; and stakeholder assessments of performance (Forbes & Lynn 2005). Given this diversity of approaches there are a range of views around particular aspects of public sector management. Many studies focus on different categories of Public Sector Organizations and yet there are important differences within these organizations that affect how they are able to be managed.

This thesis allows for a case study analysis to be applied to a Victorian Public Sector Organization in this instance a Department of State. This appears to be the first time research of this nature on the relationship between culture and workplace innovation has been undertaken on this form of Public Sector Organization in any part of the world (De Vries,

Bekkers & Tummers 2016; Johnston Miller 2012). To date, there has been no study of this nature undertaken in the environment agency in Victoria and no similar work in other government agencies using the constructs developed to investigate the research questions.

2.20 Developments in Public Sector Management

2.20.1 New Public Management to the evolution of Public Management.

The development of a new paradigm of public management has been identified as overtaking the New Public Management (NPM) phenomenon. NPM exhibited efficiency and service delivery reforms largely driven by governments to respond to their needs for better information and performance indicators, more efficient service delivery and a greater connection to the needs of the citizenry (Halligan 2010; Hughes 2012, 2017). It could be argued that the disturbances caused by the NPM phenomenon created enough disturbances with the understanding of the older research field of Public Administration to lead to a new paradigm of Public Management being created (Kuhn 1970). There is debate on whether NPM was a paradigm itself and while NPM did create changes in public management this was not enough to establish a new common approach to public sector management. The NPM reforms related to a range of actions being taken across the world that had no agreed content. This led to NPM-style change representing yet another wicked problem in managing Public Organizations (Steane, Dufour & Gates 2015).

The phenomenon of New Public Management had a major impact on public sector management, it contained a group of ideas with a neo-liberal doctrinal content (Hood 1991). It was mostly initiated by governments wanting more control of the public service and to reduce costs, increase transparency to citizens and to increase accountability (Alford & Hughes 2008; Costar & Economou 1999; Hughes & O'Neill 2001; Liddle 2017). This worldwide trend of NPM reforms began in the 1970s and dominated the bureaucratic reform agenda in many of the OECD countries and was adopted in many parts of the world. It heavily influenced the writing of public sector academics for a number of years (Hood 1991; Hughes 2012).

There were flaws in the NPM approach. For example it was designed to promote frugality including cost cutting as the primary value in the operation of the public sector resulting in the government being less capable of building a system that was designed around the values of honesty including fair dealing; and resilience including security in public administration (Hood 1991). Each of the three values of frugality, honesty and resilience required particular forms of organization and there were conflicts if one was the dominant value. For example designing for frugality would conflict with the additional structures and processes that would be needed to achieve honesty. Hood (1991) contended that 'the emphasis on cost-cutting, contracting-out, compartmentalizing and top-slicing' (p. 16) needed to be tested to determine the benefits that were achieved and whether this came at a cost such as the reduction of safety cultures at the frontline. Other issues became evident with the devolving of delivery to service delivery agencies that included reducing political control of the delivery of government services (Halligan 2010; Lægreid & Verhoest 2010).

Initial NPM changes were put in place by the Thatcher Government in the United Kingdom with another set of major reforms sparked by the Blair Governments' agenda for the delivery of public services. This 'Third Way' was a highly-centralized approach that tried to direct the public sector including sub-national organizations with the aim of creating innovation, creativity, foresight and break throughs (Johnston Miller 2012). The United Kingdom has seen major NPM reforms since the 1980s (Ferlie 2017a). These changes were influential in changing public sector delivery, with the United Kingdom, Australia, Canada, Sweden and New Zealand identified as highly impacted by NPM with a medium impact on the United States of America (Hood 1995). Within Australia and New Zealand there was a move to NPM during the 1980s when economic circumstances let to a search for reform leading to the adoption of private sector and market principles being applied to the public service (Halligan 1997).

Several unintended consequences of the NPM approach were identified from the United Kingdom reforms (Lee & Woodward 2002). These included the centralizing of control over resource allocations by central agencies of government which controlled reform of public services across all regions of the United Kingdom. This was seen to recapture political

authority over the policy direction or steering and implementation of the set policy or rowing (Osborne, D & Gaebler 1992, 1993). The unintended consequences of centralized control in the United Kingdom were counterproductive for creativity and innovation across regional areas (Lee & Woodward 2002). A move to 'join up' the delivery of services and create horizontal governance arrangements including collaborative mechanisms to overcome evident problems reversed certain NPM changes in many countries (Halligan 2010; Lægreid & Verhoest 2010).

Victoria undertook many public sector reforms initiated by the Kennett Liberal Government from 1992 to 1997. The Australian system of government unlike the UK has States delivering many of the functions of government and there is less centralization of services at a national level. A number of NPM changes were initiated by the Kennett government in response to a dire budget situation at the time (Costar & Economou 1999). The program of reforms built upon reforms in the UK and New Zealand including an exchange of policy material from New Zealand (Goldfinch & Roberts 2013).

One of the measures led to the creation of mega departments by reducing the number of departments from 22 to 13 and increasing their span of operation, building on an earlier program of reorganizing departments introduced by the Cain-Kirner Labor government (O'Neill 1999). While the aims of many of the reforms around the public sector were to make it more comparable to private sector employment, O'Neill (1999) believed that a hybrid public service had been created which did have more elements of private sector management employment conditions but still retained a number of public sector specific characteristics.

As NPM was occurring a number of public management changes were underway across the world (Keating 2001; OECD 1998). Keating (2001) writing on behalf of the OECD described managerial reforms as a new paradigm of public management and identified the key points:

> In most Member countries public management reform has involved a major culture shift in response to a new paradigm of public management, which attempts to combine modern management practices with the logic of economics, while still retaining the core public service values. This new management paradigm

> emphasizes results in terms of 'value for money', to be achieved through management by objectives, the use of markets and market-type mechanisms, competition and choice, and devolution to staff through a better matching of authority, responsibility and accountability (Keating 2001, p. 145).

Hughes identifies the key components of a public management theory is that 'a public manager is required to perform a given function, to deliver results, and is personally accountable' (Hughes 2012, p. 328).

There has been academic debate over New Public Management and whether public management has risen from these activities or was a parallel reform process that was gradually gaining momentum (Kisner & Vigoda-Gadot 2017). New Public Management is a term still used widely in many academic works and continues to be the subject of research (Kisner & Vigoda-Gadot 2017) including identification of positive outcomes of fostering innovation creation in government (Suzuki, K & Demircioglu 2017). There is a difference in the development of New Public Management across the world with the same phenomenon evolving differently in diverse cultural settings. As a case in point, a small body of research has found the bureaucratic culture of Public Sector Organizations to be persistent in Australia despite NPM reforms (Harrison & Baird 2015; Parker, R & Bradley 2000). Reforms across the world have found it hard to shift in fundamental ways the 'deep, sedimented structures' of the public sector (Pollitt & Bouckaert 2017, p. 221). It has been argued that it created a temporary change to cultures by trying to build a more collaborative and creative culture to deal with the need to support new horizontal governance arrangements (Halligan 2010). Parker, R and Bradley (2004) suggests the bureaucratic form persists but NPM has created a new form of this based on markets and associated values, rather than political controls and values.

It has been thirty years since the NPM reforms began to take effect and it has prompted researchers to consider what has occurred. In a conceptual survey of management changes in public management over the last thirty years Hughes argued that public management has delivered an enduring set of reforms (Hughes 2017). These management reforms have been initiated by the public sector responding to the changing environment within which they work

(Brunsson & Sahlin-Andersson 2000). In that time there has been a clear move from ‘public administration (which) involves process, procedures, bureaucracy in the formal sense, and following instructions from political leaders’ to public management where ‘a manager takes personal responsibility for the delivery of results’ (Hughes 2017, p. 547). Other reflections are that NPM as a large scale set of global action was completed around 2000, however changes using a NPM approach are still happening in various parts of the world. NPM has been described as existing with two other models being the Neo-Weberian State (NWS), and New Public Governance (NPG) (Pollitt & Bouckaert 2017). NWS being a model for modernization that recognizes private sector management techniques may not be the best answer for public sector management and to remodel traditional bureaucracy for modern demands.

NPG incorporates the governance issues across networks and throughout levels of the public sector in its approach. It has been developed since the 1990s from an explanation of the difference context for public sector management through the concept of a ‘Public Value’ framework (Alford et al. 2017; Johnston Miller 2012; Moore 1995). This framework considers the complexities of working with many constituents and stakeholders and calls for more entrepreneurial activities by public managers. Hartley et al. (2015) observed this had raised the issue of ‘the ‘politics/administration dichotomy’ – the principle that politicians should not interfere with public administration and appointed public servants should not encroach on the realm of politics’ (Ibid p. 195). This concept was studied across three countries that operated under the Westminster system: Australia, New Zealand and the United Kingdom. The findings were that managers demonstrated political astuteness that can enable them to undertake entrepreneurial activities ‘better, in reading collective aspirations, securing a mandate, and enlisting capabilities (Ibid p. 209). A public manager’s ability to be politically astute was an important skill in assisting them to deliver according to the public value framework. These results were supported by a cross-cultural study in the United Kingdom and Brazil on stakeholder management by public sector managers in local government that found that managers successfully and astutely navigated complex stakeholder arrangements (Gomes, Liddle & Gomes 2010).

2.20.2 The Victorian context

The Victorian Government has undertaken a range of reforms in recent years to respond to its changing operating environment. A radical change happened in 1992 with a change of government intent on reform with a mandate for major change as Victoria was in a dire financial situation. The Kennett Liberal government rationalized the Victorian Public Service and introduced the policies of New Public Management (NPM) (Costar & Economou 1999; Strangio & Costar 2006). The new Government used private sector management techniques to reform the operation of the Public Service with the intent to reshape governance structures to: 'minimise transaction and contracting costs', the introduction of 'public choice theory' to apply 'conventional economic behaviour to collective decision making'; and apply 'modern competition policy' provided 'an impetus for replicating competitive markets in the Public Sector' (English & Guthrie 2001, p. 47). Innovation and change was pushed from the political level. State public management reforms then led to the introduction of NPM approaches at the Commonwealth level (Halligan & Power 1992).

This led to many innovative changes in service delivery that have provided benefits to the Victorian community. NPM allowed service delivery to be redefined and managed differently allowing innovation and improvements to be put into place. However, managerial reform of community programs such as 'hospitals, schools and welfare programs meant that communities had to do without or travel further to receive such services' (Hughes & O'Neill 2001, p. 72). The mix of good and bad outcomes have been argued to be typical of NPM reforms (Hood 1991; Lee & Woodward 2002).

The political context of government influences how the Public Service is managed and creates ongoing change to meet changing political policy platforms. Hughes and O'Neill (2001) identified that government is not purely a matter of management of government services as there is always an element of politics involved. This will 'sometimes conflict with best practice in management' (Ibid p. 73). For example departmentalism 'had very deep roots in state government' (Halligan 2001, p. 15) and actions like joining departments together to create mega-departments or to have strong central agency control has not been completely successful. The activities of the political realm such as changing structure to meet policy

agendas creates ongoing organizational changes that can result in adverse operational results (Wynen, Verhoest & Kleizen 2017).

The current Victorian State government environment in 2018 is affected by the state of the State's economy. In the last few years high population growth has been a contributor to Victoria's economy growing by 3.3 per cent in 2015 to 2016. Gross State product (GSP) per capita grew at 1.4 per cent in 2015 to 2016 compared to a negative per capita growth in 2013 to 2014 (DTF 2017).The current situation has stabilized however there had been economic and social turbulence and uncertainty affecting budgets in earlier years. These were outlined as risks to the Victorian Government budget outlook and identifying that this was a time of high global economic and policy uncertainty (DTF 2017, p. 35).

This affected the General Government Sector which does not include funding service delivery organizations like schools and hospitals. A high rise in expenses prior to 2014 to 2015 and slower economic growth led to a tight budget strategy being put into place in 2014 (DTF 2014). Action had been taken to reduce expenses by introducing a program called the Sustainable Government Initiative (SGI) in the Budget Update of December 2011 with the stated intent of increasing efficiency and productivity (DTF 2011). A planned reduction of 4,200 public service workers was undertaken over two years until its completion in 2013. A 'labour sustainability cap' restricting new employment was put in place on 1 January 2014 to conserve the efficiency gains from the SGI (DTF 2014, p. 10). This policy had a lasting impact on the Victorian Public Sector workforce with the reductions affecting all Departments with a number losing up to a quarter of their staff. The Community and Public Sector Union stated that the 'result was a workforce stretched to breaking point with an entrenched sense of insecurity, which in turn had a detrimental impact on services' (CPSU 2015).

To support the changes to the public service, a Better Services Implementation Taskforce was instituted and chaired by a former DPC Secretary with the Government goals being to modernize the public service and improve service delivery for Victorians. Many of the reforms envisaged would be carried out at the Department and organization level. The policy focus had tended to be on developing innovation in the economy without considering that the public service is made up of organizations that together provide a significant contribution to GDP,

and through government policy and services influence innovation take up in the wider economy.

2.20.3 Changing organizational forms in the Public Sector context

Organizations continually alter in the Victorian Public Service due their connection to political mechanisms that change on a regular basis through four year election cycle in Victoria. This is recognized in the Victorian Public Sector Commission's Annual report on the sector which reports that the 'composition of the Public Sector … reflects the Government's policy priorities and choices as to the structure for delivering government administration and services' (VPSC 2016, p. 11). This creates continual change in Victorian Government Departments which deliver the services and administer the State's legislation and government policy.

Particular Departments are subject to more change that others. For example, the Department that has the Environment function is a relatively new creation in comparison with those dealing with finance, education and health. Since the first iteration of the environment function as a central government organization as the Ministry for Conservation in 1973, there have been eight major changes and several smaller ones. In the last 44 years this is on average a change every five-and-a-half years with an increased turn over in the last years with three changes in the last five years. This amount of change has an impact on the development of organizational culture which is argued to take time to build and evolve (Schein & Scheiner 2016). The intense period of organizational change was characteristic of the public sector when political environments are volatile (VPSC 2014; Wynen, Verhoest & Kleizen 2017) creating significant organizational disruption (Wynen, Verhoest & Kleizen 2017). Politically initiated changes can create significant organizational disruption and be undertaken without considering the organizational and cultural impacts (Ferlie, Hartley & Martin 2003; Wynen, Verhoest & Kleizen 2017).

This creates a situation where groups that have been broken away from other organizational structures and have strong cultures (Trice & Beyer 1993), joined with parts of organizations that had well formed but different subcultures. The cultures can be very different as the newly

joined groups can have different missions, deal with different subject matters and have differing values and behaviours. This often creates a conflict situation.

2.21 Public Sector Organizational Management Summary

There is a difference in how private and public sectors organise to delivery outcomes. One reason is the governance of these organizations. The Victorian Public Sector is tied to regular political election cycles which can result in a volatile and continuously changing structures for departments. New governments when appointed decide how their political agenda can be best served and often change departmental structures. This has been demonstrated to be particularly so for the environment function of the State as a relatively new function and one that underpins several other functions such as primary industry or planning and as such can be connected to these functions in an organizational form. As well as the organizational form being to deliver outcomes efficiently as with private organizations, there are other responsibilities to deliver public value that requires dealing with multiple constituencies and stakeholders. Conflicting demands within public organizations and less focus on outcomes and profits creates a different form of organization that is more bureaucratic, risk adverse and subject to organizational change for political rather than functional ends. This has an impact on the development of organizational culture and how services are delivered including developing innovation practices.

2.22 Demographics and Employment Characteristics

A range of demographic and employment characteristics information were collected to identify relationships between the characteristics of those surveyed and workplace innovation and culture. These included demographic of gender, age, marital status, educational level and employment characteristics including working tenure, job type, work group, work role, and workplace flexibility.

Organizational culture and climate are complex and multilevel phenomenon with many climates existing within an organization at any one time. Organizational life may be perceived differently for its members in different work groups, at different organizational levels, at different locations, from different and diverse backgrounds (Glick 1985; Koys & DeCotiis

1991; Schein & Scheiner 2016). It has been affirmed that staff identify with different groups in the organization that may be formed on the basis of age, gender or education as well as location, job description and length of tenure (Parker, R & Bradley 2000). Staff may identify as a separate group within the institution, share a commonly defined set of problems and act on the basis of collective understandings unique to their group (Van Maanen & Barley 1983). The concept of culture within an organization is not homogeneous but plural and often contested with competing factions defining the organization in a way that meets their cultural perceptions (Laurila 1997; Parker, M 2000; Van Maanen & Barley 1983).

The relationship between demographic characteristics and culture and workplace innovation is not well described in the literature. In particular gender issues in terms of innovation, especially in a public sector context, have seldom been discussed or examined (Alsos, Hytti & Ljunggren 2016; Van Acker, Wynen & Op de Beeck 2017). In a study of data from the 2014 Australian Public Service Employee Census, innovation climate was studied to determine if there were barriers according to gender (Van Acker, Wynen & Op de Beeck 2017). Innovation climate was defined as 'employees' perception of the degree to which an organization supports and encourages its staff to take the initiative to explore creative ideas that foster innovation within the organization' (Chan, Liu & Fellows 2013). The findings 'demonstrate that women experience a less supportive innovation climate than their male colleagues' (Van Acker, Wynen & Op de Beeck 2017, p. 13). The researchers commented this was notable given that the public sector overall has a predominately female workforce. In addition, it was found that when employees exceeded a 15 year length of service, they reported less supportive innovation climates.

Job related diversity relating to the heterogeneity of team members' organizational tenure, educational level, and industrial experience is one of the most important variables for positive team performance outcomes (Baruah & Paulus 2009; Cohen, SG & Bailey 1997; Nijstad & Paulus 2003; Peters, L & Karren 2009; Van Knippenberg & Schippers 2007). As with team diversity, organizations supporting diversity have been found to be more innovative and workplace diversity creates workforces that better represent the client groups they serve (Bolen & Kleiner 1996; DCA 2015; Grant & Kleiner 1997; Liff 1999). A relationship between

Workplace Innovation and age has been found with an empirical study undertaken by Chomley (2014) in a Private Sector Multinational Company that posits that the older people become, they become more innovative in their work. This was be explained by the fact that workplace innovation is an accumulation of different skills which asks for certain experience (Reader & Laland 2001) with mature employees more likely to possess these skills and experiences.

Within organizations Managers and Senior Executives as a group have significant impact on the innovation performance of others (Damanpour & Schneider 2006). They have significant roles to play by creating a work and social climate to improve morale and encourage and reward innovation and change (DiTomaso & Hooijberg 1996; Ekvall & Arvonen 1994; Elenkov, Judge & Wright 2005; Hooijberg & DiTomaso 1996).

There is a paucity of research on the innovative behaviour of public sector employees (Bysted & Hansen 2015; Rainey 1999) and this thesis will analyze this in respect of the relationship between Workplace Innovation and Organizational Culture,

2.23 Omissions

Based on a review of literature on organizational culture and workplace innovation in the Public Sector, five important gaps appear.

Firstly, the literature is silent on a number of aspects of organizational culture within Public Sector Organizations especially on how they work and how they innovate. Yet the public sector is important in supporting countries productivity and Kelman (2005) identifies that 'countries face serious challenges of managing public organizations effectively, and of solving intractable public problems that have a strong management component' (Ibid p. 967). Kelman in Kelman et al. (2003) has posited that there is 'not nearly enough good prescriptive (or even explanatory) research being produced about how to achieve high performance in government organizations' (p. 4). Within Australia, there has been recognition of the need for additional research on Public Sector Departments to support developing their performance (Harrison & Baird 2015). The particular organization form being studied, a Victorian State Government Department, has not been the subject of large amount of academic focus. There

is a lack of easy access to Departments to undertake studies as their management is often risk adverse because they are open to intense public scrutiny on their decisions.

Secondly, there a paucity of literature on workplace innovation, organizational culture and management in the public sector. Yet identifying how innovation works at the workplace level in a government agency provides support and ideas on how to achieve benefits at the organization level that will flow through to the operations of the organization, other parts of the public sector and the larger government sector. Public sector innovation is a relatively new research area with innovation in Government organizations being a neglected and undeveloped research area and continually identified as such by researchers (Brown & Osborne 2013; Hartley 2013; Stewart 2014; Torugsa & Arundel 2014). This thesis will contribute to the current body of innovation knowledge and Public Sector Innovation Theory. This thesis builds information about innovation in the public sector particularly in an organization that is concerned with the environment and the use of land in Victoria. There a paucity of academic research about innovation in the public sector and even less within the Australian Public Sector, and less again on the Victorian State Government. The author has not found any academic literature to date about innovation in the State's Environment and Primary Industries Department.

The public sector largely delivers services and service innovation has been a neglected field. This is changing however most research has focussed on Public Sector Organizations such as hospitals and schools delivering services rather than the particular functions of departmental service delivery. In general, studies of innovation in Government organizations are limited and it is a neglected and undeveloped research area and continually identified as such by researchers (Brown & Osborne 2013; Hartley 2013; Stewart 2014; Torugsa & Arundel 2014).

Public sector organizational culture has rarely been studied with only a few studies being undertaken in Australia with the researchers calling for more to be done (Harrison & Baird 2015). Public Sector Management is a field that has grown from Public Administration and is emerging from a significant debate about the status of New Public Management. As a field

newly emerging from the latter two fields there is much remaining to be described about the components of Public Sector Management especially at the organizational level.

Thirdly, there is no substantial literature on the relationship between workplace innovation and organizational culture in the public sector. The difference between organizational culture in the public and private sector is identified by a few authors including Schein and Scheiner (2016). Schein's work on the Singapore Development Corporation (Schein 1996b) identified the difference as the context within which the organization works. This had a direct impact on the values and behaviours evident in the organization. The inter-relationship between the political context and the expression of culture within a Public Sector Organization has not been the subject of many academic works. One of the issues with organizational culture research is that organizational culture is very connected to particular organizations. It has become an area where consultants are assisting individual organizations with culture development but are not publishing in academia leading to a lack of studies that can assist in developing knowledge in this area. The public sector is scrutinised by many public review organizations such as the Auditor-General, the Victorian Public Sector Commission and Ombudsman Office. They publish reports on efficiency and practice but these have rarely been used by academia to build understanding of the sector.

The Australian Public Service through providing open data access to a number of its data sets has allowed a number of researchers to use employee Census and employee satisfaction surveys undertaken on the Australian Public Sector to research innovation within the Australian Public Service (Demircioglu 2017a; Demircioglu & Audretsch 2017; Torugsa & Arundel 2016b; Wipulanusat, Panuwatwanich & Stewart 2017). There are limitations with using the APS data collection regime, the information collected does not identify how this relates to particular types of Public Sector Organizations and researchers cannot provide a detailed context of how culture at the organization level was impacting on workplace innovation. This small body of research used cultural measures developed external to the organization which did not reflect the organizational culture of specific organizations.

Fourthly, the focus on demographic characteristics including gender, marital status, age and education, and employment characteristics including tenure, job type, work groups, role, and

flexible work and their linkages to organizational culture and workplace innovation in the public sector are neglected. There is a paucity of research on the innovative behaviour of public sector employees (Bysted & Hansen 2015; Rainey 1999) with aspects like gender having seldom been studied (Alsos, Hytti & Ljunggren 2016; Van Acker, Wynen & Op de Beeck 2017).

Lastly, the constructs of organizational culture, workplace innovation and public sector management have all been studied using different methods. Organizational culture primarily through qualitative analysis, workplace innovation through quantitative analysis and public sector management have a mixture of qualitative and quantitative. Researchers have called for additional research in these areas with Hartley (2013) calling for more innovation research from a public sector context and De Vries, Bekkers and Tummers (2016) specifically identifying a need to use mixed methods approaches to gain benefits from both qualitative and quantitative methods of research, and connecting to the existing research body that used either qualitative or quantitative approaches. Table 2 shows the omissions and outlines the questions these raise below:

Table 2 - Omissions and Questions Raised from the Literature Review

	Reference	Addressed by	Question
Empirical studies that focus on a large Public Sector Organization, particularly a Department of State are rare.	(Harrison & Baird 2015); (Kelman 2005)	Structure research design to support this focus by using a case study. Selection of target organization. Data collection (and survey) design.	OQ. 1. What is the relationship between workplace innovation and organizational culture in a Department of State?
No substantial literature on workplace innovation, organizational culture and management in the Public Sector.	(Brown & Osborne 2013); (Harrison & Baird 2015); (Hartley 2013); (Hughes 2012); (Hughes 2017); (Liddle 2017); (Stewart 2014); (Torugsa & Arundel 2014)	Review current literature in this domain. Structure Research design to support this focus.	OQ. 2. What are the characteristics of workplace innovation, organizational culture and management in a public sector context?
No substantial literature on the relationship between workplace innovation and organizational culture in the public sector.	(Bradley & Parker 2006; O'Connor, Roos & Vickers-Willis 2007; Parker, R & Bradley 2000; Wynen, Verhoest & Kleizen 2017); (Schein & Scheiner 2016); (Wipulanusat, Panuwatwanich & Stewart 2017)	Review current literature in this domain. Structure research design to support this focus	OQ. 3. What is the relationship between workplace innovation and organizational culture in the public sector?

	Reference	Addressed by	Question
The focus on demographic characteristics including gender, marital status, age and education and employment characteristics including tenure, job type, work groups, role, and flexible work and their linkages to organizational culture and workplace innovation in the public sector are neglected.	(Alsos, Hytti & Ljunggren 2016); (Bysted & Hansen 2015);(Rainey 1999); (Van Acker, Wynen & Op de Beeck 2017)	Research design to support this focus. Target organization to allow for a diverse sample population. Data collection and survey design.	OQ. 4. How do the demographic and employment characteristics influence organizational culture and workplace innovation in the public sector and what are their significance?
Empirical studies that focus on the constructs of culture, workplace innovation and public sector management are rare.	(De Vries, Bekkers & Tummers 2016); (Hartley 2013)	Research design to support this focus. Use of mixed methods approach to consider differing research methodologies used for these constructs.	OQ. 5. How can a mixed methods research design combine differing research methodologies for the constructs of culture, innovation and management in a public sector context?

The summary table shows the omissions identified, the references identifying them and outlines how they will be addressed. Omission questions (OQ) raised are then shown. These questions are addressed in the next section.

2.24 Addressing the Omissions

OQ. 1. What is the relationship between workplace innovation and organizational culture in a Department of State?

This will be addressed by Structure research design to support this focus by using a case study, with the selection of a target organization and through data collection and survey design.

OQ. 2. What are the characteristics of workplace innovation, organizational culture and management in a public sector context?

This will be addressed by reviewing current literature in this domain and structure research design to support this focus.

OQ. 3. What is the relationship between workplace innovation and organizational culture in the public sector?

This will be addressed by reviewing current literature in this domain and structure research design to support this focus.

OQ. 4. How do the demographic and employment characteristics influence organizational culture and workplace innovation in the public sector and what are their significance?

This will be addressed by research design to support this focus with a target organization to allow for a diverse sample population and in data collection and survey design.

OQ. 5. How can a mixed methods research design combine differing research methodologies for the constructs of culture, innovation and management in a public sector context?

This will be addressed by Research design to support this focus and use of a mixed methods approach to consider differing research methodologies used for these constructs

Research questions and related hypotheses to answer the omissions

The gaps and research opportunities identified during the literature review process, resulted in the following Research Questions and their supporting Hypotheses:

RQ. 1. What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization?

H1: Public Sector Culture has a significant effect on Workplace Innovation.

H1a: Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.

H1b: Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.

H1c: Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.

H1d: Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.

RQ. 2. What are the differences in perception among Demographic Groups towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.

H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H5: Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.

RQ. 3. What are the differences in perception among staff having specific Employment Characteristics towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

H6: There is a difference in perceptions among staff with specific Employment Characteristics towards the aspects of a Public Sector Organization's culture.

H7: There is a difference in perceptions among staff with specific Employment Characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H8: Employment Characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H9: Employment Characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.

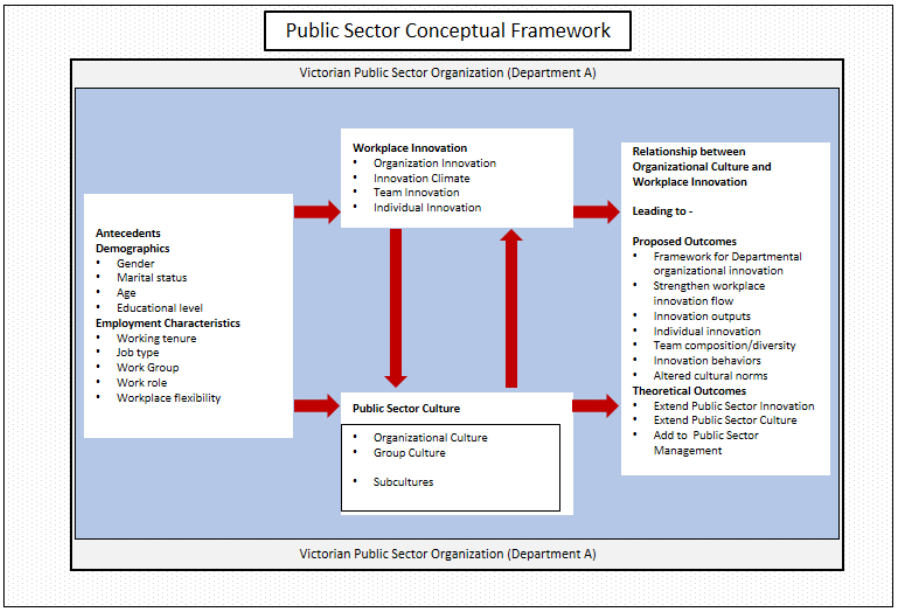
RQ. 4. What ways do Victorian public sector organization reports corroborate with Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization?

RQ. 5. In what way does the mixed methods analysis contribute to understanding Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization?

2.25 Conceptual Framework

The Conceptual Framework depicted in Figure 2 below shows how the conceptual components of this thesis work together to address the omissions and research opportunities identified in the literature review. This thesis investigates the relationship between Workplace Innovation and Public Sector Culture in the public sector within the frame of a Victorian Public Sector Organization. It identifies how the four demographic factors of gender, age, marital status, and educational level; and the five employment characteristics of working tenure, job type, work group, work role and workplace flexibility, relate with the two aspects of Public Sector Culture and four dimensions of Workplace Innovation. There are more dimensions of Organizational Culture and Workplace Innovation than the ones contained in this thesis, however these ones were supported by the organization as part of the data collection arrangement.

Figure 2 - Conceptual Framework Model



Source: Author, format adapted from (Chomley 2014; Miles, MB & Huberman 1994)

The respondents in this thesis are 479 employees of a Victorian Public Sector Department (Department A) that were responsible for managing the Environment and Natural Resources and Primary Industries.

The two aspects of Public Sector Culture were collected using the Organizational Culture Audit Tool adapted from Pace and Faules (1994). The question and collection method was based on the component of an Organizational Communication Profile (OCP) (Pace & Faules 1994). This supported the analysis of culture at the organizational level where it is experienced by the actors or staff in the organization (Pace & Faules 1994; Schein & Scheiner 2016). Data analysis of the one word culture questions was carried out using a standard qualitative research data analysis process (Creswell 2014, 2016; De Vaus 2002; McMurray, Pace & Scott 2004). The coded responses were ranked using the pragmatist principle that qualitative data is often converted to a quantitative scale for analysis, and that qualitative and quantitative research exist on a continuum (Creswell 2014; Newman & Benz

1998; Onwuegbuzie & Leech 2005; Tesch 2013). The researcher used the strengths of both techniques in order to achieve a description of culture that accurately reflected the views of the staff of Department A (Sieber 1973).

The Workplace Innovation Scale does not have its dimensions altered or transformed. The scale to measure innovation is the Workplace Innovation Scale (WIS) (McMurray & Dorai 2003) which is a 21 item Likert scale ranging from 1 to 5. This scale has been utilized in various recent studies and is most relevant in terms of reliability, validity and accuracy (Baxter 2004; Chomley 2014; McMurray & Dorai 2003; McMurray et al. 2013; Von Treuer & McMurray 2012). The Cronbach's Alpha reliability coefficient is 0.73 - 0.90. This demonstrates that WIS is a proven and reliable scale.

2.26 Summary

The purpose of this chapter was to examine the literature of prior research in the subject domains of Organizational Culture, Workplace Innovation and Public Sector Management relevant to a Public Sector Organization.

This researcher concluded that very little research has been conducted on the conjoined domains of organizational culture, workplace innovation and Public Sector organizational management. Many of the researchers in the subject domains have noted the paucity of information available and called for additional studies to be undertaken to build the literature base.

It could be argued that this thesis is essential in addressing the relationship of organizational culture to workplace innovation within a Public Sector Organization; bringing public sector organizational culture, public sector innovation and public sector management literature closer together by highlighting the role of organizational culture in fostering public sector innovation.

In addition, the literature review and analysis has identified there was little research undertaken on the effects of demographic and employment characteristics of public sector

staff and their effect on the aspects of organizational culture and workplace innovation in the public sector. This research provides a way for their voices to be considered in the literature.

The next chapter in the thesis reports on the context, specifically the Victorian Public Sector Organization that is the subject of this research.

Chapter 3. Victorian Public Sector Organization

3.1 Objective

The purpose of this chapter is to describe the Victorian Public Sector Organization that is the subject of this case study. It defines the type of organization, gives the historical context to its development and summarizes its operational arrangements including an overview of the organization's culture.

3.2 Introduction

Section 3.3 provides a definition of Victorian Government Departments, with 3.4 providing a history of the Environment Department in Victoria. Section 3.5 reports on the operational details of the current iteration of this Department, Department A including its culture and two major organizational subcultures. Section 3.6 provides a summary of the chapter.

3.3 Definition of Victorian Government Departments

The Public Sector in Victoria is defined by the *Public Administration Act* 2004 (PAA). It is made up of: the Victorian Public Service (VPS), public entities and special bodies. Within this structure the Public Service is defined in Part 3 of the PAA and consists of the staff employed in; Departments, Administrative Offices, the Victorian Public Sector Commission and other bodies and offices designated as Public Service employers' (VPSC 2016, p. 7). The Public Sector employed 385,423 employees through 3,388 bodies (Ibid p. 2) which was estimated to be 12.6 per cent of the total Victorian workforce in 2016 (ABS 2016). The Victorian Public Service is a sub-set of the Public Sector relating to Departments and Agencies that come under Ministerial direction and employs 36,567 people through 39 employers (VPSC 2016, p. 2).

Departments undertake a wide range of functions and activities that include: policy and administrative functions, direct service delivery and the funding and coordinating of service delivery by other parts of the Public Sector. The list below provides additional details of Department's roles and functions:

- Role A - policy and administrative support to Parliament and Ministers
- Role B - service delivery functions such as;
    - maintenance and management of state forests and fisheries
    - bushfire prevention and suppression on public land
    - provision of research and other support to agriculture industries.
- Role C - funding and coordinating the delivery of services (often delivered by public entities), such as;
    - water and sewage supply and environmental management
    - cultural assets such as the Royal Botanic Gardens.

Department Heads are responsible to the relevant Minister for the general conduct and the effective and efficient management of the activities and functions of their Department, and any associated Administrative Offices. They have a responsibility to work with the public entities within their Ministers' portfolios and to advise their Ministers on matters relating to these entities' (Adapted from VPSC, 2016, pp. 7 - 8).

Departments 'form the core unit of the machinery of government… as Ministerial Departments, they play a central role in supporting the Minister and communicating, directing and coordinating within a functional sphere of activity' (Edwards et al. 2013, p. 107). The context for delivery is the political agenda set by the current government: the services delivered to citizens can include enforcing legislative obligations that are delivered within a multiple set of accountabilities including political leadership, parliaments, and the public and to various parts of the judicial system. The organizational form of Departments is shaped by 'legislative requirements as to the roles and responsibilities of agency heads and other matters, such as reporting' and the ' nature of the department and its responsibilities' with 'a secretary's leadership style' playing 'a role in the development of this culture' (Edwards et al. 2013, p. 107).

In summary, Departments are a distinct form of Public Sector organization that is created to deliver a range of functions and activities according to mandatory requirements that are set

out in various legislation, regulations and conventions. Changes in Public Service management have relaxed the traditional model 'and it became accepted that more flexible bureaucracy and adaptive solutions, and the use of third parties, were required within a public management focus' (Edwards et al. 2013, p. 107). They exist in the context of the whole of government operations where management, accountability and other policies are established.

3.4 Organizational Summary - Department A

The basis of this thesis has been information gained by the researcher over twenty years working and studying the Environment Department and its precursor Departments in Victoria, Australia and its interaction with its stakeholders particularly the Land Management Industry and in the context of Departmental innovation. It has been documented through observation, documentary analysis and departmental meetings. It highlighted the characteristics of effective innovation and drivers for change in older lifestyle organizations in this instance a government bureaucracy (Newnham 2004, 2005; Newnham & McMurray 2007; Newnham, Millner & Sventgyoryi 2005; Newnham, Spall & O'Keeffe 2001).

History of the development of the Environment Department in Victoria

The Australian Federal or Commonwealth Government is based on a bicameral Federal Parliament and has powers over defence, foreign affairs, trade and commerce, taxation, customs and excise duties, pensions, immigration and postal services. Other powers are the responsibility of State and Territory Governments, such as health, education, state transport networks, town and rural planning, land administration including cadastral system and land registration and natural resource management (Parker, J & Newnham 2004, p. 2). In Australia, State Governments have the prime policy making responsibility for many areas including the environment. With the increasing recognition that sustainability is a driver for environmental policy, innovations that promote sustainability are sought and encouraged (Newnham & McMurray 2007). Departments are the principle organizations that deliver the machinery of government. Department A works by supporting the Minister, and communicating, directing and coordinating within its functional sphere of activity which includes natural resource and environmental management and primary industries.

The Victorian Government was one of the first governments in the world to create a department that was concerned with the environment and its conservation. Suzuki, D (2006) reflected on the relative youth of environment policy: 'in 1962, there wasn't a single department or ministry of the environment on the planet '(Suzuki, D 2006, p. 267). World wide action with the environmental movement began at this time creating responses from governments (Hughes & O'Neill 2008, p. 198). The Hamer Liberal Government established the first Victorian Environment Department soon after the United Nations Stockholm conference on the environment in 1972 which led to the establishment of the United Nations Environment Program. The Premier when introducing the new Department said, 'It is time our proper concern with growth should be tempered with a greater emphasis on the very essence on the quality and purpose of life itself – of the relationship of man to his environment' (Hamer 1972).

The political commitment to the environment was one that waxed and waned when economic difficulties set in affecting the priority and funding given to the environment (Suzuki, D 2006). The development of this function in the VPS is illustrated by the timeline of Departmental change shown in Table 3 below. Its development highlights the changes to the Department in part indicating the changing views of the importance of the portfolio given other competing service delivery demands. Investment in the activities of the Environment Department anticipated adjustments associated with the need to deal with projected changes and risks related to climate change (Strangio & Costar 2006).

Table 3 -Timeline showing the creation of Victorian Government Environment related Departments from the initial Department created in 1973.

Name	Established	Ceased Operation	Functions when Established	Reason for change
Department of Environment, Land, Water and Planning (Trove 2015)	2015	Ongoing	Land and fire Regional services Natural resources and environment Capital projects Desalination Water Business services Planning Local Government Energy policy and program functions from July 2016 (VPSC 2016).	Machinery of Government change after the 2014 general election by the Andrew's Labor Government to meet their election policy commitments. Energy policy and program functions were transferred in July 2016 from the Department of Economic Development, Jobs, Transport and Resources (VPSC 2016).
Department of Environment and Primary Industries (Trove 2013)	2014	2015	Land and fire Regional services Natural resources and environment Capital projects Desalination Water Agriculture Productivity and industry development Regulation and compliance Fisheries and game Business services	Machinery of Government change part way through a term of government office to create a lead government agency for sustainable management of water resources, climate change, bushfires, public land, forests and ecosystems. Bringing land and water management together with primary industries was designed to help boost the productivity of Victoria's food and fibre sector. The merger reorganized the vital role played by land managers and Landcare groups in the protection of the environment and management of natural resources.
Department of Sustainability and Environment	2002	2013	Coasts and marine Conservation and environment Fire and other emergencies Forestry Heritage Land and water management	Machinery of Government change that moved Agriculture and related functions to a separate Department, Energy went to the Department of Infrastructure. DSE gained responsibility for planning. In 2007, the Office of Planning was moved to the Department of Planning and Community Development. This was a major change to the Department which had

Name	Established	Ceased Operation	Functions when Established	Reason for change
(Trove 2011)			Parks and reserves Planning Plants and animals Property, Titles and Maps Nature-based tourism and recreation	two very different periods of existence from 2002 to 2007 Included the planning function initially until 2007 when it moved to another Department.
Department of Natural Resources and Environment (Trove 2008a)	1996	2002	Assumed responsibility for most of the functions from the Department of Conservation and Natural Resources as well as: all agriculture-related functions in Victoria; the development of Victoria's energy and minerals markets through exploration, administration and regulation; the Surveyor-General; Valuer-General; and Office of Geographic Data; Land Titles; Salinity Bureau.	Machinery of Government change that moved to create larger Departmental entities across government. This combined two former Departments to include the functions of Agriculture, Energy and Minerals, Conservation and Natural Resources. As well it added the functions of the Surveyor-General, Valuer-General, and Office of Geographic Data, Land Titles and the Salinity Bureau from other Departments.
Department of Conservation and Natural Environment	1992	1996	Crown or public lands National parks Forests Soil conservation Fisheries and wildlife Conservation of flora Coastal management Historic sites on Crown lands National Estate Commercial fishing licences Fish marketing	Machinery of Government change after a general election in 1992. All the responsibilities of the previous Department of Conservation and Environment were part of the new Department. Water resources management and rural water resources policy were transferred here from another Department.

Name	Established	Ceased Operation	Functions when Established	Reason for change
(Trove 2008b)			Environment protection and noxious weeds and vermin destruction in forests. Water resources management and rural water resources policy responsibilities.	
Department of Conservation and Environment (Trove 2008c)	1990	1992	Crown or public lands Botanic gardens Herbarium National parks Forests Foil conservation Fisheries and wildlife Conservation of flora Coastal management Historic sites on Crown lands Commercial fishing licences Fish marketing Noxious weeds and vermin destruction in forests National Estate and environment protection Water resources management and rural water resources policy	Machinery of Government change that reflected the Government's intention to further integrate management of natural resources and public land. Functions from three previous departments were transferred including: all the responsibilities of the Department of Conservation; Forests and Lands; the water resources management and rural water resources policy responsibilities of the Department of Water Resources; and 'environment' functions of the Ministry for Planning and Environment.
Department of Conservation, Forests and Lands (Trove 2008d)	1983	1990	All public land management. Integrate public land use and management with conservation requirements. Ensure the protection of native flora and fauna and their environments.	Machinery of Government change to have all public land management functions together to better co-ordinate the use of all resources. It rationalized the many different authorities and land management systems.

Name	Established	Ceased Operation	Functions when Established	Reason for change
Ministry for Conservation (Trove 2008e)	1973	1983	Provided policy development and advice to the Minister on: Environment protection and pollution control; Soil conservation; Fisheries and wildlife; Land conservation; National parks; Foreshore protection; Marine research; Zoological gardens; Archaeological survey from 1975; and Animal protection from 1979 to 1981.	A new Ministry was created to administer the new Ministry of Conservation Act of 1972. This created the first Victorian Environment Department
Earlier Departments existed that each delivered a one or more of the functions of the Ministry for Conservation				

Legend 1: Adapted from material sourced from Trove, 2008 - 2015.

The changes to the environment portfolio from its creation in 1973 to the present day highlight that it is a relatively young activity area, and its fit within the overall structure of government has evolved. Environment policy grew from other government policy areas developed to use or exploit elements of the natural environment such as the use of water or land (Strangio & Costar 2006).

Over time, the successive Governments amalgamated all the government policy areas into one Department commencing with the initial Ministry of Conservation bringing all public land management responsibilities together. The next change was to further integrate management of natural resources and public land. At that time, additional water responsibilities were added and more were at the next change of structure. The move to mega departments in the Kennett Liberal Government saw additional land management functions added, including those associated with private land management such as the Land Titles Office. It supported a move to connect what has been called the 'brown' and 'green' land uses, that is respectively ones that use the environment as a productive resource and those that aim to preserve it as a public good. At the time, there was a world wide movement that aimed to connect these two interest groups into one Department, so debates over the use of natural resources were undertaken within a Department rather than at a political level and between Departments. Creating a new department combining natural resource and environmental management and that of primary industries in 1996 'seemed to offer opportunities to develop understandings and resolve conflicts at officer level rather than at Ministerial level' (Ryan & Bernard 2003, p. 91). This was not seen as a success by all demonstrated by the comment that 'the pushing of fundamentally political issues into the bureaucracy to solve…eventually led to the demise of DNRE' (Russell, Bardsley & Lawson 2014, p. 91).

The next change was to take out the functions that related to the primary producers using land as a resource such as agriculture. The planning function was included so that the Department had responsibility for the natural and built environment and considered the important interaction of these two activities. The next major change was to reconnect the public and private use of land again in 2013. The most recent change was a separation of the

primary industries and environment functions, and combining planning with local government into the new Department of Environment, Land, Water and Planning in 2015.

In part, the changes to how government functions can be said to indicate the priorities of the political parties that are ruling the government. The development of this policy area indicates that an understanding of the environment and natural resource management functions and their importance to the State is evolving over time.

3.5 The Iteration of the Department Being Studied: Department A.

Department A, the Department of Environment and Primary Industries (DEPI) was created formally on 1 July 2013:

> On 9 April 2013, the (then) Victorian (Liberal) Premier, Hon. Denis Napthine, announced several machinery of government changes to strengthen the focus on jobs and investment and more effectively deliver frontline services.
>
> The changes included the announcement of the new Department of Environment and Primary Industries, created from the merger of the former Department of Sustainability and Environment (DSE) named Department X for this thesis and the former Department of Primary Industries (DPI) named Department Y. Department A officially commenced operation as a new government department from 1 July 2013 (DEPI 2014a, p. 4).

This iteration of the Department joined together two former Departments (X &Y) that had originally been joined together in 1996 and separated in 2002. Both Departments had operated with a focus on their main subject matter for twelve years. For Department X, this was the Environment and Natural Resource Management and for Department Y, Primary Industries.

Department A had as its subject matter, the public and private use of land and the natural environment. The Annual Report 2013 - 2014 (DEPI 2014a, p. 10) provided an overview on the Department presented in a shortened form below:

‘**Our Vision**

Productive and competitive primary industries, a resilient and healthy environment and optimal use of public land to support Victoria’s long-term prosperity.

Our Promise

Service excellence.

Our Purpose

Prosperous regions, healthy landscapes ‘(Ibid p.10).

The Department employed more than 3,470 staff, working across Victoria. It advised and supported the Minister for Agriculture and Food Security, the Minister for Water and the Minister for Environment and Climate Change.

The Department provided a better and more efficient management approach for public and private land, and water for the people of Victoria.

The Department focused on protecting the environment, boosting productivity in Victoria’s world-class food and fibre sector and the management of natural resources, strongly influenced by decision-making at a local level.

Department A’s objectives were to:

- Create productive and competitive agricultural industries.
- Sustainably manage fish, game and forest resources.
- Benefitting the community by effective management of Victoria’s land assets.
- Effectively manage water resources to meet future urban, rural and environmental needs.
- Effectively design/create environmental and adaptation policy, investment and regulation.
- Reduce impact of major bushfires and other extreme events on people, infrastructure and the environment.

The Department had a strong regional delivery model supported by a dedicated Regional Services group. It had a six-region structure, which allowed it to align and scale... operations

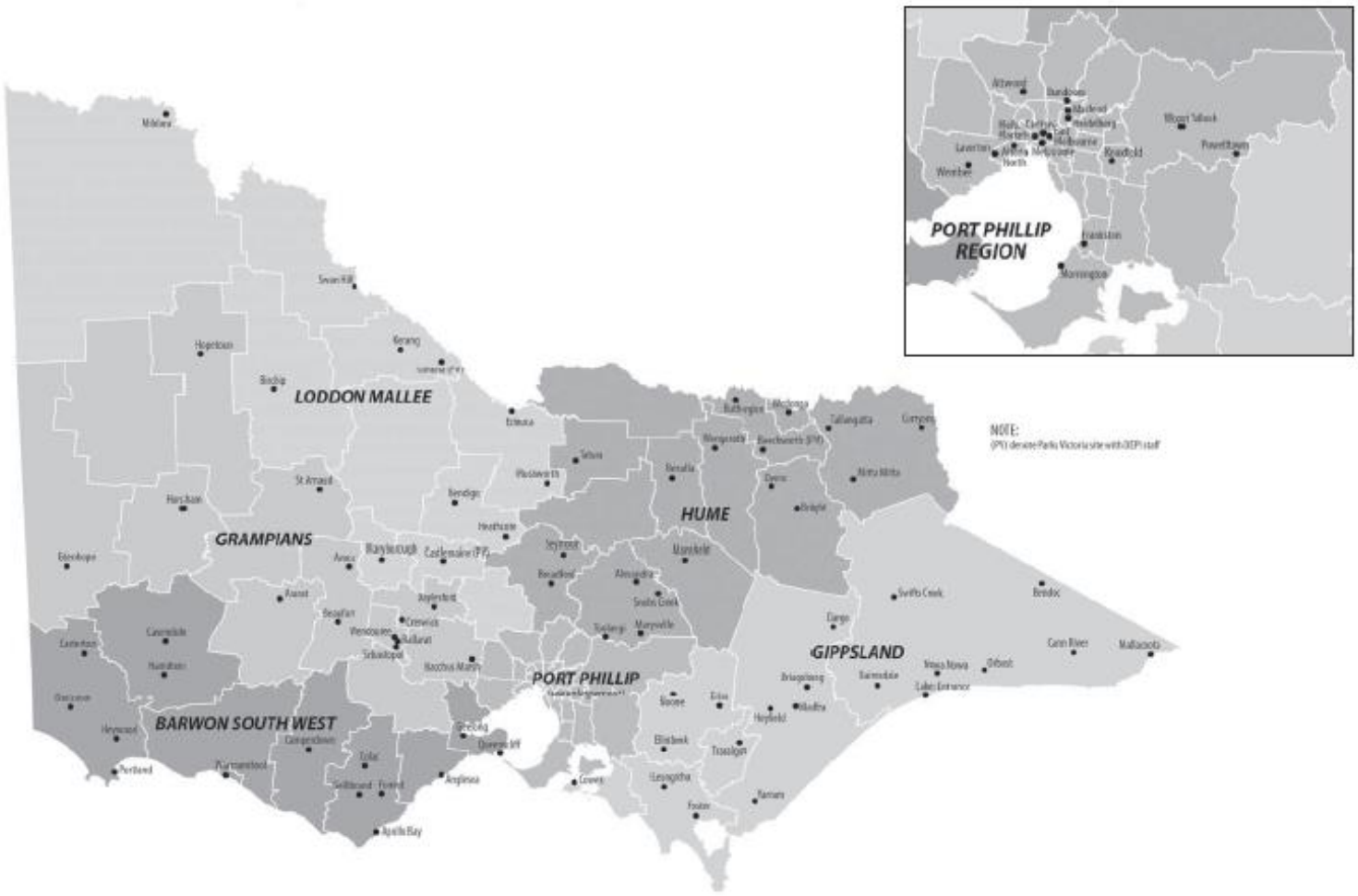
to deliver the Government's priorities. This was where service delivery and regional administration was undertaken. Policy development for specific functions was developed in other Groups such as Water and Catchments and various aspects of service delivery were undertaken in partnership with the regions. The regions were:

- Barwon South West, to the South West of Victoria with its administrative centre at Geelong;
- Gippsland, to the East of Victoria with its centre at Traralgon;
- Grampians, incorporating the Central West area of Victoria with its centre at Ballarat;
- Hume, to the central North of Victoria with its centre at Benalla;
- Loddon Mallee, to the North West of Victoria with its centre at Bendigo; and,
- Port Phillip, encompassing the central mostly metropolitan areas around Port Phillip Bay with its centre based at East Melbourne' (DEPI 2014a, p. 10).

The Departmental Secretary was Adam Fennessy who commenced when the Department was created and remained its leader until it ceased operations at the end of 2014. It had an annual income in 2013 to 2014 of around $1.69 billion and employed more than 3,470 staff working in 90 different cities, towns and locations across the state (DEPI 2014a).

‘

Figure 3 - Department A Regions and major work locations

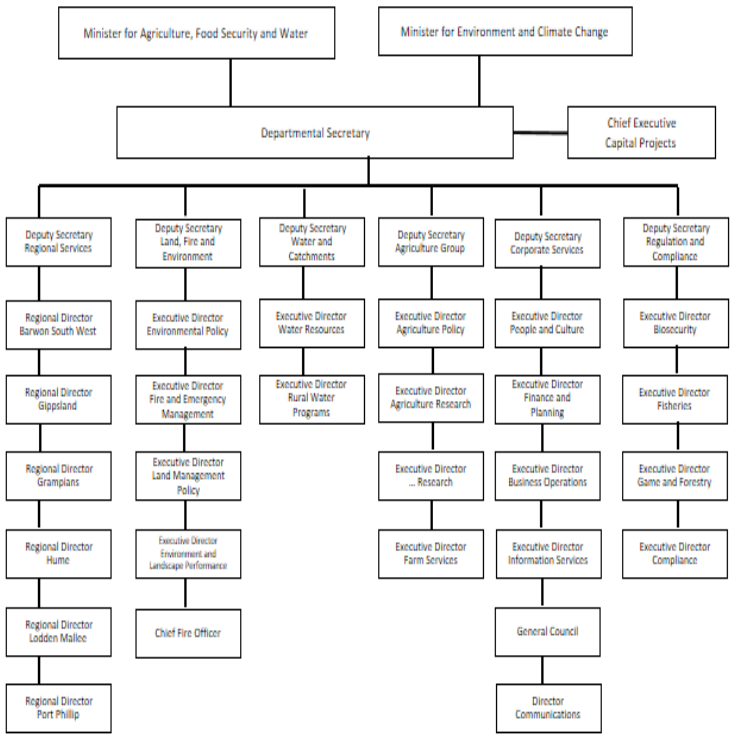


Source: DEPI Annual Report 2013 to 2014

Around 60 per cent of Departmental staff were located in the regions which is partly illustrated by the map shown in Figure 3 above depicting Regions and the larger workplaces. The organization had a dispersed form and this created challenges for service delivery. This differed from the structure of most of the Victorian Public Service, in 2016 it was reported that 31 per cent of employees were based in regional Victoria and 69 per cent were based in Melbourne (VPSC 2016, p. 3). Department A had an important role in local communities and was a major contributor to local economies and activities.

A significant proportion of services were delivered through Portfolio Agencies including Parks Victoria, the Environment Protection Authority Victoria and Sustainability Victoria and service delivery was undertaken with a range of other organizations including Local Government and emergency organizations such as the Country Fire Authority (CFA). See Appendix D for a list of Department A's service delivery partners.

Figure 4 - Department A's Organization Structure at June 2014



Source: DEPI Annual Report 2013 to 2014.

The organizational structure as at June 2014 as shown in Figure 4 above (Source: DEPI, 2014). The organization comprised six main business groupings that were commonly called

groups under the leadership of a Deputy Secretary. They were: Regional Services; Land, Fire, Environment; Water and Catchments; Agriculture Group; Corporate Services; and, Regulation and Compliance. The organizational level called 'Groups' in Department A is often called Departments or Divisions in other organizations.

Internal conditions

Department A was operating in a climate of rapid and fundamental change. A significant change had occurred on 9 April 2013 when the Premier of Victorian, Denis Napthine, announced the merger of the Department X and Department Y to form Department A to 'strengthen the government's focus on jobs, investment and more effective delivery of regional service' (DEPI 2013a, p. 2).

In the 2014 Annual Report the Secretary was stating that:

> The establishment of Department A (was) to help boost the productivity of Victoria's world-class food and fibre sector, and strengthen our partnership approach to protecting our environment and management of our natural resources. Our mandate was clear: drive local decision making in regional Victoria and boost capacity in rural and regional areas in support of productive and competitive industries and a resilient and healthy environment (DEPI 2014a, p. 2).

It was perceived that changes were needed to transform the organization into one which was flexible, strategically considered the bigger picture, and was focused on outcomes which make a real difference to all Victorians, local communities, stakeholders, the natural environment, and staff. There was a major focus on creating the new organization and building its culture, a large change program was underway called 'Creating Department A Together' which focussed on building the operating and cultural components of the new Department.

Specific skills and a particular organizational form was needed to deliver the Government's environmental priorities, boost productivity in Victoria's primary production, and manage

natural resources. The Secretary highlighted the need to be innovative as an organization. In his introduction to the first Department A's Annual Report (DEPI 2013a) he wrote:

> I am proud of what Department A has achieved and the commitment to create a new culture, and to bring to life our values and behaviours: agility, ownership, balance and collaboration. We have been working hard to deliver more streamlined and responsive services to our stakeholders and the community and being a leading service-focused organisation (Ibid p.3).

The Department had a responsibility to undertake firefighting and emergency management when the situation demanded. In the Victorian Emergency Management System, it undertook to respond to emergency situations on public land. It worked in cooperation with other emergency services organizations when dealing with emergencies such as fire events. Agencies like Department A have been classified as 'extending organizations' which are land management organizations that extended their normal operations to undertake emergency management, with agility and adaptability being the strongest indicators of success in emergency response (Bhandari, Owen & Brooks 2014). Innovative work behaviour was identified as very important to deliver on organizational goals in the Netherlands fire services (Bos-Nehles, Bondarouk & Nijenhuis 2017). This case study found that the Netherlands fire services operated as a knowledge-intensive Public Sector organizations where continual innovation was perceived as necessary to meet the changing demands of client and respond to the individual nature of emergency events.

Department A operated in a complex environment that was constantly changing. Leaders needed to make decisions across a range of contexts that varied in complexity and leaders constantly deal with seemingly chaotic contexts. This requires 'deep understanding of context, the ability to embrace complexity and paradox, and a willingness to flexibly change leadership style ...for leaders who want to make things happen in a time of increasing uncertainty' (Snowden & Boone 2007, p. 8). The context of Public Sector operations demand an innovative Public Sector to meet the challenges of aging populations and the impact of climate change which among other issues are creating circumstances that can only be tackled by imaginative and creative public policy approaches (Mulgan 2006).

3.5.1 Department A's culture

Department A as a newly created organization had been formed from a merger of two organizations. As outlined above the political motives were to create an organization that was able to support the Government's agenda to **'**strengthen the government's focus on jobs, investment and more effective delivery of regional services' (DEPI 2013a, p. 3). This had led leaders to focus on changes to create an organizational environment that supported the delivery of strategy. Department A's Secretary identified the need to 'create a new culture, and to bring to life our values and behaviours: agility, ownership, balance and collaboration' (DEPI 2014a, p. 3).

The Department decided to undertake a cultural assessment and used the organizational cultural index (OCI) a survey developed and used by Human Synergistics. The OCI provides a profile of an organization's operating culture in terms of the behaviours that members believe are required to 'fit in and meet expectations' within their organization. It measures 'how things are done around here'. The OCI measures behavioural norms and expectations using the tool named the 'Human Synergistics Circumplex' that classifies behaviours into 'constructive', 'passive/defensive', or 'aggressive/defensive'.

Human Synergistics advertise that the OCI is the most widely used and thoroughly researched tool for measuring organizational culture in the world. It identifies current culture outcomes at the individual, group and organizational levels and the specific levers for change that must be addressed to change culture (HSI 2015). Jung et al (2009) had reviewed this instrument as part of their study to assess the tools currently available to accurately measure organizational culture in the public sector that support undertaking cultural change. They asserted that the tools varied greatly in which aspects of culture they were measuring and the measures they used so it was important to choose a tool that was fit for purpose and evaluated the targeted aspect of culture. Department A assessed a number of measurement tools and chose to use the OCI to measure Department A's culture in 2014 as it had been used for one of the precursor Departments and had been used successfully by other government agencies.

The survey was undertaken in the November 2014 and 1009 staff members participated. The OCI survey provided a profile of the organization's operating culture in terms of the behaviours that members believe are required to 'fit in and meet expectations' within their organization. It measures 'how things are done around here'. The results indicated that Department A's overall culture was dominated by behaviour norms, and expectations from the passive/defensive group of behaviours with the dominant being avoidance and dependent. The two dominant characteristics were avoidance and dependence. Avoidance involves expectations for being non-committal, never being blamed for mistakes and staying out of trouble, and Dependent involves expectations for doing only what they're told, clearing decisions with superiors and obediently following orders. An aspirational culture was created at the same time and this identified the majority of preferred behaviours would come from the constructive styles.

A data base of results from OCI surveys undertaken over a number of years in various industries in various countries has been developed for industry sectors (HSI 2015). The results for the Australian and New Zealand Government data base show that the preferred ideal model defined by executives with behaviours highlighted as most helpful to achieve their objectives included: Achievement (goal orientation), Self-actualizing (growth and learning), Humanistic-Encouraging (support one another) and Affiliate (build relationships), the behaviours known as constructive (Ibid p. 94). The actual cultures shows a range of characteristics from slightly constructive to very defensive. Those reporting more constructive cultures reported significantly higher employee satisfaction, stronger desire among people to recommend their organization as a good place to work, better role clarity and described their organization as having great external adaptability and producing higher quality of service (Ibid p. 95). The 'most constructive' organizations were not very constructive compared to other industry groups and the outcome scores for these organizations were still comparatively low. Department A's pattern in 2014 reflected the organizational culture of a more defensive and less constructive organization as common in Public Sector organizations in Australia and New Zealand as reflected in the OCI database.

Earlier research in former Department X a precursor of Department A indicate that the culture in the Department had persistent characteristics. Department X had undertaken an OCI survey of its staff in 2009. The results indicated that Department X's overall culture was dominated by behaviours norms and expectations from the Avoidance style as for Department A. The secondary dominance was Oppositional which was in the aggressive/defensive styles; which involves expectations for staying detached and objective, looking for mistakes and questioning decisions made by others.

It would be expected that the prevailing culture would have an impact on innovation activities. This was not described by the Department, however an earlier study of departmental innovators in 2010 was undertaken by an internal researcher (Denham 2010) provided an indication of the innovation environment. He surveyed a group of internal innovators and reviewed narrative to determine experiences of innovation in Department X which was one of the precursor Departments to Department A. The research found correlations with the innovation approach taken and perceived economic benefits, support provided and the structure used. The type of innovation depended on the appetite for risk with more risk adverse environments undertaking case-by-case innovation that used more intuitive approaches to innovation and were connected to horizontal structures. Less risk aversion led to department-wide, process oriented innovation which was connected to a vertical structure. This indicated that innovation approaches varied to suit the prevailing cultural conditions.

3.5.2 Organizational subcultures in Department A

Department A had a number of strong subcultures with groups having very different professional backgrounds when previous Department X and Department Y were merged. Details about subcultures in organizations were described in Section 2.11.1 above. The professional backgrounds of those within an organization can create subcultures that influence organizational culture (Dunn & Jones 2010; Hinings 2012; Schein & Scheiner 2016).

Department Y had large numbers of agricultural scientists engaged in pure research as well as applied scientists that provided services to support agricultural production, many operating out of Departmental Research Institutes. In addition, there was a large regulatory arm that

maintained standards in primary industry production and delivery. Department Y had a very strong relationship with the Agricultural Sector where it worked in partnership with primary producers. They delivered research support to develop industry, regulated industry and worked directly with primary producers to support their building better farms and farming practices.

Department X had a smaller number of environmental scientists, its business model was to sponsor research in Institutions outside the Department. There was only one Research Institute within the Department. A large amount of its work was in natural resource management including fire management and environmental regulation. Service delivery was undertaken by portfolio agencies like Catchment Management and Water Authorities, Parks Victoria and the Environment Protection Agency. Department X delivered its services often through other agencies and its focus was on policy development, regulating the delivery agencies and creating policy frameworks and plans, and providing service delivery on the ground maintaining crown land. In addition, Department X had a large emergency management responsibility to support fire management on public lands. As public lands make up about a third of the land mass of Victoria, this was an important role. In the fire season that is from November to April a large proportion of the organization has additional emergency management responsibilities.

The various functions within Department A had existed for many years and those who delivered the services were from particular professional and scientific backgrounds. This created clear subcultures in the Department around the specialist functions (Trice & Beyer 1993). Similar subcultures within Public Sector organizations had been observed by researchers (Geva-May 2002; Osborne, S & Brown 2005).

Joining together professional subgroups in Department A created a potential for conflict because one group's intent was to use environmental resources for productive use and the others was to preserve the environment. Conflict had happened earlier when these two areas were joined together (Russell, Bardsley & Lawson 2014). There were tensions caused by the policy drivers of the Department with the environment area being a social policy area concerned with the quality of life in contrast to the primary industry area that is concerned with

economic development (Davis et al. 1988). Having a very different basis for their work created tensions within the Department between these two groups. This tension played a role in Department A being split at the end of 2014 and the primary industry area moved into a new mega economic development Department.

3.6 Summary

This chapter defined a Victorian Public Sector Department of State in the context of the Public Sector. It provided a history of the development of the Environment Department in Victoria and described the latest iteration of the Environment Department as Department A. The operational details of Department A were reported included a description of its culture and two organizational subcultures.

The next chapter in the thesis reports on the methodology.

Chapter 4. Methodology

4.1 Objective

The purpose of this chapter is to justify and explain the research method used in responding to the research questions and hypotheses, and in conducting this explanatory sequential mixed method study.

The previous two chapters as part of Stage one of the research stages, provided an overview of the research literature relevant to the research objects pursued, and the details of the organization used for the case study. This chapter introduces the method used for Stages two to four of the research. It outlines the philosophical background that governs the research is provided covering and reflecting on issues regarding; research questions and hypotheses, research paradigm, research design, and methods employed for Stages two and three data analysis. This includes the sampling, data collection and analysis for the Phase one Quantitative Analysis and those methods employed for the Phase two Qualitative Analysis and the Stage four integration of these two methods. In addition, credibility and ethical issues within the context of this study are addressed.

4.2 Introduction

This introduces the Sections of the chapter. Section 4.3 outlines the philosophical background to the research approach taken. Section 4.4 then outlines justification for the mixed methods approach used. Following, Section 4.5 provides the research context including the research design, the research model and the population sample. Section 4.6 reviews the analysis techniques for the three stages of methods and 4.7 outlines the development of the questionnaire for the survey. Section 4.8 describes the quantitative analysis process, 4.9 the ethics in conducting research, and 4.10 summarizes the chapter.

4.3 Philosophical Background

As a pragmatist, the researcher agreed with positivists and post positivists that there is at times an external reality independent of individual's minds which is commonly known and understood. However the author also believes that there are elements of reality that are constructed by individuals in a constructivist manner. The author further supports the view

that the truth about reality cannot be determined and there may be a range of explanations (Biesta 2010; Molina-Azorin 2018; Morgan, DL 2007). Pragmatism has a particular value to business and management studies given its 'resonance with questions relating to practice and process' (Simpson 2018, p. 66). A mixed methods approach was chosen because it agreed with the researcher's philosophy and she believed it considered the broad nature of the research undertaken. The thesis aimed to approach the research method using dialectic thinking, considering opposing viewpoints and incorporating this into the explanation to provide a richer analysis of the outcomes of the research (Greene & Caracelli 2003).

The pragmatist philosophy supported the challenges that were presented when developing the thesis design and considering how the research components fitted together. The research literature for culture is based on a constructivist paradigm where individuals form their own realities, and innovation literature has developed to have a more post positivist view that it can be measured using quantitative methods. The management and organizational literature fits in the continuum between these two views with mixed methods considered appropriate for research questions dealing with process and dynamic phenomena such as innovation and change (Currall & Towler 2003; Langley 1999; Van de Ven & Huber 1990).

A mixed methods approach allowed innovation to be reviewed objectively and its relationship to the more subjectively defined organization and culture (Cook & Reichardt 1979; Creswell 2010; Miles, MB & Huberman 1994). The researcher recognized the complementary strengths of the quantitative and qualitative methods suited the research objective especially given that cultural perspectives vary within an organization (Bryman 2006). This has been described as finding 'a middle ground between philosophical dogmatisms and scepticism … to find a workable solution' where historically agreement was not forthcoming (Johnson, RB & Onwuegbuzie 2004, p. 18). Both quantitative and qualitative techniques provided approaches that assisted in explaining the findings, allowing the research questions to be answered as part of the inductive-deductive research cycle, where particular research questions can be best addressed by using inductive logic and others by hypothetico-deductive logic (Teddlie & Johnson 2009). Mixed methods has the ability to 'take seriously multiple types of realities, concurrently, and to attempt to interconnect the subjective, inter-subjective and objective

parts of our world' (Johnson, B & Gray 2010, p. 72). The epistemology allowed both objective and subjective points of view as required by the stages of the research undertaken.

Mixed methods has been described as a 'conceptualization of the relationship between opposing objectivist and interpretivist paradigms' (Li, Marquart & Zercher 2000, p. 116). In addition this approach has been identified as appropriate when dealing with process and dynamic phenomena such as innovation (Currall & Towler 2003; Langley 1999; Van de Ven & Huber 1990). This was supported by previous research where a more complete understanding of the complexity of organizational cultures was able to be found by a study using both the qualitative and quantitative research paradigms in a complementary fashion in two manufacturing firms (Yauch & Steudel 2003).

4.4 Justification for the Mixed Methods Research Design

This thesis focused on a single organization. The research decisions were based on assessing methodology options from the literature of research methods (Creswell 2014; Denzin & Lincoln 2011; McMurray, Pace & Scott 2004; Neuman 1997; Stake 1995; Tashakkori & Teddlie 2010; Yin 2014). The philosophical background of the researcher and the constructs that were being studied led to the decision to use a mixed method approach, defined as a method that focuses on the collecting, analyzing and mixing of both quantitative and qualitative data in a single study as they 'in combination provide a better understanding of research problems than either approach alone' (Creswell & Clark 2007, p. 5).

Specifically, a mixed methods sequential explanatory design approach was used with a dominant quantitative approach as it 'combines elements of qualitative and quantitative research approaches … for the broad purposes of breadth and depth of understanding and corroboration' (Johnson, RB, Onwuegbuzie & Turner 2007, p. 123). The approach used was a quantitative → qualitative study with the dominant component being the quantitative analysis which comprised 70 per cent of the research effort with the smaller qualitative component being 30 per cent (Creswell 2010; Morse 1991, 2016). This was undertaken with Stage two of the research comprising a quantitative Phase one with included a two Stage data collection model using a Stage one first generation statistical analysis, and a Stage two

second generation structural equation modelling. This was followed by Stage three of the research undertaking a qualitative Phase two component (Creswell & Clark 2011).

The data for Phase one was obtained by administering a questionnaire in Department A. The qualitative component was undertaken in Phase two using the outcomes from the quantitative data to guide the data analysis through a Stage one triangulation of data. This used the quantitative concepts as the basis of developing themes for the qualitative analysis. The sources of data for the qualitative analysis included; 13 internal documents published by Department A, four external published documents by related organizations and the qualitative data that was gathered in the thesis questionnaire. For Stage four of the research, a mixed methods integration undertook a Stage two triangulation of the Phase one quantitative component and the Phase two qualitative results so integrating the results. In addition themes identified from the qualitative analysis that provided explanation of the quantitative results were combined into meta-inferences which confirmed the inferences or results obtained by Phase one and two.

The rationale for this approach is that the quantitative phase and the analysis undertaken provides a general understanding of the research problem and identifies and measures relationships. The qualitative data and their analysis refine and explain these statistical results in more detail by exploring the environment of the organization through documents as its cultural artefacts and respondent's views (Creswell & Clark 2011; Rossman & Wilson 1985; Tashakkori & Teddlie 2010). Using different methods to assess the results builds the robustness or stability of findings (Firestone 1987; Jick 1979).

This mixed methods approach is one that has been used in a number of social sciences to add depth to findings and allows researchers to be more confident of their results (Bryman 2006; Jick 1979). This research combined elements from the fields of organizational culture, public management and innovation with the first two fields having a tradition of qualitative research as indicated by Bryman (2008) when highlighting a range of mixed-methods research undertaken in five study areas. Innovation research in general has a history of quantitative research however (De Vries, Bekkers & Tummers 2016) found in a systematic review of Public Sector innovation research that the dominant form of research in this sector

was qualitative (56%) compared to quantitative (31%). This showed a difference in this particular research area influenced by the public management research traditions.

A mixed method approach allowed the introduction of information from a range of sources that together assisted in creating a more holistic picture of the organization and its culture. Jick (1979) highlighted a tradition of mixed method approaches in 'the literature on social science research methods' (Ibid p. 602) including organizational research. It allowed connection into the differing methodological traditions of the fields that were the subject of this thesis. A review of Public Sector innovation research recommended that mixed methods would provide additional depth to the current focus on qualitative research, allowing the benefits of both qualitative and quantitative research to be applied (De Vries, Bekkers & Tummers 2016).

Case studies predominantly employ interpretive techniques and are utilized to delve below the surface uncovering data that yields sophisticated insights and facilitates the understanding of unique situations (McMurray, Pace & Scott 2004). Eisenhardt and Graebner (2007) posit that, 'theory building from case studies is an increasingly popular and relevant research strategy that forms the basis of a disproportionately large number of influential studies' (Ibid p. 30). This approach particularly suited the approach for the research for this thesis which was undertaken in a complex organization being a Government Department.

The five research questions were answered by using a mixed methods approach where a quantitative research strategy and quantitative methods were used to answer the 13 hypotheses using the organization as an individual case. Additional data was provided by asking a qualitative question as part of the research. The preliminary results were used to guide the mining of data from internal documents, reports and surveys produced by the organization which are identified by Merriam (1988) as 'a ready-made source of data' (Ibid p.104), which is highly generalizable (Currall & Towler 2003) and which Morris (1994) emphasized as important for management research. Recent research by Pandey, Pandey and Miller (2017) declared that content analysis of documents is increasingly valuable in researching Public Sector innovation because of 'sustained advances in computational

capabilities for document storage, data extraction, and data handling' (Ibid p.79). In many instances Public Sector organizations publish a range of documents to meet regulatory and legislative requirements and as part of their internal communications processes so these provide a longitudinal record of the organization's activities (Atkinson & Coffey 2004).

The research questions were formulated to answer the quantitative questions first to allow the outcomes to guide the qualitative research. Lastly there was a mixed methods question to connect the results (Plano Clark & Badiee 2010; Tashakkori & Teddlie 2010). Innovation studies traditionally use quantitative analysis as the analysis method. It was decided to maintain this traditional approach and build on the quantitative results in the first phase by triangulating results with qualitative analysis from organizational documents and an open ended survey question. This added value to the research findings by giving added depth to the results. Mixed methods has been described by many as ideal for answering management questions given its ability to measure effect and provided explanation as to why this was observed (Pitts & Fernandez 2009).

Using a one organization case study for the purposes of cultural research and to build theory has been supported by a range of researchers (Eisenhardt & Graebner 2007; Schein & Scheiner 2016; Schwandt & Gates 2017; Yin 2014). As posited by Yin (2014) this study presented a special type of case study, both a critical and unusual case. It provided a distinct opportunity for documenting and analyzing this type of organization. In addition a single organization case study for a mixed methods approach has been asserted by Yin (2006) as consistently maintaining a same point of reference which creates an integrative force to blend all of the methods into a single study (Yin 2006).

There has been no similar research in a Public Sector organization in Victoria. A review of literature has not found research completed that captures information across all levels of the organization and triangulates it with qualitative information to corroborate the findings. It is very difficult to gain permission to undertake research in Public Sector organizations particularly State Departments. They are complex organizations with multiple layers of management to engage, and there are always many different issues running at a point in time. This leads to a resistance or reticence to allocate time to research studies. Leaders

work in a political environment and must demonstrate they are using State funded resources for the benefit of the State. Research activities need to be able to demonstrate benefit to the organization and even then, other more pressing needs can restrict access for research.

As an insider, the researcher was able to navigate the issues and challenges to running the survey and eventually gather the data. Researchers outside the organization would have found it difficult to do this, one potential reason why little is published in the research literature about this sector and in particular at the Department level. As this research used one organization as the subject, the thesis used a larger population sample taking a cross-section of the whole Department at a point of time.

4.5 Research Context

This thesis was undertaken by a researcher who had been employed in the subject organization or its predecessors for approximately 20 years. She participated in many change processes and innovation projects, and shared the results through writing papers delivered externally including the International Institute of Surveyors and the Surveying and Spatial Science Institute, an international and national community respectively of professionals and scholars in the spatial sciences and land management area (Newnham 2004, 2005; Newnham & McMurray 2007; Newnham, Millner & Sventgyoryi 2005; Newnham, Spall & O'Keeffe 2001). Through this work, she observed that a particular organizational culture was needed for innovation to succeed particularly in Public Sector organizations. In addition, she noted that innovation activity flowed between levels in organizations. This thesis was undertaken to further explore the relationship between culture and workplace innovation in Public Sector organizations.

As an internal researcher a rich range of information and data was able to be accessed that would have been difficult for someone outside the organization to access and interpret. There are arguments for and against researchers studying ‘in their own backyards’, Creswell (2016, p. 19) discourages researchers from studying here due to potential difficulties with ethical and power issues. Others identify that a realistic site is one that allows entry, has a rich mix of the areas of interest, the opportunity to build trusting relationships, research can be conducted

and reported ethically and data quality and credibility of the study are reasonably assured (Marshall, C & Rossman 2011, p. 101). The author had for many years had been supported by the organization to undertake research about the organization and report to industry and academic forums. This provided a good base for the undertaking of this research. The research was designed to consider matters around possible power issues by adopting a mixed methods where the quantitative Phase one was undertaken with anonymous and voluntary participation in a survey. In addition Phase two qualitative components consisted of data mining using documents produced for other purposes than this research which did not intrude in the social setting of organization, and one open ended question from the initial questionnaire. The author was guided in the research by the ethics, procedures and guidelines provided by Royal Melbourne Institute of Technology University (RMIT). Given these arrangements the researcher identified this as a realistic site to undertake research (Marshall, C & Rossman 2011).

Often the significance of processes and studies make more sense within the context of organizational history. Large bureaucratic organizations such as government agencies provide rich data in the form of; official reports, internal reports, planning and investigative documents as well as policy and mission statements which is available for analysis (Prior 2016). Department A as a government bureaucracy and a complex organization used documents to illustrate and embed strategies and common ways of doing things, therefore they are an important aspect of the culture of these organizations (Atkinson & Coffey 2004). They provide access to a large data source that is often neglected (Merriam 1988, 2009; Morris 1994).

Being an inside researcher potentially created difficulties in launching the research as the organization was undergoing a few years of major change. It was hard to obtain free space in the organizational survey calendar to collect data. Arrangements possibly would have been less fluid if an outside researcher had negotiated a time for research. Four times the research collection date was deferred due to; major governmental structural changes, organizational restructures, state wide emergency management requirements and whole of department surveys on other matters being distributed. This was in part is due to the political cycle in

which government organizations exist, in part to change initiatives initiated on behalf of the whole of government with flow on effects on the operations of departments and impacts of external events such as severe fire seasons.

During the research period, there were a number of significant events that had a major impact on the operations of Department A and its predecessor Departments. These are shown in Table 4 below:

Table 4 - Timeline of significant events in the years between 2010 and 2015

Timeline	Significant Event
2010 - November	Change of government.
2011-2013	The introduction of a policy to substantially reduce the size of the government workforce called the Sustainable Government Initiative which operated over two years.
2012–2013 - Summer	Victoria experienced a significant fire season which drew heavily on the resources of the Department X.
2013 - April	Machinery of Government change – the merger of Department X and the Department Y on 9 April 2013 to form Department A with a series of related change projects operating until mid-2014 (Adapted from DEPI 2013 Annual Report p. 2).
2013-2014 - Summer	Victoria experienced a significant fire season which drew heavily on the resources of Department A.
2014 - November	Change of government.
2015 - January	Machinery of government change – the creation of the Department of Environment, Land, Water and Planning that included the environment and water functions from Department A.

While major changes or events were impacting on the organization, Senior Management asked that any surveys be restricted to business as usual. Permission to conduct a shortened thesis survey was provided in April 2014 for the period from May to the first week of July 2014. The survey was then delivered to the staff of Department A.

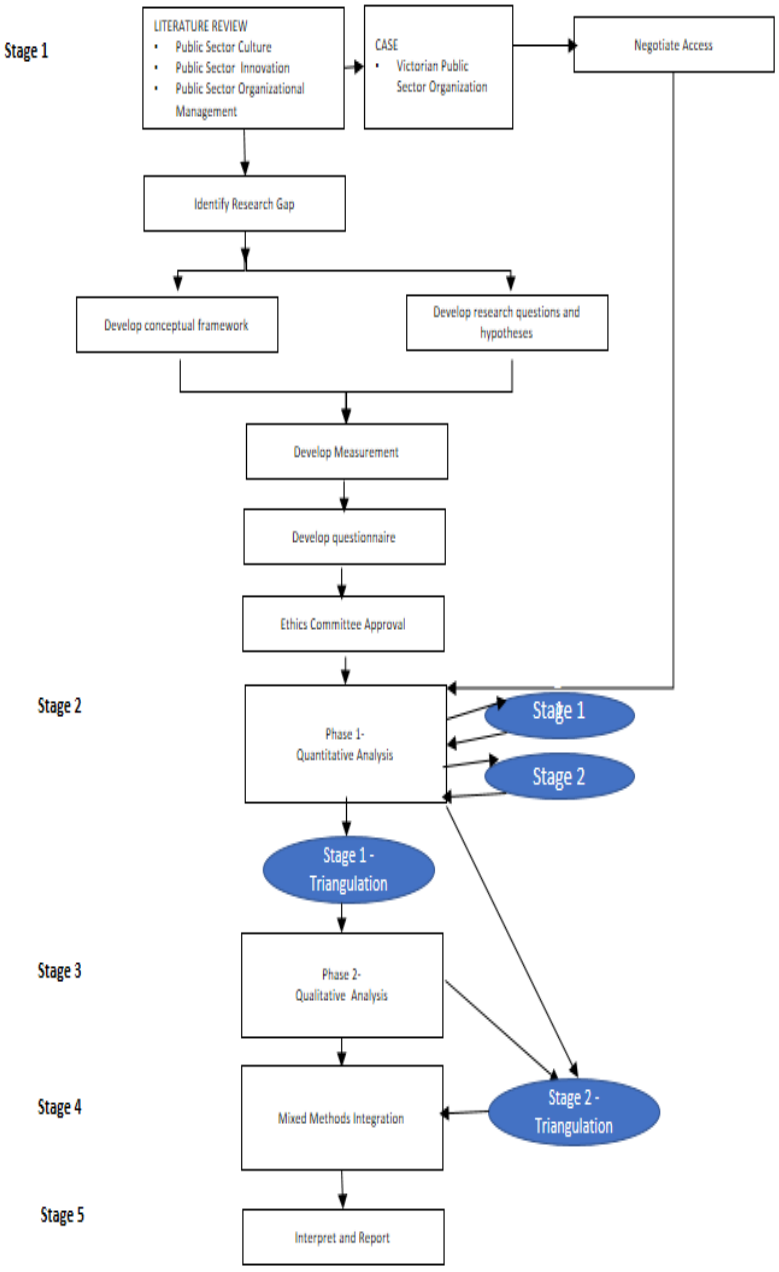
With Department A being created from merging two other organizations, there were additional surveys to help with the creation process including reviewing the new values and behaviours, as well as the regular surveys such as the Victorian Public Service Commission 'People Matter' survey a public sector employee opinion survey, and internal ones on aspects of our work such as a journey to work survey. The original survey included a 16 question instrument to evaluate cultural change since the last time a cultural assessment had been done by administering the Organizational Cultural Inventory (OCI) to Department X in 2009.

However the organization was planning to administer the OCI again later in the year and there was concern this might create issues around people answering organizational culture questions twice in one year. Management in Department A had many complaints by staff on the number of surveys they had been asked to complete. To minimize the impact on business activities and avoid complaints by staff, all surveys were asked to try and obtain the information needed in the fastest way. It was decided to support organizational requirements by delivering a smaller survey adapting an organizational culture audit tool developed by Pace and Faules (1994) and concentrate on collecting a large sample size. The research design was expanded to include additional qualitative elements to allow a triangulation of results allowing the qualitative data to 'enrich and brighten the portrait' (Jick 1979).

4.5.1 Research design

The use of the mixed methods approach led to the development of a Five stage research plan. The research framework developed for thesis showing its Five stages, the Two phase quantitative and qualitative analysis, the Two stage quantitative analysis and the Two stages of triangulation, is shown in Figure 5 below:

Figure 5 - Research Design



Source: Author, adapted from (Creswell 2012)

The research design details three Stages which analyze the methods. These comprise Stage two which is the quantitative analysis undertaken as Phase one and has a Two Stage statistical analysis using first generation and then Structural Equation Modelling techniques. Stage three is the qualitative analysis undertaken as Phase two that is informed by a Stage one triangulation with the outcomes from the quantitative analysis. Stage four then combines

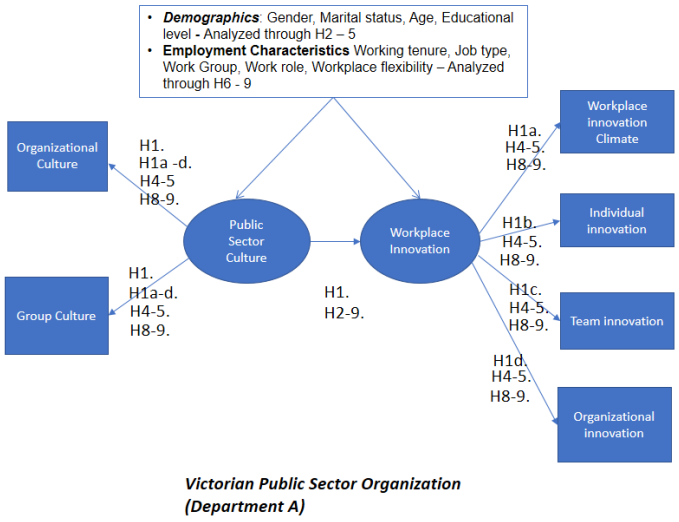
and integrates the findings from Phases one and two with a Stage two triangulation of data and identifies larger themes that were combined into meta-inferences

4.5.2 Research model

The second Stage of the research was the Phase one quantitative analysis within the mixed methods approach. This addressed Research Questions 1 to 3. The relationships between Workplace Innovation and its four dimensions and Public Sector Culture and its two aspects is addressed by three research questions and 13 hypotheses being RQ 1 (H1 & H1a to Hd), RQ 2 (H2 to H5) and RQ 3 (H6 to H9) and is shown in Figure 6 below:

Note that Research Questions 4 and 5 are not depicted in this model.

Figure 6 - Research Model for the Quantitative component



Source: Author, adapted from (McMurray, Pace & Scott 2004).

The relationship between Workplace Innovation and Public Sector Culture is addressed by Research Question RQ. 1. - (H1 & H1a to Hd). RQ. 2. (H2 to H5) refers to the measurement approach for this research which tests the relationship with demographic moderators. It tests the different strengths of the relationship at different levels of demographic variables of gender, marital status, age and education levels. RQ. 3. (H6 to H9) refers to the

measurement approach for this thesis which tests the relationship with employment characteristics moderators. It tests the different strengths of the relationship at different levels of employment characteristics of tenure, job types, work group, work role and flexible working.

Research questions 4 and 5 are not depicted in this model. Research question 4 was concerned with the qualitative analysis and an initial Stage one triangulation was undertaken, using the quantitative concepts from Phase one as its basis so providing confirmation and additional context to the quantitative results (Creswell 2014; Flick 2018; Nastasi, Hitchcock & Brown 2010). The full analysis corroborated the findings from the quantitative stage and provided additional depth and understanding of the results obtained. Research question 5 integrated the two components together using a Stage two triangulation of Phase one and two to identify congruence, complementarity and difference between the two results. This links the understandings from the quantitative and qualitative research and identified significant themes underlying the research and combined them into meta-inferences which confirm the inferences or results obtained by the two phases of this thesis and highlighted significant inferences (Onwuegbuzie & Combs 2010; Onwuegbuzie & Teddlie 2003; Teddlie & Tashakkori 2009).

4.5.3 Population sample

The characteristics of the Department A's workforce at the time of the survey were described in the Annual Report for 2014 (DEPI 2014a). The total headcount for ongoing or permanent employees was 3,393 with an additional 280 full time equivalent (FTE) fixed term and casual employees. This was about 3,700 employees with the FTE being 3,470 at June 2014 (DEPI 2014a). The 3,470 FTE figure was the one used by the Department and the Victorian Public Sector Commission to compile workforce statistics. The numbers vary on a regular basis as over 300 people were employed as project fire fighters for the summer months. This created an unusual staff profile for Department A with a large proportion of staff being in the white-collar category but a relatively high proportion being in the blue-collar classification. Department A was one of the most regionalized Departments and operated from over ninety sites from across Victoria. This is not representative of many of Victorian State Government Departments that are largely centralized into metropolitan locations or larger regional centres

and have mostly white-collar employees. This thesis did not include the project fire fighters employed in 2014 because they were employed on a seasonal basis over summer from the end of year until early in the next year, and data was collected mid-year.

When permission was obtained by the researcher to contact staff to participate in the survey, contact was advertised widely through the corporate communication systems in place in the organization. The offer to participate was open to all members of the organization. Data and additional demographic characteristics was collected from across the organization and all the operational sites. Detailed group analysis was not conducted as part of this thesis.

4.6 Analysis Techniques for the Three Stages of Methods

The initial analysis was completed in three Stages and two Phases. Stage two, Phase one using quantitative methods to answer Research Questions (RQs) 1 to 3 addressing the relationship between Workplace Innovation and Public Sector Culture within a Public Sector Organization, and testing this relationship with both demographic and employment characteristics moderators. The findings provided a basis for triangulation with the qualitative analysis to corroborate and add detail to the findings. Stage three, Phase two used qualitative methods to answer RQ. 4 by a Stage one triangulation with the outcomes from Phase one and addressing in what ways organizational reports corroborate with Workplace Innovation and Public Sector Culture within a Public Sector Organization. Lastly, Stage four, integrated the quantitative and qualitative results in a Stage two triangulation and integrated themes combining them into meta-inferences which confirm the inferences or results obtained by the Two Phases of this thesis and highlighted significant inferences (Fetters, Curry & Creswell 2013; Fetters & Freshwater 2015; Molina-Azorin 2018).

For the quantitative Phase one, a Two stage approach was used to analyse the data using quantitative and multivariate analysis techniques in accordance with Hair et al. (2014). The first stage for the quantitative analysis was completed using what is often called first-generation techniques which can analyse only one layer of linkages between independent and dependent variables at a time (Gerow et al. 2010; Lowry & Gaskin 2014). First generation techniques include statistical methods, such as correlations, regressions, or difference of

means tests in this instance ANOVA or t-tests, that can be used for simple modelling scenarios.

Stage two for the quantitative analysis used second-generation techniques because they modelled relationships among multiple independent and dependent variables simultaneously. A Structural Equation Modelling (SEM) analysis was completed. SEM as a statistical methodology was able to add depth to the regression and difference of means test modelling undertaken. There were several additional advantages including: more flexible assumptions particularly allowing interpretation even in the face of multicollinearity; use of exploratory factor analysis to reduce measurement error by having multiple indicators per latent variable; better model visualization through using a graphical modelling interface; the desirability of testing models overall rather than coefficients individually; and the ability to model error terms and the ability to test co-efficients across between subject groups (Acock 2013; Garson 2015).

Stage three, Phase two of the analysis was to undertake the qualitative analysis of Department A organizational reports and the qualitative elements from the survey instrument. This triangulated with the outcomes from Phase one to create initial themes for the qualitative analysis and addressed in what ways organizational reports corroborate with Workplace Innovation and Public Sector Culture within a Public Sector Organization.

The final mixed methods question in Stage four integrated the quantitative and qualitative results in a Stage two triangulation. Themes were then integrated combining them into meta-inferences which confirm the inferences or results obtained by the Two Phases of this thesis and highlighted significant inferences.

4.7 Development of a Questionnaire with Dimensions to Answer RQs 1 to 3

The questionnaire used in this thesis was developed by the researcher after an extensive review of theory and extant research related to the fields of organizational culture and workplace innovation behaviours that would answer the research questions. This questionnaire contained questions that would assist in answering Research Questions 1 to 3

for the Phase one quantitative stage research. It was decided to combine two instruments that had been successfully used in other research that had proven success within a range of organizational types and so would fit into the context of a Public Sector organization. The aspects under examination are detailed below:

1. Considering Public Sector Culture, aspects under examination are: Organizational Culture and Group Culture.

2. Considering Workplace Innovation, factors under examination are; Organization Innovation, Workplace Innovation Climate, Individual Innovation, and Team Innovation.

3. Demographic factors and Employment Characteristics were collected to provide comparative capabilities.

The questions to obtain information on organizational culture as experienced by the actors or staff in Department A was based on the component of an Organizational Communication Profile (OCP) developed by Pace and Faules (1994) used to calculate organization culture as part of the OCP audit of an organization at a particular point in time. This had been used successfully over many years. The one word response to describe first Department Culture, which for Department A was termed a Group, and then Organizational Culture allowed those in the organization to provide a view of the culture of both the organization and group they belonged to at the time the survey was delivered. It allowed respondents to express their view in their own words which provided their understanding of the organization at two different levels, the whole organization and the subdivision of group. This supported the analysis of culture at the organizational and group level as was experienced by the actors or staff in the organization (Pace & Faules 1994; Schein & Scheiner 2016).

The Workplace Innovation Scale was used in a number of other studies in the last 15 years and continued to show high reliability scores in industry studies in the Private and not-for-profit sectors thus establishing the instrument's reliability and validity (Baxter 2004; Chomley 2014; McMurray et al. 2013; McMurray et al. 2010; Von Treuer & McMurray 2012). This was

measured by the scale comprising 24 items anchored to a five-point Likert type scale and measuring perceptions of innovation across four dimensions; workplace innovation climate, organisational innovation, team innovation, and individual innovation (McMurray & Dorai 2003). Over the past 15 years the Workplace Innovation Scale (WIS) has consistently shown high reliability Cronbach Alpha scores between a = 0.89 to a = 0.94 in numerous industry and business contexts.

Both measurement techniques, the culture questions and the Workplace Innovation Scale had been subjected to rigorous testing indicating acceptable reliability and validity. All questions were checked to ensure that no two questions were asking the same thing (De Vaus 2002). The Organizational Culture component provided initial qualitative data to assist with conceptualising the qualitative component of the research method. In addition, the two instruments supported organizational constraints imposed on the size of the questionnaire with Departmental Management requesting an instrument that would not take longer than 20 minutes to administer.

4.7.1 Public sector culture

Organizational Culture was measured based on the Pace and Faules (1994) measure developed to allowed organizational researchers to capture information from organizational members on key values and shared concepts to create their image of the organization. As it was carried out in a public sector organization it was called ‘Public Sector Culture’, collecting information on two aspects, Organizational and Group Culture.

To achieve an understanding of the culture within a Public sector organization, the researcher sought a measure that could be described using quantitative methods and would allow a comparison of the relationship with Workplace Innovation. This needed to consider that culture is a construct of those members within the organization. Various organizational culture measurement tools such as the Organizational culture audit tool adapted from Pace and Faules (1994) plus the Organizational Culture Inventory are based on the understanding that a common world or in this case ‘organizational’ view can be understood so allowing analysis using these constructs. Organizational Culture was measured at the two levels of

organization and group using the Organizational Culture question from the Pace and Faules (1994) Organizational Communication Profile (OCP) instrument. It was chosen for this research as the author considered it provided a view of the organization by those in the organization. This captured information on 'the perceptions of organization members of the key values and shared concepts that constitute the image they have of the organization' (Ibid p. 334). The approach supported collecting a view of culture as it is experienced by the actors or staff in the organization (Pace & Faules 1994; Schein & Scheiner 2016). Words that denoted changing in a negative way and those that denoted changing in a positive way were able to be clearly defined and differentiated. The coding was undertaken by the researcher and this was then reviewed by the research supervisors to support coding integrity (Bazeley 2018).

4.7.2 Workplace Innovation

Workplace Innovation has been explored by a number of researchers in a number of different contexts using the Workplace Innovation Scale (WIS). McMurray and Dorai (2003) developed the scale and it has been used in a number of studies showing scale reliability with consistently high Cronbach Alpha scores (Baxter 2004; Chomley 2014; McMurray & Dorai 2003; McMurray et al. 2013; Von Treuer & McMurray 2012). This scale measures, from a behavioural aspect, the support and practices for Workplace Innovation by individuals. This concept of innovation has linkages to culture at the workplace level which enables innovation to occur. The WIS separately examines the four major factors of organization, climate, individual or team innovation which connects it to culture at the workplace and organizational level.

The factors that comprise McMurray and Dorai's Workplace Innovation Scale (WIS) are: Workplace Innovation Climate; Individual Innovation; Team Innovation; Organization Innovation. The WIS scale has been used in a number of research studies over the last 15 years that demonstrate a scale reliability with consistently high Cronbach Alpha scores.

Table 5 - Workplace Innovation Scale: construct prior research summary

Scale (Factors)	Reference	Reported Cronbach Alpha
Organizational Innovation (5)	(McMurray & Dorai 2003)	0.9
	(Baxter 2004)	0.79 (full WIS scale)
	(Von Treuer & McMurray 2012)	0.73
	(McMurray et al. 2013)	0.93
	(Chomley 2014)	0.8
Individual Innovation (8)	(McMurray & Dorai 2003)	0.77
	(Baxter 2004)	NA
	(Von Treuer & McMurray 2012)	0.61
	(McMurray et al. 2013)	0.78
	(Chomley 2014)	0.71
Team Innovation (5)	(McMurray & Dorai 2003)	0.76
	(Baxter 2004)	NA
	(Von Treuer & McMurray 2012)	0.59
	(McMurray et al. 2013)	0.63
	(Chomley 2014)	0.64
Workplace Innovation Climate (6)	(McMurray & Dorai 2003)	0.89
	(Baxter 2004)	0.89
	(Von Treuer & McMurray 2012)	0.79
	(McMurray et al. 2013)	0.89
	(Chomley 2014)	0.83

Table 5 above shows the studies that have used the WIS scale and the reported Cronbach Alpha scores for each of the four factors.

4.7.3 Demographic and Employment Characteristics information

The demographics chosen to be used in this research were gender, age, marital status, and educational level. The employment characteristics included tenure, job type, work group, work role and workplace flexibility.

The last section consisted of four items capturing Demographic information of gender, age, marital status and educational level; thirteen items relating to staff's Work Characteristics including; tenure in the role, job type, two questions on flexible work, hours of work, work roles, work location, three questions on managerial responsibilities and three questions on team work. A final open ended question asked for any additional comments.

4.7.4 Scales used

The scales used were non-metric, including nominal for demographics and employment characteristics and ordinal scales using a 5 point Likert scale. Demographics and Employment Characteristics used included those such as age, gender, job role, education level and work location. Two questions were asked to measure Organizational Culture that used an organizational culture question adapted from Pace and Faules (1994) in the Organizational Communication Profile (OCP). They asked for a one word answer and the researcher coded these and developed them into a 5 point Likert scale. Additional open questions were asked around demographic and employment characteristics details to quantify details.

4.7.5 Survey Method

In all, 41 items and three questions were asked in the questionnaire. Data was collected by administering the 24 item Workplace Innovation Scale (WIS) developed by McMurray and Dorai (2003), to employees of Department A. This used a 5 part Likert-type scales with value ranges as follows: 1 = Strongly Disagree, 2 = Disagree; 3 = Neutral; 4 = Agree; and 5 = Strongly Agree. Two culture questions were asked to measure Organizational and Department/Group Culture that used an organizational culture question adapted from the Pace and Faules (1994) Organizational Communication Profile (OCP). This was used to provide data on the culture at the organizational and work group level to test the congruency of responses given by individuals and work groups. These provided one word responses that were coded by the researcher and translated into a 5 part Likert-type scale with the value ranges of: 1 = Negative; 2 = Changing in a negative way, 3 = Neutral; 4 = Changing in a positive way; and 5 = Positive. In addition, 17 items were included addressing staff's personal demographics and employment characteristics. A final open question was asked to collect any additional comments.

Data collection

The data collection was conducted using a web-based questionnaire survey using the Qualtrics survey engine. The researcher used the Qualtrics package from RMIT to allow data

to be collected at RMIT and provide Department A staff with an assurance their information was protected.

The questionnaire used a web-based survey with the aim to connect in a short time to a geographically disbursed work force as Department A operates from over 90 sites across Victoria. This supported Department A's usual approach for running organizational surveys to collect data.

The nine-page questionnaire gathered data under the project title, *Innovation Flows within a Government Agency: A Case Study of the Department of Environment and Primary Industries* comprised 44 items. There were three groups of data divided into sections on Workplace Innovation, Organizational Culture and on collecting demographic and work characteristics information.

It was designed to provide an overview of the research project on the first page as part of an invitation to participate. This met the requirements for fully informing respondents about research being conducted as required by the RMIT University Ethics Committee. It was then divided into six sections to make the questionnaire as easy as possible to read and be completed by respondents.

Workplace innovation items

The first four sections include the elements of the 24-item WIS scale (McMurray & Dorai 2003). These scales were anchored to a 5 point Likert-scale from: 1 = Strongly Disagree, to 5 = Strongly Agree. The four factors were around organizational issues, climate, individual and team that together are important factors of innovation. The sections were allocated to the four factors in the following order; Team Innovation, Individual Innovation, Workplace Innovation Climate and Organizational Innovation.

Culture questions

The next section asked for a one word description of the culture of the work group and of the organization. These asked the respondents to list one word to best describe the culture of their organization, and one word for their department or work group. The two questions were

used together to determine organizational culture as a factor with two aspects; one that was the culture of the individual staff member's department or group and the other that was the culture of the organization. In Department A work is undertaken at the organizational level as a Department and the lower workgroup level is described as a Group. To distinguish between the two dimensions during the analysis it was decided to rename the Department aspect to the Group.

The researcher coded the one word qualitative data by ranking descriptions and translating these into a five part Likert-type scale with the value ranges of: 1 = Negative; 2 = Changing in a negative way; 3 = Neutral; 4 = Changing in a positive way; and 5 = Positive.

Demographic and workplace characteristics questions

Section 6 of the questionnaire was the demographic and workplace characteristics section, which included 17 items capturing data relating to gender, marital status, age, level of education, job tenure, job type, work groups, work role and flexible work arrangements.

Open question

A final open question asking for any comments was provided. Lastly, a statement of thanks was placed at the end of the questionnaire at the bottom of the last page.

The survey was distributed widely using several approaches. The invitation was included in a message through the electronic newsletter called Department A intranet HUB and the Departmental Secretary's email message sent to all staff. The internal communications intranet message board contained a message and a link to the survey. The Department's internal social media 'Yammer' network was another mechanism used to send out the message. This was supplemented by emails sent by various groups and senior leaders such as the Deputy Secretary Corporate in their own messages. Reminders were sent through the electronic newsletter and emails.

Analysis of the Public Sector Culture Questions

Two components of culture were measured in two open ended question asking for a one word description of Departmental or Group Culture and Organizational Culture. The data captured

was descriptive and a sense making evaluation was applied by the researcher to group and classify the words to identify the shared constructs held by people about organizational and group culture (Pace & Faules 1994). Data analysis of the one word culture questions was carried out using a standard qualitative research data analysis process (Creswell 2014, 2016; De Vaus 2002; McMurray, Pace & Scott 2004). Themes were developed from the one word answers using a content analysis around categories of meaning to illuminate 'behaviour in context' (Cronbach 1975), 'where situational factors play a prominent role' (Jick, 1979, p. 609). After analysis of the initial themes of positive, negative and changing culture these were expanded to denote a neutral experience and to classify changing culture into a negative and positive changing experiences. The coded responses were ranked using the pragmatist principle that it had strengths of both qualitative and quantitative data and used the common practice of translating qualitative data into a quantitative scale for analysis (Creswell 2014; Newman & Benz 1998; Onwuegbuzie & Leech 2005; Tesch 2013).

The coded data was developed into a 5 point scale as detailed in the Culture Questions section above. This allowed all the responses to have equal importance when analyzing the results.

4.8 Quantitative Analysis Process

The analysis process was proceeded by the preparation of data for analysis, cleaning, calculation of means and calculation of standard deviation for unengaged responses. Next the items and the factors were examined including confirming item reliability. The first stage was correlation and regression analysis of the construct dimensions and the demographic variables. The second stage was Structural Equation Modelling of the theoretical model, explanatory factor analysis and developing a second model. This model was then used for analysis of demographic groups and groups with certain employment characteristics.

4.8.1 Pre-test

To enhance data integrity a pre-test was conducted to establish validity of the questionnaire items. A convenience sample of 20 participants comprised of 17 staff from Department A and three from RMIT University employees. This was a participating pre-test (Converse & Presser

1986) as members of the group were told it was a pre-test. They were asked to answer the following questions as well as fill in the survey questionnaire:

- Was the survey easy to access and use?
- Did you feel enough information was given about the purpose of the research?
- Were you confident about your role in the research and how your information would be used?
- Did the flow of the questionnaire work?
- Could you understand how each section flowed and how it connected to the others?
- Were you able to understand all the questions? If not which ones caused problems and why?
- What did you think about the time it took to answer the questionnaire?
- Are there any other comments you would like to make?

The researcher sat with ten of those participating from Department A who were geographically close in Melbourne, and who were able to commit to working through the questions with the researcher. The researcher observed their reactions as they took the survey and worked through the set questions with them.

Those working from other locations, including five in regional locations were able to test to determine whether the technology was working and how easy it was for Department A's people to access this from the technological platform. Sometimes internet speeds in regional locations were slow and this may have restricted access. In the pre-test there were no issues with the connection speeds. All the respondents found the survey easy to access and use. They considered enough information was given about the purpose of the research and were confident about their role in the research and how the information would be used. The flow of the questionnaire worked for them, and they understand how each section flowed and connected to the others

They were able to understand all the items and questions. Feedback was received identifying that the questions about the workgroup's climate or culture for innovation used the term boss which was not commonly used in Department A. This led the questions to be altered to

include manager instead of boss. To preserve the integrity of the scale being used boss was still included in the questions but in brackets, for example: 'My manager (boss) is our role model on creative thinking'. There were points made about a couple of typological errors which were able to be changed.

One person was uncomfortable with the questionnaire asking for marital status as one of the demographic questions. It was explained that this was a factor that had been identified in other research as creating difference in how people responded to the variables of workplace innovation. It was noted that respondents were able to choose not to answer that question.

People felt that the time it took to answer the questionnaire was between 15 to 20 minutes which was the appropriate amount of time for people within Department A which would support management requirements. This was not found intrusive and onerous by staff. All of those who participated were very supportive of the research. The approach relied on those who nominated to participate and this possibly limited the range of possible respondents. As described by Converse and Presser (1986) the pre-test can source a group of people 'who are accustomed to surveys, reflective and confident about their own opinions and mental processes, sensitive to nuances of language, as well as willing to give up time and thought to help social scientists' (Ibid p. 52).

The pre-test allowed the researcher to obtain feedback from the test group on how people from Department A and from another organization responded to the survey, the time taken to complete the survey and an initial validation of the survey constructs. It was decided not to run a larger pilot study as permission was given by Department A to deliver the survey within a particular time window which would not allow a pilot study to be completed and assessed without compromising the time for the full study. This is a common choice that needed to be made when balancing demands in social research (Aldridge & Levine 2001). In addition, imposed limitations such as this, could be a contributing factor to the limited studies conducted in public sector organizations.

4.8.2 Main survey procedures

The unit of analysis for this research was the individual, that is, Department A's staff members. The respondents sampled were employees of a Victorian Public Sector Organization working across all areas including policy, service delivery and corporate services. This Public Sector Department was responsible for the delivery of environment and natural resource management and supporting the primary industries sector.

All staff members of Department A were invited to participate in the survey, approximately 3,470 at the time of the survey (DEPI 2014a) and located in over 90 locations across Victoria.

4.8.3 Response rate

The web-based survey invitations were distributed to all staff of Department A. It was distributed widely using several communication channels. The invitation was included in a message through the electronic newsletter (Department A Intranet HUB) and the Departmental Secretary's email message sent to all staff. The internal communications intranet message board contained a message and a link to the survey. The Department's internal social media 'Yammer' Network was used to dispatch the message. This was supplemented by emails sent by various groups and senior leaders such as the Deputy Secretary Corporate in their own messages. Reminders were sent through the electronic newsletter and emails.

A total of 461 completed surveys were returned. A further 18 incomplete surveys missing a few demographic or employment characteristics responses were accepted and considered to be legitimate for this research, giving a total of 479 responses. This sample size equated with a 4.5 or 4.6 sampling error size at the 95 per cent confidence level for large populations according to De Vaus (2002, p. 81). However as this number of respondents was 14 per cent of the organizational population there was increased accuracy of the results under the Finite Population Correction. This would be reduced by .93 taking it to between a 3.57 or 3.56 sampling error size (Berenson, Krehbiel & Levine 2012). This would be expected to be a relatively homogenous population that would have similarities in how they answer the

questions which De Vaus (2002, p. 62) proposed would reduce the sampling error to as little as two per cent.

The response rate in this survey was at the lower end compared to typical response rate in organizational research and when conducting web-based surveys (Baruch 1999; Baruch & Holtom 2008). However, this was based on research published in journals and the researchers noted that a number of response rates were not published, and they commented that these might include lower rates (Baruch 1999; Baruch & Holtom 2008). Krosnick (1999) has argued 'that surveys with very low response rates can be more accurate than surveys with much higher response rates' (Ibid p. 540) with other researchers asserting that lower response rates did not necessarily translate into more inaccurate results (Berenson, Krehbiel & Levine 2012; De Vaus 2002; Krosnick 1999).

The sample size required a minimal number of responses for statistical analysis, Hair et al.'s (2014) 'rule of thumb' is the sample should have at least five times as many observations as the number of variables that are to be analyzed (Hair et al. 2014). This survey contained 41 item level questions, three questions including one open ended question, a total of 44, requiring a minimum sample size of 220. The 479 responses accepted from the original population of 3,470 was sufficient for all multivariate techniques used in this study.

4.8.4 Variation between answering rates for open ended and multiple-choice questions

There were less responses for the open comments question than there were for the multiple-choice questions. This indicated the organization might be more used to multiple choice answer surveys and/or time constraints restricted contributions to written responses.

4.9 Ethics in Conducting Research

The term 'ethics' in research relates to the study and practice of making good and right decisions and applying this to conduct while engaging in research (McMurray, Pace & Scott 2004). This is particularly important to protect human subjects in the research. The RMIT Ethics committee and its processes provided guidance for the development of an Ethics Committee proposal that guided this research. This committee is run according to

international best practice standards. Approval was sought from the Ethics Committee of the RMIT University by submitting an ethics application to BCHEAN sub-committee which was approved as project no.1000447. The approval letter is shown in Appendix F.

The questionnaires for this survey were self-administered and in the Plain Language Statement (PLS) provided potential respondents with a detailed description of the project including: introductory information about the researcher and supervisor; their affiliations; the title of the research work; the nature and objectives of the research and a brief background to it; the voluntary nature of participation; the rights of people involved; what is the level of participation required; and outlining that all people in the organization were being surveyed. Ethics Plain Language Statement Appendix G.

In the quantitative component of the research web based self-administered questionnaires were distributed, clearly stating that participation in the survey was voluntary and anonymous. The wording of the introductory paragraph of the survey inviting participation reinforced that this was a matter of individual choice, and the participant was asked to read the background material before making a decision on whether to participate.

A range of methods were used to distribute self-administered web based questionnaires to all members of the organization which was around 3,470 staff at the time of the survey (DEPI 2014a). This was done by using a range of information channels including: a story and link to the Departmental Secretary's Weekly message that went to all the organization; a story and a link in the internal news room on the Intranet; and a message and a link in the Department's social media 'Yammer Network'. In the questionnaire, the respondents needed to answer the questions related to Workplace Innovation and its four dimensions, Organizational Culture and its two aspects, then finally additional questions about the demographic and employment characteristics of the respondents. Permission was sought from the respondents by asking their consent as the first question and providing an online link to the PLS. If they agreed to participate in this thesis, they would be aware of the background and purpose of the research. The respondents were able to examine the questionnaire before deciding whether they wanted to participate. Participation in this research was entirely voluntary and anonymous:

the respondents were able to withdraw from participation at any stage of the study, without prejudice.

Respondents who involved in this research were able to withdraw partially or completely at any time or refuse to answer any question. Several of them chose to do so. The privacy of respondents and the confidentiality of data provided by them and their anonymity were maintained. The investigator maintained objectively in the analysis stage to make sure the data collected was accurately represented. All information collected was strictly confidential and could only be accessed by the researcher and her supervisor. There was no perceived risk outside the respondents' normal day-to-day activities. All data will be kept securely at RMIT University for a period of five years before being destroyed.

In the qualitative part of the thesis, the researcher followed the outline for addressing ethical issues in qualitative research as published by Creswell (2016). An analysis of published documents or studies that had already been published either internally or externally were used to triangulate with the results of the quantitative component. These documents were produced for reasons other than research and did not engage directly with individuals and did not intrude on their social setting (Merriam 1988, p. 104).

The documents were checked to examine the approach taken to collect information agreed with the ethical framework used by the researcher. In addition, to make sure they did not identify individuals apart from those who represented the voice of the Department and had already made statements in published documents such as the Departmental Secretary. Data was analyzed from a number of perspectives to avoid disclosing only positive results and multiple perspectives were reported. The findings from the quantitative analysis will be kept securely at RMIT University for a period of five years before being destroyed.

4.10 Summary

The research was undertaken using a mixed methods approach. The thesis used a pragmatic philosophical view that encompassed a post positivist view in undertaking quantitative research to support the existing research paradigms in the innovation research area. This was combined with a constructivist paradigm integrating qualitative research

methods used for Organizational Culture and the Public Sector Management area. The organization used in the thesis was a Victorian Public Sector Department. The data analysis was to be completed through three stages after the initial Stage one of the thesis which reviewed the literature and detailed the Case Study. Stage two consisting of the Phase one quantitative analysis that collected data in two Stages of statistical analysis and Stage three consisting of the Phase two qualitative analysis where the results of Phase one would guide the qualitative theme development. Stage four was mixed methods integration that undertook a second stage triangulation of the quantitative and qualitative results, integrating the results and identified larger themes that were combined into meta-inferences.

Data was collected by anonymous survey and data analysis of organizational data, allowing the researcher to maintain an appropriate measure of objectivity in undertaking the research. The data collection phase was delayed by a number of organizational events and due to the limited time for the survey to be administered, a trial pre-test was given to ensure relevance. Given the survey instrument was developed using techniques that had been successfully used in other research, this presented a low level of risk to outcomes. The main research survey observed a response rate at 14 per cent which was an accepted level of survey response in Department A for an external or a voluntary survey. It was accepted for academic purposes particularly given it represented a large proportion of a finite population so reducing potential error and with increased recognition that accurate results could be returned from smaller samples.

The next chapter in the thesis reports on the quantitative analysis.

Chapter 5. Quantitative Analysis

5.1 Objective

The purpose of this chapter is to present the data analysis of the survey and report the results. The chapter interprets the data using correlation, regression and structural equation modelling techniques, and illustrates the demographic profile of the employees of the Victorian Public Sector Organization.

5.2 Introduction

This introduces the Sections of the chapter. Section 5.3 covers data screening and section 5.4 outlines the demographic profile of the sample. Section 5.5 reviews scale reliability. Section 5.6 then reviews the analysis to outline the relationship between Culture and Workplace Innovation. Firstly, by linear regression is used to test Research Question 1, Hypotheses 1 and 1a to d and then analysis is repeated using Structural Equation Modelling. Section 5.7 analyses the data to answer Research Question 2, H2 to H5 and Section 5.8 analyses Research Question 3, and H6 to H9. Section 5.9 provides the results from the Hypotheses Analysis and 5.10 provides a conclusion of the main ideas.

5.3 Data Screening

The information was reviewed by undertaking a univariate data screening including the examination of unengaged responses, review of items normality, and the detection of possible outliers.

Of the responses received, 479 were deemed useable. These included 16 responses missing part of the demographics or employment characteristics sections but with the completed WIS scale and the Public Sector Culture item responses. There were 18 responses exhibiting missing data in the sample. There was a 14 per cent response rate which was an acceptable rate for accuracy (Berenson, Krehbiel & Levine 2012; De Vaus 2002; Krosnick 1999) and to undertake multivariate analysis (Hair et al. 2014).

5.3.1 Unengaged responses

A number of respondents had answered the questions with no variance their responses were unengaged. A standard deviation was tested on each respondent as a low standard deviation would indicate that the respondent has answered each question with the same value, without reading the question (Gaskin 2017). There were six responses that showed a standard deviation of less than 0.5 on their answers for the factor questions, and so these were detected and deleted. There was no discernable pattern with the demographic characteristics of this excluded group.

5.3.2 Normality

The next part of the univariate analysis was to examine the normality of the items. This was done by calculating the skewness and kurtosis values and comparing them with the 'rule of thumb values' of +/-1 and +/-2, respectively (George & Mallery 2010; Kline 2008). Kline (2008) identified there is more flexibility in measuring skew and kurtosis for social science researchers with a measure for extreme skew being +/- 3 and if there was a kurtosis of greater than 10 then this may suggest a problem.

In this data set, the skewness values ranged from -1.23 to 0.40 which was outside the more conservative threshold. This indicated that the respondents answered these questions in a similar way however as outlined above still within an acceptable level of skewness if the more flexible rule of thumb was used. The kurtosis values ranged from -1.75 to +5.2, again outside the conservative threshold but acceptable according to Kline (2008).

Kolmogorov-Smirnov and Shapiro-Wilk tests for normality were used to calculate the probability that the sample was drawn from a normal population. For datasets smaller than 2000 elements, the Shapiro-Wilk test is usually used, otherwise, the Kolmogorov-Smirnov test is used. In addition, it was found in a study completed on tests for normalcy the Shapiro-Wilk test had more power to analyse asymmetric data sets (Yap & Sin 2011).

The p-value in both tests was less than 0.05, so both tests reject the alternate hypothesis. This means that according to these tests the distribution of responses of all items was significantly different from the norm.

Many researchers suggest that is important to use both the statistical tests and graphical plots to assess the actual degree of departure from normality (De Vaus 2002; Hair et al. 2014). Other researchers in the social sciences, for example, (Kline 2008) and (Aldridge & Levine 2001) suggest that social research and the types of surveys it uses including large samples of self-reports increase the likelihood of non-normality and an extended concept of normal distribution can be accepted.

5.4 Demographic Profile of the Sample

An overview of the demographic and particular employment characteristics profile of the sample is shown in Table 6 below. This shows the demographic groups of gender, age, marital status and education level, and the employment characteristics of tenure, job role and working flexibly. The researcher considered that this provided an overview of the results for comparison purposes with the results on work group and work roles being presented later in this chapter.

Table 6 - Demographic profile of sample population frame

Profile	Frequency	Percentage
Gender	**(N=479)**	
Female	286	59.71
Male	193	40.29
Age	**(N=479)**	
18-21 years old	1	0.21
22-30 years old	82	17.11
31-40 years old	127	26.51
41-50 years old	135	28.18
51-60 years old	116	24.63
>61 years old	18	3.76
Marital Status	**(N=475)**	
Single	111	23.37
Married	268	56.84
Divorced	20	4.21
Separated	10	2.10
Other	66	13.89
Highest Level of Education	**(N=479)**	
High School Certificate	31	6.47
Associate Degree/Diploma	55	11.48
Bachelor Degree	233	48.74
Master's Degree	114	23.79
Doctorate	46	9.60
Years with Department A (Tenure)	**(N=479)**	
< 2 years	50	10.44
2-5 years	101	21.08
6-10 years	133	27.77
11-20 years	121	25.42
21-30 years	56	11.76
>30 years	18	3.78
Job Role	**(N=479)**	
Service Deliverer	262	54.70
Middle Manager	125	26.10
Frontline Manager	47	9.81
Senior Manager	45	9.39
Works Flexibly	**(N=479)**	
Yes	235	49.06
No	244	51.26

A total of 59.71 per cent of the respondents were female and 40.29 per cent were male. This was almost the reverse of the gender ratio in the department at the time which was 59 per cent male and 41 per cent female (DEPI 2014a, p. 20). The researcher has observed that several surveys in the Department have a similarly larger percentage of females completing them compared to males. For example the regular People Matter, Employee Opinion Survey

run by the Victorian State Government had a return rate of 48 per cent female and 53 per cent male in 2013 (SSA 2013a).

For the age groups, approximately 28 per cent were in the age range of 41 to 50 with the second largest group of 26 per cent being in the age range of 31 to 40. This was in line with Department A's staffing age profile in which 56 per cent of staff were in the age range of 35 to 54 years (DEPI 2014a). The age ranges shown in the Department A Annual Report were applied according to the Victorian Public Service reporting standards and were not directly aligned to the ranges used in the survey.

The marital status showed that a large proportion, 57 per cent of the sample were married with 23 per cent single. Education levels revealed that most respondents held university degrees (82 per cent). The Victorian analysis of the public sector workforce indicated that over 63 per cent of public sector employees have a Bachelor degree or higher which is noticeably higher than the Victorian labour force where 28 per cent have an equivalent qualification (VPSC 2014). This demonstrates that Department A is a knowledge based organization given it contains the specialist functions of environment and natural resource management and primary industry expertise.

Respondents were asked how they best described their job and the largest proportion identified their roles as Service Deliverer (54 per cent). The next largest group was that of Middle Managers (26 per cent). The two other categories of Frontline Manager and Senior Manager each contained 10 per cent of respondents. The Annual Report does not identify staff categories of employment, only their employment classification levels so a direct comparison couldn't be undertaken. A large proportion of the sample, 49 per cent identified as working flexibly.

5.5 Scale Reliability

5.5.1 Reliability of scales and factors

Testing the reliability of scale and factors used in this thesis is necessary because it has the capacity to influence the quality of data and to fully analyze the complexity of the concepts

within this thesis (De Vaus 2002). This section provides details on the reliability of the scale used in this thesis which was the Workplace Innovation Scale (WIS) coupled with a scale, Public Sector Culture, developed to measure culture by adapting the Pace and Faules (1994) organizational culture measure.

The reliability of a scale indicates how free the scale is from random error and it can be expected that the answers would be relatively consistent over time. Internal consistency is usually measured statistically with Cronbach's Alpha which estimates internal consistency and is typically used when you have several Likert-type items that are summed to make a composite score (De Vaus 2002; Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). For reliability the measure should have a Cronbach's Alpha of at least 0.6 or 0.7 (Aldridge & Levine 2001; De Vaus 2002) with a number of researcher suggesting higher numbers are preferable especially for complex research projects (De Vaus 2002; McMurray, Pace & Scott 2004).

The Cronbach Alpha measures the Workplace Innovation Scale and Public Sector Innovation as a factor developed from the two items used to capture aspects of culture used in this research, were calculated using IBM SPSS v24. These are shown in Table 7 below:

Table 7 - Survey scale reliability

Name of the Scale/Construct	Cronbach's Alpha value	No Items
Workplace Innovation Scale	0.881	24
Public Sector Culture Construct	0.860	2

The Cronbach Alpha value for the Workplace Innovation Scale is 0.881 and for the Public Sector Innovation construct, is 0.860. The scale and construct are so confirmed as reliable and were deemed acceptable for this thesis.

All items in this thesis were defined based on previous research so an Exploratory Factor Analysis was not completed on the Workplace Innovation Scale for this analysis as it was already a well established scale with four identified factors (McMurray & Dorai 2003). It has been used successfully as a scale in this form in numerous other studies (Baxter 2004;

Chomley 2014; McMurray et al. 2013; Von Treuer & McMurray 2012). The construct for culture used in this study was adapted from the analysis approach used by Pace and Faules (1994).

5.5.2 Reliability of the Workplace Innovation Scale

Reliability Analysis – Cronbach Alpha

Cronbach Alpha (CA) was used to measure construct reliability. CA values above 0.6 have been identified as showing a good measure of construct reliability and high internal consistency (Aldridge & Levine 2001; Bagozzi & Yi 1988). These parameters were used to confirm the construct reliability for each construct. Table 8 below shows the results.

Table 8 - Factor Scale Reliability

Factor	Cronbach Alpha
Workplace Innovation Climate	0.785
Individual Innovation	0.593
Team Innovation	0.640
Organizational Innovation	0.803
Workplace Innovation Scale	0.881
Public Sector Culture	0.860

Whilst the literature deems that Cronbach Alpha values ranging between 0.60 and 0.70 are at the lower range of acceptability (Hair et al. 2014; McMurray & Dorai 2003), the alpha value of 0.640 for Team Innovation and 0.593 for Individual Innovation were deemed acceptable as being at the lower range of acceptability with Individual Innovation's value of 0.593 being close to 0.60. The low score for Individual Innovation is most likely related to Department A having a team culture where work is predominantly conducted on projects in teams. The team oriented culture affected how individuals answered the Individual Innovation questions which then affected the co-variance in this group of questions. The analysis indicated that Individual Innovation is not as prevalent in Department A. The overall Cronbach Alpha score for the WIS was 0.881 and for Public Sector Culture was 0.860. Thus the results of the Cronbach Alpha analysis showed acceptable levels of reliability.

5.5.3 Exploratory Factor Analysis

To prepare for the Structural Equation Modelling (SEM) analysis a data analysis process was undertaken using Exploratory Factor Analysis (EFA) to identify the underlying relationships between measured variables.

Measuring variables fit to the Workplace Innovation factors

As described earlier the items in this study were defined based on previous research using the four factors of the WIS Scale. Therefore, in this study, EFA was conducted to see if the chosen variables loaded on the expected latent factors, were adequately correlated and met the criteria of reliability and validity within this sample (Acock 2013; Garson 2015; Hair et al. 2014).

The conceptual model was analyzed and was comprised of one independent latent constructs Workplace Innovation (WIS) and four dependent latent constructs (Workplace Innovation Climate, Individual Innovation, Team Innovation, Organization Innovation). As before mentioned, the sample size (n = 479) was sufficient for EFA (Hair et al. 2014, p. 100). The conceptual model was tested using the Stata Statistical Program (Version SE13).

The results of the factor analysis and factor loadings for Workplace Innovation component factors, Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate identified a number of validity concerns. These results for all the four dimensions are shown below in Tables 9 - 16.

Organizational Innovation

The analysis was completed and the factor analysis and factor loadings and unique variances table for Organizational Innovation are shown below in Tables 9 and 10 respectively:

Table 9 - Organizational Innovation Factor Analysis

Organizational Innovation - Factor Analysis/Correlation				
Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	2.19846	2.11719	1.1746	1.1746
Factor 2	0.08127	0.17344	0.0434	1.218
Factor 3	-0.09217	0.05348	-0.0492	1.1687
Factor 4	-0.14566	0.02451	-0.0778	1.0909
Factor 5	-0.17016		-0.0909	1

Table 10 - Organizational Innovation Factor loadings and Unique Variances Table

Factor Loadings (pattern matrix) and Unique Variances			
Variable	Factor 1	Factor 2	Uniqueness
OC1	0.6935	-0.1472	0.4974
OC2	0.7518	-0.122	0.4199
OC3	0.6989	0.0352	0.5103
OC4	0.5295	0.1496	0.6972
OC5	0.6192	0.1453	0.5955

All the component variables for Organizational Innovation loaded onto a single loaded factor with a positive eigenvalue and all factor loadings communality values over 0.5295. This measures the total amount of variance that the original item shares with all the other items that are included in the analysis (Hair et al. 2014). No change was made to this item.

Individual Innovation

The analysis was completed and the factor analysis and factor loadings and unique variances table for Individual Innovation are shown below in Tables 11 and 12 respectively:

Table 11 - Individual Innovation Factor Analysis/Correlation Table

Individual Innovation - Factor Analysis/Correlation				
Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	1.29806	0.70267	0.9546	0.9546
Factor 2	0.59539	0.38144	0.4378	1.3924
Factor 3	0.21395	0.20609	0.1573	1.5497
Factor 4	0.00786	0.12419	0.0058	1.5555
Factor 5	-0.11633	0.04628	-0.0855	1.47
Factor 6	-0.16261	0.03525	-0.1196	1.3504
Factor 7	-0.19786	0.08075	-0.1455	1.2049
Factor 8	-0.27861	.	-0.2049	1

Table 12 - Individual Innovation Factor Loadings and Unique Variances Table

Factor Loadings (pattern matrix) and Unique Variances					
Variable	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
II1	0.4217	-0.3796	-0.1186	0.0118	0.6639
II2	0.374	0.3055	0.0685	-0.0346	0.761
II3	0.5517	0.0905	-0.0329	-0.0455	0.6843
II4	0.3162	0.1799	-0.2866	0.0134	0.7854
II5	0.3803	0.342	-0.0584	0.0423	0.7332
II6	0.2649	0.1483	0.2573	0.0449	0.8396
II7	0.4191	-0.1395	0.2058	-0.0146	0.7624
II8	0.4309	-0.3988	0.0022	0.0161	0.6551

All the component variables for Individual Innovation loaded onto a single loaded factor with a positive eigenvalue however the variables II2, II4, II5 and II6 were under the 'rule of thumb' test for acceptable communality values of 0.400 (Hair et al. 2014). These variables were associated with survey items as follows:

- II2 – At work I sometimes demonstrate originality.
- II4 – I make time to pursue my own ideas or projects.
- II5 – I am constantly thinking of new ideas to improve my workplace.
- II6 – I express myself frankly at staff meetings.

During the analysis, it was identified that the concept of individual innovation is unusual in Department A. This is because predominantly the work is done within teams and there is a strong commitment to team work. This would impact on how these questions were answered.

The other four questions relating to this factor were connected to individual creativity, making innovative decisions, working in teams to solve complex problems and the connection between individual initiative and performance measurement. The four questions remaining in the scale were considered to adequately measure Individual Innovation.

It appears that individual innovation makes sense to the respondents when it comes to individual thinking and decisions which can be recognized. However, other demonstrated behaviours such as pursuing their own ideas and projects, contributing new ideas to improve the workplace, expressing themselves frankly in staff meetings might be seen as not team oriented, and being critical of the team therefore creating different responses in people answering the question. The survey was undertaken in a time of major organizational restructure and respondents were perhaps reluctant to answer questions implying they weren't team oriented. Teams were recreated in Department A, often to include people from two different Departmental backgrounds and this would have create a less open team environment whilst the teams were forming.

Team Innovation

The analysis was completed and the factor analysis and factor loadings and unique variances table for Team Innovation are shown below in Tables 13 and 14 respectively:

Table 13 - Team Innovation Factor Analysis/Correlation Table

Team Innovation - Factor Analysis/Correlation				
Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	1.13826	1.05876	1.4336	1.4336
Factor 2	0.0795	0.12676	0.1001	1.5337
Factor 3	-0.04726	0.13126	-0.0595	1.4742
Factor 4	-0.17852	0.01949	-0.2248	1.2494
Factor 5	-0.19801	.	-0.2494	1

Table 14 - Team Innovation Factor Loadings and Unique Variances Table

Factor Loadings (pattern matrix) and Unique Variances			
Variable	Factor 1	Factor 2	Uniqueness
TI1	0.5425	-0.0136	0.7056
TI2	0.5048	0.1351	0.727
TI3	0.6136	-0.0462	0.6213
TI4	0.4525	-0.0242	0.7947
TI5	-0.0889	0.2415	0.9337

All the component variables for Team Innovation loaded onto a single loaded factor with a positive Eigenvalue however the variable TI5 was under the 'rule of thumb' test for acceptable communality values of 0.400 (Hair et al. 2014). The variable TI5 was associated with the answers to the question, 'Amongst my colleagues I am the first to try new ideas and methods'. This question connected to the role of the individual in the team. As discussed above, this did not connect with all respondent's ideas of team work as it could be seen to relate to an individual's innovation performance. The results for the Individual Innovation factor indicate that innovation outside a team perspective created mixed responses from respondents. The four questions remaining in the scale were considered to adequately measure Team Innovation.

Workplace Innovation Climate

The analysis was completed and the factor analysis and factor loadings and unique variances table for Team Innovation are shown below in Tables 15 and 16 respectively:

Table 15 - Workplace Innovation Climate Analysis/Correlation Table

Workplace Innovation Climate - Factor Analysis/Correlation				
Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	2.43324	2.2901	1.1219	1.1219
Factor 2	0.14314	0.14671	0.066	1.1879
Factor 3	-0.00358	0.06241	-0.0016	1.1863
Factor 4	-0.06599	0.08604	-0.0304	1.1559
Factor 5	-0.15203	0.03398	-0.0701	1.0858
Factor 6	-0.18601		-0.0858	1

Table 16 - Workplace Innovation Climate Factor Loadings and Unique Variances Table

Factor Loadings (pattern matrix) and Unique Variances			
Variable	Factor 1	Factor 2	Uniqueness
WIC1	0.682	-0.101	0.5247
WIC2	0.566	0.1736	0.6495
WIC3	0.623	0.0702	0.6069
WIC4	0.8174	-0.0442	0.3298
WIC5	0.7223	-0.1503	0.4557
WIC6	0.2641	0.2708	0.8569

All the component variables for Workplace Innovation Climate loaded onto a single loaded factor with a positive eigenvalue however the variable WIC6 was under the 'rule of thumb' test for acceptable communality values of 0.400, (Hair et al. 2014). The variable WI6 was associated with the answers to the question, 'My manager (boss) and my colleagues perceive me to be a creative problem solver'. This question connected to the role of the individual which was one where there was different understandings among respondents as seen in the discussions above with Individual and Team Innovation. This points to a very strong idea of team work which constrained ideas about the role of the individual in innovation.

As a result of the exploratory factor analysis, items below a communality value of 0.400 were removed from the data set. This left Organizational Innovation the same, Individual Innovation now consisting of four variables, Team Innovation now consisting of four variables and Work Innovation Climate now consisting of five variables.

5.6 Relationship between Culture and Workplace Innovation

5.6.1 Survey results to answer RQ. 1

This section of the analysis examines Research Question 1 and its supporting Hypotheses H1 and H1a to H1d in two stages. The first stage examines it using linear regression and the second stage uses Structural Equation Modelling (SEM).

RQ. 1. What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization?

H1: Public Sector Culture has a significant effect on Workplace Innovation.

H1a: Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.

H1b: Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.

H1c: Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.

H1d: Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.

Organizational Culture and Group Culture are both measures of culture within the Public Sector Organization. They were combined into a factor called Public Sector Culture to enable comparison with Workplace Innovation as a combined factor.

5.6.2 Stage one analysis to answer RQ. 1 using linear regression.

The Stage one statistical analysis using linear regression to answer RQ.1 and test Hypotheses 1 and H1a to H1d is described below:

H1: Public Sector Culture has a significant effect on Workplace Innovation

Public Sector Culture was used as a factor to compare with the factor of Workplace Innovation. The results are displayed in Table 17 below. The results indicated that Public Sector Culture had a highly significant effect on Workplace Innovation. It was significant with the ANOVA model significance at 0.000 with $P < 0.001$. The findings indicated that the dimension of Public Sector Culture had a predicted 24.6 per cent (adjusted R2) of the variability in Workplace Innovation:

Table 17 - Linear Regression results of Public Sector Culture on Workplace Innovation

	Workplace Innovation	
Public Sector Culture	**B**	**β**
Public Sector Culture	0.341	0.497***
R^2	0.247	
Adjusted R^2	0.246	
$F_{1, 478}$	156.678	
Model Significant (ANOVA)	0.000	

Note: ***p<.000

Summary

Thus the hypothesis H1 is fully supported and indicated that the Public Sector Culture has a positive and significant effect on the Workplace Innovation.

Hypotheses 1a to 1d - Effect of Organizational and Group Culture on the four dimensions of Workplace Innovation

The effect of Organizational Culture

To test the RQ. 1 that Public Sector Culture had an impact on all four dimensions of Workplace Innovation, a simple linear regression was performed between Organizational and Group Culture and each dimension of Workplace Innovation as dependent variables. The results are displayed in Table 18 below for Organizational Culture and Table 19 for Group Culture. Significant models emerged for all four models which supported the hypothesis. Results indicated that Organizational Culture has a statistically significant effect on all aspects of Workplace Innovation. All dimensions were highly significant with the ANOVA model significance at 0.000 for all of them with P < 0.001. The findings indicated that for the factor of Organizational Culture F (1,478) = 67.789, p< .001. with the adjusted R2 being 0.123 had a prediction of variability of 12.3 per cent on the dimension of Organization Innovation. For Team Innovation the results were F (1,478) = 37.45, p< .001. with the adjusted R2 being

0.071 so Organizational Culture had a 7.1 per cent prediction of variability on this dimension. For Workplace Innovation Climate the results were F (1,478) = 20.384, p< .001. with the adjusted R2 being 0.039 so Organizational Culture had a 3.9 per cent prediction of variability on this dimension. Lastly Individual Innovation results were F (1,478) = 18.429, p< .001 with the adjusted R2 being 0.033 so Organizational Culture had a 3.3 per cent prediction of variability on this dimension. According to Cohen's guidelines there was a large effect on Organizational Innovation, a medium effect on Team Innovation and a low effect on Workplace Innovation Climate and Individual Innovation (Cohen, J 1988).

Table 18 - Linear Regression Results of Organizational Culture on the four dimensions of Workplace Innovation

Workplace Innovation	Organization Innovation		Individual Innovation		Team Innovation		Workplace Innovation Climate	
Organizational Culture	**B**	**β**	**B**	**β**	**B**	**B**	**B**	**β**
Organizational Culture	0.164	0.353***	0.052	0.193***	0.094	0.270***	0.084	0.202***
R^2	0.124		0.037		0.073		0.041	
Adjusted R^2	0.123		0.033		0.071		0.039	
$F_{1,478}$	67.789		18.429		37.45		20.384	
Model Significant (ANOVA)	0.000		0.000		0.000		0.000	

Note: ***p<.001

The Effect of Group Culture

Additional analysis was completed using Group Culture. The results are displayed in Table 19 below. The results indicated that the Group Culture measure had a statistically significant effect on all aspects of Workplace Innovation. All dimensions were highly significant with the ANOVA model significance at 0.000 for all of them with P < 0.001. The findings indicated that for the factor of Group Culture F (1,478) =122.493, p< .001 with the adjusted R2 being 0.203 had a prediction of variability of 20.3 per cent on the dimension of Organization Innovation. For Team Innovation the results were F (1,478) = 80.719, p< .001 with the adjusted R2 being 0.143 therefore Group Culture had a 14.3 per cent prediction of variability on this dimension.

For Workplace Innovation Climate the results were F (1,478) = 62.026, p< .001. with the adjusted R2 being 0.113 so Group Culture had an 11.3 per cent prediction of variability on this dimension. Lastly, Individual Innovation results were F (1,478) = 39.920, p< .001 with the adjusted R2 being 0.075 consequently Group Culture had a 7.5 per cent prediction of variability on this dimension. According to Cohen's guidelines there was a large effect on Organizational Innovation and Team Innovation and a medium effect on Workplace Innovation Climate and Individual Innovation (Cohen, J 1988).

Table 19 - Linear Regression Results of Group Culture on the four dimensions of Workplace Innovation

Workplace Innovation	Organization Innovation		Individual Innovation		Team Innovation		Workplace Innovation Climate	
Group Culture	**B**	**β**	**B**	**β**	**B**	**β**	**B**	**β**
Group Culture	0.195	0.452***	0.069	0.278***	0.123	0.380***	0.131	0.339***
R^2	0.204		0.077		0.145		0.115	
Adjusted R^2	0.203		0.075		0.143		0.113	
$F_{1, 478}$	122.493		39.920		80.719		62.026	
Model Significant (ANOVA)	0.000		0.000		0.000		0.000	

Note: ***p<.001

Effect of Public Sector Culture on the four dimensions of Workplace Innovation

Public Sector Culture was used as a factor including the dimensions of Organizational and Group Culture to compare with the four dimensions of Workplace Innovation. The results are displayed in Table 20 below. The results indicated that Public Sector Culture had a highly statistically significant effect on all aspects of Workplace Innovation. All dimensions were highly significant with the ANOVA model significance at 0.000 for all of them with P < 0.001. The findings indicated that the factor of Public Sector Culture F (1,478) =156.826, p< .001 with the adjusted R2 being 0.240 had a prediction of variability of 24.0 per cent on the dimension of Organization Innovation. For Team Innovation the results were F (1,478) = 86.619, p< .001 with the adjusted R2 being 0.156 so Public Sector Culture had a 15.6 per cent prediction of variability on this dimension. For Workplace Innovation Climate the results were F (1,478) = 59.206, p< .001 with the adjusted R2 being 0.109 so Public Sector Culture

had a 10.9 per cent prediction of variability on this dimension. Lastly Individual Innovation results were F (1,478) = 43.155, p< .001 with the adjusted R2 being 0.081 so Public Sector Culture had an 8.1 per cent prediction of variability on this dimension. According to Cohen's guidelines there was a large effect on Organizational Innovation and Team Innovation and a medium effect on Workplace Innovation Climate and Individual Innovation (Cohen, J 1988).

Table 20 - Linear Regression Results of Public Sector Culture on the four dimensions of Workplace Innovation

Workplace Innovation	Organization Innovation		Individual Innovation		Team Innovation		Workplace Innovation Climate	
Public Sector Culture	**B**	**β**	**B**	**β**	**B**	**β**	**B**	**β**
Public Sector Culture	0.134	0.4491***	0.045	0.288***	0.081	0.398***	0.081	0.332***
R^2	0.241		0.083		0.158		0.110	
Adjusted R^2	0.240		0.081		0.156		0.109	
$F_{1, 478}$	151.826		43.155		86.619		59.206	
Model Significant (ANOVA)	0.000		0.000		0.000		0.000	

Note: ***p<.001

Summary

Simple regression was undertaken to investigate the answer to RQ 1. What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization? The results were statistically significant, F (1,478) =156.678, p< .001. Public Sector Culture and its aspects are positively and significantly related to those of Workplace Innovation and the dimensions of the Workplace Innovation Scale. The adjusted R^2 was 0.246. This indicates Public Sector Culture explains 24.6 per cent of the variance in Workplace Innovation. According to Cohen's guidelines this is a large effect (Cohen, J 1988).

Summary of Stage one analysis

H1 is fully supported and indicated that the Public Sector Culture has a positive and significant effect on the Workplace Innovation.

Hypothesis H1a is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.

Hypothesis H1b is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.

Hypothesis H1c is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.

Hypothesis H1d is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.

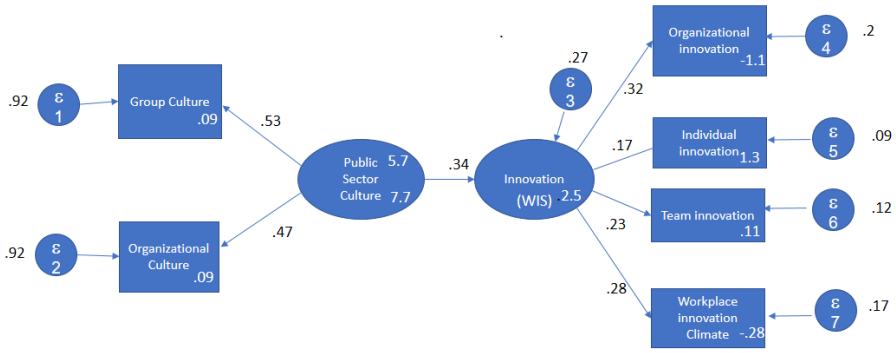
5.6.3 Stage two analysis to answer to RQ. 1 using Structural Equation Modelling

After completing the analysis using linear regression, structural equation modelling was used as the Stage two quantitative analysis to review the answer to RQ. 1 and to test H1 and H1a to 1d. SEM was selected as a statistical methodology to add to the regression modelling already undertaken. There were several additional advantages including: more flexible assumptions that allowing interpretation even in the face of multicollinearity; use of exploratory factor analysis to reduce measurement error by having multiple indicators per latent variable; better model visualization through its graphical modelling interface; the desirability of testing models overall rather than coefficients individually; the ability to model error terms; and the ability to test co-efficients across and between subject groups. This allows SEM to confirm the explanatory model developed by the researcher.

Preliminary Model

The starting model was created using the research model identified for the thesis without controlling for any correlations to check the pure effects of culture on innovation. The thesis research model was translated to a SEM model using the SEM builder in the Stata statistical program (Version SE13). The model produced showing the relationship of Public Sector Culture (Culture) to Workplace Innovation (WIS) is shown in Figure 7 below:

Figure 7 - Structural Equation Model showing the Conceptual Model of the relationship of Public Sector Culture to Workplace Innovation.



Source: Author using Stata SEM Builder

This preliminary model identified a significant relationship between Public Sector Culture (Culture) and Workplace Innovation (WIS) and its four dimensions. Public Sector Culture has positive impacts on Workplace Innovation at the significance level of 1 per cent. All variables demonstrated significance as part of this model at the significance level of 1 per cent.

The details of the goodness-of-fit statistics for the preliminary model are detailed in Table 21 below. The TLI measured at -0.217 with the 'rule of thumb' suggesting it should be over 0.9 to indicate a good fit. The RMSEA measured was above the accepted 'rule of thumb' for this particular model. A number of alternative models were attempted however only one was able to be produced. While this model demonstrated a partial fit with the goodness-of-fit statistics, it was the only model that was able to be produced from the original concept (Acock 2013; Schreiber et al. 2006).

Table 21 - Model Fit Indices for the Original Conceptual Model

Fit statistic	Value	Description	Comment
Likelihood ratio			
chi2_ms(3230)	31506.69	model vs. saturated	
p > chi2	0.0000		
chi2_bs(3321)	34513.86	baseline vs. saturated	
p > chi2	0.0000		
Population error	No Results		
RMSEA	1.769	Root mean squared error of approximation	
90% CI, lower bound	0.057		
upper bound	No Results		
pclose	0.000	Probability RMSEA <= 0.05	
Information criteria			
AIC	8524.94	Akaike's information criterion	
BIC	8612.54	Bayesian information criterion	
Baseline comparison			
CFI	0.087	Comparative fit index	Partial fit
TLI	-0.217	Tucker-Lewis index	Partial fit
Size of residuals			
SRMR	0.080	Standardized root mean squared residual	
CD	0.819	Coefficient of determination	

Fit refers to the ability of a model to reproduce the data, usually from the variance-covariance matrix (Kenny 2015; Schreiber et al. 2006). This model was able to be classed as a good-fitting model for this preliminary stage as there was demonstrated consistency with the data, indicating positive impacts of Public Sector Culture on Workplace Innovation and its factors to

a significance level of 1 per cent and the researcher deemed it acceptable for this thesis. Details of the results can be seen in Table 22 below:

Table 22 - Structural Equation Model showing the Conceptual Model of the relationship of Public Sector Culture to Workplace Innovation

	(1) Workplace Innovation	(2) Organizational Innovation	(3) Individual Innovation	(4) Team Innovation	(5) Workplace Innovation Climate
Public Sector Culture	0.341*** (0.027)				
Workplace Innovation		0.318*** (0.011)	0.167*** (0.007)	0.234*** (0.008)	0.281*** (0.010)
Constant	10.877*** (0.172)	1.137*** (0.140)	1.310*** (0.094)	0.111 (0.109)	-0.285** (0.128)
Observations	479	479	479	479	479

Note: Standard errors in parentheses - ***p<0.01, **p<005, *p<0.1

Model analysis – Exploratory Factor Analysis

The next step completed was undertaking an Exploratory Factor Analysis (EFA). In EFA the items are forced to belong to the theoretically assumed latent constructs to measure model fit. This is described in detail in section 5.5.3. As a result of the analysis, no change was made to the variables in Organizational Innovation. For the other factors, all variables with a communality of value below 0.400 were excluded. The 'rule of thumb' test is that acceptable communality values are 0.400 or over (Hair et al. 2014). These included:

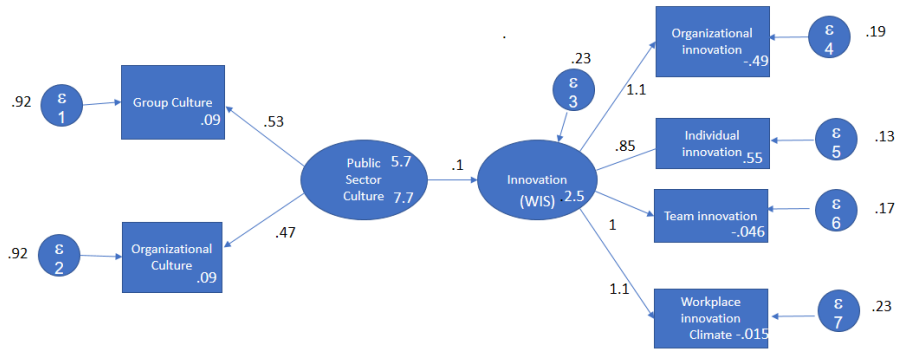
- Individual Innovation –variables II2, II4, II5 and II6.
- Team Innovation –variable TI5.
- Workplace Innovation Climate –variable WIC6.

The factors were recalculated excluding the identified variables for the next stage of the modelling. To assist with the presentation on the SEM Model diagrams, the Workplace Innovation factors with deleted variables were renamed from 'IndInn' to 'Individual_Innovation'; 'TeamInn' to 'Team_Innovation' and 'WrkPlClim' to 'Workplace_Innovation'. The Tables present the factors by the full names of Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate.

Structural Equation Modelling - Relationship of Public Sector Culture to Workplace Innovation

The last stage of the data analysis process was the Structural Equation Modelling (SEM). The model was rerun using the adapted variables for Workplace Innovation to obtain a better fit as an outcome of the Exploratory Factor Analysis. A diagram of the Model is provided in Figure 8 below:

Figure 8 - Structural Equation Model showing the Final Model of the relationship of Public Sector Culture to Workplace Innovation



Source: Author using Stata SEM Builder

This final model confirmed a significant relationship between Public Sector Culture (Culture) and Workplace Innovation (WIS) and its four dimensions. Public Sector Culture has a positive impact on Workplace Innovation at the significance level of 1 per cent. All variables demonstrated significance as part of this model at the significance level of 1 per cent.

The goodness-of-fit statistics did not run for this model apart from the AIC and BIC which both measured less than the original model with AIC changing from 8524.938 to 7783.094 and BIC from 8612.544 to 7870.700, which indicates this model was a better fit. The details are provided below in Table 23. This possibly indicated the model is saturated or just-identified, leading to most fit indices unable to be computed, because the model is unable to reproduce the data (Kenny 2015; Schreiber et al. 2006).

Table 23 - Model Fit Indices - Final Structural Equation Model

Fit statistic	Value	Description	Comment
Likelihood ratio			
chi2_ms(3230)	No results	model vs. saturated	
p > chi2	No results		
chi2_bs(3321)	No Results	baseline vs. saturated	
p > chi2	No results		
Population error	No results		
RMSEA	No results	Root mean squared error of approximation	
90% CI, lower bound	0.000		
upper bound	No results		
pclose	No results	Probability RMSEA <= 0.05	
Information criteria			
AIC	7783.63	Akaike's information criterion	Less than Conceptual Model
BIC	7870.70	Bayesian information criterion	Less than Conceptual Model
Baseline comparison			
CFI	No results	Comparative fit index	
TLI	No results	Tucker-Lewis index	
Size of residuals			
SRMR	0.076	Standardized root mean squared residual	
CD	0.821	Coefficient of determination	

As with the analysis of the conceptual model, this model was able to reproduce the data and was able to be classed as a good-fitting model as it is reasonably consistent with the data (Kenny 2015; Schreiber et al. 2006). This can be demonstrated by the results which are provided in Table 24 below:

Table 24 - Structural Equation Model outputs showing the relationship of Public Sector Culture to Workplace Innovation

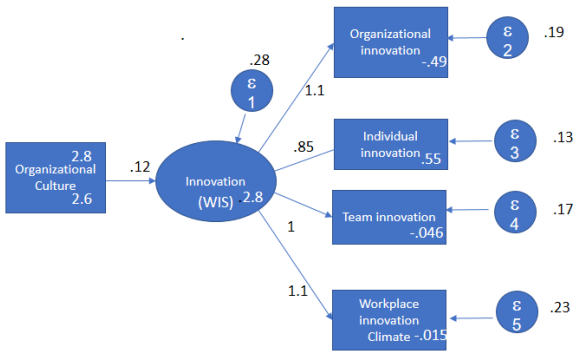
	(1) Workplace Innovation	(2) Organizational Innovation	(3) Individual Innovation	(4) Team Innovation	(5) Workplace Innovation Climate
Public Sector Culture	0.104*** (0.008)				
Workplace Innovation		1.100*** (0.036)	0.848*** (0.030)	0.996*** (0.033)	1.057*** (0.039)
Constant	2.524*** (0.050)	-0.488*** (0.113)	0.549*** (0.094)	-0.046 (0.105)	-0.015** (0.124)
Observations	479	479	479	479	479

Note: Standard errors in parentheses - ***p<0.01, **p<0.05, *p<0.1

Structural Equation Modelling -– Relationship of the two aspects of Public Sector Culture – Organizational and Group Culture - to Workplace Innovation

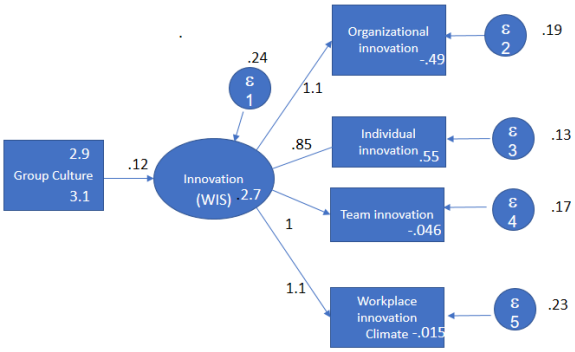
The model was rerun to review the relationship of the two aspects of Public Sector Culture, Organizational and Group Culture to Workplace Innovation. This was to identify if there was a different effect from the two different aspects of culture, the overall organization's culture or that at the group level. Diagrams of the Models Organization and Group Culture are shown in Figures 9 and 10 below:

Figure 9 - Structural Equation Model Showing the Final Model of the Relationship of Organizational Culture to Workplace Innovation



Source: Author using Stata SEM Builder

Figure 10 - Structural Equation Model Showing the Final Model of the Relationship of Group Culture to Workplace Innovation



Source: Author using Stata SEM Builder

The two models both confirmed a significant relationship between Organizational and Group Culture respectively to Workplace Innovation (WI) and its four dimensions. Both aspects of culture had positive impacts on Workplace Innovation at the significance level of 1 per cent. All variables demonstrated significance as part of this model at the significance level of 1 per cent.

As these models have the same base it is possible to discuss measures of difference between them. Organizational Culture had a positive impact on Workplace Innovation measured at 0.12 and Group Culture had a higher impact value at 0.16. Both were higher than the impact of Public Sector Culture at 0.1. Group Culture had a stronger impact on Workplace Innovation compared to either Organizational Culture or Public Sector Culture. Department A had a number of strong local level cultures based on the background or source of the groups. For example, a number of the groups originated in the precursor organizations of Department A, one set of groups coming from a background of the environment and natural resources management and the other set from a background of primary industries. Department A had been created as an entity the year before the survey, and the results

indicate that Group Culture had a stronger relationship to Workplace Innovation compared to Organizational Culture. Respondents indicated a stronger connection to the culture at the group level that would be more consistent with that of their original organization.

Department A had strong cultures at the group level based on areas of expertise and professional backgrounds. That would have supported Group Culture being more important to Workplace Innovation. Therefore it would be expected that changes in Group Culture would have a higher impact on the level of Workplace Innovation compared to Organizational Culture as shown by the results.

Public Sector Culture combined both aspects of culture reflecting the local or group level and overall organizational culture. The results show that the combined effect is less that the individual effects of either Organizational Culture or Group Culture. This indicates that factors of both different aspects of culture moderate the influence of each other to a small degree. The detailed results of the impact of Public Sector Culture and the aspects of Organizational and Group Culture are shown in Table 25 below:

Table 25 - Structural Equation Model outputs showing the relationship of Organizational, Group Culture and Public Service Culture to Workplace Innovation

	(1) Workplace Innovation		(1) Workplace Innovation		(1) Workplace Innovation
Organizational Culture	0.120*** (0.015)	Group Culture	0.159*** (0.013)	Public Sector Culture	0.104*** (0.008)
Constant	2.785*** (0.048)		2.655*** (0.043)		2.524*** (0.050)
Observations	479		479		479

Note: Standard errors in parentheses - ***p<0.01, **p<0.05, *p<0.1

Summary

Thus for the Hypotheses H1 to 1a to 1d the Structural Equation Modelling results are as follows:

Hypothesis H1 is fully supported and indicated that the Public Sector Culture has a positive and significant effect on the Workplace Innovation.

Hypothesis H1a is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.

Hypothesis H1b is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.

Hypothesis H1c is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.

Hypothesis H1d is fully supported and indicated Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.

5.7 Survey Results to Answer RQ. 2

This section of the analysis examines Research Question 2 and its supporting Hypotheses, H2 to H5:

RQ 2. What are the differences in perception among Demographic Groups towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.

H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H5: Demographic characteristics will significantly affect the dimensions of Workplace Innovation in a Public Sector Organization.

The Stage one analysis for Hypotheses 2 to 3 analysed each of the demographic groups separately using linear analysis techniques. The Stage two analysis for Hypotheses 4 and 5 analysed each of the demographic groups separately using Structural Equation Modelling

5.7.1 Comparison of Gender – Hypotheses 2 and 3

This section aims to contribute to the analysis of Research Question 2 by addressing H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture; and H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization by comparing gender groups.

T-Test Analysis

Table 26 below presents T-test results examining whether there is any statistical difference in the mean scores between male and female respondents towards Workplace Innovation and Public Sector Culture. If the Sig. value is larger than or equal to 0.05, then the first line in the analysis table is referred to, which is 'Equal variance assumed'. If the Sig. value is less than or equal to 0.05, then the second line is assumed, which is 'Equal variance not assumed'. The equal variance not assumed line is reported for Public Sector Culture where Levene was significant at Sig. value 0.038. This means that the variance for two groups is not the same. Therefore, the data violates the assumption of equal variance and the 'equal variance not assumed' line is reported. Levene was not significant for Workplace Innovation with a Sig. value of 0.409 so the 'equal variance assumed' line is reported.

The Sig (2 tailed) value for Public Sector Culture is 0.040, which is below 0.05. There is a highly significant correlation between Public Sector Culture within both the male and female Victorian Public Sector Organization employees. The mean for males was 5.38 and for females was 5.92 which indicated that on average males perceived that Public Sector Culture was changing negatively while females perceived it was neutral.

The Sig (2-tailed) value for Workplace Innovation is 0.328 which is greater than 0.05. This means that there is no significant difference in the mean scores of Victorian Public Sector

Organization employees based on gender. Table 26 below provides the T-Test outputs showing the relationship of Public Sector Culture to Workplace Innovation:

Table 26 - T-Test Outputs showing the Relationship of Public Service Culture to Workplace Innovation

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig(2-tailed)	Mean Diff	Std.Error Diff	Lower	Upper
Workplace Innovation	Equal variances assumed	.684	.409	.980	477	.328	.1740	.17755	-.17487	.5229
Public Sector Culture	Equal variances not assumed	4.322	.038	-2.07	394.463	.040*	-.5397	.26127	1.05332	-.0260

Note: *Significant level at the 0.05

5.7.2 Compare across Marital Status – Hypotheses 2 and 3

This section aims to contribute to the analysis of Research Question 2 by analyzing H2 and H3, by comparing across the marital status of staff. One-way analysis of variance (ANOVA) is conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different marital status of employees. The homogeneity of variance test was used to test whether the variance within each of the marital status groups are equal. This is a critical assumption to meet before undertaking the one-way analysis of variance (Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). In the results of this test that are shown in Table 27, it is noticed that the Sig. value for Public Sector Culture is 0.062 and the Sig. value for Workplace Innovation is 0.366 which did not violate the assumption of homogeneity of variance.

Table 27 - Test of Homogeneity of Variances between Marital Status Categories

	Levene Statistic	df1	df2	Sig.
Public Sector Culture	2.253	4	470	0.062
Workplace Innovation	1.080	4	470	0.366

Table 28 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 2.828 and the p-value is <0.05 at .024 this predicts that there is a highly significant difference in the perception of Public Sector Culture across employees having different marital status across a Public Sector

Organization. The F value for Workplace Innovation is <1 at .766 and the p-value is > 0.05 at 0.934 showing that there is no significant difference in the perception of Workplace Innovation across Public Sector Organization employees having a different marital status.

Table 28 - One-Way Analysis of Variance across Marital Status Categories

		Sum of Squares	df	Mean Square	F	Sig.
Culture	Between groups	86.251	4	21.563	2.828	0.024
	Within groups	3584.073	470	7.626		
	Total	3670.324	474			
Workplace Innovation	Between groups	3.063	4	0.766	0.208	0.934
	Within groups	1726.795	470	3.674		
	Total	1729.858	474			

Post-hoc tests using the Tukey HSD analysis confirm that there is a significant difference (p = 0.021) in the perception of Public Sector Culture between Public Sector Organization employees between the categories of single and married. Details are given in Appendix B Detailed Statistical Tables, Table 64.

5.7.3 Age Comparison - Hypotheses 2 and 3

This section aims to contribute to the analysis of Research Question 2 by analyzing H2 and H3 by comparing age groups. One-way analysis of variance (ANOVA) was conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different age brackets of employees. This excluding the '18-21' age group as there was only one person in this group. If this person was included it was not possible to do a post hoc test to identify which groups have a significant relationships

The homogeneity of variance test was used to test whether the variance within each of the age groups are equal. In this test the analysis ignored the group between 'the ages of 18-21 years' as it only had one case. It is noticed that the Sig. value for Public Sector Culture was 0.156 which did not violate the assumption of homogeneity of variance. It is noticed that the Sig. value for Workplace Innovation is 0.010 this means that it has violated the assumption of homogeneity of variance. The results are shown below in Table 29.

Table 29 - Test of Homogeneity of Variances between Age Categories

	Levene Statistic	df1	df2	Sig.
Public Sector Culture	1.670	4	473	0.156
Workplace Innovation	3.388	4	473	0.010

Table 30 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 2.507 and the p-value is <0.05 at .030 this predicts that there was a highly significant difference in the perception of Public Sector Culture across different age brackets of Public Sector Organization employees. The F value for Workplace Innovation is >1 at 1.560 and the p-value is > 0.05 at 0.170 showing that there is no significant difference in the perception of Workplace Innovation across different age groups of Public Sector Organization employees.

Table 30 - One-Way Analysis of Variance across Age Categories

		Sum of Squares	df	Mean Square	F	Sig.
Public Sector Culture	Between groups	76.915	5	19.229	2.526	0.040
	Within groups	3600.100	473	7.611		
	Total	3677.015	477			
Workplace Innovation	Between groups	25.536	4	6.384	1.768	0.134
	Within groups	1708.025	473	3.611		
	Total	1733.560	477			

Post-hoc tests using the Tukey HSD analysis confirm that there is a significant difference (p = 0.039) in the perception of Public Sector Culture between Public Sector Organization employees in the age group of 22 to 30 and those in the age group of 31 to 40. There was a significant difference (p = 0.040) in the perception of Public Sector Culture between Public Sector Organization employees in the age group of 22 to 30 and those in the age group of 41 to 50. The mean of employees in the age group of 22 to 30 was 6.52 equated with a rating in the neutral category, but scored at the higher end close to the category perceiving positive change. Those in the 31 to 40 category and the 41 to 50 category on average perceived that Public Sector Culture as changing negatively with mean scores of 5.42 and 5.44 respectively. Details of the Post-hoc tests are shown in Appendix B– Detailed Statistical Tables, in Table 70.

5.7.4 Comparison across Education Levels - Hypotheses 2 and 3

This section aims to contribute to the analysis of Research Question 2 by analyzing H2 and H3 by comparing education levels. One-way analysis of variance (ANOVA) is conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different education levels of employees.

The homogeneity of variance test was used to test whether the variance within each of the education levels groups are equal or not. In this test it is noticed that the Sig. value for Public Sector Culture is 0.416 and the Sig. value for Workplace Innovation is 0.847 which did not violate the assumption of homogeneity of variance. The results are shown below in Table 31:

Table 31 - Test of Homogeneity of Variances between Educational Levels

	Levene Statistic	df1	df2	Sig.
Public Sector Culture	0.984	4	474	0.416
Workplace Innovation	0.346	4	474	0.847

Table 32 below shows the analysis of variance (ANOVA) that assessed the overall significance. As the value of F for Public Sector Culture is >1 at 1.100 and the p-value is >0.05 at 0.356 showing that there is no significant difference in the perception of Public Sector Culture across Public Sector Organization employees of different education levels. The F value for Workplace Innovation is >1 at 1.609 and the p-value is > 0.05 at 0.171 showing that there is no significant difference in the perception of Workplace Innovation across Public Sector Organization employees having acquired education levels.

Table 32 - One-Way Analysis of Variance across Education Levels

		Sum of Squares	df	Mean Square	F	Sig.
Public Sector Culture	Between groups	33.995	4	8.499	1.100	0.356
	Within groups	3661.500	474	7.725		
	Total	3695.495	478			
Workplace Innovation	Between groups	23.260	4	5.815	1.609	0.171
	Within groups	1712.934	474	3.614		
	Total	1736.194	478			

Summary of the analysis of H2 and H3 for Research Question 2.

The findings on the demographics of gender, marital status, age and educational levels largely supports H2 and confirms there are significant differences in perception among demographic groups towards Public Sector Culture. There was most difference among demographic groups around Public Sector Culture and this was seen across gender, marital status and age groups. There was no difference in those from different education levels identified in the one-way analysis of variance (ANOVA) test. H3 is not supported as there were no differences in perception identified among demographic groups towards Workplace Innovation.

Thus for the hypotheses H2 to H3 the Stage one analysis results are as follows:

H2. is largely supported and indicated there is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.

H3. is not supported and indicated there is no significant difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.

5.7.5 Comparison of Gender – Hypothesis 4 and 5

This section aims to contribute to the analysis of Research Question 2 by addressing H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization; and H5: Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization by comparing gender.

Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on males and females in Department A. The same model was used for both groups so the level of difference was able to be identified. The Table excludes Organizational Innovation as the results were very similar and both significant to the level of 1 per cent (M1.099 & F1.098). Table 33 below illustrates the differences. Males are more positively impacted by Public Sector Culture than

females which means that changes in culture will have a bigger impact on their ability to undertake Workplace Innovation. Public Sector Culture is important for males in providing them with the environment to increase both Team Innovation and Individual Innovation. If Public Sector Culture is less positive, this would lead to a decline in males participating in Team or Individual Innovation.

There was a larger impact on females from Public Sector Culture's impact on Workplace Innovation Climate. This indicates that Workplace Innovation Climate is a more important factor for females in undertaking Workplace Innovation. The Public Sector Culture's impact on Workplace Innovation Climate was important for females in undertaking workplace innovation.

Workplace Innovation factors of Team Innovation and Individual Innovation were higher for males. Team Innovation and Individual Innovation were more important for them to undertake Workplace Innovation. The ability to operate as an Individual in undertaking innovation is important to males. This seems to contradict the finding that Team Innovation in addition is more important to them than females. However it was possible for Individual Innovation to be fostered by a supportive Team. There was a bigger impact on females from Workplace Innovation Climate indicating that this is a more important factor for females in undertaking Workplace Innovation. Local level climate has a larger impact on them and a positive climate will result in them creating more Workplace Innovation.

Table 33 - Differences between male and female employees in a Victorian Public Sector Organization on the impact of Public Sector Culture on Workplace Innovation and its selected components

	(1) Workplace Innovation		(2) Individual Innovation		(3) Team Innovation		(4) Workplace Innovation Climate	
	Male	Female	Male	Female	Male	Female	Male	Female
Public Sector Culture	0.110*** (0.012)	0.102*** (0.010)						
Workplace Innovation			0.898*** (0.049)	0.811*** (0.037)	1.075*** (0.054)	0.936*** (0.041)	0.928*** (0.063)	1.155*** (0.048)
Constant	2.521*** (0.075)	2.524*** (0.067)	0.418*** (0.154)	0.648** (0.117)	-0.262 (0.171)	0.120 (0.131)	0.383* (0.200)	-0.320** (0.154)
Observations	193	286	193	286	193	286	193	286

Note: Standard errors in parentheses - ***p<0.01, **p<0.05, *p<0.1

In summary, Public Sector Culture has a larger influence on male's participation in Workplace Innovation compared to females. The factors of Team Innovation and Individual Innovation are more important for males. Females are more influenced by workplace innovation climate which impacts how they undertake workplace innovation.

5.7.6 Compare across Marital Status – Hypotheses 4 and 5

This section aims to contribute to the analysis of Research Question 2 by analyzing H4 and H5, by comparing marital status. Using the Structural Equation Modelling model developed for section 5.6.3 above an analysis and comparison was undertaken on the impact of Public Sector Culture on respondents having different marital status from Department A. The same model was used for all groups so the level of difference was able to be identified. An analysis is provided below with detailed results shown in Appendix B– Detailed Statistical Tables that includes results for status groups as follows: Single -Table 65; Married -Table 66; Divorced -Table 67; Separated -Table 68 and 'Other'-Table 69.

The aspects of Public Sector Culture, Organizational Culture and Group Culture were significant for all groups to the level of 1 per cent. All groups apart from those who were separated saw Group Culture as more important than the other aspects.

Four of the five marital status groups showed a positive relationship with Workplace Innovation and Public Sector Culture with three; married, single and 'other', having significance to the level of 1 per cent, the divorced category demonstrating significance to the level of 5 per cent and the separated category not demonstrating any significance. The level of the relationship for the married and single category was the same at 0.114 however there were significant differences in how the various factors of Workplace Innovation were affected.

The divorced and other category had a lower relationship between Public Sector Culture and Workplace Innovation. The level for those in the divorced category was 0.081 for the 20 people it contained and the 'other' category was at 0.056 for the 66 people represented. Those in the 'other' category had chosen not to specify their marital status. This group represented a subculture that valued being somewhat unconventional and were not influenced by Public Sector Culture as much as other groups. The researcher observed a

similar difference with the 63 respondents who answered ‘other’ in the work role employment characteristic question. The marital status ‘other’ group indicated that Workplace Innovation Climate (1.413) was important to them compared to the other categories of Workplace Innovation. This possibly indicated that Public Sector Culture was less important for them because more importance was given to the local innovation climate in their development of Workplace Innovation.

The divorced category yielded different results for the various categories of Workplace Innovation compared with the other groups with Organizational (1.231) and Team Innovation (1.155) being relatively more important than Workplace Innovation Climate (0.821) and Individual Innovation (0.792) compared to the married and single categories and all being significant to the level of 1 per cent. For those in the married and single groups, Team Innovation had a similar significance however there were differences in the other three factors. For single people Workplace Innovation Climate (1.207) and Individual Innovation (1.076) were most significant with the married group rated Organizational Innovation at a higher level (1.098) and all being significant to the level of 1 per cent.

In summary, Public Sector Culture’s impact on Workplace Innovation overall pattern was for Public Sector Culture to be more important as a predictor for workplace innovation with single and married respondents. It was less so for those who were divorced or identified themselves in the ‘other’ category. Within marital status categories there were marked differences with the relative importance placed on the factors of Workplace Innovation by the different groups.

5.7.7 Age comparison – Hypotheses 4 and 5

This section aims to contribute to the analysis of Research Question 2 by analyzing H4 and H5 by comparing age groups. Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on respondents from different age groups from Department A. The same model was used for all groups so the level of difference was able to be identified. The Table excludes age group 1 as there were too few results in the group to undertake an analysis. The results for the age groupings from two to six were all significant to the level of 1 per cent. Table 34 below

illustrates the differences. Detailed results for each group are shown in Appendix B– Detailed Statistical Tables that includes results as follows: 22 to 30 years -Table 71; 31 to 40 years - Table 72; 41 to 50 years -Table 73; 50 to 60 years -Table 74; and 61 years plus -Table 75.

The highest significance and influence of Public Sector Culture on Workplace Innovation was for Group 4, representing those aged from between 41 to 50 years at 0.116. A similar level of significance was seen between Groups 3, representing those aged from 31 to 40 years and Group 5, representing those aged from 50 to 60 years with respective levels of 0.104 and 0.107. Lower levels of significance were seen with Group 2 representing those aged from 22 to 30 years (0.070) and Group 6 who were over 60 years in age (0.089).

The 41 to 50 age group would be people in the middle of their careers. As Public Sector Culture was demonstrated to be very important to them in undertaking Workplace Innovation, they would be more likely to respond to cultural initiatives supporting Workplace Innovation. The 31 to 40 age group and the 50 to 60 age group were strongly influenced by the existing Public Sector Culture to positively influence the level of Workplace Innovation. Those aged 61 and above and the 22 to 30 age group were less strongly influenced by Public Sector Culture to undertake Workplace Innovation. It indicated that the younger group were influenced more by other factors such as working in professional groupings, working across government on initiatives or undertaking further qualifications so Public Sector Culture had less influence on the level of Workplace Innovation they exhibited. The older group of ages 61 and above possibly have found a way to undertake Workplace Innovation using their individual skills and competencies that did not rely so much on Public Sector Culture to influence their behaviour.

Table 34 - Differences between age groups on the impact of Public Sector Culture and Workplace Innovation.

Workplace Innovation					
Age *Group*	(2) 22-30	(3) 31-40	(4) 41-50	(5) 50-60	(6) 61 plus
Public Sector Culture	0.070*** (0.018)	0.104*** (0.015)	0.116*** (0.017)	0.107*** (0.015)	0.089* (0.046)
Constant	2.856*** (0.124)	2.495*** (0.089)	2.442*** (0.102)	2.506*** (0.092)	2.600*** (0.307)
Observations	82	127	135	116	18

Note: Standard errors in parentheses - ***p<0.01, **p<0.05, *p<0.1

In summary, Public Sector Culture's impact on Workplace Innovation overall for age groups showed a pattern for the level of influence of Public Sector Culture to increase until mid-career and then decrease again. This indicated that at mid-career time respondents were more highly responsive to Public Sector Culture having bypassed career supports made available by programs for younger workers and as yet were not feeling as confident as older workers in their individual skills and competencies.

5.7.8 Compare across Educational Levels – Hypotheses 4 and 5

This section aims to contribute to the analysis of Research Question 2 by addressing H4 and H5 by comparing across Education Levels. Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyze and compare the impact of Public Sector Culture on respondents having different education levels from Department A. The same model was used for all groups so the level of difference was able to be identified. Detailed results for each group are shown in Appendix B – Detailed Statistical Tables that includes results as follows: High School Certificate -Table 76; Associate Degree/Diploma -Table 77; Bachelor's Degree -Table 78; Master's Degree -Table 79; and Doctorate -Table 80.

The results for the different education levels showed that all of the five groups showed a positive relationship between Public Sector Culture and Workplace Innovation and all were significant to the level of 1 per cent. The relationship between four of the five groups was similar varying from 0.105 to 0.108. Those who had achieved the Doctorate level of education had a lower level of significance at 0.092. Structural equation modelling adding depth to the analysis of variance (ANOVA) undertaken earlier was able to provide a more detailed analysis across the data set and highlighting the differences between groups (Acock 2013; Garson 2015). This allowed a difference to be detected which was not apparent in the earlier one-way analysis of variance (ANOVA) test.

In summary, Public Sector Culture's impact on Workplace Innovation overall pattern was for Public Sector Culture to be more important as a predictor for Workplace Innovation with those whose education level was below the Doctorate level. This possibly indicated that those with a Doctorate level qualification are focussed on particular research or positions that they

perceive as important because of the subject matter and are less reliant on signals from the organization through Public Sector Culture.

Summary of the analysis of H4 and H5 for Research Question 2.

The findings on the demographics of gender, marital status, age and educational levels, support H4 and H5. The findings confirm there are significant differences among all Demographic Groups towards Public Sector Culture and Workplace Innovation. Therefore Demographic Groups will significantly affect the dimensions of Organizational Culture and Workplace Innovation in the context of a Public Sector Organization.

Thus for the hypotheses H4 to H5 the Stage two analysis results are as follows:

H4 is fully supported and indicated that Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H5. is fully supported and indicated Demographic characteristics will significantly affect the dimensions of Workplace Innovation in a Public Sector Organization.

5.8 Survey Results to Answer RQ. 3 and Test Hypotheses 6 to 9

This section of the analysis examines Research Question 3 and its supporting Hypotheses 6 to 9:

RQ 3. What are the differences in perception among staff having specific Employment Characteristics towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization?

> H6: There is a difference in perceptions among staff with specific Employment Characteristics towards the aspects of a Public Sector Organization's culture.

H7: There is a difference in perceptions among staff with specific Employment Characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.

H8: Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H9: Employment characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.

The Stage One analysis for Hypotheses 6 to 7 analyzed each of the staff employment characteristics separately using linear analysis techniques. The Stage Two analysis for Hypothesis 8 to 9 tested each of the staff employment characteristics separately using Structural Equation Modelling.

5.8.1 Compare across Tenure Categories – Hypotheses 6 and 7

This section aims to contribute to the analysis of Research Question 3 by analyzing H6: There is a difference in perceptions amongst staff with specific employment characteristics towards the aspects of a Public Sector Organization's culture; and H7: There is a difference in perceptions amongst staff with specific employment characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization by comparing Tenure Categories. One-way analysis of variance (ANOVA) was conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different tenure categories of employees.

The homogeneity of variance test was used to test whether the variance within each of the population groups was equal or not. This is a critical assumption to meet before undertaking the one-way analysis of variance (Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). In this test with the results shown in Table 35, it is noticed that the Sig. value for Public Sector Culture is 0.543 and the Sig. value for Workplace Innovation is 0.273 which did not violate the assumption of homogeneity of variance.

Table 35 - Test of Homogeneity of Variances between Tenure Categories

	Levene Statistic	*df*1	*df*2	*Sig.*
Public Sector Culture	0.810	5	473	0.543
Workplace Innovation	1.276	5	473	0.273

Table 36 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 1.350 and the p-value is >0.05 at 0.242 showing that there is no significant difference in the perception of Public Sector Culture across Public Sector Organization employees of different tenure categories. The F value for Workplace Innovation is >1 at 2.400 and the p-value is < 0.05 at 0.036 predicts that there is a highly significant difference in the perception of Workplace Innovation across Public Sector Organization employees from different tenure categories.

Table 36 - One-way Analysis of Variance across Tenure Categories

		Sum of Squares	df	Mean Square	F	Sig.
Public Sector Culture	Between groups	51.984	5	10.397	1.350	0.242
	Within groups	3643.511	473	7.703		
	Total	3695.495	478			
Workplace Innovation	Between groups	42.963	5	8.593	2.400	0.036
	Within groups	1693.231	473	3.580		
	Total	1736.194	478			

Post-hoc tests using the Tukey HSD analysis identified there was no significant different between the perception of Workplace Innovation across tenure groups when all aspects of Workplace Innovation were combined. Details of the test are given in Appendix B – Detailed Statistical Tables, Table 81. However by testing the dimensions independently it confirmed there were significant results in two of the dimensions. There was a significant difference (p = 0.040) in the perception of Individual Innovation between Public Sector Organization employees who have been employed more than 30 years and those employed for under two years and for those employed more than 30 years (P = 0.019) with those employed two to five years. The details are shown in Appendix B – Table 82. The mean of employees employed more than 30 years was 3.72 equating closely with a rating of a positive identification with Individual Innovation. This compared with the mean of those employed under two years at

3.38 and from two to five years at 3.37 both of which were closer to the neutral rating for Individual Innovation.

There was a significant difference (p = 0.038) in the perception of Organizational Innovation between Public Sector Organization employees who were employed two to five years and those employed 21 to 30 years The details are shown in Appendix B – Table 83. The mean of employees employed two to five years was 2.81 equated closely with a rating of a neutral rating compared to those employed 21 to 30 years where the mean was 3.18 which was a rating identifying the perception of a positive rating for the impact of Organizational Innovation.

5.8.2 Comparison across Job Types – Hypotheses 6 and 7

This section aims to contribute to the analysis of Research Question 3 by analyzing H6 and H7 by comparing job types. One-way analysis of variance (ANOVA) is conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different Job Types of employees.

The homogeneity of variance test is used to test whether the variance within each of the population groups was equal or not. This is a critical assumption to meet before undertaking the one-way analysis of variance (Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). In this test with the results shown in Table 37, it is noticed that the Sig. value for Public Sector Culture is 0.992 and the Sig. value for Workplace Innovation is 0.411 which did not violate the assumption of homogeneity of variance.

Table 37 - Test of Homogeneity of Variances between Job Types

	Levene Statistic	*df*1	*df*2	*Sig.*
Public Sector Culture	0.033	3	475	0.992
Workplace Innovation	0.962	3	475	0.411

Table 38 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 3.672 and the p-value is < 0.05 at 0.012 predicts that there is a highly significant difference in the perception of Public Sector Culture across Public Sector Organization employees from differing Job Types. The F

value for Workplace Innovation is >1 at 2.772 and the p-value is < 0.05 at 0.041 predicts that there is a highly significant difference in the perception of Workplace Innovation across Public Sector Organization employees from differing Job Types.

Table 38 - One-Way Analysis of Variance across between Job Types

		Sum of Squares	Df	Mean Square	F	Sig.
Public Sector Culture	Between groups	83.759	3	27.920	3.672	0.012
	Within groups	3611.736	475	7.604		
	Total	3695.495	478			
Workplace Innovation	Between groups	29.878	3	9.959	2.772	0.041
	Within groups	1706.317	475	3.592		
	Total	1736.194	478			

Post-hoc tests using the Tukey HSD analysis confirm that there is a significant difference (p = 0.014) in the perception of Public Sector Culture between Public Sector Organization employees between the job types of Frontline Manager and Senior Manager. There was a significant difference (p = 0.019) in the perception of Public Sector Culture between Public Sector Organization employees between the job types of Middle Manager and Senior Managers. Details of the tests are given in Appendix B – Detailed Statistical, Tables 84 and 85. Using the Tukey HSD analysis confirm that there is a significant difference (p = 0.043) in the perception of Workplace Innovation between Public Sector Organization employees between the job types of Middle Manager and Senior Manager.

5.8.3 Comparison across Work Groups – Hypotheses 6 and 7

This section aims to contribute to the analysis of Research Question 3 by analyzing H6 and H7 by comparing across work groups. One-way analysis of variance (ANOVA) is conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different Work Groups of employees.

The homogeneity of variance test is used to test whether the variance within each of the population groups are equal or not. This is a critical assumption to meet before undertaking the one-way analysis of variance (Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). In this test with results shown in Table 39, it is noticed that the Sig. value for Public Sector Culture is 0.915 which did not violate the assumption of homogeneity of variance. It was

noticed that the Sig. value for Workplace Innovation is 0.001 this means that it has violated the assumption of homogeneity of variance.

Table 39 - Test of Homogeneity of Variances across Work Groups

	Levene Statistic	*df*1	*df*2	*Sig.*
Public Sector Culture	0.399	14	464	0.915
Workplace Innovation	2.638	14	464	0.001

Table 40 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 1.732 and the p-value is < 0.05 at 0.047 it predicts that there is a highly significant difference in the perception of Public Sector Culture across Public Sector Organization employees across Work Groups. The F value for Workplace Innovation is >1 at 2.772 and the p-value is < 0.05 at 0.001 which predicts that there is a highly significant difference in the perception of Workplace Innovation across Public Sector Organization employees across Work Groups.

Table 40 - One-Way Analysis of Variance across Work Groups

		Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Public Sector Culture	Between groups	183.530	14	13.109	1.732	0.047
	Within groups	3511.965	464	7.569		
	Total	3695.495	478			
Workplace Innovation	Between groups	131.766	14	9.412	2.772	0.001
	Within groups	1604.429	464	3.458		
	Total	1736.194	478			

The post-hoc test for Public Sector Culture did not confirm a significant difference between Public Sector Culture and Work Groups. Post-hoc tests using the Tukey HSD analysis confirm that there is a significant difference (p = 0.003) in the perception of Workplace Innovation between Public Sector Organization employees in the Work Groups of Agricultural Group and Corporate Services and a significant difference (p = 0.017) in the perception of Workplace Innovation between Public Sector Organization employees in the Work Groups of Regional Services Gippsland and Corporate Services. Details of the test are given in Appendix B – Detailed Statistical Tables, at Table 86.

5.8.4 Comparison across Work Roles – Hypotheses 6 and 7

This section aims to contribute to the analysis of Research Question 3 by analyzing H6 and H7 by comparing across work roles. One-way analysis of variance (ANOVA) is conducted to compare the variance between the mean score of Public Sector Culture and Workplace Innovation across different Work Roles of employees.

The homogeneity of variance test is used to test whether the variance within each of the population groups was equal or not. This was a critical assumption to meet before undertaking the one-way analysis of variance (Gliner, Morgan & Leech 2009; Morgan, GA et al. 2013). In this test as detailed in Table 41, it is noticed that the Sig. value for Public Sector Culture is 0.510 and the Sig. value for Workplace Innovation is 0.282 which did not violate the assumption of homogeneity of variance.

Table 41 - Test of Homogeneity of Variances across Work Roles

	Levene Statistic	df1	df2	Sig.
Public Sector Culture	.896	7	471	0.510
Workplace Innovation	1.235	7	471	0.282

Table 42 below shows the analysis of variance (ANOVA) that assesses the overall significance. As the value of F for Public Sector Culture is >1 at 4.521 and the p-value is < 0.05 and at 0.000 predicts that there is a highly significant difference in the perception of Public Sector Culture across Public Sector Organization employees across Work Roles. The F value for Workplace Innovation is >1 at 3.641 and the p-value is < 0.05 at 0.001 which predicts that there was a highly significant difference in the perception of Workplace Innovation across Public Sector Organization employees across Work Roles.

Table 42 - One-way Analysis of Variance across Work Roles

		Sum of Squares	Df	Mean Square	F	Sig.
Public Sector Culture	Between groups	232.685	7	33.241	4.521	0.000
	Within groups	3462.810	471	7.352		
	Total	3695.495	478			
Workplace Innovation	Between groups	89.137	7	12.734	3.641	0.001
	Within groups	1647.058	471	3.497		
	Total	1736.194	478			

Post-hoc tests with details shown in Appendix B – Detailed Statistical Tables, Table 87, using the Tukey HSD analysis confirm that there is a significant difference (p = 0.001) in the perception of Public Sector Culture between Public Sector Organization employees who did not state their work roles and those identifying as Managers. There was a significant difference (p = 0.000) in the perception of Public Sector Culture between Public Sector Organization employees who did not state their work roles and those identifying as Officers, and a significant difference (p = 0.002) in the perception of Public Sector Culture between Public Sector Organization employees who did not state their work roles and those identified themselves by the level of work they were doing. Post-hoc tests with the details shown in Appendix B – Detailed Statistical Tables, Table 88, using the Tukey HSD analysis confirm that there is a significant difference (p = 0.003) in the perception of Workplace Innovation between Public Sector Organization employees who did not state their work roles and those identifying as Managers. There was a significant difference (p = 0.001) in the perception of Workplace Innovation between Public Sector Organization employees who did not state their work roles and those identifying as Officers, and a significant difference (p = 0.045) in the perception of Workplace Innovation between Public Sector Organization employees who did not state their work roles and those identified themselves by their professional classification.

5.8.5 Comparison across Working Flexibly – Hypotheses 6 and 7

This section aims to contribute to the analysis of Research Question 3 by analyzing H6 and H7 by comparing across Working Flexibly.

Table 43 - Independent sample T-test: Difference between staff Working Flexibly.

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig(2-tailed)	Mean Diff	Std.Error Diff	Lower	Upper
Workplace Innovation	Equal variances assumed	0.190	.663	1.413	477	0.158	.24587	0.17401	-0.09604	0.58779
Public Sector Culture	Equal variances assumed	0.169	.681	0.466	477	0.642	.11842	0.25434	-0.38135	0.61818

Note: *Significant level at the 0.05

Summary

Table 43 above presents T-test results intended to examine whether there is any statistical difference in the mean scores between people who work flexibly towards Workplace Innovation and Public Sector Culture. Levene was not significant for Workplace Innovation or Public Sector Culture so the 'equal variance assumed' line is reported. As can be seen from the results there appears to be no correlation between Public Sector Organization employees working flexibly and Public Sector Culture or Workplace Innovation.

Summary Findings for Hypotheses 6 and 7

The findings relating to staff Employment Characteristics including tenure, job types, work group, work role and working flexibly partly supports H6 and largely supports H7 and confirms there are significant difference in perception among groups having Particular Employment Characteristics towards Public Sector Culture and Workplace Innovation. There were different perceptions for Public Sector Culture identified for job types and work role partly supporting Hypothesis 6. Hypothesis 7 is largely supported with differences shown for Workplace Innovation among demographic groups for four of the five groups including tenure, job types, work group and work role.

Thus for the hypotheses H6 to H7 the Stage One analysis results are as follows:

H6 is partly supported and indicated there is a difference in perceptions amongst staff with specific Employment Characteristics towards the aspects of a Public Sector Organization's culture.

H3 is largely supported and indicated there is a significant difference in perceptions among staff with specific Employment Characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.

5.8.6 Comparison across Tenure Categories – Hypotheses 8 and 9

This section aims to contribute to the analysis of Research Question 3 by addressing H8: Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization; and H9: Employment

characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization, by comparing tenure categories.

Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on respondents across different tenure levels from Department A. The same model was used for all groups so the level of difference was able to be identified.

The results for the different tenure levels showed that all of the six groups showed a positive relationship between Public Sector Culture and Workplace Innovation and all were significant to the level of 1 per cent. The relationship between the groups varied with the relationship being lower for the first years of tenure and for those who had been in the organization for over 30 years. Details are provided in Table 44 below.

Those who had been in the organization for five to ten years had the strongest relationship at 0.119. The relationship between the groups rose from those in the organization for five to ten years and then declined in each tenure group after that. The Workplace Innovation Climate was at a relatively high level in the groups that had lower scores on Public Sector Culture so the climate at the work level appears to have been more important for these groups. For the two lowest scoring groups on Public Sector Culture, the relationship between Group and Organizational Culture showed more emphasis on the latter where other groups had higher connections to Group Culture.

Those new to the organization demonstrated more connection at the local level with Team Innovation being more important early in years at the organization as was the Workplace Innovation Climate. This level of work would connect those new to Department A into how it transacts business. In the first two years the signals from the organization appear to be more important than those at the Group level which changes for those who have been in the organization for more than two years. This continues until those who have served for over 30 years. For them, Organization Culture is more important than Group Culture with Team Innovation being less important and Individual Innovation more important. Individual Innovation shows higher levels of importance in the last two tenure categories for those

serving over 21 years. The respondents perhaps feel more confident in undertaking Individual Innovation after being in Department A for significant time and having greater understanding of how to make innovation happen.

There is another high score for Individual Innovation for those in the organization for five to ten years and after that declines for the tenure levels up to 20 years. Those at the two to five year level would be those who are likely to be developing careers and being involved in project work and possibly specialist delivery. After this time staff would be more likely to be in team leader or management roles which possibly reduced their capacity to be innovative as an individual. There is a possible connection with increased family responsibilities. Individual Innovation requires significant effort in the public sector and other job responsibilities reduce opportunities to contribute the extra effort required in this area.

The importance of Team Innovation reduced from early tenure to those who had been in the organization for longer. Those who had been in the organization longer had more Senior Management or specialist duties and would not themselves work in a team environment although they might manage teams or a number of teams.

Organizational Innovation was less important for those who had been in Department A for two to five years with the biggest difference being with the group who had been in the organization for 21 to 30 years. This relates to the importance of Team Innovation for those early in their career which would focus their energy on team level goals as opposed to Organizational Level Innovation. Those individuals later in their career perhaps have the capacity to act on a broader level and undertake actions at the organizational level.

Table 44 - Differences between tenure groups in a Victorian Public Sector Organization.

	Tenure 1- <2 Years	Tenure 2- 2 to 5 Yrs	Tenure 3- 5 to 10 Yrs	Tenure 4- 11 to 20 Yrs -	Tenure 5- 21 to 30 Yrs	Tenure 6- >30 years
Public Sector Culture –related to WI	0.075*** (0.023)	0.106*** (0.020)	0.119*** (0.015)	0.097*** (0.015)	0.095*** (0.021)	0.077** (0.038)
Organization Innovation	1.067*** (0.121)	1.097*** (0.074)	1.069*** (0.063)	1.111*** (0.083)	1.078*** (0.093)	1.130*** (0.174)
Individual Innovation	0.739*** (0.118)	0.925*** (0.059)	0.831*** (0.050)	0.768*** (0.069)	0.946*** (0.081)	0.914*** (0.126)
Team Innovation	1.128*** (0.107)	1.018*** (0.063)	1.051*** (0.060)	0.922*** (0.070)	0.902*** (0.118)	0.942*** (0.202)
Workplace Inn Climate	1.066*** (0.135)	0.960*** (0.088)	1.050*** (0.067)	1.198*** (0.079)	1.075*** (0.109)	1.013*** (0.290)
Group Culture	0.487*** (0.053)	0.556*** (0.038)	0.526*** (0.028)	0.527*** (0.030)	0.533*** (0.042)	0.427*** (0.114)
Organizational Culture	0.513*** (0.053)	0.444*** (0.038)	0.474*** (0.0 font28)	0.473*** (0.030)	0.467*** (0.042)	0.573*** (0.114)
Observations	50	101	133	121	56	18

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.1

Summary

Public Sector Culture's impact on Workplace Innovation overall for tenure groups showed a pattern for the level of influence of Public Sector Culture to increase until people had been in the organization up to ten years and then it decreased. This showed a similar pattern to that with the age categories where there was a pattern of increase until mid-career at the 41- 50 years category and then it decreased again. This indicated that at mid-career time respondents were influenced so that they were more highly responsive to Public Sector Culture coinciding with building careers in connection with the major cultural influences.

Early career connected people more with Team Innovation, and the Workplace Innovation Climate had more influence on Workplace Innovation. As people spent longer in Department A they increased their levels of Individual Innovation and were less connected to Team Innovation. This possibly connecting to changed responsibilities and the ability to undertake innovation at the organization rather than at the team level.

5.8.7 Comparison across Job Types – Hypotheses 8 and 9

This section aims to contribute to the analysis of Research Question 3 by analyzing H8 and H9 by comparing Job Types. Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on respondents across four different job types, Service Deliverer, Frontline Manager, Middle Manager and Senior Manager in Department A. The same model was used for all groups so the level of difference was able to be identified.

The results for the different job types showed that all of the four groups showed a positive relationship between Public Sector Culture and Workplace Innovation and all were significant to the level of 1 percent with details shown below in Table 45. The relationship between the groups was similar apart from the relationship for Frontline Managers which was significantly lower at 0.081 compared to the others where the level ranged from 0.103 to 0.106. Frontline Managers had identified Workforce Innovation Climate and Team Innovation at higher levels of significance these being 1.182 and 1.136 respectively, which were higher than that identified by other levels of Management. They identified Organizational and Individual Innovation as less significant accordingly. As a Frontline Manager focus would be on creating team outputs at the local level, so the respondents placed a higher significance on Workplace Innovation Climate and Team Innovation makes sense. They saw Individual Innovation as less importance ranking it the lowest of the four areas at 0.755. This would imply they would support Team Innovation but would be less willing to support Individual Innovation. All of these groups indicated that Group Culture was more significant to Organizational Culture to a small degree.

Those working in Service Delivery had higher ratings for Workplace Innovation Climate and Organizational Innovation. This indicated that the local climate was important for them as it was for Frontline Managers. However Service Deliverers were less focussed on Team Innovation than any of the Manager groups and had a strong relationship to Organizational Innovation (1.067). Service Deliverers apparently identified strongly with Organizational Innovation and were more connected to Public Sector Culture at 0.106 compared to Frontline Managers. The difference in outlook between Service Deliverers and Frontline Managers

was a potential cause of conflict with the different emphasis demonstrated on aspects of Workplace Innovation. However within Department A many people can identify as Service Deliverers as Project, Policy Officers, Advisors or Professional classifications which would not connect to the traditional role of a Service Deliverer as a frontline worker delivering services direct to clients.

The Middle Management group had a higher rating for Organizational Innovation (1.236) that would identify their connection as a Middle Manager with organizational signals around innovation. They saw Workplace Innovation Climate as less important that the other groups at 0.862. This would support the focus of Middle Management on delivering for the organization considering the demands of the organization and translating this to action on the ground. However there is potential conflict with the reduced focus on Workplace Innovation Culture that was particularly important for Service Deliverers and Frontline Managers.

Senior Managers had a strong focus on Individual Innovation at 1.080. This was higher than any other group. Their roles perhaps expect them and provide them the opportunity to undertake Individual Innovation. The overall results indicate that they have different perspectives on Workplace Innovation compared to the other groups potentially leading to a lack of understanding on the conditions needed for Workplace Innovation for different job types.

Table 45 - Differences between Job Types in a Victorian Public Sector Organization.

	Service Deliverer	Frontline Manager	Middle Manager	Senior Manager -
Public Sector Culture –related to WI	0.106*** (0.011)	0.081*** (0.030)	0.103*** (0.015)	0.106*** (0.023)
Organization Innovation	1.067*** (0.046)	0.927*** (0.109)	1.236*** (0.074)	0.966*** (0.111)
Individual Innovation	0.846*** (0.039)	0.755*** (0.092)	0.845*** (0.060)	1.080*** (0.103)
Team Innovation	0.942*** (0.045)	1.136*** (0.091)	1.057*** (0.069)	1.012*** (0.097)
Workplace Inn Climate	1.145*** (0.050)	1.182*** (0.122)	0.862*** (0.082)	0.941*** (0.136)
Group Culture	0.525*** (0.023)	0.525*** (0.049)	0.523*** (0.029)	0.535*** (0.042)
Organizational Culture	0.475*** (0.023)	0.475*** (0.049)	0.477*** (0.029)	0.465*** (0.042)
Observations	262	47	125	45

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.1

Summary

Public Sector Culture's impact on Workplace Innovation overall for Job Types showed a positive and significant relationship between Public Sector Culture and Workplace Innovation for all job types. The Workforce Innovation Climate was identified as important for those who were Service Deliverers and Frontline Managers. Team Innovation was a focus of Frontline Managers who demonstrated a connection to local level aspects of Workplace Innovation. Frontline Managers identified less significance to Public Sector Culture indicating their focus on local action. This potentially would cause issues with the other job roles where there was a consistently higher focus on Public Sector Culture's importance on influencing Workplace Innovation.

Senior Manager's identified more focus on Individual Innovation which was not seen as so significant by other groups. This is a potential cause for conflict if Senior Managers were focussing energies on Individual Innovation to increase Workplace Innovation, when Service Deliverers and Frontline Managers would respond better to an increase in Workplace Innovation Climate or Organizational Innovation in the case of Middle Managers.

5.8.8 Compare across Work Groups – Hypotheses 8 and 9

This section aims to contribute to the analysis of Research Question 3 by analyzing H8 and H9 by comparing work groups. Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyze and compare the impact of Public Sector Culture on respondents across work groups.

Two of the work groups, the Office of the Secretary and the Capital Projects Group had too few respondents to run the SEM model. The results for the remaining thirteen groups that are detailed in Table 46 showed that 11 had a positive relationship between Public Sector Culture and Workplace Innovation, with six being significant to the level of 1 per cent, four being significant to the level of five, and one being significant to the level of ten per cent. The results varied extensively with the lowest significant relationship between Public Sector Culture and Workplace Innovation being 0.078 for the 'Other' Work Group and 0.166 for Regional Services in the Hume Region.

The 'Other' Work Group consisted of a number of small entities that were connected to Department A such as the Environmental Water Holder. These groups were relatively autonomous and demonstrated a high focus on Individual Innovation (1.131) and Team Innovation (1.305) which represented their work acting as a small autonomous group to deliver specialist services. There were a number of Work Groups that had small numbers responding to the survey so it was possible that results varied where there were smaller numbers depending on the cohort who completed the survey.

Detailed analysis of Regional Services

The Work Groups associated with Regional Services included six regional offices and the Regional Services Directorate, they had the highest and lowest numbers for Public Sector Culture's impact on Workplace Innovation ranging from 0.24 and not significant, 0.046 significant to ten per cent to 0.166 significant to 1 per cent. It is possible that the results indicated a particular local culture at regional locations. Group Culture was considered more important that Organizational Culture in all but one region where it was closer to an even split. This indicates that the culture of the local region was deemed more important to their

Workplace Innovation results. Service delivery at the local level and local operating conditions vary greatly as do jobs at this level of Department A. While the overall impact varied in its size, the components of Workplace Innovation that were important did show trends, Workplace Innovation Climate had a high response rate for all regions with the highest ratings being 1.390, 1.328 and 1.257. This again supporting the importance of local level approaches to supporting Workplace Innovation. Organization Innovation rated highly over one for each group apart from one lower rating from the Gippsland region of 0.597. Gippsland had the highest Workplace Innovation Climate rating of 1.390. This indicated that the respondents equated Organizational Innovation with the regional organization rather than Department A as a whole. Team Innovation rated around the one level for four of the groups, with three rating it 0.802 or below with Loddon Mallee rating it lowest at 0.579. This area rated Individual Innovation lowest for the regional grouping at 0.653. Individual Innovation had the highest rating for a workplace at 1.222 at Barwon South West. Three other regional groupings rated it above 0.9 and two above 0.8.

There was significant variation in the regional responses. It appeared to be indicating that regional Workplace Innovation is heavily influenced by local factors and Workplace Innovation Climate and Organization Climate were considered important. However in this instance given the focus on Group Culture, Organization Climate is likely to refer to the local area rather than Department A as a whole.

Detailed analysis of larger work groups.

The other work groups consisted of larger areas of business activities that are sometimes called Divisions in Departments, but in Department A were called Groups. These were: Agriculture; Corporate Services; Land, Fire and Environment; Regulation and Compliance; and Water and Natural Resources. All these work groups indicated a significant relationship between Public Sector Culture and Workplace Innovation to the significance level of 1 per cent. Three of these groups, Agriculture; Land Fire and Environment and Regulation and Compliance rated between 0.089 and 0.095 and had Group Culture as a more significant focus for their work compared to Organizational Culture. The other two, Corporate Services and Water and Natural Resources considered Group and Organizational Culture both equally

important but both groups indicated a significant influence of Public Sector Culture on Workplace Innovation with figures of 0.130 and 0.154 respectively. Corporate Services and Land Fire and Environment identified Workplace Innovation Climate as being important for their work as was Organizational Innovation. Organizational Innovation measured highly and was important for the Agriculture Group.

Organizational Innovation, Individual Innovation and Team Innovation were seen as important for the Water and Natural Resources group. Team Innovation was the most important factor for Regulation and Compliance, with that being rated at 1.426.

The results gave an indication of how work is carried out in Department A, all of the larger Groups were connected to whole of Department A operations and look to the Department for signals on Workplace Innovation, therefore Organization Innovation was important for these groups, slightly less so for Regulation and Compliance. The latter group has a focus on team actions and Team Innovation ranked highly for their work. Water and Natural Resources rated both Individual Innovation and Team Innovation highly. It delivers a number of activities through teams and has an important role in the water and natural resources industry in developing policy leadership.

In addition Corporate Services and Land, Fire and Environment had high rankings for Workplace Innovation Climate. Both have a number of smaller teams specializing in certain fields and workplace innovation for these groups would indicate that Workplace Innovation Climate is important.

Table 46 - Differences between Work Groups in a Victorian Public Sector Organization.

	Public Sector Culture – related to WI	Org. Innovation	Individual Innovation	Team Innovation	Workplace Innovation Climate	Group Culture	Org. Culture	Obs
Agriculture	0.095*** (0.020)	1.337*** (0.092)	0.889*** (0.088)	0.872*** (0.092)	0.903*** (0.117)	0.520*** (0.045)	0.480*** (0.045)	65
Corporate Services	0.130*** (0.018)	1.157*** (0.061)	0.799*** (0.051)	0.967*** (0.054)	1.076*** (0.058)	0.497*** (0.027)	0.503*** (0.027)	127
Land, Fire and Environment	0.095*** (0.017)	1.013*** (0.093)	0.882*** (0.092)	0.996*** (0.087)	1.109*** (0.108)	0.532*** (0.043)	0.468*** (0.043)	84
Regional Services (RS)	0.099** (0.043)	1.066*** (0.162)	0.926*** (0.111)	0.751*** (0.160)	1.257*** (0.216)	0.536*** (0.078)	0.464*** (0.078)	17
RS- Barwon South West	0.046* (0.027)	1.662*** (0.426)	1.122*** (0.293)	1.069*** (0.286)	0.147 (0.351)	0.562*** (0.094)	0.438*** (0.094)	15
RS-Gippsland	0.086*** (0.029)	0.597*** (0.195)	0.945*** (0.172)	1.068*** (0.197)	1.390*** (0.199)	0.493*** (0.072)	0.507*** (0.072)	22
RS-Grampians	0.117** (0.054)	1.003*** (0.187)	0.801*** (0.157)	0.959*** (0.156)	1.238*** (0.222)	0.536*** (0.083)	0.464*** (0.083)	13
RS-Hume	0.166*** (0.038)	1.190*** (0.249)	0.848*** (0.221)	0.987*** (0.171)	0.975*** (0.216)	0.545*** (0.118)	0.455*** (0.118)	13
RS-Loddon Mallee	0.024 (0.028)	1.440*** (0.212)	0.653*** (0.190)	0.579** (0.253)	1.328*** (0.282)	0.543*** (0.059)	0.457*** (0.059)	22
RS-Port Phillip	0.061 (0.041)	1.058*** (0.210)	0.965*** (0.092)	0.802*** (0.175)	1.175*** (0.271)	0.559*** (0.082)	0.441*** (0.082)	21
Regulation & Compliance	0.089*** (0.024)	0.958*** (0.124)	0.791*** (0.114)	0.462*** (0.052)	0.825*** (0.144)	0.538*** (0.052)	0.462*** (0.052)	38
Water & Natural Resources	0.154*** (0.037)	1.173*** (0.138)	1.054*** (0.102)	0.500*** (0.086)	0.719*** (0.147)	0.500*** (0.086)	0.500*** (0.086)	19
Other	0.078** (0.037)	0.963*** (0.307)	1.131*** (0.148)	0.339*** (0.093)	0.601** (0.287)	0.661*** (0.093)	0.339*** (0.093)	16

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.

Summary

Culture's impact on Workplace Innovation overall for work groups showed a positive and significant relationship between Public Sector Culture and Workplace Innovation in eleven out of the thirteen groups. Results were analysed in a Regional Services Group, Larger Work Groups and the 'Other' category which consisted of small independent teams. The last group showed the importance of Workplace Innovation Climate and Team Innovation within a context of Public Sector Culture that indicated Group Culture was important to their work. Regional Services had mixed results, however the results indicated that the focus was seen

to be at the local level and indicated the importance of Organizational Innovation and Workplace Innovation Climate along with Team Innovation for around half the regions. The results suggested that Organizational Innovation was at times equated as the Regional rather than Department A level by the respondents when they answered the survey questions. This was suggested by the focus on Group Culture and varying results on the impact of Public Sector Culture on Workplace Innovation.

Lastly, the larger work groups indicated a significant impact of Public Sector Culture on Workplace Innovation with high significance levels. Most of these groups had Organizational Innovation as an important factor for Workplace Innovation. There were variations with Workplace Innovation Climate being important for Corporate Services and Land, Fire and Environment. Individual Innovation was more important with Water and Natural Resources as was Team Innovation and it was a key focus for Regulation and Compliance. The results are related to how the groups do business with team based delivery groups focussing more on Team Innovation. Other groups with specialist teams operating relatively independently found Workplace Innovation Climate important.

5.8.9 Comparison across Work Roles – Hypotheses 8 and 9

This section aims to contribute to the analysis of Research Question 3 by analyzing H8 and H9 by comparing work roles. Structural Equation Modelling using the model developed for section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on respondents across work roles. A summary of results is provided in Table 47 below. The original survey question had asked respondents to provide their work role or position. Six groups had provided role names, one had nominated the area where they worked and another group chose not to state their role name. Two of the Work Role groups identified that Public Sector Culture influenced Workplace Innovation with this being significant to the level of 1 per cent. There was variation in the level of response with the Director, Team Leader and Area of Work groups identifying a stronger relationship with 0.136, 0.141 and 0.131 respectively. The lowest level of connection was seen by the Officer Group with a 0.079 rating and the Not Stated group at 0.077.

Most of the groups found Workplace Innovation Climate important with most group's results being over one, Managers and those with Professional Classifications results were below 0.9. Organizational Innovation was seen as important by most groups with six out of eight having results over one. The Professional Classifications identified this particularly highly at 1.335.

Directors valued Individual Innovation as an important factor at 1.147. This was the highest by a large margin with the Manager and the Not Stated categories having results of 0.992 and 0.982 respectively. Earlier when looking at job role, those in Senior Management positions saw Individual Innovation as more important than other employment levels and this reinforces that result.

The 'Not Stated' group valued the importance of Individual Innovation relatively highly, this group had different characteristics from the other Work Role groups and appeared to have a strong connection to their local culture. The Group Culture measure for this group was the highest at 0.609 indicating they saw the most important cultural influences happening at the group level. Team Innovation was seen as important with the result being over one. This group had similar characteristics to the people who chose not to answer the question on Marital Status with the results for this group exhibited different tendencies to other groups. Earlier it was suggested this group represented a sub-culture that valued being somewhat unconventional and not influenced by public sector culture as much as other groups. They perhaps considered themselves relatively independent thinkers who valued having different views to their colleagues. Team innovation as seen as most important by Directors, Officers, Team Leaders and the 'Not Stated' group.

Table 47 - Differences between Work Roles in a Victorian Public Sector Organization.

	Director	Manager	Officer	Team Leader	Advisor	Prof. Class	Level or area of work	Not Stated
Public Sector Culture – related to WI	0.136*** (0.049)	0.104*** (0.016)	0.079*** (0.014)	0.141*** (0.045)	0.110*** (0.024)	0.104*** (0.028)	0.131*** (0.020)	0.077*** (0.029)
Org. Innovation	0.753*** (0.259)	1.162*** (0.076)	1.091*** (0.084)	1.136*** (0.116)	1.071*** (0.112)	1.335*** (0.101)	1.214*** (0.082)	0.840*** (0.099)
Individual Innovation	1.147*** (0.201)	0.992*** (0.059)	0.691*** (0.063)	0.666*** (0.120)	0.788*** (0.093)	0.872*** (0.120)	0.785*** (0.076)	0.982*** (0.082)
Team Innovation	1.023*** (0.164)	0.993*** (0.067)	1.057*** (0.078)	1.008*** (0.132)	0.952*** (0.110)	0.817*** (0.123)	0.982*** (0.079)	1.031*** (0.105)
Workplace Inn Climate	1.077*** (0.197)	0.853*** (0.081)	1.161*** (0.085)	1.182*** (0.196)	1.189*** (0.132)	0.976*** (0.144)	1.019*** (0.094)	1.146*** (0.123)
Group Culture	0.557*** (0.081)	0.531*** (0.032)	0.508*** (0.037)	0.518*** (0.058)	0.523*** (0.045)	0.543*** (0.058)	0.529*** (0.037)	0.609*** (0.054)
Organizational Culture	0.443*** (0.081)	0.469*** (0.032)	0.492*** (0.037)	0.482*** (0.058)	0.477*** (0.045)	0.457*** (0.058)	0.471*** (0.037)	0.391*** (0.054)
Observations	13	108	116	22	44	31	82	63

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.

In summary, Public Sector Culture's impact on Workplace Innovation overall for work roles showed a positive and significant relationship between Public Sector Culture and Workplace Innovation for all categories. Workforce Innovation Climate was identified as important for most of the categories as was Organizational Innovation.

Individual Innovation was identified as more important by the Director category and the Manager and had high results in the Not Stated category. This supports the results from the job role results showing that Individual Innovation was seen as important by Senior Management. Further this analysis shows that other Management levels and others in the organization identified it as important. The 'Not Stated' category has different results from the other groups and this indicates it is a particular sub-culture existing in Department A that is much focussed at local level innovation and less attuned to Organizational Innovation and Culture.

5.8.10 Comparison across Working Flexibly – Hypotheses 8 and 9

This section aims to contribute to the analysis of Research Question 3 by analyzing H8 and H9 by comparing flexible working. Structural Equation Modelling using the model developed

for Section 5.6.3 above was used to analyse and compare the impact of Public Sector Culture on respondents across Flexible Working. The analysis showed that both the group that engaged in flexible working and that which didn't, identified that Public Sector Culture influenced Workplace Innovation with this being significant to the level of 1 per cent. Those who engaged in flexible working saw Public Sector Culture was more important with a result of 0.110 and the other group's result of 0.099. There was not much difference in the detailed components of Workplace Innovation, however both groups identified Group Culture as being more important than Organizational Culture. The details are provided in Tables shown in Appendix B – Detailed Statistical Tables that includes the SEM Tables for Flexible Working as Table 89 as Yes and Table 90 as No.

Summary of Findings for Hypotheses 8 and 9

The findings on staff Employment Characteristics including tenure, job types, work group, work role and working flexibly supports Hypothesis 8 and Hypothesis 9 and confirm Employment Characteristics significantly affect the aspects of both Organizational Culture and Workplace Innovation in the context of a Public Sector Organization. There are significant differences among groups having particular Employment Characteristics towards Public Sector Culture and Workplace Innovation. Additional analysis from the Structural Equation Modelling identified variance across all groups in terms of how groups identified the strength of the significance of Public Sector's Culture impact on Workplace Innovation. This confirmed that most groups established significance across all subgroups. In the Work Group area significance was not seen in each group however it was seen in eleven out of thirteen groups that were able to be analyzed using the SEM model.

Thus for the hypotheses, Hypothesis 8 to Hypothesis 9 the Stage two analysis results are as follows:

H8. is largely supported and indicated that Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.

H9. is fully supported and indicated Employment characteristics will significantly affect the dimensions of Workplace Innovation in a Public Sector Organization.

Results of the Hypotheses Analysis

The results of the quantitative analysis through Stage one and Stage two statistical analysis of the 13 Hypotheses are provided in Table 48 below:

Table 48 - Outcomes of the Hypotheses Analysis

Hypotheses	Outcome
H1: Public Sector Culture has a significant effect on Workplace Innovation Significance –Stage 1:Sig - P < 0.001 and predicts 24.6% of variability; Stage 2 Sig level of 1%	**Supported**
H1a: Public Sector Culture (PSC) including Organizational (Org) and Group Culture has a significant effect on Workplace Innovation Climate. -Significance –Stage 1:Sig - P < 0 .001 and predicts 10.9 % of variability; Stage 2 Sig level of 1%	**Supported**
H1b: Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation. -Significance –Stage 1:Sig – P < 0.001 and predicts 8.1 % of variability; Stage 2 Sig level of 1%	**Supported**
H1c: Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation. -Significance –Stage 1:Sig – P < 0.001 and predicts 15.6 % of variability; Stage 2 Sig level of 1%	**Supported**
H1d: Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation -Significance –Stage 1:Sig – P < 0.001 and predicts 24.0 % of variability; Stage 2 Sig level of 1%	**Supported**
H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture -Significant difference, Gender, Marital Status and Age	**Largely Supported**
H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.	**Not Supported**
H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization. -Significant difference - Sig level of 1% - all groups	**Supported**
H5: Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization. -Significant difference - Sig level of 1% - all groups	**Supported**
H6: There is a difference in perceptions among staff with specific employment characteristics towards the aspects of a Public Sector Organization's culture. -Significant difference – Job Types, Work Groups and Work Roles	**Partly Supported**
H7: There is a difference in perceptions among staff with specific employment characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization. -Significant difference – Tenure, Job Types, Work Groups and Work Roles	**Largely Supported**
H8: Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization -Significant difference - Sig level of 1% - all groups with Work Groups for 7 of 13 groups.	**Largely Supported**

Hypotheses	Outcome
H9: Employment characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization. Significant difference - Sig level of 1% - all staff groups	**Supported**

For Research Question 1 all five of the associated hypotheses were supported. For Research Question 2, two of the hypotheses were supported, one was largely supported and one was not supported. For Research Question 3, one of the hypotheses was supported, two were largely supported and one was partly supported.

5.9 Conclusion

This chapter presented the quantitative data analysis completed as Phase one of the explanatory sequential mixed methods approach used for this thesis. It answered three research questions that investigate the relationship between Workplace Innovation and Organizational Culture within a Victorian Public Sector Organization. It described the procedures used in the quantitative data analysis, presented the results which include testing the reliability of the scale used, and reported the results of Stage one testing using the correlation analysis, ANOVA, Independent T-Test and the Stage two testing using Structural Equation Modelling. Furthermore, the analysis uncovered significant relationships between the dimensions of Workplace Innovation and the Organizational Culture and its aspects within a Victorian Public Sector Organization.

The results of the descriptive analysis presented a background on the population who are employees working within Department A. The research questions addressed the gap within Public Sector Culture, Innovation and Management Literature which omitted to address the relationship between Public Sector Organizational Culture and Workplace Innovation. The analysis of this thesis confirms significant relationships between the dimensions of Public Sector Organizational and Workplace Innovation. The following chapter presents the qualitative data analysis completed as Phase two of the explanatory sequential mixed methods approach.

Chapter 6. Qualitative Analysis

6.1 Objective

This chapter presents the analysis of the qualitative data that was gathered in the thesis survey, the analysis of externally and internally published documents by Department A, and externally published documents by other related organizations. The chapter reports the way in which the Phase two qualitative data was analyzed using NVivo as a support tool and how they were triangulated with the quantitative Phase one results to ensure data integrity and truth.

6.2 Introduction

This section outlines the sequence of the chapter. This chapter provides the background to the Qualitative Research explaining how Phase two of the explanatory mixed methods approach contributes to the thesis in Section 6.3. The next sections provide an overview of the data sources in Section 6.4. Data validity, quality and reliability are reported in Section 6.5 and the approach to data analysis including the initial triangulation of data with the Phase one quantitative results and data integrity and coding in Section 6.6. Information flows within the organization are reported in Section 6.7 with Section 6.8 describing the model development for the overarching themes of Public Sector Culture; Workplace Innovation; Demographic Groups; staff having specific Employment Characteristics and Public Sector Organization. It then analyzes the findings from the qualitative analysis against findings 1 to 14 in Section 6.9. Section 6.10 analyses the overarching themes for completeness to develop a unified description and interpretation of the results for the overarching themes of Public Sector Culture, Workplace Innovation, Demographics, staff having specific Employment Characteristics, Public Sector Organization and an additional theme around Survey Comments. Section 6.11 provides a conclusion to the chapter

6.3 Background to the Qualitative Analysis

To address Research Question 4. What ways do Victorian Public Sector Organization reports corroborate with Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization? a qualitative analysis was completed. The sources of data for this included 13

internal documents published by Department A, four externally published documents by related organizations, and the qualitative data that was gathered in the thesis questionnaire.

This was Stage three of the research approach shown in the Research Methodology Process in Figure 1. This thesis used an explanatory sequential mixed methods approach with an initial Phase one quantitative analysis to answer research questions one to three and associated hypotheses. The findings from the quantitative analysis were triangulated with the qualitative results to provide confirmation and additional context (Creswell 2014; Flick 2018; Nastasi, Hitchcock & Brown 2010). Data was mined from a range of Department A's organizational reports, plans and internal communication messages as well as related Victorian Government Reports to inform this analysis (Merriam 1988; Merriam & Tisdell 2015; Silverman 2004). The questionnaire results were compiled into a report to enable all the information to be coded from documents of a similar form.

The qualitative analysis in Phase two provided detailed rich process-oriented information that explained the results of the relationships between the constructs that was identified by the quantitative results (Firestone 1987). Content analysis was undertaken through coding of internal and external documents following Saldaña's guide to coding data and using open, axial and selective coding (Bazeley 2007; Newnham, Pantebre & Spark 1999; Saldaña 2015).

6.4 Data Sources

The data sources were from externally and internally published works by Department A; externally published documents by other related organizations; and the results of an open ended question taken from the quantitative survey. These contained information or insights in relation to Department A's Organizational Culture and the status of Workplace Innovation. The documents generated from outside Department A provided information on the environment in which Department A was operating at the time of the research. The open ended question data was part of the quantitative data gathering undertaken and those who responded were from the same group of people who initially responded.

The documents used were able to provide information about Department A, its people and issues as represented in the documents (Eriksson & Kovalainen 2008). The use of documents is a technique often used in qualitative research (Merriam 1988; Merriam & Tisdell 2015; Silverman 2004). Relevant documents were important investigatory tools which researchers could use in order to make inferences about events and to provide further understanding of the subjects or participants (Yin 2014).

The researcher used documents for the data collection process for a number of reasons. First, an analysis of relevant documents that are cultural artifacts of the organization provided an explanation of the context in which this research was undertaken. It helped build a better understanding of the relationships between organizational culture and workplace innovation providing significant and important insights into the issues studied (Merriam 1988; Merriam & Tisdell 2015). For example, ongoing organizational change was impacting on the work of Department A and Workplace Innovation which was able to be illustrated by information from the document analysis.

Second, analyzing Whole of Government direction, the formal reporting as provided in the Annual Report and the internal strategic planning documents provided the operating context for Department A. This added insight by identifying how external policy had been incorporated into internal operations therefore supporting the analysis of this case (Yin 2014).

The third reason for using documents was that documents and records were generally regarded as non-reactive, unobtrusive sources of data (Merriam 1988; Merriam & Tisdell 2015; Silverman 2004; Thomas 2004). The documents utilized in this thesis have been produced before, during the research or later and were not influenced by the existence of this research investigation. This is illustrated in the document analysis shown below in Table 49 which outlines the authorship of the documents, their purpose and the source of information.

There were limitations in using the documents as data as they had been developed for other purposes than this research. The information provided in documents was not always in a form that relates directly to the concepts under analysis. The data sources were initially assessed to see if they contained information or insights relevant to the research questions (Merriam

1988, 2009). As an internal researcher, access was able to be provided to a range of internal documents not easily accessible by anyone outside the organization. The researcher found that the broad themes could be developed from the findings from the qualitative research providing scope to analyze the chosen documents in a way that built meaning that helped refine and explain the quantitative results (Merriam 1988, 2009; Prior 2016). The researcher was able to authenticate the documents before they were used and also knew of their history and the purposes for which they were produced (Guba & Lincoln 1981; Merriam 2009). This information was described in Table 49 below.

Department A had a limited life existing from April 2013 to the end of 2014. The change of organization was not anticipated at the time the research was initiated and illustrated the ephemeral nature of Departments of State. The research survey was undertaken in May to June 2014 which was 65 per cent of the way through Department A's lifespan as an organization. The documents chosen to be analyzed were mainly created in 2014. These documents represented the work that had been achieved in Department A when undertaking its cultural change program. The first eight months of the organization's creation were consumed with developing common operating systems, reorganizing service delivery, setting up common planning documents and initiating the cultural change program. The additional documents studied included the Victorian Public Service analysis of its workforce which included results from Department A, an Australasian scanning network document that was commissioned by the Department and other organizations and was released during the life of Department A, the report of an Organizational Cultural Inventory of the Department completed in 2014 and a Capability Strategy that had been developed mainly in 2014 but was released the next year. The documents chosen to be analyzed were the ones that dealt with Department A and provided information on its development especially in terms of cultural initiatives.

6.5 Data Validity, Quality and Reliability

Checking for qualitative data validity was conducted by assessing whether the information obtained through the qualitative data collection was accurate (Creswell & Clark 2011; Richards 2005). The triangulation of data from several sources enabled it to be analyzed

together when building the data themes and so supported data validity (Bryman 1992; Creswell & Clark 2011). Reliability is achieved by having well-validated procedures for undertaking research (Richards 2005). The procedures for undertaking research to maintain reliability are outlined in this section.

All but one of the documents used in the survey were produced for reasons other than the research. The one document specifically developed contained the answers from the open ended survey question. The use of the documents did not suffer from the limitations of interviews and observations where the research may elicit atypical roles and responses due to those who responded (Merriam 1988, 2009). Documentary records provide 'a rich source of insights into different employee and group interpretations of organizational life' (Forster 1994, p. 148). They are an important source detailing the interactions and communications of people in all levels of Department A. Government Departments use documents extensively to communicate to employees and stakeholders providing details of government and internal policies and practices. In addition as part of their tone they express how the Department is trying to present culturally, internally, and externally (Forster 1994).

The data sources were: externally and internally published works by Department A: externally published documents by other related organizations; and a collection of open ended answers from one question in the quantitative survey. Details of the documents used are summarized in Table 49 below showing the number of the document, the name of the document, and when it was published. These were analyzed for authenticity and accuracy in terms of their source, the purposes for which they were developed, authorship and the source of the information as suggested by Guba and Lincoln (1981). In addition, the work by Forster (1994) on five practical stages in accessing and analyzing documents was used to assist in the analysis which comprised: (a) accessing relevant documents; (b) checking for the authenticity; (c) understanding the documents; (d) analyzing the data; and lastly (e) utilizing the data. The researcher had been a member of the organization. Due to her Departmental experience in working on culture and innovation matters she had participated as a member of the working groups to help produce a number of the documents including Department B's Capability Strategy; Department A's Annual Report 2014 - 2015; Department A – Innovation

2015 Our Approach; Department A –Innovation Action Plan, and Creating a culture of innovation (DELWP 2015b; DEPI 2014a; ILT 2014a, 2014b, 2014c). A detailed analysis of the documents used according to the approaches of Guba and Lincoln (1981) and Forster (1994) are shown in Table 91 in Appendix C. It provides the name of the document, when it was published, its purpose, the author and the source of the information it contains.

Table 49 - Document used for the Qualitative Analysis

Number	Document	Published
1	Department A Charter (DEPI 2013b).	2013
2	Creating a culture of innovation (ILT 2014b)	2014
3	Department A Annual Report 2013 – 2014 (DEPI 2014a).	2014
4	Department A Corporate Plan 2013 – 2017 (DEPI 2014b).	2014
5	Department A's Operating Model (DEPI 2014c).	2014
6	Department A Shaping a Culture of Service Excellence (DEPI 2014d).	2014
7	Results - Open ended question from the Quantitative Survey (Newnham 2014).	2014
8	Organizational Change – keeping the focus on people in times of change (Corrigan 2014).	2014
9	Secretary's Messages – weekly communications from the Department A Secretary. (Fennessy 2014).	2014
10	Summary of Department A's values and behaviours (CCT 2014a).	2014
11	The development of Department A's values and behaviours (CCT 2014b).	2014
12	The State of the Public Sector in Victoria 2013 - 2014 (VPSC 2014).	2014
13	Australasian Joint Agencies Scanning Network: second quarter report. (AJASN 2014).	July 2014
14	Department A's values and behaviours - Intranet pages (PAC 2014).	Aug 2014
15	Department A - Innovation 2015, Our Approach (ILT 2014a).	Sept 2014
16	Department A - Innovation Action Plan (ILT 2014c).	Nov 2014
17	Department A Organizational Cultural Inventory Report (HSI 2014).	Dec 2014
18	Department B's Capability Strategy 2015 - 2018. Enhancing Potential, Evolving for the Future (Draft July 2015) (DELWP 2015b).	2015

The majority of the documents were all produced during 2014 which was the year the questionnaire for this research was administered. The documents chosen represented those that had a major focus on culture and innovation produced by Department A during 2014. The documents produced in different years included Department A's Charter published in 2013 to guide the new department's operations (DEPI 2013b). The Capability Strategy 2015 – 2018 was produced in 2014 for Department A, but adapted to become a Department B

Strategy (DELWP 2015b). The researcher had been part of the group consulted to produce this report and was able to code the data relevant to Department A.

Documents 2, 7, 10, 11, 15 and 16 had included a consultation process as part of their development that contacted the same group from the quantitative survey. This included the 151 respondents who answered the open ended question.

The researcher was able to add additional information to the discussion of results with data from the 'People Matter Survey' held in July 2013. This was a public sector employee opinion survey run by the Victorian Government (SSA 2013a). In additional there were a number of supplementary questions asked when the Organizational Cultural Inventory was held in December 2014. This included questions echoing or expanding on matters from the People Matter Survey (DEPI 2014e). These additional sources of data were able to extend the information received directly from individuals with Department A through these surveys to add more depth to the analysis.

6.6 Qualitative Data Analysis

6.6.1 Approach to Stage one triangulation

The Stage one triangulation of the data from Phase one quantitative findings with the Phase two qualitative findings was undertaken to identify congruence, complementarity and difference. Complementarity refers to one set of results enriching, clarifying, or illustrating the other (Forster 1994; McClintock & Greene 1985). Independently deriving sets of findings with their own integrity and compensating biases through studying the same relationship strengthened the outcomes from the research (Greene 2007). This was supported by having two separate phases for data collection providing an independence of method which is needed to undertake triangulation (McClintock & Greene 1985). The initial triangulation was undertaking by using the key concepts reflected in the outcomes from the quantitative analysis as thematic codes for the qualitative research to support the triangulation of results. The use of data collection items such as this that overlap or complement each other has been recognized as a way to strengthen a mixed methods study (Yin 2006).

6.6.2 Approach to data analysis

The researcher used the outcomes from the hypotheses from the quantitative analysis as the basis of thematic codes to guide the initial qualitative analysis. The analysis of one data type, in this case the quantitative findings yields a typology, or set of substantive categories which are then used to integrate with the second data analysis (Caracelli & Greene 1993; Hildebrandt & Kelber 2005). The outcomes from the quantitative analysis were renamed as findings and all were used in the qualitative analysis. The 14 findings used are listed below. The key concepts from the findings were then used to create the initial thematic codes for collecting the qualitative data. For the relationship between Public Sector Culture and Workplace Innovation a number of related themes were identified. For Public Sector Culture these included sub-themes of Group and Organizational Culture, and Culture including sub-themes of Negative and Positive Culture. For Workplace Innovation this included the sub-themes of Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate; and Innovation including the sub-themes of Public Sector Innovation, Primary Industries and Environment and Natural Resource Management. A further two themes of Demographic Groups and staff with particular Employment Characteristics were created. The findings and the key concepts used as initial themes developed are shown in Table 50 below:

Table 50 - Table showing the findings from the quantitative data analysis and the themes developed

No	Findings – outcomes from the quantitative data analysis	Key Concepts used as initial coding themes
1	Public Sector Culture has a significant effect on Workplace Innovation.	• Public Sector Culture including Group and Organizational culture • Culture including Negative and Positive culture • Workplace Innovation including Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate. • Innovation including Public Sector Innovation, Primary Industries and Environment and Natural Resource Management
2	Group Culture is more significant as a predictor of workplace innovation than Organizational Culture	
3	Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.	
4	Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.	
5	Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.	
6	Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.	
7	There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.	• Demographic Groups • Culture including Negative and Positive culture • Public Sector Culture including Group and Organizational culture
8	There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.	• Demographic Groups • Innovation including Public Sector Innovation, Primary Industries and Environment and Natural Resource Management • Workplace Innovation including Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate.
9	Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	As for Finding 7
10	Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	As for Finding 8
11	There is a difference in perceptions among staff with specific employment characteristics towards the aspects of a Public Sector Organization's culture.	• Groups having specific Employment Characteristics • Culture including Negative and Positive culture

No	Findings – outcomes from the quantitative data analysis	Key Concepts used as initial coding themes
		• Public Sector Culture including Group and Organizational culture
12	There is a difference in perceptions among staff with specific employment characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.	• Groups having specific Employment Characteristics • Innovation including Public Sector Innovation, Primary Industries and Environment and Natural Resource Management • Workplace Innovation including Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate.
13	Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	As for Finding 11
14	Employment characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	As for Finding 12

The key concepts that were confirmed from the quantitative findings were used for initial coding themes in the qualitative analysis. The themes became parent nodes in the NVivo software used for the analysis, with their components or sub-themes coded as child nodes. These initial themes were expanding as a result of the analysis, and this is discussed in more detailed in section 6.7

6.6.3 Data analysis

Data analysis was undertaken as for the explanatory sequential mixed methods approach used with both the quantitative and qualitative data base analysed separately (Creswell 2014). The researcher used NVivo 11 to provide an accurate and transparent picture of the data while providing an audit of the data analysis process as a whole (Bazeley 2007; Merriam & Tisdell 2015; Welsh 2002). This was used to provide the benefits of an organized storage file system, ability to facilitate sorting, providing a focus on reading deeply especially during data mining publications and reports, providing visual tools to review and present data and

connecting research notes and memos with the codes, themes and documents for ease of reviewing (Creswell & Poth 2017).

6.6.4 Data integrity

Triangulating the results provided considerable confidence in the validity and credibility of the results from the two phases of the analysis for this thesis including the qualitative component (McClintock & Greene 1985). This was one approach to build a validity check into the qualitative research design (Richards 2009). Using the findings from the quantitative phase of the research allowed the qualitative analysis to provide addition corroboration of the research results. It uncovered additional themes that were not identified as part of the quantitative analysis and provided an expanded view of the reasons behind the measurement of the relationships between Public Sector Culture and Workplace Innovation in the first phase of the research.

Overall the researcher considered there was a tendency for the qualitative data analysis to be skewed towards reflecting a positive culture so a range of documents and other sources were used to counteract this effect. The researcher identified a skew towards positive culture in the culture theme with the NVivo node having 100 coding references from 15 sources with negative culture having 42 references coded to it from seven sources. However this was the opposite with a negative change in culture that had 40 references from six sources, dominating a positive change in culture that had 30 references from six sources in the changing culture node. This occurred as there was a bias in a number of the official Departmental reports as they presented aspirational goals and a positive interpretation of events. It reflected Department A's desire for a 'values-based culture' as outlined by the Secretary in Document 9 for July 2014 with the corporate values identified as 'Balance, Ownership, Collaboration and Agility'. These were outlined further and connected to the corporate messages in Documents 6, 10 and 14. This demonstrates assertions that official documents are political and subjective, and set aspirational goals (Forster 1994). For example communications received weekly from the Secretary aimed to share information about Departmental activities including distributing corporate information and news. This message was presented in a positive manner with predominately good news articles with the stated aim

of promoting the development of a positive culture. In addition, this demonstrated how Department A's Cultural Change program was driven from the top of the organization.

The Annual Report and Corporate Plan (Documents 3 & 4) both presented data in a way that focussed on information that needed to be reported and future goals, neither presented a situational analysis of the issues around organizational change and its impact on culture and workplace innovation. The Annual Report would have reported on unfavourable information that was pertinent for reporting purposes. However the negative issues around the uncertainty the changes created for staff, volatility caused by organizational change and the attitude of staff would have been seen as a temporary situation. These were not reflected in the official reporting.

The positive skew was balanced by the reports represented by Documents 2, 11, 15, 16 and 17 that had consulted with staff and received a balance of views both positive and negative. This included three documents developing an approach to innovation and an additional two asking for feedback on developing the Department's values and behaviours. The survey results where staff contributed comments tended to provide more balanced views with a response bias towards negative issues, as did the data from the results of the Organizational Cultural Inventory. This reflected a common trend with open and anonymous staff surveys at Department A, people with issues of concern were more likely to provide feedback. The information skew was able to be balanced by using a number of different data sources. This did not impact on the thematic models developed which demonstrated an ability for significant relationships to be identified through cross tabulation. The researcher was able to add additional information to the discussion of results with data from the People Matter Survey held in July 2013 which was a public sector employee opinion survey run by the Victorian Government. In addition, there were a number of supplementary questions asked when the Organizational Cultural Inventory was held in December 2014. The questions included a number of questions echoing or expanding on matters from the People Matter Survey. These reflected the views of staff and provided balanced feedback.

The quantitative research findings used to inform the collection of the qualitative data were concerned with the relationship of Public Sector Culture to Workplace Innovation. The results

demonstrated that there was a significant relationship between these two constructs. The relationship of negative and positive culture within the organization was not measured, and the qualitative data provided additional information about this relationship allowing this to be considered in more detail.

6.6.5 Coding

The outcomes from the Phase one quantitative analysis were renamed as 14 findings and were used to create the initial themes for the Phase two qualitative analysis. Using these themes from the quantitative analysis as outlined in Table 50 above allowed triangulation with the outputs from the qualitative research. The initial themes addressed Public Sector Culture, Culture, Workplace Innovation, Innovation, Demographic Groups and Employment Characteristics with supporting sub-themes.

The analysis of the preliminary quantitative data in Phase one led to the development of data collection for the qualitative analysis in Phase two (Bazeley 2018; Creswell 2014). This analysis using results from the earlier work was described as a hypothesis coding approach (Saldaña 2015). In this instance it followed as part of the sequential mixed methods approach. A hybrid process of inductive and deductive thematic analysis was then used to interpret the raw data (Bazeley 2018; Fereday & Muir-Cochrane 2006). An initial deductive analysis was based on the concepts from Phase one of the research and was expanded by an inductive analysis as additional themes were identified. A thematic analysis method was used to provide a structured way of understanding how to develop additional thematic codes (Morgan, DL 2007; Rihoux & Ragin 2008). Theme as an abstract concept creates ‘meaning and identity to a recurrent [patterned] experience’ (DeSantis & Ugarriza 2000, p. 362). It ‘describes and organizes possible observations or at the maximum interprets aspects of the phenomenon’ it may be directly observable in the information or underlying the phenomenon (Boyatzis 1998, p. vii). Thematic analysis in qualitative research is commonly identifying the fundamental concepts that have been identified from research data (Bernard & Ryan 2010) which then emerge as being important to describe the phenomenon under study (Fereday & Muir-Cochrane 2006).

The employment of thematic analysis in this thesis was conducted by adapting the six phases of thematic analysis as recommended by Braun and Clarke (2006). These areas: data familiarisation; initial codes generations; themes searching; themes reviewing; defining and naming themes; and producing the report. The researcher varied the six phases used as the existing concepts from the quantitative research were part of initial code generation and the theme review process included establishing thematic models that added additional detail to the original concepts.

In implementing this analysis, the researcher adopted three stages of coding processes as proposed by (Saldaña 2015): hypothesis coding extended to develop an additional thematic analysis; axial coding; and selective coding to enhance the thematic analysis in this thesis. In the first phase, the researcher sought to familiarize the documents to be mined by undertaking the extended hypothesis coding process. In this process, the researcher tried to understand the coverage of the initial research concepts that were the hypothesized and identify any extended themes that emerged from the data by conceptualising line-by-line.

This process eventually led to a holistic theming of the data to weave the information together to help interpret the meaning and explain why the finding was made or what it meant (Marshall, H 2002; Rubin & Rubin 2011) and to reduce the data set to manageable pieces through the thematic coding and pattern discovery (Li, Marquart & Zercher 2000). This led to additional themes being identified around the concept of change for both culture and innovation, a theme on Public Sector Organization, Leadership and one on detailed comments on the survey analysis. These were introduced as additional and related themes identified from the qualitative analysis.

Axial coding was next used using the third and fourth thematic analysis phases for theme searching and theme reviewing. In these two steps, the researcher coded the data by grouping the themes that were similar or connected to each other in a patterned way keeping the initial themes as the basis for coding (Buetow 2010; Saldaña 2015). The quantitative data key concepts were expanded by the qualitative themes, and those identified were refined and filtered based on the researcher's judgment and intuition to ensure the generated themes accurately reflected the meaning in the data set (Braun & Clarke 2006).

The final list of data themes that were used for the qualitative analysis are shown in Table 51 below with the initial themes shown in the first column, and the additions that were added during the analysis of data. These became nodes in NVivo which is the descriptor that refers to concepts, themes, processes, thought or ideas that derived from sources such as research data or participants (Edhlund & McDougall 2011). The number of initial thematic nodes generated during the first coding stage was 45 and the final number used after the full analysis process was 30. In NVivo, sources refer to research materials that were Public Sector Organization reports and related publications and the results from the open ended question. References refer the numbers of coding references coded for a particular node. When the number of sources or coding references for a node were too low, the researcher identified that the theme was not considered important from the perspective of the source documents. They were then merged with other themes, considered in the later stage of study or deleted where the node was not relevant to the context in this thesis.

The last coding process was selective coding in which the researcher identified the core variables or themes that best explain the factors influencing the relationship between Workplace Innovation and Organization Culture within a Public Sector Organization. This process reflected the fifth and last process of thematic analysis in this thesis, where the themes' final definition and classification were completed and suitably named. The names are provided in Table 51 representing the NVivo outcome report. To enhance the data analysis in this thesis, the content analysis technique was then employed and is discussed in the next Section.

Content analysis

The important themes were identified through the thematic analysis to help the researcher to understand factors in the relationship between Workplace Innovation and Organization Culture within a Public Sector Organization. Content analysis was then applied to describe manifest content in relation to the documents and outputs of the survey used for the analysis (Newnham, Pantebre & Spark 1999). In addition this added another way of checking the analysis and guarding the researcher against any selective perception pitfalls that occurred via the initial coding processes (McMurray, Pace & Scott 2004). Generally, the content

analysis is a deductive approach to quantify qualitative data by noting frequencies of events, words, action and other variables related to research data (Crowther & Lancaster 2009). The application of content analysis in this thesis aimed to contribute to the refinement of identified themes by conceptualising the phenomenon studied and the patterning of the data (Boeije 2002).

The quantitative key concepts were supported and expanded upon by the qualitative data. The reporting from NVivo coding queries from the research data has assisted the researcher to identify which factors have been cited most by the participants by looking at each theme's sources and coding references. This provided a way to identify the relative importance of each theme. Additionally, the generation of NVivo matrix coding queries assisted the researcher to compare connections and contradictions between the identified themes in this thesis (Bazeley 2018). To illustrate this, the researcher created thematic analysis models which included Public Sector Culture, Workplace Innovation, Demographic, Employment Characteristics and Public Sector Organization by connecting the related themes and sub-themes for each of these areas. In addition the findings from the quantitative research were compared to the qualitative outcomes through matrix coding in order to establish whether the findings were supported.

Table 51 - Data themes from Quantitative Analysis with additional ones from Qualitative Analysis in bold text.

Quantitative Analysis Key Concepts and Data Themes	Additions from Qualitative Analysis
P- Public Sector Culture	**P - Changing Culture**
C - Group Culture	**C- Changing Negatively**
C - Organizational Culture	**C- Changing Positively**
P – Culture	**C- Negative**
n/a	**C- Positive**
P- Workplace Innovation	n/a
C - Workplace Innovation Climate	n/a
C - Individual Innovation	n/a
C - Team Innovation	n/a
C - Organizational Innovation	n/a
P- Innovation	**C- Barriers**
C - Primary Industries	**C- Innovation changes needed**
C - Environment and Natural Resource Management	n/a
C- Public Sector Innovation	n/a
P - Demographic Groups	n/a
P - Employment Characteristics	n/a
n/a	**P - Public Sector Organization**
n/a	**C - Department A**
n/a	**C - General characteristics**
n/a	**C - Group level view**
n/a	**C - Whole of Victorian Government**
n/a	**P - Leaders**
n/a	**P - Survey comments**

Legend 2 – P = parent node code in NVivo; C = child node code in NVivo

The final themes developed as a result of the coding processes and originated from the data mined from the Public Sector Organization reports and related publications, and the survey results. The themes were coded as parent nodes in NVivo and the sub-themes as child nodes as identified in Table 51. The researcher found certain nodes that did not add explanation to the analysis of overarching themes, and they were not used in the modelling. For example, with the Innovation theme, the sub-themes of Primary Industries and Environment and Natural Resource Management were found not to have a large number of references and were not used in the final analysis.

6.7 Overview of information Flows in a Public Sector Organization

An overall analysis was undertaken on the data mined from the Public Sector Organization reports and related publications. In summary, this consisted of 13 internally published works, an externally published work by Department A, an interagency report, a Victorian Government Report, and a report on Department A published by a commercial organization. In addition, the results of the open ended question from the thesis questionnaire covering 151 respondents were included. This data provided key information about context to analyse the relationship between Workplace Innovation and Organizational Culture.

An analysis of the relative importance of culture and innovation in Department A was undertaken by running a report in NVivo to show the top 1,000 words contained in the documents used for the qualitative analysis. They identified that within Department A, Innovation and Culture were of lower importance within the documents used for this research even though the documents were chosen because of their importance to innovation and culture. The words that were most commonly used within these documents were ‘department’, ‘managing’, ‘services’, ‘Victoria’, ‘publicly’, ‘assets’, ‘financial’ and ‘report’. These were words connected with running the organization from a financial sense and as a public sector entity. In the next level of importance, were a number of words connected to the functions such as ‘water’, ‘environment’ and ‘primary industries’. The words associated with ‘culture’ and ‘innovation’ came in the next level of importance. This is shown in Figure 11 below:

Figure 11- Word cloud showing relative importance of the top 1000 words in documents used for the Quantitative Analysis from Department A.

Source: Author using NVivo

The documents chosen for the qualitative analysis were all of those that were concerned with culture development and innovation within the department at this time. These included: three documents on the innovation review and planning process; the Department's Charter and Operating Model; documents on the development of new values and behaviours; and a report on an analysis of the culture in the organization as part of undertaking a cultural inventory. In addition, the Annual Report as a document reporting on the Department, the Corporate Plan as a direction setting document and the Secretary's weekly communications were analyzed as documents that were important guiding documents for the work of individuals and groups in the organization (Forster 1994). The word analysis highlights that the focus of Departmental documentation is on the management of financial and functional matters. The documentation does not devote a lot of text to culture and innovation. Public Sector Innovation and Public Sector Culture have been found by this researcher to be an areas where there is a paucity of research literature. This may be a reflection of the position of importance they hold with the other management responsibilities within Public Sector Organizations. Innovation was identified as not being fully integrated into Department A's

ongoing business processes (ILT 2014c) and culture appeared not to be fully integrated apart from components such the Department's values and behaviours.

6.8 Model Development for Overarching Themes

The initial concepts from the quantitative research were confirmed as themes and expanded to include emerging themes from the qualitative research. Initially a deductive approach was used by adopting the codes from the outcomes of Phase 1 of the research. Following was an inductive approach which expanded the themes based on the analysis undertaken (Onwuegbuzie & Combs 2010). A further stage of developing and assessing the interpretation followed when the data was visually represented in themes and codes (Bazeley 2018; Richards 2009). A number of overarching themes were identified from the analysis by considering which nodes appeared in the same context and these were developed into groups (Bazeley 2006; Ryan & Bernard 2000, 2003). These were used to develop thematic analysis models which included Public Sector Culture, Workplace Innovation, Demographic, Employment Characteristics and Public Sector Organization (Boyatzis 1998). The details of each of these are reported below.

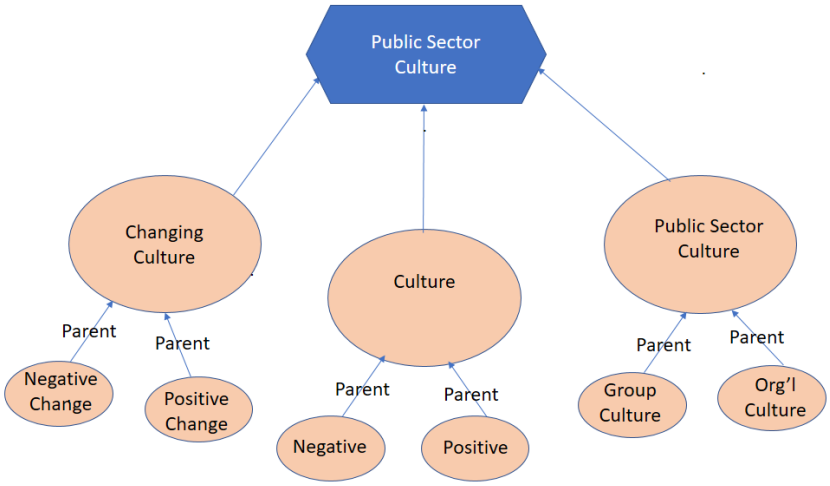
6.8.1 Public Sector Culture Model

This section analyzes how Public Sector Culture is developed within Department A using the results of the qualitative analysis. The initial culture element identified was Public Sector Culture as part of the findings from the quantitative analysis. The qualitative analysis used NVivo to manage data and the researcher named Public Sector Culture as a parent node for coding the qualitative data. It had the child nodes of Group Culture and Organizational Culture. The earlier quantitative work had identified differences in the relationship between Group and Organizational Culture and Public Sector Culture and Workplace Innovation.

As the qualitative data was analyzed, it identified two additional components of culture connected to Public Sector Culture in Department A (Bazeley & Jackson 2013). It was a time of major organizational change, and changing culture was an important influence on Public Sector Culture and the data contained many references to this. In addition Changing Culture was identified as a parent node and was found to have two aspects; one being Negative

Changes and the other Positive Changes which were coded as child nodes. The third culture component found in the analysis was named 'Culture' as there was a range of data about culture generically that gave context to Public Sector Culture. For 'Culture' the researcher included material that defined culture and was available to the organization and its staff that would shape their understanding of this concept. 'Culture' was coded as a parent node with the child nodes of Negative and Positive Culture. The final model of Public Sector Culture developed by the qualitative analysis showing all the components of culture identified is shown in Figure 12 below:

Figure 12 - Public Sector Culture Thematic Analysis Model



Source: Author

Three distinct components of Public Sector Culture were found in the qualitative analysis of data using NVivo analysis. The original theme identified from the quantitative research with the parent node of Public Sector Culture and the child nodes of Group and Organizational Culture had 153 coding references from 29 sources. The Changing Culture component of culture with its child nodes of Negative Change and Positive Change was the one that was found to be more prevalent in the analysis. This node had the most coding references of the three culture elements with 250 references from 27 sources. The last component of 'Culture' and its two aspects of Negative and Positive Culture had 142 coding references from 22 sources.

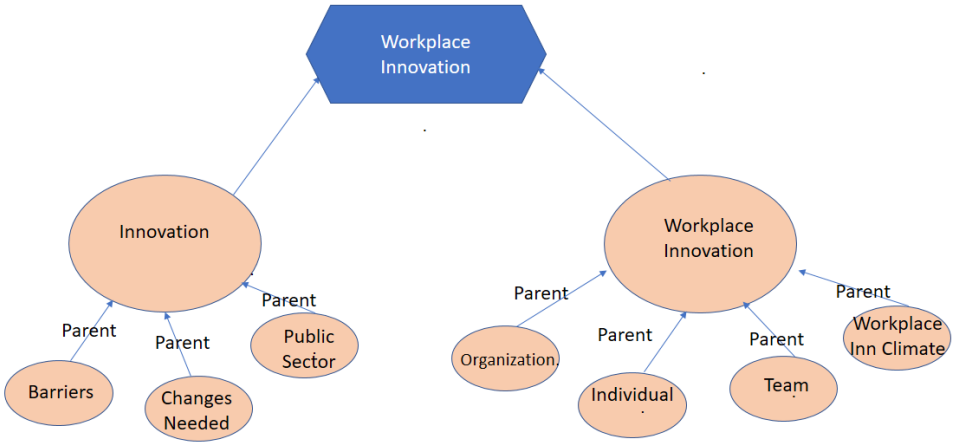
Three main components of Public Sector Culture; Public Sector Culture, Changing Culture and ‘Culture’ were identified. Public Sector Culture, Changing Culture and ‘Culture’ were used to cross-tabulate with the Workplace Innovation, Demographic Groups and staff with particular Employment Characteristics as part of the triangulation with the findings from the quantitative data.

6.8.2 Workplace Innovation Model

This section analyzes how workplace innovation is developed within Department A using the results of the qualitative analysis. The initial element identified was Workplace Innovation which had been part of the findings from the quantitative analysis that led to initial theme development. The qualitative analysis using NVivo coded this as a parent node for interpreting the qualitative data, it had the child nodes representing the four dimensions of Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate.

The second Workplace Innovation component found in the analysis was named ’Innovation’ as there was a range of data about innovation generically and this included all references to innovation that were not focussed on Workplace Innovation. This incorporated three aspects or sub-themes of Barriers, Innovation Changes needed and Public Sector Innovation. Another two aspects identifying innovation from the departmental areas of environment and natural resource management; and primary industries; were not used in the model. These two sub-themes did not have a large amount of data coded to them, 28 and 25 coding references respectively and the researcher did not classify them as providing important data for the model. The final model of workplace innovation developed by the qualitative analysis showed all the components of workplace innovation identified as illustrated in Figure 13 below (Bazeley & Jackson 2013).

Figure 13 - Workplace Innovation Thematic Analysis Model



Source: Author

Two distinct components of Workplace Innovation were found in the qualitative analysis of data using NVivo. The original theme was identified from the quantitative research with the parent node of Workplace Innovation, and child nodes of the four dimensions of Organizational Innovation, Individual Innovation, Team Innovation and Workplace Innovation Climate. In all, 220 references were coded to these nodes from 45 sources. The second component was 'Innovation' incorporating all types of innovation with three child nodes of Barriers, Innovation Changes needed and Public Sector Innovation. There were 330 references coded to it and came from 38 sources.

The analysis using NVivo revealed the two main components of Workplace Innovation as identified from the documents analyzed. These two elements of Workplace Innovation were used to cross-tabulate with the Public Sector Culture, Demographic Groups and staff with particular Employment Characteristics as part of the triangulation with the findings from the quantitative data.

6.8.3 Demographic and Employment Characteristics Models.

This section analyzes how Demographic groups and staff with particular Employment Characteristics were identified within Department A and developed relevant thematic analysis

models. The quantitative work had analysed a range of Demographic Groups and staff with particular Employment Characteristics. These specific groups were ‘gender’, ‘marital status’, ‘age’ and ‘education levels’ for Demographic Groups and ‘tenure’, ‘job types’, ‘work groups’, ‘work roles’ and ‘flexible working’ for staff with particular Employment Characteristics. The analysis of the qualitative data allowed both these larger groups to be identified at the higher level, there was not enough detail to code on the component groupings contained within them because the data that was analyzed was not disaggregated at the same level of detail. For example, a number of the documents analyzed talked about different levels of staff and management but didn’t provided detailed information on job types that directly compared with the details of the four job types analyzed in the quantitative analysis. This pattern was the same for all Demographic Groups and staff with particular Employment Characteristics.

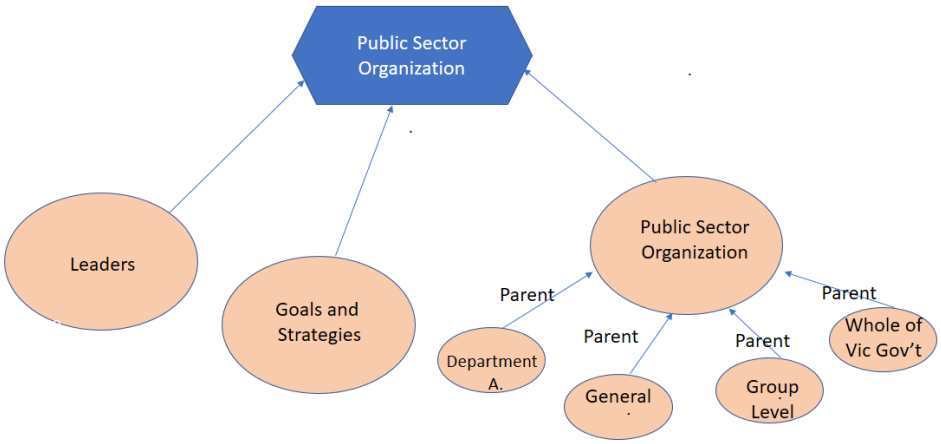
The analysis using NVivo was able to code references to the larger groupings. Individual nodes were coded with Demographic Groups having 111 references coded to it from 15 sources. Staff with particular Employment Characteristics had 121 references coded to these nodes from 16 sources. The Demographic Groups and staff with particular Employment Characteristics individually were used to cross-tabulate with Public Sector Culture, and Workplace Innovation as part of the triangulation with the findings from the quantitative data. This provided an indicative analysis within the triangulation process given that the quantitative data had been able to disaggregate data within the Demographic Groups, and staff with particular Employment Characteristics. The qualitative data provided aggregate data.

6.8.4 Public Sector Organization Model

This section analyzes how Department A can be described as a Public Sector Organization using the results of the qualitative analysis undertaken using NVivo. The Public Sector Organization was identified as part of the findings from the quantitative analysis that led to initial theme development. This included the aspects of Department A, General Characteristics, Group Level view and the Whole of Victorian Government. The analysis of the qualitative data identified an additional component of Leaders which was developed into a parent node. The Public Sector Organization as a separate node had four associated child nodes of Whole of Victorian Government, Group Level, General Characteristics and

Department A. The final model of Public Sector Organization developed by the qualitative analysis showed all the components identified and is illustrated in Figure 14 below (Bazeley & Jackson 2013).

Figure 14 - Public Sector Organization Thematic Analysis Model



Source: Author

Three distinct components of Public Sector Organization were identified in the qualitative data analysis. The original theme was identified from the quantitative research with the parent node of Public Sector Organization and the four child nodes of Whole of Victorian Government, Group Level, General Characteristics and Department A. In all, 507 references were coded to these nodes from 43 sources. The second aspect was Leaders which had no associated nodes. This had 153 references coded to it and came from 13 sources. The third aspect was Goals and Strategies which coded references to goals and strategies relating to the development of culture and innovation. This had 83 coding references from 13 sources. This finding was not directly used for the triangulation of data incorporating the quantitative results, however was used as a theme and to provide additional information on key issues identified as part of the qualitative analysis.

6.9 Analysis of Quantitative Findings Using Thematic Models

This section reports on the analysis of the quantitative findings using the qualitative data gathered from the identified themes and the thematic models developed. This analysis was undertaken by using matrix coding queries from NVivo. This cross-tabulation of the themes which were described in nodes in NVivo identified where the content was jointly coded to the themes. This showed a relationship existed between the themes (Bazeley & Jackson 2013). These gave a precise measure of connection between the codes as a count in a cell represented the number of times the intersecting row and column values coded exactly the same segments of data (Bazeley 2018).

6.9.1 Finding 1 - : Culture has a significant effect on Workplace Innovation

To identify the relationship with Finding 1 – Public Sector Culture has a significant effect on Workplace Innovation a cross tabulation of qualitative information was undertaken with NVivo to compare Workplace Innovation with Public Sector Culture. This compared Workplace Innovation and its four dimensions: Workplace Innovation Climate; Individual Innovation and Team Innovation and Organizational Innovation; with Public Sector Culture including Group and Organizational Culture (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 52 below:

Table 52 - Summary of matrix coding analysis for Workplace Innovation and Public Sector Culture

	Workplace Innovation	Workplace Innovation Climate	Individual Innovation	Team Innovation	Organizational Innovation
Public Sector Culture	4	7	3	7	7
Group Culture	0	8	0	10	8
Organizational Culture	4	2	2	2	2

Public Sector Culture had 108 coding references and 28 were cross-referenced (25.92%) to Workplace Innovation and its four dimensions. Group Culture had 35 coding references to it and 26 were cross-referenced (74.29%) to Workplace Innovation and its four dimensions. Organizational Culture had 12 coding references and 12 were cross-referenced (100%) to Workplace Innovation and its four dimensions. There was a large overlap between Public

Sector Culture and its two aspects and Workplace Innovation and its four dimensions showing a strong interrelationship between the two constructs. Finding 1 was supported by the qualitative analysis.

6.9.2 Finding 2 – Group Culture is a significant predictor of Workplace Innovation

To identify the relationship with Finding 2 – Group Culture is more significant as a predictor of Workplace Innovation than Organizational Culture, a cross tabulation of qualitative information was undertaken from NVivo to compare Workplace Innovation and its four dimensions of Workplace Innovation Climate, Individual Innovation, Team Innovation and Organizational Innovation; with Group and Organizational Culture (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 53 below:

Table 53 - Summary of matrix coding analysis for Workplace Innovation and Group and Organizational Culture

	Workplace Innovation	Workplace Innovation Climate	Individual Innovation	Team Innovation	Organizational Innovation
Group Culture	0	8	0	10	8
Organizational Culture	4	2	2	2	2

Group Culture had 35 coding references and 26 were cross-referenced (74.29%) to Workplace Innovation and its four dimensions. Organizational Culture had 12 coding references and 12 were cross-referenced (100%) to Workplace Innovation and its four dimensions. There was a large overlap between Group Culture and Organizational Culture, and Workplace Innovation and its four dimensions, showing a strong interrelationship between the two constructs. The Group Culture results did show a greater connection with parts of Workplace Innovation compared to Organizational Culture in terms of the number of coding references. Group Culture was identified as important by a number of Survey Respondents with Respondent 83 stating:

'*The culture of my small team, my policy group and our broader division is highly supportive and positive. But I know of other areas of the Department which are quite dysfunctional, and I rate the Department as a whole quite poorly for culture…'*

Group Culture was not well identified in the documents analysed for the qualitative analysis, but was identified as important by individuals as part of information gathering and consultation undertaken as part of the Survey and for Documents 2, 11, 15, 16 and 17. This indicated that Department A was not identifying Groups as important in its communication about Workplace Innovation which ignored the strong relationship individuals had to culture at this level. The quantitative analysis had shown that Individual Innovation was not as well understood within the Department as other dimensions of innovation which explained the small number of references to this in the results. As Group Culture only had a stronger connection with Organizational, Team and Workplace Innovation as components of Workplace Innovation, while Organizational Culture had a smaller overall relationship to Workplace Innovation but related to all its components, Finding 2 was only partially supported.

6.9.3 Finding 3 - Public Sector Culture has a significant effect on Workplace Innovation Climate.

To identify the relationship with Finding 3 – Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate, a cross tabulation of qualitative information was undertaken from NVivo to compare Workplace Innovation Climate with the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). It should be noted that the 'Culture' node that was the parent for Negative and Positive Culture was not included as this did not have references coded directly to it as did the other parent nodes. The results are shown in Table 54 below:

Table 54 - Summary of matrix coding analysis for Workplace Innovation Climate and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org Culture
Workplace Innovation Climate	13	2	1	5	9	7	8	2

Workplace Innovation Climate had 34 coding references and 47 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between Workplace Innovation Climate and the components of the model where multiple references had been coded to the components reflecting more than 100 per cent of the total references coded to Workplace Innovation Climate.

The greatest sharing of information was between Changing Culture indicating this had a larger impact on Workplace Innovation Climate. The next largest connection was with Public Sector Culture indicating a strong relationship with Workplace Innovation Climate. Many survey participants identified the positive nature of local climates. Respondent 21 reflected the content of a number of responses when stating:

'*At my individual workplace there is a strong culture supporting innovation'.*

There was a connection between all the other culture codes with Group Culture having a stronger connection than Organizational Culture indicating that Group Culture had a larger impact on this dimension of innovation. Finding 3 was supported by the qualitative analysis.

6.9.4 Finding 4 - Public Sector Culture has a significant effect on Individual Innovation.

To identify the relationship with Finding 4 – Public Sector Culture including Organizational and Group Culture had a significant effect on Individual Innovation, a cross tabulation of qualitative information was undertaken from NVivo to compare Individual Innovation with the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 55 below:

Table 55 - Summary of matrix coding analysis for Individual Innovation and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org Culture
Individual Innovation	12	0	3	1	6	3	0	2

Individual Innovation had 28 coding references to it and 27 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between Individual Innovation and the components of the model where multiple references had been coded to the components reflecting 96.43 per cent of the total references coded to Individual Innovation.

Overall there was much less shared between Individual Innovation and the culture codes compared to the other three dimensions of Workplace Innovation. This showed that less was communicated about Individual Innovation in the information analyzed. It is unclear whether individuals considered they had permission to innovate as Survey respondent 137 wrote:

> '*Staff … are not given opportunities to participate'*.

Individual Innovation was an area where little was communicated by Department A: it was not actively encouraged nor was it discouraged.

The greatest sharing of information was between Changing Culture indicating this had a larger impact on Individual Innovation. The next largest connection was with Public Sector Culture. This indicated that there was a strong relationship between Public Sector Culture and Individual Innovation. There was a connection between four other culture codes but no connection with Negative Changing Culture and the Group View on Culture. Finding 4 was supported by the qualitative analysis.

6.9.5 Finding 5 - Public Sector Culture has a significant effect on Team Innovation.

To identify the relationship with Finding 5 – Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation, a cross tabulation of qualitative information was undertaken from NVivo to compare Team Innovation with the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 56 below:

Table 56 - Summary of matrix coding analysis for Team Innovation and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org Culture
Team Innovation	15	4	2	8	15	7	10	2

Team Innovation had 58 coding references and 63 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between Team Innovation and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Team Innovation.

The greatest sharing of information was between Changing Culture indicating this had a larger impact on Team Innovation. The next largest connection was with Positive Culture. This indicated that there was a strong relationship between Positive Culture and Team Innovation. Teams are able to work effectively within this type of positive and encouraging cultural environment: a number of Survey Respondents commented on this. Respondent 40 provided an indicative comment:

> '*We work as a team to deliver our work and within that environment new things are tried, tested and incorporated if they are of value. We just go ahead and do it…*'

There was a connection between all the other culture codes with Group Culture having the third strongest connection to Team Innovation indicating that this had a large effect on this dimension of innovation. Finding 5 was supported by the qualitative analysis.

6.9.6 Finding 6 - Public Sector Culture has a significant effect on Organizational Innovation.

To identify the relationship with Finding 6 – Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation, a cross tabulation of qualitative information was undertaken from NVivo to compare Organizational Innovation with

the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 57 below:

Table 57 - Summary of matrix coding analysis for Organizational Innovation and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org Culture
Organizational Innovation	17	6	3	7	7	10	4	2

Organizational Innovation had 51 coding references and 56 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between Organizational Innovation and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Organizational Innovation. Organizational Innovation was coded to a number of the Public Sector Culture model components so when added together they exceeded the coding references given the Organizational Innovation node.

The greatest sharing of information was between themes of Changing Culture and Organizational Innovation. The next largest connection was with Public Sector Culture. There was a connection between all the other culture themes including Group and Organizational Culture. This indicated that there was a strong relationship between Public Sector Culture and Organizational Innovation. Changing Culture had a large connection to Organizational Innovation indicating that this would have an impact on Organizational Innovation. Finding 6 was supported by the qualitative analysis.

6.9.7 Findings 7 & 9 - Demographic Groups have different perceptions and affects on Culture.

To identify the relationship with Findings 7 and 9 – There is a difference in perceptions among demographic groups towards the aspects of a Public Sector Organization's culture, and Demographic Groups will significantly affect the aspects of Organizational Culture in a Public Sector Organization, a cross tabulation of qualitative information was undertaken from NVivo

to compare Demographic Groups with the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 58 below:

Table 58 - Summary of matrix coding analysis for Demographics and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org'l Culture
Demographic Groups	55	6	9	8	17	17	5	5

The analysis was not able to identify individual groups within the Demographic Groups category because the qualitative data used was aggregated. The quantitative data had collected demographic data for each participant so the views of individuals could be coded to the demographics of those answering. The qualitative data was not collected in this way: it coded data to Demographics if it mentioned a demographic issue, for example identifying women were being disadvantaged at Department A. It had been affirmed that is not essential for data obtained in the second phase of a sequential study to be matched with individual cases from the first phase (Bazeley 2018). However it was able to demonstrate that Demographic Groups collectively were affected by aspects of culture

Demographic Groups as a theme had 111 coding references and 122 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between Demographic Groups and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Demographics.

The greatest sharing of information was between Changing Culture and Demographic Groups indicating that changing culture had a larger impact on these groups. The next largest connection was with Positive Culture with Public Sector Culture close behind this indicating a strong relationship with these aspects of culture with Demographic Groups. Individual survey respondents identified issues with differences of perception with Respondent 90 stating:

'*Now I'm older, I'm sidelined and …. regarded as irrelevant. My current manager tells me to "stay out of sight"…I'm not alone. The current Secretary has 10 per cent women reporting to him (none over 50).*'

The qualitative results indicated a partial agreement with findings 7 and 9. The quantitative outcomes identified that there was a difference in perceptions among Demographic Groups and there was a difference in the dimensions of Organizational Culture among Demographic Groups. The qualitative analysis showed an indicative relationship with the overall category of Demographic Groups but was not able to identify it for individual Demographic Groups.

6.9.8 Findings 8 & 10 - Demographic Groups have different perceptions and affects on Workplace Innovation.

To identify the relationship with Findings 8 and 10 – There is a difference in perceptions among Demographic Groups towards the dimensions of Workplace Innovation in a Public Sector Organization, and Demographic Groups will significantly affect the dimensions of Workplace Innovation in the context of a Public Sector Organization, a cross tabulation of qualitative information was undertaken from NVivo to compare Demographic Groups with the Workplace Innovation Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 59 below:

Table 59 - Summary of matrix coding analysis for Demographics and the components of the Workplace Innovation thematic model

	Innov'n	Barriers	Innov'n changes needed	Public Sector Innov'n	Workplace Innov'n	Workplace Innov'n Climate	Individ'l Innov'n	Team Innov'n	Organ'l Innov'n
Demo-graphic Groups	29	26	16	7	34	18	17	17	22

As explained in 6.9.7 above, the analysis was not able to identify individual groups within the Demographic Groups category because the qualitative data used was aggregated. However it was able to demonstrate that Demographic Groups collectively were affected by aspects of Workplace Innovation.

Demographic Groups as a theme had 111 coding references and 122 references were cross-referenced to the components of the Workplace Innovation thematic model. This showed a strong relationship between Demographic Groups and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Demographic Groups.

The greatest sharing of content was between Workplace Innovation with Innovation the next most connected. This indicated that there was a strong relationship between Workplace Innovation and Innovation with Demographic Groups. All aspects of innovation identified had a connection. The analysis was not able to identify individual groups within the Demographic Groups category, however demonstrated that Demographic Groups were affected by Workplace Innovation as a whole. Opportunities are provided due to being in a certain demographic group with Survey Respondent 84 outlining; '*I am also involved in the Young Professionals Network*….', this network providing additional opportunities to be involved with Workplace Innovation across the organization.

The qualitative results indicated a partial agreement with findings 8 and 10. The quantitative outcomes identified that there was a difference in perceptions among Demographic Groups and there was a difference in the dimensions of Workplace Innovation among Demographic Groups. The qualitative analysis showed an indicative relationship with the overall category of Demographic Groups but was not able to identify this for individual Demographic Groups.

6.9.9 Findings 11 & 13 – Staff with specific Employment Characteristics have different perceptions and affects on Culture.

To identify the relationship with Findings 11 and 13 – There is a difference in perceptions among staff with particular Employment Characteristics towards the aspects of Public Sector Culture in the context of a Public Sector Organization; and, Employment Characteristics will significantly affect the dimensions of Organizational Culture in a Public Sector Organization, a cross tabulation of qualitative information was undertaken from NVivo to compare staff with specific Employment Characteristics with the Public Sector Culture Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 60 below:

Table 60 - Summary of matrix coding analysis for groups having specific Employment Characteristics and the components of the Public Sector Culture thematic model

	Changing Culture	Negative Changing Culture	Positive Changing Culture	Negative Culture	Positive Culture	Public Sector Culture	Group View Culture	Org Culture
Employment Characteristics	54	4	7	8	17	15	6	6

The analysis was not able to identify individual groups within the Employment Characteristics category because the qualitative data used was aggregated. The quantitative data had collected Employment Characteristics data for each participant and so the views of individuals could be coded to the Employment Characteristics of those answering. The qualitative data was not collected in this way, it coded data to Employment Characteristics if it mentioned an employment characteristics issue such as issues to do with job roles. It had been affirmed that is not essential for data obtained in the second phase of a sequential study to be matched with individual cases from the first phase (Bazeley 2018). However it was able to demonstrate that groups having particular Employment Characteristics collectively were affected by aspects of workplace innovation.

Groups having particular Employment Characteristics as a theme had 121 coding references to it and 117 references were cross-referenced to the components of the Public Sector Culture thematic model. This showed a strong relationship between groups having particular Employment Characteristics and the components of the model where multiple references had been coded to the components reflecting over 93.24 per cent of the total references coded to groups having particular Employment Characteristics.

The greatest sharing of information was between Changing Culture and staff with specific Employment Characteristics that indicated this had a larger impact on these groups. The next largest relationship was identified with Positive Culture and closely followed by Public Sector Culture. This finding indicated that there was a strong relationship between Positive and Public Sector Culture with groups demonstrating particular Employment Characteristics. There were large amounts of information in the sources around the role of Managers identifying them as an important group for influencing culture. The Work Groups findings indicated much variation in culture development with Survey Respondent 144 reporting that

for the Agriculture Research and Development divisions that needed to be innovative and efficient by necessity:

> '*The current culture is completely risk adverse where everybody (especially management) seems focused on not upsetting their "superiors" '.*

The qualitative results indicated a partial agreement with findings 11 and 13. The quantitative outcomes identified that there was a difference in perceptions among staff with specific Employment Characteristics and there was a difference in the dimensions of Organizational Culture among staff with specific Employment Characteristics. The qualitative analysis showed an indicative relationship with the overall category of staff with specific Employment Characteristics but was not able to identify it for individual groups because the data had not been collected in a way that could disaggregate the data to this level.

6.9.10 Findings 12 & 14 - Staff with specific Employment Characteristics have different perceptions and affects on Workplace Innovation.

To identify the relationship with Findings 12 and 14 – There is a difference in perceptions among staff with particular Employment Characteristics towards the four dimensions of Workplace Innovation in the context of a Public Sector Organization; and, Employment Characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization, a cross tabulation of qualitative information was undertaken from NVivo to compare Employment Characteristics with the Workplace Innovation Thematic Model (Bazeley 2018; Bazeley & Jackson 2013). The results are shown in Table 61 below:

Table 61 - Summary of matrix coding analysis for groups with specific Employment Characteristics and the components of the Workplace Innovation thematic model

	Innov'n	Barriers	Innov'n changes needed	Public Sector Innov'n	Workplace Innov'n	Workplace Innov'n Climate	Individ'l Innov'n	Team Innov'n	Organ'l Innov'n
Employ't Char'tics	29	21	16	4	40	22	18	18	24

As explained in 6.9.9 above this analysis was not able to identify individual groups within the Employment Characteristics category because the qualitative data used was aggregated.

However it was able to demonstrate that groups having particular Employment Characteristics collectively were affected by aspects of Workplace Innovation.

Groups having particular Employment Characteristics as a theme had 121 coding references and 192 references were cross-referenced to the components of the Workplace Innovation thematic model. This showed a strong relationship between groups having particular Employment Characteristics and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to groups.

The greatest sharing of content was between Workplace Innovation indicating this had a larger impact on staff with specific Employment Characteristics. The next largest connection was with innovation. This indicated that there was a strong relationship between Workplace Innovation and Innovation with staff with specific Employment Characteristics. All aspects of innovation identified had a connection.

The role of managers within Employment Characteristics was highlighted by many of the sources with Survey Respondent 111 reporting to know of:

> '*plenty of examples of where innovative solutions or new ways of doing thing have been delayed/discouraged/stopped by very Senior Managers and Executives*'.

There was demonstrated variation within workgroups with Survey Respondent 11 identifying;

> *'in our division, research and innovation are discouraged. There is no appetite for looking at new and improved ways for delivering services for staff beyond what has already been decreed'*.

The qualitative results indicated a partial agreement with findings 12 and 14. The Quantitative outcomes identified that there was a difference in perceptions among staff with particular Employment Characteristics; and there was a difference in the dimensions of Workplace Innovation among staff with particular Employment Characteristics. The qualitative analysis

showed an indicative relationship with the overall category of staff with particular Employment Characteristics but was not able to identify it for individual groups.

6.10 Analysis of Overarching Themes

This section analyzes and assesses the overarching themes for completeness, and adds additional information provided by the qualitative analysis leading to the development of a unified description and interpretation of the overarching themes (Boyatzis 1998). As an outcome of the analysis completed on the triangulated results from the quantitative and qualitative results, additional data was discovered by the qualitative analysis. This data related to the overarching themes and included one other theme of survey comments (Marshall, C & Rossman 2016). The quantitative analysis identified and measured the relationships between Culture and Workplace Innovation in a Public Sector Organization and the qualitative data provides reasons for the relationships. It incorporates the additional complementary information that adds additional rich description to the results and highlighted key issues within the overarching themes (Forster ; McClintock & Greene 1985).

6.10.1 Theme of Public Sector Culture

Ongoing organizational change reinforced the importance of sub-cultures

Finding 2 that Group Culture is more significant as a predictor of Workplace Innovation than Organizational Culture was connected to issues created by major restructures occurring over three years. This was identified in the importance given to Changing Culture in the Public Sector Culture node where it had 250 references from 27 sources, compared to Public Sector Culture node with 153 references and the 'Culture' node with 142 references. At the time of the survey, a lot of energy was being put into creating the organization and building a common culture after two organizations had been amalgamated in July 2013. Both of the preceding Departments, X and Y had been in the same configuration for at least six years before the change. This was a relatively long time for the Department A which has changed on average once every five years since its creation in the 1970s. In the last 20 years the average had increased to once every four years.

The joining of two established cultures was creating a number of problems within the organization. This partly explained the results from the quantitative survey showing that the group culture was more important for innovation within Department A in mid-2014 because Department A was created in April 2013, and in just over a year there was not a strong organizational culture in existence. This impeded development of strong organizational culture, and led staff to have stronger connections to more stable smaller work units with particular sub-cultures that were connected to functional specialities and professional groups.

Other underlying findings supported Finding 2 such as Finding 3 where Group Culture was found to have a more significant effect on Workplace Innovation Climate. In addition, differences in Findings 7 to 14 for Demographic Groups and those with staff with particular Employment Characteristics, respectively found that Group Culture was more important for a number of the categories.

The qualitative analysis affirmed staff were angry and confused about the merger and the time it was taking to create the organization. Comments from survey respondents included one from Respondent 58:

> '*I think that the cultural health of the organization is poor and this is primarily due to the prolonged restructure and the subsequent long term uncertainties. Even people who thrive on change and have a high capacity to adapt have been very worn down'*.

Respondent 104 added:

> *'I have witnessed this organization become increasingly dysfunctional over the past several years - the takeover … represents a major clash of cultures and has made this decline even more obvious'*.

Staff feedback highlighted that they did not feel connected to the organizational culture however local group culture and the local workplace climate was important to them.

6.10.2 Theme of Public Sector Culture and Theme of Workplace Innovation

Leadership on change was focussed from the top of the organization and was not penetrating through all levels to achieve culture and innovation goals

The thematic model developed for Public Sector Organization contained a node called Leaders, this had 153 references to it coded from 43 sources. This had been developed as a sub-theme because there were numerous references in the Departmental Documents to the responsibilities of Leaders within the change process. A number of comments from the survey responses indicated that this was an area of concern for staff. Additional information from the People Matter Survey and the Supplementary Workforce and Cultural Questions highlighted there were major problems with the change process. The change process was the basis for Document 8 and a significant section in Document 18 on the need for capability development in undertaking change.

Organizational Culture as a concept was considered important by Department A which was demonstrated by numerous mentions and coding references about developing organizational culture in Document 9 in the communications from the Secretary. There was a lot of support for organizational change and the desire to create a constructive culture that was able to assist the organization meeting its strategic goals including one of being innovative. A substantial change program was in place called 'Creating Department A Together' and Senior Management were investing significant time and resources into this. The quantitative results indicated that Group and Workplace Innovation Climate was important overall Findings 2 and 3 Findings respectively, and in Findings 7 to 14 for Demographic Groups and those with staff with particular Employment Characteristics. The qualitative analysis provided additional understanding around this by highlighting that little of the support around change was focussed at the local level with most references to change relating to the 'Leaders' theme. In addition, Organizational Documents 1,5,10 and 11, including the DEPI Charter, DEPI's Operating Model and two of the Values and Behaviours documents were all focussed at the whole organization (CCT 2014a, 2014b; DEPI 2013b, 2014c). This was often reinforced by the regular weekly communication from the Secretary in Document 9. Only Documents 6 and 14 on shaping a culture of excellence and the intranet pages on Values and Behaviours

respectively provided guidelines on how to work with various levels of the Department to make this happen (DEPI 2014d; PAC 2014).

This was reinforced by the results of the 'People Matter Survey' held in July 2013, a public sector employee opinion survey run by the Victorian Government to form the evidence base for strategies to building positive workplace cultures. The results showed that the work environment was being affected by the approach to change. The report highlighted that more staff in Department A thought there was not a clear consultation process when change was proposed or that they were not provided with the opportunity to influence change in their organization. This was compared to the overall sample of comparator organizations from the Victorian Public Service with the results putting Department A in the lowest quartile rank across all the organizations. In addition 43 per cent thought that communication about change from Senior Managers was not timely nor relevant, and 47 per cent of staff considered that Senior Managers didn't provide sufficient information about the purpose of the changes. The latter results put Department A in the second percentile indicating this was a common experience across the comparator organizations (SSA 2013b).

The results of the Supplementary Workforce and Cultural questions collected as part of the Organizational Cultural Inventory survey held in December 2014 (DEPI 2014e) covered a number of questions echoing or expanding on matters from the People Matter Survey. This used a three point scale identifying 1= great or very great, 2 = moderate or, 3 = slight to not at all in the rankings. The statement that '*Changes in Department A are planned and managed in an effective way*', had 50 per cent of staff rate this as 'slight-not at all'. A related statement – '*It is reasonably easy to change things in Department A when changes are needed*', had 69 per cent rating this at the lowest scale of 3. This was in part explained by the results to the statement, *'Department A Executives and Managers listen effectively with the intent to understand'*, having 37 per cent of staff rate this as 'slight to not at all'.

The results of the above were that Organizational Culture had been affected by organizational change for an extended period. The People Matter Survey from July 2013 reflected dissatisfaction with the change management process, and that was still evident in December 2014. The qualitative analysis indicated in the theme of Changing Culture that Organizational

Culture was perceived to be changing. The survey responses and Document 8 on the change process, and the People Matters and Supplementary workforce and cultural questions survey indicated that staff felt the changes were not planned and managed well. This led to Organizational Culture being perceived as poorly described, changeable and not connected to Group Culture. This was indicative as with a response from Respondent 83:

> '*The culture of my small team, my policy group and our broader division is highly supportive and positive. But I know of other areas of the Department which are quite dysfunctional, and I rate the Department as a whole quite poorly for culture'*.

This led staff to retreat to more stable sub-cultures (Dunn & Jones 2010; Geva-May 2002; Hinings 2012; Osborne, S & Brown 2005). There was resistance to building organizational culture as more return was received by staff from improving group or local cultures.

The organization was focussing on organizational-wide changes on the basis this would give a common cultural environment. This had not achieved the desired results however given time that might have happened. With a change of government in November 2014, the organization was changed again in January 2015 so the cultural change program was not able to have an impact. In Document 9, the Secretary of the Department in his December 2014 message to staff hoped that the work the staff put into changing the culture would be carried forward to their new Departments (Fennessy 2014). This illustrated a particular characteristic of Public Sector Organizations when political environments are volatile. They are less likely to be able to establish strong organizational cultures before another change happens. This encourages these sorts of organizations to have stronger connections to smaller work units on the basis that the larger organizational structure will constantly be changing. The annual 'The State of the Service Report' (Document 12) indicated it expected that there would be regular change to organizational structures in the Public Sector to cater for new political requirements (VPSC 2014).

There was strong leadership on building a positive culture from the Secretary of the Department. It did not appear it was penetrating to all parts of the organization and the

results from the Organizational Cultural Inventory in Document 17 (HSI 2014) completed in 2014 indicated a passive/defensive organization.

Barriers to Workplace Innovation

The analysis in section 6.7 above showed that there were relatively few messages on innovation being given to the organization. There was a lack of consistent messages on strategy from the organization about innovation which was addressed towards the end of 2014 with the initiation of an innovation planning process contained within Documents 2,15 and 16 (ILT 2014a, 2014b, 2014c). However the organization changed again in 2015 before the draft plan was finalized.

A number of barriers were identified to workplace innovation including capability gaps, systems that did not support innovation and continually reducing budgets as reported in the innovation planning process documents listed above and the Department B's Capability Strategy (DELWP 2015b). Staff identified; adverse culture, lack of clear plans and strategies, ongoing organizational change, lack of management support, risk adverse management, the loss of knowledge, a lack of talented staff, and structural issues as barriers to innovation (Newnham 2014). Staff identified that the barriers identified restricted their ability to undertake workplace innovation as identified in Documents 2, 15 and 16 on Innovation and the survey results.

6.10.3 Theme of Demographics

Particular demographic groups were disadvantaged when Department A created new organization structures thus reducing their innovation capacity.

The initial focus of Department A had been to create the new organization and this process had alienated particular Demographic Groups because there were winners and losers in the reorganizations that had occurred. This was highlighted in the Survey Responses. Women and older staff had been those most impacted as was reflected in a number of Survey Responses:

> Respondent 90:'*Now I'm older, I'm sidelined and … regarded as irrelevant…The current Secretary has 10 per cent women reporting to him -none over 50'*;
>
> Respondent 23 commented: '...*many of the old guard that held the corporate knowledge of past innovations have been moved on…'*;
>
> Respondent 151; 'Productive *managers have apparently been removed due to their older age'*.

This was supported by the results of the People Matter Survey with the July 2013 report highlighted that more staff in Department A thought that Gender and Age were barriers to success in the organization compared to the overall sample of comparator organizations from the Victorian Public Service. The results put Department A in the lowest quartile rank across all the organizations. The results were the same for the commitment of the organization to creating a diverse workforce (SSA 2013b).

The unequal outcomes from the organizational restructures were recognized by Senior Management and led to a change in approach for the second year of operation. The Secretary announced in July 2014 in Document 9:

> '*In 2013-2014, our priority was establishing Department A…In 2014-2015, we're shifting our focus to …consolidation ….leading implementation of our values-based culture and our Business and Operating Model.'*

Later in 2104 he announced an initiative to build a gender balance in the Department: '*Supporting Department A Women in Leadership*'. There was a focus on working with the Young Professionals Group to build future leaders. A major initiative on building an innovation strategy was announced later in 2014. The new approach to build a values-based culture did not address the initial disadvantage experienced by women and older workers as part of the restructure. The gender balance would be a focus for future work but the organization was silent on other diversity groups including older workers. The negative impacts on the culture were reported in the survey responses as the sample responses demonstrated above. This

would had a corresponding negative impact on Workplace Innovation due to the relationship between it and Organizational Culture identified in the quantitative analysis.

6.10.4 Theme of staff with specific Employment Characteristics

Managers were identified as an important group that had a significant impact on culture and workplace innovation in Department A

Managers were often identified in documents from the document analysis as important conduits for building Organizational culture and encouraging Workplace Innovation. This was highlighted in the initial coding with the identification of an additional theme of leaders that had 153 coding references. In a number of Documents Managers were targeted as key groups. In the Workforce Capability Strategy (Document 18) they were targeted to implement its recommendations and in the Values and Behaviours Internet Guide (Document 14) as those who drive and guide others with the development of values and behaviours at the workplace. The Secretary in his communication (Document 9) announced the outcomes of a leadership forum held in November 2014 in which the conversation was commenced on '*How we can all live the Department A values – Balance, Agility, Collaboration, Ownership – no matter where we work or what our job may be'.* While this was opened for all to be involved, it was initiated with leaders and managers and implied they would be the supporters for this action. However by contrast, many staff members identified Managers as those who blocked innovation and created negative cultures. The answers for the survey responses had 19 per cent of respondents directly mentioning management with the overwhelming majority commenting on management restricting culture and innovation. A few comments from the survey that illustrate what was written Respondent 1:

> '*Innovation drives me to keep creative despite having to work through blocks created by various layers of management*.'

To further affirm this Respondent 17:

> '*While my direct boss is not overly supportive of me working innovatively… my Executive Director is, and I have been given opportunities to exercise my innovative and creative thinking* …'

Additional affirmation from Respondent 24:

> *'I am a believer that cultural change can happen slowly with effective management and leadership, something I feel has been missing. Middle Management do not have the skills or training to support their roles'*.

With a final supporting comment from Respondent 55:

> *'We have many managers, few with active leadership skills or the free reign to act as one'.*

Managers were identified by the organization as having a key role in the development of a positive culture and supporting Workplace Innovation. The organization was devolving a number of cultural actions to managers who were not seen to be responding. The Secretary declared in his communication to staff (Document 9) that 50 per cent of the performance management plans would be devoted to demonstrated performance in delivering according to the values and behaviours. This was a large change from a rewards system that was based on financial and functional management, signalling an attempt to find a way to measure an individual's contribution to building culture. Evidence from staff was that management were creating problems because they '*did not have the skills or training'* (Survey Respondent 24) and with organizational change making them risk adverse and cautious that they were blocking workplace innovation (37 Survey Respondents or 24.5 per cent).

Department A Executive leaders wanted managers to be supporters of positive cultural change, however Senior Leaders and Managers were identified by staff as being part of the reason why culture was not positive at the workplace. In the Supplementary workforce and cultural questions survey, staff had a negative response to a number of statements about Senior Leaders. For example 29 per cent of staff considered the answer to '*Department A executive behaviours are consistent with the values and behaviours expected within Department A*,' was slight or not all. There was a feeling that relationships were not constructive and communication was problematic with negative responses to the statement: '*I see evidence that our Senior Leaders develop constructive relationships at all levels within*

Department A '. In addition: '*There are good open lines of communication between employees, managers and executives in Department A'*, with both scoring at the lowest level at 38 and 39 per cent respectively. However, local managers were seen to be more culturally aware as the statement: '*My manager's behaviours are consistent with the values and behaviours expected within Department A'*, was answered by 64 per cent as 'great - very great'. This possibly demonstrates the connection staff have to group culture with trust at this level being higher than that for other parts of the organization as a whole.

6.10.5 Theme of Public Sector Organization

Division and differences between different levels of the organization with support for Workplace Innovation

There was a division between different levels of the organization on support for Workplace Innovation. The quantitative research had found management at higher levels were supporters however Middle and Frontline Managers were more focussed on organizational signals before they supported innovation. With organizational change focussing the attention of this level of management which was outlined in a number of the survey responses, innovation activities were disrupted at the workplace level. Senior Managers supported innovation achievements by highlighting successes as outlined in Document 9 in the regular communication from the Secretary, however a number of staff lower in the organization did not feel supported to undertake innovation. Survey Respondent 18 outlining one situation as follows:

> '*That is not to say Senior Managers would give it a go - they just never get the opportunity. Managers lower down the organisation take their cue from more Senior Managers so do in fact 'second guess them and only present what information they believe will reflect well on them'*.

Ongoing organizational change reinforcing the importance of sub-cultures

This is reported in the themes of Public Sector Culture above however the element of organizational change brought about by political processes relates to Public Sector Organizations.

6.10.6 Survey Comments

There was an open ended question at the end of the quantitative survey that asked if respondents wanted to make any other comment. A number of responses were received with respondents commented on the survey, the questions and their answers. These responses outlined a number of comments about organizational structures in Department A. There were unexpected organizational forms in Department A that did not relate to the WIS Instrument constructs of Team or Individual Innovation.

Teams

It was identified that Teams within Department A were not always created to assist in delivering common programs. Particular teams collected individual specialists into a group for administrative purposes. Other teams included people running discrete projects across multiple areas.

Individual Innovation

Individual Innovation was not supported by Frontline or Middle Management and some individuals did not feel it was an activity in which they were not empowered. This suggests that there was a more collectivist orientation towards work tasks within the Department.

It was significant that Individual Innovation is not understood and less commonly practiced, and Team Innovation is prevalent and embedded within Department A's culture as staff work on tasks in teams. This highlights a potential issue in implementing workplace innovation as individuals in the workplace were found to have a fundamental role in shaping innovation processes thus a lack of understanding about this may restrict innovation potential (Salvato 2009). Department A appeared to ignore the importance of both Individual and Team Innovation with Documents developed to build an innovation plan and associated innovation strategies being silent about the role of Individual and Team Innovation. The Department was heavily team based for its service delivery and this may have worked to discourage individual innovation. This was not reflected in Department A's documents as work undertaken to develop an innovation plan outlined in Documents 2, 15 and 16, for Department A did not identify the importance of Team Innovation or identify strategies to support this in the

workplace. The lack of information and guidelines by the organization due to lack of understanding on how innovation works at the workplace level, acted to restrict the development of an Organizational Culture that supported Individual and Team Innovation as components of Workplace Innovation.

6.11 Summary

This chapter presented the qualitative data analysis completed as Stage three, Phase two of the explanatory sequential mixed methods approach used for this thesis, and answered Research Question 4 , What ways do Victorian public sector organization reports corroborate with Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization? It reported on; the procedures used in the qualitative data analysis, the data sources and data validity, quality and reliability, and the triangulation of the results of the quantitative analysis to create the themes for data analysis. Data analysis including undertaking data integrity and the approach to coding was outlined.

An overview of the data on the Public Sector Organization was presented to set the context for the model development of overarching qualitative themes. Overarching thematic models were developed for Public Sector Culture, Workplace Innovation, Demographic Groups, staff with specific Employment Characteristics and Public Sector Organization. An analysis of the findings from the quantitative analysis identified that findings 1, and 3 to 6 were supported by the qualitative analysis, and findings 2 and 7 to 14 were partially supported. The findings 7 to 14 connected to Demographic groups and staff with specific Employment Characteristics were only partially supported. Whilst the relationships were demonstrated, the qualitative data used was aggregated and was not able to be disaggregated to the level of that used in the quantitative data.

An analysis of the overarching themes for completeness to develop a unified description and interpretation of the data was undertaken. Additional description on the results highlighted key issues within the overarching themes of; Public Sector Culture, Workplace Innovation, Demographics, staff with specific Employment Characteristics, Public Sector Organization, and an additional theme around Survey Comments.

The qualitative analysis identified that Victorian Public Sector Organization reports corroborate with Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization. This showed a strong relationship between Workplace Innovation and Public Sector Culture.

The following chapter integrates the results from the Stage Two, Phase one Quantitative Analysis and the Stage Three, Phase two Qualitative Analysis of the mixed methods approach, and identifies how this contributed to understanding Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization.

Chapter 7. Mixed Methods Integration of Quantitative and Qualitative components

7.1 Objective

This chapter presents the Stage four analysis and integrates the results from the Phase one quantitative analysis and Phase two qualitative analysis of the explanatory sequential mixed methods research approach used. It links the understandings and combines them into meta-inferences in order to answer Research Question 5 - In what way does the mixed methods analysis contribute to understanding Workplace Innovation and Public Sector Culture in a Victorian Public Sector Organization?

7.2 Introduction

This introduces the Sections which comprise the chapter. The approach to the mixed methods integration of the quantitative and qualitative components is given in Section 7.3. The next section 7.4 reports on the Stage two triangulation of the outcomes from Phase one and two of the research. Section 7.5 outlines the overarching themes that underpin the quantitative and qualitative analysis, and Section 7.6 provides the summary of the chapter.

7.3 Integration of the Mixed Methods Approach

This thesis used a Two Phase explanatory sequential mixed methods where the quantitative section answered Research Questions 1 to 3. The outcomes from Phase one were identified as findings that were then used to guide the qualitative analysis answering Research Question 4. The researcher used the outcomes from the hypotheses from the quantitative analysis which were renamed as findings. A Stage one triangulation was undertaken with the qualitative analysis and became the basis of themes to guide the initial qualitative analysis. The analysis of one data type in this case the quantitative findings yielded a typology or set of substantive categories which were then used to integrate with the second data analysis (Caracelli & Greene 1993; Hildebrandt & Kelber 2005). The categories were then created as parent nodes in the NVivo software with their components or sub-themes coded as child

nodes. These initial categories were expanded into themes as a result of the qualitative analysis (Boyatzis 1998).

The results from these two Phases are integrated in this chapter to answer Research Question 5 linking the understandings from the quantitative and qualitative research. Significant themes underlying the research were identified and combined into meta-inferences which confirm the inferences or results obtained by the two phases of this thesis and highlighted six significant inferences (Onwuegbuzie & Combs 2010; Onwuegbuzie & Teddlie 2003; Teddlie & Tashakkori 2009). These are the following:

1. Group Culture is more important than Organizational Culture in Department A in supporting Workplace Innovation;
2. Cultural change management in Department A was led by Senior Executives who were not engaging with staff at all organizational levels and this resulted in reduced cultural cohesion and workplace innovation;
3. There were divisions between different levels of the organization associated with support for workplace innovation. The Managers were identified as an important group that had a significant impact on culture and workplace innovation in their Groups;
4. Particular demographic groups were disadvantaged when Department A created new organizational structures thus reducing their innovation capacity;
5. Organizational barriers were identified that impeded Workplace Innovation;
6. Department A's workplace structure impacted on Workplace Innovation.

7.4 Triangulation

The process of triangulation of the data from the two phases of quantitative findings, and the qualitative findings was undertaken to identify congruence, complementarity and difference. Complementarity refers to one set of results enriching, clarifying, or illustrating the other (Forster 1994; McClintock & Greene 1985). There were two stages of triangulation with the initial one undertaken by using the outcomes or concepts from the quantitative analysis as the basis for the initial qualitative codes. Other themes emerged during the coding and analysis

which were added to the initial thematic codes developed (Erzberger & Kelle 2003). The use of data collection items such as this that overlap or complement each other has been recognized as a way to strengthen a mixed methods study (Yin 2006).

The second stage of triangulation combined the independently derived sets of findings which demonstrated integrity and compensating biases and studied the same relationship so strengthened the outcomes from the research. This was supported by having two separate Phases for data collection providing an independence of method which was needed to undertake triangulation (McClintock & Greene 1985). Triangulation of results provided considerable confidence in the validity and credibility of the separate results from the two Phases, as well as of the final integrated set of findings (Bazeley 2018; McClintock & Greene 1985; Richards 2005).

Stage two of the triangulation compared the results from the Phase one and Phase two, of the analyses. This procedure was undertaken to obtain convergence, corroboration, and correspondence of results (Greene, Caracelli & Graham 1989). This allowed additional detail to uncover reasons underlying the relationships identified in the quantitative results. The qualitative results provided an understanding of why the relationships occurred including a deeper understanding of impacts on the relationships (Richards 2005). However, when undertaking this, there was an awareness that the process might identify other results that may appear inconsistent and contradictory (Mathison 1988; Richards 2005). These results provided additional explanation about the relationships being addressed by this thesis.

The presentation of the triangulation results used the protocol on how to use data from different sources or gained using different methodologies that was described by Bazeley (2018, p. 111) as adapted from (Farmer et al. 2006). This included additions from other researchers (Fitzpatrick 2016; Von der Lippe 2010). This protocol was to present a list of shared themes related to the research question findings using both sets of data in a data conversion table. The initial findings were developed from the outcomes of the quantitative research. A matrix shown in Table 62 juxtaposes sources showing quantitative results and results from qualitative cross tabulations identified from the findings and themes. Convergence was identified ‘where coded or thematic data were: a) in full agreement; b) in

partial agreement; c) silenced when covered in one set of results but not the other; or d) dissonant, when results differ on meaning and prominence' (Bazeley 2018, p. 111). The next section considers the reasons for the differences and analyses and assesses them for completeness leading to the development of a unified description and interpretation (Erzberger & Kelle 2003).

Table 62 – Conversion table showing the Triangulation of quantitative and qualitative results against the findings identified in Table 50.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 1 - Public sector culture has a significant effect on Workplace Innovation.	Hypothesis 1 outcome: A significant effect was identified. **Stage 1:** Sig-P<0.001; predicted 24.6% variability (adjusted R2) *Source: Table 17.* **Stage 2:** Positive - Sig level of 1% *Source: Table 24.* A significant effect was identified predicting 24.6% of the variability.	*Themes of Public Sector Culture and Workplace Innovation* Cross tabulation of qualitative information. Workplace Innovation and its four dimensions were cross tabulated with Public Sector Culture including Group and Organizational culture (73 cross-references). A strong interrelationship was shown between the two constructs.	In full agreement. Both the quantitative and qualitative outcomes supported this finding.
Finding 2 - Group Culture is more significant as a predictor of workplace innovation than Organizational Culture.	A significant effect was identified for both aspects of Public Sector Culture. Group culture having more impact with a large effect on both Organizational and Team Innovation and a medium effect on Workplace Innovation Climate and Individual Innovation. Organizational Culture having a large effect on Organizational Innovation, a medium effect on Team Innovation and a low effect on Workplace Innovation Climate and Individual Innovation. *Source: Tables 18 - 20 and 25.*	*Sub-themes of Organization and Group Culture and Theme of Workplace Innovation* Qualitative information coded to Workplace Innovation and its four dimensions was cross tabulated to the Group and Organizational view of culture (38 cross-references). Group and Organizational Culture and Workplace Innovation and its four dimensions showing a strong interrelationship. Group Culture overall had a greater connection than Organizational Culture however was only connected with particular dimensions of Workplace Innovation.	In partial agreement. Both the quantitative and qualitative outcomes supported this finding to a degree. The qualitative results indicated that Group Culture overall had a greater connection than Organizational Culture however was only connected with particular dimensions of Workplace Innovation.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 3 - Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.	Hypothesis 1a outcome: A significant effect was identified. **Stage 1:** Sig-P<0.001 for all; PSC predicted 10.9% variability (adjusted R2). Organizational Culture predicted 3.9% variability (adjusted R2). Group Culture predicted 11.3% variability (adjusted R2). *Source: Tables 18 – 20.* **Stage 2:** Positive - Sig level of 1%. *Source: Tables 24 & 25.*	*Themes of Public Sector Culture and Sub-theme of Workplace Innovation Climate* Qualitative information coded to Workplace Innovation Climate was cross tabulated to information gathered on the overarching theme of Public Sector Culture (47 cross-references). The results showed there was strong relationship between Workplace Innovation Climate and Public Sector Culture.	In full agreement. Both the quantitative and qualitative outcomes supported this finding.
Finding 4 - Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.	Hypothesis 1b outcome: A significant effect was identified. **Stage 1**: Sig-P<0.001 for all; PSC predicted 8.1% variability (adjusted R2). Organizational Culture predicted 3.3% variability (adjusted R2). Group Culture predicted 7.5 % variability (adjusted R2). *Source: Tables 18 – 20.* **Stage 2:** Positive - Sig level of 1%. *Source: Tables 24 & 25.*	*Themes of Public Sector Culture and Sub-theme of Individual Innovation* Qualitative information coded to Individual Innovation as cross tabulated to information gathered on the overarching theme of Public Sector Culture (27 cross-references). The results showed there was strong relationship between Individual Innovation and Public Sector Culture.	In full agreement. Both the quantitative and qualitative outcomes supported this finding.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 5 - Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.	Hypothesis 1c outcome: A significant effect was identified. **Stage 1:** Sig-P<0.001 for all; PSC predicted 15.6 % variability (adjusted R2). Organizational Culture predicted 7.1% variability (adjusted R2). Group Culture predicted 14.3% variability (adjusted R2). *Source: Tables 18 - 20.* **Stage 2:** Positive - Sig level of 1%. *Source: Tables 24 & 25.*	*Themes of Public Sector Culture and Sub-theme of Team Innovation* Qualitative information coded to Team Innovation was cross tabulated to information gathered on the overarching theme of Public Sector Culture (63 cross-references). The results showed there was strong relationship between Team Innovation and Public Sector Culture.	In full agreement. Both the quantitative and qualitative outcomes supported this finding.
Finding 6- Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation.	Hypothesis 1d outcome: A significant effect was identified. **Stage 1:** Sig-P<0.001 for all; PSC predicted 24.0% variability (adjusted R2). Organizational Culture predicted 12.3% variability (adjusted R2). Group Culture predicted 20.3% variability (adjusted R2). *Source: Tables 18 - 20.* **Stage 2:** Positive - Sig level of 1%. *Source: Tables 24 & 25.*	*Themes of Public Sector Culture and Sub-theme of Organizational Innovation* Qualitative information coded to Organizational Innovation was cross tabulated to information gathered on the overarching theme of Public Sector Culture (56 cross-references). The results showed there was strong relationship between Organizational Innovation and Public Sector Culture.	In full agreement. Both the quantitative and qualitative outcomes supported this finding.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 7- There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.	Hypothesis 2 outcome: This was largely supported by the statistical analysis with a significant difference seen in all groups apart from the one relating to education levels. *Source: Tables 26, 28, 30, 32.*	*Themes of Public Sector Culture and Demographics* Qualitative information coded to Demographic Groups as one category was cross tabulated to information gathered on the overarching theme of Public Sector Culture (122 cross-references). The analysis was not able to identify individual groups within the Demographic Groups category however demonstrated that Demographic Groups as an aggregated category were affected by aspects of Public Sector Culture.	In partial agreement. The quantitative outcomes identified that there was a difference in perceptions among Demographic Groups. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups
Finding 8 - There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.	Hypothesis 3 outcome: This was not supported by the statistical analysis with no significant difference being identified in any of the groups. *Source: Tables 26, 28, 30, 32.*	*Themes of Workplace Innovation and Demographics* Qualitative information coded to Demographic Groups as one category was cross tabulated to information gathered on the overarching theme of Public Sector Innovation (186 cross-references). The analysis was not able to identify individual groups within the Demographic Groups category however demonstrated that Demographic Groups as an aggregated category were affected by aspects of Workplace Innovation.	Silenced. One element of this analysis, the quantitative outcome did not support this finding. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 9 - Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	Hypothesis 4 outcome: This was supported by the statistical analysis showing there was a difference in all groups to a significance level of 1%. *Source: Tables 33, 34, 65 - 69, 71 - 80.*	*Themes of Public Sector Culture and Demographics* The analysis used for Finding 7 identified that Demographic Groups as a category was connected with the dimensions of Organizational Culture within a Public Sector Organization (122 cross-references). The qualitative material analyzed did not provide specific details on Demographic Groups to allow a direct comparison with the quantitative data however demonstrated that Demographic Groups as an aggregated category were affected by aspects of Public Sector Culture.	In partial agreement. The quantitative outcomes identified that there was a difference in the dimensions of Organizational Culture among demographic groups. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups.
Finding 10 - Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	H5 outcome: This was supported by the statistical analysis showing there was a difference in all groups to a significance level of 1%. *Source: Tables 33, 34, 65 - 69, 71 - 80.*	*Themes of Workplace Innovation and Demographics* The analysis used for Finding 8 identified that Demographic Groups as a category was connected with the dimensions of Workplace Innovation within a Public Sector Organization (186 cross-references). The qualitative material analyzed did not provide specific details on Demographic Groups to allow a direct comparison with the quantitative data however demonstrated that Demographic Groups as an aggregated category were affected by aspects of Workplace Innovation.	In partial agreement. The quantitative outcome supported this finding. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 11 - There is a difference in perceptions among staff with specific employment characteristics towards the aspects of a Public Sector Organization's culture.	Hypothesis 6 outcome: This was partly supported by the statistical analysis with significant difference being found with Job Types, Work Groups and Work Roles. There was not significant differences with Tenure and Flexible working. *Source: Tables 36, 38, 40, 42, 43.*	*Themes of Public Sector Culture and Employment Characteristics* Qualitative information coded to staff with specific Employment Characteristics as one category was cross tabulated to information gathered on the overarching theme of Public Sector Culture (117 cross-references). The analysis was not able to identify individual groups within the staff with particular Employment Characteristics category, however demonstrated that staff with particular Employment Characteristics were affected by aspects of Public Sector Culture.	In partial agreement. The quantitative outcomes identified that there was a difference in perceptions among staff with specific Employment Characteristics towards Public Sector Culture. The qualitative analysis was able was able to show an indicative relationship with the overall category of staff with particular Employment Characteristics but not to identify it for individual groups.
Finding 12 - There is a difference in perceptions among staff with specific employment characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.	Hypothesis 7 outcome: This was largely supported by the statistical analysis with significant difference being found with groups having particular employment characteristics apart from those in the Flexible working group. *Source: Tables 36, 38, 40, 42, 43.*	*Themes of Workplace Innovation and Employment Characteristics* Qualitative information coded to staff with specific Employment Characteristics as one category was cross tabulated to information gathered on the overarching theme of Public Sector Innovation Culture (192 cross-references). The analysis was not able to identify individual groups within the staff with particular Employment Characteristics category, however demonstrated that staff with particular Employment Characteristics were affected by aspects of Workplace Innovation.	In partial agreement. The quantitative outcomes identified that there was a difference in perceptions among staff with particular Employment Characteristics to Workplace Innovation. The qualitative analysis was able was able to show an indicative relationship with the overall category of staff with particular Employment Characteristics but not to identify it for individual groups.

Findings (Source: Table 50)	Quantitative Findings	Qualitative Findings	Results
Finding 13 - Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	Hypothesis 8 outcome: This was supported by the statistical analysis showing the was a difference in all groups to a significance level of 1% with particular variations in the Work Groups however the majority of groups, seven from 13 showed a significance level of 1% and four other groups had significance results at lower levels. *Source: Tables 44 - 47, 89 - 90.*	*Themes of Public Sector Culture and Employment Characteristics* The analysis used for Finding 11 identified that staff with specific Employment Characteristics as a category was connected with the Organizational Culture within a Public Sector Organization Culture (117 cross-references). The analysis was not able to identify individual groups within the staff with particular Employment Characteristics category, however demonstrated that staff with particular Employment Characteristics were affected by aspects of Public Sector Culture	In partial agreement. The quantitative outcomes identified that there was a difference in the dimensions of Organizational Culture among staff with specific Employment Characteristics. The qualitative analysis was able was able to show an indicative relationship with the overall category of staff with particular Employment Characteristics but not to identify it for individual groups.
Finding 14 - Employment characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	Hypothesis 9 outcome: This was supported by the statistical analysis showing there was a difference in all groups to a significance level of 1%. *Source: Tables 44 - 47, 89 – 90.*	*Themes of Workplace Innovation and Employment Characteristics* The analysis used for Finding 12 identified that staff with specific Employment Characteristics as a category was connected with the dimensions of Workplace Innovation within a Public Sector Organization (192 cross-references). The analysis was not able to identify individual groups within the staff with particular Employment Characteristics category, however demonstrated that staff with particular Employment Characteristics were affected by aspects of Workplace Innovation.	In partial agreement. The quantitative outcomes identified that there was a difference in the dimensions of Workplace Innovation among staff with specific Employment Characteristics. The qualitative analysis was able was able to show an indicative relationship with the overall category of staff with particular Employment Characteristics but not to identify it for individual groups.

7.4.1 Stage two triangulation of the qualitative and quantitative results

In full agreement

The Stage two triangulation against the findings found that for Findings 1 and 3 to 6 there was full agreement between the quantitative and qualitative results. Details about these findings follow: Finding 1 - Public Sector Culture has a significant effect on Workplace Innovation, and 3 to 6 - Public Sector Culture including Organizational and Group Culture. These have a significant effect on; Workplace Innovation Climate, Individual Innovation, Team Innovation and Organizational Innovation respectively, there was full agreement between the quantitative and qualitative results. The quantitative results found that Public Sector Culture and its aspects are significantly related to those of the Workplace Innovation Scale and its four dimensions with the qualitative results showing strong relationships between the themes of Public Sector Culture and Workplace Innovation. This relationship included Workplace Innovation's four sub-themes of Workplace Innovation Climate, Individual Innovation, Team Innovation and Organizational Innovation. Within the dimensions of Workplace Innovation, the analysis showed a strong relationship with Public Sector Culture and all the named sub-themes. Individual Innovation was shown to be a less important dimension within Department A which result was able to be explained further under the analysis of overarching themes under Survey comments.

In partial agreement

Findings 2, 7, 9 to 14 showed that the quantitative and qualitative results were in partial agreement. The details of the Findings follows: Findings 2 - Group Culture is more significant as a predictor of Workplace Innovation than Organizational Culture; 7 -There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's Culture, 9 and 10 - Demographic characteristics will significantly affect Public Sector Culture including; Organizational and Group Culture, and the four dimensions of Workplace Innovation, in a Public Sector Organization; 11 and 12 - There is a difference in perceptions among staff with specific employment characteristics towards the aspects of a Public Sector Organization's Culture and towards the four dimensions of Workplace Innovation in a Public Sector Organization; 13 and 14 - Employment characteristics will

significantly affect Public Sector Culture including Organizational and Group Culture, and the four dimensions of Workplace Innovation, in a Public Sector Organization.

Finding 2 was that Group Culture was more significant as a predictor of Workplace Innovation than Organizational culture. The qualitative data analysis confirmed overall that Group Culture had a greater overall connection to Workplace Innovation however this was only within three of the five theme and sub-themes connected to Workplace Innovation these being Climate, Organizational Innovation and Team Innovation (22 coding references compared to 12 for Organizational Culture). There was a silence in references to Workplace Innovation and Individual Innovation where it connected to Groups. Workplace Innovation was not identified by the organization in its documentation, and the focus was on innovation as a broader concept, this translated to a silence by those in the organization who did not have a context within which to discuss Workplace Innovation. The quantitative analysis described Workplace Innovation through the survey questions and through the results of this Workplace Innovation was seen to be to be more strongly related to Group Culture.

There was confusion around the concept of Individual Innovation which was identified in the theme of Survey Response. This was partly due to this concept not being identified by the organization in its documentation and due to the stronger focus on teams and team oriented work projects. The connection to Organizational Innovation was through the way the organization referred to innovation in a number of its documents, where Groups were mentioned it was in relation to organizational innovation initiatives. In the Survey Response, a large number of individuals mentioned Workplace Innovation Climate and Team Innovation connected to Groups which highlighted how important the Group Culture was to supporting these aspects of innovation within Department A.

Findings 7 to 10 were related to Demographics group perceiving a difference in perceptions towards the dimensions and affecting the dimensions of Public Sector Culture and Workplace Innovation respectively within the context of a Public Sector Organization. Findings 7, 9 and 10 demonstrated partial agreement with the results from the Two research phases. The qualitative information was obtained by using a Demographics group thematic model that connected all information coded to this theme. The qualitative thematic models of Public

Sector Culture and Workplace Innovation were used to cross tabulate information. The qualitative data used was aggregated and was not able to be disaggregated to the level of that used in the quantitative data. The results showed a relationship between the aggregated data with Demographic groups but was not able to identify the results at the individual group level within the data. This was able to show an indicative relationship and so the results between the quantitative and qualitative analysis were judged to be in partial agreement.

Findings 11 to 14 were related to staff with particular Employment Characteristics having a difference in perceptions towards the dimensions and affecting the dimensions of Public Sector Culture and Workplace Innovation respectively within the context of a Public Sector Organization. Findings 11 to 14 demonstrated partial agreement with the results from the Two phases. In a similar fashion to the Demographics Group, the qualitative information was obtained by using an Employment Characteristics group thematic model that connected all information coded to this theme. The qualitative thematic models of Public Sector Culture and Workplace Innovation were used to cross tabulate information. The qualitative data used was aggregated and was not able to be disaggregated to the level of that used in the quantitative data. The results showed a relationship between the aggregated data with staff with specific Employment Characteristics but was not able to identify the results at the group level within the data. This showed an indicative relationship and so the results between the quantitative and qualitative analysis were assessed to be in partial agreement.

Silenced

For Finding 8 - There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization was not supported by the quantitative Analysis. It was supported by the qualitative analysis showing an indicative relationship with the overall category of Demographic Groups but not able to identify it for individual Demographic Groups. Overall this finding was silenced by the lack of agreement between the Two Phases.

Summary

From the 14 findings from the quantitative analysis and the corresponding analysis undertaken in the qualitative Phase, the results on five of the findings were in full agreement. The results on eight were in partial agreement, and on one finding there was no agreement so it was silenced. There was agreement on 13 of the 14 findings indicating that the quantitative analysis findings were corroborated by the qualitative analysis results.

7.5 Overarching Themes underpinning the Quantitative and Qualitative Analysis

The qualitative analysis identified a number of overarching themes that provided explanation and corroboration of the quantitative results, and led to the development of a unified description and interpretation of the overarching themes. The quantitative analysis identified the measure of the relationships between Culture and Workplace Innovation in a Public Sector Organization, and the qualitative data uncovered data that gave explanation or richer description on the relationships. This section incorporated the additional complementary information that added rich description to the results and highlighted key issues within the overarching themes (Forster 1994; McClintock & Greene 1985). The significant themes identified underlying the research were combined into meta-inferences which confirmed the inferences or results obtained by the two phases of this thesis and highlighted six significant or meta-inferences.

7.5.1 Group Culture is more important for Workplace Innovation

Meta-inference: Group culture is more important than Organizational Culture in Department A in supporting Workplace Innovation

Quantitative Analysis – Research Question 1. found aspects of Public Sector Culture are positively and significantly related to those of the Workplace Innovation Scale. Group Culture had a stronger impact on Workplace Innovation compared to either Organizational Culture or Public Sector Culture. Research Questions 2 and 3 with the Findings 7 to 14 found Group Culture was more important as a predictor of Workplace Innovation for a number of the individual groups within Demographic Groups and staff with particular Employment Characteristics. Other underlying findings supported Finding 2 including Finding 6 that Group

Culture was found to have a more significant effect on Workplace Innovation Climate that was strongly affected by local work conditions.

Underlying Finding 2 that Group Culture compared to Organizational Culture is more significant as a predictor of Workplace Innovation were explanations why that might be the case in a Public Sector Organization. The theme of Public Sector Culture identified that Department A and its preceding departments had been undergoing major restructures over three years. Changing culture was highlighted as a key issue through the qualitative analysis. The merging of two established organizational cultures had created a number of problems within the organization. This partly explained the results from the quantitative questionnaire showing that the Group Culture was more important for innovation within Department A because there was not a strong organizational culture in existence in the newly formed Department. Ongoing organizational change reinforced the importance of subcultures.

The analysis provided evidence that staff were angry and confused about the merger, and the time it was taking to create the organization and considered it affected their work lives by creating negative organizational culture and reducing their ability to undertake workplace innovation. This reflected the attitudes of respondents expressed as follows:

> *'the cultural health of the organisation is poor and this is primarily due to the prolonged restructure and the subsequent long term uncertainties… even people who thrive on change and have a high capacity to adapt have been very worn down' (*Respondent 58).

> *'and ...this organisation become increasingly dysfunctional …the takeover ...represents a major clash of cultures and has made this decline even more obvious'* (Respondent 104).

7.5.2 Department A change management was managed centrally and led by Senior Executives with limited engagement with staff

Meta-inference: Cultural change management in Department A was led by Senior Executives who were not engaging with staff at all organizational levels and this resulted in reduced cultural cohesion and Workplace Innovation

The results of quantitative analysis found a relationship between Public Sector Culture and Workplace Innovation and identified the importance of culture at various levels in the organization. Research Question 1 found that aspects of Public Sector Culture are positively and significantly related to those of the Workplace Innovation Scale in the context of a Victorian Public Sector Organization, and that Group Culture had a greater influence than the other aspects of culture. In addition, Research Question 2 found Demographic Groups had differences in perceptions to Public Sector Culture. Demographic Groups affected the dimensions of Public Sector Culture and Workplace Innovation in the context of a Public Sector Organization. Group Culture for Demographic Groups had a greater influence than other aspects of Public Sector Culture, and Workplace Innovation Climate was identified as important for various groups. As well Research Question 3 found staff with specific Employment Characteristics had differences in perceptions to Public Sector Culture and Workplace Innovation, and staff with specific Employment Characteristics affected the dimensions of Public Sector Culture and Workplace Innovation in the context of a Public Sector Organization. Similar results were found for staff with specific Employment Characteristics as for Demographic Groups.

The results indicated that Group and Workplace Innovation Climate was important overall and for many Demographic Groups and staff with particular Employment Characteristics. For example, Group Culture was important across: tenure groups ranging from 22 to 30 years; all job types; most work groups apart from Corporate Services, Gippsland, Water and Natural Resources; and all work roles. Workplace Innovation Climate was important for: females; single people; tenure groups for those early in their careers; the job types of Service Deliverers and Frontline Managers; about half the regional locations, Corporate Services and Land, Fire and Environment; and most work roles apart from Managers and to professional classifications.

Qualitative analysis: The themes of Public Sector Culture and Workforce Innovation highlighted that leadership of the organizational change and development was being managed from the top of the organization, and staff had limited input. Organizational Culture as a concept was considered important by Department A and presented in a range of Departmental documents. These included communications from the Secretary on the desire to create a constructive culture that was able to assist the organization meeting its strategic goals including one of being innovative. A substantial change program was in place and Senior Management were investing significant time and resources into this. Additional information from the People Matter Survey and the Supplementary Workforce and Cultural Questions Survey highlighted staff were identifying major problems with the change process. The qualitative analysis provided additional understanding around this by highlighting that little of the support around change was focussed at the local level of Group Culture or on building Workplace Innovation Climate which were important elements contributing to Workplace Innovation within Department A.

This led to Organizational Culture being perceived as poorly described, changeable and not connected to Group Cultures causing staff to retreat to more stable subcultures. The expectation of ongoing change was articulated in policy documents with the annual State of the Service Report (Document 12) stating it expected that there would be regular change to organization structures in the public sector to cater for new political requirements (VPSC 2014).

7.5.3 Workplace Innovation was not equally supported across Department A

Meta-inference: There were divisions between different levels of the organization associated with support for workplace innovation. The Managers were identified as an important group that had a significant impact on culture and workplace innovation in their groups.

There was a division between different job roles within the organization on their support for workplace innovation. In the analysis of staff with particular Employment Characteristics, quantitative research had found differences between work roles with management at higher levels being supporters of Workplace Innovation. However Middle and Frontline Managers

were more focussed on Organizational Innovation and the signals coming from this level before they supported innovation.

Themes of Public Sector Organization and of staff with specific Employment Characteristics identified through the quantitative research that managers were often identified in documents as important conduits for building workplace culture and encouraging workplace innovation. Managers were targeted as key groups to implement key cultural initiatives, develop a positive culture and support workplace innovation. There was dissonance within the organization as staff members often identified managers as those who blocked innovation and created negative cultures in answers to survey responses, in the People Matter and the Supplementary Workforce and Cultural Questions Survey.

Senior Managers supported innovation achievements by highlighting successes and at times were encouraging individual staff, but were out of touch with need to connect to innovation at the workplace level. Staff identified more with their immediate managers and thought they operated more in line with the organizational values (People Matter & Supplementary Workforce and Cultural Questions Survey). With the qualitative analysis highlighting that organizational change was focussing the attention of Middle and Frontline Management who were the key initiators of workplace innovation, innovation activities were disrupted at the workplace level.

7.5.4 Particular demographic groups experienced disadvantage

Meta-inference: Particular demographic groups were disadvantaged when Department A created new organizational structures thus reducing their innovation capacity

In the analysis of Demographic groups the quantitative research found differences between the perceptions of Demographic groups on Public Sector Culture, and in affecting the dimensions of Organizational Culture and Workplace Innovation in the context of a Public Sector Organization. Different aspects of Workplace Innovation were more important for particular groups.

The qualitative analysis in the Theme of Demographic Groups had revealed that with the initial focus of Department A being to create the new organization particular Demographic Groups had been alienated. This was because there were winners and losers in the restructures and reorganizations that had occurred. This was highlighted in the Survey Responses with the most impact being felt by women and older staff. This was supported by the results of the People Matter Survey, in which the July 2013 report highlighted that more staff in Department A thought that Gender and Age were barriers to success in the organization. This was in comparison to the overall sample of comparator organizations from the Victorian Public Service. The results were the same for the commitment of the organization in the creation of a diverse workforce (SSA 2013b).

Staff in diversity categories were more vulnerable to the impacts of organizational change and being able to compete successfully in change processes with other more privileged groups. The unequal outcomes from the organizational restructures were recognized by Senior Management, 1and led to a change in approach for the second year of operation with an initiative being announced by the Secretary announced in July 2014 'to shift… our focus to ...leading implementation of our values-based culture'. Later in 2104, he announced an initiative to build a gender balance in the Department, a focus on working with the Young Professionals Group and a major initiative to build an Innovation Strategy which was announced later in 2014.

The new approach to build a values-based culture did not address the initial disadvantage experienced by women and older workers as part of the restructure. The gender balance would be a new focus but the organization was silent on other diversity groups including older workers. There were negative impacts on culture as seen in the survey responses. This would have a corresponding negative impact on workplace innovation due to the relationship between the two identified in the quantitative analysis.

7.5.5 Organizational barriers impeded Workplace Innovation.

Meta-inference: Organizational barriers were identified that impeded Workplace Innovation

The quantitative analysis had identified a significant relationship of Public Sector Culture and Workplace Innovation with this describing up to 24.6 per cent of the variability in Workplace Innovation. It established strong relationships between all the four dimensions of Workplace Innovation and Public Sector Culture and its aspects. This showed that Public Sector Culture would have a major impact on Workplace Innovation.

The theme of Workplace Innovation showed a number of barriers to workplace innovation which were identified including; capability gaps, systems that did not support innovation, and continually reducing budgets. These were reported in the Innovation Planning Process Documents 2, 15 and 16, and Document 18, Department B's Capability Strategy (DELWP 2015b). Staff identified; adverse culture, lack of clear plans and strategies, ongoing organizational change, lack of management support, risk adverse management, the loss of knowledge, a lack of talented staff, and structural issues as barriers to innovation (Newnham 2014). Staff identified that the barriers identified restricted their ability to undertake workplace innovation as identified by the Innovation Planning Process Documents and the open ended question results. These barriers would make workplace innovation more difficult to achieve in Department A, and highlighted additional explanation about the innovation environment within the Department that would need to be considered for management response.

In reviewing the context of a Public Sector organization, it was revealed that there were relatively few messages on innovation being given to the organization (see Section 6.7 above). There was a lack of consistent messages on Innovation Strategy from the organization about which was addressed towards the end of 2014 with the initiation of an innovation planning process. However the organization changed again in 2015 before the draft plan was finalized.

7.5.6 Department A's workplace structure impacted on Workplace Innovation

Meta-inference: Department A's workplace structure impacted on Workplace Innovation.

The quantitative analysis found a number of Team Innovation and Individual Innovation variables had lower communality values in the Exploratory Factor Analysis results. The qualitative analysis in the additional theme of Survey Comments received comments from respondents that outlined a number of comments about Organizational Structures in Department A. There were unexpected organizational forms in Department A that did not relate to the Workplace Innovation Scale Instrument constructs of Team or Individual Innovation.

Teams

It was identified that Teams within Department A were not always created to assist in delivering common programs. Particular teams collected individual specialists into a group for administrative purposes. Other teams included people running discrete projects across multiple areas.

Individual Innovation

Individual Innovation was not well supported by Frontline or Middle Managers and some individuals did not feel it was an activity they were empowered to do. This suggested that there was a more collectivist orientation towards work tasks within the Department as a number of respondents did not identify with the concept of Individual Innovation.

It was significant that Individual Innovation is not understood and less commonly practiced. Instead Team Innovation was prevalent and embedded within Department A's culture as staff worked on tasks in teams. This highlighted a potential issue in implementing workplace innovation as individuals in the workplace were found to have a fundamental role in shaping innovation processes, thus a lack of understanding about this may have restricted innovation potential (Salvato 2009). Department A appeared to ignore the importance of both individual and team innovation with documents developed to build an innovation plan and associated

innovation strategies being silent about the role of individual and team innovation. The lack of information and guidelines by the organization due to lack of understanding on how innovation operated at the workplace level, acted to restrict the development of a culture that supported individual and team innovation as components of workplace innovation

7.6 Summary

The Stage four mixed methods integration was undertaken combining the results from the Phase one quantitative and the Phase two qualitative analyses of this research. It first triangulated the information that connected the Findings from Phase one with the outcomes of Phase two of the research and integrated the results together. Linking the understandings from the quantitative and qualitative research confirmed the inferences or results obtained by the Two phases of this thesis and identified significant themes underlying the research that were combined into meta-inferences. Six of these were highlighted.

The next chapter discusses the results generated by a mixed methods analysis of a Victorian Public Sector Organization and links these findings to the related literature.

Chapter 8. Discussion

8.1 Objective

The purpose of this chapter is to discuss the findings generated by a mixed methods analysis of a Victorian Public Sector Organization and the review of literature undertaken in Stage one of this thesis. It will examine how the analysis relates to existing research findings through the results obtained. First by examining the results from Stage two, Phase one testing of hypotheses in the quantitative analysis that identified the relationships between Public Sector Culture and Workplace Innovation. Secondly, examining Stage three, Phase two qualitative analysis that triangulated results, corroborating Phase one findings and identified reasons why there were relationships. Lastly, the Stage four, mixed methods integration linked both components together to integrate the mixed methods analysis. The chapter is structured into sections corresponding to the stages of research for this thesis. Within each section the relevant research questions, hypotheses and findings are listed and discussed in view of the findings and their significant contributions to the public sector literature.

8.2 Introduction

This introduces the Sections that comprise the chapter. Section 8.3 provides an overview of the relationship between Workplace Innovation and Organizational Culture and the high level findings. The next Sections 8.4 to 8.6 provides an overview of the findings from the quantitative analysis including a table showing the results for Research Questions 1 to 3, and associated Hypotheses 1 to 9. The results include the triangulation with the qualitative analysis and the triangulation and integration completed as part of the mixed methods analysis. Section 8.7 provides the detailed discussion on the additional findings from Research Questions 4 to 5. Section 8.8 provides a summary of the chapter.

8.3 The Relationship between Workplace Innovation and Organizational Culture.

This thesis for the first time, brought together two context specific multi-dimensional constructs to investigate the relationship between Workplace Innovation and Public Sector

Organizational Culture. This analyzed a case of a Public Sector Organization focussing on 2014 when the quantitative data was collected and much of the qualitative data was written.

This extended earlier research in Australia considering cultural aspects within the public sector in relation to innovation capacity, that confirmed Public Sector Organizations had predominately hierarchical cultures (Bradley & Parker 2006; Harrison & Baird 2015; O'Connor, Roos & Vickers-Willis 2007; Parker, R & Bradley 2004) and later research finding a mix of both an innovative and performance oriented culture (Wipulanusat, Panuwatwanich & Stewart 2017). Culture was found to impact on the take up of management initiatives (Baird & Harrison 2017). None of these studies examined the elements or characteristics of the relationship between Public Sector Culture and Workplace Innovation. It extends existing literature by establishing the impact culture has at the micro-level in public sector organizations and the integration between Workplace Innovation Climate, Individual, Team and Organizational Innovation. Understanding this relationship provides public sector managers with the ability to develop positive cultural environments that support the development of workplace innovation. Through understanding this they will understand that negative culture will significantly impede workplace innovation.

The thesis finding extends the theory of public sector innovation by identifying that culture is a significant antecedent to Workplace Innovation by empirically proving the relationship and measuring the relationship of Public Sector Culture to the Workplace Innovation Scale as an operationalization of Workplace Innovation (McMurray & Dorai 2003). The relationship between culture and innovation performance has been assumed in the research literature and this work empirically proves this within a Public Sector Organization. These outcomes supported calls for more research in public sector innovation to build upon existing literature and emphasized theory development using more multi-method approaches (De Vries, Bekkers & Tummers 2016) and to highlight public sector innovation features to overcome the 'context-blindness' of innovation literature (Hartley 2013). The thesis extended the literature describing workplace innovation as a multi-dimensional, subjective and context specific phenomenon. This included the dimensions of Organizational Innovation, Workplace Innovation Climate, Team and Individual Innovation (McMurray & Dorai 2003; Muenjohn &

McMurray 2017) by empirically proving the relationship between Culture and Workplace Innovation and its four dimensions in the context of a Public Service Organization.

This thesis extends the theory of public management which identifies how actors in managerial roles do undertake discretionary behaviour within Public Sector Organizations, subject to the constraints of formal authority (Hill & Lynn 2004; Hughes 2012, 2017). In addition, this provides evidence that Public Sector Managers can develop conditions to support workplace innovation in Public Sector Organizations. The findings provide evidence for Public Sector Managers to support Workplace Innovation by taking action to build culture in the workplace. It establishes the empirical relationship between Public Sector Organizational Culture and Workplace Innovation so providing evidence that Public Sector Managers by taking action to foster positive organizational cultures in Public Sector Organizations will be able to influence and build capacity for workplace innovation

This thesis builds on the literature that identifies that sub-cultures within Public Sector Organizations can impact on organizational development including the expansion of workplace innovation (Ferlie et al. 2005; Geva-May 2002; Osborne, S & Brown 2005). This is achieved through empirically proving that Group Culture is more important than Organizational Culture as an antecedent to Workplace Innovation. This will allow the development of interventions that recognize the important role of groups in delivering innovation, and build cultural change and development programs that engage with these groups. These findings provide Public Sector Organizations with results to support the initiation of cultural development programs with the intent of building workplace innovation capacity.

Summary of quantitative phase one findings

Phase one of the mixed methods research was to undertake a quantitative analysis based on a survey developed and undertaken in Department A. The summary of the results from the Quantitative Phase and its two Stage analysis of data is shown in Table 63. Hypotheses 1 and 1a to d answered Research Question 1; Hypotheses 2 to 5 answered Research Question 2; and Hypotheses 6 to 9 answered Research Question 3.

Table 63 - Quantitative Phase results for each Hypothesis

Hypotheses	Outcome
H1: Public Sector Culture has a significant effect on Workplace Innovation.	**Supported** Stage 1: Sig-P<0.001; predicted 24.6% variability (adjusted R2). Stage 2: Positive - Sig level of 1%. Group and Organizational Culture had the same results with Group having a stronger impact at 0.16 compared to Organizational at 0.12.
H1a: Public Sector Culture (PSC) including Organizational and Group Culture has a significant effect on Workplace Innovation Climate.	**Supported** Stage 1: Sig-P<0.001 for all; PSC predicted 10.9% variability (adjusted R2). Organizational Culture predicted 3.9 % variability (adjusted R2). Group Culture predicted 11.3 % variability (adjusted R2). Stage 2: Positive - Sig level of 1%.
H1b: Public Sector Culture including Organizational and Group Culture has a significant effect on Individual Innovation.	**Supported** Stage 1: Sig-P<0.001 for all; PSC predicted 8.1% variability (adjusted R2). Organizational Culture predicted 3.3% variability (adjusted R2). Group Culture predicted 7.5% variability (adjusted R2) Stage 2: Positive - Sig level of 1%
H1c: Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation.	**Supported** Stage 1: Sig-P<0.001 for all; PSC predicted 15.6 % variability (adjusted R2). Organizational Culture predicted 7.1% variability (adjusted R2). Group Culture predicted 14.3 % variability (adjusted R2). Stage 2: Positive - Sig level of 1%.
H1d: Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation	**Supported** Stage 1: Sig-P<0.001 for all; PSC predicted 24.0% variability (adjusted R2). Organizational Culture predicted 12.3 % variability (adjusted R2). Group Culture predicted 20.3 % variability (adjusted R2). Stage 2: Positive - Sig level of 1%.
H2: There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization's culture.	**Largely Supported** Stage 1: Gender – Significant difference. Marital Status - Significant difference. Age – Significant difference. Education Levels – No significant difference.
H3: There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization.	**Not Supported** Stage 1: Gender– No significant difference. Marital Status – No significant difference. Age – No difference. Education Levels – No significant difference.

Hypotheses	Outcome
H4: Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	**Supported** Stage 2: Gender– Positive - Sig level of 1%. Marital Status – Positive - Sig level of 1%. Age – Positive - Sig level of 1%. Education Levels – Positive - Sig level of 1%.
H5: Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	**Supported** Stage 2: Gender– Positive - Sig level of 1%. Marital Status– Positive - Sig level of 1%. Age – Positive - Sig level of 1%. Education Levels – Positive - Sig level of 1%.
H6: There is a difference in perceptions among staff with specific employment characteristics towards the aspects of a Public Sector Organization's culture.	**Partly Supported** Stage 1: Tenure – No significant difference. Job Types – Significant difference. Work Groups – Significant difference. Work Roles – Significant difference. Flexible Working – No significant difference.
H7: There is a difference in perceptions among staff with specific employment characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization.	**Largely Supported** Stage 1: Tenure – Significant difference. Job Types – Significant difference. Work Groups – Significant difference. Work Roles – Significant difference. Flexible Working – No significant difference.
H8: Employment characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization.	**Largely Supported** Stage 2: Tenure – Positive - Sig level of 1%. Job Types – Positive - Sig level of 1%. Work Groups – Positive - Sig level of 1% for seven of 13 groups, Sig level of 5% for three groups, Sig level of 10% for one group, two showed no Sig. Work Roles – Positive - Sig level of 1%. Flexible Working – Positive - Sig level of 1%.
H9: Employment characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization.	**Supported** Stage 2: Tenure – Positive - Sig level of 1%. Job Types – Positive - Sig level of 1%. Work Groups – Positive - Sig level of 1%. Work Roles – Positive - Sig level of 1%. Flexible Working – Positive - Sig level of 1%.

All the five Hypotheses underlying Research Question 1 were supported, confirming that there is a significant relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization including the dimensions of Workplace Innovation and the aspects of Public Sector Culture. Three out of four of the Hypotheses supporting Research Question 2 were supported or largely supported. This proved that there was a different in perceptions among Demographic Groups towards the dimensions of Public

Sector Culture and that Demographic Groups significantly affect the dimensions of Organizational Culture and Workplace Innovation in the context of a Public Sector Organization. Research Question 3 had three out of the four Hypotheses supporting it supported or large supported and the other one partly supported, providing there was a different in perceptions among staff having differing Employment Characteristics towards the dimensions of Public Sector Culture and Workplace Innovation. As a result staff having differing Employment Characteristics significantly affected the dimensions of Organizational Culture and Workplace Innovation in the context of a Public Sector Organization.

8.4 RQ. 1 What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization?

This discussion supports Research Question 1: What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization? It discusses the findings for the supporting Hypothesis 1 and Hypotheses 1a to d, and the additional hypothesis, What is the Relationship of the two aspects of Public Sector Culture – Organizational and Group Culture - to Workplace Innovation. The analysis discusses the findings from Phase one and Phase two of the mixed methods approach and the integration of these two Phases.

It was found that aspects of Public Sector Culture are positively and significantly related to the dimensions of the Workplace Innovation Scale in the context of a Victorian Public Sector Organization. The details are explained below identifying the contribution made to the literature.

8.4.1 H1 Public Sector Culture has a significant effect on Workplace Innovation.

The first hypothesis tested in this thesis was H1, Public Sector Culture has a significant effect on Workplace Innovation. The Phase one quantitative analysis found for stage one, the linear regression analyses conducted had results that were statistically significant, ($F\{1,478\} = 156.678$, $p < .001$ with the ANOVA model significance at 0.000). The findings indicated that the dimension of Public Sector Culture predicted 24.6 per cent (adjusted R2) of the variability

in Workplace Innovation. For the stage two Structural Equation Modelling the results confirmed a relationship at the significance level of 1 per cent. This showed that the hypothesis was supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the Phase two qualitative analysis. A cross tabulation of qualitative information was undertaken to compare the thematic model of Workplace Innovation and its four sub-themes with the thematic model of Public Sector Culture and its sub themes. There was a large overlap between Public Sector Culture and Workplace Innovation showing a strong interrelationship between the two constructs. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed full agreement between the two methods and supported the finding from Hypothesis 1.

Based on the literature review and the empirical studies no work to date had directly tested this relationship. This extended Schein's theory of culture (Schein & Scheiner 2016) that identified the importance of context in understanding the cultural manifestations in organizations in which he demonstrated through his public sector case study of the Singapore Economic Development Board. It confirmed that the political vision, or direction of the leaders represented the 'espoused beliefs and values' component of the culture model. The political vision directed the actions of the organization demonstrated within the Department A case by the political direction that led to the merger of the organization and the corresponding cultural change program. The next level of Shein's model being cultural artefacts were demonstrated by the documents used in the qualitative analysis. The findings extended the theory by proving the relationship of Organizational Culture as a significant antecedent to Workplace Innovation in the context of a Public Sector Department of State.

This thesis extended earlier research in Australia considering cultural aspects within the public sector in relation to innovation capacity by examining and extending existing knowledge on the relationships between Public Sector Culture and Workplace Innovation as a multi-dimensional, subjective and context specific phenomenon (McMurray & Dorai 2003). Earlier research confirmed public sector organizations had predominately hierarchical cultures that affected service delivery (Bradley & Parker 2006; Harrison & Baird 2015; O'Connor, Roos

& Vickers-Willis 2007; Parker, R & Bradley 2004) and later research found a mix of both an innovative and performance oriented culture (Wipulanusat, Panuwatwanich & Stewart 2017). In addition culture was found to impact on the take up of management initiatives (Baird & Harrison 2017).

The type of culture within Public Sector Agencies was studied confirming an ambidextrous culture for innovation including a supportive culture as well as one that was performance oriented (Wipulanusat, Panuwatwanich & Stewart 2017). The latter study connected engineering professionals across a range of Australian Public Sector (APS) organizations, and used an existing data set to explore organizations' innovation orientation and performance oriented characteristics. It used a concept of culture that was determined by organizational characteristics compared to a cultural concept determined by members of the organization as used in this thesis. In addition a professional subculture within organizations was studied rather than a cross-section of staff.

These earlier studies had used cultural measures developed to be used at the organizational level and were not developed within the cultural context of the organization. The relationships identified confirmed culture had an impact on organizational performance but didn't identify its relationship to Workplace Innovation. This thesis used a construct of Organizational Culture that was able to identify differences between the Organizational and Group levels within the Organization and identified Public Sector Culture at both the Organizational and Group levels was an antecedent of Workplace Innovation and its four dimensions. The findings from the earlier research were extended by identifying that levels of culture within the organization strongly affected Workplace Innovation and the Group level of Culture was particularly strong in a public sector context. The research confirmed the relationship of culture to organizational performance by providing its strong relationship to Workplace Innovation and its four dimensions identifying details of the relationship between the dimensions. This proven relationship will allow managers to introduce management interventions to foster the development of Workplace Innovation and its four dimensions. The research also provided additional rich description provided from the mixed methods used to extending the above

literature by describing the reasons why the relationships were found which is discussed in the sections below.

The thesis extends the Theory of Public Sector Innovation that is concerned with the introduction of new elements into a public service in the form of knowledge, organization and/or management, communication methods or process/organizational method skills - that represent discontinuity with the past and create public value within a political and policy context (Arundel, Casali & Hollanders 2015; Bason 2010; Bekkers & Tummers 2017; Hartley 2013). The relationship between culture and innovation performance in the public sector has been assumed in the research literature and this work empirically proves this within a Public Sector Organization. The research extends the literature by empirically proving the strong relationship between Organization Culture and Workplace Innovation and its four Dimensions within the public sector so confirming that culture is an important antecedent to innovation. This thesis provides additional understanding about how Workplace Innovation is enacted in Public Sector Organizations that will support the development of management responses to enhance innovation performance. Additional analysis of the four dimensions of Workplace Innovation follows in the discussion from 8.4.1 onwards.

Public sector innovation studies in Australia have reviewed the complexity of innovations undertaken at the workgroup level (Torugsa & Arundel 2016b), the relationship of employee empowerment to organizational barriers restricting innovation (Demircioglu 2017a), and the existence of conditions specific to public organizations influencing the likelihood of innovative activity such as experimentation, responding to low-performers, the existence of feedback loops, and motivation to make improvements (Demircioglu & Audretsch 2017). This thesis has extended knowledge on how innovation works at the workplace level in Public Sector Organizations identifying the relationships between the four dimensions of Workplace Innovation and the two aspects of Public Sector Culture. This provides additional explanation on the cultural context enhancing innovation delivery that will lead to the likelihood of increasing innovation activity at the workplace and the strengthening of the relationship of employees to Workplace Innovation.

One omission from the body of literature on Public Sector Organizations is that it is not connected to particular public sector organizational types which vary greatly from Departments of State to service delivery agencies. This thesis was undertaken within the context of a Department of State, a type of organisation which is very specific to the Public Service and that has not to the author's knowledge been the subject of a study that focusses on the relationship between Culture and Workplace Innovation as a multi-dimensional, subjective and context specific phenomenon. An evaluation study about the delivery of an innovation program within a Victorian Government Policy Department had found that the Department's innovation ability was affect by a combination of organizational specific systems, processes, culture and missions (O'Connor, Roos & Vickers-Willis 2007, p. 550). This thesis confirmed the importance of organizational specific analysis and built on this by proving the strength of the Organizational Culture to Workplace Innovation within a Department of State. Departments are a central part of the Westminster system of government and government's role in supporting and fostering innovation has been found to be critical in their operating efficiently and effectively and supporting innovative national economies (OECD 2010, 2017a, 2017b). While the Westminster system is only one system of many systems of Government operating in the world, it has characteristics that align with other systems so the findings of this thesis may be applicable for government organizations in other jurisdictions.

8.4.2 Group Culture had a stronger impact on Workplace Innovation

As part of the research undertaken in Phase one, an additional finding was that Group Culture is more significant as a predictor of Workplace Innovation than Organizational Culture. This was demonstrated in the Stage one and Stage two of the quantitative analysis. The two stages of analysis both confirmed a significant relationship between Organizational and Group Culture respectively to Workplace Innovation and its four dimensions with Group Culture having a greater influence in each analysis. This showed that the finding was supported.

The Stage one triangulation used the quantitative concepts to develop themes for the qualitative analysis. A cross tabulation of qualitative information was undertaken to compare

the thematic model of Workplace Innovation and its four sub-themes with the thematic model of Public Sector Culture and its sub-themes. There was a large overlap between Group Culture and Organizational Culture and Workplace Innovation and its four dimensions showing a strong interrelationship between the two constructs. As Group Culture had a stronger connection with three of the model components, Organizational, Team and Workplace Innovation and Organizational Culture had a smaller overall relationship to Workplace Innovation but related to all its components, this finding was only partially supported. The Stage two triangulation of results from the two Phases of research as part of the integration completed in Research Question 5 showed partial agreement between the two methods and supported the additional finding.

Group Culture had a stronger impact on Workplace Innovation compared to either Organizational Culture or Public Sector Culture. Department A has a number of strong local level cultures based on the background or original source of the groups. This confirms the identification by researchers of sub-cultures within Public Sector Organizations (Geva-May 2002; Osborne, S & Brown 2005) and with the role of professions in creating shared rules, beliefs and plural logics that can create organizational subcultures (Dunn & Jones 2010; Hinings 2012). The thesis builds on research that innovation adoption within Public Sector Organizations in this instance health organizations, is adversely impacted by professional subcultures (Ferlie et al. 2005). The research extends the existing literature by proving the significance of the relationship of Group Culture on Workplace Innovation in a Public Sector Department of State as a specific form of Public Sector Organization and the importance of subcultures in fostering Workplace Innovation.

8.4.3 H1a Public Sector Culture has a significant effect on Workplace Innovation Climate

The second hypothesis tested was Hypothesis H1a, Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Innovation Climate. The Phase one quantitative analysis found in Stage one that Organizational Culture had a significant effect on Workplace Innovation Climate with results that were statistically significant at ($F\{1,478\} = 20,384$, $p < .001$ with the ANOVA model significance at 0.000). In

addition, linear regression analyses for Group Culture and Workplace Innovation Climate had results that were statistically significant at ($F\{1,478\} = 62.026$, $p < .001$ with the ANOVA model significance at 0.000). A structural equation model was undertaken which confirmed a relationship with Public Sector Culture having positive impacts on Workplace Innovation and all its dimensions at the significance level of 1 per cent. This showed that the hypothesis was supported.

The Stage one triangulation used the quantitative concepts to develop themes for the qualitative analysis. A cross tabulation of qualitative information about Workplace Innovation Climate was compared with the Public Sector Culture Thematic Model and its sub-themes. This showed a strong relationship between Workplace Innovation Climate and the components of the model where multiple references had been coded to the components reflecting more than 100 per cent of the total references coded to Workplace Innovation Climate. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed full agreement between the two methods and supported the finding from Hypothesis 1a.

This finding extended the literature on public sector innovation as the researcher was unable to find any empirical research to date that had been undertaken on the direct connection between Public Sector Culture and Workplace Innovation Climate in the public sector. Workplace Innovation Climate has been found in other studies in the private sector to be important to the development of Workplace Innovation within organizations, proving this relationship in the public sector provides additional understanding of how to foster innovation at the workplace in these organizations. This thesis extended existing literature on organizational climate being a precursor to innovation that has been alluded to in studies dealing with the private sector (Baer & Frese 2003; Bamel, Budhwar & Bamel 2013). In addition the findings extended the findings in an empirical study that had shown a relationship between aspects of organizational climate and Workplace Innovation in the private sector (Von Treuer & McMurray 2012) by extending knowledge of this in a public sector context and supporting a call by the researchers to undertake research in these aspects in other industry contexts.

This thesis builds on and extends the findings of empirical research undertaken in the public sector in the Victorian Police Agency by proving a relationship between Organizational Culture, Workplace Innovation and Workplace Innovation Climate as one of its dimensions. The research within the Policy Agency found that organizational culture, organizational climate and managerial values were all inter-related and postulated that this could lead to greater understanding of how the organization could best respond to changing operational requirements which could include becoming more innovative (Wallace, Hunt & Richards 1999).

8.4.4 H1b Public Sector Culture has a significant effect on Individual Innovation

The third hypothesis tested was hypothesis H1b, Public Sector Culture including Organizational and Group Culture has a significant effect on Workplace Individual Innovation. The Phase one quantitative analysis found for stage one linear regression analyses for Organizational Culture and Individual Innovation had results that were statistically significant at ($F\{1,478\} = 18.429$, $p < .001$ with the ANOVA model significance at 0.000). In addition linear regression analyses for Group Culture and Individual Innovation had results that were statistically significant at ($F\{1,478\} = 39.920$, $p < .001$ with the ANOVA model significance at 0.000). A structural equation model was undertaken which confirmed a significant relationship with Public Sector Culture having positive impacts on Workplace Innovation and all its dimensions at the significance level of 1 per cent. This showed that the hypothesis was supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information about Individual Innovation was compared with the Public Sector Culture Thematic Model. This showed a strong relationship between Individual Innovation and the components of the model where multiple references had been coded to the components reflecting 96.43 per cent of the total references coded to Individual Innovation. The Stage two triangulation of results from the two Phases of research as part of the integration completed in Research Question 5 showed full agreement between the two methods and supported the finding from Hypothesis 1b.

This finding added to the literature on public sector culture and public sector innovation as the researcher was unable to find any empirical research to date that had been undertaken on the connection between Public Sector Culture and Individual Innovation in the Public Sector. Individuals operating as intrapreneurs within organizations as agents for ongoing change (Ren & Guo 2011) would particularly benefit older lifestyle Public Sector Organizations given the barriers to innovation that exist in these sorts of organizations. The literature has identified a public sector variant of internal change agents as the policy entrepreneur who works with others around policy making to promote significant policy change (Mintrom & Luetjens 2017; Mintrom, Salisbury & Luetjens 2014). This thesis builds on this work by identifying how Individual Innovation is supported by Organizational Culture which provides managers with information that allows the creation of an environment that fosters individual innovation. Workplace Innovation as a multi-dimensional construct and Individual Innovation was proven by this thesis to be significantly supported by positive Public Sector Culture although at a lower level compared to the other dimensions of Workplace Innovation.

The public sector innovation literature is focussed on organizational and industry issues with some discussion of activity at the team level that identified the 'idea of the creative individual engaging in innovation single-handedly (as) very limited' (Hartley 2005). This thesis extends this literature by providing information about Individual Innovation within a Public Sector Organization and further identifies the relationships between staff with particular demographics and employment characteristics that is described in Sections 8.5 and 8.6 below. This research identified a confusion and lack of understanding about individual innovation that was identified through staff in Department A not strongly identifying with it as a component of workplace innovation. The additional explanation provided by the results of this thesis provides more understanding about Individual Innovation as part of Workplace Innovation within a public sector context.

8.4.5 H1c Public Sector Culture has a significant effect on Team Innovation

The fourth hypothesis tested was H1c, Public Sector Culture including Organizational and Group Culture has a significant effect on Team Innovation. The Phase one quantitative

analysis found a linear regression analyses for Organizational Culture and Team Innovation had results that were statistically significant at ($F\{1,478\} = 37.45$, $p < .001$ with the ANOVA model significance at 0.000). In addition linear regression analyses for Group Culture and Team Innovation had results that were statistically significant at ($F\{1,478\} = 80.719$, $p < .001$ with the ANOVA model significance at 0.000). A structural equation model was undertaken which confirmed a significant relationship with Public Sector Culture having positive impacts on Workplace Innovation and all its dimensions at the significance level of 1 per cent. This showed that the hypothesis was supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information about Team Innovation was compared with the Public Sector Culture Thematic Model. This showed a strong relationship between Team Innovation and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Team Innovation. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed full agreement between the two methods and supported the finding from Hypothesis 1c.

This finding extended the literature on public sector culture and public sector innovation by identifying a significant relationship between Public Sector Culture and Team Innovation in the public sector. Earlier work had used constructs of Team Orientation and Innovation along with other measures of culture (Harrison & Baird 2015). The study did find a greater team orientation with the public sector compared with the private sector but did not connect this directly to building workplace innovation. This thesis built on work undertaken to study aspects of culture in a Public Sector Organization by identifying the relationship of Team Innovation to Workplace Innovation as an integrated concept. In addition collaboration and the team basis of public service delivery has been observed as being historically important (Ferlie 2017a) with the results of this thesis proving this was an important element of Workplace Innovation in Public Sector Organizations.

8.4.6 H1d Culture has a significant effect on Organizational Innovation

The fifth hypothesis tested was H1d, Public Sector Culture including Organizational and Group Culture has a significant effect on Organizational Innovation. The Phase one quantitative analysis found in a linear regression analyses for Organizational Culture and Organizational Innovation had results that were statistically significant at ($F\{1,478\} = 67.789$, $p < .001$ with the ANOVA model significance at 0.000). In addition linear regression analyzes for Group Culture and Organizational Innovation had results that were statistically significant at ($F\{1,478\} = 122.493$, $p < .001$ with the ANOVA model significance at 0.000). A structural equation model was undertaken that confirmed a significant relationship between Public Sector Culture and Workplace Innovation and its four dimensions. Public Sector Culture has positive impacts on Workplace Innovation and all its dimensions at the significance level of 1 per cent. This showed that the hypothesis was supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information about Organizational Innovation was compared with the Public Sector Culture Thematic Model. This showed a strong relationship between Organizational Innovation and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Organizational Innovation. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed full agreement between the two methods and supported the finding from Hypothesis 1d.

This finding extended the literature on Public Sector Culture and Public Sector Innovation by identifying a significant relationship between Public Sector Culture and Organizational Innovation in the Public Sector. This is a new finding as existing literature has not looked at this relationship. A finding by Harrison and Baird (2015) in a study across a number of public sector agencies using the Organizational Culture Profile of O'Reilly et al. (1991) that determined innovation orientation as an aspect of culture in Public Sector Organizations and did not make the connection between culture and organizational innovation. The innovation culture construct used in the above study used cultural measure designed to measure

organizations against a determined profile. It did not represent the culture within a particular organization as did the culture construct used in this thesis that was able to identify the importance of Public Sector, Organizational and Group Culture as significant predeterminants of Organizational Innovation.

8.4.7 Summary of results for Research Question 1

Based on the literature review and the empirical studies discovered, these hypotheses supporting RQ. 1. What is the relationship between Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization? were found to have previously been untested. Thus the findings relating to this research question add to theory and literature in this domain.

This thesis allowed the relationship between Culture and Workplace Innovation to be undertaken in a Victorian Public Sector Organization and this appears to be the first time to date research of this nature has been undertaken on this form of Public Sector Organization in any part of the world (De Vries, Bekkers & Tummers 2016; Johnston Miller 2012). The thesis has supported calls made by researchers to expand understandings about public sector management within Public Sector Organizations. Kelman (2007) argued research was needed to build understanding within government organizations around improving performance, in this case by identifying a relationship that can lead to fostering Workplace Innovation. Kooiman (1996) affirmed that future research had to consider the diversity, dynamics and complexity of the modern world including organizational culture values.

Extension of Culture and Public Sector Culture Literature

This extended Schein's theory of culture (Schein & Scheiner 2016) that identified the importance of context in understanding the cultural manifestations in organizations. The political vision directed the actions of the organization and represented the 'espoused beliefs and values' component of Schein's culture model. The next level of the model were found in the documents analyzed in the qualitative analysis which were cultural artefacts. The findings extended the theory by identifying the relationship of Organizational Culture as a significant antecedent to Workplace Innovation in the context of a Public Sector Department of State.

There is no accepted definition or explanation of public sector culture however a small body of research exists that aims to broaden understanding and is discussed below. This thesis has extended the existing Literature by empirically identifying the direct relationship between Public Sector Culture and Workplace Innovation and the strength of that relationship. Public Sector Culture explains a large amount of the variability in Workplace Innovation (24.6%). The structural equation modelling identified a direct relationship so that having positive Public Sector Culture would create a corresponding amount of Workplace Innovation.

This thesis extended earlier research on this topic that was undertaken in Australia considering cultural aspects within the public sector in relation to innovation capacity by examining and proving the relationships between Public Sector Culture and Workplace Innovation as a multi-dimensional, subjective and context specific phenomenon (McMurray & Dorai 2003). Empirical and evaluation studies in the public sector considering cultural aspects of organizations related to innovation capacity had confirmed that Public Sector Organizations had predominately hierarchical cultures. These cultures were strongly oriented towards outcomes with a preference to a stable environment with a prevalence of rules and policies (Bradley & Parker 2006; O'Connor, Roos & Vickers-Willis 2007; Parker, R & Bradley 2000). A later study analyzing data from the Australian Public Sector Workforce Census, focussing on a common work role found a mix of an innovative cultural slant with a performance oriented culture existed within innovative organizations (Wipulanusat, Panuwatwanich & Stewart 2017). A multi-sector analysis to compare between public and private organizations over time using organizational culture profile measures including one identified as innovation, found less cultural change over time and less innovation orientation in the public sector (Harrison & Baird 2015). Further analysis compared the two sectors across multiple organizations to identify the relationship of organizational culture to the take up of a number of the management initiatives which found there was a relationship but it differed between the sectors (Baird & Harrison 2017). Harrison and Baird (2015, p. 626) had recommended additional in-depth case study research to prove links between public sector culture within Departments and organizational and individual desirable outcomes for Public Sector Organizations.

This thesis identified empirically the direct relationship between Organizational Culture and Organizational Innovation encompassing its influence on the micro-level of the organization through its impact on Workplace Innovation and its four dimensions. This study extended the earlier studies as detailed above by determining Public Sector Culture as a construct within a particular type of Public Sector Organisation, a Department of State. This proved its relationship to Workplace Innovation and its four dimensions, identifying within the organization how internal culture at multiple levels effected innovation delivery. The thesis built on the earlier studies that looked at cultural profiles developed from other sources by focussing on a culture construct determined by staff views. The study extended literature by looking at the cultural impacts across multiple levels of the organization including the organizational, group and workplace innovation climate perspectives.

The thesis extends existing literature on public sector culture by establishing the impact culture has at the micro-level in Public Sector Organizations and the integration between Workplace Innovation Climate, Individual, Team and Organizational Innovation. It builds on the literature that identifies that subcultures within Public Sector Organizations can impact on organizational development including the devolution of workplace innovation (Ferlie et al. 2005; Geva-May 2002; Osborne, S & Brown 2005) by empirically proving that Group Culture is more important than Organizational Culture as an antecedent to Workplace Innovation. This will allow the development of interventions that consider the important role of groups in delivering innovation and building cultural change and development programs.

Builds on Private Sector Culture Literature

The results of this thesis build on the work undertaken in the Private Sector where studies had reviewed aspects of organizational culture with the aim of determining capacity for innovation (Büschgens, Bausch & Balkin 2013; Lin et al. 2013; Naranjo-Valencia, Jiménez-Jiménez & Sanz-Valle 2016) with Von Treuer and McMurray (2012) focussing on the aspect of workplace climate. Daher (2016) provided a theoretical model based on private sector research that assumed a relationship between organizational culture and organizational innovation through the cultural values within the organization. These studies looked across Private Sector Organizations, used varying measure of culture and did not connect with the

micro-level development of innovation within an organization. This thesis was able to build upon the work undertaking in the private sector by empirically identifying the connection between Organizational Culture and Workplace Innovation within the public sector.

Public Sector Innovation

This thesis extended the literature on public sector innovation by proving that Public Sector Culture is a significant antecedent to Workplace Innovation in the Public Sector. The findings showed the direct impact of Organizational Culture itself on Public Sector Innovation, particularly at the micro-level in organizations, and the integration between Workplace Innovation Climate, Individual, Team and Organizational Innovation. Previous research referred to organizational culture and loosely associated it in supporting the development of organizational capacities or processes such as innovation. However, the researcher has found no study to date that has focussed on the direct impact of culture itself on public sector innovation - particularly at the micro-level in organizations. The findings extended the literature describing Workplace Innovation as a multi-dimensional, subjective and context specific phenomenon including the dimensions of Organisational Innovation, Workplace Innovation Climate, Team and Individual Innovation (McMurray & Dorai 2003; Muenjohn & McMurray 2017) by empirically proving the relationship between Organizational Culture and Workplace Innovation and its four dimensions in the context of a Public Sector Organization. The thesis results supported calls for more research in public sector innovation to build upon existing literature and emphasized theory development using more multi-method approaches (De Vries, Bekkers & Tummers 2016) and to highlight public sector innovation features to extend the innovation to overcome the 'context-blindness' of innovation literature (Hartley 2013).

Public sector management

This thesis extends the Theory of Public Management which identifies how actors in managerial roles do undertake discretionary behaviour within Public Sector Organizations, subject to the constraints of formal authority (Hill & Lynn 2004; Hughes 2012, 2017). The thesis findings provide evidence that Public Sector Managers can develop conditions to support workplace innovation in Public Sector Organizations by building positive cultures in

Public Sector Organizations. By establishing the empirical relationship between Public Sector Organizational Culture and Workplace Innovation this thesis provides evidence that Public Sector Managers by taking action to build positive organizational culture in Public Sector Organizations will be able to influence and build capacity for workplace innovation

8.5 RQ.2 Differences in perception among Demographic Groups

This discusses the analysis and results to answer Research Questions 2 about the differences in perception among staff with specific Employment Characteristics towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization. The findings for the Demographic Groups of gender, marital status, age and education levels supporting Hypotheses 2 to 5 are reviewed. Findings from Phases one and two of the mixed methods approach, and the integration of these two Phases are discussed including their contribution to the public sector literature.

A similar approach was used for the Phase one analysis of RQ. 1 with the differences being that Hypotheses 2 and 3 used the first generation statistical techniques of T-Tests, and ANOVA tests instead of regression alone. Hypotheses 4 and 5 used structural equation modelling.

8.5.1 H2 - Demographic Groups perceptions towards Organizational Culture

The first hypothesis tested to partly answer RQ. 2 was H2, ‘There is a difference in perceptions among Demographic Groups towards the aspects of a Public Sector Organization’s culture’. The Phase one quantitative analysis in Stage one using T-Tests and ANOVA tests on the Demographic Groups largely supports H2 and confirm there are significant differences in perception among Demographic Groups towards Public Sector Culture. There was most difference across the gender, marital status and age groups. There was no difference found with different education levels. This showed that the hypothesis was largely supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information compared Demographic Groups with the Public Sector Culture Thematic Model. This showed a strong relationship between Demographic Groups collectively and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Demographics. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups. The Stage two triangulation of results from the two Phases of research as part of the integration completed in Research Question 5 showed partial agreement between the two methods and partially supported the finding from Hypothesis 2.

The findings confirmed differences in group perspectives of Public Sector Culture from differing genders, ages and those with different marital status confirming literature that identifies that organisational life may be perceived differently for organizational members from different and diverse backgrounds (Glick 1985; Koys & DeCotiis 1991; Schein & Scheiner 2016). It extended this literature by determining that Public Sector Culture was a factor of organizational life perceived differently by these demographic groups.

Educational levels were found to have been a factor where there was difference or perceptions in other studies but this was not found so in this thesis (Baruah & Paulus 2009; Cohen, SG & Bailey 1997; Nijstad & Paulus 2003; Peters, L & Karren 2009; Van Knippenberg & Schippers 2007). Department A is a ‘knowledge based’ organization and it could be that with the high percentage of tertiary qualified staff (82%) there was not a great difference between education levels as can exist in other organizations so promoting less variation in perceptions.

8.5.2 H3 - Demographic Groups perceptions towards Workplace Innovation

The second hypothesis tested to partly answer RQ. 2 was H3, There is a difference in perceptions among Demographic Groups towards the four dimensions of Workplace Innovation in a Public Sector Organization. The quantitative analysis in Stage one using T-

Tests and ANOVA tests on the Demographic Groups found Workplace Innovation factors were not significant and H3 was not supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the Phase two qualitative analysis. A cross tabulation of qualitative information compared Demographic Groups with the Workplace Innovation Thematic Model. This showed a strong relationship between Demographic Groups and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to Demographic Groups.

The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed that the triangulated results were silenced as the quantitative outcome did not support this finding. The qualitative outcome was able to show an indicative relationship with the overall category of Demographic Groups, but not to identify it for individual Demographic Groups.

8.5.3 H4 & H5 Demographic Groups affect Organizational Culture and Workplace Innovation

The third and fourth hypotheses tested to partly answer RQ.2 were H4, Demographic characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization, and H5, Demographic characteristics will significantly affect the four dimensions of Workplace Innovation in a Public Sector Organization. The Phase one quantitative analysis using Structural Equation Modelling was able to identify an affect in all the Demographic groups on Public Sector Culture and Workplace Innovation. This included those from different Education Levels which was not found for the perspectives on Public Sector Culture and for all Demographic groups on Workplace Innovation. This showed that H4 and H5 were supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information compared Demographic Groups with the Public Sector Culture and Workplace Innovation Thematic Models. There was a strong relationship shown between Demographic Groups and the

components of these two Models as outlined above. The qualitative outcomes were able to show an indicative relationship with the overall category of Demographic Groups but not to identify it for individual Demographic Groups. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed partial agreement between the two methods and partially supported the findings from Hypotheses 4 and 5.

There was a significant difference between males and females with males being more influenced by Public Sector Culture particularly for Team and Individual Innovation. Females were more influenced by Workplace Innovation Climate or the environment at the micro-level of the organization. Females would more likely engage in innovative behaviour if the climate is right at the workplace level. Males were more likely to respond to improvements in Public Sector Culture and would engage by undertaking Team and Individual Innovation.

Gender issues in terms of innovation in a public sector context have seldom been discussed or examined (Alsos, Hytti & Ljunggren 2016; Van Acker, Wynen & Op de Beeck 2017). This thesis identifies the difference between genders when engaging in Workplace Innovation. This reconfirmed a difference between genders in respect to innovation climate by Van Acker, Wynen and Op de Beeck (2017) in a study of data from the 2014 Australian Public Service Employee Census with findings that 'demonstrate that women experience a less supportive innovation climate than their male colleagues' (Van Acker, Wynen & Op de Beeck 2017, p. 13). It extended this literature by identifying the differences between males and females with Workplace Innovation as females engage in more innovation with a positive Workplace Innovation Climate and males respond to Public Sector Culture overall and then contribute primarily through Team and Individual Innovation. This would indicate that when developing approaches to building culture, attention would be need to be paid to Public Sector Culture and Workplace Innovation Climate to support both males and females undertaking Workplace Innovation. This is significant for the public sector with a large proportion of innovation being found to be enacted at the workplace level (Arundel, Casali & Hollanders 2015; Borins 2002; Thompson & Sanders 1997).

This thesis found older workers aged over 50 years were less influenced by Public Sector Culture and more likely to undertake Individual Innovation. This confirmed and built upon research that found a relationship between Workplace Innovation and age in an empirical study undertaken by Chomley (2014) in a private sector multinational company that posits that the older people become, they become more innovative in their work. Innovation requires an accumulation of different skills which asks for certain experience and mature employees are more likely to possess these skills and experiences (Reader & Laland 2001). This thesis built on this literature by confirming a relationship between Workplace Innovation and age in a public sector context.

The findings that demographic groups have different perspectives of, and affect Organizational Culture and Workplace Innovation supports the organizational culture and climate literature that identifies organisation life may be perceived differently by different demographic groups. This confirms literature that concluded the concept of culture within an organization is not homogeneous but pluralistic (Laurila 1997; Parker, M 2000; Van Maanen & Barley 1983) and often contested, with competing factions defining the organization in a way that meets their cultural perceptions. In addition the different experience and requirements of diversity groups including gender and age confirm literature on Workplace Diversity and its role in supporting innovation (Bolen & Kleiner 1996; DCA 2015; Grant & Kleiner 1997; Liff 1999). Organizational initiatives to build organizational culture and workplace innovation would need to consider different demographic groups and their views in creating optimal cultural conditions to support workplace innovation. This could be considered as part of diversity and inclusion planning within Public Sector Organizations.

8.6 RQ.3 Differences in Perception among Staff with specific Employment Characteristics

This discusses the analysis and results to answer Research Questions 3 about the differences in perception among staff with specific Employment Characteristics towards Public Sector Culture and Workplace Innovation in the context of a Victorian Public Sector Organization. The findings for the Employment Characteristics of tenure, job types, work groups, work roles and flexible working supporting Hypotheses 6 to 9 are reviewed. As for

Research Question 2, findings from Phases one and two of the mixed methods approach, and the integration of these two Phases are discussed including their contribution to the public sector literature.

8.6.1 H6 Staff with specific Employment Characteristics perceptions towards Culture

The first hypothesis tested to partly answer RQ. 3 was H6, There is a difference in perceptions among staff with specific employment characteristics towards the dimensions of a Public Sector Organization's culture. The Phase one quantitative analysis using T-Tests and ANOVA tests on the Demographic Groups partly supported H6 that there are significant differences among staff with particular Employment Characteristics towards Public Sector Culture. There were different perceptions identified by those in different job types and work role groups. There was a significance predicted for work group but this was not identified in the detailed analysis. There was no significant relationship identified around tenure or working flexibly.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information compared Employment Characteristics with the Public Sector Culture Thematic Model. This showed a strong relationship between staff groups having particular Employment Characteristics and the components of the model where multiple references had been coded to the components reflecting over 93.24 per cent of the total references coded to groups. The Stage two triangulation of results from the two phases of research as part of the integration completed in Research Question 5 showed partial agreement between the two methods, and partially supported the finding from Hypothesis 2. This was because both the qualitative and quantitative outcomes were only partly supported.

It has been affirmed that staff identify with different groups in the organization that may be formed on the basis of age, gender or education as well as location, job description and length of tenure (Parker, R & Bradley 2000). These groups may identify as a separate group within the institution, share a commonly defined set of problems and act on the basis of collective understandings unique to their group (Van Maanen & Barley 1983).

The findings of this thesis showed a significant difference in perceptions of Public Sector Culture between the job types of Frontline Manager and Senior Manager, and Middle Manager and Senior Managers. This extended the literature addressing the identified importance of Frontline Managers and staff in undertaking workplace innovation in the public sector (Arundel, Casali & Hollanders 2015; Borins 2002; Thompson & Sanders 1997) by showing that Public Sector Culture affected their innovation capacity. It built on the literature by showing difference among levels of Managers that would affect workplace innovation delivery.

This built upon the literature from the private sector that Private Sector Organization's Managers and Senior Executives as a group have been found to have a significant impact on the innovation performance of others (Damanpour & Schneider 2006). The findings from this thesis build on this confirming levels of management with distinct perceptions of the culture would identify different ways to support innovation so affecting innovation delivery within a Public Sector Organization.

8.6.2 H7 Staff with specific Employment Characteristics perceptions towards Workplace Innovation

The first hypothesis tested to partly answer RQ.3 was H7, There is a difference in perceptions among staff with specific Employment Characteristics towards the four dimensions of Workplace Innovation in a Public Sector Organization. The Phase one quantitative analysis used T-Tests and ANOVA tests on staff with specific Employment Characteristics largely supported H7 that there are different perceptions among staff with particular Employment Characteristics towards Workplace Innovation. They were identified by staff in the tenure, job types, work group and work role categories. There was no difference with working flexibly.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information compared Employment Characteristics with the Workplace Innovation Thematic Model. This showed a strong relationship between staff with specific Employment Characteristics and the components of the model where multiple references had been coded to the components reflecting over 100 per cent of the total references coded to groups. The qualitative outcome

was able to show an indicative relationship with the overall category of staff with specific Employment Characteristics but not to identify it for individual staff groups. The Stage two triangulation of results from the two phases of research that integrated the results showed partial agreement between the two methods and partially supported the finding from Hypothesis 7.

As with the finding for H6, there was also a significant different in perception of Workplace Innovation between the job types, in this instance Middle Manager and Senior Managers. These perceptions would create differing behaviours among management levels so impacting on the innovation performance of others. This builds on the work of Damanpour and Schneider (2006) that Managers and Senior Executives as a group have been found to have a significant impact on the innovation performance of others in private sector literature, by confirming the role of different levels of management on innovation within Public Sector Organizations.

8.6.3 H8 & H9 Employment Characteristics affect Organizational Culture and Workplace Innovation

This discusses the outcomes the third and fourth hypotheses tested to partly answer RQ.3, H8, Employment Characteristics will significantly affect Public Sector Culture including Organizational and Group Culture in a Public Sector Organization, and H9, Employment Characteristics will significantly affect the dimensions of Workplace Innovation in a Public Sector Organization. The Phase one quantitative analysis using Structural Equation Modelling (SEM) was able to identify an effect on all staff with particular Employment Characteristics by Public Sector Culture and Workplace Innovation. The work group area differed as significance was not seen in each group for Organizational Culture. However, it was seen in 11 out of 13 groups that were able to be analysed using the SEM model. This showed that H8 was largely supported, and H9 was supported.

The Stage one triangulation used the quantitative concepts as the basis of developing themes for the qualitative analysis. A cross tabulation of qualitative information was undertaken to compare Employment Characteristics with the Public Sector Culture and Workplace Innovation Model. There was a strong relationship shown between staff with specific

Employment Characteristics and the components of these two models as outlined above. The qualitative outcomes were able to show an indicative relationship with the overall category of Employment Characteristics but not to identify it for individual Groups. The Stage two triangulation of results from the two Phases of research as part of the final integration showed partial agreement between the two methods and partially supported the findings from Hypotheses 8 and 9.

The findings of this thesis for the employment characteristic of tenure was that Public Sector Culture was of increasing importance to staff until they had been in the organization up to ten years, and then it decreased again. This group would be up to the 31 to 40 age range. The Early career staff members were more connected with Team Innovation, and Workplace Innovation Climate had more influence on their contribution to Workplace Innovation. As people spent longer in Department A, they increased their levels of Individual Innovation and were less connected to Team Innovation. These findings suggest that as staff became more established in their careers they were less reliant on Workforce Innovation Climate and Team Innovation to undertake innovation and were more confident to become individual innovators or had positions of authority that allowed them to innovate as an individual rather than in a team.

The different between staff tenure and the dimensions of Workplace Innovation and aspects of Public Sector Culture was a new finding that had not been identified in other literature. It did potentially contradict the finding by Van Acker, Wynen and Op de Beeck (2017) in a study of innovation climate in the Australia Public Service that when employees exceeded a 15 year length of service, they reported less supportive innovation climates. This thesis found that after 20 years of service there was reduced importance given to Workplace Innovation Climate by staff. This could imply that they were not as influenced by innovation climate having developed other skills and capacities that made them more independent of the workplace climate. However, as the tenure intervals in this thesis did not directly a line with those of the APS study and the concept of innovation climate used differed, this connection cannot be made directly.

This thesis found there was a large difference with Public Sector Culture's effect on job types. The lowest was for the Frontline Managers who had a high relationship to Group Culture and indicated Team and Workplace Innovation Climate were important aspects of innovation. This contrasted with Senior Managers where Public Sector Culture was rated strongly for impacting Workplace Innovation, and who thought Individual Innovation had the highest impact and Workplace Innovation Climate the least. The work role category in addition found Individual Innovation was identified as more important by the Director category, and the Manager category rated it highly. These views of Senior and Frontline Managers opposed each other. This difference in the management approach to innovation would make it difficult to foster Workplace Innovation throughout the organization as different levels of management perceived different elements to be important and would emphasize different actions. The qualitative analysis provided evidence that corroborated this finding of a lack of consistency between levels of management happening within the organization.

This finding confirms the organizational culture and climate literature that identifies organizational life may be perceived differently for organization members at different organizational levels (Glick 1985; Koys & DeCotiis 1991; Schein & Scheiner 2016). It also provides additional explanation to the finding of (Damanpour & Schneider 2006) that within Private Sector Organizations Managers and Senior Executives as a group have significant impact on the innovation performance of others and other research on the significant role of managers in creating a work and social climate to encourage and reward innovation (DiTomaso & Hooijberg 1996; Ekvall & Arvonen 1994; Elenkov, Judge & Wright 2005; Hooijberg & DiTomaso 1996). The difference between levels of management in the importance given to different aspects of public sector culture and dimensions of workplace innovation, would create different ideas of what was important to fostering workplace innovation potentially creating conflicting management policies.

8.7 Findings from RQs 4 and 5 including Meta-inferences

Stage three of this thesis undertook Phase two of the analysis answered Research Question 4, What ways do Victorian public sector organization reports corroborate with Workplace Innovation and Public Sector Culture in the context of a Victorian Public Sector Organization?

and Stage four answered Research Question 5, In what way does the mixed methods analysis contribute to understanding Workplace Innovation and Public Sector Culture?

The qualitative results that were triangulated with Research Questions 1 to 3 and associated hypotheses are given in Sections 8.4 to 8.6 above. In addition, the qualitative analysis identified six overarching themes that provided explanation and corroboration of the quantitative results adding additional rich description to the results, and highlighting key issues within the overarching themes (Forster 1994; McClintock & Greene 1985). These themes connected the quantitative results with the qualitative results to link the understandings and were combined into meta-inferences as part of answering Research Question 5.

This section compares the results to explain and explore the additional findings that are described in the six meta-inferences developed (Fetters, Curry & Creswell 2013; Wisdom & Creswell 2013). These are: Group Culture is more important than Organizational Culture in Department A in supporting Workplace Innovation; Cultural change management in Department A was led by Senior Executives who were not engaging with staff at all organizational levels and this resulted in reduced cultural cohesion and Workplace Innovation; There were divisions between different levels of the organization associated with support for workplace innovation. The Managers were identified as an important group that had a significant impact on culture and workplace innovation in their Groups. Particular demographic groups were disadvantaged when Department A created new organizational structures thus reducing their innovation capacity; Organizational barriers were identified that impeded Workplace Innovation; and Department A's workplace structure impacted on Workplace Innovation. The analysis and discussion follows below.

8.7.1 Group Culture is more important than Organizational Culture in Department A in supporting Workplace Innovation

Meta-inference: Group culture is more important than Organizational culture in Department A in supporting Workplace Innovation

Ongoing organizational change was found to reinforce the importance of subcultures. The quantitative analysis found aspects of Public Sector Culture are positively and significantly related to those of the Workplace Innovation Scale. In addition, Group Culture had a stronger impact on Workplace Innovation compared to either Organizational Culture or Public Sector Culture. Research Questions 2 and 3 with the findings 7 to 14 found Group Culture was more important as a predictor of Workplace Innovation for a number of the staff groups.

The Theme of Public Sector Culture identified that Department A and its preceding Departments had been undergoing major restructures over three years. The changing culture was highlighted as a key issue affecting workplace innovation through the qualitative analysis with the ongoing organizational change reinforcing the importance of subcultures. The Theme of Public Sector Organization identified the element of organizational change brought about by political processes relating to Public Sector Organizations. Change was ongoing and connected to political cycles rather than as a way to support service delivery. This led to difficulties in creating a strong Organizational Culture and encouraged staff to have stronger connections to Groups as more stable smaller work units. There were particular subcultures that were connected to functional specialities and professional groups.

The findings of this thesis were that Group Culture was more important in supporting Workplace Innovation in Department A. This was found to be because of ongoing and volatile political change. This confirmed the work of Wynen, Verhoest and Kleizen (2017) that intense periods of organizational change were characteristic of the public sector when political environments were volatile, creating significant organizational disruption. The finding of this thesis built on this work by highlighting Group Culture became more important in supporting Workplace Innovation in times of organizational change.

In addition, the thesis findings confirmed the literature that identified political changes were enacted without considering the organizational and cultural impacts on organizations (Ferlie, Hartley & Martin 2003; Wynen, Verhoest & Kleizen 2017) and built on this by demonstrating that political changes had a significant impact on how the organization undertook Workplace Innovation. It also reaffirmed the Cultural Change Literature that cultures take time to develop and change is difficult especially in this case with two established cultures trying to be melded together (Alvesson & Sveningsson 2007; Schein & Scheiner 2016).

8.7.2 Cultural change management in Department A was led by Senior Executives with a lack of engagement from staff

Meta-inference: Cultural change management in Department A was led by Senior Executives who were not engaging with staff at all organizational levels and this resulted in reduced cultural cohesion and Workplace Innovation.

The quantitative analysis outcomes identified that aspects of Public Sector Culture are positively and significantly related to those of the Workplace Innovation Scale in the context of a Victorian Public Sector Organization. In addition, Demographic Groups and staff with particular Employment Characteristics had differences in perceptions towards the dimensions of Public Sector Culture and Workplace Innovation, and these affected the aspects of Public Sector Culture and the dimensions of Workplace Innovation. The results identified a number of Demographic Groups and staff with particular Employment Characteristics were influenced strongly by Group Culture and Workplace Innovation Climate.

In the qualitative analysis, the themes of Public Sector Culture and Workforce Innovation highlighted that leadership of the change was being managed from Senior Executives with a lack of input from staff. The Organization had a stated goal of creating a constructive culture that was able to assist the organization meeting its strategic goals including one of being innovative. However the messages were not reaching all of its staff with the continued change encouraging staff connection to smaller work units on the basis that the larger organizational structure was constantly changing.

This thesis found that cultural change management driven by the Senior Executives was not supporting an effective organizational change program as messages were not reaching the

Group level or affecting local Workplace Innovation Climates. Staff did not feel connected to the organizational approach and were finding it safer to connect to the more stable subcultures. The finding confirmed the literature on the importance and strength of subcultures in organizations (Dunn & Jones 2010; Geva-May 2002; Hinings 2012; Osborne, S & Brown 2005). Subcultures are created because of common characteristics of their members and are reinforced by a common political view and a sense of shared interests.

The thesis confirmed the finding by Chandler, Csepregi and Heidrich (2018) that strong subcultures can affect the assimilation of knowledge from management in general so potentially creating difficulties with organizational change messages penetrating into subcultures. This was extended by establishing that this happens within a Public Sector context.

8.7.3 Workplace Innovation was not supported equally across Department A, reducing Workplace Innovation capacity

Meta-inference: There were divisions between different levels of the organization associated with support for workplace innovation. The Managers were identified as an important group that had a significant impact on culture and workplace innovation in their groups.

There was a division between different levels of the Organization associated with support for Workplace Innovation. In the analysis of staff with specific Employment Characteristics, quantitative research had found differences between work roles. Management at higher levels supported Workplace Innovation, however Middle and Frontline Managers were more focussed on Organizational Innovation and the signals coming from this level before they supported innovation. In the qualitative analysis the Themes of Public Sector Organization and the analysis of groups with certain Employment Characteristics it was identified that Managers were seen as important conduits for building Workplace Culture and encouraging Workplace Innovation. Further, it highlighted that while organizational change was focussing the attention of Middle and Frontline Management who were key initiators of Workplace Innovation, innovation activities were disrupted at the workplace level. However, there was dissonance within the organization as staff members often identified Managers as those who blocked innovation and created negative cultures.

The finding that Workplace Innovation was not supported equally across the organization because of different levels of Management focussing on different aspects of Workplace Innovation confirmed the literature addressing the identified importance of Frontline Managers and staff in undertaking workplace innovation in the public sector (Arundel, Casali & Hollanders 2015; Borins 2002; Thompson & Sanders 1997). The thesis built on this by establishing the effect different levels of Management had on Workplace Innovation by supporting different dimensions of innovation. This explained the dissonance of staff with reports of one level of Management supporting Workplace Innovation and another level blocking it. In addition, Managers were at times disagreeing with staff about what dimension of Workplace Innovation would foster innovation.

8.7.4 Particular demographic groups were disadvantaged through organizational change so reducing their innovation capacity

Meta-inference: Particular demographic groups were disadvantaged when Department A created new organization structures thus reducing their innovation capacity

The analysis of Demographic Groups in the quantitative data identified differences between the perceptions of Demographic Groups on Public Sector Culture and Workplace Innovation and how groups affected the dimensions of Organizational Culture and Workplace Innovation in the context of a Public Sector Organization. Different dimensions of Workplace Innovation were found to be more important for particular groups for example Workplace Innovation Climate was more important for females compared to males.

The qualitative analysis in the Theme of Demographic Groups had revealed that with the initial focus of Department A being to create the new Organization, particular demographic groups had been alienated because there were winners and losers in the restructures and reorganizations that had occurred particularly concerning women and older workers. While communicating messages on building a positive culture, the Organisation was seen to be supporting workplace inequality between certain groups.

This thesis finding that certain members of Demographic Groups had been disadvantaged by the organizational change confirms the finding of a study of the Australian Public Service

(APS) that ‘women experience a less supportive innovation climate than their male colleagues’ (Van Acker, Wynen & Op de Beeck 2017, p. 13). This thesis in addition found that older workers were disadvantaged which is a common understanding but does not seem to have been the subject of any public sector research. There were a number of comments that experienced Managers were more vulnerable when there was change and lost their jobs. The finding in this study that older workers were more likely to undertake Individual Innovation indicates that targeting older workers would reduce Workforce Innovation Capacity within the organization. The disadvantage experienced reduced the innovation capacity of the diversity groups of women and older workers so reducing the capacity of the Organization’s Workplace Innovation.

8.7.5 Organizational barriers were identified that impeded Workplace Innovation

Meta-inference: Organizational barriers were identified that impeded Workplace Innovation

The quantitative analysis identified a significant relationship between Public Sector Culture and Workplace Innovation with this describing up to 24.6 per cent of the variability in Workplace Innovation. Public Sector Culture was shown to have a major impact on Workplace Innovation.

The theme of Workplace Innovation showed a number of barriers were identified to Workplace Innovation including; capability gaps, systems that did not support innovation and continually reducing budgets. Staff identified adverse culture, lack of clear plans and strategies, ongoing organizational change, lack of management support, risk adverse management, the loss of knowledge, a lack of talented staff, and structural issues as barriers to innovation (Newnham 2014). These barriers identified would make Workplace Innovation more difficult to achieve in Department A, and highlighted that additional explanation about the innovation environment within the Department would be needed for management to take action. Management had not been able to foster innovation given the changing organizational environment that followed the merger. The initial document prepared to support developing innovation in Department A was not able to identify the relationships that fostered innovation

and lacked a detailed understanding of how Workplace Innovation worked within the organization. The knowledge gained from the findings from this thesis provides evidence to support actions that can reduce organizational barriers to Workplace Innovation.

The thesis finding that there were a number of barriers to Workplace Innovation in Department A clarified the environment in which innovation was undertaken. The barriers identified creating an unfavourable cultural environment which would then reduce innovation. This confirmed existing research on a number of specific barriers to public sector innovation that were connected to the different context of Public Sector Organizations (Borins 2001; Boukamel & Emery 2017; Demircioglu 2017a; Kelman 2005; Moussa, McMurray & Muenjohn 2018; Mulgan & Albury 2003). The thesis extended this research by identifying that barriers that created negative culture or a reduction in culture would have a corresponding reduction in the amount of workplace innovation undertaken in a Public Sector Organization. In addition the findings contributed understanding of key relationships between Culture and Workplace Innovation that would assist managers in developing change programs that could foster culture and improve workplace innovation.

8.7.6 Department A's workplace structure impacted on Workplace Innovation

Meta-inference: Department A's workplace structure impacted on Workplace Innovation

The quantitative analysis found a number of Team Innovation and Individual Innovation variables had lower communality values in the Exploratory Factor Analysis results identifying respondents found it difficult to describe aspects of these two types of innovation. The qualitative analysis in the additional theme of Survey Comments received comments from respondents that outlined a number of comments about Organizational Structures in Department A. There were unexpected organizational forms in Department A that did not relate to the Workplace Innovation Scale Instrument constructs of Team or Individual Innovation.

It was identified that Teams within Department A were not always created to assist in delivering common programs. Particular teams collected individual specialists into a group for administrative purposes. Other teams included people running discrete projects across multiple areas. In addition Individual Innovation was not well supported by Frontline or Middle Managers and some individuals did not feel it was an activity they were empowered to do. This suggested that there was a more collectivist orientation towards work tasks within the Department as a number of respondents did not identify with the concept of Individual Innovation.

It was significant that Individual Innovation is not understood and less commonly practiced. Instead Team Innovation was prevalent and embedded within Department A's culture as staff worked on tasks in teams. This highlighted a potential issue in implementing Workplace Innovation as individuals in the workplace were found to have a fundamental role in shaping innovation processes, thus a lack of understanding about this may have restricted innovation potential (Salvato 2009). Department A appeared to ignore the importance of both individual and team innovation with documents developed to build an innovation plan and associated innovation strategies being silent about the role of individual and team innovation. The lack of information and guidelines by the organization due to lack of understanding on how innovation operated at the workplace level, acted to restrict the development of a culture that supported individual and team innovation as components of workplace innovation

These findings may be applicable to other Public Sector Organizations and could give the opportunity for modification of the delivery of the Workplace Innovation Scale instruments in Public Sector Organizations. This could be an area where additional research was undertaken to interview staff to gain greater knowledge of their understanding of individual and team innovation.

8.8 Summary

In this Section, the main thesis findings were discussed. The findings were then related to the relevant literature and theory thus identifying the thesis contributions to the extant literature in the public sector field. The following section provides the thesis conclusion.

Chapter 9. Conclusion

9.1 Objective

The aim of this chapter is to provide an overview of the thesis key empirical findings and the additional findings addressing Organizational Culture and Workplace Innovation. Implications of methodological issues for researchers conducting studies in the area of organizational behavioural science are discussed. This chapter discusses what may be concluded from the significant findings. It notes the limitations of this thesis and makes recommendations for future research.

9.2 Contribution to the Literature

This thesis accomplished its two main objectives. Firstly, it conducted an extensive literature review and analysis of Workplace Innovation and the Organizational Culture literature from a public sector context.

Secondly, it empirically investigated and confirmed the relationship between Organizational Culture, specifically Public Sector Culture and Workplace Innovation within a mixed methods context, allowing it to measure the relationship between Public Sector Culture and Workplace Innovation. Additionally, it provide understanding on the reasons why this relationship was observed through undertaking a qualitative analysis. This allowed the five research questions to be answered including the development of meta-inferences from the integration of the two components of the mixed methods study to create a holistic theming of the data and provide another additional level of explanation.

In addition, it is the first study to investigate: demographic characteristics such as gender, marital status, age, education level; and employment characteristics of tenure, job type, work groups, work role and flexible working and their relationship to Workplace Innovation and Organizational Culture. This was from a population sample of 479 employees of Department A, a Victorian Public Sector Organization delivering social and economic policies and services to the State. The findings confirmed the relationship between the dimensions of Workplace Innovation and the aspects of Organizational Culture.

The identification of demographic and employment characteristics of Department A employees is an important research area. This is due to demographic and employment characteristics containing details which can further guide an organization's strategy for developing a culturally diverse workforce, inform project team composition and workforce structuring. Although, in this thesis, the demographic and employment characteristics are not studied in detail for these purposes, future studies can build upon these demographic data and extend the research to a new level.

The significant findings extend the existing Public Sector Culture literature by empirically identifying the direct relationship between Public Sector Culture and Workplace Innovation and the strength of that relationship. This extended Schein's Theory of Culture (Schein & Scheiner 2016) that identified the importance of context in understanding the cultural manifestations in organizations where the espoused beliefs and values are set by political directions. The findings of this thesis extended the Theory by proving the relationship of culture as a significant antecedent to Workplace Innovation in the context of a Public Sector Department of State. It builds on the work undertaken in the private sector by (Büschgens, Bausch & Balkin 2013; Lin et al. 2013; Naranjo-Valencia, Jiménez-Jiménez & Sanz-Valle 2016) on how aspects of organizational culture determined capacity for innovation with Von Treuer and McMurray (2012) focussing on the aspect of workplace climate.

A case study of a Public Sector Organization, in this instance a Department of State was the basis for this thesis as there was a paucity of available information in the literature on Public Sector Organizations, particularly in this distinct organizational form. It is an organizational type difficult to access for research so presenting an unusual case (Yin 2014). As a critical empirical case, it was able to confirm for the first time the relationship between Public Sector Culture and Workplace Innovation within a Victorian Public Sector Organization. As an unusual and critical empirical case (Eisenhardt & Graebner 2007; Schein & Scheiner 2016; Schwandt & Gates 2017; Yin 2014), it was possible to generalize the findings to extend knowledge in the public sector research literature. This thesis focussed on the relationship between Organizational Culture and Workplace Innovation within a Public Sector Organization which include fields in the public sector literature where there is a recognized

lack of consistency. This has led researchers to encourage more research to be carried out on the aspects of public sector culture (Baird & Harrison 2017; Bradley & Parker 2006; Harrison & Baird 2015; Parker, R & Bradley 2000), public sector innovation (De Vries, Bekkers & Tummers 2016; Hartley 2013; Hastings & Finch 2007; Koch et al. 2006) and public sector management (Kelman 2005; Kooiman 1996).

The thesis results extended the Theory of Public Sector Innovation by empirically confirming the relationship between organizational culture and workplace innovation. This was captured and identified by measuring the Public Sector Culture and using the Workplace Innovation Scale as an operationalization of Workplace Innovation (McMurray & Dorai 2003). No study has been undertaken to date that focusses on the direct impact of culture itself on public sector innovation, particularly that at depth in organizations by investigating the integration between Workplace Innovation Climate, Individual, Team, and Organizational Innovation.

The findings extended the Theory of Public Sector Culture highlighting the importance of this as an antecedent of Workplace Innovation. In addition, the constant organizational change within Public Sector Organizations has a negative impact on culture and organizations. The results added to the Theory of Public Sector Management (Hughes 2012, 2017; Kooiman 1996) identifying culture as a significant contributor to innovation in a Public Sector Organization. This is an important function to be considered when managing these organizations.

9.3 Methodological Contribution

This thesis provides four methodological contributions. The first is that there is a paucity of mixed methods studies within the public sector context particularly in the Organizational Culture and Workplace Innovation literature in the public sector (De Vries, Bekkers & Tummers 2016). This is a major contribution as studies in the field are predominantly anchored to the qualitative single method paradigm. This positions this thesis uniquely within the literature, thereby strengthening its contributions to the field of public sector organizational culture and workplace innovation. The public sector literature on workplace innovation, organizational culture and public sector management outlined the reasons why all these

aspects of public sector management should be empirically tested. Consequently, this thesis undertook this challenge by empirically investigating the relationship between Workplace Innovation and Organizational Culture within a Public Sector Organization. This was by collecting primary data from 479 employees of a Public Sector Organization, and using a mixed methods approach to develop understanding of both the size of the relationship and the reasons behind the relationship.

To date this is the first research design to empirically undertake a mixed methods approach to investigate the complexity of how organizational culture relates to Workplace Innovation in a public sector context by utilizing the Department of State as a case study. As noted earlier, to undertake any research effort within the public sector is challenging due to accessibility thus resulting in the paucity of available studies within the literature. Yet this thesis went beyond the quantitative and qualitative literature in the field by employing a mixed method approach thereby contributing to both the quantitative and qualitative paradigms across both fields of literature. This is a significant contribution providing in-depth findings and contributions to the organizational innovation and culture literature.

The second contribution is that business and management literature primarily focuses on the private sector and has attracted an increasing number of conceptual and theory building studies on aspects of Organizational Culture that impact on organizations processes including aspects of innovation. There has been fewer contributions from the literature in the context of the public sector and there was a call for more theory driven research for this sector to add to the existing literature (De Vries, Bekkers & Tummers 2016).

The third contribution is the use of an explanatory sequential mixed methods approach using a Phase one Quantitative → Phase two Qualitative study where the theoretical drive or priority in the core methods was quantitative and the supplementation qualitative method built on the findings from Phase one (Creswell 2010; Morse 1991, 2016). Additional confidence in the quantitative study was gained by using a two stage data analysis approach using first generation statistics for Stage one and for Stage two the second generation approach of structural equation modelling. The method was reinforced by the concepts from Phase one being used as the basis for theme creation for Phase two allowing a stage one triangulation

between these phases. A second stage of triangulation of the findings from both phases was undertaken as part of the integration of the data in a final mixed methods research question that confirmed the results of the two Phases and integrating them together allowing the development of six additional meta-inferences. This approach enabled the findings to be corroborated from both methods and provided additional depth and understanding of the results obtained identifying congruence, complementarity and difference between the two results.

9.4 Significant Findings

This thesis examined and confirmed the relationships between the Workplace Innovation and its four dimensions and Organizational Culture and its two aspects. The importance of Group Culture which in this study represented the departmental level of the organization, to Workplace Innovation and in addition the need to engage Groups to undertake successful organizational change highlighted the need to apply different change approaches to engage at the Group level rather than using top down approaches. In addition the effect of organizational change on organizational culture clarified how political change made without considering impact on organizations has a direct effect on organizational culture which reduces workplace innovation (Ferlie, Hartley & Martin 2003).

For the first time in the literature, this thesis uncovered the variance in the perception of Workplace Innovation and Organizational Culture and between different demographic and employment characteristics of public sector employees. The demographic and employment characteristics confirm that employees in a Public Sector Department of State exhibit significant differences between various groups in how Culture impacts on Workplace Innovation. Groups that are impacted by unequal employment conditions such as gender and age are negatively impacted by organizational change which in turn can alter culture and workplace innovation thus reducing the optimum conditions for workplace innovation. These new findings provide insights into the characteristics of the public sector workplace as well as adding to the academic literature. In addition, the role of different levels of managers in supporting culture that will enhance workplace innovation was found to be conflicting. Senior Managers supported individual innovation but Middle and Frontline Managers looked for

organizational signals before they supported Workplace Innovation. Looking for organizational signals before undertaking workplace innovation reduced the capacity for workplace innovation during times of organizational change. In this way, this thesis addressed the omissions in the literature and extended the understanding of how Organizational Culture impacted on Workplace Innovation within a Public Service Organization.

9.5 Implications

The importance of Organizational Culture to developing strong and productive organizations is an increasingly popular area of management focus. The public sector is encouraged by central government and shared interest groups to build innovation capacity. The thesis findings identified high positive correlations between Organizational Culture and Workplace Innovation which support Public Sector Managers investing efforts in developing stronger Organizational Cultures to build Workplace Innovation.

The importance of Group Culture in influencing Workplace Innovations points to a need to building cultural cohesion across the organization by working with group subcultures to build a collaborative group rather than applying top down change and development programs. This will require organizational change managers and managers to develop programs and communications that connect to all subcultures throughout the organization. To achieve whole of organization programs, subcultures will need to be connected into organizational culture. This may be by action being undertaken at the subculture level that is then integrated at the organizational level.

From the human resource management and managerial perspective, approaches, guides and performance systems that consider the team aspect of workplace innovation will allow more focus on this area of innovation and promote a variety of team composition that represents diversity. Teams with a range of people of different demographic and employment characteristics will optimise workplace innovation.

Working on a range of cultural aspects such as the development of human resource management policies that encourage an equitable workplace where everyone is valued as a person, will support building a strong culture. Organizations can create diversity strategies

that support diversity groups and considers potential disadvantages they face during major change events. This will help avoid negative impacts on the culture by demographic or employment characteristics groups being treated unfairly in organizational change programs. By exploring the demographic and employment characteristics of employees relative to the Workplace Innovation Climate, change initiatives to encourage a Workplace Innovation mindset can be developed and implemented.

Understanding this relationship between culture and workplace innovation at the micro-level in Public Sector Organizations provides Public Sector Managers with the ability to develop positive cultural environments that support the development of workplace innovation. Through understanding this they will understand that a negative culture at the macro or micro-level of the organization will significantly impede workplace innovation.

Public sector management policy is informed by these findings and can be further developed to encourage building a positive culture and workplace innovative mindset at both the management and subordinate staff levels. The decisions of Senior Policy Makers in the public sector can be more congruent with what is known about how organizational and cultural change occurs thus changes can be most effectively achieved (Ferlie, Hartley & Martin 2003) within public sector workplaces. This case study identified how political reforms were merged across an organization and then were over turned within 16 months and the organization components were amalgamated with other organizations. This demonstrates how too many changes, too often, create a reduction in public sector organizational capacity (Wynen, Verhoest & Kleizen 2017).

9.6 Limitations

As all research does, this thesis has several limitations.

Firstly, the thesis used a case study of one Department of State which met the definition of an unusual case and a critical empirical case and so has been identified to generalize the findings to extend knowledge in the literature (Eisenhardt & Graebner 2007; Schein & Scheiner 2016; Schwandt & Gates 2017; Yin 2014). As a single case it is not able to empirically prove the findings apply to other Public Sector Organizations.

Secondly, culture is a complex construct and operates at many levels within an organization. Organizational culture is specific to an individual organization and measures will differ to other organizations, this must be considered when reporting on research of this nature. A qualitative approach allows for greater depth of analysis into the organization's culture (Chandler, Csepregi & Heidrich 2018) and this was in part achieved with the qualitative analysis completed in Phase two.

Thirdly, there were issues around the instrument used in this thesis due to previously unidentified differences in organizational forms in Department A not relating to the Workplace Innovation Scale (WIS) Instrument constructs of Team or Individual Innovation. Use of the WIS instrument in other Public Sector Organizations may need to modify aspects of the instrument.

The other limitation of this thesis during the quantitative phase of the method were that all of the constructs are measured by single-source self-report data, common method variance (CMV) may bias the construct relationships (Podsakoff & Organ 1986). As with any quantitative study utilizing statistical methods, the researcher acknowledges the shortcoming of linear regression, ANOVA and T-tests utilized in this thesis. This was modified by the use of structural equation modelling to test co-efficients between subject groups. In addition, a greater proportion of females compared to males responded to the survey. This is a common response to surveys undertaken in this organization and the different proportions are not considered to affect survey outcomes. The limitation of the quantitative method was able to be countered by the qualitative Phase two that added critical information and rich descriptive to illustrate reasons behind the findings.

The qualitative research used a subset of the official Departmental organizational documents to collect data. The official documents presented aspirational goals and a positive interpretation of events demonstrated they are political and subjective in nature (Forster 1994). The positive skew was balanced by including departmental reports that had consulted with staff and delivered a balance of views. Most of the Department reports were collected for 2014, the year the research was undertaken, so the results were focussed within this year. Department A had a limited life existing from April 2013 to the end of 2014 which was not

anticipated at the time the research was initiated. The documents used represented the work that had been achieved in Department A when undertaking its cultural change program. Therefore Documents used were focussed on the iteration of the Environment Department that existed four years ago, and the results could be different if the current Department was studied.

The researcher undertook the thesis in the organization she worked within so creating potential difficulties with ethical and power issues (Creswell 2016). This was moderated for in the research design by using anonymous surveys to collect data, providing options for respondents to opt out, and collecting the qualitative data by using documents rather than interviewing individuals in the organization (Marshall, C & Rossman 2011) .

9.7 Future Research

This thesis suggests several avenues for future research. Replicating this thesis in other Departments of State both in Australia and overseas would provide additional knowledge and build the theoretical insights in light of the different forms of Departments of State in other jurisdictions and clarify any differences between Departments that delivered social development or economic development policies. In additional, different types of Public Sector Organizations and different levels of government could be studied such as the Commonwealth level, Local government and public sector service delivery organizations. The thesis primarily was focussed on a Public Service Organization however it could be extended to review the public and private sector to undertake a comparison study of Organizational Culture and Workplace Innovation and identify the difference between the two contexts.

To the extent this thesis was limited more extensive studies might overcome the limitations of the present thesis. The research could be extended by using the survey to randomly sample populations of several Public Sector Departments of State in a variety of ways. This could increase the reliability and generalizability of the results, with a supporting qualitative analysis to determine what organizational features explained the relationships. This could be done in various ways with a sample of populations across several departments within a State allowing a comparison across departments to identify whether there was commonality between

departments. Another approach could be to sample State departments across nations to see if there was commonality between jurisdictions.

Further research could investigate relationships between Organizational Culture and Workplace Innovation using a different mixed methods approach using interviews instead of or as well as a document analysis. This would allow for the qualitative approach to collect information at particular group level for certain Demographic groups and staff with specific Employment Characteristics to explain any differences observed from measuring empirical relationships between Organizational Culture and Workplace Innovation for these groups. A focus on demographic groups from additional diversity categories such as cultural background compared to gender and age could establish how various groups experience Public Sector Culture and Workplace Innovation and identify any differences or disadvantages.

Additional study on the influence of subcultures with Public Sector Organizations, their influence on workplace innovation and how this is affected by ongoing politically driven change would build on the meta-inference that Group Culture is more important than Organizational Culture within large and complex Public Sector Organizations.

9.8 Conclusions

To date there has been a number of assumptions made about the relationship of organizational culture to workplace innovation within Public Sector Organizations in academic literature with empirical results that have been confusing, mixed and inconclusive. The results from this thesis provide strong empirical evidence of the relationship between Organizational Culture and Workplace Innovation. The results suggest that Workplace Innovation can be maximized by developing positive Organizational Cultures in Public Sector Organizations.

The public sector has different operational conditions to the private sector and this thesis has identified these in relation to how Organizational Culture within Public Sector Organizations impacts on the development of Workplace Innovation. Despite the limitations of this thesis, the results clearly suggest that continued research on these topics has the potential to yield

useful practical suggestions for organizations whose effectiveness depends on the ability to undertake workplace innovation within a public sector context.

This thesis achieved its objectives by investigating the relationship between the dimensions of Workplace Innovation and Organizational Culture within a Victorian Public Sector Organization. A mixed methods approach was undertaken to investigate the research questions, and the findings of the data analysis showed that Organizational Culture had a significant relationship with Workplace Innovation that was greatly affected by organizational change and existing organizational subcultures. Politically generated organizational change reinforced subcultures which impacted on workplace innovation delivery. This thesis introduced a new in-depth understanding about the relationship between Workplace Innovation and Organizational Culture in a public sector context and can be seen as contributing a new direction in the literature. With this, the thesis provides a major contribution to extending the conceptual studies understanding Workplace Innovation and Organizational Culture within the public sector empirically proving that the dimensions of Workplace Innovation are related with Organizational Culture.

The study of workplace innovation at the micro-level within a Public Sector Organization included an analysis of the perception of Workplace Innovation and Organizational Culture between different Demographic and Employment Characteristics of public sector employees. The confirmed that public sector employees exhibit significant differences between various demographic and employment characteristics groups in how organizational culture impacts on workplace innovation. Understanding this provides the opportunity to develop effective teams and management structures within a conducive culture to support the delivery of and development of workplace innovation.

Finally, this thesis provides an in depth understanding of the complex dynamics between Organizational Culture and the dimensions of Workplace Innovation, especially in a Public Sector Organization. In this way, the thesis provides several significant new contributions and insights to the current culture and innovation literatures including public sector and innovation theory.

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Appendix A Terms and Definitions

A 1 – Terms including Abbreviations used in this Thesis.

Terms including Abbreviations.	
ABS	Australian Bureau of Statistics
AGA	Associative group analysis
APS	Australian Public Service
CoMs	Community-based Committees of Management
CFA	Country Fire Authority
CA	Cronbach Alpha
DELWP	Department of Environment, Land, Water and Planning
DEPI	Department of Environment and Primary Industries
DPC	Department of Premier and Cabinet
DPI	Department of Primary Industries
DSE	Department of Sustainability and Environment
DTF	Department of Treasury and Finance
EFA	Exploratory Factor Analysis
FTE	Full Time Equivalent
GDP	Gross Domestic product
GSP	Gross State product
HUB	Department A's Intranet
Nesta	Is now a global innovation foundation and started its life as NESTA-National Endowment for Science Technology and the Arts
NPG	New Public Governance
NPM	New Public Management
NWS	Neo-Weberian State
OECD	The Organization for Economic Co-operation and Development
OCP	Organizational Communication Profile
OCI	Organizational Cultural Inventory
Oslo Manual	OECD Guidelines for Collecting and Interpreting Technological Innovation Data
PLS	Plain Language Statement
PPA	*Public Administration Act* 2004
RQ	Research Question
RMIT	Royal Melbourne Institute of Technology
SSA	State Services Authority
SEM	Structural Equation Model/ Modeling
SGI	Sustainable Government Initiative
TACSI	The Australian Centre For Social Innovation
UK	United Kingdom
USA	United States of America
VPS	Victorian Public Service
VPSC	Victorian Public Sector Commission
WoVG	Whole of Victorian Government
WIC	Workplace Innovation Climate
WI, WIS	Workplace Innovation Scale
Yammer	Department A's Internal Social Media Network

A 2 – Definitions used in this thesis

Factor or Concept	Definition	Source
Department of State	Departments of State are a central part of the Westminster system of government. They support the work of Ministers in undertaking their responsibilities and undertake a wide range of functions and activities. These include: policy and administrative functions, direct service delivery and the funding and coordinating of service delivery by other parts of the public sector.	(Halligan 2001; VPSC 2016)
Public Sector Culture	Within the context of the public sector the culture of a group can be defined as the accumulated shared learning of that group as it solves its problems of external adaptation and internal integration; which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, feel, and behave in relation to those problems. This accumulated learning is a pattern or system of beliefs, values, and behavioural norms that come to be taken for granted as basic assumptions and eventually drop out of awareness.	Schein and Scheiner (2016, p. 6)
Culture Construct used in this study	Culture in this study is treated at three levels; Public sector culture, organizational culture, and group (department) level culture	Adapted from Pace and Faules (1994)
Public Sector Innovation	Concerned with the introduction of new elements into a public service in the form of new knowledge, a new organization and/or new management, communication methods or process/organizational method skills - that represent discontinuity with the past and incorporate new ideas that create public value within a political and policy context.	(Arundel, Casali & Hollanders 2015; Bason 2010; Bekkers & Tummers 2017; Hartley 2013)
Public Sector Management	Actors in managerial roles undertake discretionary behaviour within Public Sector Organizations, subject to the constraints of formal authority.	(Hill & Lynn 2004; Hughes 2012, 2017)
Public Sector Organizations	These organizations delivery government funded services either as part of the public service which consists of departments, administrative offices and other bodies designated as public service employers or as key service delivery agencies such as health care services, schools, Tertiary and Further Education (TAFE) institutes, police and emergency services organizations, and water and land management agencies.	(VPSC 2016)
Workplace Innovation	A multi-dimensional, subjective and context specific phenomenon that includes the dimensions of organizational innovation, workplace innovation climate, team and individual innovation.	McMurray and Dorai (2003)

Factor or Concept	Definition	Source
The Workplace Innovation Scale (WIS)	The Workplace Innovation Scale (WIS) includes the subscales: Workplace Innovation Climate; Individual Innovation; Team Innovation; and Organizational Workplace Innovation. It measures Workplace Innovation as defined above.	McMurray and Dorai (2003)

Appendix B Detailed Statistical Tables

Demographic and Employment Characteristics Post hoc Tests and detailed SEM Results

Marital Status

Table 64 - Post-hoc Test between different Marital Status

Multiple Comparisons

Dependent Variable: Public Sector Culture

Tukey HSD

(I) Marital	(J) Marital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Single	Married	.94645*	.31170	.021	.0929	1.8000
	Divorced	1.05541	.67081	.515	-.7815	2.8923
	Separated	1.80541	.91174	.277	-.6913	4.3021
	Other	.58722	.42923	.648	-.5882	1.7626
Married	Single	-.94645*	.31170	.021	-1.8000	-.0929
	Divorced	.10896	.64011	1.000	-1.6439	1.8618
	Separated	.85896	.88939	.870	-1.5766	3.2945
	Other	-.35923	.37947	.878	-1.3984	.6799
Divorced	Single	-1.05541	.67081	.515	-2.8923	.7815
	Married	-.10896	.64011	1.000	-1.8618	1.6439
	Separated	.75000	1.06951	.956	-2.1787	3.6787
	Other	-.46818	.70486	.964	-2.3984	1.4620
Separated	Single	-1.80541	.91174	.277	-4.3021	.6913
	Married	-.85896	.88939	.870	-3.2945	1.5766
	Divorced	-.75000	1.06951	.956	-3.6787	2.1787
	Other	-1.21818	.93707	.691	-3.7843	1.3479
Other	Single	-.58722	.42923	.648	-1.7626	.5882
	Married	.35923	.37947	.878	-.6799	1.3984
	Divorced	.46818	.70486	.964	-1.4620	2.3984
	Separated	1.21818	.93707	.691	-1.3479	3.7843

*. The mean difference is significant at the 0.05 level.

Table 65 - Detailed SEM Tables for Marital Status - Single

Marital - 1 = single							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.114***					0.513***	0.487***
	(0.018)					(0.040)	(0.040)
WI		1.132***	0.851***	1.098***	0.918***		
		(0.079)	(0.062)	(0.074)	(0.062)		
Constant	2.427***	-0.268	0.540***	-0.501**	0.229	-0.076	0.076
	(0.123)	(0.255)	(0.198)	(0.237)	(0.198)	(0.278)	(0.278)
Observations	111	111	111	111	111	111	111
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 66 - Detailed SEM Tables for Marital Status - Married

Marital - 2 =Married							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.114***					0.526***	0.474***
	(0.010)					(0.018)	(0.018)
WI		0.974***	0.872***	1.126***	1.028***		
		(0.051)	(0.037)	(0.047)	(0.045)		
Constant	2.483***	0.232	0.486***	-0.543***	-0.174	-0.124	0.124
	(0.062)	(0.162)	(0.118)	(0.148)	(0.142)	(0.111)	(0.111)
Observations	268	268	268	268	268	268	268
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 67 - Detailed SEM Tables for Marital Status - Divorced

Marital - 3 =Divorced							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.081**					0.545***	0.455***
	(0.038)					(0.074)	(0.074)
WI		0.821***	0.792***	1.231***	1.155***		
		(0.180)	(0.095)	(0.155)	(0.190)		
Constant	2.630***	0.796	0.624**	-0.909*	-0.511	-0.218	0.218
	(0.233)	(0.560)	(0.294)	(0.483)	(0.591)	(0.451)	(0.451)
Observations	20	20	20	20	20	20	20
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 68 - Detailed SEM Tables for Marital Status - Separated

Marital - 4 =Separated							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.054					0.437***	0.563***
	(0.095)					(0.153)	(0.153)
WI		1.174***	0.456**	1.092***	1.279***		
		(0.192)	(0.198)	(0.152)	(0.141)		
Constant	2.710***	-0.471	1.903***	-0.550	-0.882**	0.090	-0.090
	(0.483)	(0.581)	(0.599)	(0.460)	(0.427)	(0.775)	(0.775)
Observations	10	10	10	10	10	10	10
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 69 - Detailed SEM Tables for Marital Status - Other

Marital - 5 =Other							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.056***					0.557***	0.443***
	(0.021)					(0.049)	(0.049)
WI		1.413***	0.780***	0.956***	0.851***		
		(0.117)	(0.103)	(0.115)	(0.100)		
Constant	2.827***	-1.099***	0.738**	-0.108	0.470	0.094	-0.094
	(0.132)	(0.373)	(0.328)	(0.366)	(0.319)	(0.311)	(0.311)
Observations	66	66	66	66	66	66	66
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Comparisons across Age

Table 70 - Post-hoc Test between Age Categories for Public Sector Culture

Multiple Comparisons

Dependent Variable: Public Sector Culture

Tukey HSD

(I) age_grp	(J) age_grp	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
22 to 30 years	31 to 40 years	1.10707*	.39083	.039	.0368	2.1773
	41 to 50 years	1.08735*	.38626	.040	.0296	2.1451
	50 to 60 years	.85198	.39804	.205	-.2380	1.9419
	61 plus years	.52439	.71810	.949	-1.4420	2.4908
31 to 40 years	22 to 30 years	-1.10707*	.39083	.039	-2.1773	-.0368
	41 to 50 years	-.01971	.34104	1.000	-.9536	.9142
	50 to 60 years	-.25509	.35432	.952	-1.2253	.7152
	61 plus years	-.58268	.69482	.918	-2.4853	1.3200
41 to 50 years	22 to 30 years	-1.08735*	.38626	.040	-2.1451	-.0296
	31 to 40 years	.01971	.34104	1.000	-.9142	.9536
	50 to 60 years	-.23538	.34928	.962	-1.1918	.7211
	61 plus years	-.56296	.69226	.927	-2.4586	1.3327
50 to 60 years	22 to 30 years	-.85198	.39804	.205	-1.9419	.2380
	31 to 40 years	.25509	.35432	.952	-.7152	1.2253
	41 to 50 years	.23538	.34928	.962	-.7211	1.1918
	61 plus years	-.32759	.69890	.990	-2.2414	1.5862
61 plus years	22 to 30 years	-.52439	.71810	.949	-2.4908	1.4420
	31 to 40 years	.58268	.69482	.918	-1.3200	2.4853
	41 to 50 years	.56296	.69226	.927	-1.3327	2.4586
	50 to 60 years	.32759	.69890	.990	-1.5862	2.2414

*. The mean difference is significant at the 0.05 level.

Table 71 - Detailed SEM Tables for Age Groups - 22 to 30 years

No Age Group 1, not enough respondents							
Age levels	Age Group 2 - 22 to 30						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.070***					0.480***	0.520***
	(0.018)					(0.048)	(0.048)
WI		0.961***	0.898***	1.112***	1.029***		
		(0.125)	(0.087)	(0.117)	(0.097)		
Constant	2.856***	0.379	0.320	-0.572	-0.128	0.269	-0.269
	(0.124)	(0.418)	(0.292)	(0.390)	(0.324)	(0.336)	(0.336)
Observations	82	82	82	82	82	82	82
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 72 - Detailed SEM Tables for Age Groups - 31 to 40 years

Age Group 3 = 31 to 40							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.104***					0.531***	0.469***
	(0.015)					(0.032)	(0.032)
WI		1.097***	0.862***	1.069***	0.972***		
		(0.077)	(0.060)	(0.070)	(0.065)		
Constant	2.495***	-0.061	0.488***	-0.418*	-0.009	-0.019	0.019
	(0.089)	(0.239)	(0.187)	(0.218)	(0.201)	(0.196)	(0.196)
Observations	127	127	127	127	127	127	127
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 73 - Detailed SEM Tables for Age Groups - 41 to 50 years

Age Group 4 = 41 to 50							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.116***					0.537***	0.463***
	(0.017)					(0.029)	(0.029)
WI		1.064***	0.782***	1.141***	1.013***		
		(0.067)	(0.052)	(0.058)	(0.056)		
Constant	2.442***	-0.089	0.758***	-0.613***	-0.057	-0.194	0.194
	(0.102)	(0.209)	(0.164)	(0.183)	(0.177)	(0.179)	(0.179)
Observations	135	135	135	135	135	135	135
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 74 - Detailed SEM Tables for Age Groups - 50 to 60 years

Age Group 5 = 50 to 60							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.107***					0.538***	0.462***
	(0.015)					(0.027)	(0.027)
WI		0.983***	0.894***	1.136***	0.987***		
		(0.079)	(0.059)	(0.076)	(0.073)		
Constant	2.506***	0.160	0.448**	-0.544**	-0.064	-0.232	0.232
	(0.092)	(0.250)	(0.187)	(0.241)	(0.231)	(0.174)	(0.174)
Observations	116	116	116	116	116	116	116
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 75 - Detailed SEM Tables for Age Groups - 61 plus years

Age Group 6 = 61 plus years							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.089*					0.507***	0.493***
	(0.046)					(0.066)	(0.066)
WI		1.207***	1.076***	0.818***	0.898***		
		(0.154)	(0.125)	(0.164)	(0.156)		
Constant	2.600***	-0.649	-0.054	0.379	0.324	0.071	-0.071
	(0.307)	(0.493)	(0.400)	(0.525)	(0.500)	(0.442)	(0.442)
Observations	18	18	18	18	18	18	18
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Educational Levels

Table 76 - Detailed SEM Tables for Educational Levels –1 - High School Certificate

Ed Level 1 – High School Certificate							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.105***					0.512***	0.488***
	(0.030)					(0.054)	(0.054)
WI		1.107***	0.946***	1.163***	0.784***		
		(0.143)	(0.100)	(0.143)	(0.142)		
Constant	2.314***	-0.179	0.178	-0.411	0.411	-0.194	0.194
	(0.188)	(0.421)	(0.294)	(0.421)	(0.417)	(0.334)	(0.334)
Observations	31	31	31	31	31	31	31
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 77 - Detailed SEM Tables for Educational Levels – Ed Level 2 - Associate Degree/Diploma

Ed Level 2 – Associate Degree/Diploma							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.108***					0.511***	0.489***
	(0.026)					(0.056)	(0.056)
WI		1.121***	0.837***	1.106***	0.936***		
		(0.116)	(0.086)	(0.105)	(0.107)		
Constant	2.540***	-0.225	0.558**	-0.415	0.082	0.024	-0.024
	(0.169)	(0.377)	(0.279)	(0.339)	(0.348)	(0.363)	(0.363)
Observations	55	55	55	55	55	55	55
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 78 - Detailed SEM Tables for Educational Levels - Ed Level 3 – Bachelor's Degree

Ed Level 3 – Bachelor's Degree							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.106***					0.525***	0.475***
	(0.011)					(0.022)	(0.022)
WI		1.048***	0.851***	1.049***	1.052***		
		(0.057)	(0.042)	(0.052)	(0.047)		
Constant	2.534***	0.019	0.506***	-0.327**	-0.199	-0.086	0.086
	(0.070)	(0.182)	(0.133)	(0.165)	(0.150)	(0.140)	(0.140)
Observations	233	233	233	233	233	233	233
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 79 - Detailed SEM Tables for Educational Levels - Ed Level 4 – Master's Degree

Education Level 4 – Master's Degree							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.106***					0.520***	0.480***
	(0.016)					(0.032)	(0.032)
WI		1.040***	0.854***	1.146***	0.960***		
		(0.081)	(0.060)	(0.068)	(0.068)		
Constant	2.483***	0.087	0.575***	-0.756***	0.094	-0.060	0.060
	(0.106)	(0.255)	(0.188)	(0.214)	(0.213)	(0.209)	(0.209)
Observations	114	114	114	114	114	114	114
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 80 - Detailed SEM Tables for Educational Levels - Ed Level 5 – Doctorate

Education Level 5 - Doctorate							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.092***					0.584***	0.416***
	(0.024)					(0.051)	(0.051)
WI		1.029***	0.759***	1.241***	0.972***		
		(0.117)	(0.112)	(0.107)	(0.089)		
Constant	2.661***	-0.064	0.978***	-0.924***	0.010	-0.199	0.199
	(0.142)	(0.370)	(0.355)	(0.339)	(0.281)	(0.294)	(0.294)
Observations	46	46	46	46	46	46	46
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Tenure Categories

Table 81 - Post-hoc Test between Tenure Categories for Workplace Innovation

Multiple Comparisons

Dependent Variable: WIS

Tukey HSD

(I) org_Tenure	(J) org_Tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
under 2 years	2 to 5 years	.51594	.32717	.614	-.4202	1.4521
	6 to 10 years	.34062	.31386	.887	-.5575	1.2387
	11 to 20 years	.37525	.31809	.846	-.5349	1.2854
	21 to 30 years	-.18418	.36813	.996	-1.2376	.8692
	More than 30 years	-.78150	.52007	.663	-2.2696	.7066
2 to 5 years	under 2 years	-.51594	.32717	.614	-1.4521	.4202
	6 to 10 years	-.17532	.24972	.982	-.8899	.5392
	11 to 20 years	-.14069	.25501	.994	-.8704	.5890
	21 to 30 years	-.70012	.31523	.230	-1.6021	.2019
	More than 30 years	-1.29744	.48407	.081	-2.6826	.0877
6 to 10 years	under 2 years	-.34062	.31386	.887	-1.2387	.5575
	2 to 5 years	.17532	.24972	.982	-.5392	.8899
	11 to 20 years	.03463	.23770	1.000	-.6455	.7148
	21 to 30 years	-.52480	.30140	.505	-1.3872	.3376
	More than 30 years	-1.12212	.47518	.172	-2.4818	.2376
11 to 20 years	under 2 years	-.37525	.31809	.846	-1.2854	.5349
	2 to 5 years	.14069	.25501	.994	-.5890	.8704
	6 to 10 years	-.03463	.23770	1.000	-.7148	.6455
	21 to 30 years	-.55943	.30579	.448	-1.4344	.3156
	More than 30 years	-1.15675	.47798	.151	-2.5244	.2110
21 to 30 years	under 2 years	.18418	.36813	.996	-.8692	1.2376
	2 to 5 years	.70012	.31523	.230	-.2019	1.6021
	6 to 10 years	.52480	.30140	.505	-.3376	1.3872
	11 to 20 years	.55943	.30579	.448	-.3156	1.4344
	More than 30 years	-.59732	.51264	.853	-2.0642	.8696
More than 30 years	under 2 years	.78150	.52007	.663	-.7066	2.2696
	2 to 5 years	1.29744	.48407	.081	-.0877	2.6826
	6 to 10 years	1.12212	.47518	.172	-.2376	2.4818

	11 to 20 years	1.15675	.47798	.151	-.2110	2.5244
	21 to 30 years	.59732	.51264	.853	-.8696	2.0642

Table 82 - Post-hoc Test between Tenure Categories for Individual Innovation

Multiple Comparisons

Dependent Variable: IndInn

Tukey HSD

(I) org_Tenure	(J) org_Tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
under 2 years	2 to 5 years	.00245	.07482	1.000	-.2116	.2165
	6 to 10 years	-.06265	.07178	.953	-.2680	.1427
	11 to 20 years	-.10064	.07274	.737	-.3088	.1075
	21 to 30 years	-.19446	.08419	.192	-.4354	.0464
	More than 30 years	-.34972*	.11893	.040	-.6900	-.0094
2 to 5 years	under 2 years	-.00245	.07482	1.000	-.2165	.2116
	6 to 10 years	-.06510	.05711	.864	-.2285	.0983
	11 to 20 years	-.10309	.05832	.488	-.2700	.0638
	21 to 30 years	-.19691	.07209	.071	-.4032	.0094
	More than 30 years	-.35217*	.11070	.019	-.6689	-.0354
6 to 10 years	under 2 years	.06265	.07178	.953	-.1427	.2680
	2 to 5 years	.06510	.05711	.864	-.0983	.2285
	11 to 20 years	-.03799	.05436	.982	-.1935	.1176
	21 to 30 years	-.13181	.06893	.396	-.3290	.0654
	More than 30 years	-.28707	.10867	.089	-.5980	.0239
11 to 20 years	under 2 years	.10064	.07274	.737	-.1075	.3088
	2 to 5 years	.10309	.05832	.488	-.0638	.2700
	6 to 10 years	.03799	.05436	.982	-.1176	.1935
	21 to 30 years	-.09382	.06993	.762	-.2939	.1063
	More than 30 years	-.24908	.10931	.205	-.5619	.0637
21 to 30 years	under 2 years	.19446	.08419	.192	-.0464	.4354
	2 to 5 years	.19691	.07209	.071	-.0094	.4032
	6 to 10 years	.13181	.06893	.396	-.0654	.3290
	11 to 20 years	.09382	.06993	.762	-.1063	.2939
	More than 30 years	-.15526	.11724	.771	-.4907	.1802

More than 30 years	under 2 years	.34972*	.11893	.040	.0094	.6900
	2 to 5 years	.35217*	.11070	.019	.0354	.6689
	6 to 10 years	.28707	.10867	.089	-.0239	.5980
	11 to 20 years	.24908	.10931	.205	-.0637	.5619
	21 to 30 years	.15526	.11724	.771	-.1802	.4907

*. The mean difference is significant at the 0.05 level.

Table 83 - Post-hoc Test between Tenure Categories for Organizational Innovation

Multiple Comparisons

Dependent Variable: Orginnov

Tukey HSD

(I) org_Tenure	(J) org_Tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
under 2 years	2 to 5 years	.31014	.12908	.157	-.0592	.6795
	6 to 10 years	.23227	.12383	.418	-.1221	.5866
	11 to 20 years	.25623	.12550	.320	-.1029	.6153
	21 to 30 years	-.05814	.14524	.999	-.4738	.3575
	More than 30 years	-.17600	.20519	.956	-.7631	.4111
2 to 5 years	under 2 years	-.31014	.12908	.157	-.6795	.0592
	6 to 10 years	-.07787	.09852	.969	-.3598	.2041
	11 to 20 years	-.05391	.10061	.995	-.3418	.2340
	21 to 30 years	-.36828*	.12437	.038	-.7242	-.0124
	More than 30 years	-.48614	.19099	.113	-1.0326	.0604
6 to 10 years	under 2 years	-.23227	.12383	.418	-.5866	.1221
	2 to 5 years	.07787	.09852	.969	-.2041	.3598
	11 to 20 years	.02396	.09378	1.000	-.2444	.2923
	21 to 30 years	-.29041	.11891	.144	-.6307	.0499
	More than 30 years	-.40827	.18748	.250	-.9447	.1282
11 to 20 years	under 2 years	-.25623	.12550	.320	-.6153	.1029
	2 to 5 years	.05391	.10061	.995	-.2340	.3418
	6 to 10 years	-.02396	.09378	1.000	-.2923	.2444
	21 to 30 years	-.31437	.12065	.098	-.6596	.0309
	More than 30 years	-.43223	.18858	.199	-.9719	.1074
21 to 30 years	under 2 years	.05814	.14524	.999	-.3575	.4738
	2 to 5 years	.36828*	.12437	.038	.0124	.7242
	6 to 10 years	.29041	.11891	.144	-.0499	.6307

	11 to 20 years	.31437	.12065	.098	-.0309	.6596
	More than 30 years	-.11786	.20226	.992	-.6966	.4609
More than 30 years	under 2 years	.17600	.20519	.956	-.4111	.7631
	2 to 5 years	.48614	.19099	.113	-.0604	1.0326
	6 to 10 years	.40827	.18748	.250	-.1282	.9447
	11 to 20 years	.43223	.18858	.199	-.1074	.9719
	21 to 30 years	.11786	.20226	.992	-.4609	.6966

*. The mean difference is significant at the 0.05 level.

Job Types

Table 84 - Post-hoc Test between Job Types for Public Sector Culture

Multiple Comparisons

Dependent Variable: Public Sector Culture

Tukey HSD

(I) job_type	(J) job_type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
service deliverer	frontline manager	.59753	.43681	.520	-.5286	1.7237
	middle manager	.26119	.29975	.820	-.5116	1.0340
	senior manager	-1.14148	.44496	.052	-2.2887	.0057
frontline manager	service deliverer	-.59753	.43681	.520	-1.7237	.5286
	middle manager	-.33634	.47181	.892	-1.5527	.8801
	senior manager	-1.73901*	.57511	.014	-3.2217	-.2563
middle manager	service deliverer	-.26119	.29975	.820	-1.0340	.5116
	frontline manager	.33634	.47181	.892	-.8801	1.5527
	senior manager	-1.40267*	.47937	.019	-2.6386	-.1668
senior manager	service deliverer	1.14148	.44496	.052	-.0057	2.2887
	frontline manager	1.73901*	.57511	.014	.2563	3.2217
	middle manager	1.40267*	.47937	.019	.1668	2.6386

*. The mean difference is significant at the 0.05 level.

Table 85 - Post-hoc Test between Job Types for Workplace Innovation

Multiple Comparisons

Dependent Variable: Workplace Innovation

Tukey HSD

(I) job_type	(J) job_type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
service deliverer	frontline manager	.24962	.30024	.840	-.5244	1.0237
	middle manager	.12011	.20603	.937	-.4111	.6513
	senior manager	-.74903	.30584	.070	-1.5375	.0395
frontline manager	service deliverer	-.24962	.30024	.840	-1.0237	.5244
	middle manager	-.12951	.32430	.978	-.9656	.7066
	senior manager	-.99865	.39530	.057	-2.0178	.0205
middle manager	service deliverer	-.12011	.20603	.937	-.6513	.4111

	frontline manager	.12951	.32430	.978	-.7066	.9656
	senior manager	-.86914*	.32949	.043	-1.7186	-.0197
senior manager	service deliverer	.74903	.30584	.070	-.0395	1.5375
	frontline manager	.99865	.39530	.057	-.0205	2.0178
	middle manager	.86914*	.32949	.043	.0197	1.7186

*. The mean difference is significant at the 0.05 level.

Work Groups

Table 86 - Post-hoc Test between Work Groups for Workplace Innovation

Multiple Comparisons

Dependent Variable: Workplace Innovation

(Excludes groups that did not have a significant relationship)

Tukey HSD

(I) Wkplace	(J) Wkplace	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Agriculture Group	Not identified	-.01295	.86300	1.000	-2.9556	2.9297
	Corporate Services	1.18514*	.28359	.003	.2181	2.1521
	Land, Fire and Environment	.21052	.30718	1.000	-.8369	1.2580
	Office of the Secretary	-.45128	1.33496	1.000	-5.0032	4.1006
	Regional Services	.08940	.50656	1.000	-1.6378	1.8167
	Regional Services-Barwon South West	.13927	.53265	1.000	-1.6770	1.9555
	Regional Services - Gippsland	-.41909	.45866	1.000	-1.9830	1.1449
	Regional Services - Grampians	.73974	.56496	.993	-1.1867	2.6662
	Regional Services - Hume	.24872	.56496	1.000	-1.6777	2.1751
	Regional Services - Loddon Mallee	.32751	.45866	1.000	-1.2364	1.8914
	Regional Services - Port Phillip	1.15467	.46675	.461	-.4368	2.7462
	Regulation and Compliance	.19609	.37973	1.000	-1.0987	1.4909
	Water and Natural Resources	-.08549	.48496	1.000	-1.7391	1.5681
	Other	.81070	.51895	.966	-.9588	2.5802
Corporate Services	Not Identified	-1.19808	.84782	.986	-4.0890	1.6928
	Agriculture Group	-1.18514*	.28359	.003	-2.1521	-.2181
	Land, Fire and Environment	-.97461*	.26152	.018	-1.8663	-.0829
	Office of the Secretary	-1.63642	1.32519	.996	-6.1551	2.8822
	Regional Services	-1.09573	.48024	.605	-2.7332	.5418
	Regional Services-Barwon South West	-1.04586	.50769	.761	-2.7770	.6853

	Regional Services - Gippsland	-1.60422*	.42942	.017	-3.0684	-.1400
	Regional Services - Grampians	-.44539	.54149	1.000	-2.2918	1.4010
	Regional Services - Hume	-.93642	.54149	.923	-2.7828	.9100
	Regional Services - Loddon Mallee	-.85763	.42942	.799	-2.3219	.6066
	Regional Services - Port Phillip	-.03046	.43805	1.000	-1.5241	1.4632
	Regulation and Compliance	-.98905	.34383	.211	-2.1615	.1834
	Water and Natural Resources	-1.27063	.45740	.263	-2.8303	.2890
	Other	-.37444	.49330	1.000	-2.0565	1.3076
Regional Services - Gippsland	Not Identified	.40614	.92127	1.000	-2.7352	3.5475
	Agriculture Group	.41909	.45866	1.000	-1.1449	1.9830
	Corporate Services	1.60422*	.42942	.017	.1400	3.0684
	Land, Fire and Environment	.62961	.44535	.986	-.8889	2.1482
	Office of the Secretary	-.03220	1.37335	1.000	-4.7150	4.6506
	Regional Services	.50849	.60048	1.000	-1.5390	2.5560
	Regional Services-Barwon South West	.55836	.62265	1.000	-1.5648	2.6815
	Regional Services - Grampians	1.15883	.65051	.905	-1.0593	3.3769
	Regional Services - Hume	.66780	.65051	.999	-1.5503	2.8859
	Regional Services - Loddon Mallee	.74659	.56067	.992	-1.1652	2.6583
	Regional Services - Port Phillip	1.57376	.56730	.265	-.3606	3.5081
	Regulation and Compliance	.61517	.49817	.996	-1.0835	2.3138
	Water and Natural Resources	.33359	.58238	1.000	-1.6522	2.3194
	Other	1.22978	.61097	.790	-.8535	3.3131

*. The mean difference is significant at the 0.05 level.

Work Roles

Table 87 - Post-hoc Test between Work Roles for Public Sector Culture

Multiple Comparisons

Dependent Variable: Public Sector Culture

Tukey HSD

(I) work role_name	(J) work role_name	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Not stated	Director	-2.20757	.82598	.134	-4.7223	.3072
	Manager	-1.82011*	.42985	.001	-3.1288	-.5114
	Officer	-1.97879*	.42436	.000	-3.2708	-.6868
	Team Leader/Coordinator	-.33694	.67148	1.000	-2.3813	1.7074
	Advisor /Analyst /Planner	-1.26876	.53272	.253	-2.8907	.3532
	Professional Classifications	-.97184	.59486	.730	-2.7830	.8393
	Level or area of work	-1.79481*	.45427	.002	-3.1779	-.4117
Director	Not Stated	2.20757	.82598	.134	-.3072	4.7223
	Manager	.38746	.79600	1.000	-2.0360	2.8110
	Officer	.22878	.79305	1.000	-2.1857	2.6433
	Team Leader/Coordinator	1.87063	.94854	.502	-1.0173	4.7586
	Advisor /Analyst /Planner	.93881	.85594	.957	-1.6672	3.5448
	Professional Classifications	1.23573	.89594	.866	-1.4920	3.9635
	Level or area of work	.41276	.80944	1.000	-2.0517	2.8772
Manager	Not Stated	1.82011*	.42985	.001	.5114	3.1288
	Director	-.38746	.79600	1.000	-2.8110	2.0360
	Officer	-.15868	.36257	1.000	-1.2626	.9452
	Team Leader/Coordinator	1.48316	.63424	.275	-.4478	3.4142
	Advisor /Analyst /Planner	.55135	.48494	.948	-.9251	2.0278
	Professional Classifications	.84827	.55248	.788	-.8338	2.5304
	Level or area of work	.02529	.39716	1.000	-1.1839	1.2345
Officer	Not Stated	1.97879*	.42436	.000	.6868	3.2708
	Director	-.22878	.79305	1.000	-2.6433	2.1857
	Manager	.15868	.36257	1.000	-.9452	1.2626
	Team Leader/Coordinator	1.64185	.63053	.157	-.2779	3.5616
	Advisor /Analyst /Planner	.71003	.48007	.818	-.7516	2.1717
	Professional Classifications	1.00695	.54822	.595	-.6622	2.6761
	Level or area of work	.18398	.39120	1.000	-1.0071	1.3750

Team Leader/Coordinator	Not Stated	.33694	.67148	1.000	-1.7074	2.3813
	Director	-1.87063	.94854	.502	-4.7586	1.0173
	Manager	-1.48316	.63424	.275	-3.4142	.4478
	Officer	-1.64185	.63053	.157	-3.5616	.2779
	Advisor /Analyst /Planner	-.93182	.70801	.893	-3.0874	1.2238
	Professional Classifications	-.63490	.75587	.991	-2.9362	1.6664
	Level or area of work	-1.45787	.65103	.330	-3.4400	.5243
Advisor /Analyst /Planner	Not Stated	1.26876	.53272	.253	-.3532	2.8907
	Director	-.93881	.85594	.957	-3.5448	1.6672
	Manager	-.55135	.48494	.948	-2.0278	.9251
	Officer	-.71003	.48007	.818	-2.1717	.7516
	Team Leader/Coordinator	.93182	.70801	.893	-1.2238	3.0874
	Professional Classifications	.29692	.63581	1.000	-1.6389	2.2327
	Level or area of work	-.52605	.50671	.968	-2.0688	1.0167
Professional Classifications	Not Stated	.97184	.59486	.730	-.8393	2.7830
	Director	-1.23573	.89594	.866	-3.9635	1.4920
	Manager	-.84827	.55248	.788	-2.5304	.8338
	Officer	-1.00695	.54822	.595	-2.6761	.6622
	Team Leader/Coordinator	.63490	.75587	.991	-1.6664	2.9362
	Advisor /Analyst /Planner	-.29692	.63581	1.000	-2.2327	1.6389
	Level or area of work	-.82297	.57168	.838	-2.5635	.9176
Level or area of work	Not Stated	1.79481*	.45427	.002	.4117	3.1779
	Director	-.41276	.80944	1.000	-2.8772	2.0517
	Manager	-.02529	.39716	1.000	-1.2345	1.1839
	Officer	-.18398	.39120	1.000	-1.3750	1.0071
	Team Leader/Coordinator	1.45787	.65103	.330	-.5243	3.4400
	Advisor /Analyst /Planner	.52605	.50671	.968	-1.0167	2.0688
	Professional Classifications	.82297	.57168	.838	-.9176	2.5635

*. The mean difference is significant at the 0.05 level.

Table 88 - Post-hoc Test between Work Roles for Workplace Innovation

Multiple Comparisons

Dependent Variable: Workplace Innovation

Tukey HSD

(I) work role_name	(J) work role_name	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Not Stated	Director	-1.55220	.56965	.118	-3.2866	.1822
	Manager	-1.15538*	.29646	.003	-2.0580	-.2528
	Officer	-1.18709*	.29267	.001	-2.0781	-.2960
	Team Leader/Coordinator	-1.22219	.46310	.145	-2.6321	.1878
	Advisor /Analyst /Planner	-1.01253	.36740	.109	-2.1311	.1061
	Professional Classifications	-1.26256*	.41026	.045	-2.5116	-.0135
	Level or area of work	-.56492	.31329	.618	-1.5188	.3889
Director	Not Stated	1.55220	.56965	.118	-.1822	3.2866
	Manager	.39682	.54898	.996	-1.2746	2.0682
	Officer	.36511	.54694	.998	-1.3001	2.0303
	Team Leader/Coordinator	.33001	.65418	1.000	-1.6617	2.3217
	Advisor /Analyst /Planner	.53967	.59031	.985	-1.2576	2.3369
	Professional Classifications	.28964	.61790	1.000	-1.5916	2.1709
	Level or area of work	.98727	.55825	.642	-.7124	2.6869
Manager	Not Stated	1.15538*	.29646	.003	.2528	2.0580
	Director	-.39682	.54898	.996	-2.0682	1.2746
	Officer	-.03171	.25005	1.000	-.7930	.7296
	Team Leader/Coordinator	-.06681	.43741	1.000	-1.3986	1.2649
	Advisor /Analyst /Planner	.14285	.33445	1.000	-.8754	1.1611
	Professional Classifications	-.10718	.38103	1.000	-1.2673	1.0529
	Level or area of work	.59045	.27391	.381	-.2435	1.4244
Officer	Not Stated	1.18709*	.29267	.001	.2960	2.0781
	Director	-.36511	.54694	.998	-2.0303	1.3001
	Manager	.03171	.25005	1.000	-.7296	.7930
	Team Leader/Coordinator	-.03510	.43485	1.000	-1.3591	1.2889
	Advisor /Analyst /Planner	.17456	.33109	1.000	-.8335	1.1826
	Professional Classifications	-.07547	.37809	1.000	-1.2266	1.0757
	Level or area of work	.62216	.26980	.292	-.1993	1.4436
Team Leader/Coordinator	Not Stated	1.22219	.46310	.145	-.1878	2.6321
	Director	-.33001	.65418	1.000	-2.3217	1.6617
	Manager	.06681	.43741	1.000	-1.2649	1.3986
	Officer	.03510	.43485	1.000	-1.2889	1.3591

	Advisor /Analyst /Planner	.20966	.48829	1.000	-1.2770	1.6963
	Professional Classifications	-.04037	.52130	1.000	-1.6275	1.5468
	Level or area of work	.65726	.44900	.826	-.7098	2.0243
Advisor /Analyst /Planner	Not Stated	1.01253	.36740	.109	-.1061	2.1311
	Director	-.53967	.59031	.985	-2.3369	1.2576
	Manager	-.14285	.33445	1.000	-1.1611	.8754
	Officer	-.17456	.33109	1.000	-1.1826	.8335
	Team Leader/Coordinator	-.20966	.48829	1.000	-1.6963	1.2770
	Professional Classifications	-.25003	.43850	.999	-1.5851	1.0850
	Level or area of work	.44760	.34946	.906	-.6164	1.5116
Professional Classifications	Not Stated	1.26256*	.41026	.045	.0135	2.5116
	Director	-.28964	.61790	1.000	-2.1709	1.5916
	Manager	.10718	.38103	1.000	-1.0529	1.2673
	Officer	.07547	.37809	1.000	-1.0757	1.2266
	Team Leader/Coordinator	.04037	.52130	1.000	-1.5468	1.6275
	Advisor /Analyst /Planner	.25003	.43850	.999	-1.0850	1.5851
	Level or area of work	.69763	.39427	.641	-.5028	1.8980
Level or area of work	Not Stated	.56492	.31329	.618	-.3889	1.5188
	Director	-.98727	.55825	.642	-2.6869	.7124
	Manager	-.59045	.27391	.381	-1.4244	.2435
	Officer	-.62216	.26980	.292	-1.4436	.1993
	Team Leader/Coordinator	-.65726	.44900	.826	-2.0243	.7098
	Advisor /Analyst /Planner	-.44760	.34946	.906	-1.5116	.6164
	Professional Classifications	-.69763	.39427	.641	-1.8980	.5028

*. The mean difference is significant at the 0.05 level.

Works Flexibly

Table 89 - Detailed SEM Table for Works Flexibly - Yes

Works Flexibly -Yes							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.110***					0.522***	0.478***
	(0.011)					(0.021)	(0.021)
WI		1.018***	0.870***	1.110***	1.002***		
		(0.057)	(0.042)	(0.051)	(0.045)		
Constant	2.507***	0.148	0.498***	-0.542***	-0.104	-0.110	0.110
	(0.071)	(0.181)	(0.134)	(0.161)	(0.143)	(0.132)	(0.132)
Observations	235	235	235	235	235	235	235
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Table 90 - Detailed SEM Table for Works Flexibly - No

Works Flexibly - No							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	WI	Workplace_ innovation	Individual_ innovation	Orginnov	Team_ innovation	Grp_Cul	Org_Cul
Culture	0.099***					0.533***	0.467***
	(0.011)					(0.024)	(0.024)
WI		1.089***	0.825***	1.092***	0.993***		
		(0.053)	(0.042)	(0.050)	(0.048)		
Constant	2.541***	-0.156	0.602***	-0.444***	-0.003	-0.074	0.074
	(0.071)	(0.168)	(0.132)	(0.158)	(0.153)	(0.149)	(0.149)
Observations	244	244	244	244	244	244	244
Standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

Appendix C Qualitative Analysis Documents

Table 91 - Documents used for the qualitative analysis showing when published, purpose, author and information source

Documents used for the Qualitative Analysis				
Document	**Published**	**Purpose**	**Author**	**Source of Information**
Department A Charter (DEPI 2013b)	2013	Providing information to the public about Department A's operational processes as outlined in the Charter	Department A	Department A internal and externally published policy and process documents.
Creating a culture of innovation (ILT 2014b).	2014	Diagram illustrating approach to creating a culture of innovation in Department A.	Innovation Leadership Team	Internal and external documents and results of consultation in the Department.
Department A Annual Report 2013-2014 (DEPI 2014a).	2014	Annual Report – to meet legislative requirements	Department A	Department A's financial, human resources records and legislated reports. Contributions from projects and staff members.
Department A Corporate Plan 2013 – 2017 (DEPI 2014b).	2014	Corporate Planning document to guide planning across Department A	Department A	Department A internal and external policy and process documents that guide the organizational planning process.
Department A's Operating Model (DEPI 2014c).	2014	Presenting diagrams of Department A's Operating Model to guide organizational policy and practice	Strategic Planning Team	Strategic Planning undertaken.
Department A Shaping a Culture of Service Excellence (DEPI 2014d).	2014	Department A on a page providing information on key elements of internal policy to guide conversations with staff	Department A corporate services areas of People and Culture, Information Technology and Comms	Existing corporate policy documents and detailed information from each of the specialist areas on plans for action for the year ahead.
Results - Open ended question from the Quantitative Survey – results (Newnham 2014).	2014	Collecting data by offering opportunity for further comments	151 Department A employees	Information from respondents.
Organizational Change – keeping the focus on people in times of change (Corrigan 2014).	2014	Presentation to the Institute of Public Administration on the creation of Department A by merging two other Departments.	Group Manager, Capability and Culture	Reports, policy documents, outputs from change projects undertaken and human resources statistics.

Documents used for the Qualitative Analysis				
Secretary's Messages – weekly communications from the Department A Secretary (Fennessy 2014).	2014	Weekly communication from the Departmental Secretary providing corporate directions, policies and news.	Department A Secretary	Reports, policy documents, whole of government and department wide activities, stories about actions underway and sharing information of survey's and training opportunities.
Summary of Department A's values and behaviours (CCT 2014a).	2014	Summary of Department A's values & behaviours	Capability & Culture Team	Internal documents describing elements in the diagram.
The development of Department A's values and behaviours (CCT 2014b).	2014	Provided a history of the development of Department A's values and behaviours	Capability & Culture Team	Internal documents, management and staff consultation across Department A
The State of the Public Sector in Victoria 2013-2014 (VPSC 2014).	2014	Yearly report on employment information from the Victorian Public Sector to meet legislative and policy requirements.	Victorian Public Sector Commission	External guidance and policy documents. Results from the People Matters Survey conducted with a number of agencies in 2013 with Department A being one of the respondents.
Australasian Joint Agencies Scanning Network: second quarter report (AJASN 2014).	July 2014	To stimulate discussion of possible trends, emerging issues, and/or future directions	AJASN	Drawn from a number of sources worldwide (Delaney & Osborne 2013).
Department A's values and behaviours - Intranet pages (PAC 2014).	Aug 2014	Information pages on Department A's values and behaviours for internal intranet	People & Culture	Internal and external guidance and policy documents.
Department A - Innovation 2015, Our Approach (ILT 2014a).	Sept 2014	Draft for discussion on developing innovation capacity in Department A	Innovation Leadership Team	Organizational scan, includes results from consultation across Department A.
Department A - Innovation Action Plan (ILT 2014c).	Nov 2014	Draft Innovation Action Plan to guide Department A's Innovation Activity from 2015 onwards.	Innovation Leadership Team	Organizational scan, includes results from consultation across Department A. Feedback on the original discussion paper published in September 2014. This was not enacted as Department A was split as an outcome of the Victorian state election held in November 2014.

Documents used for the Qualitative Analysis				
Department A Organizational Cultural Inventory Report (HSI 2014)	Dec 2014	Report on the results of the Department A Organizational Cultural Inventory that was undertaken in 2014	Human Synergistics	Survey undertaken using the Organizational Cultural Inventory with 1009 Department A staff in 2014.
Department B's Capability Strategy 2015 - 2018. Enhancing Potential, Evolving for the Future. (Draft July 2015) (DELWP 2015b).	2015	Department B Capability Strategy developed to build the capability to meet future requirements. Created while the Department was Department A. Did not progress to a final document.	People & Culture	Internal document that includes internally and externally published policy and process documents and the results from consultation with internal experts nominated to develop the various capability area development plans.

Appendix D Department A's service delivery partners

- Alpine Advisory Committee
- Alpine Resorts Coordinating Council
- Alpine Resort Management Boards
- Agriculture industry groups and service providers
- Animal Health Committee
- Animal Health Australia
- Catchment Management Authorities
- Cooperative research centres
- Commissioner for Environmental Sustainability
- Committees of management of Crown land reserves
- Dairy Food Safety Victoria
- Environment Protection Authority Victoria
- Environment Protection Board
- Geographic Place Names Advisory Panel
- Hunting Advisory Committee
- Indigenous land management advisory bodies
- Livestock industry consultative and compensation committees
- Melbourne Water
- National Biosecurity Committee and its working groups
- National Parks Advisory Council
- Office of Living Victoria
- Parks Victoria
- Primesafe
- Plant Health Australia
- Plant Health Committee
- Reference Areas Advisory Committee
- Regional Coastal Boards
- Regional Waste Management Groups
- Royal Botanic Gardens Board
- Scientific Advisory Committee

- Surveyors Registration Board of Victoria
- Sustainability Fund Advisory Panel
- Sustainability Victoria
- Trust for Nature (Victoria)
- Universities
- Veterinary Practitioners Registration Board of Victoria
- Vertebrate Pests Committee
- Victorian Biosecurity Standing Committee
- Victorian Catchment Management Council
- Victorian Coastal Council
- Victorian Environmental Assessment Council
- Victorian Environmental Water Holder
- Victorian Adaptation and Sustainability Partnership
- Victorian Mineral Water Committee
- Water Corporations
- Water Supply Protection Area Consultative Committees
- Zoological Parks and Gardens Board

Source: DEPI, Annual Report, 2013a, p. 11

Appendix E List of Publications

Newnham, L., 2004. ‘Managing Change Successfully In Land Management Organizations.’ *Paper presented at the FIG Working Week, May 2004 in Athens, Greece.*

Newnham, L., 2005. ‘Innovation in Land Management, What Makes It Happen?’ *Paper presented at the FIG Working Week, May 2005 in Cairo, Egypt.*

Newnham, L and McMurray, A, 2007,’Land Management Innovation and Sustainability: The Flow on Effects of Organizational Change. ’*Paper presented at the ICSB World Conference, June 2007, Turku, Finland.*

Newnham, L., Millner, J., and Sventgyoryi, E., 2005, ‘Innovation and the spatial information economy, Victoria's experience ‘, *Proceedings of SSC 2005 Spatial Intelligence, Innovation and Praxis. The national biennial Conference of the Spatial Sciences Institute, September 2005, Melbourne*.

Newnham, L., Pantebre, J.J., and Spark, M., 1999, ‘Content and discourse analysis.’ *Sequential Analysis.*

Newnham, L., Parker, J. and Spall, A., 2000, ‘Managing The Relationship Between Local Government And State Government–The Victorian Experience.’, In *Conference Quo Vadis Surveying of the 21st Century as part of the FIG Working Week in Prague, May 2000*.

Newnham, L., Spall, A. and O'Keeffe, E. 2001,’ New Forms for Government Land Administration - Land Victoria, A Case Study of the Trend Towards Combining Land Administration Functions and the Resulting Benefits to the Community’*, Paper presented at Working Week of the International Federation of Surveyors, 2001 Seoul, South Korea.*

Parker, J. & Newnham,L.,2004, ‘Land Management in Australia Case Study with emphasis on the State of Victoria**’,** *Paper presented at the UN, FIG, PC IDEA Inter-regional Special Forum on The Building of Land Information Policies in the Americas, 26&27 October 2004, Aguascalienties, Mexico.*

Appendix F Ethics Approval

RMIT UNIVERSITY

Business College Human Ethics Advisory Network (BCHEAN)

Building 108, Level 11
239 Bourke Street
Melbourne VIC 3000

GPO Box 2476V
Melbourne VIC 3001
Australia

Tel. +61 3 9925 5555
Fax +61 3 9925 5624

Notice of Approval

Date:	4 October 2012
Project number:	1000447
Project title:	*Innovation Flows Within A Government Agency: A case Study of the Department of Sustainability and Environment*
Risk classification:	Low Risk
Principal Investigator:	Associate Professor Adela McMurray
Student Investigator:	Ms Leonie Newnham
Project Approved:	**From: 2 October 2012 To: 31 March 2014**

Terms of approval:

1. *Responsibilities of the principal investigator*
   It is the responsibility of the principal investigator to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by BCHEAN. Approval is only valid while the investigator holds a position at RMIT University.
2. *Amendments*
   Approval must be sought from BCHEAN to amend any aspect of a project including approved documents. To apply for an amendment submit a request for amendment form to the BCHEAN secretary. This form is available on the Human Research Ethics Committee (HREC) website. Amendments must not be implemented without first gaining approval from BCHEAN.
3. *Adverse events*
   You should notify BCHEAN immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
4. *Participant Information and Consent Form (PICF)*
   The PICF must be distributed to all research participants, where relevant, and the consent form is to be retained and stored by the investigator. The PICF must contain the RMIT University logo and a complaints clause including the above project number.
5. *Annual reports*
   Continued approval of this project is dependent on the submission of an annual report.
6. *Final report*
   A final report must be provided at the conclusion of the project. BCHEAN must be notified if the project is discontinued before the expected date of completion.
7. *Monitoring*
   Projects may be subject to an audit or any other form of monitoring by BCHEAN at any time.
8. *Retention and storage of data*
   The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Regards,

Professor Roslyn Russell
Chairperson
RMIT BCHEAN

Business College Human Ethics Advisory Network (BCHEAN)

Building 108, Level 11
239 Bourke Street
Melbourne VIC 3000

GPO Box 2476V
Melbourne VIC 3001
Australia

Tel. +61 3 9925 5555
Fax +61 3 9925 5624

Notice of Project Amendment Approval

Date:	29 April 2014
Project Number:	16432
Project Title:	*Innovation Flows Within a Government Agency: A case Study of the Department of Environment and Primary Industries*
Risk Classification:	Low Risk
Principal Investigator:	Professor Adela McMurray
Student Investigator:	Ms Leonie Newnham

Project Approved: **From:** 2 October 2012 **To:** 31 August 2014

Project Amendment Approved: **From:** 29 April 2014

Amendment Details:

1. Extension of project end date to 31 August 2014
2. Revisions to Project title and Project Information Statement and Consent Form to reflect case study organisation has changed name from Department of Sustainability and Environment to Department of Environment and Primary Industries.

Terms of approval:

1. *Responsibilities of the principal investigator*
   It is the responsibility of the principal investigator to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by BCHEAN. Approval is only valid while the investigator holds a position at RMIT University.
2. *Amendments*
   Approval must be sought from BCHEAN to amend any aspect of a project including approved documents. To apply for an amendment submit a request for amendment form to the BCHEAN secretary. This form is available on the Human Research Ethics Committee (HREC) website. Amendments must not be implemented without first gaining approval from BCHEAN.
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   Continued approval of this project is dependent on the submission of an annual report.
6. *Final report*
   A final report must be provided at the conclusion of the project. BCHEAN must be notified if the project is discontinued before the expected date of completion.
7. *Monitoring*
   Projects may be subject to an audit or any other form of monitoring by BCHEAN at any time.
8. *Retention and storage of data*
   The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Regards,

Associate Professor Cathy Brigden
Acting Chairperson
RMIT BCHEAN

Appendix G Ethics plain language statement

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

PROJECT INFORMATION STATEMENT

Project Title**: Innovation Flows within a Government Agency: A Case Study of the Department of Environment and Primary Industries**

Dear Department of Environment and Primary Industries staff members,

You are invited to participate in a research project being conducted by RMIT University, Melbourne.

This information sheet is a summary that describes the details about the project in straightforward language, or 'plain English'. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. The full details are contain in a PDF that was circulated with the link to the questionnaire.

If you have any questions about the project, please ask one of the investigators.
Professor Adela McMurray of the School of Management. Tel: 03 9925 5946; email: adela.mcmurray@rmit.edu.au, or
Ms. Leonie Newnham, Doctoral Student, School of Management (Manager Diversity Programs and Innovation at DEPI) Tel: 03 9637 8651; email: s9610937@student.rmit.edu.au or Leonie.Newnham@depi.vic.gov.au

Who is involved in this research project? Why is it being conducted?
This study is designed to explore how people in the Department of Environment and Primary Industries introduce new actions to undertake their roles more effectively and to solve business problems. This project has been approved by the RMIT Business College Human Ethics Advisory Network.

Why have you been approached?
You have been invited to participate as an employee of the Department of Environment and Primary Industries.

What is the project about? What are the questions being addressed?
The project aims to identify: a) How does innovation flow within a public sector organization? (in this instance DEPI); and b) How can an awareness of this flow lead to a better understanding in workplace innovation practices?'

If I agree to participate, what will I be required to do?
You will be asked to complete a questionnaire that will take approximately 15 - 20 minutes. In the questionnaire, you will be asked to answer demographic questions and questions that measure workplace innovation considering the role of teams, individuals and the organization in bringing new ideas into use.

What are the risks or disadvantages associated with participation?
The information you provide in the survey will remain anonymous and your participation is voluntary. There is no way to identify that you have participated in this research.

What are the benefits associated with participation?
Your participation will assist in providing information about the Department of Environment and Primary Industries that will allow an analysis of workplace innovation in the Department. This will provide data that will be analyzed and may provide findings of value to

DEPI and the Victorian Public Service that could assist in developing approaches to supporting and reinforcing organizational innovation.

What will happen to the information I provide?
The results from the survey will be aggregated and the results included as data collected and analyzed as part of a PhD thesis. A high level report on the results will be developed for DEPI's Senior Leadership Group and made available to them to assist with their work in developing the organization.
The research data will be kept securely at RMIT for 5 years after publication, before being destroyed.

What are my rights as a participant?
You have the right to withdraw from participation at any time and to have any questions answered at any time.

Whom should I contact if I have any questions?
If you need to contact anyone regarding the project, please directly contact the researchers mentioned above.

Yours Sincerely,

The Research Team

If you have any complaints about your participation in this project please see the complaints procedure on the Complaints with respect to participation in research at RMIT page

Press button with arrows to start survey –

Appendix H Survey - Innovation flows within a government agency - a case study of Department A

Innovation flows within a government agency - a case study of DEPI

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

PROJECT INFORMATION STATEMENT

Project Title**: Innovation Flows within a Government Agency: A Case Study of the Department of Environment and Primary Industries**

Dear Department of Environment and Primary Industries staff members,

You are invited to participate in a research project being conducted by RMIT University, Melbourne.

This information sheet is a summary that describes the details about the project in straightforward language, or 'plain English'. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. The full details are contain in a PDF that was circulated with the link to the questionnaire.

If you have any questions about the project, please ask one of the investigators.
Professor Adela McMurray of the School of Management. Tel: 03 9925 5946; email: adela.mcmurray@rmit.edu.au, or
Ms. Leonie Newnham, Doctorial Student, School of Management (Manager Diversity Programs and Innovation at DEPI) Tel: 03 9637 8651; email: s9610937@student.rmit.edu.au or Leonie.Newnham@depi.vic.gov.au

Who is involved in this research project? Why is it being conducted?
This study is designed to explore how people in the Department of Environment and Primary Industries introduce new actions to undertake their roles more effectively and to solve business problems. This project has been approved by the RMIT Business College Human Ethics Advisory Network.

Why have you been approached?
You have been invited to participate as an employee of the Department of Environment and Primary Industries.

What is the project about? What are the questions being addressed?
The project aims to identify: a) How does innovation flow within a public sector organization? (in this instance DEPI); and b) How can an awareness of this flow lead to a better understanding in workplace innovation practices?'

If I agree to participate, what will I be required to do?
You will be asked to complete a questionnaire that will take approximately 15 - 20 minutes. In the questionnaire, you will be asked to answer demographic questions and questions that measure workplace innovation considering the role of teams, individuals and the organization in bringing new ideas into use.

What are the risks or disadvantages associated with participation?
The information you provide in the survey will remain anonymous and your participation is voluntary. There is no way to identify that you have participated in this research.

What are the benefits associated with participation?
Your participation will assist in providing information about the Department of Environment and Primary Industries that will allow an analysis of workplace innovation in the Department. This will provide data that will be analyzed and may provide findings of value to DEPI and the Victorian Public Service that could assist in developing approaches to supporting and reinforcing organizational innovation.

What will happen to the information I provide?
The results from the survey will be aggregated and the results included as data collected and analyzed as part of a PhD thesis. A high level report on the results will be developed for DEPI's Senior Leadership Group and made available to them to assist with their work in developing the organization.
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What are my rights as a participant?
You have the right to withdraw from participation at any time and to have any questions answered at any time.

Whom should I contact if I have any questions?
If you need to contact anyone regarding the project, please directly contact the researchers mentioned above.

Yours Sincerely,

The Research Team

If you have any complaints about your participation in this project please see the complaints procedure on the Complaints with respect to participation in research at RMIT page

1/10

Section A: this section explores the role of the team in bringing new ideas into profitable use.

1. We work in teams to solve complex problems.

- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

2. In our workplace teams have freedom to make decisions and act on them without needing to ask for permission.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

3. In my Department people feel a strong sense of membership and support.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

4. My colleagues welcome uncertainty and unusual circumstances related to our work.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

5. Amongst my colleagues I am the first one to try new ideas and methods.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree

- Agree
- Strongly Agree

Section B: this section explores the individual's passion for bringing new ideas into profitable use.

6. In my workplace performance measurement of an individual is related to his or her own creativity.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

7. At work I sometimes demonstrate originality.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

8. My work requires me to make innovative decisions.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

9. I make time to pursue my own ideas or projects

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

10. I am constantly thinking of new ideas to improve my workplace.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree

- Agree
- Strongly Agree

11. I express myself frankly in staff meetings.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

12. I work in teams to solve complex problems.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

13. In our workplace performance measurement is related to one's initiative to solve problems.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Section C: this section explores the work group's climate or culture for innovation.

(Note that the survey identified manager's by the term 'boss' however it has been changed to reflect DEPI practice)

14. My manager (boss) is our role model in creative thinking.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

15. I discuss with my manager (boss) regularly, on how to get ahead.

- Strongly Disagree
- Disagree

- Neither Agree nor Disagree
- Agree
- Strongly Agree

16. I am always given opportunities to try new ideas and approaches to problems.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

17. My manager (boss) gives me useful feedback regarding my creative ideas.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

18. My manager (boss) gives me an opportunity to learn from my mistakes.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

19. My manager (boss) and my colleagues perceive me to be a creative problem solver.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Section D: this section explores the role of the organization in bringing new ideas into profitable use.

20. Our workplace has a vision that is made very clear to the employees.

- Strongly Disagree
- Disagree

- Neither Agree nor Disagree
- Agree
- Strongly Agree

21. The vision of my workplace often helps the employees in setting their goals.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

22. Innovation in my workplace is linked to its business goals.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

23. In our workplace opportunities to learn are created through systems and procedures.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

24. Our workplace rewards innovative ideas regularly.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Section F: this section obtains a description of the culture of the work group and organization.

25. What is the first word you think of to describe the culture of your department?
One word text input…

26. What is the first word you think of to describe the culture of your organization?
One word text input…

Section G: **this last section explores how your context influences the workgroup and organization.**

27. My gender is -

- Male
- Female

28. My Marital status is -

- single (1)
- married (2)
- divorced (3)
- separated (4)
- other (5)

29. My age is in the following group-

- 18 to 21 years old (1)
- 22 to 30 years old (2)
- 31 to 40 years old (3)
- 41 to 50 years old (4)
- 51 to 60 years old (5)
- 61 plus years (6)

30. The highest Level of education I completed was -

- High School certificate (1)
- Associate's Degree / Diploma (2)
- Bachelor Degree (3)
- Masters Degree (4)
- Doctorate Degree (5)
- Other – Please Specify (6)

31. I have worked for the Department of Environment and Primary Industries or its preceding Departments for -

- Under 2 years (1)

- 2 to 5 years (2)
- 6 to 10 years (3)
- 11 to 20 years (4)
- 21 to 30 years (5)
- more than 30 years (6)

32. My job is best described as -

- Service deliverer (1)
- Front line manager (2)
- Middle manager (3)
- Senior manager (4)

33. I sometimes work from home -

- Yes
- No

34. The percentage of time I spend working from home is -

35. The hours I work per week is usually -

36.My role / position is -

37. I work in the following Group, Division or Region -

- Agriculture Group
- Capital Projects
- Corporate Services
- Land, Fire and Environment
- Office of the Secretary
- Regional Services
- Regional Services- Barwon South West
- Regional Services - Gippsland
- Regional Services - Grampians
- Regional Services - Hume
- Regional Services - Loddon Mallee

- [ ] Regional Services - Port Phillip
- [ ] Regulation and Compliance
- [ ] Water and Natural Resources
- [ ] Other, if other please list below

38. I am a manager -

- ○ Yes
- ○ No

39. How many people report to you directly?

40. Do you have other managers reporting to you?

- ○ Yes
- ○ No

41. Do you usually work in a team?

- ○ Yes
- ○ No

42. Please estimate the percentage of time you are working in a team.

43. The number of people I normally have on my in team is -

44. Are there any additional comments you would like to make ?

Thank you for completing the survey.

Block 1