Project Human Resource Management in the Public Sector: What motivates Public Employees to work on Projects?

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Norbert Maaß

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Abstract

Public sector organisations in various countries increasingly rely on project management to effectively implement government policies and organisational strategies. The management of human resources for public sector projects has recently received growing attention for its critical role in successfully delivering projects. In particular, the staffing of public sector projects can be a challenge for project managers. This study complements previous literature on project human resource management by exploring factors that influence the motivation of public employees to work on public sector projects. Drawing on established models of human behaviour, the present study introduces a model of public employees' intention to work on projects. To empirically verify the model, a multiple regression analysis is performed using survey data collected among New Zealand public employees (N = 108). The results from the analysis highlight four factors influencing the motivation of public employees to work on projects. Public employees are more motivated to work on projects when they believe that: 1) project management tools and techniques will improve their job performance and quality of work; 2) a project position does not require radical changes in the way they usually work; 3) their colleagues have a positive opinion about project-based work and want them to work on projects; and 4) a project position is associated with high social status and prestige. The comparison of the findings of the present study and findings of previous research indicates that the influence of the first three factors on intention could be generalised across contexts. In developing a model of employees' intention formation and providing empirical support of the model, this research contributes to future research on similar topics.

Chapter One: Introduction

In the private sector, projects are a widely accepted management practice (Gareis, 2006). They are temporary business endeavours used to create unique products and services, and to implement corporate strategies (PMI, 2008). In the public sector, organisations increasingly recognise projects for their role in improving public sector performance and policy implementation (Crawford & Helm, 2009). A crucial element of project success is human resource management (Belout & Gauvreau, 2004). Recently, a growing number of contributions to the project management literature have drawn attention to public sector organisations and the management of human resources for projects (e.g. Dwyer, Stanton & Thiessen, 2004; Kassel, 2010; PMI, 2006; Wirick, 2009). Research on human resource management for public sector projects investigates how the management of project employees can be improved to maximise their performance for the project (Wirick, 2009).

For public sector project managers, effective human resource management can be a daunting challenge. One of the most difficult tasks of project managers is the recruitment of public employees. Public employees are usually able to choose whether they want to work on a project or stay full-time in their current job position (PMI, 2006). They probably consider the potential risks, uncertainties and benefits associated with an assignment to a project. They may ask why they should take the risk and accept a new and temporary position in a project rather than, or in addition to, pursuing a career within the functional departments of the public organisation. Project managers therefore face the challenge of using proper incentives to find the right people for their projects. It is imperative for a successful recruiting process that project managers recognise which critical factors motivate public sector employees to work on projects. Understanding these factors can help public organisations build high-performing project teams.

However, despite its importance for project performance, prior research on public sector project human resource management is rare. It is therefore not surprising that this research stream has common gaps that should be filled in order to advance the project management field in future. In particular, the review of previous literature identifies three interesting research gaps that call for further attention. Firstly, previous

literature often concentrates on the project team (Dwyer et al., 2004; PMI, 2006; Wirick, 2009). The preceding process of recruiting public employees has received little or no attention. If the recruitment process is explored, practical issues such as designing a staffing management plan often dominate the discussion (e.g. Dwyer et al., 2004; Kassel, 2010; PMI, 2006). Secondly, some authors make no distinction between project staff from public organisations and so called 'contract employees' (PMI, 2006, p.57). Contract employees are temporary employees, who are not public employees. They are contracted by public agencies from contractor firms for a fee to allow the agency a more flexible project human resource management (PMI, 2006). Studies that do not distinguish between public sector project employees and contracted project employees may assume that public organisations can successfully apply 'one-size-fits-all' human resource strategies to manage the recruitment of employees. Thirdly, prior research typically investigates challenges in assigning public employees to projects from the perspective of project managers (e.g. Kassel, 2010; PMI, 2006; Wirick, 2009). The important question of how public employees weigh up opportunities to join public sector projects is less explored in previous studies.

Hence, previous research has failed to develop a theoretical model of human behaviour that explains what motivates public employees to work on projects. The absence of such a model hampers the systematic analysis of factors influencing public employees' intention to join a project.

1.1 Research Purpose

The purpose of this research is to explore which factors determine the intention of public employees to work on public sector projects. The present study seeks to integrate these factors into a model of public employees' intention formation. Furthermore, it aims to empirically validate the model with data obtained from a survey among public sector employees in New Zealand. New Zealand public organisations have used project management for decades which makes the country an interesting case for the study of public employees' intention to work on projects. The findings of this research should assist public organisations at national, regional and local level to develop more effective incentive systems and human resource practices that motivate their employees to work on projects.

In addition to its practical implications, this research aims to make two contributions to the literature. First, the research introduces a model of public employees' intention formation to explain why public employees agree or decline to work on projects. Drawing on established theories of human behaviour, the model includes a unique combination of variables that are hypothesised to influence the decision-making of public employees. Unlike most previous literature (Kassel, 2010; PMI, 2006; Wirick, 2009), this research proposes an employee-focused approach to recruiting human resources for public sector projects.

Second, in order to support the hypothesised model discussed in this research, a survey among New Zealand public sector employees was conducted. The empirical validation of the model is a step toward establishing a model of public employees' motivation to work on projects. Empirical support for such a model of employee motivation is rare in previous literature.

To achieve the research goals, this study is organised as follows. Chapter Two begins with a summary of the public sector reform in New Zealand that brought about the increased use of project management in public sector organisations. It provides an overview of the definition, aims and tasks of projects. Moreover, it discusses differences between public and private sector project management. Chapter Two concludes with a review of the literature to identify factors that influence public employees' motivation to accept a project position. The third chapter describes the 'Theory of Planned Behaviour', which provides a theoretical framework to develop the research variables, hypothesis and model based on the factors identified in Chapter Two. In Chapter Four, the research methodology is explained, including research variables, survey items, and survey sample. Chapter Five presents the results of the survey. It describes the procedures used to collect the data and shows the findings from factor and regression analysis. Finally, Chapter Six discusses the research findings in terms of their theoretical implications and suggests future action for improving human resource policies for public sector projects. It evaluates the limitations of this research and recommends potential avenues for further research.

Chapter Two: Review of the Literature

2.1 Introduction

The purpose of this chapter is to explore and identify factors that influence the intention of public employees to work on projects. The second section of this chapter describes how management practices from the private sector found their way into public organisations. It highlights New Zealand's trail-blazing role in reforming public administration, making the country's public sector an important case study on the effects of "avant-garde" reform measures (Shick, 2001, p.2). The third section provides an overview of project management, a private sector management practice that is increasingly used by public agencies in many countries. It discusses definitional aspects of projects, and the aims and tasks of project management to help understand differences between project-based work and routine, administrative work in functional positions. The fourth section examines limitations to the adoption of project management by public organisations. Finally, the chapter concludes with a review of the literature on project human resource management to identify potential determinants of public employees' motivation to work on projects.

2.2 Public Sector Management Reform in New Zealand

The New Zealand public sector is formally divided into four different sectors: the 'public sector', the 'state sector', 'state services' and 'public services' (State Services Commission, 2009). The public sector includes the state sector, regional councils, and city and district councils. The state sector is made up of the state services, state-owned enterprises, offices of parliament and tertiary education institutions. State services comprise the public service, the Reserve Bank of New Zealand, most of the crown entities and agencies of public finance. Finally, the public service includes all public organisations such as the various ministries as defined in the State Sector Act (Figure 1).
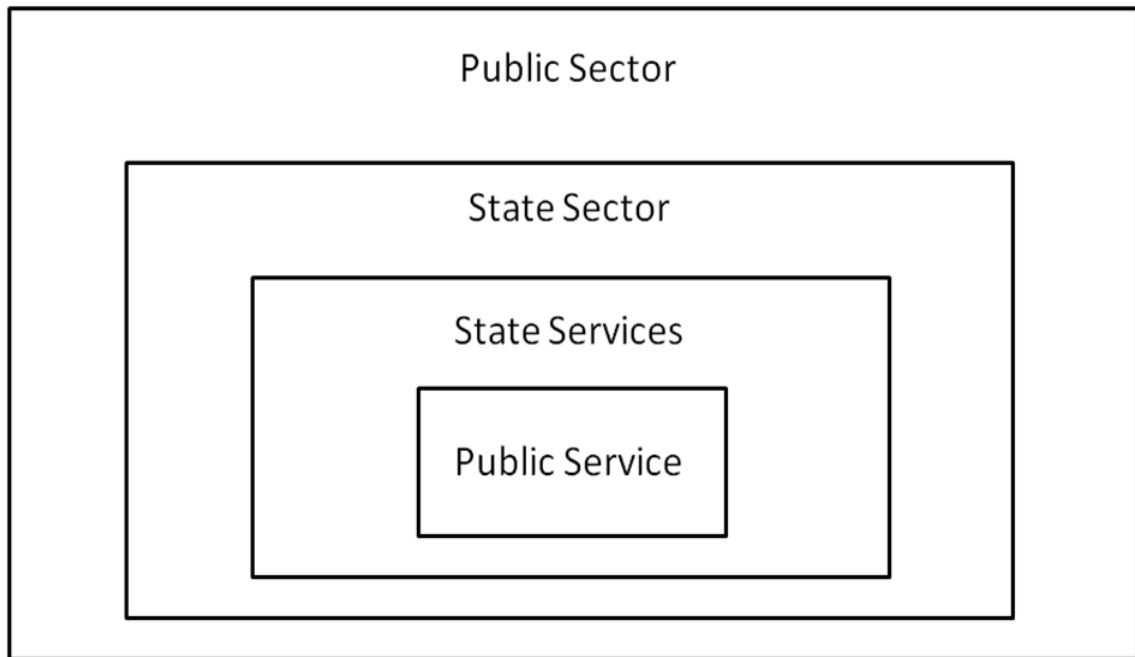
Figure 1: The New Zealand public sector (adapted from State Services Commission, 2009, p.1).

The introduction of private sector management practices to the New Zealand public sector did not occur overnight. It was embodied in an enduring and comprehensive reform process that has covered more than two decades, and affected public administration on local, regional and national levels. The most important recent development in public sector management is the "New Public Management" (NPM) reform (Boston, Martin, Pallot & Walsh, 1996).

The term "New Public Management" was coined in two articles by Aucoin (1990) and Hood (1991) to capture the general shift in public sector management that took place over the 1980s in several OECD member countries (Hood, 1995). New Zealand stands out among those countries for the unique coherence and consistent implementation of the reform (Schick, 2001). Some authors argue that the "scope, scale and speed" of the implementation made New Zealand the "'cutting edge' of public sector reforms" (Boston et al., 1996, p.351).

New Zealand first embraced NPM in 1983 when a new government was voted into power (Whitcombe, 2008). The new government defined reform objectives that reflected the orientation toward NPM. Drawing on Boston et al. (1996), the most important objectives in the context of the present study can be summarised as follows:

- to improve allocative and productive efficiency in public organisations

- to enhance the effectiveness of government programmes

- to reduce government expenditures

- to improve the quality of the goods and services produced by public agencies

Pressured by high budget deficits and with the perception of an inefficient and bloated public sector, the new government was urged to recognise the need for change in public sector management (Boston et al., 1996; Whitcomb, 2008). Changed demands on public sector services and criticism of existing public management practices provided the frame of reference for a set of concrete reform measures. According to Hood (1995), one cardinal doctrine that described the reform process toward NPM was the move from process accountability toward results accountability. The doctrine raised the question, "how far the public sector should be distinct from the private sector in its organization and methods of accountability" (Hood, 1995, p.95). To answer the question, the traditional focus on correctly and lawfully rendering the use of public resources was shifted to accounting for effectiveness and efficiency (Kluvers, 2003). The doctrine included at its core the import of "generic private sector management practices into the public sector in order to improve performance and increase efficiency and accountability" (Whitcombe, 2008, p.8). However, the import of private sector management practices has limitations defined by the distinct characteristics of public sector organisations. These differences will be examined in detail in section 2.4.

Overall, the New Public Management reform in New Zealand has had no lack of critics (e.g. Christensen & Lægreid, 2007; Pollitt & Bouckaert, 2004; Whitcomb, 2008). Some changes made during the reform were adjusted or even reversed (Lodge & Gill, 2011). On the other hand, new approaches to reforming the public sector are still discussed and adopted. There appears to be sufficient political will to carry through reform measures that have shown promising results. This momentum for change could be seized to further the integration of private sector management instruments, such as project management, into public administration.

2.3 Project Management Defined

The implementation of the NPM reform measures into the practice of day-to-day administration is often cumbersome. Complex and holistic innovation processes collide with traditional, norms-based and input-oriented administrative procedures and stakeholder interests (Griesche, 1998). Public servants frequently display feelings of resistance to changes in public sector organisations (Christensen & Laegreid, 1999). The use of private sector management practices in public administration could have a positive impact on public employees' work performance and may help overcome their concerns. One such private sector management practice is project management. This section discusses the definition of projects and the aims and tasks of project management to help understand what projects are and why they represent a specific management practice.

2.3.1 What is a Project?

The Project Management Institute (PMI) is a highly influential association for project management, which continuously builds and expands the project management body of knowledge (PMBOK) (Morris & Pinto, 2004). The PMI defines a project as "a temporary endeavour undertaken to create a unique product, service or result" (PMI, 2004, p.5). Similar to the PMI, the Association of Project Management (APM) defines projects as "unique, transient endeavours undertaken to achieve a desired outcome" (APM, 2006, p.3).

Despite variations in the definitional elements used to delineate projects, two basic characteristics are commonly identified in the project management literature as being typical for projects (e.g. APM, 2006; Gareis, 2006; PMI, 2008; Roman, 1986).

- *Projects are temporary*
  The beginning and the end of projects are scheduled and pre-defined. The duration of projects is limited.

- *Projects are unique*
  Projects are used when business processes are relatively novel, i.e., the experience of employees that can be related to the new business process is limited (Gareis, 2006).

The temporary and unique nature of projects poses a challenge to project human resource management. With every new project, project managers have to begin a new recruiting process. They are under pressure to find qualified employees who want to join their project. In addition, project managers frequently have to ask line managers to get employees assigned to their projects, because the line managers often have authority over staffing decisions (Gray & Larson, 2008). From the employee perspective, working on a project usually means dealing with new, demanding tasks due to time pressure and the uniqueness of project goals. Moreover, the limited duration of projects causes uncertainty among employees, who have to plan their career to continue after the project has ended.

However, project definitions are frequently extended to encompass aspects of risk management (Simister, 2004), strategic importance (Gareis, 2006) and/or complexity (Corsten, 2000). This introduction to the definition of projects concludes with a brief discussion of the complexity characteristic.

It is often difficult to predict the many interdependent activities that are needed for the implementation of projects. For example, projects often require resources from more than one department and from more than one organisation. The complexity of projects is therefore likely to be higher compared with the complexity of routine operational tasks (Roberts, 2007). This position is supported by Harpum (2004), who defines projects within the context of bigger systems, thus stressing the interdisciplinary and complex nature of projects. According to Roman (1986), however, complexity is not a defining characteristic for projects. He argues that a project can involve only one specialist and can be limited to one particular function at a time, thus having a low complexity.

The discussion of the importance of complexity and other characteristics for the definition of projects continues. Whereas further research might help resolve some of the definitional issues, the incorporation of uniqueness and limited duration as the two essential project characteristics appears to be widely accepted.

2.3.2 Aim and Tasks of Project Management

The PMBOK (PMI, 2004) suggests distinguishing five general processes of project management: initiating, planning, executing, monitoring and controlling, and closure. Gareis (2006) emphasises that all five processes are accompanied by troubleshooting, i.e., the resolution of project discontinuity, as the only continuous process. The five processes aim to achieve the project objectives with the help of knowledge, skills, tools and techniques (PMI, 2004). In general, project objectives are to stay within the given project timeframe and estimated costs, while meeting product specifications (Kerzner, 2004). The interaction between time, costs and scope is also known as the "magic triangle" or "iron triangle" of project management (Gareis, 2006). Time, cost and quality are in permanent conflict as changing one objective will affect the others (Reiss, 1995). A shift in the importance of project objectives during the implementation will therefore affect the management of the project as a whole.

An alternative approach to classifying project management is the project life cycle. The project life cycle typically includes four stages: defining, planning, executing, and delivering (Gray & Larson, 2008).
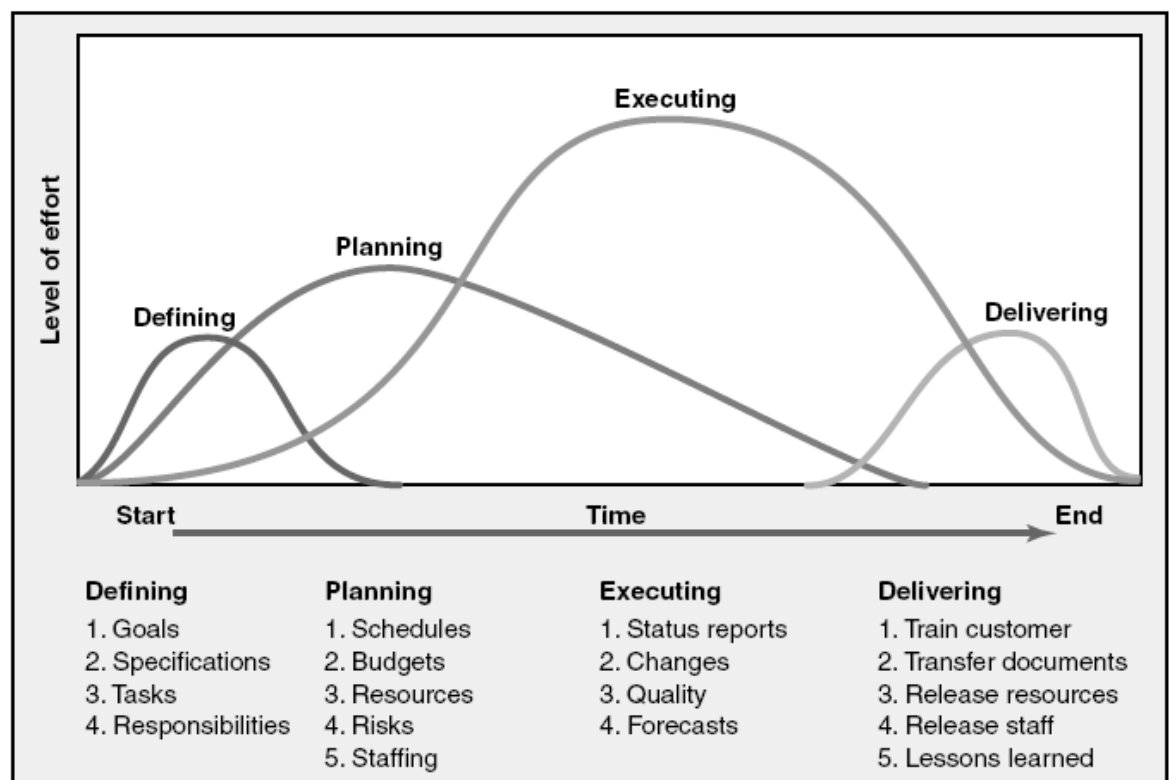
Figure 2: Project Life Cycle (Gray & Larson, 2008, p.19)

The definition of projects is essential for aligning the use of project management tools and methods with the project objectives in terms of time, cost and quality (Atkinson, 1999). The specification includes the project objectives and the formal, temporal and social (stakeholder) delineation of the project (Corsten, 2000). The project team is formed during the defining stage (Gray & Larson, 2008). However, at this point of the project life cycle the project team has only few employees, who define the project together with the project stakeholders.

The defining stage is followed by the planning stage. Project planning involves scheduling and sequencing project activities and resources according to the project specifications (Corsten, 2000). Project activities are the hierarchical decomposition of the work of a project down to a sufficient level of detail so that estimates of time, cost and resource requirements can be made. The literature suggests various approaches to developing a project plan. A commonly included step is to determine the staffing level and what particular skills project employees should have to meet the project goals (e.g. Wysocki, 2007; Gray & Larson, 2008). This is the stage in the project life cycle when the majority of project employees are assigned to the project team. The project team grows rapidly and the project manager has to spend more time on the recruitment of employees and team building than before.

The executing stage is where most of the project work takes place and the project deliverable, or product, is produced (Gray & Larson, 2008). The project plan is the precondition for a comparison of what should have been achieved with the actual project performance (Wysocki, 2007). Depending on the deviation of actual performance indicators from the plan, the project stakeholders may be forced to reconsider the project goals. The number of project employees usually reaches its maximum during this stage.

The delivering stage includes the delivery of the project product to the customer and the redeployment of project resources (Gray & Larson, 2008). The redeployment includes the reintegration of project employees into the functional departments of the organisation or their assignment to new projects. The project team is dissolved after the delivering stage.

Overall, the different stages in the project life cycle have particular staffing requirements and issues in human resource management. The present study focuses on the recruitment of project employees during the planning stage.

2.3.3 Operational Work versus Projects

This research assumes that operational work and project-based work are fundamentally different. It concurs with the position of the PMI (2006) that "projects and operations differ primarily in that operations are ongoing and repetitive, while projects are temporary and unique" (p.6). According to the PMI, this difference between operational work and projects also applies to the public sector. The 'Government Extension to the PMBOK Guide' (PMI, 2006) adopts the definitions of operational work and projects from the general PMBOK guide book. Therefore, a second working assumption is that the terms "ongoing" and "repetitive" describe work characteristics associated with administrative, or functional, work in public organisations. In this research, administrative and functional work in public administration corresponds to operational work. Replacing the term "operational" with "administrative" or "functional" appears to fit better with the terminology used in the public administration literature. Although "administrative" and "functional" have different interpretations and connotations, both terms are associated with repetitive, routine and continuing work. They are used here interchangeably to refer to routine work in line, or functional, departments, unless their distinction is important.

2.4 Differences between Public and Private Sector Organisations

Legal definitions of the public sector and the organisations and services it encompasses vary between countries. As a working definition, it can be said that the public sector is a part of the economy that controls the production, delivery and allocation of goods and services by and for the government (Lane, 2000). Public organisations administer and provide public services at national, state or provincial, and local level. By contrast, the private sector is that part of the economy which is run or owned by private individuals or groups, usually as a means of enterprise for profit, and is not controlled by the state.

Authors associate the New Public Management reform with the import of private sector management practices to public organisations (Box, 1999; Hood, 1991; Keen & Murphy, 1996). However, pointing to fundamental differences between private and public

organisations, critics have challenged the idea that businesslike practices and thinking can be part of public administration (Alford, 1993; Allison, 1979; Boston et al., 1996).

This section discusses the question of whether projects are an appropriate management instrument for the public sector. It addresses the distinguishing characteristics of public organisations, thereby exploring the limitations to importing project management to public administration. It concludes with a discussion of the influence of those characteristics on project management in the public sector.

2.4.1 Tasks and Objectives of Private and Public Management

In various academic contributions, claims and counter-claims regarding the similarity of public and private management have been brought forward (Boston et al., 1996). Over time, several conceptual frameworks have emerged to structure and guide this debate (Allison, 1979; Boston et al., 1996; Boyne, 2002). Boston et al. (1996) propose a framework with three major categories under which the key differences between the two sectors are summarised: external factors, organisation-environment transactions, and internal structures and processes. Boyne (2002) reviews 34 empirical studies and suggests a categorisation of differences under four main headings: organisational environment, organisational goals, organisational structures and managerial values. He concludes that only three variables are confirmed to show a significant difference by the majority of studies: (1) government organisations are more bureaucratic than private firms, and public employees are (2) less materialistic and (3) less committed to their organisation than private sector managers. Overall, the articles reviewed by Boyne (2002) could not provide significant evidence in support of the idea that special characteristics of public organisations generally have an influence on public sector management. However, various limitations in the studies' design leave room for the possibility that variables other than bureaucracy and employee values play an important role in shaping management practices in the two sectors (Boyne, 2002).

Given the possible understatement of some of those special characteristics in prior empirical research, it may be useful to provide the main arguments for the uniqueness of some public organisation characteristics. The arguments outlined here are chosen from the literature for their possible influence on public sector project management. Boyne's (2002) framework is used to guide the outline. This approach offers the

advantage of grouping employee values in a stand-alone category. Values and beliefs of employees are likely to affect the extent to which project management methods can be utilised in public administration. They should therefore be addressed in a separate category.

Organisational environment

- A first important difference between the public and private sector is that public agencies act in accordance with a set of obligations and policies given by an official political agenda. Owing to this primacy of politics over administration, government agencies cannot opt to withdraw from certain activities. The provision and consumption of goods and services are thus more likely to be unavoidable for public organisations than for private firms (Boston et al., 1996).

- Public organisations are also believed to be more 'responsive' to external influence. Responsiveness to stakeholders is seen as essential to guarantee that their demands are met by public services (Boyne, 2002). In contrast, private organisations can choose different degrees of 'openness' to the demands of stakeholders (Ring & Perry, 1985, p.277).

- Due to the mandatory performance of certain public services and the high level of openness, public organisations face a multifaceted network of private and public stakeholders with numerous, often conflicting demands (Metcalf, 1993). As a result, government agencies encounter interdependencies that are more complex than those of private organisations, "even in the case of large, multi-divisional firms" (Allford, 1993, p.38).

- Usually, public services are provided using publicly-owned equity and are less exposed to competition than private services (Flynn, 2007). As a result of low market exposure, prices and quality of services lack market information and indicators that would allow drawing conclusions on the quality of public management (Boston et al., 1996).

Organisational goals

- Public sector managers have to follow multiple, changing and sometimes conflicting goals "imposed through the political process" (Boyne, 2002, p.101), while private organisations focus on profit maximisation as the ultimate goal.

- Goals of public organisations are often less firm and more ambiguous than those of private firms (Allison, 1979; Tullock, 1965). It is therefore more likely that inappropriate private sector management practices are chosen to achieve unclear and vaguely defined objectives of government agencies.

Organisational structures

- Managers in private organisations have more decision-making autonomy than public managers (Allison, 1979). For example, public managers' influence on staffing decisions is more fragmented and weaker because of greater difficulties in linking individual performance with a reward system and more formal regulations. Furthermore, public employees can appeal to alternative authorities to challenge decisions of superiors (Boston et al., 1996). Thus, public managers have the disadvantages associated with tightly structured hierarchies (e.g. bureaucracy) in addition to the disadvantage of limited discretionary power (e.g. to manage employees) (Boyne, 2002).

- Accountability mechanisms in public administration are different from those in private organisations. Public agencies are constrained by overlapping oversight structures (Wirick, 2009), thus increasing the number of stakeholders. Additional resources are required to placate oversight agencies. Furthermore, oversight structures are embedded in rules, regulations and defined procedures (Wirick, 2009). Formalised administration procedures and over-emphasised importance of rules can lead to unnecessary delay in delivering public services (Bozeman, Reed & Scott, 1992).

Managerial values

- Values and norms of public sector staff are believed to be different from those of private sector employees regarding their attitude toward work and life in

general (Pratchett & Wingfield, 1996). In particular, employees working in public organisations are seen as less materialistic than employees at private firms. Allison (1979), for instance, suggests that public employees value pecuniary rewards less than do their counterparts in the private sector. Financial incentives are therefore less likely to influence public employees' decisions, their commitment to the organisation or their work ethics. Instead, public employees are believed to give more importance to non-financial achievements.

- It has been argued that public employees are more dedicated to increasing public welfare than private sector managers (Wirick, 2009). While both public and private organisations serve the public either by the provision of public services or by meeting customer demand, respectively, it is suggested public sector employees have a stronger commitment to promoting the public interest (Box, 1999).

2.4.2 Impact of Distinct Public Sector Characteristics on Project Management

The differences between the public and private sectors highlight the specific characteristics of public sector management. Their relevance to the adoption of project management by public administration is discussed in the following. A first important distinguishing characteristic is the primacy of politics, i.e., the overarching role of politics for public administration. Although the administration contributes indispensably to the legislature and to the formulation of public purposes, it is the government that ultimately defines the objectives and direction of public administration (White, 1926; Svara, 2001). Policy guidelines stipulated in government programmes determine administrative practice. The implication of the primacy of politics for public project management is that projects need to anticipate and adjust to changes in the political agenda. In this regard, the political support for a project and its objectives is crucial for successful public project management.

Second, in the private sector the definition of realistic project goals is routinely accompanied by contractually-guaranteed resource planning and project schedules. In so doing, private firms attempt to achieve the desired goals with relative safety. Whereas project management in the private sector is characterised by a strong orientation toward project goals ("What do we need to deliver?"), government agencies

focus on budget and available resources ("What resources do we have?"). The imperative to provide public services to everyone who is deemed eligible by law compels administrators' attention to the management of scarce public resources rather than customer satisfaction (Flynn, 2007). This focus on budget constraints makes it even more challenging to define project goals against the backdrop of conflicting and ambiguous stakeholder demands. Similar to the private sector, public administration relies on resource estimates as a way to establish a basis for decision-making. However, the adherence to narrowly-defined project resource plans is likely to be challenged when vaguely-defined project goals are subsequently clarified or a shift in the political agenda requires an alternative reasoning (Wirick, 2009). Consequently, pre-determined project budgets are likely to conflict with the need to re-define project goals as the project progresses. Reconciling the budget with shifting project goals becomes the centre of attention for the project team and management.

Third, the extent to which project managers control the allocation of resources differs in terms of the prevailing logic of action in private and public sector organisations. The traditional project management literature proposes a clear-cut separation between the roles of the client and the contractor of a project (e.g. Turner, 2009). This precise role definition includes the transfer of authority over resources from the client to the project management. The project management must have sufficient authority and resources to achieve the project objectives. On the other hand, the delegation of authority implies the project management's responsibility to use resources efficiently and to realise the envisaged project goals independently. This understanding of the roles of client and contractor is uncommon in the public sector (Flynn, 2007). Managerial responsibility is often delegated to project managers without sufficient authority over project staff and budget, thus limiting the discretionary powers of project managers.

Finally, if public sector employees are less materialistic than their private counterparts and have a greater interest in providing public services, public sector project management must develop a reward system that accommodates these values. For example, using financial incentives such as performance-based pay to increase individual performance is likely to be less effective in public organisations than in private firms. Non-financial rewards, such as the increased chance of promotion or assignment to preferred jobs, may have a stronger motivational influence on

employees. This assumption may be applicable to the motivation of public employees who seek a role in a project. Employees may anticipate a variety of non-financial rewards when accepting a project position such as increased social status. If so, the utilisation of private sector reward schemes for public sector project management would be less effective.

Summarising the above, it can be said that public organisations have specific characteristics that substantially differ from those of private organisations. Some of them affect the adoption of project management for the purposes of public administration. Four characteristics appear to be particularly relevant, including:

- the primacy of politics.
- the budget focus of public administration.
- existing patterns of allocating authority and discretionary power.
- norms, beliefs and values prevailing in public organisations.

Within the scope of this research, it is the latter two points, i.e., the influence of the structure and culture of an organisation, the next section turns to.

2.5 Determinants of Employees' Intention to Work on Projects

The purpose of this section is to explore the influence of organisational structure and organisational culture on employees' intention to accept a position in a project. Each of the two concepts provides the context for a literature review conducted to identify determinants of intention formation.

2.5.1 Organisational Structure and Project Management

The concept of organisational structure is associated with a wide range of definitional elements. In their review of previous literature on organisational structure, Clayton, Fisher, Bateman, Brown and Harris (2005) summarise definitional key aspects, and suggest defining organisational structure as:

> *"the degree of centralization of decision-making, formalization of rules, authority, communication, and compensation, standardization of work processes and skills, and/or control of output by acceptance of only adequate outcomes." (p.5)*

This research concentrates on the distribution of authority and centralisation of decision-making in the following discussion of organisational structures.

Basic Types of Organisational Structures

Previous research has followed different criteria to explore and categorise organisations in terms of their organisational structure. Teece (1996) and Mintzberg (1979) propose organisational typologies applying criteria such as market, mission, and technological domain. Other writers take a historical perspective and describe the emergence of new organisational designs, such as pure project organisations, as a result of an organisational adjustment process to rapidly changing markets and technology in the 20th century (Miles & Snow, 1986; Kerzner, 2004). Alternatively, Galbraith (1971, 1973) suggests categories of organisational design that range from purely functional to product centred. Where structural elements of functional organisations and product organisations overlap, matrix organisations emerge. Based on Galbraith (1971, 1973), Larson and Gobeli (1989) further distinguish the organisational matrix design and propose three different matrix forms: the functional matrix, the balanced matrix and the project matrix. While other, more fine-grained approaches exist (e.g. Hobday, 2000), the categories introduced by Galbraith (1971, 1973) and Larson and Gobeli (1989) prevail as the standard frame of reference in the project management literature.

(i)   Functional organisation

Functional (also traditional or classical) organisations are characterised by a hierarchical structure, where each department is subordinate to another department (PMI, 2008). Authority and control over project resources, including project staff, lies with the functional management (PMI, 2008) (Figure 3). When projects are introduced, the affected functional departments continue operations without substantial alterations in the organisational design (Gray & Larson, 2008). New projects are managed within the existing functional structure. During their design phase, projects are either limited in scope to match expertise and capacity of a particular department (PMI, 2004), or they are divided into sub-projects and delegated to the respective functional department (Gray & Larson, 2008).
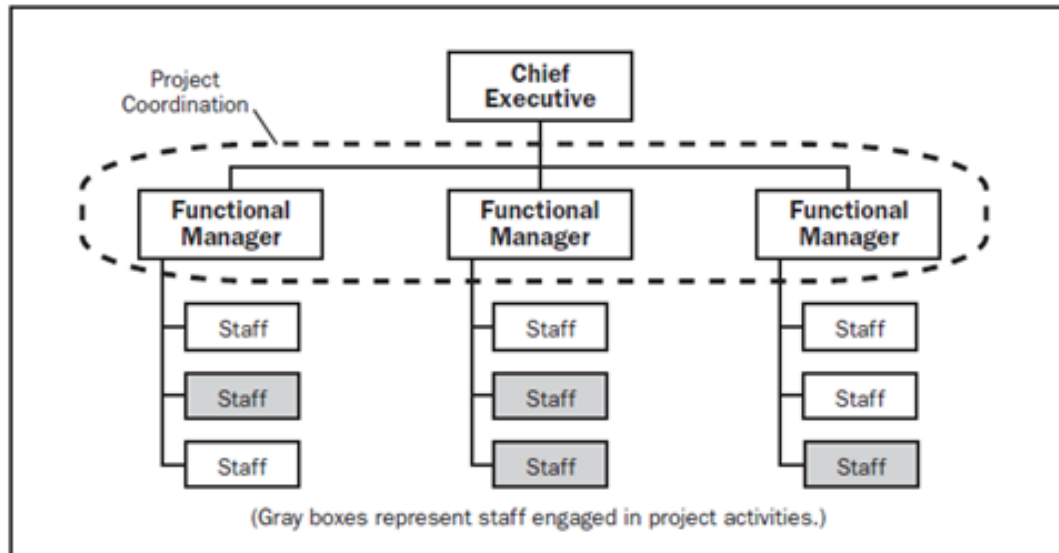
Figure 3: Functional organisation (PMI, 2008, p.29)

(ii)   Matrix organisation

Matrix organisations combine elements of functional and project structures. Both project manager and functional department are given authority and control over project resources. As a result, "there are usually two chains of command, one along the functional lines and the other along project lines" (Gray & Larson, 2008, p.65). The installation of two parallel authority structures frequently causes conflicts between project management and line management over the distribution of powers to make decisions, the allocation of resources and the integration of project outcomes into continuing operations (Gray & Larsson, 2008; Kerzner, 2009). For example, the project manager is given the authority necessary to reach the project goals, including the delegation of tasks and responsibilities among project staff. The functional manager, however, usually defines personnel staffing and has authority over project staff in disciplinary matters (Corsten, 2000).

Building on previous work of Larson and Gobeli (1998), the PMBOK (PMI, 2008) defines three different forms of matrix organisations: weak, balanced and strong. Weak matrix organisations represent organisational structures where project managers perform work that is characterised by limited authority over project resources, monitoring of project activities and the provision of information on project progress to functional managers (Figure 4). In balanced matrix organisations, both project managers and functional managers are given authority and discretionary power for a project (Figure

5). Usually, the project manager deals with 'what should be done' for a project, while the functional manager looks after 'how things should be done' in a project. Finally, the responsibilities of project managers in strong matrix organisations include decisions regarding project staff, finance and other key resources. In strong matrix designs, functional managers' authority is confined to administrative tasks and supervision (Figure 6).
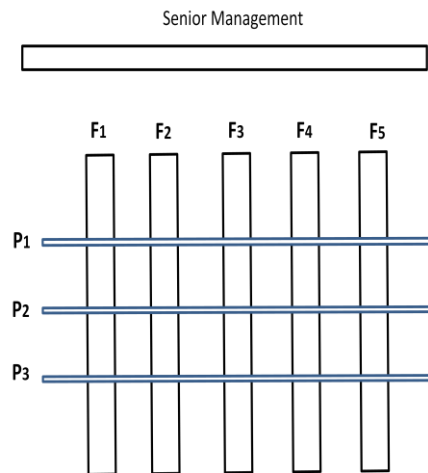
Figure 4 : Weak matrix organisation (adapted from Hobday, 2000, p.877)
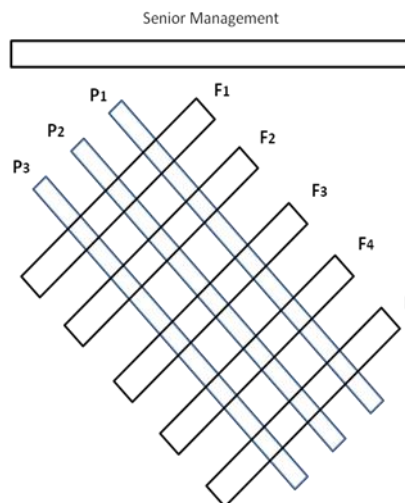
Figure 5: Balanced matrix organisation (adapted from Hobday, 2000, p.877)
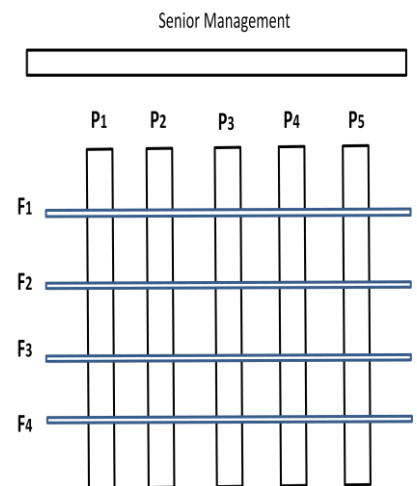
Figure 6: Strong matrix organisation (adapted from Hobday, 2000, p.877)

$F_1 - F_5$ = various functional departments of the organisation (e.g., marketing, finance, human resources)
$P_1 - P_5$ = major projects within the organisation

(iii)   Project organisation

The most rigorous form of structural adjustment to the needs of projects is the project organisation. Unlike the functional organisation, where projects are embedded into the existing organisational structure, project organisations are built around the purpose of implementing a project (Gray & Larson, 2008). This form of organisational integration includes that the project manager has high, almost total, authority and control over project resources (PMI, 2008). Members of the project team report to the project manager (Figure 7). After the project is closed, the pure "projectised" structure is dissolved. Ideally, the project team is reintegrated into the line organisation. However,

the reintegration process can be problematic and costly for the organisation as well as the project staff. Employees therefore often anticipate a difficult post-project transition.
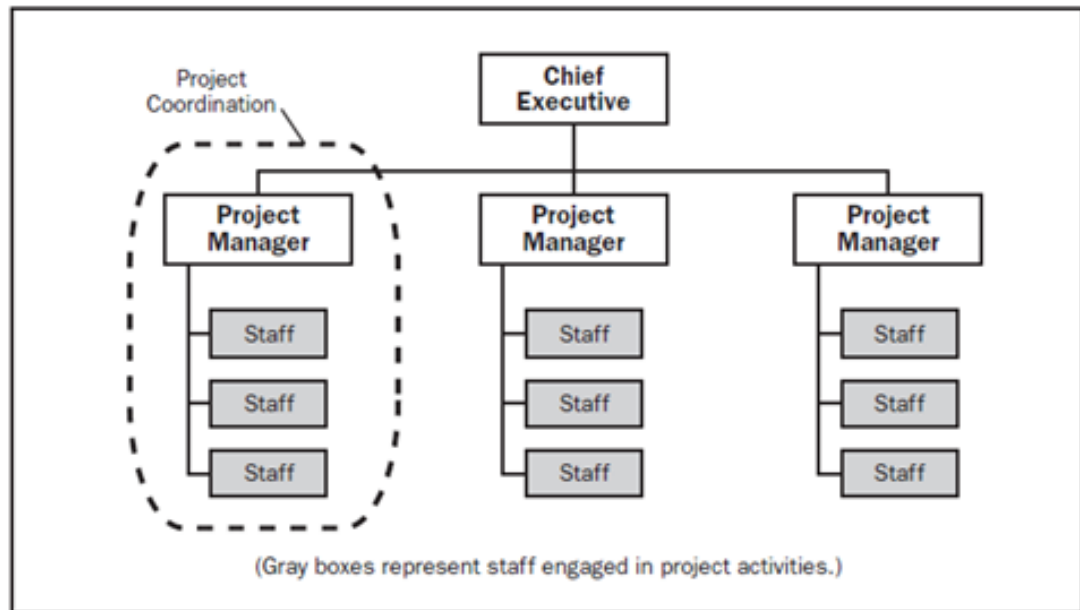
Figure 7: Project organisation (PMI, 2008, p.31)

2.5.2 Intention Determinants and Organisational Structure

The New Public Management reform gradually replaces highly structured and functional hierarchies in public organisations with weak matrix or even balanced matrix structures (Horton, 2006), thereby paving the way for the integration of projects into public administration. Authors have argued that this transition from functional structures to matrix forms has an influence on employee motivation (Perry, Mesh & Paarlberg, 2006). According to Gareis (2006), projects offer employees the opportunity to take responsibility for individual project goals. While working on a project, employees increasingly identify with the project and show a higher level of commitment than employees in functional positions. Organisations which successfully implement organisational structures in support of cross-functional projects, such as matrix designs, will positively influence employee motivation.

Intention Determinants: Compatibility

Other authors argue for a more differentiated view on the benefits and disadvantages of matrix structures for employees. In particular, the fact that employees frequently work on projects in addition to their tasks in functional positions appears to be an obstacle to the integration of projects (Griesche, 1998). According to Kerzner (2009),

the multi-dimensional workflow between project and functional positions makes project-based work more complex for employees in matrix organisations. A project position increases the role ambiguity of public employees who have to reconcile two different work styles. Therefore, public employees may find that their existing experience, values and personal needs are not consistent with the particular requirements of project positions. The extent to which public employees perceive that project-based work fits the way they usually work is measured through the "compatibility" construct in this research.

Intention Determinants: Career Consequences

A change from the functional form to a matrix structure affects career prospects of public employees. Gray and Larson (2008) suggest that the post-project transition of project staff is less problematic in functional organisations than in matrix forms. It is easier for functional organisations to reintegrate project staff into line departments after the project has ended. Kerzner (2009, p.109) agrees that employees have a "home" after project completion in organisations with functional designs. He argues that projects generally offer less career continuity and opportunities for employees compared to a continuous career progression within line departments. Lock (2001) concurs with Kerzner's (2009) argument of higher career path stability but points out that project staff would move up within a project when senior positions become vacant. However, the anticipation of a troublesome post-project reintegration increases uncertainty among employees, and may adversely affect their intention to join a project. In this research, the expectations of public employees about how working on a project influences their career opportunities are represented by the construct "career consequences".

Moreover, a possible disadvantage of project positions for employees involves decreased opportunities for knowledge sharing. In matrix organisations, employees who are assigned to a project are in danger of losing contact with experts and specialists from the same department (Kerzner, 2009). The access to 'cutting edge' knowledge, funds and data is more difficult for project staff, and may discourage employees from accepting a project position. On the other hand, projects present a chance to gain knowledge on a specific topic, and to acquire a unique set of project management skills, according to Lock (2001). These skills could increase the opportunity for preferred job

assignments after the project is completed. The belief of employees that projects may influence their opportunities to acquire specialist knowledge is also captured by the "career consequences" construct.

Intention Determinants: Facilitating Conditions

Finally, the authority given to managers to directly support their employees differs between functional and matrix organisations. This difference is likely to affect public employees' attitude toward working on projects. In 2000, the New Zealand State Services Commission (SSC) found in a survey that public employees want managers to be more active in assisting them in their career development (State Services Commission, 2000). Although the survey did not aim to explain the relationship between management support and employees' decision to work on projects, it highlights the general importance of management support for public employees' decision-making. According to Lock (2001), this relationship can be generalised to show that help and education available from the management lowers employees' concerns against changing from a functional position to a project position. Management support of employees is thus critical in influencing their intention to work on projects. The present study includes the potential effect of management support on employees' intention in the construct "facilitating conditions".

Table 1: Advantages and disadvantages of different forms of organisational structure

Organisational Structure / Characteristic	*Functional organisation*	*Matrix organisation*	*Project organisation*
Long term stability and continuity of employment	high	moderate	low
Gaining specialised expertise	high	limited	high
Contact with department specialists – access to expertise, funds and data	high	limited	low
Post-project integration of project staff into organisation	high	moderate	low
Project career path	low	moderate	high

Multi-dimensional workflow and role ambiguity of staff and managers	low	high	low

In summary, this section categorises different forms of organisational structures, ranging from functional organisations on one end to project organisations on the other. Moreover, three potential determinants of public employees' intention were identified in the context of organisational change from functional to matrix structures. Table 1 summarises the benefits and disadvantages of different forms of organisational structures for public employees.

2.5.3 Organisational Culture and Project Management

The majority of people who have gained work experience would probably intuitively agree that there is a particular way 'things get done' in their organisations (Lundy & Cowling, 1996). This perception is claimed to be associated with the culture of an organisation – a prevalent system of institutional artefacts, assumptions and beliefs (Hofstede, 1991; Schein, 1992). According to Sackman (1991), research on organisational culture should concentrate on values and beliefs, because they are easier to study than assumptions or artefacts, and have a stronger influence on behaviour. This research follows Sackman's approach by defining organisational culture as a system of shared norms, beliefs, and values, "which binds people together, thereby creating shared meanings" (Gray & Larson, 2008, p.72). Organisational culture is reflected in customs and habits, and can therefore help predict attitudes and behaviours of employees (Gray & Larson, 2008).

The Enron Corp. case provides an example from practice. It has been argued that Enron's dramatic bankruptcy in 2001 was partly due to the company's promotion of a risk-taking organisational culture. Jeffrey Skilling, former CEO of Enron, once pronounced in an interview: "Our culture is a tough culture. ... It is a very aggressive culture." (McLean, Elkind & Gibney, 2005) This norm was understood and adopted by most employees, especially by the traders in the Enron Energy Services trading unit, who engaged in increasingly risky trades to receive ever-higher performance-based bonuses. Many employees had internalised the organisational culture so well that they became oblivious to the long-term consequences of their behaviour for the company. The Enron culture had undermined the moral responsibility of traders to such a degree

that Amanda Martin-Brock, ex-Enron executive, warned Jeff Skilling: "Jeff, you've got a real problem. The traders will cut your throat, if they think it will get them to the trough sooner." In response, Skilling admitted to Martin-Brock that she was most likely right (McLean, Elkind & Gibney, 2005).

Project Management Culture

The Enron case illustrates that organisations can amplify certain aspects of an organisational culture to influence employees' beliefs and, ultimately, behaviours. In regard to project management, building organisational culture can be understood as creating a culture which supports or impedes effective project management (Kerzner, 2000). By changing certain elements of the existing organisational culture, managers can create a 'project management culture' – a culture where employees' norms, beliefs and values match with the requirements of project management. However, there is no agreement on the definition of project management culture in the literature (Wang, 2001). Other authors have explored project management culture from the perspective of project team culture (Hofstede, 1983) or the culture of the project management profession (Cleland, 1982).

Given this vagueness, it is appropriate to briefly discuss and delineate what distinguishes project management culture from project team culture. One possible approach is to follow Wright's (1997) suggestion of making a distinction between project team and wider organisation team. Project team culture is associated with the "project team itself which has to be welded together and enthused with the objects of the project" (Wright, 1997, p.183). Consequently, project team culture is project-specific. Each project can be seen as a sub-cultural unit with unique cultural traits within the wider organisational culture. By contrast, project management culture relates to the "wider total organisation team which has to be convinced of the validity of the project" (Wright, 1997, p.183). It describes the general, cultural conditions in an organisation within which projects are managed and performed. It is specifically this understanding of project management culture, i.e. as a culture generally in support of or against projects, that is at the core of this research. Whereas this study focuses on project management culture, it does not overlook the potential influence of the project team culture on individual decisions of employees. In fact, the influence of co-workers on individual intention formation is explicitly included in this research.

2.5.4 Intention Determinants and Organisational Culture

Once a relationship between organisational culture and project management is assumed, the question arises of how cultural characteristics affect the implementation of a project. Due to the elusiveness of culture as a concept, the answer is somewhat vague.

Intention Determinants: Organisational Mandate

Authors have argued that cultural factors in support of public sector project management are associated with an agency's openness to change, a strong team culture, and leadership that openly promotes projects and supports project staff. O'Kelly and Maxwell (2001) suggest that public organisations should adopt a project management culture that embraces opportunities for change. In translating these opportunities into action, the authors argue, top management leadership is a critical factor. Similarly, Halligan and Donaldson (2001) stress the importance of management leadership that mandates projects as an effective management practice. This proposition has an important implication. The decision of an organisation to mandate the use of project management across the board should be distinguished from the individual decision of public employees to work on projects. Just because project management is part of an official organisational policy does not necessarily mean that employees will follow this policy. However, it seems natural to assume that individual decisions are not made regardless of the relevant organisational policies (Hardgrave, Davis & Riemenschneider, 2003). Rather, the intention of public employees to work on a project within an organisation that has decided to mandate the use of project management is likely to be influenced by this policy. In this research, the influence of an official organisational project management policy on employees' intention formation is represented by the construct "organisational mandate".

Intention Determinants: Facilitating Conditions

In addition, the support employees receive from their immediate managers is likely to affect their intentions. Dwyer et al. (2004) suggest that public agencies should enable their managers to assist employees to gain project management competence. Managers influence their employees' experience every day by directing and supervising when and how employees work, and what tasks and job positions they have access to. By providing public employees with specialised instructions, education, and formal and

informal guidance that make the transition to project-based work easier, managers have an influence on employees' intention to join projects. Halligan and Donaldson (2001) concur with Dwyer et al. (2004) that managers' support of public employees is integral to successful project human resource management. The authors elaborate further that project management culture should encourage staff to seize training and education opportunities in project management. Good technical support and a solid network of mentors and support personnel available to project staff will increase the probability that public employees seek a position in a project. The support of project staff and employees who intend to join a project is reflected in the construct "facilitating conditions".

Intention Determinants: Social Pressure

Moreover, social pressure by co-workers may influence the intention of public employees to work on projects. Because of the long-term tenure of many public employees and the group cohesion in most public organisations, "public-sector employees have strong group norms and are motivated by a desire to support their colleagues" (Wirick, 2009, p.7). High group cohesion may affect the likelihood that public employees comply with the behaviour of their colleagues (Holz, 2004). According to Kelman (1958, p.53), "compliance can be said to occur when an individual accepts influence because he hopes to achieve a favourable reaction from another person or group. He adopts the induced behaviour not because he believes in its content but because he expects to gain specific rewards or approval and avoid specific punishments or disapproval by conforming." Thus, employees may choose to perform behaviour even if they are not themselves favourable toward the behaviour or its consequences, if they believe one or more colleagues think they should (Venkatesh & Davis, 2000). The opinion of colleagues, especially of those who are important to the employee, may therefore influence individual decisions. The influence of public employees on the decisions of their co-workers to work on a project is captured by the construct "social pressure".

Intention Determinants: Image

Furthermore, the desire to gain social status may have an influence on employees' intention to work on projects. Employees perceive projects as a chance to 'get noticed' by managers and colleagues (State Services Commission, 2000). If public employees

consider the offer to join a project, in particular a 'high-profile' project, as an opportunity to 'stand out' and 'act up' (State Services Commission, 2000, p.47), they may associate project positions with a gain in prestige and social status. Therefore, a project position could help enhance the image of a public employee within a reference group. Halligan and Donaldson (2001) suggest that public organisations should develop practices that value project staff, thereby improving the image of having a project position. The perception of the image of working on project positions may influence public employees' intention to join projects. In this research, the effect of image on employees' intention formation is represented by the "image" construct.

Intention Determinants: Power Distance

Patterns of norms and values among employees emerge not only within the boundaries of organisations. They are also related to the societal context in which organisations operate (Becker, 1960; Morrow, 1983). Hofstede (1983) maintains that differences in national cultures are the basic determinant of management in general, and project management in particular. In his model of four dimensions of organisational culture, he suggests that "features such as centralisation and autocratic leadership are rooted in the mental programming of the members of a society, not only of those in power but also of those at the bottom end of the power hierarchy" (p.44). Mental programming is the result of internalised normative pressures stemming from a society's culture. Members of different societies have internalised different norms. A high centralisation of authority and power, for example, may be generally accepted in some societies, but rejected in others. This proposition may have implications for the effectiveness of an organisational mandate of project management. Employees may tend to feel more obliged to follow a mandated organisational policy, if they come from societies where centralisation and autocratic leadership are accepted social norms. Accordingly, employees may be inclined to disregard an organisational policy, if they have internalised social norms that oppose autocratic leadership and unequal power distribution. Therefore, the degree to which public employees agree to the centralisation of authority is likely to be relevant to the effectiveness of an organisational policy that officially mandates the use of project management. The influence of public employees' attitude toward asymmetric power distribution on intention is captured by the construct "power distance".

Intention Determinants: Usefulness

One further potential intention determinant was identified beyond the review of research on organisational culture and structure which was thought relevant for the intention formation of public employees. The "usefulness" construct reflects public employees' belief that working on projects will enhance their work-related competencies and lead to higher job performance. The New Zealand State Services Commission found during a survey among public employees that employees generally appreciate opportunities for personal development and training (State Services Commission, 2000). While formal training such as courses and seminars were considered fairly important by public employees for their career progress, the majority gave priority to informal on-the-job acquisition of skills and competencies. This preference for practical learning raises the question of whether assignment to a project is perceived as an opportunity to gain on-the-job experience. If this is the case, what do public employees hope to learn from their work on a project? For example, employees may want to enhance their interpersonal skills by working on a project team, or seek specific knowledge and skills that have a positive influence on their job performance. In relation to the latter, Davis, Bagozzi and Warshaw (1989) suggest that "within organisational settings, people form intentions toward behaviours they believe will improve their job performance. … This is because enhanced performance is instrumental to achieving various rewards that are extrinsic to the content of the work itself, such as pay increases and promotions" (p. 986). This research concurs with the argument of Davis et al. (1989) by assuming that public employees seek a project position because they want to improve their ability to perform and achieve success in their jobs. The belief of a public employee that working on a project would improve his or her job performance is here referred to as "usefulness".

2.5.5 Summary

Literature on project human resource management highlights the importance of understanding how employees make the decision to join projects. Nevertheless, research that deals explicitly with human resource issues in public sector project management is scarce. More research is needed investigating the question of what motivates public employees to seek a role in a project. In addition, while project management has been adopted by many public organisations in New Zealand and

elsewhere, the integration of projects into public administration remains challenging. This research assumes that one challenge is the recruitment of public sector staff for projects.

The review of the literature on project management, organisational structure and organisational culture identified eight potential determinants influencing public employees' decision to work on projects. These eight determinants are theoretical constructs which constitute a conceptual model presented later in this research. The constructs are facilitating conditions, career consequences, compatibility, organisational mandate, social pressure, image, power distance and usefulness.

One set of constructs relates to the influence of organisational structure on employees' decisions. A seminal criterion for distinguishing between structures of functional, matrix and project organisations is the allocation of authority over resources to functional and project management. Line and project managers with discretionary power and authority can significantly influence employees' intention to work on projects. Their assistance and support of employees may facilitate the transition from functional roles in line departments to project positions. These supporting factors are captured by the construct "facilitating conditions". The organisational structure of public agencies outlines possible career strategies for employees. Continuity of employment, access to knowledge, and opportunities to move ahead in one's career are factors which may reflect long-term career consequences and rewards for employees who accept a project position. In the present study, they are included in the construct "career consequences". Finally, project-based work and administrative work differ in their requirements for skills and experience. Employees may prefer to stay in their functional position if they believe that working on a project does not fit with their work-related values and experience. This perception of divergent job requirements is labelled "compatibility".

The second set of constructs addresses the influence of organisational culture on employees' intention formation. Organisations can build a project management culture that supports or impedes project management. First, public employees who believe that their organisation officially mandates the adoption of project management may be inclined to join a project due to that policy. Second, the attitude of colleagues toward

projects may influence public employees to work on a project. Third, the support employees receive from their managers is likely to have a significant impact on their decision. Fourth, public employees who intend to join a project may consider the image of project positions as an important factor in their decision-making. Last, power distance describes the attitude of employees toward unequal distribution of power and authority. The effect of an organisational mandate of project management on employee intentions may be moderated by the influence of the power distance construct.

In addition, one further potential determinant was found beyond the domain of organisational structure and culture. The usefulness construct represents the expectation of employees of how learning project management tools and techniques improves their job performance. See Table 2 below for the link of each identified construct to the literature.

Table 2: Prior research on employees' motivation to work on projects

Determinants of intention	Scholarly/Empirical support		
	Structure	*Culture*	*Others*
Organisational mandate		Halligan & Donaldson (2001); O'Kelly & Maxwell (2001)	
Power distance		Hofstede (1983)	
Usefulness			State Services Commission (2000)
Social pressure		Wirick (2009)	
Compatibility	Griesche (1998); Kerzner (2009)		
Career consequences	Kerzner (2009); Gray & Larson (2008); Lock (2001)		
Image		Halligan & Donaldson (2001); State Services Commission (2000)	
Facilitating conditions	Lock (2001); State Services Commission (2000)	Dwyer et al. (2004); Halligan & Donaldson (2001)	

Chapter Three: Theory and Hypotheses

3.1 Introduction

Exploring determinants of individual human behaviour is a challenging and complex task. The existing conceptual approaches are discussed controversially in the literature. One stream of research has emphasised the importance of behavioural disposition, such as the individual attitude toward certain behaviour, for explaining and predicting human behaviour (Ajzen, 1991; Sherman & Fazio, 1983). Although the dispositional approach is empirically supported (e.g. Beck & Ajzen, 1991), critics have pointed out several conceptual weaknesses (Wicker, 1969). One problem is the use of general attitudes, for example attitudes toward organisations and institutions (the church, university, one's employer), to explain behaviours that occur in a specific context (Ajzen & Fishbein, 1977). According to Ajzen and Fishbein (1980), general attitudes only have an indirect effect on context-specific behaviour. The authors argue that the influence of general attitudes on a specific behaviour in a specific context is attenuated by factors that have a more immediate effect on the behaviour in question. To predict behaviour, these immediate factors should be studied rather than general attitudes. In addition, measuring general attitudes can be a daunting task. A proper measurement design requires cross-contextual or longitudinal studies that span occasions, situations and forms of action, thereby cancelling out context-specific factors. The study of general attitudes is therefore more extensive and complex than research on context-specific factors. For these reasons, this research concentrates on exploring behavioural factors in a particular context, i.e., on determinants of public employees' intention to work on public sector projects.

The literature suggests numerous distinct sets of variables to measure human behavioural factors. However, there is no consensus on which and how many variables should be included. Facing a wide array of context-specific behavioural factors, the incorporation of variables in a behavioural model should be empirically grounded and guided by theory. In this research, a survey is conducted among New Zealand public sector employees to provide empirical evidence for a model of public employee's intention formation. The present study builds on the Theory of Planned Behaviour (TPB) (Ajzen, 1988) as the theoretical framework for developing the conceptual model. The TPB establishes the link between the literature review and model variables.

The TPB postulates that an individual's intention to perform behaviour is the most important immediate antecedent of behaviour. Prior research supports the TPB by showing that intention is a strong predictor of actual behaviour (e.g., Ajzen, 1988; Ajzen & Fishbein, 1980; Hardgrave et al. 2003; Riemenschneider et al. 2002; Sheppard, Hartwick & Warshaw, 1988). The present study therefore assumes that intention can also constitute an important factor for explaining the behaviour of public sector employees. By concentrating on intention instead of actual behaviour, this research excludes project-specific factors that are likely to influence the attitude of active project staff toward project-based work. Furthermore, although authors have attempted to explain the variance in behaviour variables which is not accounted for by the intention construct, the corresponding behavioural models are vague (Rise, Thompson, Verplanken, 2003; Sheeran, 2002). A well-established theory that would guide an investigation of behaviour beyond the intention-behaviour relationship is not yet available. Exploring drivers of human behaviour other than those represented by the intention construct falls outside the scope of this research.

3.2 Theoretical Framework

The Theory of Planned Behaviour (TPB) has been used in different contexts to explain human behaviour. It is empirically supported by contextualised research on behaviour such as voting (Fishbein & Ajzen, 1981), engaging in dishonest actions (Beck & Ajzen, 1991), having another child (Vinokur-Kaplan, 1978), and attending college (Harrison, Thompson, & Rodgers, 1985). Because the TPB has been successfully used to predict behaviour in various contexts, this research assumes that it can be generalised to encompass the intention formation of public sector employees to work on projects. This behavioural approach is rarely used in project management research.

Intention is an essential part of the theory of planned behaviour (Figure 8). The intention to perform certain behaviour determines the actual behaviour. The stronger the intention, the more likely it is that the corresponding behaviour will be performed (Ajzen, 1991). Intention is influenced by three independent motivational factors: attitude, subjective norms, and perceived behavioural control. They are "indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour" (Beck & Ajzen, 1991, p.286). Intention mediates the influence of the motivational factors on individual behaviour.
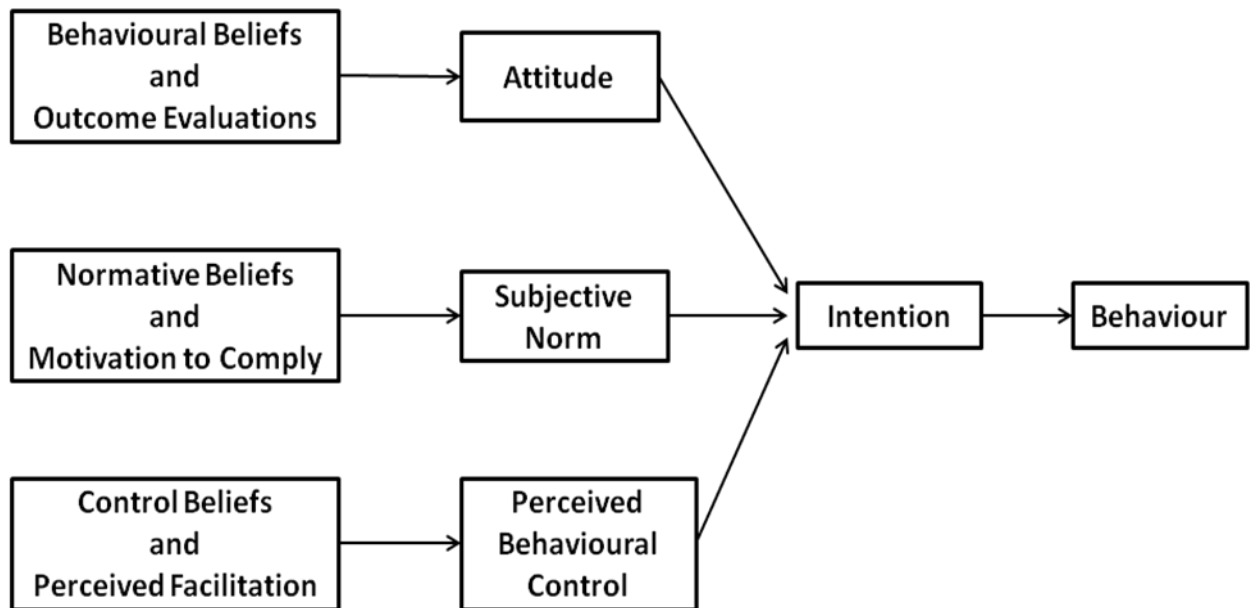
Figure 8: The Theory of Planned Behaviour (Mathieson, 1991, p.175)

The first motivational factor is the attitude toward certain behaviour. It "refers to the degree to which the person has a favourable or unfavourable evaluation of the behaviour in question" (Ajzen, 1991, p.186). The second factor is subjective norm, a social factor that captures an individual's perception of the social pressure to perform the behaviour. The pressure is exerted by a person or a group important to the individual (Mathieson, 1991). The third antecedent to intention is perceived behavioural control, which represents an individual's perception of his or her control over the performance of the behaviour. For example, some public employees may want to pursue a project career, but believe that managers would reject their application — a decision beyond the control of employees.

Two general rules are assumed for the model. The first rule establishes the relationship between intention and the three motivational factors: "the more favourable the attitude and subjective norm with respect to behaviour, and the greater the perceived behavioural control, the stronger should be an individual's intention to perform the behaviour under consideration" (Beck & Ajzen, 1991, p.182). The second rule describes the relationship between perceived behavioural control, intention and behaviour: "To the extent that people have the required opportunities and resources, and intend to perform the behaviour, they should succeed in doing so (Ajzen, 1991, p.182).

All three motivational factors are influenced by beliefs. First, behavioural belief is an antecedent to attitude and describes to what degree a person believes that his or her behaviour will result in a particular outcome. The importance of a behavioural belief for intention is weighted by outcome evaluation (Mathieson, 1991). Outcome evaluation indicates how much an individual desires a particular outcome. Second, normative beliefs capture an individual's perception of what others think about his or her performance of the behaviour. The relevance of a normative belief for intention is weighted by an individual's motivation to comply with social pressure (Mathieson, 1991). Third, control beliefs are an individual's perception of opportunities and resources available to facilitate the performance of the behaviour. The degree to which an individual judges these resources to be relevant in order to perform behaviour is represented by perceived facilitation (Mathieson, 1991). For example, a public employee who wants to work on a project may perceive that project and line management would offer sufficient support to help with the transition to a new job position (control belief). However, if he or she believes that management support is unnecessary during the transition, the available resource "management support" will not affect the decision to join the project.

3.3 Development of the Model

From the literature review discussed in Chapter Two, eight potential determinants of a public employee's intention are obtained. These determinants are independent variables constituting a conceptual model of work-related beliefs that attempts to explain how public employees form the intention to work on public projects. The Theory of Planned Behaviour (TPB) provides the theoretical framework that guides the development of the research variables for the conceptual model (Table 3). Two independent variables were added to complement the model. First, "organisational mandate" was included based on a review of literature on the influence of organisational culture on individual behaviour. Second, the variable "power distance" was taken from previous research on the individual acceptance of unequal authority distribution. The only dependent variable in this model, labelled "intention", was adopted from previous research on intention formation.

Organisational mandate has been used as a determinant in previous behavioural models that are based on established theories on intention formation. When Moore

and Benbasat (1991) introduced the measurement scale for "voluntariness", or "organisational mandate", one of their objectives was to develop a psychometric measure that is generally applicable in most intention formation studies. Drawing on Moore and Benbasat (1991), authors have modified and integrated organisational mandate in theoretical models along with the intention determinants used in the present research (Hardgrave et al., 2002; Riemenschneider et al. 2003; Venkatesh & Davis, 2000). This research thus assumes that organisational mandate can be integrated in a holistic model together with intention determinants from the theory of planned behaviour and the power distance variable.

Moreover, the inclusion of organisational mandate does not represent the attempt to introduce an extension of the TPB. Rather, organisational mandate, power distance and the determinants from the TPB are used to introduce and explore a unique combination of intention determinants.

To the knowledge of the author, the inclusion of power distance as mediator of organisational mandate is a novel approach to examining the effect of organisational mandate on intention. The original power distance scale was tested and validated in previous studies. It was modified here to fit the purpose of the present research. Based on the justification for including power distance provided earlier in this research, there appears to be no argument that speaks against the inclusion of power distance as a mediating variable.

Table 3: Research variables and Ajzen's (1991) motivational factors

Ajzen's behavioural factors	Assumption	Research variable
Attitude	In order to form the intention to join projects, public employees should perceive a project position as an opportunity for gaining a concrete, 'utilitarian' advantage that increases their job performance.	Perceived usefulness
	The intention to work on projects requires that public employees perceive a project position as a chance to gain a long-term career advantage.	Perceived career consequences
	When existing work-related values, beliefs and experience of public employees match the requirements of a new project position, it is easier for them to reconcile administrative work with project-based work.	Perceived compatibility
Subjective norm	Public employees who want to join projects perceive project positions as an opportunity to gain social status and to 'be seen' by their managers and colleagues.	Perceived image
	Accepting a project position is a radical step in a public employee's career. An employee will consider what others who are important to him or her think about working on a public project before reaching a final decision.	Perceived social pressure
Perceived behavioural control	Public employees consider the support and resources available to them before they decide to start working on a project.	Perceived facilitating conditions

The decomposition of each of the three motivational factors of the TPB into one or more variables offers three advantages. First, a single motivational factor that comprises a variety of sub-dimensions may not consistently represent the antecedent of intention (Bagozzi, 1981). The decomposition of motivational factors into several

variables helps clarify and better understand the relationship between intention and its antecedents. Moreover, Taylor and Todd (1995) argue that the separation of behavioural factors into constituent dimensions is likely to produce a more stable set of factors that can be adjusted and applied to various situations. Finally, the authors maintain that sub-dimensions of behavioural factors allow the identification of specific determinants of intention and behaviour. These determinants have a higher managerial relevance than general motivational factors.

3.4 Proposed Hypotheses

Overall, nine variables are used in this research to form a conceptual model with eight independent variables and one dependent variable. The independent variables are organisational mandate, power distance, usefulness, social pressure, compatibility, career consequences, image and facilitating conditions. The dependent variable is intention. The intention construct indicates how strong the intention of public employees is to work on projects. The intention variable aims to measure the extent to which public sector employees are willing to join projects in the public organisation they currently work for.

Based on the findings from the literature review, the theoretical rationale for the causal relationships between the independent variables and intention are summarised below. As a result, eight hypotheses are developed.

Perceived organisational mandate: Formation of Hypothesis1

Because projects can be mandated or discouraged by an organisation, employees may not perceive the individual decision to enter a project as voluntary. Drawing on a definition suggested by Hardgrave et al. (2003), the perceived organisational mandate describes the degree to which a public sector employee perceives the decision to work on a project as dictated by an official policy currently in effect within his or her organisation. The relationship between the perceived organisational mandate and an employee's intention to work on a project is hypothesised as follows:

> *Hypothesis H1: Perceived organisational mandate for project management will be positively related to an employee's intention to work on projects. The stronger the organisational mandate for project management, the more likely it is that a public employee will enter a project.*

Power distance: Formation of Hypothesis2

"Power distance" is likely to have a moderating influence on the relationship between organisational mandate and employee intention. It specifies to what degree an individual is willing to accept an asymmetric power distribution in an organisation. The higher an individual is on power distance, the easier it is for him or her to accept unequal power distribution. If an individual is high on power distance, he or she is more likely to form submissive attachments to superiors (Bochner & Hesketh, 1994). Therefore, the effectiveness of an organisational mandate of project management may depend on the level of power distance of a public employee.

> *Hypothesis H2: If project management is mandated by a public organisation, an employee with high power distance will be more likely to work on projects than an employee with low power distance. The higher the individual power distance, the more likely it is that a public employee will follow an official policy that supports the use of project management.*

Perceived usefulness: Formation of Hypothesis3

"Perceived usefulness" describes a public employee's expectation that working on projects will improve his or her job performance. As a result of the literature review and the conceptualisation according to the TPB, the following hypothesis is proposed:

> *Hypothesis H3: Perceived usefulness of project management methods will be positively related to a public sector employee's intention to work on a project. The more useful project management methods appear to be for individual job performance, the more likely it is that a public employee will work on a public sector project.*

Perceived career consequences: Formation of Hypothesis4

"Perceived career consequences" indicates a public sector employee's expectations that working on a project will affect his or her career. Regarding the relationship between perceived career consequences and the intention to work on projects, the following hypothesis is proposed:

Hypothesis H4: Perceived career consequences will be positively related to a public sector employee's intention to work on projects. The more a public employee believes that a position on a project will support his or her career, the more likely it is that he or she will work on public sector projects.

Perceived compatibility: Formation of Hypothesis5

"Perceived compatibility" refers to the extent to which a public employee believes that working on projects is consistent with the way he or she usually works. It represents the degree to which employees feel their skills and background match with the practices and work 'style' of project management.

Hypothesis H5: Perceived compatibility will be positively related to a public employee's intention to work on projects. The more project-based working corresponds to prior work experiences and values of a public employee, the more likely it is that the employee will join a public sector project.

Perceived image: Formation of Hypothesis6

"Perceived image" captures the degree to which a public employee believes that working on projects improves his or her social status. As a result of the literature review, the following relationship between perceived image and a public employee's intention to work on projects is expected:

Hypothesis H6: Perceived image will be positively related to a public employee's intention to work on projects. The better the image of having a position in a project, the more likely it is that an employee will work on public sector projects.

Perceived social pressure: Formation of Hypothesis7

"Perceived social pressure" captures the degree to which a public sector employee believes that he or she should behave in a way that others who are important to them think is appropriate. The following relationship between perceived social pressure and an employee's intention is expected:

Hypothesis H7: Perceived social pressure will be positively related to a public sector employee's intention to work on projects. The higher the social pressure of important others to have a position in a project, the more likely is it that an employee will work on public sector projects.

Perceived facilitating conditions: Formation of Hypothesis8

"Perceived facilitating conditions" reflects the support public employees receive from their organisation in achieving project goals. Hypothesising the relationship between perceived facilitating conditions and the intention to work on projects, the following proposition is made:

Hypothesis H8: Perceived facilitating conditions will be positively related to a public sector employee's intention to work on projects. The stronger the support available to public employees, the more likely it is that an employee will be willing to join a public sector project.

Overall, the proposed model can be presented as shown in Figure 9 below. It includes the variables and hypothesised relationships described above.
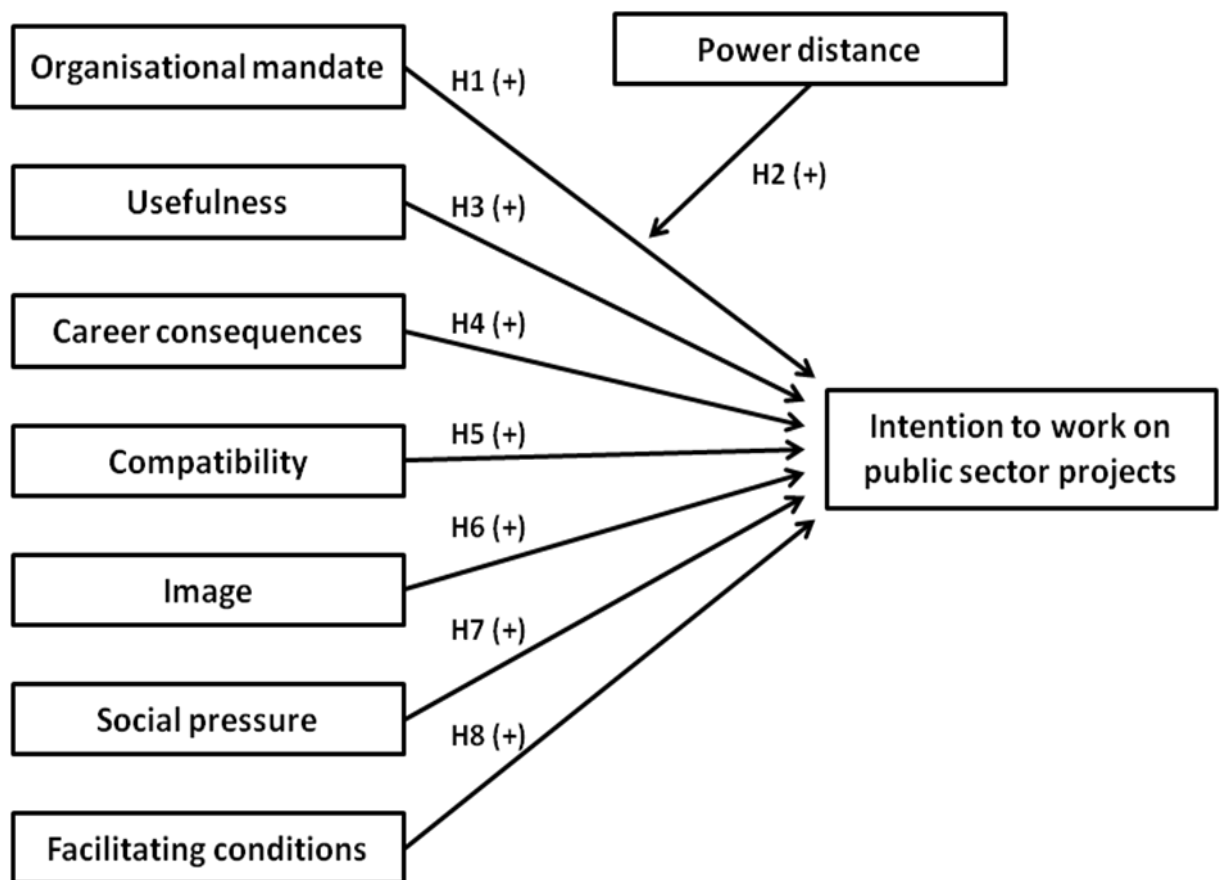

Figure 9: Conceptual model of public employees' intention to work on projects

Chapter Four: Methodology

4.1 Research Technique

Babbie (2001) suggests surveys as the appropriate instrument to gather standardised information from large respondent groups. According to the author, surveys are suitable for individual-level data collection and analysis. They should be considered when the research purpose is to describe, explore or explain a phenomenon. Once the information is collected, the researcher has some flexibility in treating and analysing the data. This advantage becomes relevant when a research topic has several questions or dimensions. However, validity is an imminent problem of survey-based studies. For example, the limitation of response choices offered to respondents, and the possible ambiguity of questionnaire items can weaken the validity of survey results when they fail to sufficiently reflect peoples' true opinions (Babbie, 2001; Krosnick, 1999).

For the present study, a survey was developed drawing on questionnaire items which have been used successfully in previous research. In total, the survey comprised 34 questions. The nine latent variables of the conceptual model were operationalised as a 28-item questionnaire. A five-point Likert scale for each of the 28 items was developed with the following coding: 1="Definitely agree"; 2="Agree"; 3="Neutral"; 4="Disagree"; 5="Definitely disagree". In addition, six questions were used to gather demographic information about the respondents.

4.2 Operationalisation of the Conceptual Model

The review of the literature on employee motivation and project human resource management revealed eight potential determinants of public employees' intention formation. These determinants are theoretical constructs that aim to explain the intention formation of public employees to work on public sector projects. The determinants were developed into research variables of eight hypotheses in Chapter 3.

The weights of the eight determinants can be assessed directly or indirectly. Direct assessment asks the individual to rate the importance of a determinant using, for example, a Likert scale. Indirect assessment estimates the weights as coefficients in a regression equation (Mathieson, 1991). This research followed the indirect approach by measuring determinants using a Likert five-point scale, and by estimating the weight of the determinants with regression analysis in section 5.2.

In this section, the research variables are operationalised into multi-item questionnaire scales. Each scale includes several measurement items. The items for all but one variable (power distance) were taken from the Information Systems (IS) context (Table 4). The IS items were modified to fit the context of this research. Items for the "power distance" variable were taken from prior literature without making alterations in their wording, since the original wording suits the purpose of this study.

Table 4: Operationalisation of the latent variables

Variables	Operationalisation	Literature reference
Intention	Public employees' intention to accept a position in a project, if offered by their employer; public employees' intention to work on projects in the future.	Hardgrave, Davis, Riemenschneider (2002); Venkatesh & Davis (2000); Taylor & Todd (1995)
Organisational mandate	Public employees' volitional control over the assignment to a project; influence of organisational policy on employees' decision to work on projects.	Moore & Benbasat (1991)
Power distance	Employees' opinion about: managers involving their employees in decision-making; managers delegating important tasks to their employees; off-the-job social contact between managers and employees; exertion of authority by managers.	Clugston, Howell & Dorfman (2000)
Usefulness	Using project management tools and techniques helps improve public employees' job performance, productivity and quality of work.	Davis (1989)
Career consequences	Employees' belief that projects offer an opportunity for career progress, enhanced expert knowledge, higher salary and better job assignments.	Hardgrave et al. (2002); Thompson, Higgins & Howell (1991)
Compatibility	Employees' belief that working on a project is compatible with all aspects of the way they usually work.	Moore & Benbasat (1991)

Social pressure	Importance of what colleagues think about projects for the decision of an employee to work on projects.	Hardgrave et al. (2002); Venkatesh & Davis (2000)
Image	Prestige, profile and status of a project position.	Moore & Benbasat (1991)
Facilitating conditions	Availability of specialised instructions and formal guidance to employees; support of project staff by management and co-workers.	Hardgrave et al. (2002); Thompson et al. (1991)

Because IS questionnaire items are designed based on general theories of human behaviour such as the TPB, there is reason to believe that they can be adjusted to the context of public sector project management. Previous studies confirm that IS measures can be applied across research such as consumer intention to use online shopping (Vijayasarathy, 2004) or software developers' intention to adopt a new systems development methodology (Hardgrave et al., 2003; Riemenscheider et al., 2002). However, without sufficient empirical evidence it cannot be readily assumed that modifications of previous IS questionnaire items will apply to the context of this study.

4.3 Sample

The unit of analysis was the public sector employee. A preliminary test of the survey questionnaire involved two post-graduate students and two senior lecturers. In order to gain research access to public employees, the survey followed two approaches. First, key managers at public agencies were contacted and asked to disseminate the survey questionnaires randomly among employees. The contact details were obtained from government websites. The survey was sent to the key managers by mail or e-mail. The survey sample of the first approach included public sector employees from public service departments listed in section 27 of the State Sector Act 1988. Because several departments were amalgamated, renamed or restructured since the State Sector Act became effective, not all state agencies referred to in the State Sector Act were included in the sample. Moreover, the study sample did not include state departments that cover areas related to national security, such as the Ministry of Defence and the Government Communications Security Bureau. These departments rarely allow

research access to their employees or require a complicated research application process.

The study sample of the first approach included 30 public service departments (Appendix F). In addition, sixteen regional councils were contacted to participate in the survey. The survey included administrations from national and regional level to ensure that organisation-specific characteristics cancel each other out in the survey.

In the second survey approach, public sector employees who are members of the Project Management Institute New Zealand (PMINZ) were contacted via the PMINZ group e-mail dispatcher. The invitation to participate in the survey explicitly addressed public employees. The inclusion of PMINZ members working in the public sector increases the sample size significantly. In case a person who is a PMINZ member works at a public sector organisation that was included in the first survey approach, it is assumed that the respondents will complete only one response.

A link to the online version of the survey was attached to each e-mail. All mail and online surveys included a 'participant information sheet' and a 'survey questionnaire'. A sealable return envelope was enclosed in the mail survey in which to return the questionnaire. For the online version of the survey, the website www.surveymonkey.com was rented. The survey was conducted between 13th October 2010 and 3rd November 2010. Because most participating key managers did not count how many surveys they had sent out to employees, an overall survey response rate cannot be provided. Of the 20 surveys mailed by post, three were returned. In total, 134 responses were received from regular mail and online survey, of which 131 (98 percent) were online responses. The survey participation was anonymous and voluntary.

The questionnaire included six items to collect demographic information on respondents. Survey respondents were generally representative of the public employees population as compared with data stated in the Human Resource Capability Survey of Public Service Departments (State Services Commission, 2009). Of the 134 respondents, 51 percent were women and 49 percent were men, with an average age of 42 years. Respondents have an average of 9.9 years of work experience in the public sector, ranging from two months to 28 years. They have been with their current

employer for 6.5 years, and 87.5 percent of respondents have gained work experience in projects for an average 3.6 years.

Chapter Five: Data Analysis and Results

This chapter presents the treatment and analysis of the data collected for the purpose of this research and describes the research results. Questions related to missing values, reliability and validity of the survey results are addressed under the heading Measurement. Afterwards, two models with six and four independent variables are compared using multiple regression to analyse the survey data. The comparison aims to find the model with the fewest variables but the highest explanatory power. The results are summarised in a table format.

5.1 Measurement

5.1.1 Missing Values

Of all received surveys, 26 survey samples have 23 or fewer scale items completed. These samples are excluded from analysis. Two respondents did not complete the items of the social pressure scale, and five respondents left the second "intention" item (intention to work on projects in the future) unanswered. Missing values did not exceed 5 percent for any of the questionnaire items. Mean substitution was used as a way to estimate missing values (Tabachnik & Fidell, 2007, p.67).

5.1.2 Scale Reliability

The internal consistency reliability of the multi-item scales was evaluated using Cronbach's alpha. Alpha values for all nine variables are shown in Table 7. According to Nunnally (1978), an alpha value of 0.7 indicates the acceptable minimum level of reliability. As a result of the reliability analysis, two measurement items were removed. First, the questionnaire item "if a position in a project is offered, co-workers apply for it" is discarded. This item correlated moderately (0.42) with the sum of the other items of the social pressure variable. By deleting this item, Cronbach's alpha for the remaining two social pressure items increased from 0.79 to 0.91. Second, the measurement item "managers should avoid off-the-job social contact with employees" is removed because of its low correlation (0.032) with the sum of the other power distance items. After the removal of this item, the alpha for the power distance variable increased from 6.9 to 7.1. It should be noted, however, that a decrease in the number of items automatically augments Cronbach's alpha (Tabachnik & Fidell, 2007). Some caution should therefore be exercised when discarding items from a scale. After the assessment of reliability, 26

survey items remain for the development of composite variables and measurement scales for the questionnaire.

5.1.3 Validity

The validity of the questionnaire scales with a total of 26 items is assessed in two ways: content validity and construct validity (Thorndike, 1996).

Content Validity

Content validity examines the extent to which scales properly measure the defined domain of interest (Leong & Austin, 2006, p.109). For the purpose of this research, content validity is defined as the extent to which a scale represents dimensions of public employees' intention formation to work on projects. The content validity of the scales is established based on (a) a review of empirical literature on intention formation and employee motivation, and (b) the judgement of two senior lecturers at Auckland University of Technology. A comprehensive literature review was conducted to identify multi-item scales that have been validated in previous research on intention formation. After eliminating scales for which reliability and validity have not been established in previous research, the measurement items of the remaining scales were carefully adjusted to fit the context of this study. Practitioners were not interviewed to validate the scales before the survey due to the limited time frame of this study. For similar reasons, a pilot study with practitioners was not included in this research. However, the questionnaire was pre-tested with two post-graduate students and two senior lecturers. The potential effects of the lack of input from practitioners could be a lesson learned from this study.

Construct Validity

Construct validity means that, ideally, "a measure assesses the magnitude and direction of (1) all of the characteristics and (2) only the characteristics of the construct it is purported to assess" (Peter, 1981, p.134). Construct validity can be examined by identifying common factors underlying a set of variables (Thompson & Daniel, 1996). In the following factor analysis, the factor analysed variables are the questionnaire items. Factor analysis requires the evaluation of limitations and assumptions concerning sample size, normal distribution, absence of outliers, factorability and absence of multicollinearity and singularity (Tabachnik & Fidell, 2007, p.613).

(i)   Construct Validity - Evaluation of Limitations

The assessment of limitations highlighted several issues. First, the sample size of 108 cases is rather small. As a general rule of thumb, a sample size of 100 is considered the acceptable minimum for factor analysis (Comrey & Lee, 1992). Tabachnik and Fidell (2007, p.613) recommend having 300 cases for a 'comforting' sample size. A small sample size may reduce reliability of the estimated correlation coefficients.

Second, 18 of the 26 scale items used in this research have substantial skewness and kurtosis. To assess normality, the shape of each distribution was evaluated visually. In addition, skewness and kurtosis values are computed with SPSS and divided by their standard error. As a rule of thumb, an absolute value greater than 1.96 indicates that skewness and kurtosis are significant at $p < 0.05$ (Field, 2009, p.139). All 18 scale-items are logarithmically transformed to induce normality (Tabachnik & Fidell, 2007), resulting in acceptable skewness and kurtosis scores.

Third, the multicollinearity analysis yielded mixed results. The determinant of the correlation matrix is smaller than the recommended minimum of 0.00001, indicating multicollinearity (Field, 2009, p.648). On the other hand, the largest squared multiple correlation (SMC) between the item-variables is 0.82, which is high but not dangerously close to 1. SMC is the correlation of variables where each variable, in turn, serves as a dependent variable for the others (Tabachnik & Fidell, 2007, p.90). A SMC of 1 is an indicator for singularity (perfectly correlated variables), and a SMC close to 1 indicates multicollinearity (Field, 2009, p.637; Tabachnik & Fidell, 2007, p.614). To further assess multicollinearity, the correlation matrix was visually examined for indications of items with high multivariate correlations. Some questionnaire items have correlations above 0.7 with more than two other items. However, factor analysis is used in this research to evaluate the validity of preconceived constructs that are measured by multiple items. As long as items correlate only with items from the same underlying construct, it is not surprising that some items show a high multivariate correlation. Based on the above examination of multivariate correlations, multicollinearity is not likely to be a problem in this research.

(ii)   Construct Validity - Results of Factor Analysis

A principal component analysis is performed in an initial run on 26 items with varimax (orthogonal) rotation. Using an Eigenvalue > 1 as the criterion for factor[1] retention, seven factors are extracted. That is less than the nine factors indicated by the preconceived model. The corresponding scree plot did not show inflexions which would indicate to extract more than seven factors. This difference between model expectations and analysis result can be explained by the low construct validity of the items of two particular constructs. All items of the career consequences construct were complex, i.e. loaded concurrently on several factors. Moreover, all items of the compatibility construct were loaded on the same factor as the items of the intention construct. One compatibility item was loaded also on the career consequences construct.

When the career consequences items were excluded from factor analysis, the result improved. Therefore, a second principal component analysis was conducted (Varimax) on 22 items to evaluate construct validity without the influence of the career consequences items. The Kaiser-Meyer-Olkin measure (KMO) for all 22 items is well above the acceptable minimum of 0.5 (Kaiser, 1974) with KMO = 0.75, thereby verifying the sampling adequacy. The KMO for each individual item was always greater than 0.5. Bartlett's test of sphericity (χ^2 = 1320.61; df = 231; p < 0.001) shows that inter-item correlations are large enough for principal component analysis. A first analysis with 22 items was run to obtain factors with Eigenvalues > 1. Seven factors were extracted accounting for 76 percent of the variance. However, the scree plot indicated to extract three or eight factors, rather than seven factors. Therefore, a second analysis was performed, fixing the number of factors to be extracted to eight as implied by the conceptual model. See Table 5 below for the factor loadings of the rotated matrix with 22 items, excluding items of the career consequences construct. Each item in Table 5 denotes one questionnaire item (see Appendix E). A criterion level for factor loadings is used that eliminates all loadings below 0.3 (Field, 2009). In conclusion, an eight factor solution emerged from the factor analysis, explaining 80 percent of the item variance.

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[1] Although the researcher acknowledges that factor analysis and principal component analysis are methodologically different, the terms "component" and "factor" are used interchangeably here as suggested by Tabachnik and Fidell (2007).

The factor solution indicates that all but one measure (career consequences) sufficiently reflect the characteristics and only the characteristics of the construct each of them is supposed to assess. As a result of the validity analysis, 22 items were retained to create the following composite variables: intention, organisational mandate, power distance, usefulness, compatibility, social pressure, image and facilitating conditions.

Table 5: Rotated component matrix – The factor loadings indicate construct validity

	Component							
	1	2	3	4	5	6	7	8
Intention1							**.756**	
Intention2	.308						**.747**	
OrganisationalMandate1						**.914**		
OrganisationalMandate2						**.909**		
SocialPressure1				**.924**				
SocialPressure2				**.907**				
Usefulness1	**.909**							
Usefulness2	**.898**							
Usefulness3	**.909**							
Usefulness4	**.870**							
Compatibility1	.389						.415	**.599**
Compatibility2								**.775**
Image1			**.834**					
Image2			**.824**					
Image3			**.753**					
FacilitatingConditions1		**.855**						
FacilitatingConditions2		**.774**						
FacilitatingConditions3		**.800**						
FacilitatingConditions4		**.832**						
PowerDistance1					**.824**			
PowerDistance2					**.793**			
PowerDistance4					**.689**			.439

Note: For reasons of comparability, factor loadings smaller than 0.3 are not shown (Field, 2009).

5.2 Multiple Regression

To help determine which of the intention determinants could be used to explain the intention of public employees to work on projects, a regression analysis was performed. The analysis was conducted between the dependent variable intention and the independent variables organisational mandate, power distance, usefulness, compatibility, image, facilitating conditions and social pressure.

5.2.1 Evaluation of Normality Assumption

Multivariate analysis requires the assumption of normality (Tabachnik & Fidell, 2007). Prior to the regression analysis, the composite variables were explored through several SPSS programmes for fit of their distribution with the normality assumption. Based on histograms, P-P plots and tests for excess skewness and kurtosis, deviations from normality were identified for six variables: intention, organisational mandate, power distance, usefulness, image and facilitating conditions. To improve pair-wise linearity, normality and overcome strong skewness and kurtosis, the variables intention, usefulness and power distance were logarithmically transformed. Moreover, a square root transformation was used on organisational mandate, image and facilitating conditions. No extreme skewness and kurtosis were evident after the transformation. Potential outliers, i.e. cases with extreme values, were explored using Z-scores, Mahalanobis distance, and the Centered Leverage Value. The overall influence of single cases on the regression model was evaluated with Cook's distance. To measure the influence of a case on an individual regression parameter, DFBETA-values were used. The results are displayed in Table 6 below.

Table 6: Outliers

	Outlier Criterion	**Outliers in data set**
Z-scores	Cases with Z-scores[a] > +3, or < -3	One case: 3.38
Mahalanobis Distance	Maha. distance[b] > 25	None; max. distance 18.9
Centered Leverage Value	Cases with values[c] > 0.17	One case; max. value 0.179
Cook's Distance	Cook's distance[d] > 1	None; max. distance 0.09
DFBETA-values	Cases with values[e] > |2|	None

a. Field (2009); [b] Stevens (2009, p.108); [c] (3*number of independent variables)/N (Urban & Mayerl, 2006, p.188); [d] Cook & Weisberg (1982, p.118); [e] Stevens (2009, p.110)

One case was identified as an outlier with a Centered Leverage Value higher than the recommended maximum and with a Z-score greater than the acceptable maximum of 3.0 on social pressure. This respondent denied any influence of colleagues on his or her decision to work on projects. On the other hand, the same case showed the highest Mahalanobis distance of 18.9 among all cases (N=108, 7 independent variables, α = 5

percent), which was less than the maximum acceptable value of about 25 (Stevens, 2009, p.108). The case is not removed because the results of the regression analysis may generalise to public employees with similar beliefs. A data set with N = 108 cases is retained for regression analysis, which is only 3 cases fewer than the recommended minimum sample size of N = 111 cases (104 + number of independent variables) (Greene, 1991). The sample size of 108 cases is sufficient for regression analysis, because the minimum sample size of 111 is a heuristically derived rule of thumb rather than a strict quantitative threshold. It is highly unlikely that the difference of three cases significantly affects the quality of the regression results.

5.2.2 Moderating Effect of Power Distance

The regression analysis shows that organisational mandate has no significant influence on intention (see Chapter 5.2.3 below). A precondition for analysing the moderating effect of power distance on the relationship between organisational mandate and intention is that the organisational mandate-intention relationship is significant. As a result of the findings from regression analysis, the statistical test of the moderating effect of power distance is thus abandoned. See Chapter 6.2.1 for a further discussion of the power distance variable.

5.2.3 Results

The regression analysis of a model with six independent variables (usefulness (log), compatibility, facilitating conditions (sq.root), image (sq.root), social pressure, and organisational mandate (sq.root) shows that two variables are insignificant. These two variables are removed from the model and a second model with four variables is tested. The purpose of testing two different models is to find the most parsimonious yet comprehensive model of public employees' intention formation. Thus, two models are tested using multiple regression analysis: Model 1 including six independent variables and Model 2 including four independent variables.

The unstandardised regression coefficients (B), the standardised regression coefficient (β), the correlation coefficient R, as well as R^2 and the adjusted R^2 of both models are depicted in Table 8. Table 7 below shows descriptive statistics, reliability shown as Cronbach's α and correlations between the variables. The significant correlations among variables range from 0.194 to 0.529. Multicollinearity is unlikely to be a problem.

Table 7: Descriptive statistics and correlations

Variables	Intention (log) (DV)	1	2	3	4	5	6
1 Usefulness (log)	0.443**						
2 Compatibility	0.529**	0.445**					
3 Facilitating conditions (sq.root)	0.073	0.224*	0.239*				
4 Image (sq.root)	0.267**	0.14	0.206*	0.173			
5 Social pressure	0.439**	0.230*	0.310**	0.194*	0.059		
6 Organisational mandate (sq.root)	-0.023	-0.107	-.225*	-0.01	-0.104	-0.027	
Mean	0.19	0.25	2.04	1.64	4.24	2.37	1.56
Standard deviation	0.18	0.19	0.79	0.28	0.21	0.78	0.34
Reliability (Cronbach's α)[a]	0.81	0.94	0.71	0.87	0.78	0.91	0.86

*$p < 0.05$, **$p < 0.01$

[a] Cronbach's α for power distance was 0.71, and 0.79 for career consequences.

(i)   Model 1

A first regression analysis is conducted for a model with six independent variables (usefulness (log), compatibility, facilitating conditions (sq.root), image (sq.root), social pressure, and organisational mandate (sq.root)) (Model 1). Model 1 includes all variables of the conceptual model of public employees' intention formation (see Figure 9), except career consequences and power distance. The R value measures the correlation between independent and dependent variables, indicating whether there is a relationship between the six determinants and intention. The regression analysis found a strong correlation with $R = 0.677$ that is significantly different from zero ($F_{(6, 108)} = 14.08$, $p < 0.001$). The variance in intention explained by the independent variables is $R^2 = 0.458$, with an adjusted R^2 of 0.426. Together, the determinants contributed 21.9 percent in shared variance to R^2. The unique variance[2] of all significant independent variables together predicts 23.9 percent of the explained variance R^2.

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[2] Squared semipartial correlations (sr^2) indicate the amount of unique variance accounted for by a significant independent variable (Tabachnik & Fidell, 2007). Adding up the squared semipartial correlations shows the amount of R^2 that is explained by unique sources. Shared variance is computed by deducting unique variance from R^2. For example, unique variance for model 1 =

The adjusted R^2 value of 0.426 means that more than 40 percent of the variability in the intention variable is explained by the independent variables of Model 1. A model of public employees' intention formation that is superior to Model 1 in terms of parsimony and comprehensiveness should produce a similar or higher adjusted R^2 with less than six determinants.

(ii)   <u>Model 2</u>

Findings from the first regression analysis show that Model 1 includes two independent variables with a non-significant regression coefficient (facilitating conditions and organisational mandate). When these two variables were removed from Model 1, a more parsimonious model emerged (Model2). The final regression analysis for Model 2 with four significant intention determinants (usefulness (log), compatibility, social pressure, and image (sq.root)) reveals a strong and statistically significant correlation $R = 0.654$ (F (4, 108) = 19.042, $p < 0.001$), with an R^2 of 0.428, and an adjusted R^2 of 0.405. These four determinants jointly contributed 22.5 percent in shared variance to R^2. Accordingly, 20.3 percent of the explained variance R^2 was predicted by the sum of the unique variance of all four independent variables.

The adjusted R^2 value of 0.405 shows that about 40 percent of the variability in the intention variable is explained by the independent variables of Model 2. In comparison, the explained variability in intention in Model 1 is slightly higher than in Model 2, but Model 2 includes only four independent variables instead of six variables. Having only a little less explanatory power than Model 1, Model 2 is the more parsimonious model.

0.239 = 0.043 + 0.088 + 0.031 + 0.077 (see Table 8); The shared variance is therefore = 0.219 = 0.458 – 0.239.

Table 8: Multiple regression of six (Model 1) and four (Model 2) determinants on
intention

Variables	Model 1			Model 2		
	B	β	sr^2 (unique)[a]	B	β	sr^2 (unique)[a]
Usefulness (log)	0.230**	0.237	0.043	0.210*	0.217	0.037
Compatibility	0.082***	0.356	0.088	0.072**	0.313	0.072
Facilitating conditions (Sq.root)	-0.100	-0.153				
Image (Sq.root)	0.160*	0.181	0.031	0.137*	0.155	0.023
Social pressure	0.069***	0.296	0.077	0.066**	0.283	0.071
Organisational mandate (Sq.root)	0.057	0.108				
Intercept	-0.805			-0.752		
	$R = 0.677$***			$R = 0.654$***		
	$R^2 = 0.458$[b]			$R^2 = 0.428$[c]		
	adjusted $R^2 = 0.426$			adjusted $R^2 = 0.405$		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

[a] sr^2 (unique) denotes squared semipartial correlation. B: unstandardised regression coefficients; β: standardised regression coefficients.

[b] Unique variance = 0.239 = (0.043 + 0.088 + 0.031 + 0.077); shared variance = 0.219 = (0.458 − 0.239)

[c] Unique variance = 0.203; shared variance = 0.225

Table 9 and Figure 10 summarise the findings from model testing and regression analysis. Of the eight hypothesised intention determinants, four were found to be significant (usefulness ($p < 0.05$), compatibility ($p < 0.01$), image ($p < 0.05$), and social pressure ($p < 0.01$)). The four significant determinants are included into a model of public employees' intention to work on projects. They explain 43 percent of the variance in the intention variable. The career consequences variable is not examined due to its low construct validity. Because organisational mandate was not a significant intention determinant, the moderating effect of power distance on the relationship between organisational mandate and intention is also not analysed.

Table 9: Determinants of public employees' intention to work on public sector projects

Variable	Significance	Hypothesis	Outcome
Organisational mandate	0.157	H1	Not supported
Power distance	Not examined	H2	Not supported
Usefulness	0.012	H3	Supported
Career consequences	Not examined	H4	Not supported
Compatibility	0.001	H5	Supported
Image	0.045	H6	Supported
Social pressure	0.001	H7	Supported
Facilitating conditions	0.052	H8	Not supported
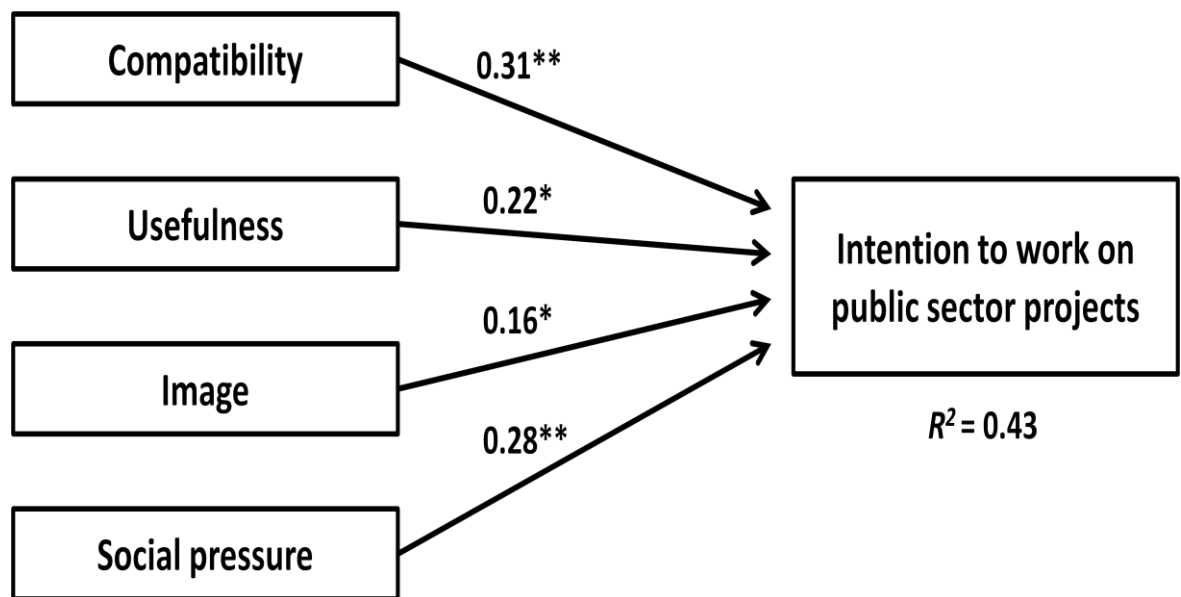
Figure 10: Model of public employees' intention to work on public sector projects
*p < 0.05, **p < 0.01

Chapter Six: Discussion and Conclusions

6.1 Introduction

This chapter summarises and discusses the research findings. It links the findings with previous literature and interprets the results in relation to the research objectives described in Chapter One. Moreover, it recommends future action for public sector managers, discusses the limitations of this research and indicates opportunities for further research.

This research starts with an overview of project management in the public sector. In a literature review, it brings together previous research on project human resource management and human resource management for public organisations. The literature review progresses from the public management reform in New Zealand to definitional aspects of project management. It also describes the distinct characteristics of public organisations and their impact on public sector project management. The final section of the literature review turns to prior research on determinants of employees' intention to work on projects.

Following the literature review, the identified intention determinants are integrated into a model of employee motivation. The model conceptualises how public employees form the intention to work on public sector projects. The Theory of Planned Behaviour serves as the theoretical framework for the model. A survey among New Zealand public sector employees is conducted to examine whether data would empirically support the model. The study is framed by two research objectives. The objectives are to:

1. Explore potential determinants of public employees' intention to work on projects.

2. Integrate the identified determinants into a model of intention formation and empirically validate the derived model.

6.2 Research Findings and their theoretical Implications

This research follows an exploratory approach, drawing on the Theory of Planned Behaviour and theories of intention formation in the Information Systems (IS) context. The findings of this study are compared with previous IS research to explore their generalisability across contexts. However, little research to date has explicitly addressed how public employees decide to join projects. In particular, empirical contributions that would help evaluate the explanatory power of intention determinants are rare. The lack of empirical evidence in previous studies hampers the comparison between results from this research and findings from the literature.

Eight potential intention determinants emerged from the literature review in this research. After initial screening of the survey data, two determinants are dropped from further analysis. First, the career consequences variable is discarded due to low construct validity. Second, the moderating effect of power distance is not explored because of the small total sample size (N = 108), and the non-significance of the moderated relationship. Consequently, six verified determinants are introduced in a regression analysis, of which four determinants are found to have significant and direct effects on intention (usefulness, compatibility, image and social pressure). These four variables combine to a unique set of determinants explaining more than 40 percent of the variance of intention. In comparison, previous studies in the IS context on the intention of employees to follow new work practices typically report an explained variance (R^2) in intention of 40 percent (Venkatesh & Davis, 2000), ranging from 0.18 percent (Khalifa & Verner, 2000) to 0.63 percent (Hardgrave et al., 2003).

The high correlation coefficient of $R = 0.65$ (p < 0.001) reflects the strong correlation between the four determinants and intention. Whether a correlation is regarded as weak, moderate/modest or strong depends on the research context and the measurement instruments used in a study. Scales with cut-off criteria for correlation coefficients are therefore often arbitrary (Kozak, 2009). However, Cohen (1988) suggests that a correlation above 0.5 is generally large, without referring to any particular context. Given that measurement instruments in the social science, such as the five-point Likert scale used in the present study, are often less precise than in, for example, physical science, a correlation coefficient of 0.65 can be considered a strong

indicator for the relationship between the independent variables and intention in this research.

The regression analysis followed an evaluation of the assumption that the survey responses are normally distributed. A non-normal (skewed) frequency distribution was found for six variables, of which intention, usefulness and power distance were logarithmically transformed to improve normality. A square root transformation was used on organisational mandate, image and facilitating conditions. Because of the nature of the variables in this research, the transformation does not affect the interpretation of the variables. However, the non-normal distribution of the six variables implies a non-linear scaling effect. This highlights the problem that the wording of the measures used in this study appears to have encouraged many respondents to give the same answer to the survey questions. For example, more than 80 percent of respondents agreed or strongly agreed that project management tools and techniques will improve their job performance (see Appendix A, "usefulness"). Furthermore, the five-point Likert scale used for the survey questionnaire in this research may not allow a sufficient differentiation of responses. This would result in responses concentrating on some answer choices and a skewed distribution of answers because of a lack of alternative answer choices on a five-point Likert scale.

The results obtained in this research refute many of the arguments presented in previous project management literature. The present study shows that the effect of organisational mandate and facilitating conditions on public employees' intention is non-significant. Compatibility has the strongest effect on intention, while usefulness has a comparatively weak effect on intention. The theoretical and managerial implications of the findings are discussed next.

6.2.1 Career Consequences and Power Distance

The validity of the two independent variables, career consequences and power distance, cannot be verified by the current study. The career consequences variable is removed due to low construct validity of its measurement items. It was expected that the items would measure one common factor, i.e., career consequences. Instead, each item measured a different underlying factor, that is, the items cross-loaded between factors. Furthermore, the power distance variable is omitted from further consideration

for the following two reasons. First, power distance was initially included in this research to moderate the influence of organisational mandate on intention. The analysis of moderating effects of independent variables assumes a "sufficient level of sophistication and development" (Aguines, 1995, p.1141) of the underlying model. The relationship between independent and dependent variable should be well-established before possible effects of moderating variables on the relationship are examined. However, despite its theoretical support by previous research (Halligan & Donaldson, 2001; O'Kelly & Maxwell, 2001; Venkatesh & Davies, 2000), the relationship between organisational mandate and intention is found to be non-significant in the present study. Second, the sample size of 108 cases may be insufficient to discover the moderating effects. A small sample size makes it more difficult to detect moderating effects (Aguinis, 1995). Based on Monte-Carlo simulations, Stone-Romero and Anderson (1994) suggest that, in general, even large moderating effects will remain undetected if the sample size is smaller than 120 cases. For these two reasons, the moderating effect of power distance is not examined in this research.

When the variable power distance was initially included to moderate the influence of organisational mandate on intention, the assumption was that the organisational mandate-intention relationship will be significant in this research. The assumption was made based on the review of previous literature (Halligan & Donaldson, 2001; O'Kelly & Maxwell, 2001). However, as a result of the regression analysis this assumption was rejected. One lesson learned from this research is that the organisational mandate-intention relationship is clearly not established enough to justify the empirical test of a moderating effect of power distance on the relationship.

6.2.2 Compatibility

As a result from statistical analysis, it can be seen that compatibility is the determinant with the strongest significant effect on public employees' intention (beta = 0.31). This finding supports arguments made by Griesche (1998) and Kerzner (2009). They propose that the decision of employees to work on projects may be influenced by their perception of the degree to which their existing job experience and skills are compatible with those needed for a project position. Whereas the authors suggest compatibility as a potential intention determinant, they do not provide empirical evidence or elaborate on the exact role compatibility plays in intention formation. Prior research on intention

formation in the IS context may help shed some light on the role of compatibility. In their study on the intention of software developers to adopt new work practices, Hardgrave et al. (2003) report a beta of 0.2 for the compatibility-intention relationship. This is consistent with results described in previous IS literature in terms of the direction of the relationship. However, the reported betas and statistical significance differ substantially among IS studies (e.g. Argawal & Prasad, 1997; Chin & Gopal, 1995).

In an attempt to explain these differences, Hardgrave et al. (2003) suggest that when employees evaluate the degree of compatibility, they perhaps try to anticipate how radically the adoption of a new work practice will change the way they usually work. The authors argue that the importance of compatibility may be particularly high when an innovation radically changes the work practices of the employee who adopts the innovation. Accordingly, for less disruptive innovations, compatibility may be unimportant as a direct determinant of intention.

The present study assumes that working in functional positions is fundamentally different from project-based work. The compatibility construct is used here to capture this difference and to show its effect on the intention of public employees to work on projects. Based on the approach described in the above paragraph, the relatively large effect of compatibility in the present study indicates that public employees perceive the decision to start working on a project as a radical change in the way they usually work. By comparison, the adoption of a new IS work practice or tool (e.g. software) may require a less radical change.

Overall, this research shows that the change between functional and project-based work is apparently radical enough to have a direct effect on public employees' intention to join a project. Because this result is generally consistent with findings from previous IS research, there is reason to assume that the compatibility variable can be generalised across contexts.

6.2.3 Usefulness

Analysis in the current study shows that usefulness can be a significant determinant of intention. Public employees' intention is directly influenced by the perceived usefulness of project management tools and techniques for individual job performance. This is consistent with findings from prior studies on intention formation. For example, Khailfa

and Verner (2000) report a significant effect of usefulness on the decision of software developers who intend to follow a new work methodology. Other authors confirm the importance of usefulness in the IS context, generally detecting a beta of around 0.6 for the usefulness variable (Hardgrave et al., 2003). In comparison, the influence of usefulness measured in the present study is much smaller (beta = 0.22). There may be two reasons for the diminished role of usefulness in the context of this study.

First, the influence of usefulness on intention is explored in this research without referring to any particular project management tool or technique. By contrast, studies on intention formation in the IS context typically use concrete examples of new work practices or IT tools. For example, Khalifa and Verna (2000) examine how software developers perceive the usefulness of two different work methodologies, "prototype" and "waterfall". Specific examples may help survey respondents to assess how the adoption of a new tool or work practice will be useful to them. A more precise assessment of usefulness by respondents could lead to higher variance in the answers to survey items. Higher variance would make it easier to detect correlation between usefulness and intention during data analysis. However, the present study does not refer to any specific project management tools and techniques. Consequently, the real strength of the usefulness-intention relationship may not have surfaced in this research.

Second, the varying importance of usefulness for intention formation may be a result of the context and situation specificity of usefulness. The effect size of usefulness on intention may strongly depend, for example, on the profession of the employee and the idiosyncrasies of the particular work practice or tool the employee intends to use. The usefulness of a new IT tool or work practice may have a greater impact on the job performance of a software developer than a project management tool has on the performance of public servants. Public employees may believe that they are less dependent on effective work practices to attain their performance goals than employees in other professional groups. They may view project management tools as important but not essential to their job performance, resulting in a comparatively lower effect size of usefulness in this research.

This research confirms findings from previous IS studies that employees are motivated to learn and follow new work practices that improve their job performance. The findings

show that usefulness is an important factor in motivating public employees. Because the findings are consistent with prior studies from the IS context, there is reason to believe that the usefulness construct can be applied to different contexts.

6.2.4 Social Pressure

This research identifies social pressure as a significant direct predictor of intention. Empirical findings regarding the influence of social pressure on intention have been mixed in previous literature. While some studies found a significant direct effect of social pressure on intention (Taylor & Todd, 1995; Venkatesh & Davies, 2000 (studies 3 & 4); Hardgrave et al., 2003), other studies have failed to produce significant evidence (Mathieson, 1991; Venkatesh & Davies, 2000 (studies 1 & 2)). The direct effect of social pressure can be explained with the perception of an individual that he or she should behave in a way referent others, such as co-workers, want him or her to behave. Among those studies that found a significant influence of social pressure, Hardgrave et al. (2003) reported the strongest effect with a beta of 0.2. In comparison, the effect detected in the current research was 0.28. How could the relatively high influence of social pressure in this research be explained?

The relatively high effect of social pressure may be associated with the importance of the decision to assume a project position. It has been argued throughout this research that the decision to start working on a project is likely to be an important step in a public employee's career path. To reduce the uncertainty that surrounds such a decision, public employees are perhaps strongly inclined to follow what they believe their colleagues want them to do. Public employees may join a project because they tend to rely more on their colleagues for important career decisions. The importance of the decision to work on a project may therefore explain the notably large effect of social pressure on intention in this research.

The findings from the current study highlight the relatively high importance of social pressure for the motivation of public employees to work on projects. They also demonstrate that the influence of social pressure on employees' intention is empirically supported in different research contexts, thereby indicating generalisability of the social pressure construct.

6.2.5 Image

It is found in this research that image is a significant but weak predictor of intentions to work on a project (beta = 0.16). This finding is consistent with previous work of Venkatesh and Davis (2000), who investigated the influence of image on intention in four separate studies. Image is found to be significant in each of the four studies, with betas ranging from 0.19 to 0.36. In contrast, a prior study of Riemenschneider et al. (2002) does not confirm the significance of the image variable for intention formation. None of the authors offers an explanation for the inconsistency of results among IS studies.

The present study confirms the findings of Venkatesh and Davis (2000), despite differences between both studies in the hypothesised image-intention relationship. Venkatesh and Davis (2000) theorise image as a mediator of the influence of social pressure on intention, whereas the present study suggests a direct effect of image on intention. Moreover, the current study refutes the results reported by Riemenschneider et al. (2002), although both studies include image as a direct intention determinant. The inconsistent research findings indicate that the relationship between image and intention remains unclear. The differences in findings could be interpreted as an indicator of the context-dependency of the image construct.

The findings from this research suggest that the influence of image on intention cannot be readily generalised across contexts. The interpretation of research results for the image construct should therefore be limited to the specific research context in which the results were obtained. More empirical research is necessary to clarify the role of image in motivating employees.

6.2.6 Organisational Mandate

This research shows that organisational mandate has no significant direct influence on the intention of public employees to work on projects. In previous IS literature, organisational mandate is found to have either a direct effect on intention (Hardgrave et al., 2003), or an indirect effect on intention (Venkatesh & Davis, 2000). The indirect influence of organisational mandate is aligned with the perspective that organisational mandate and social pressure have a joint influence, i.e. interaction effect, on intention (Hardgrave et al., 2003).

Based on literature on project human resource management, the present study hypothesises that organisational mandate and social pressure are theoretically distinct constructs. Halligan and Donaldson (2001) as well as O'Kelly and Maxwell (2001) argue that the top management mandate of project management may play an important role in motivating public servants to work on projects. Wirick (2009) lays emphasis on the importance of social pressure for the decision-making of public employees. None of these authors attempts to establish a link between organisational mandate and social pressure. Accordingly, this study excluded interaction effects between organisational mandate and social pressure from the conceptual model.

Because organisational mandate is found to be non-significant in this research, the survey data is not analysed to explore a possible interaction effect between organisational mandate and social pressure. However, an interaction effect may still exist because the absence of statistical significance does not necessarily represent the absence of a causal relationship. Thus, further investigation into the direct and interaction effects of organisational mandate and social pressure is needed.

6.2.7 Facilitating Conditions

Facilitating conditions is identified to be the second intention determinant in the present study that has no significant effect on intention. This result is similar to findings from previous research. With very few exceptions (Taylor & Todd, 1995), prior studies have failed to deliver empirical evidence for a significant effect of facilitating conditions on intention (Riemenschneider et al., 2002; Thompson, Higgins & Howell, 1991). Based on heuristic arguments, however, many authors maintain that facilitating conditions have a crucial influence on work-related decisions and the motivation of employees. In the project management context, facilitating conditions is generally seen to be essential for effective project human resource management (Dwyer et al., 2004; Halligan & Donaldson, 2001; Lock, 2001; State Services Commission, 2000). Indeed, it is hard to imagine why employees would ignore the support and guidance offered by the organisation when they make a decision to join a project.

Nevertheless, the present study does not empirically support the proposition that good facilitating conditions increase the motivation of public employees to work on projects. It confirms the findings of prior studies in the IS context that facilitating conditions has

no significant influence on the intention variable. It is a noteworthy implication of this research that facilitating conditions appear to be irrelevant for employee motivation across contexts.

6.2.8 Summary

This research empirically confirms the influence of the variables compatibility, usefulness, social pressure and image on public employees' intention to work on projects. Based on these findings, it complements and extends prior theory and research in two important respects. First, the comparison of the findings from this research with findings from previous literature indicates that compatibility, usefulness and social pressure help explain what motivates employees to perform certain behaviour in different contexts. Second, the present study empirically supports the idea that some intention determinants can be generalised across contexts. It is one of the few contributions that provide empirical evidence for a model of employee motivation to work on projects.

6.3 Recommendations for Project Management Practitioners

The findings from this research have several practical implications that can be useful for project management practitioners. The implications highlight four important factors influencing public employees' motivation to work on projects — compatibility, usefulness, social pressure and image. First, the present study shows that the decision of public employees to work on projects is influenced by their colleagues' opinion about project positions (social pressure). Second, public employees also take into account how a project position may affect their social status, before they join a project (image). Third, the work experience and competencies of public employees are usually shaped by their work in functional positions. When public employees work on projects, they often find that additional skills are necessary to attain the project goals. Switching between administrative tasks of functional positions and project tasks increases the role ambiguity of public employees, who have to reconcile the different requirements of functional and project positions. Therefore, public employees assess how radical the required change will be when they accept a project position (compatibility). Last, this research shows that public employees are more motivated to work on projects if they believe that learning project management tools and techniques will help them increase their job performance and quality of work (usefulness). A public organisation that fails

to attend to these factors will likely be unsuccessful in motivating employees to work on projects.

Based on the research findings, this research makes recommendations for alternative human resource strategies for public sector projects. Two focal points guide the recommendations. First, the distinct characteristics of public organisations must be considered when altering or replacing existing human resource strategies. Second, new strategies should reflect a deeper understanding of the factors that motivate public employees to work on projects.

6.3.1 Social Pressure and Image

This research shows that social pressure of colleagues has a direct influence on the motivation of public employees to work on projects. To help employees understand why their colleagues reject or accept project-based work, it is recommended that project managers improve the communication between employees. By sharing their expectations and concerns, employees will gain a better understanding of the benefits and disadvantages of project positions. Better communication will help overcome concerns and reduce uncertainty about project positions among employees. The methods used to implement and facilitate the new communication strategy should encourage an open and honest exchange of thoughts. The project manager should be candid with employees about potential problems they may encounter when working on projects. Communication between employees should begin at an early stage of the recruitment process to allow the project manager enough time to identify and react to employees' misconceptions and concerns. However, public organisations should be aware that new communications methods will cause additional costs and will take time away from public employees' work.

By assigning employees with a high social standing to the project team, their influence as important referents on their colleagues could be used to improve the recruitment process. Employees who have a reputation of 'getting the job done' and being successful in achieving performance goals are likely to be identified as important referents by their colleagues. These referents exert high social pressure on their colleagues, i.e., employees take their opinions into account for their own decisions. The

assignment of important referents to a project team will increase the motivation of other employees to follow suit.

Moreover, the findings of this study show that the image of project positions affects the intention of public employees to work on projects. To improve the image of project-based work, it is recommended to highlight the importance of projects for the organisation. The prominence of projects could be reflected in the project mission statement, in a special treatment of the project team, in a project logo, or in a gripping project title. Project managers should also try to attract media attention to projects and to the achievements of the project team. Usually, public sector project managers have control over these activities.

However, if project employees receive too much attention, it may estrange their colleagues in functional positions. They may become jealous of the preferential treatment of their colleagues in projects, and the group coherence among public employees may suffer.

6.3.2 Usefulness and Compatibility

This study shows that public employees will be more inclined to work on projects if they believe that learning project management tools and techniques increase their productivity and the quality of their work. Public employees are also more motivated to join projects if they believe that they can overcome the perceived gap between their existing competencies and those needed for project positions. Uncertainty about the usefulness of project management tools and the compatibility between existing and required competencies adversely affects the intention of public employees to join projects.

To reduce uncertainty, it is suggested that employees with little project experience should be given the opportunity to work on projects early in their career. Employees will be better able to evaluate the usefulness and compatibility of a project position when they have worked on projects before. In addition, the reintegration of public employees with project experience into line departments is an opportunity to share knowledge and project experience with less experienced employees in functional departments.

Concerns about compatibility could be addressed by the training and education of public sector employees. Training programmes should be developed to provide employees with the competencies required for project positions. They should be geared towards those skills that depart from the existing set of competencies. The disadvantage of introducing comprehensive training programmes is the substantial costs that public organisations would incur.

6.3.3 Organisational Incentive Systems

The present study found that 75 percent of respondents do not expect to earn a higher wage when working on a project (see Appendix A, "career consequences"). To motivate public employees to join projects, a compensation and wage system that rewards project-based work should be introduced in public organisations. In addition, non-financial incentives should be offered, such as the opportunity to follow a project career path. In most public organisations, a career that is mainly driven by successful project assignments is the rare exception rather than the rule.

In the private sector, companies have begun to define opportunities for a project career as an alternative to a career along the lines of functional management (Corsten, 2000). For example, the Deutsche Telekom AG has started to adjust their organisational structures to incorporate a project career path (GPM, 2004). In the public sector, however, the integration of a project career path into the functional or weak matrix structures of public agencies is likely to be a prolonged process. A first step toward linking the performance of project employees with career opportunities could be to formally include project performance in the performance appraisals for each public employee. In doing so, public employees will be able to understand the full value of project-based work and see successful project assignments as a part of their career opportunities.

6.3.4 Summary

Project managers should encourage the sharing of project experience and knowledge among employees to reduce uncertainty about project positions and allow them to make an informed decision. Furthermore, project managers should assign employees with a high social standing and good reputation among employees to the project team to attract other employees. Moreover, projects and project teams should receive preferential treatment to enhance the image of project positions. To address concerns

of public employees who fear that their project management skills are insufficient, it is recommended to support their training and further education regarding project management competencies. In addition, financial and non-financial incentives to work on projects should be offered to public employees.

6.4 Limitations and Future Research

The results of the present study do not come without some important caveats. First, the construct for the intention to work on projects does not fully reflect actual behaviour. A public employee with a strong intention and the opportunity to join a project may still end up remaining in his or her current position - for many reasons. Thus, concluding that compatibility, usefulness, image and social pressure have an influence on the intention to work on projects does not necessarily mean that they sufficiently explain the behaviour of public employees.

Second, the measures of the constructs are potentially biased. Because some public sector employees were anonymously contacted via the Project Management Institute New Zealand (PMINZ) group e-mail dispatcher, there might be a bias toward a particular group of respondents who answered the survey. Although it is unlikely that bias has occurred, it might invalidate the findings from this research.

Third, the external validity of the research results might be doubtful. The research explored public employees' intention to work on projects in New Zealand, which has continuously reformed its public sector and opened its public administration to the use of private sector management practices such as project management. However, the institutional infrastructure of the public sector and the general approach to public administration in New Zealand are likely to be different in many other countries. These differences might have a limiting effect on the generalisability of the research findings to the public sector in other countries.

The limitations of this study indicate potential directions for future research. In addition to the investigation of public employees' motivation in New Zealand in the present study, other countries present alternative research settings. Future research could address the question whether public employees in other countries have different intention determinants. Studies in different cultural settings allow the comparison of the influence of cultural factors on employee motivation. Although the present study

could not provide evidence regarding the effect of a cultural variable (power distance) on intention, the determinant model of public employees' intention could be adjusted to reflect country-level differences in employee motivation.

This research can be extended in many ways. Further research can be conducted to compare the intention of employees to work in private and public sector projects. Future research should also be directed toward identifying additional variables that influence the motivation of public employees to join projects. These factors could help shed light on the unexplained part of the intention variable. Several potential determinants that have not been addressed in the previous literature and the present study may affect the intention of employees to work on projects. First, future research could investigate whether public employees reject project-based work because they have no desire to work extra hours associated with project positions. Overtime work can occur especially toward the end of a project, when the final deadline for the project delivery approaches. Furthermore, long work hours and the frequent need to adjust work schedules on short notice due to unexpected events make it often difficult for project employees to balance work and family. It would be interesting to explore whether the wish to balance work and family has an effect on the motivation to work on projects. Last, some project positions include working in two or more different locations. The desire to avoid extensive travel may also have an influence on the intention of public employees to join projects.

However, while the search for new intention determinants has appeal, existing measures of employee motivation also call for further research. In particular, the improvement of scales to measure the latent variables is likely to produce more significant findings. A better operationalisation of the variables might reduce the skewness in response distribution for some variables. It might also enhance the discriminant validity of the variables, especially of the career consequences variable. Furthermore, future empirical research should investigate whether replacing the five-point Likert scale used in the present study with a Likert scale including a higher number of alternative scale items will reduce the skewness in the distribution of responses.

6.5 Conclusions

This research explored the determinants of public employees' intention to work on projects. Based on previous research on project human resource management and theories of intention formation, eight potential determinants were identified and empirically tested. Four of the eight determinants had a significant influence on the motivation of public employees to join projects (usefulness, compatibility, social pressure, and image). First, public employees are motivated to work on projects when they believe that project management tools and techniques will improve their job performance. Second, they have a stronger intention to join projects when they perceive that a project position does not require radical changes in the way they usually work. In addition, the positive opinion of colleagues about project-based work encourages public employees to accept a project position. Finally, public employees intend to join projects when they believe that a project position is associated with high social status and prestige. The independent variables organisational mandate and facilitating conditions were found to be non-significant. The moderating variable power distance was not introduced to regression analysis because of the less than the required sample size (N = 108) and the non-significant effect of organisational mandate on intention. The independent variable career consequences was not considered for regression analysis because of its low construct validity.

Overall, this research presents a unique model of public employees' intention to work on projects. The model reflects the concerns and desires of public employees who make the decision whether to work on a public sector project. The comparison of the findings of this research and findings of earlier studies indicates that the influence of compatibility, usefulness and social pressure on intention could be generalised across contexts. Based on the determinants identified in this study, existing models of employees' intention formation could be complemented and enhanced to explain what motivates employees to perform certain behaviour. The insights from this research have implications for project management practitioners. The identified determinants offer a way for public organisations to develop human resource strategies that will help improve the recruiting process for public sector projects. By understanding what motivates public employees to join projects, public sector project managers can

specifically address employees' concerns and desires to increase the effectiveness of the recruitment process.

References

Agarwal, R. & Prasad, J. (1997). The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies. *Decision Sciences*, 28(3), 557-582.

Aguinis, H. (1995). Statistical power problems with moderated multiple regression in management research. *Journal of Management*, 21(6), 1141-1158.

Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and human Decision Processes,* 50(2), 179-211.

Ajzen, I. (1988). *Attitudes, personality, and behavior*. Chicago: Dorsey Press.

Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I. & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888-918.

Alford, J. (1993). Towards a new public management model: Beyond "managerialism" and its critics. *Australian Journal of Public Administration,* 52(2), 135-148.

Allison, G. (1979). Public and private management: Are they fundamentally alike in all unimportant respects? In Shafritz, J. & Hyde, A. (Eds), *Classics of Public Administration*. Belmont: Wadsworth, 1992.

APM (Association of Project Management). (2006). *APM body of knowledge*. Retrieved from Association for Project Management website on 2nd February, 2011: http://www.apm.org.uk/download.asp?fileID=362

Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337-342.

Aucoin, P. (1990). Administrative reform in public management: Paradigms, principles, paradoxes and pendulums. *Governance*, 3 (2), 115-137.

Babbie, E. (2001). *The practice of social research. (9th ed.)*. Belmont, CA: Wadsworth Publishing/Thompson Learning.

Bagozzi, R.P. (1981). Attitudes, intentions, and behavior: A test of some key hypotheses. *Journal of Personality and Social Psychology,* 41(4), 607-627.

Beck, L. & Ajzen, I. (1991). Predicting dishonest action using the theory of planned behavior. *Journal of Research in Personality,* 25(3), 285-301.

Becker, H. S. (1960). Notes on the concept of commitment. *American Journal of Sociology*, 66, 32–42.

Belout, A. & Gauvreau, C. (2004). Factors influencing project success: The impact of human resource management. *International Journal of Project Management,* 22(1), 1-11.

Bochner, S. & Hesketh, B. (1994). Power distance, individualism/collectivism, and job-related attitudes in a culturally diverse work group. *Journal of Cross-Cultural Psychology,* 25(2), 233-257.

Boston, J., Martin, J., Pallot, J. & Walsh, P. (1996). *Public Management: The New Zealand Model*. Auckland: Oxford University Press

Box, R.C. (1999). Running government like a business: Implications for public administration theory and practice*. The American Review of Public Administration*, 29(1), 14-43.

Boyne, G.A. (2002). Public and private management: What's the difference? *Journal of Management Studies*, 39(1), 97-122.

Bozeman, B., Reed, P. & Scott, P. (1992). Red tape and task delays in public and private organizations. *Administration and Society,* 24(3), 290–322.

Chin, W.W. & Gopal, A. (1995). Adoption intention in GSS: Relative importance of beliefs. *DATA BASE for Advances In Infonnation Systems,* 26(3), 42-64.

Christensen, T. & Lægreid, P. (2007). The whole-of-government approach to public sector reform. *Public Administration Review,* 67(6), 1059-1066.

Clayton, B., Fisher, T., Bateman, A., Brown, M. & Harris, R. (2005). A draft literature review on issues concerning organizational culture and structure in the vocational education and training sector. Retrieved from National Centre for Vocational Education Research (Publisher) on 3rd February, 2011: http://www.consortiumresearchprogram.net.au/html/images/stories/Documents/ra4litreview_full_text.pdf

Cleland, D. I. (1982). The human side of project management. In Kelley, A.J. (Ed.), *New dimensions of project management*. Lexington, MA: D.C. Heath and Company.

Clugston, M., Howell, J.P. & Dorfman, P.W. (2000). Does cultural socialization predict multiple bases and foci of commitment? *Journal of Managemen*t, 26(1), 5-30.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New Jersey: Lawrence Erlbaum.

Comrey, A. L. & Lee, H. B. (1992). *A first course in factor analysis.* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cook, R.D. & Weisberg, S. (1982). *Residuals and influence in regression*. New York: Chapman and Hall.

Corsten, H. (2000): *Projekt management*. OW Verlag, München, Wien 2000.

Crawford, L. & Helm, J. (2009). Government and governance: The value of project management in the public sector. *Project Management Journal*. 40(1), 73-87.

Davis, F.D., Bagozzi, R. & Warshaw, P. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science,* 35(8), 982-1003.

Dwyer, J., Stanton, P. & Thiessen, V. (2004). *Project management in health and community services*. London: Routledge.

Field, A. (2009). *Discovering statistics using SPSS: Sex and drugs and rock'n' roll*. (3rd ed.). London: Sage Publications.

Fishbein, M. & Ajzen, I. (1981). Attitudes and voting behavior: An application of the theory of reasoned action. In Stephenson, G., M. & Davis, J., M. (Eds.), *Progress in Applied Social Psychology*, 1, 253-313. London: Wiley & Sons.

Flynn, N. (2007). *Public sector management*. (5th ed.). London: Sage Publications.

Galbraith, J.R. (1973). *Designing Complex Organizations*. Boston, MA, USA: Addison-Wesley Longman.

Galbraith, J. (1971). Matrix organizational designs — how to combine functional and project forms. *Business Horizons*, 14(1), 29–40.

Gareis, R. (2006). Project management: A business process of the project oriented company. In: Cleland, D. & Gareis, R. Global Project Management Handbook. (2nd ed.). (pp. 2-1 – 3-2). New York: Mc Graw-Hill.

GPM (2004). Kollektivvertragliche Regelungen als zentrales Element seiner Verankerung im Unternehmen. *PMaktuell*, 1, 35 – 40.

Gray, C.F. & Larson, E.W. (2008). *Project management: The managerial process*. Boston: McGraw-Hill/Irwin.

Green, S.B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioural Research,* 26(3), 499-510.

Griesche, D. (1998): Verwaltungsmanagement by Projects - Steuerung des Innovationsprozesses der öffentlichen Verwaltung. In: *Verwaltung & Management*. 4(2), 119 -123.

Halligan, A. & Donaldson, L. (2001). Implementing clinical governance: Turning vision into reality. *British Medical Journal*, 322(7299), 1413-7.

Hardgrave, B. C., Davis, F. D. & Riemenschneider, C. K. (2003). Investigating determinants of software developers' intentions to follow methodologies. *Journal of Management Information Systems*, 20(1), 123-151.

Harpum, P. (2004). Project control. In: Morris, P.W.G. & Pinto, J.K. *The Wiley guide to managing projects*. (1st ed.). (pp. 5-30). Hoboken, New Jersey: John Wiley & Sons.

Harrison, W., Thompson, V. D. & Rodgers, J. L. (1985). Robustness and sufficiency of the theory of reasoned action in longitudinal prediction. *Basic and Applied Social Psychology*, 6(1), 25-40.

Hobday, M. (2000). The project based organization: An ideal form for managing complex products and systems? *Research Policy*, 29(7-8), 871-893.

Hofstede, G. (1991). *Cultures and organizations*. London: McGraw-Hill.

Hofstede, G. (1983). Cultural dimensions for project management. *Project Management*, 1(1), 41-48.

Hood, C. (1995). The "new public management" in the 1980s: Variations on a theme. *Accounting, Organizations and Society*, 20(2-3), 93-109.

Hood, C. (1991). A public management for all seasons? *Public Administration*, 69(1), 3-19.

Horton, S. (2006). New public management: Its impact on public servant's identity. *International Journal of Public Sector Management,* 19(6), 533-542.

Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.

Kassel, D.S. (2010). *Managing public sector projects: A strategic framework for success in an era of downsized government.* New York: CRC Press.

Keen, L.A. & Murphy, M.P. (1996). Devolved budgetary management in local government: Lessons from a shire county. *Financial Accountability & Management*, 21(1), 37-52.

Kelman, H. (1958). Compliance, identification, and internalization: Three processes of attitude change. *The Journal of Conflict Resolution*, 2(1), 51-60.

Kerzner, H. (2009). *Project management: A systems approach to planning, scheduling and controlling*. (10th ed.). New York: John Wiley & Sons.

Kerzner, H. (2004). *Advanced project management: Best practices on implementation*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Kerzner, H. (2000). *Applied project management*. New York: John Wiley & Sons.

Khalifa, M. & Verner, J. M. (2000). Drivers for Software Development Method Usage. *IEEE Transactions on Engineering Management*, 47(3), 360-369.

Kluvers, R. (2003). Accountability for performance in local government. *Australian Journal of Public Administration*, 62(1), 57-69.

Kozak, M. (2009). What is strong correlation? *Teaching Statistics,* 31(3), 85-86.

Krosnick, J.A. (1999). Study research. *Annual Review of Psychology,* 50, 337-367.

Lane, J.E. (2000). *The public sector: Concepts, models and approaches*. London: Sage Publications.

Larson, E.W. & Gobeli, D.H. (1989). Significance of project management structure on development success. *IEEE Transactions on Engineering Management.* 36 (2), 119–125.

Leong, F. T. & Austin, J. T. (2006). *The psychology research handbook: A guide for graduate students and research assistants. (2nd ed.)*. Thousand Oaks, CA: Sage Publications.

Lock, D. (2001). *The essentials of project management*. (2nd ed.). Brookfield, VT: Gower.

Lodge, M. & Gill, D. (2011). Toward a new era of administrative reform? The myth of post-NPM in New Zealand. *Governance,* 24(1), 141-166.

Lundy, O. & Cowling, A. (1996). *Strategic human resource management*. London: Routledge.

Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behavior. *Information Systems Research,* 2(3), 173-191.

McLean, B., Elking, P. & Gibney, A. (director). (2005). *Enron: The smartest guys in the room* (documentary film). USA: Magnolia Pictures.

Metcalf, L. (1993). Public management: From imitation to innovation. In Kooiman, J. (Ed.), *Modern Governance*. London: Sage Publications.

Miles, R.E. & Snow, C.C. (1996). Organizations: New concepts for new forms. In Buckley, P.J. & Michie, J. (Eds.). *Firms, organizations and contracts* (1st ed.). (pp. 429-441). New York: Oxford University Press.

Mintzberg, H. (1979). *The Structuring of Organizations*. Englewood Cliffs, New Jersey: Prentice-Hall.

Moore. G., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2*(3)*, 192-222.

Morris, P.W.G. & Pinto, J.K. (2004). *The Wiley guide to managing projects*. (1st ed.). Hoboken, New Jersey: John Wiley & Sons.

Morrow, P. C. (1983). Concept redundancy in organizational research: The case of work commitment. *Academy of Management Review*, 8(3), 486–500.

Nunnally, J. (1978). *Psychometric theory.* (2nd ed.). New York: McGraw-Hill.

O'Kelly, S. W. & Maxwell, R. (2001). Implementing clinical governance. Medical training should include project management. *British Medical Journal*, 323(7315), 753.

Perry, J.L., Mesch, D. & Paarlberg, L. (2006). Motivating employees in a new governance era: The performance paradigm revisited. *Public Administration Review,* 50(3), 367-373.

Peter, J.P. (1981). Construct validity: A review of basic issues and marketing practices. *Journal of Marketing Research*, 18(2), 133-145.

PMI (Project Management Institute). (2008). *A guide to the project management body of knowledge.* (4th ed.). Newton Square, Pennsylvania: Project Management Institute.

PMI (Project Management Institute). (2006). *Government extension to a guide to the project management body of knowledge*. (3rd ed.). Newton Square, Pennsylvania: Project Management Institute.

PMI (Project Management Institute). (2004). *A guide to the project management body of knowledge*. (3rd ed.). Newton Square, Pennsylvania: Project Management Institute.

Pollitt, C. & Bouckaert, G. (2004). *Public Management Reform: A Comparative Analysis*. Oxford: Oxford University Press.

Prachett, L. & Wingfield, M. (1996). Petty bureaucracy and woolly-minded liberalism? The changing ethos of local government officers. *Public Administration*, 74(4), 639–56.

Reiss, G. (1995). *Project management demystified: Today's tools and techniqu*es. (2nd ed.). London: Spon Press.

Riemenschneider, C. K., Hardgrave, B. C. & Davis, F. D. (2002). Explaining software developers acceptance of methodologies: A comparison of five theoretical models. *IEEE Transactions of Software Engineering,* 28(12),1135-1145.

Ring, P. & Perry, J. (1985). Strategic management in public and private organizations: Implications of distinctive contexts and constraints. *Academy of Management Review*, 10(2), 276–86.

Rise, J., Thompson, M. & Verplanken, B. (2003). Measuring implementation intentions in the context of the theory of planned behavior. *Scandinavian Journal of Psychology*, 44(2), 87–95.

Roberts, P. (2007). *Guide to project management*. (1st ed.). London: Profile books.

Roman, D.D. (1986). *Managing projects: A systems approach*. New York: Elsevier.

Sackmann, S.A. (1991). *Cultural knowledge in organizations: Exploring the collective mind*. Newbury Park, GA: Sage Publications.

Schein, E.H. (1992). *Organizational culture and leadership.* (2nd ed.). San Francisco: Jossey-Bass.

Schick, A. (2001). *Reflections on the New Zealand model*. Lecture Notes based on a lecture at the New Zealand Treasury, Auckland: New Zealand Treasury.

Sheeran, P. (2002). Intention-behaviour relations: A conceptual and empirical review. *European Review of Social Psychology,* 12(1), 1-36.

Sheppard, B., H., Hartwick, J. & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research*, 15(3), 325-343.

Sherman, S. J. & Fazio, R. H. (1983). Parallels between attitudes and traits as predictors of behavior. *Journal of Personality*, 51(3), 308-345.

Simister, S.J. (2004). Qualitative and quantitative risk management. In: Morris, P.W.G. & Pinto, J.K. *The Wiley guide to managing projects*. (1st ed.). (pp. 30-48). Hoboken, New Jersey: John Wiley & Sons.

State Services Commission. (2009). *Public sector diagram*. Retrieved from State Services Commission website on 2nd February, 2011: http://www.ssc.govt.nz/upload/downloadable_files/public-sector-diagram-oct09.pdf

State Services Commission. (2000). *Career progression and development survey*. Wellington, New Zealand: State Services Commission.

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences*. (5th ed.). New York: Routledge.

Stone-Romero, E.F. & Anderson, L.E. (1994). Relative power of moderated multiple regression and the comparison of subgroup correlation coefficients for detecting moderating effects. *Journal of Applied Psychology,* 79(3), 354-359.

Svara, J.H. (2001). The myth of the dichotomy: Complementarity of politics and administration in the past and future of public administration. *Public Administration Review,* 61(2), 176-183.

Tabachnick, B. & Fidell, L. S. (2007). *Using multivariate statistics*. (5th ed.). Boston: Pearson Allyn & Bacon.

Taylor, S. & Todd, P.A. (1995). Understanding information technology usage: A test of two competing models. *Information Systems Research,* 6(2), 144-176.

Teece, D.J. (1996). Firm organization, industrial structure, and technological innovation. *Journal of Economic Behaviour and Organization.* 31(2), 193–224.

Thompson, B. & Daniel, L.G. (1996). Factor analytic evidence for the construct validity of scores: A historical overview and some guidelines. *Educational and Psychological Measurement,* 56(2), 197-208.

Thompson, R.L., Higgins, C.A. & Howell, J.M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly,* 15(1), 125-143.

Thorndike, R.M. (1996). *Measurement and evaluation in psychology and education*. (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Tullock, G. (1965). *The politics of bureaucracy*. Washington, DC: Public Affairs Press.

Turner, J.R. (2009). *The handbook of project-based management.* (3rd ed.). New York: McGraw-Hill.

Urban, D. & Mayerl, J. (2006). *Regressionsanalyse: Theorie, Technik und Anwendung*. (2nd ed.). Wiesbaden: VS Verlag für Sozialwissenschaften.

Venkatesh, V. and Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies, *Management Science*, 46(2), 186-204.

Vijayasarathy, L.R. (2004). Predicting consumer intentions to use on-line shopping: The case for an augmented technology acceptance model. *Information & Management*, 41(6), 747–762.

Vinokur-Kaplan, D. (1978). To have–or not to have–another child: Family planning attitudes, intentions, and behavior. *Journal of Applied Social Psychology,* 8(1), 29-46.

Wang, X. (2001). Dimensions and current status of project management culture. *Project Management Journal*, 32(4), 4-17.

Whitcombe, J. (2008). Contributions and challenges of 'New Public Management': New Zealand since 1984. *Policy Quarterly*, 4(3), 7-13.

White, L. (1926). *Introduction to the study of public administration*. New York: Macmillan.

Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues*, 25(4), 41-78.

Wirick, D.W. (2009*). Public-sector project management: Meeting the challenges and achieving results.* (1st ed.). Hoboken, New Jersey: John Wiley & Sons.

Wright, N. J. (1997). Time and budget: The twin imperatives of a project sponsor. *International Journal of Project Management*, 15(3), 181-186.

Wysocki, R.K. (2007). *Effective project management: Traditional, adaptive, extreme.* Indianapolis, IN: Wiley Publications.

Appendix A: Survey Results for individual Items
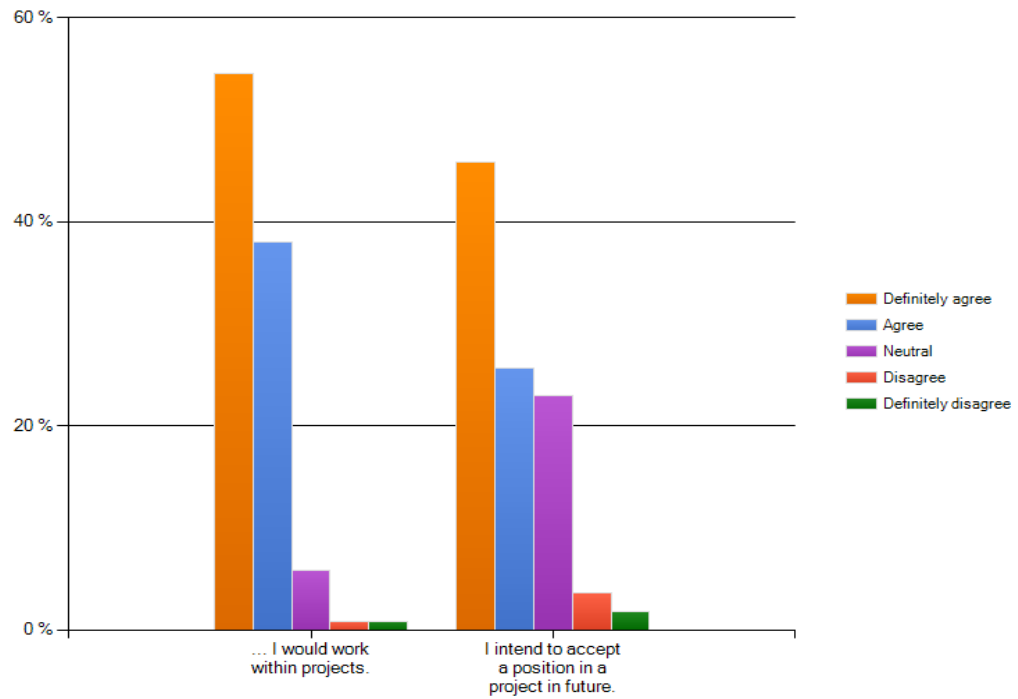
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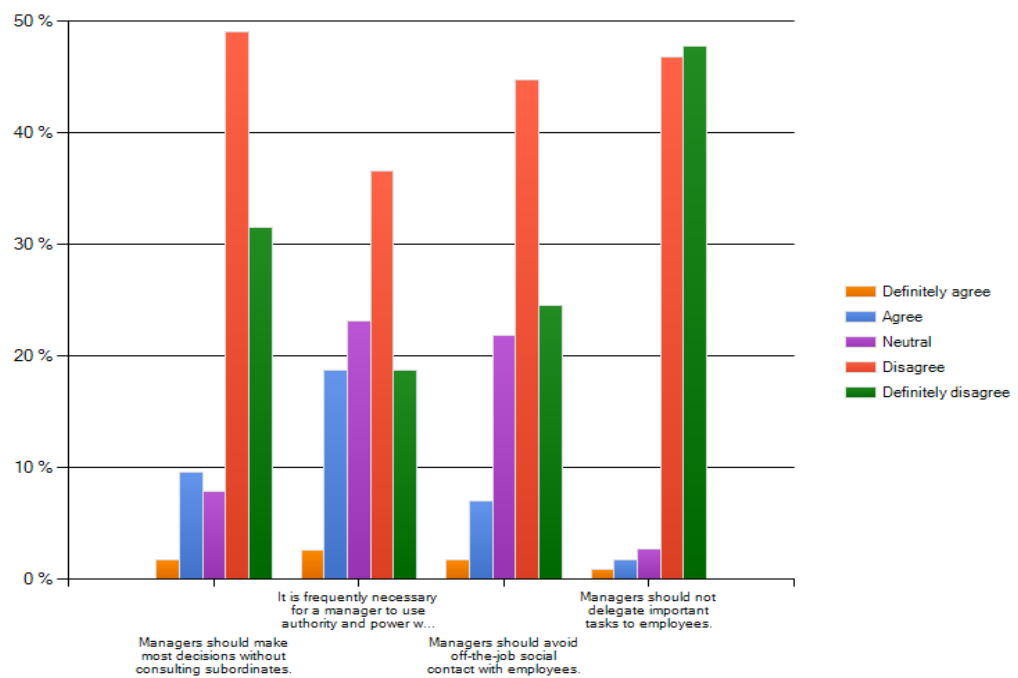
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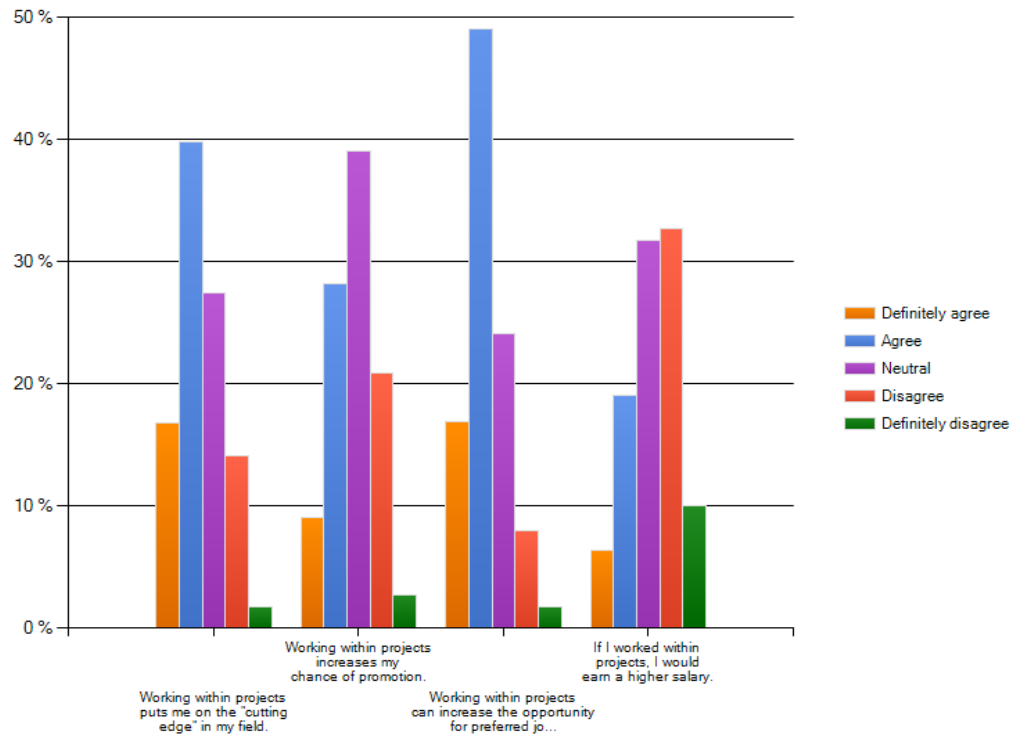
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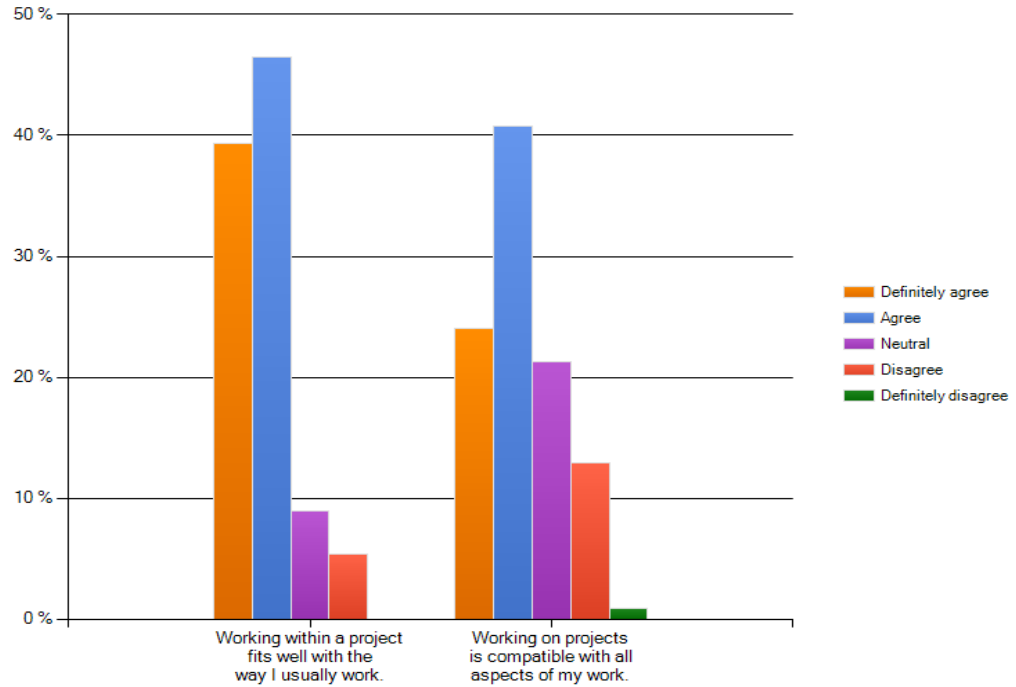
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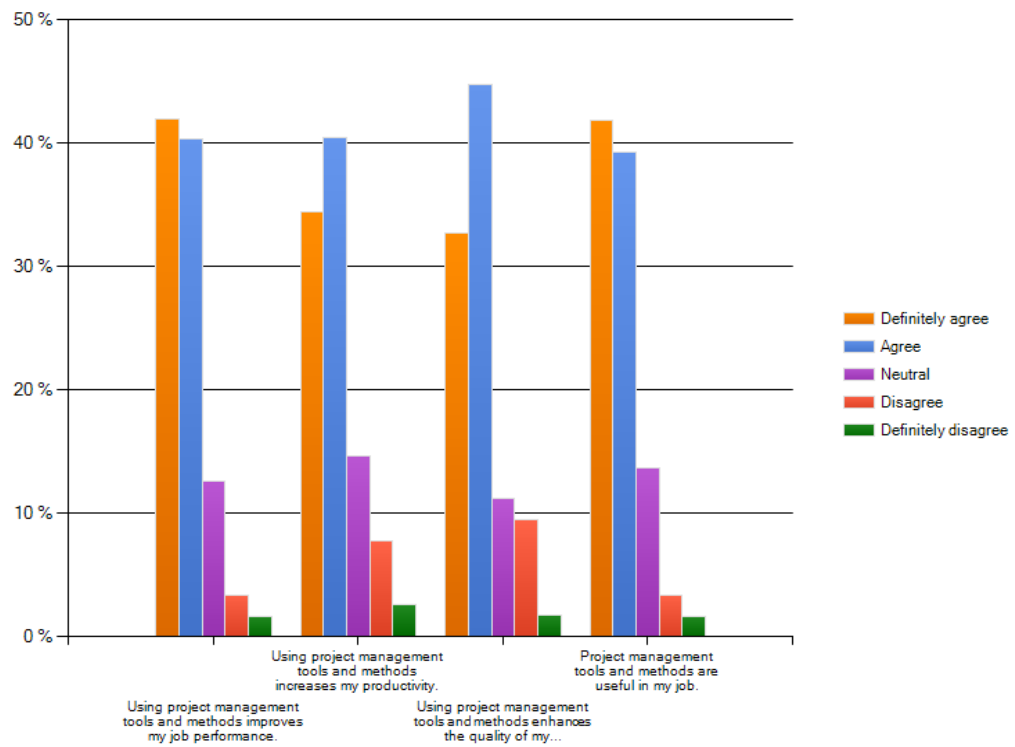
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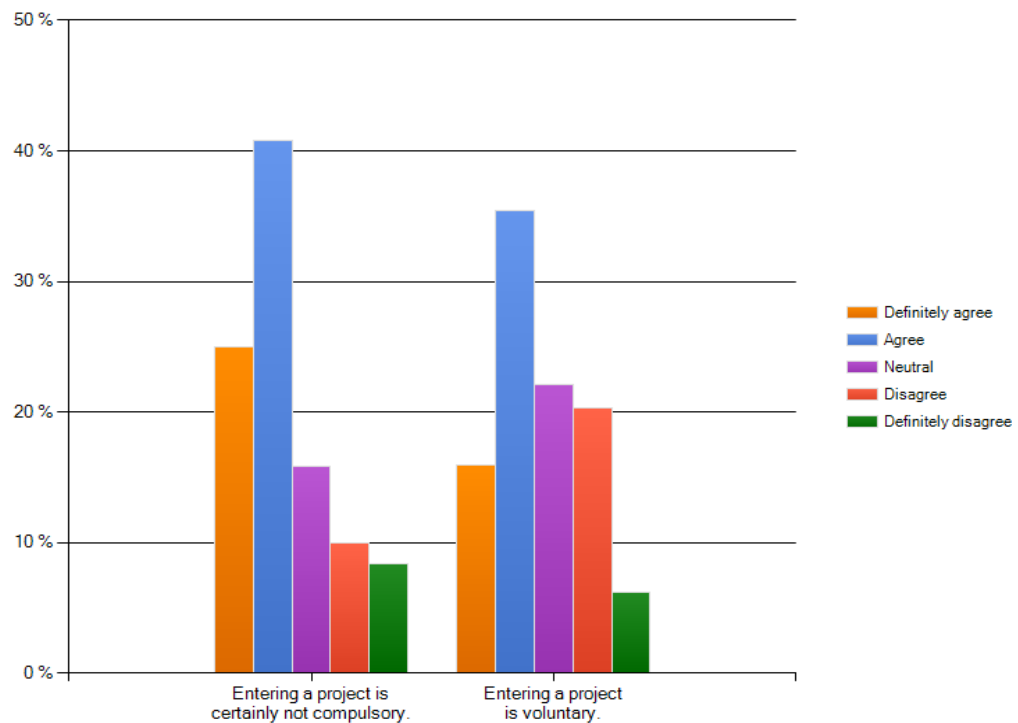
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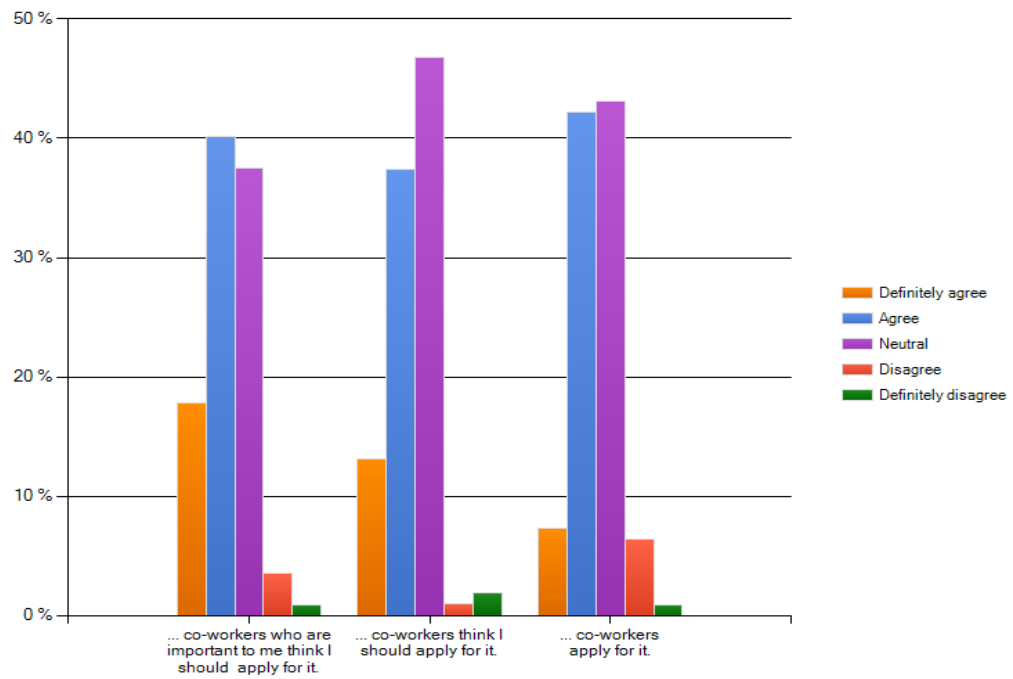
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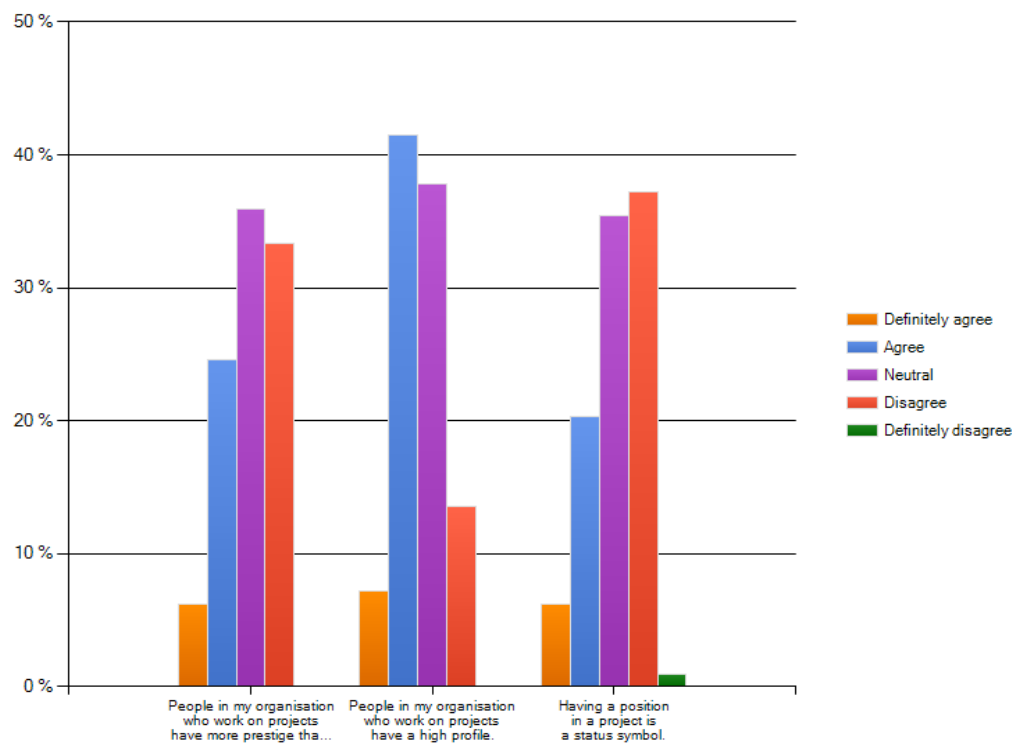
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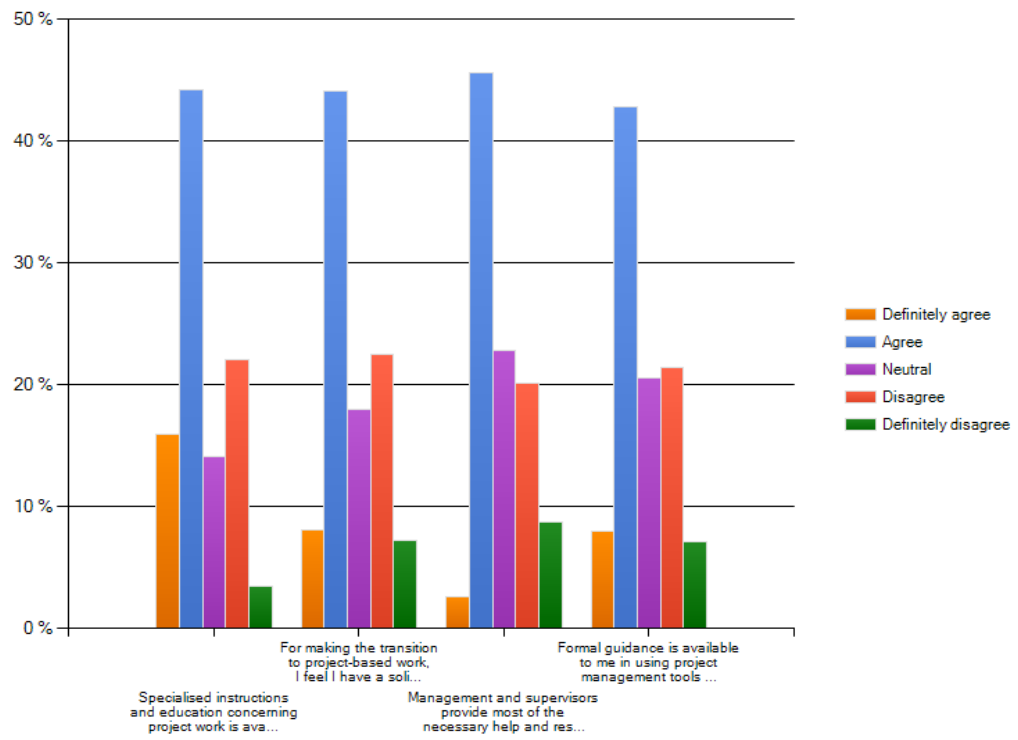
Facilitating Conditions

Appendix B: Participant Information Sheet

Participant Information Sheet

Date Information Sheet Was Produced: 24 September 2010

Project Title

Project Human Resource Management in the Public Sector: What motivates Public Employees to work on Projects?

An Invitation

My name is Norbert Maass. I am a Master's student with the Department of Management, AUT Business School, at Auckland University of Technology. I invite you to participate in a research project being undertaken as part of a Master's dissertation. The project investigates how public sector employees form the intention to accept a position in a project rather than, or in addition to, working in their routine functional position. If you wish to participate, please complete the online questionnaire or return the answered questionnaire by post. Your participation is voluntary, anonymous and you may withdraw at any time prior to the submission of the questionnaire.

What is the purpose of this research?

This research project aims to understand how public sector organisations can assure the support of project-based management by their employees. The research results will help public organisations to improve human resource management of public sector projects.

How was I identified and why am I being invited to participate in this research?

Contact details and organisational information have been found online on the website of the public organisation you currently work with. I assume that you are an employee of a public sector organisation. I also assume that you have worked within a project before or that you are familiar with project management. If you are 20 years or above, I would greatly appreciate if you provided your opinion about and experience with project-based work in the public sector.

What will happen in this research?

The questionnaires will be disseminated to public sector employees through their departments. All responses will be directly submitted to the research team by post or online. Tracking tools or techniques that can reveal the origin of a response will not be used. In this way, survey respondents are protected from being identified by anyone. After completing this research, I will offer a copy of the research findings to survey participants upon request.

What are the discomforts and risks?

It is unlikely that your participation will lead to any potential risks. Potential discomforts and risks, if any, are associated with the maintenance of privacy and confidentiality.

How will these discomforts and risks be alleviated?

This research questionnaire is anonymous and full confidentiality of information is guaranteed. Only the researcher will view the raw data. Uniquely identifying information such as name, position title, addresses, etc. will not be collected about survey participants. The techniques used to analyze the survey data will not lead to the identification of any individual survey participant's responses.

How will my privacy be protected?

Neither the questionnaire nor the enclosed, sealable return envelope can be used to obtain survey participants' identifying information. All returned questionnaires will be stored at a secure office at AUT. Only the researcher has access to the obtained data. The research data remains stored and protected until it is destroyed after six years.

What are the benefits?

The findings from this study are used to identify opportunities for public sector organisations to offer improved incentives to their employees to accept a position in a project. The contribution will be as follows:

- The study has the potential to contribute to both project management theory and practice.

  By understanding the determinants of employees' intention to work on projects, public sector organisations will be able to provide an improved reward system with enhanced incentives for their employees. Better incentives will increase employees' intention to work project-based. This will improve the project implementation process and employee satisfaction.

- Academic output will comprise a Master's dissertation and insights to inform subsequent research for project management journal articles and conference papers.

What are the costs of participating in this research?

The cost associated with your participation is the time involved. The questionnaire will take between ten to fifteen minutes to complete.

What opportunity do I have to consider this invitation?

Please take a few days to consider this invitation. If you need further information or clarification about any aspects of the project, please contact the research team

members by email or phone. Please do remember that your participation in this important project is voluntary and anonymous.

How do I agree to participate in this research?

If you decide to participate, the completion of the questionnaire will be considered as your consent.

Will I receive feedback on the results of this research?

If you wish to obtain a summary report, please visit the Social Science Research Network (SSRN) website. On this site, you will be able to find and download the report under the researcher's name from February 2011.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisors, Dr. Kamrul Ahsan, Department of Management, Auckland University of Technology, Ph. (09) 921 9999 ext. 5477, e-mail: kamrul.ahsan@aut.ac.nz.

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, *madeline.banda@aut.ac.nz*, 921 9999 ext 8044.

Whom do I contact for further information about this research?

Researcher contact details:

Norbert Maass, Master's Student, E-mail: norbert.maass1@web.de, Mobile: 021 077 0980

Approved by the Auckland University of Technology Ethics Committee on 2 September 2010, AUTEC Reference number 10/203 "Improving project human resource management in the public sector".

By completing this questionnaire you are indicating your consent to participate in this research.

Appendix C: Survey Questionnaire

An Invitation

I invite you to participate in a research project. The research question is: What motivates public sector employees to accept a position in a new project rather than, or in addition to, working in their routine position?

This research project aims to understand how public sector organisations can ensure the support of project-based management by their employees. The research results will help public organisations to improve human resource management of public sector projects.

Your participation is VOLUNTARY, ANONYMOUS and you may withdraw at any time prior to the submission of the questionnaire.

I assume that you are an employee of a public sector organisation. If you are 20 years or above, I would be grateful if you could provide your opinion on and experience with working within projects in the public sector. The questionnaire will take about ten minutes to complete.

How will my privacy be protected?
This research questionnaire is anonymous and full confidentiality of information is guaranteed. Only the researcher will view the raw data. Uniquely identifying information such as name, position title, addresses, etc. will not be collected about survey participants. The techniques used to analyze the survey data will not lead to the identification of any individual survey participant's responses.

Will I receive feedback on the results of this research?
If you wish to obtain a summary report, please visit the Social Science Research Network (SSRN) website. On this site, you will be able to find and download the report under the researcher's name in February 2011.

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Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, madeline.banda@aut.ac.nz, 921 9999 ext 8044.

Whom do I contact for further information about this research?
Researcher contact details:
Norbert Maass, Master's Student, E-mail: norbert.maass1@web.de, Mobile: 021 077 0980

Improving project human resource management in the public sector

By completing this questionnaire, you indicate your consent to participate in this research.

This research questionnaire is ANONYMOUS.

Section 1: General questions:

Please tick (√) your response or fill in the blanks

1. **Gender:** Male ☐ Female ☐

2. **How old are you?: ………….. years**

3. **How long have you been working in the public sector?**

   …………. years, ……………. month

4. **How long have you been with your current employer?**

   ………….. years, …………… month

5. **Have you ever worked on a project within the public or private sector?**

   Yes ☐ No ☐

   5.1 If yes, how long did you work on the project? ……… years, ……. month

Section 2: Reasons to work on a project

Please tick the box that closely matches your thoughts on the statements posed:

		Definitely agree	Agree	Neutral	Disagree	Definitely disagree
		1	**2**	**3**	**4**	**5**
Intention to work on projects						
If project positions were offered by the public organisation I currently work for, …						
1.	… I would work within projects.	☐	☐	☐	☐	☐
2.	I intend to accept a position in a project in future.	☐	☐	☐	☐	☐
Organisational policy						
3.	Entering a project is certainly not compulsory.	☐	☐	☐	☐	☐
4.	Entering a project is voluntary.	☐	☐	☐	☐	☐
Usefulness of project management tools and techniques						
I believe that:						
5.	Using project management tools and methods improves my job performance.	☐	☐	☐	☐	☐
6.	Using project management tools and methods increases my productivity.	☐	☐	☐	☐	☐
7.	Using project management tools and methods enhances the quality of my work.	☐	☐	☐	☐	☐
8.	Project management tools and methods are useful in my job.	☐	☐	☐	☐	☐

		Definitely agree	Agree	Neutral	Disagree	Definitely disagree
		1	2	3	4	5
What others think						
If a position in a project is offered, …						
9.	… co-workers who are important to me think I should apply for it.	☐	☐	☐	☐	☐
10.	… co-workers think I should apply for it.	☐	☐	☐	☐	☐
11.	… co-workers apply for it.	☐	☐	☐	☐	☐
Compatibility						
12.	Working within a project fits well with the way I usually work.	☐	☐	☐	☐	☐
13.	Working on projects is compatible with all aspects of my work.	☐	☐	☐	☐	☐
Career consequences						
14.	Working within projects puts me on the "cutting edge" in my field.	☐	☐	☐	☐	☐
15.	Working within projects increases my chance of promotion.	☐	☐	☐	☐	☐
16.	Working within projects can increase the opportunity for preferred job assignments.	☐	☐	☐	☐	☐
17.	If I worked within projects, I would earn a higher salary.	☐	☐	☐	☐	☐
Image						
18.	People in my organisation who work on projects have more prestige than those who do not.	☐	☐	☐	☐	☐
19.	People in my organisation who work on projects have a high profile.	☐	☐	☐	☐	☐
20.	Having a position in a project is a status symbol.	☐	☐	☐	☐	☐

		Definitely agree	Agree	Neutral	Disagree	Definitely disagree
		1	2	3	4	5
Facilitating conditions						
21.	Specialised instructions and education concerning project work is available to me.	☐	☐	☐	☐	☐
22.	For making the transition to project-based work, I feel I have a solid "network of support" or mentors (e.g. knowledgeable colleagues, support personnel, etc.).	☐	☐	☐	☐	☐
23.	Management and supervisors provide most of the necessary help and resources to enable people to work on projects.	☐	☐	☐	☐	☐
24.	Formal guidance is available to me in using project management tools and methods.	☐	☐	☐	☐	☐
Generally, I think:						
25.	Managers should make most decisions without consulting subordinates.	☐	☐	☐	☐	☐
26.	It is frequently necessary for a manager to use authority and power when dealing with subordinates.	☐	☐	☐	☐	☐
27.	Managers should avoid off-the-job social contact with employees.	☐	☐	☐	☐	☐
28.	Managers should not delegate important tasks to employees.	☐	☐	☐	☐	☐

THANK YOU FOR YOUR KIND COOPERATION

Appendix D: Ethical Approval

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

MEMORANDUM

Auckland University of Technology Ethics Committee (AUTEC)

To: Kamrul Ahsan
From: **Charles Grinter** Ethics Coordinator
Date: 5 October 2010
Subject: Ethics Application Number 10/203 **Improving project human resource management in the public sector.**

Tena koe Kamrul

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) at their meeting on 8 November 2010 and that I have approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTEC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement at AUTEC's meeting on 8 November 2010.

Your ethics application is approved for a period of three years until 5 October 2013.

I advise that as part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through http://www.aut.ac.nz/research/research-ethics/ethics.   When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 5 October 2013;

- A brief report on the status of the project using form EA3, which is available online through http://www.aut.ac.nz/research/research-ethics/ethics.   This report is to be submitted either when the approval expires on 5 October 2013 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to

the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this.

When communicating with us about this application, we ask that you use the application number and study title to enable us to provide you with prompt service. Should you have any further enquiries regarding this matter, you are welcome to contact me, by email at ethics@aut.ac.nz or by telephone on 921 9999 at extension 8860.

On behalf of the AUTEC and myself, I wish you success with your research and look forward to reading about it in your reports.

On behalf of Madeline Banda, Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Norbert Maass norbert.maass1@web.de, AUTEC Faculty Representative, Business & Law

Appendix E: Denotation of Questionnaire Items for Factor Analysis

Item in factor analysis (Table 5, p.50)	**Questionnaire item no.** (see questionnaire, Appendix C)
Intention1	1
Intention2	2
OrganisationalMandate1	3
OrganisationalMandate2	4
SocialPressure1	9
SocialPressure2	10
Usefulness1	5
Usefulness2	6
Usefulness3	7
Usefulness4	8
Compatibility1	12
Compatibility2	13
Image1	18
Image2	19
Image3	20
FacilitatingConditions1	21
FacilitatingConditions2	22
FacilitatingConditions3	23
FacilitatingConditions4	24
PowerDistance1	25
PowerDistance2	26
PowerDistance4	28

Appendix F: List of Public Service Departments that participated in the Survey

Agriculture & Forestry	**State Services Commission**
Archives	**Statistics New Zealand**
Building & Housing	**Transport**
Conservation	**Women's Affairs**
Corrections (excl. Prisons & Probation Services)	**Inland Revenue Department**
Customs	**Māori Development**
Economic Development	**PSA**
Education	**Internal Affairs**
Education Review Office	**Justice**
Environment	**Labour**
Fisheries	**Land Information New Zealand**
NZAID	**Culture and Heritage**
Foreign Affairs & Trade	**New Zealand Food Safety Authority**
Health	**Research, Science & Technology**
Social Development (excluding CYF, W&I)	**Serious Fraud Office**