

**A Study of Government Reform (Change)
Initiatives in the Khyber-Pakhtunkhwa
Region of Pakistan**

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Abstract

Whilst change management theories have significantly influenced profit-oriented organisations, their adoption by the public sector is less understood, particularly in developing countries (Kooskora, 2016). Reform failure rates in such countries are excessive compared with developed countries; a serious issue as such countries typically have limited resources to create public good. In response to this issue, this study aims to investigate key factors that enable or hinder employees' acceptance of recent change initiatives in the public organisations of Pakistan. The main objective of this research was to identify the challenges, barriers and opportunities hindering or supporting the adoption of public reforms in developing countries, with a specific focus on the KPK region of Pakistan. A review of the literature led to the development of a preliminary conceptual framework based on a robust Technology-Organisation-Environment (TOE) model developed by Tornatzky and Fleischer (1990), which provided a basis for further empirical research. The data was collected in two phases: (1) quantitative data was collected in the first phase to test the TOE-based framework using a survey questionnaire (300 public employees); and (2) qualitative data was gathered in the second phase via semi-structured interviews (three state ministers) and through public documents. While results indicated that two variables, legal and IT infrastructure, were found to be the most influential predictor of 'employees' intention to adopt change' and 'level of reform's success', economy was the least influential factor that affected the dependent variables. Moreover, demographic variables such as age, level of education and pay grade proved to be influential in determining employees' intention to adopt/implement change in Pakistan. Low status groups with lower levels of education showed a reduced propensity to adopt change, and resistance was found to be more salient in junior employees. Overall, the results of the current study show that the proposed model has a good explanatory power and is therefore robust in predicting change (reform) adoption/implementation in Pakistan. This study will contribute to the literature on change management in public organisations, particularly for developing countries such as Pakistan, and may assist the public managers, change leaders and practitioners of human resources management in assessing, designing, initiating and evaluating new or existing programmes for change (reform).

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This one is for you Bro!

Declaration

I hereby declare that no portion of this work has been submitted in support of an application for any other degree or qualification at this or any other university or institution of learning. In addition, I hereby confirm that, this thesis is solely my work and all work of others cited in this thesis have been acknowledged.

Signed:

A handwritten signature in black ink, appearing to be 'Kamran', with the name 'KAMRAN' printed in capital letters above the signature.

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List of Abbreviations

AGFI	Adjusted Goodness-of-Fit Index (Model appropriateness measure)
AMOS	Analysis of Moment Structures (Quantitative data analysis software)
AVE	Average variance extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index (Model appropriateness measure)
CM	Change Management
CR	Composite Reliability
DF	Degree of Freedom
ECO	Economy
EFA	Exploratory Factor Analysis
GFI	Goodness-of-Fit Index (Model appropriateness measure)
IS	Information Systems
IT	Information Technology
KMO	Kaiser-Meyer-Olkin (Sampling adequacy measure)
KPK	Khyber Pakhtunkhwa
LEG	Legal
MI	Modification Indices (SEM measure)
MNA	Member of National Assembly
NPM	New Public Management
OD	Organisational Development
ORGCUL	Organisational Culture
PCA	Principal Component Analysis
POL	Political
RMR	Root Mean Square Residual (Model appropriateness measure)
RMSEA	Root Mean Square Error of Approximation (Model appropriateness measure)
SEM	Structural Equation Modelling (Quantitative data analysis technique)
SMC	Squared Multiple Correlations (SEM measure)
SPSS	Statistical Package for Social Science (Quantitative data analysis software)
SR	Standardised Residuals (SEM measure)
SRMR	Standardized Root Mean Square Residual (Model appropriateness measure)
SRW	Standardised Regression Weights (SEM measure)
TEC	Technical Infrastructure
TM	Top Management
UK	The United Kingdom
US	The United States of America
VIF	Variance Inflation Factor

Chapter 1: Introduction

1.1 Introduction

This chapter begins by introducing the background of the topic under investigation (section 1.2), and proceeds to outline the research problem and purpose of the study (sections 1.3 and 1.4). It then highlights the general aim of the study, presents a clear statement of the objectives and research questions, and gives a brief indication of the methodology adopted to answer those questions (sections 1.5 and 1.6). Next, the significance of the research is identified before the chapter ends with an overview of the structure of the thesis (sections 1.7 and 1.8).

1.2 Study Background

Public organisations often need to implement changes in the governance, design and delivery of public services (Van der Voet, 2014; Rusaw, 2007; Baraldi et al., 2010; Fernandez & Rainey, 2006). Governments' efforts to change and improve (reform) public sector organisations have come into steep ascendancy over the past two decades in many countries around the world. This is a response to adverse economic challenges, rising administrative problems, a rapid global movement towards democracy and peoples' desire for a genuine change (Gelaidan and Ahmad, 2013; Sminia and Nistelrooij, 2006). Hence, managers in the public sector are increasingly required to manage change. However, most of the theories and models of change that are available to them come from the western world (Pettigrew et al., 2001; Kuipers et al., 2014) and are often developed from private sector experiences (Van der Voet, 2014; Piercy et al., 2013; Sminia and Nistelrooij, 2006; Rusaw, 2007). In order to understand the utility of such theories, there is a need to understand more about how the change process unfolds in the public sector, particularly in developing countries. A study of change in the public sector of the Khyber-Pakhtunkhwa (KPK) region of Pakistan as an example of a developing country is provided here.

The idea of an efficient public sector emerged in the 1980s when developed countries like the USA and UK began to focus on inefficiency in the public arena (Asquith, 1998). These public sector reform initiatives have been granted various names but share a goal of (changing) making government institutions more responsive to public needs by

abandoning bureaucratic processes and adopting effective management systems (Barzelay, 1992). In the 1990s, organisations such as the World Bank, International Monetary Fund, and Asian Development Bank connected the financial assistance provided to a number of developing countries with public sector restructuring. However, whilst public sector change seeks to improve organisational efficiency and effectiveness, benefits often fail to materialise due to hindrances and barriers in implementing changes. This has raised questions not just about *what* to change but *how* best to go about it. It has also focused attention on factors that might impede or aid reform efforts.

1.3 Purpose of the Study

This study is set to provide fresh insight into the process of a large-scale change programme being initiated in the public sector of Pakistan. The primary aim is to investigate the key drivers and barriers that stimulate or impede the public reform initiative in the KPK region of Pakistan and recommend strategies to leaders on how to overcome and manage the encountered forces in order to reduce the possibility of initiative failure and enhance the chance of its success. This will be accomplished in part, through the development of a change model.

As a starting point, the research will explore the phenomenon of the management of public reforms in Pakistan through the experiences and views of the people involved at the organisational level. The focus on this initiative will provide an opportunity to explore: the impact of the change process on the employees; perceptions and attitudes of employees towards change; the adoption and implementation of change at the institutional level, noting potential challenges and areas for support; and the submissions for improvement in the process of change management. Moreover, this research will assess the perceptions and views of key stakeholders involved at the sub-national level to form a comprehensive picture of the issues related to recent reforms.

While several studies have suggested that the specific characteristics of public sector organisations make implementation of change in these organisations different from the

private sector (Karp and Helgo, 2008; Korunka et al., 2003; Baraldi et al., 2010; Angel-Sveda, 2013; Sminia and Nistelrooij, 2006), recent studies do not take into account how the implementation of change is influenced by the specific context of such organisations (e.g. Isett et al., 2012; Liguori, 2012). In addition, implementing change (reform) initiatives requires a country to have a unique model/framework that fits its specific environment because despite similarities between government reform initiatives, one model cannot fit all (Pettigrew et al., 2001; Kuipers et al., 2014). Similarly, Coram and Burnes (2001) and Heeks (2001) suggest that there is no one best way and each country must find its own.

Pakistan has its own set of issues and problems (Bashir et al., 2011). For instance, bureaucratic tendencies in the system of governance, centralised decision-making patterns, complexity of redundancies in the public sector, lack of coordination and information sharing between the public organisations, lack of technological skills and the lack of an effective technical infrastructure can be considered as barriers in this context. This study will therefore attempt to examine critical factors that may impact successful implementation of public reforms in the KPK context. A better understanding of the factors that contribute to change (reform) adoption and implementation in the public sector is important (Troshani et al., 2011) and could inform others as they deploy such programmes in similar settings. Finally, it is hoped that findings from this study will be useful for policy makers at both the government and institutional levels to guide them towards taking better quality decisions and prepare the public sector for the process of change.

1.4 Statement of the Problem

Whilst organisational change management theories have had a significant influence on profit-oriented private organisations, their adoption by the public sector at government level is less understood and practised, particularly in developing countries. To fill this knowledge gap, it is vital to study the strategies used to take the government's reform agenda forward from the policy to the practice at the grassroots level. Presently, the Khyber-Pakhtunkhwa (KPK) province of Pakistan is in the process of major

Government-led reform. To date, little research has been undertaken to investigate how the Government is going about such change.

Studies have noted that developing countries have widely adopted approaches for public reforms formulated in developed countries with the insistence of international donors such as the International Monetary Fund or World Bank (Barima and Farhad, 2010; Batley, 2004; Polidano, 2001). Key to these approaches is the adoption of private sector based policies in the delivery of public services, which is commonly referred to as the New Public Management (NPM) (Moraru, 2012). The problem, however, is that these NPM-based policies are transferred to low-income states wholesale without adequately examining if specific organisational, political, technological, cultural and economic conditions for their effective implementation are available. As a result, most reform initiatives in developing countries have failed to achieve the desired results (see for example Sarker, 2006; Polidano and Hulme, 1999).

Public reform implementation in developing countries is likely to be different as the challenges are contextually different (Kuipers et al., 2014). However, the contextual factors constraining or facilitating transformation of public organisations in Pakistan, particularly the KPK region have not yet been measured. No study has been conducted to examine the mechanism of reforms and establish the extent to which these reforms have transformed public organisations. In addition, much more clarity is required on how public organisations from developing countries like Pakistan should adopt or implement change. As a result, studying the extent and scope of public reforms in Pakistan is deemed a worthwhile undertaking, especially in the absence of any comprehensive studies using a Pakistani context.

In addition, public management research concerning organisational change is often focused at the sector or national level, rather than the organisational level (e.g. Kickert, 2010; Askim et al., 2009; Pollitt and Bouckaert, 2011). Moreover, studies tend to emphasise the content of change, rather than the processes through which organisational change is implemented and the factors that hinder or support the change

(Kuipers et al., 2014; Van der Voet, 2014). The proposed study will attempt to fill the gap by exploring the critical factors that may affect the adoption and implementation of public reforms at both organisational and sub-national (provincial) levels, within the context of a developing country (Pakistan). The next section further explains the aims and objectives of the study.

1.5 Research Objectives

The principal aim of this research is to investigate key factors that enable or hinder public reform initiatives in the KPK region of Pakistan and provide subsequent change management recommendations for the benefit of leaders seeking to overcome and manage similar challenges. To accomplish this aim, the researcher will focus on achieving the following research objectives:

- To identify the challenges, barriers and opportunities hindering or supporting the adoption of public reforms in developing countries, with specific focus on the KPK region of Pakistan
- To assess the perceptions and attitudes of multiple stakeholders involved in the implementation process of reforms at both organisational and governmental level
- To develop and test a conceptual framework that portrays the critical factors that affect the change (reform) adoption and implementation in the Pakistani public sector
- To recommend strategies to leaders in Pakistan on how to overcome and manage the encountered forces in order to reduce the possibility of initiative failure and enhance the chance of success
- To provide guidelines that will help policy makers and managers to implement public reforms.

1.5.1 Research Questions

The aim of the study entails that the following questions are posed:

1. What are the key factors that support or hinder the adoption and implementation of change (reform) in the context of developing countries, specifically Pakistan?
2. How is the adoption and implementation of change by Pakistani public employees influenced by demographic factors?
3. What is the level of validity of the proposed factors (drivers & barriers) in Pakistan in terms of reform adoption and implementation?
4. How do known factors influence public reform (change) and are there additional factors to consider when undertaking reform in Pakistan?
5. How can leaders and change managers in Pakistan overcome change barriers and improve future reform projects?

1.6 Overview of the Research Methodology and Methods used

In the present research, two main research phases are conducted, namely an exploratory phase and explanatory phase. At the first (exploratory) phase, an investigation process is conducted to gain a deep understanding of the phenomenon via a literature review and an exploratory investigation. Based on the exploratory phase's findings, research constructs are identified; and the study framework is formulated in a design process. In the second (explanatory) phase, a testing process intends to empirically test the research framework. It is followed by an analysis process, in which various analytical techniques are conducted. Both primary and secondary data were collected and analysed using quantitative and qualitative approaches at different stages of the study.

The analysis of quantitative data (Survey) for the study consists of three major stages. In the first stage, the content and the relevance of the multi-item scales were refined on the basis of quantitative data gathered from the sample populations. In the second, scales were validated using confirmatory factor analysis (CFA) via structural equation modelling (SEM). Lastly, theories were tested using analysis of moment structure (AMOS) 22.0 version software through structural equation modelling. Later, qualitative data (interviews), collected from the ministers was analysed using NVivo software version 11.0. A comprehensive discussion and justification of the research methodology

and methods used is addressed in Chapter 4.

1.7 Significance of the Study

Governments throughout the world invest a great amount of resources in change (reform) projects, yet they struggle to make their attempts succeed. The rate of reform failure is very high in developing countries compared with developed countries (Sarker, 2006; Akeel and Subramaniam, 2013). This is a serious issue for developing countries including Pakistan, which has limited resources to bring about public good.

The fact that Pakistan's public debt as a percentage of GDP has already reached 59.5% (State Bank of Pakistan, 2012), does not allow the Government to take the risk of implementing a large-scale reform project and then fail. Recent provincial reform in KPK is considered to be the largest change project in Pakistan, influencing almost 27 million people (Government of Khyber Pakhtunkhwa, 2014). This means that it can easily consume a huge amount of the government's budget in order to provide the needed infrastructure which includes equipment, hardware, technical infrastructure, software, training, awareness campaigns, etc. Thus, policy makers must be aware of potential barriers, so they can be better prepared to overcome these challenges and ensure that public money is used effectively.

Learning about the forces that can either slow or accelerate the development of the reform in Pakistan represents an opportunity for leaders and decision makers. They can increase the chance of a successful implementation of the project by working on sustaining, enhancing, and improving the identified drivers. They also can reduce the possibility of the initiative failure by trying to search for solutions to overcome or decrease the identified barriers. Ultimately then, this study should help improve the quality of decision making associated with public reform and change management.

In addition, it is anticipated that this project will extend the knowledge of public reform in developing countries by exploring the range of factors influencing the adoption and implementation of change in public organisations in Pakistan. In particular, the project is

expected to identify issues such as technical, organisational and environmental factors. Moreover, the study is set to develop a change model that could help Pakistan, as well as other countries with a similar context, in the decision-making process for planning and implementing effective government reforms. In conclusion, this research is novel and contributes to knowledge because:

- With access to key officials, managers and staff secured, it is the first study to explore factors affecting change (reform) in the KPK's state government departments
- Practising managers and policy makers seeking to overcome and manage similar challenges can use findings and recommendations as a guide to improve the quality of future (reform) decision making
- Findings should benefit similar developing countries, and
- It brings empirical evidence from a relatively new cultural context taking into account that most of the studies have taken place in developed countries such as UK and USA.

1.8 Thesis Outline

The study presents a detailed discussion related to the purpose, structure, methodology, analysis, findings and recommendations of the critical factors of change (reform) adoption and delivery in both theory and practice. This study is conveniently divided into 8 chapters, the contents of which are summarised below.

Chapter 1: Introduction

The first chapter is the introduction of the research study. It provides an overview of the research with a clear statement of: the research problem, aim, objectives and research questions. The chapter also highlights the significance of the research and contribution to knowledge. Finally, the outline of the study is provided.

Chapter 2: Literature Review

This chapter reviews existing literature on organisational change, factors impacting change, the role of the employee in organisational change and employees' impact on readiness and resistance to change. It also provides information about the nature of change and innovation in public sector organisations, including impediments to successful reform. Finally, a gap in the research is identified and discussed.

Chapter 3: Research Framework

Chapter three establishes the conceptual framework for the study, which is based around critical factors influencing the adoption of change (reform) in the context of a developing country. Justification for using the framework is provided and factors/sub-factors are explained. The main purpose of the proposed conceptual framework is to be used as a road map for empirical data collection and analysis, and to establish a comprehensive overview of change adoption and implementation in a Pakistani context.

Chapter 4: Research Methodology and Research Design

This chapter introduces the research methodology adopted in this study. The chapter starts with a general overview of research methodology. It discusses one of the important stages in any research project, which is selection of an appropriate methodology. Then, the chapter discusses the research design for this study, including qualitative and quantitative research methodologies. It furthermore includes a comparison between their methods and their strengths and weaknesses, and a discussion about the triangulation method. The chapter also addresses both the quantitative approach using a questionnaire-based survey (development, pilot study, translation, and the sample), and the qualitative approach using a case study. The data-gathering process is fully described, including that associated with the pilot study. Issues relating to validity and reliability of data collection are discussed. Moreover, the target population and sampling strategy in each phase are described, and data analysis techniques are presented. The chapter ends by discussing ethical considerations made in the study.

Chapter 5: Quantitative Data Analysis

This chapter presents the analysis and findings of the phase one research (questionnaire-based survey). The researcher uses the Statistical Package for Social Sciences (SPSS 22) to run tests on the questionnaire answers. The chapter begins with data management, data screening, demographic characteristics, factor loading, exploratory factor analysis and multiple regression analysis. It then presents structural equation modelling, assessment of model fit and conclusion.

Chapter 6: Qualitative Data Analysis

Chapter 6 presents the analysis of the qualitative data gathered through semi-structured interviews with KPK's Key Ministers, and offers further confirmation of the research model. It also provides explanations for the results obtained. The chapter begins by presenting the demographic profiles of the interviewees, and then proceeds to report the findings relating to the factors that influence the adoption of change in Pakistan. Finally, the chapter presents a model of change based on qualitative findings using NVivo 11 software.

Chapter 7: Discussion

This chapter provides an interpretation of the main findings of both research phases (quantitative and qualitative) in light of the literature reviewed in Chapter 2 and chapter 3. It concentrates on how these findings provide answers to the research questions, and thus satisfy the first three objectives of the study.

Chapter 8: Conclusion

The final chapter summarises the key findings of the research, draws a conclusion based on these findings, discusses the limitation of the research, presents theoretical and managerial implications, and highlights the contribution to the existing body of knowledge. Additionally, the concluding chapter provides guidelines that will help policy makers and managers to implement public reforms effectively, which is the final objective of the study. Finally, suggestions for future research are offered.

Having now outlined the background, purpose, significance and structure of this study, the relevant aspects of our current knowledge of change management will be considered next in the literature review section. Following this, research methods and strategies will be considered.

Chapter 2: Literature Review

2.1 Introduction

The previous chapter provided the purpose and aims of the study. This chapter is set to review the literature about change and reform. Three bodies of literature are to be examined. The first (sections 2.2 and 2.3) deals with the overview of organisational change and the approaches to change management. It considers the many definitions of change, outlines the major stakeholders and highlights the different stage models available for change management. The second body of literature (sections 2.4, 2.5 and 2.6) relates to the importance and emergence of public reforms, including a discussion of the differences between private and public sector organisations with regards to change management. Then it describes public reforms within developing countries particularly Pakistan (research context). The third (sections 2.7, and 2.8) involves a discussion of the various drivers and barriers of change (reform) adoption in both developed and developing countries. Then it describes the role of employees in organisational change and reasons behind their decisions to adopt or resist change. It also identifies three sets of factors related to change in public sector organisations (Technical, Internal-Organisational and External-Organisational). Finally, research gaps in current knowledge are identified and discussed.

2.2 Organisational Change: An Overview

Change is a phenomenon that individuals and organisations face on a daily basis (Gelaidan and Ahmad, 2013). According to Burnes (2004), change is an ever-present feature of organisational life, at both an operational and a strategic level. Thus, it is very important for an organisation to have the ability to identify where it needs to be in the future, and how to manage the changes required to get there (By, 2005). Consequently, organisational change cannot be separated from organisational strategy, or vice versa (Burnes, 2004). Organisational change may be considered as a transformation between two points in time with the key ability to compare the organisation before and after the transformation (Barnett and Carroll, 1995). Similarly, Chonko (2004) and Smith (2005) explain that organisational change is about shifting from the current known state to a new unknown state or it is concerned with breaking down existing structures and creating new ones.

Almost no other organisational problem has attracted as much attention as organisational change, and change management has been highly appreciated as a response (Wetzel and Gorp, 2014). Change has become the norm for organisations seeking to retain their success and continued existence (Al-Haddad and Kotnour, 2015). Every company is constantly undergoing some form of alteration from minor tweaks to seismic shifts (Ramsey, 2015). As a result, industrial and governmental organisations are constantly striving to align their operations with a continuous changing environment (Burnes, 2004; By, 2005; Balogun and Hailey, 2008; Kotter, 1996; Burnes and By, 2012). Reflecting the importance that organisational change holds in the present-day business environment, there is a vast and still growing body of academic research focusing on this topic (Schwarz, 2012). Research about organisational change mostly concerns topics like change types (Al-Haddad and Kotnour, 2015), change processes (By, 2005), change approaches (Burnes, 2004; Bright and Godwin, 2010), leadership (Kavanagh and Askkanasy 2006; Kuipers et al., 2014), change implementation (Van de Ven and Sun, 2011), change adoption (Harfoushi et al., 2010), and change resistance (Paren, 2015; Canning and Found, 2015).

Changes might be small or large but are concerned with improvement, variation, alteration or modification within organisations. Small-scale change is easier to initiate and manage, and does not require the level of leadership and resources needed in large-scale change (Boga and Ensari, 2009; Marker et al., 2014; Paren, 2015). However, large-scale change such as public reform requires high levels of organisational resources, adequate strategy, clear roles and aligning processes, and a sufficient workforce (Bennett and Segerberg, 2012; Kotnour et al., 1998). Furthermore, large-scale change engages all stakeholders in the change process and requires strong collaboration, cooperation and visionary leadership in order to succeed (Al-Haddad and Kotnour, 2015; Boga and Ensari, 2009; Boyd, 2009; Oldham, 2009).

Earlier we noted that, organisations change and adapt continuously to remain competitive and yet successful organisational change seems to be rare (Pieterse et al., 2012; By, 2005). The failure rate of change initiatives is more than 70 % (Burnes, 2004;

Cummings and Huse, 1989; Burnes and Jackson, 2011) and more recent research notes this rate is not improving (Canning and Found, 2015; Decker et al., 2012; Jacobs et al., 2013). Low success rates indicate a constant need for investigating and finding factors that can increase the probability of successful organisational change and debatably imply the lack of a valid framework for implementing organisational change (Al-Haddad and Kotnour, 2015; By, 2005).

It can be seen that change management is a significant challenge for organisations, and how to achieve it during economic crises is a question being asked by many organisations (Ashurst and Hodges, 2010). Many authors have proposed approaches to implement change; however, in recent years, it has become more recognised that one or even two approaches to change cannot cover the vastly different change situations (Burnes and Jackson, 2011). Thus, the growth in theories and approaches dealing with change requires a framework that integrates and categorises the various approaches. Moreover, change approaches need to be continuously evolving to align with the organisational and environmental factors (Al-Haddad and Kotnour, 2015).

2.3 Approaches to Change Management

The ability to implement change is crucial for both public and private organisations in order to survive and succeed in the present highly competitive and continuously evolving business environment. (Popara, 2012; Hurn, 2012; Yilmaz et al., 2013; Hashim, 2013; By, 2005). Though there are many different approaches to adopt/implement organisational change, there is a general agreement that the two dominant ones are the emergent and planned approaches (Burnes, 2004; Bright and Godwin, 2010; Burnes and By 2012; Gelaidan and Ahmad, 2013). The planned approach emphasises top-down control, whilst, emergent change emphasises bottom-up action in commencing and implementing organisational change (Bamford and Forrester, 2003). However, strategies for change management and organisational development mostly rely on the planned approach (Cummings and Worley, 2008; Mitchell, 2013).

Planned change has dominated the theory and practice of change management for many years (Bamford and Forrester, 2003). This approach views organisational change as a process that moves from one 'fixed state' to another through a series of pre-planned steps. Thus, the planned approach emphasises the importance of understanding the different stages that an organisation has to go through to move from an unsatisfactory present state to the desired future state (Eldrod II and Tippett, 2002). Planned change initiatives can resolve issues faced by organisations that arise from dissatisfaction with the status quo (Gelaidan and Ahmad, 2013).

The idea of planned change has led to several models for implementing change. All these models contain a sequence of phases or stages; therefore, they are called 'stage or step models' for change. The most renowned and cited stage/step model of planned change is Lewin's (1951) three-stage model, which is still extremely relevant. His proposed model includes three successive stages, which are unfreezing, changing, and refreezing (Mitchell, 2013; Shirey, 2013). This approach recognises that, before any new behaviour can be adopted successfully, the old one must be discarded. Only then can the new behaviour be fully accepted.

In order to enhance its practical relevance and application, various scholars have extended Lewin's three-stage model of planned change. For example, Schein (1987) improved Lewin's model by adding and describing the psychological mechanism for each stage of the model. Lippitt et al.'s (1958) seven-phase model, Cummings and Huse's (1989) eight-phase model and Conner's (1992) three-phase model are also based on Lewin's planned approach to implement change. Lewin's work was likewise expanded and modified by Rogers (2003), who described five phases of planned change: awareness, interest, evaluation, trial and adoption.

Lewin's change model may be logical, rational and goal orientated but its critics argue that it is too simple and does not offer practical information for implementing change in practice (McGarry et al., 2012; Bond, 2013). In addition, Lewin's model is based on the assumption that organisations operate in constant conditions, and that they can be

easily moved from one stable state to another (Bamford and Forrester, 2003). In response to this criticism of Lewin's planned approach to organisational change, Kotter (1996) proposed an eight-step change model that can be used for all organisational changes no matter how small, large or complex they are. Kotter's proposed eight-step model is as follows (Table 2-1).

1	Establish a sense of urgency – <i>the need to change.</i>
2	Create a guiding coalition – <i>with authority and credibility.</i>
3	Develop a vision and strategy – <i>a clear aim and way forward.</i>
4	Communicate the change vision – <i>promote understanding and commitment.</i>
5	Empower broad-based action – <i>enable people to act and overcome barriers.</i>
6	Generate short-term wins – <i>to motivate and ensure further support.</i>
7	Consolidate gains and produce more change – <i>maintain change momentum.</i>
8	Anchor new approaches in the culture – <i>new values, attitudes and behaviours.</i>

Table 2-1 Kotter's (1996) Eight-Step Change Model

A significant feature of Kotter's model is the role of leadership, particularly in developing and communicating the vision for change, which is critical to effective transformational leadership, and management of change in large-scale organisations (Rees and French, 2016). Moreover, Kotter's model provides a clear roadmap and step-by-step guidance for implementing planned organisational change. However, it offers a very lengthy process, and organisations might not have enough time and resources to commit to it. Moreover, if any one of the eight steps is not worked through properly, the entire process of change may be affected.

Although there is an ever-growing generic literature emphasising the importance of change and suggesting methods to approach it, very little empirical evidence has been provided in support of the different theories and approaches suggested (By, 2005). In Table 2-2, diverse change adoption and implementation models are organised and summarised. Different models from different decades, doctrines and disciplines are chosen to form a comprehensive picture of the issue.

References	Stages/Phases					
Three-step Change Model (<i>Lewin, 1951</i>)	Unfreezing	Change (or Moving)			Refreezing	
Innovation Adoption Model (<i>Pierce & Delbecq, 1977</i>)	Initiation	Adoption			Implementation	
Change Implementation Model (<i>Dawson, 1994</i>)	Conception of the need to change	Organisational transition			Operation of new practices	
Four phase change adoption process (<i>Darmawan, 2001</i>)	Initiation	Adoption	Implementation		Evaluation	
Change adoption and implementation (<i>Gallivan, 2001</i>)	Primary authority adoption decision	Secondary adoption and organisational assimilation			Organisational acceptance and consequences	
Change/Innovation adoption model (<i>Frambach and Schillewaert, 2002</i>)	Awareness	Consideration	Intention	Adoption decision	Continues use	User Acceptance
Change Implementation Phases (<i>Carnall, 2007</i>)	Beginning		Focusing		Inclusion	
Stages of Planned Change (<i>Conner, 1992</i>)	Present stage		Transition Stage		Desire Stage	
Change Adoption Model (<i>Rogers, 1995</i>)	Knowledge of change	Attitude towards change	Adoption Decision	Implementing change	Confirmation of Decision	

Table 2-2 Stage Models for Change Adoption/Implementation

Stages of change can be categorised into three broad segments, namely: pre-implementation, implementation and post-implementation stages, although specific theorists have characterised them differently with fewer or more details as shown in Table 2-2. At every stage of the change process, appropriate strategies need to be generated and reflected on and so there is a constant process of rethinking, redesigning and repositioning the approach and strategy of change management. The next section discusses change management strategies for public organisations.

2.4 Change (Reform) Management in Public Organisations

The term public sector refers to the part of the economy that is owned and controlled by the state on behalf of the public (Kelly and Ashwin, 2013; Domingues et al., 2017;

Wetherly and Otter, 2011). According to Angel-Sveda (2013), public institutions are organised structures created in society to manage public businesses. He further explains that public institutions are based on the following conditions: legal, technological, economic, political, demographical, ecological, and cultural. Compared with private organisations, public organisations are more characterised by a multitude of decision-makers, by a larger miscellany of stakeholders, by more challenging organisational dynamics and by a more bureaucratic organisational design (Domingues et al., 2017; Boyne, 2002; Korunka et al., 2003; Baraldi et al., 2010; Angel-Sveda, 2013; Sminia and Nistelrooij, 2006). There are also a number of theoretical differences between private sector organisations and public sector organisations, when it comes to change adoption and implementation (Popara, 2012; Cunningham and Kempling, 2009; Boyne, 2006; Coram and Burnes, 2001; O'Brien, 2002). Both public and private organisations initiate change for distinct reasons (Safdar, 2012; Boyne, 2006); thus, change approaches that are adopted by the public sector but which have been developed by the private sector can lead to contradictory results (Sminia and Nistelrooij, 2006). A failure to consider and respond to the distinctiveness of the public sector context can present major problems when implementing change/reform (Piercy et al., 2013).

Reform means change and the words are used interchangeably in the public management literature (Melchor, 2008). The reasons for strategic change (reform) in the public sector are mostly found in exogenous jolts such as changing policies, new legislation, technological change and top management replacements or reorganisations such as the joining or the breaking up of public agencies (Sminia and Nistelrooij, 2006). In order to overcome these kinds of development, public organisations generally have a tendency of adopting top-down approaches to implement change, which is particularly appropriate because the top leadership is in the best position to initiate organisational change (Cummings and Worley, 2008; Pollitt and Bouckaert, 2011; Angel-Sveda 2013). On the other hand, several commentators have argued that a bottom-up approach with active participation of all employees is essential for reducing resistance, generating commitment and bringing people on board (Cummings and Worley, 2008; Bennis, 2009;

Poister et al., 2010; Bamford and Forrester, 2003). Thus, a merely top-down approach with little or no involvement of people is less likely to implement change successfully (Hickson et al., 2003; Amabile and Khaire, 2008) but a mixture of both approaches is hard to implement as different case studies have shown (Bate et al., 2000; Coram and Burnes, 2001; O' Brien, 2002; Burnes, 2009).

Change (reform) in public organisations is a very complex issue, because public organisations are strongly influenced by political and legislative factors (Angel-Sveda, 2013). In organisational development and change management literature, public sector organisations are frequently presented as a 'special case', portraying the impression that bringing about change in government organisations is significantly more difficult than it is in the private sector (Junge et al., 2006). There are several principles, which provide a holistic framework for implementing change in public organisations (Popara, 2012; Cunningham and Kempling, 2009; Kotter, 2010). These principles include forming a guiding coalition, responding to people who might be resistant to change, establishing a need for change, articulating envisioned outcomes, establishing a process to implement the plan, developing a commitment plan, managing by walking around and changing structures and HR systems.

Whilst organisational change appears to be happening with increasing frequency in both the public and private sectors, most of the major studies of change focus on the private sector and tend to derive their approaches from that sector (Piercy et al., 2013; Coram and Burnes, 2001). Recent studies have thus questioned to what extent private sector change management techniques are applicable in a public sector context, and have suggested that the differences between the public and private sector could play a role (Piercy et al., 2013; Burnes, 2009; Coram and Burnes, 2001; Boyne, 2006; Rusaw, 2007; Karp and Helgo, 2008). Van der Voet (2014) further emphasised that the literature has two substantial shortcomings. According to him, most of the studies are based on a case-based design using qualitative methods. A second shortcoming concerns the lack of empirical evidence about the specificity of organisational change in the public sector (Van der Voet et al., 2013). Moreover, change management studies

have addressed the role of contextual factors during organisational change (Pettigrew et al., 2001; Van der Voet, 2014), but not the specific contextual characteristics of public organisations (Kuipers et al., 2013). Similarly, Kickert (2014) argues that most literature on the management of organisational change refers to private-sector commercial organisations and mostly in the context of U.S./Anglo-centric organisational literature. Therefore, public sector organisations need to adopt an approach to implement change that matches their own needs and situation (Van der Voet, 2014; Coram and Burnes, 2001).

In general, therefore, it seems that the specific context of public organisations can have consequences for the management of organisational change; however, there is little empirical evidence concerning this issue. It is also important to note that theories of change are culture bound. What works in one country may not necessarily work in another as not all theories can be readily transferred from country to country, a point emphasised by Hofstede (1980) who queried whether American theories apply abroad. The degree of fit (congruence) will be dependent upon many factors, including the cultural distance between countries and various other contextual factors. The Contingency theory of organisation is a perspective arguing that, to be effective, an organisation must adjust in a manner consistent with the environment in which it operates. Contingency theories contend there is no one best way of managing (Luthans and Stewart 1977; Pettigrew et al., 2001; Kuipers et al., 2014).

The idea of introducing change in the public sector first appeared in the 1980s when developed countries like the UK and USA started focusing on improving public sector organisations (Baraldi et al., 2010; Gultekin, 2011). Since then, change initiatives in public sector organisations have been given different names such as reengineering process, total quality management, organisational culture change, post bureaucracy or new public management (Butt et al., 2013; Heyer, 2011). This idea of public reform was driven by political, social, economic and institutional forces and was based on six main pillars, which are (Kettl, 2005): (1) Productivity: governments need to offer more services to citizens with less cost to tax payers. (2) Marketization: governments need to

eliminate bureaucracy by imitating the private sector marketing strategies. (3) Service orientation: governments are trying to follow in the footsteps of the private sector in connecting with customers by adopting a citizen-centric approach. (4) Decentralisation: governments attempt to better distribute power, which allows more responsive services for the need of its citizens. (5) Policy: governments focus on policy making rather than trying to deliver these policies through their bureaucratic systems by bringing in a third party to deliver these services under their supervision. (6) Accountability: governments need to concentrate on the outcome instead of the processes by substituting the top-down, rule-based scheme with a bottom-up, results-driven scheme.

One of the most commonly adopted approaches in public reform is New Public Management (NPM), which emerged to replace traditional public administration in response to the inadequacies of the traditional models of public management (Mongkol, 2011; Zaharia, 2012; Vries and Nemec, 2013). There are several definitions available for NPM, the common element being 'the implementation of management ideas from private sector into the public sector' (Moraru, 2012). The main purpose of NPM was to deliver an improved performance and save public expenditures (Pollitt and Bouckaert, 2011; Mongkol, 2011).

There is no leading approach that challenges the NPM movement (Diefenbach, 2007) although NPM has been criticised by several authors (see for example Polidano and Hulme 1999, Gultekin, 2011; Mongkol, 2011). Besides NPM, various other approaches and models have been presented for public sector reforms. Kettl (2005) suggests three models. The first is the Westminster reform model, which means a government needs to downsize its scope and operations by sub-contracting or by privatising different projects. The second is the American reform model, which means a government seeks efficiency rather than downsizing its scope. The third is the Hybrid style model, which means shifting the Westminster style to build up financing while keeping the government scope as it is.

The scope of NPM and other approaches to implement public reforms is restricted to developed rather than developing countries. Thus, these approaches usually do not consider factors such as extremism or conflict between federal and provincial governments, which is often the case in Pakistan. Even though NPM type approaches may not be a panacea for the problems of the public sector in developing countries, a careful and selective adaptation of some elements to selected sectors may be beneficial.

2.5 The Research Context (Pakistan)

In this section, background information about the research context (KPK region of Pakistan) is presented. It provides information about the characteristics, history, political system, economy, resources, and culture of Pakistan.

Pakistan became independent on 14th August 1947. It is located in the region of South Asia bordering the Arabian Sea, between India to the East, Iran and Afghanistan to the West and China to the North. It is one of the most densely populated countries in the world, comprising 162 million people, making it the world's sixth most populous country and second most populous in the South Asia region (World Bank, 2006). According to Sawahel (2009), Pakistan has a high proportion of young people, about 85 million below the age of 19, or 54% of the total population. The country has eight administrative units, four of which are provinces (Khyber-Pakhtunkhwa (KPK), Sindh, Baluchistan and Punjab). According to the Government of Pakistan (bureau of statistics, 2017), KPK has 26 districts with a population of 27.3 million. The following map shows different districts and major road connections of the KPK region.



Figure 2-1 Map of the KPK Districts

Source: Available at <http://pamirtours.pk/maps/PD%20Maps/kpk%20districts%20map%202.htm#axzz4h986JgWh>

Following the devolution of greater responsibility and financial resources to the provincial authorities; within Pakistan, the Government of Khyber Pakhtunkhwa (GoKP) set out to deliver an extensive programme of provincial reforms in a region characterised by poor service delivery and high rates of poverty and inequality. Khyber-Pakhtunkhwa is one of the most deprived regions of Pakistan and experience significant barriers to development and economic growth. Moreover, KPK has become a conflict region and unsettled area during post 9/11 era. According to Crawford (2011), the armed conflicts in Pakistan, particularly KPK escalated in recent years for two basic reasons. First, the U.S. war in Afghanistan pushed some Afghanistan Taliban and al-Qaeda into KPK (Pak-Afghan border) after 2001. Taliban and al Qaeda have then used KPK as a base to plan and conduct insurgency in Afghanistan. Second, NATO ISAF has used Pakistan as a route to bring weapons and equipment into Afghanistan. The supply lines traverse the country and insurgents have attacked the convoys (Crawford, 2011).

Pakistan has lost 49,000 lives since the apocalyptic attacks on World Trade Centre and Pentagon in the United States on September 11, 2001 (Raja, 2013). Furthermore, KPK can be characterised by high rates of poverty and illiteracy and significant security challenges. In 2005, the primary education net enrolment rate in Khyber Pakhtunkhwa was just 47%, compared to a national average of 52%, while the adult literacy rate was 10% lower than the national average (OPM, 2017).

The GoKP's Provincial Reform Programme (PRP) was established in 2006/07 to address these issues by improving capacities within the public organisations to design and deliver effective and sustainable public services (OPM, 2017). The main features of the reform programme are 1) accelerating human development through education and better health; 2) addressing disparities in development across genders, rural-urban divide and across regions, and developing social safety nets for the most deprived in society; 3) invigorating private sector business activities in the province; and 4) enhancing the efficiency of public expenditure and improving social services delivery by improving governance and enhancing accountability (OPM, 2017). This programme

arose in response to the government's request for continued support for its Provincial Reform Programme (PRP).

As noted by Baraldi et al. (2010), the public sector plays a vital role in the growth and development of an economy by undertaking national level public service responsibilities. The efficient functioning of 'government machinery' is imperative for the maintenance of the social and economic order of a developing country. Yet Mahmood (2009) paints a dire picture of Pakistan in the new millennium claiming problems of mismanagement and inefficiency. Malfunction was the norm not the exception in the bureaucratic structure of Pakistan, he claims. The crisis of governance in Pakistan mainly stemmed from a deficient federal system and over centralisation of power in the national government (Mahmood, 2009). In addition, misuse of entrusted power for private benefit is unfortunately endemic in Pakistan (Javaid, 2010). No structure, no tier and no office of public sector is immune from it and its spread is enormous.

Due to a constant lower performance of its public sector institutions, the KPK Government initiated a process of reforms and recognised the recommendations of a task force in respect of organisational development, improving access and promoting excellence (Government of Khyber Pakhtunkhwa, 2014). However, these reforms faced a lot of opposition from various stake holders, particularly from public sector employees. Despite this resistance, the government intends to further change the culture of the Pakistani public sector considerably. Therefore, a 'reform cell' was established in mid-2013 to oversee reforms in KPK, (for an overview see Janjua, 2015). This shows that the Government of KPK is committed to improving public service delivery. It is aware, however, that governments throughout the world invest a huge amount of resources in change (reform) projects, yet struggle to make their attempts succeed. The rate of reform failure is very high in developing countries compared with developed countries (Sarker, 2006; Akeel and Subramaniam, 2013). This is a serious issue for developing countries including Pakistan, which has limited resources to bring about public good. Thus, policy makers must be aware of potential barriers, so they can be better prepared to overcome these challenges and ensure that public money is used effectively.

2.6 Change (Reform) in Pakistani Public Organisations

The public sector is being restructured all over the world, and Pakistan is no exception. Even though the basic purpose of implementing change in the public sector is to improve organisational performance, barriers in adopting or implementing such changes may also arise due to socio-political and economic differences among countries (Bangura, 2000). Low-income and high-income countries differ mainly on the content and depth of change (reform) initiatives (Baraldi et al., 2010).

In comparison with developed countries, it has been shown that public reforms are difficult to implement in developing countries that are largely donor-dependent and rife with market failures due to weak capacity and parochial methods of work (Bangura, 2000). Pakistan being a developing country faces similar problems regarding public sector transformation (Baraldi et al., 2010; Asmi et al., 2017).

Thus far, only a few empirical studies regarding public reforms have been conducted in the Pakistani context. For example, Shah (2011) investigated employee commitment to the organisation and career and social relationships factors in public sector higher educational institutions in Pakistan. Similarly, Baraldi et al., (2010) conducted a study investigating the mediating role of commitment to change on the relationship between role ambiguity / job insecurity and behavioural support for change. The researchers found that raising employees' commitment to change could reduce ambiguity and job insecurity during public reforms. Another study in this context was conducted by Butt et al. (2013), which aimed to highlight the factors that can have profound influence in transforming public sector organisations in Pakistan. The researchers observed that leadership and information technology have a considerable impact on organisational transformation. Furthermore, Farooqi (2013) evaluated the relationship between decentralised service delivery arrangements and the institutional performance of local government in Pakistan; she found that decentralisation reforms in developing countries need strong political and bureaucratic commitment for real autonomy to be transferred down the hierarchy. Finally, a more recent change study in the Pakistani context investigated the effect of trust and social influence on the adoption behaviour of citizens

in relation to Government reforms (Asmi et al., 2017). The author found that trust is the strongest predictor for citizens' intention to adopt/reject change.

A review of the organisational change management literature in the Pakistani context shows that the earlier conducted studies are based mainly on private sector experiences. Very limited studies are available in the context of public reforms and these are mainly based on citizen and not government perspectives. In addition, no study has been conducted at sub-national (provincial) level particularly in the context of KPK.

The long-standing demand of the four provinces of Pakistan for provincial autonomy received a boost in 2010 from the 18th amendment to the country's constitution. The amendment sought to reverse what many called the sweeping centralisation of the Pakistani state (Sattar, 2010). However, the ultimate impact of the changes depends on the extent to which the provinces are able to rise to the challenge of the new powers with which they have been vested and the overall ability of the provincial governments. Against this backdrop, KPK's provincial government has initiated a large-scale change programme which is being implemented in public sector organisations. No study has been undertaken to investigate how the Government is going about this change (reform). However, this study will explore the extent and scope of the recent reforms from the stakeholders' perspective and will shed light on the key factors (drivers and barriers) of change at organisational and sub-national (provincial) levels.

2.7 Factors for Adoption/Implementation of Change in the Public Sector

The change management literature defines a range of broad factors that influence the change adoption/implementation process in public organisations. For example, a study conducted by Thomas (2006) revealed several variables that affected the successful adoption and implementation of a patient safety policy in the Canadian healthcare sector, such as adequate resources, the existence of incentives to support or resist change, and the responses of multiple stakeholders. Similarly, Fernandez and Rainey (2006) suggested eight key factors and propositions that they believe should serve as a

compass for public sector practitioners seeking to find their way amid the sustained, persistent and challenging pressures for change they confront daily. Their proposed factors are: ensure the need, provide a plan, build internal support, ensure top management commitment, build external support, provide resources, institutionalise change and pursue comprehensive change.

A study by Balogun and Hailey (2008) identified eight contextual factors influencing organisational change: capability, time, scope, preservation, power, diversity, readiness and capacity. Likewise, Blackburn (2014) identified nine critical factors that affected the successful implementation of reforms in the Tasmanian public sector: vision, establish a sense of urgency, recognise resistance, communication, alignment of people and goals, adequate training, strong leadership, ownership and embed the change in the culture. Dalin (1993 as cited in Razzaq, 2012) mentioned four barriers to organisational change: value, power, psychological and practical barriers, while Leigh (1988) used different categories for the sources of resistance to change, namely cultural, social, organisational and psychological factors. These factors can be grouped into two broader categories: the technical and attitudinal/behavioural. The technical factors are comparatively easier to handle as appropriate training and practice can address them, while change in people's values, beliefs and behaviours is hard to realise and becomes a sensitive issue (Elias, 2009). As a result, the focus of the literature related to organisational change management has been concentrated on employees' attitudes, behaviours and perceptions, which depend upon their past experiences and future perspectives (Bernerth, 2004; Litwin, 2011; Liu et al., 2012). One of the most documented findings from studies of employees' attitude, organisational behaviour and change management is that organisations and their members resist change (Canning and Found, 2015; Robbins et al., 2001; Burnes and Jackson, 2011; Decker et al., 2012; Jacobs et al., 2013). Paren (2015) found that employees' resistance to adopting change is often the prime reason for change (reform) failures. Resistance to change is further discussed in detail in section 2.8.

Cunningham and Kempling (2009) developed a list of change principles based on a review of the popular and research literature on organisation change. The resulting nine principles (see Table 2-3) are based on the practical and academic experiences of the authors.

1. Forming a guiding Coalition	To what extent does the change have leaders, managers and workgroups who have championed the change and have time and resources to carry it out?
2. Recognising and responding to resistance	To what extent have we taken steps to identify and respond to key resistances?
3. Establishing a need for change	To what did managers identify and focus on a clear need for change?
4. Articulating envisioned outcomes	To what extent have we articulated our vision of where we are going?
5. Establishing a process to implement planning	Is there a process of implementation identified where objectives and projects are assigned and reported on and which emphasizes feedback and adaptation?
6. Focusing on continuous improvement	Is there a process of problem solving and continuous improvement?
7. Developing a commitment plan	Is there a process that communicates the various outcomes as they emerge?
8. Managing by walking around	To what extent does the informal system illustrate and support the change?
9. Changing structures and HR systems	To what extent have structures and systems been altered to institutionalise the change?

Table 2-3 Principles for Changing Public Sector Organisations

Source: Adopted from Cunningham and Kempling (2009)

Cunningham and Kempling (2009) further proposed that certain change principles might be more important than others. Table 2-3 indicates that such principles might be grouped as input principles or those that were necessary for change to begin. These include: forming a guiding coalition, recognising and responding to resistances, establishing a need, and articulating envisioned outcomes. A second set of principles might be concerned with the process or way the change is facilitated. These principles might include: establishing a process, focusing on continuous improvement, and developing a commitment plan. The final set of principles might illustrate the success of the change. These include: managing within an informal process of walking around, and changing structures and human resource (HR) systems (Cunningham and Kempling (2009).

Leadership is also regarded as one of the key factors for the implementation of organisational change (Kuipers et al., 2014; Herold et al., 2008; Van der Voet, 2014). In the public sector context, Ridder et al. (2005) emphasised the need for involvement from top management and politicians. Similarly, Christensen (2005) highlighted the importance of political leadership's support in the process of organisational change. Moreover, Gabris et al. (2001) emphasised that leadership needs to be credible and Kavanagh and Askkanasy (2006) suggested that leaders should be competent and trained in the process of transforming public organisations. Alvesson and Sveningsson (2003) further noted that employee morale improves when those in authority listen to their subordinates and treat them with respect. Therefore, the organisational development and change management literature predominantly emphasise the importance of participative and supportive leadership to keep people motivated and positive about change (Van der Voet, 2014; Burke, 2010). However, in his contingency model, Fielder (1967) highlighted the need for leaders to adapt their style in line with the situation to be addressed. He states that different situations create different leadership requirements, and based on that, leaders need to develop relevant strategies.

Traditionally, developing countries particularly those with little tradition of organisational development and strong bureaucratic culture, have struggled to adopt or implement change in the public sector (Sarker, 2006; Akeel and Subramaniam, 2013). Failure of public reforms (change) in developing countries is often a result of great insufficiency in basic infrastructure (Pessoa, 2008; Mongkol, 2011), lack of human and financial resources (Polidano and Hulme, 1999; Abdalla and Fan, 2012), corrupt bureaucratic culture (Otusanya, 2011; Jones, 2013), ineffective leadership (Burnes and By, 2012; Guerrero and Kim, 2013) and political constraints (Polidano, 1999; Abdalla and Fan, 2012).

It can be seen that various studies have identified factors that act as barriers to change or when reversed, actively promote organisational change (Kotter, 2010; Stewart and Kringas, 2003; Tsoukas, 2005; White, 2000). Key factors (drivers and barriers) for

adoption and implementation of change in public organisations have been summarised from pre-existing studies in Table 2-4 below.

Top Management	Kamal, 2006; Piercy et al.,2013; Oakland and Tanner, 2007; Fernandez and Rainey, 2006; Khanh, 2014; Ridder et al., 2005; Van der Voet, 2016
Vision	Blackburn, 2014; Kotter, 2010; Khanh, 2014; Taher et al., 2015; Appelbaum et al., 2012.
Communication	Elias, 2009; Blackburn, 2014; Taher et al., 2015; Ouadahi, 2008; Kelso et al., 2005; Yusof et al., 2012; Soltani et al.,2007; Appelbaum et al., 2012.
Organisational culture	Hofstede et al., 1990; Schein, 1996; Burnes, 1991; Li, 2003; Ciganek et al., 2014; Kamal, 2006; Ndou, 2004
Staff Involvement / Participation	Cunningham and Kempling, 2009; Oakland and Tanner, 2007; Ouadahi, 2008; Nurdin et al.,2011; Gelaidan and Ahmad, 2013; Markos 2013.
Internal support for change	Ouadahi, 2008; Fernandez & Rainey 2006; Cunningham and Kempling, 2009; Pardo-del-Val et al., 2012
External support for change	Fernandez and Rainey, 2006; Rossouw and Alexander, 2015
Planning	Antwi et al., 2008; Fernandez and Rainey, 2006; Appelbaum et al., 2012
Organisational size	Yoon and George, 2013; Troshani et al., 2011; Kamal, 2006
Human capacity	Campeanu – Sonea, 2010; Nurdin et al.,2011; Rossouw and Alexander, 2015
Change Management	Hasselbladh, 2013; Piercy et al.,2013; Van der Voet and Vermeeren, 2017; Rossouw and Alexander, 2015; Soto-Acosta et al., 2015.
Clear Goals and objectives	Oakland and Tanner, 2007; Nurdin et al.,2011; Weissert and Goggin, 2002; Blackburn, 2014.
Resource allocation	Piercy et al., 2013; Fernandez & Rainey, 2006
Awareness	Khanh, 2014
Training	Healy, 2001; Blackburn, 2014; Piercy et al.,2013; Ouadahi, 2008; Khanh,2014; Kelso et al., 2005
Degree of centralisation	Troshani et al., 2011
Reward system	Ouadahi, 2008; Kelso et al., 2005; Thomas, 2006
IT infrastructure	Khanh,2014; Ndou, 2004; Layne and Lee 2001; Waller and Genius, 2014; Ziemba and Oblak, 2015
Technical Infrastructure	Obeidat and Abu-Shanab, 2010; Ndou, 2004; Antwi et al., 2008; Mongkol, 2011; Post and Altman, 1994
Technical changes	Janjua et al., 2013;
Coordination/Collaboration	Cunningham and Kempling, 2009; Piercy et al.,2013; Khanh,2014; Ndou, 2004; Layne and Lee 2001
Political environment	Janjua et al., 2013; Hasselbladh, 2013; Polidano, 1999
Political leadership	Khanh,2014; Kuipers et al., 2014; Christensen (2005); Antwi et al., 2008; Kotter, 2010; Taher et al., 2015; Van der Voet and Vermeeren, 2017
Guiding coalition	Cunningham and Kempling, 2009; Oakland and Tanner, 2007; Christensen, 2005; Kotter, 2010; Appelbaum et al., 2012.
Political stability	Janjua et al., 2013
Law and regulations	Janjua et al., 2013; Hasselbladh, 2013; Post and Altman, 1994
legislative framework	Janjua et al., 2013; Kamal, 2006; Nurdin et al.,2011
Socio-cultural status	Layne and Lee, 2001; Khalil, 2011
Change readiness	Ndou, 2004; Holt et al., 2007; Gill, 2009; Baraldi et al., 2010; Balogun and Hailey, 2008; Yoon and George, 2013
Availability of funds	Cunningham and Kempling, 2009; Khanh, 2014
Economic environment	Dominguez,2011; Antwi et al., 2008
Financial capacity	Antwi et al., 2008; Abdalla and Fan, 2012; Yoon and George, 2013
Resources	Cunningham and Kempling, 2009; Thomas, 2006
Cross-functional integration	Piercy et al.,2013; Oakland and Tanner, 2007
Sense of urgency	Cunningham and Kempling, 2009; Blackburn, 2014; Kotter, 2010
Resistance to change	Coram and Burnes, 2001; Piercy et al.,2013; Blackburn, 2014; Oakland and Tanner, 2007; Fernandez & Rainey 2006, Kuipers et al., 2014
Government policy	Janjua et al., 2013; Yoon and George, 2013.
Time	Balogun and Hailey, 2008; Kamal, 2006
Government capacity	Domínguez, 2011; Ndou, 2004; Balogun and Hailey, 2008

Table 2-4 Key factors for Change Adoption/Implementation Summarised from Pre-Existing Studies

Kotter (2008) categorised the factors related to change as internal and external to the organisation or system. Based on the aforementioned analysis of relevant studies of public reform (change) factors, the researcher however believes that these factors can be classified into three core categories/themes. These core categories are illustrated in Table 2-5 below.

<p style="text-align: center;">Technological Factors</p>	<p>Technology infrastructure, IT infrastructure, Availability of Internet, Reliability of internet, Power and Electric supply, Operational Equipment, Hardware, Coordination between employees, Coordination with other organisations, Coordination/Collaboration through IT.</p>
<p style="text-align: center;">Internal Organisational Factors</p>	<p>Top management support, Vision, Mission, Awareness, Training, Skills, Employees Capacity, Workforce, Organisational Culture, Organisational Structure, Communication, Plan of Action, Change Management Strategy, Goals, Resistance to change, Acceptance for change, Employees Readiness, People’s active participation, Reward system, Incentives for Employees.</p>
<p style="text-align: center;">External Organisational Factors</p>	<p>Political Stability, Government Support, Government Policy, Resource allocation, Funds, Financial Resources, Time, Investment, Rate of Poverty, Rate of Inflation, Rate of Literacy, Regulatory framework, Government Capacity, Financial Capacity, Resources, Socio-cultural Status.</p>

Table 2-5 Core Categories of Factors Affecting Change Adoption

Classification allows researchers to portray relationships between factors that may not be obvious when looking at them as a whole. Categorising factors also makes it easier for researchers to examine them and make subjective judgements.

In summary, although the importance of an organisation’s internal and external contextual factors has been extensively recognised and intensely debated by researchers, the bulk of the research is within private organisations with little research on public sector organisations (Shah, 2011; Coram and Burnes, 2001; Piercy et al., 2013). Furthermore, Pettigrew et al., (2001) and Kuipers et al., (2014) noted that the

majority of the studies related to change in public organisations were conducted in the developed world. They raise the issue that not only may contextual factors of change vary for public organisations around the world, but so may the particular change implementation processes (Kuipers et al., 2014). However, the processes through which organisational change in public organisations come about have received relatively little attention in academic research (Van der Voet, 2014; Kickert, 2010; Kuipers et al., 2014).

2.8 The Role of Employees in Organisational Change

Organisations change through individuals' changing (Elias, 2009) and change initiatives often fail not because of the technological reasons, but the people side of change is not considered or effectively managed (CIPD, 2012; Kotter, 2010). Similarly, Choi and Ruona (2011) argue that most change efforts fail because change leaders often underestimate the central role individuals play in the change process. The significance of employee's engagement is generally accepted in the literature, affirming that people's active participation helps in limiting resistance to change by creating psychological ownership and by encouraging employee feedback for adjusting the change strategy during implementation (Devos et al., 2007; Pardo-del-Val et al., 2012). Against this backdrop, many researchers have highlighted the significance of employees' perceptions regarding organisational change (Kotter, 1996; Shah, 2011; Elias, 2009; Liu et al., 2012; Gelaidan and Ahmad, 2013). They argue that employees are at the centre of organisational change and that most change initiatives fail due to human factors, which are directly related to individual and workplace determinants. Such findings indicate that change leaders focusing on employee reactions—including resistance and acceptance—during organisational change is of utmost importance to the success of the initiative (Weber and Weber, 2001).

Employees' positive response shows willingness towards change while a negative response reflects resistance. Acceptance and rejection are affected by how the change is seen to affect the sense of the individual's identity in the organisation. According to Rogers (2003), the change-decision process can either lead to adoption, a decision to

make full use of change as the best course of action available, or rejection, a decision not to adopt change. Employees' reactions to change are influenced by a number of factors. Following is a summary of factors that the literature strongly identifies as influencing employees' reactions to change.

Driving Forces: These are a set of variables that positively influence the suggested change process. Factors such as new challenges on the job, increased rewards, increased operational efficiency, increased effectiveness and reduction of overhead cost could be taken as driving forces (Cawsey and Deszca, 2007; Carnall, 2007; Burke, 2008; Teo et al., 2009). It is important to see that driving forces emerge most of the time after the successful implementation of the change process. In other words, these are good things that are expected to happen during organisational change (Ageron et al., 2012).

Restraining Forces: Restraining forces push the change process back and try to maintain the status quo. In other words, these factors will try to highlight the difficulties of the change process and the ease in staying with the existing system. Factors such as uncertainty, fear of loss of power, status and authority are some of the restraining factors (Holt and Seki, 2012; Rogers, 2003; Kotter, 2010). Figure 2-2 further illustrates the major human factors that lead to either adoption of or resistance to change.

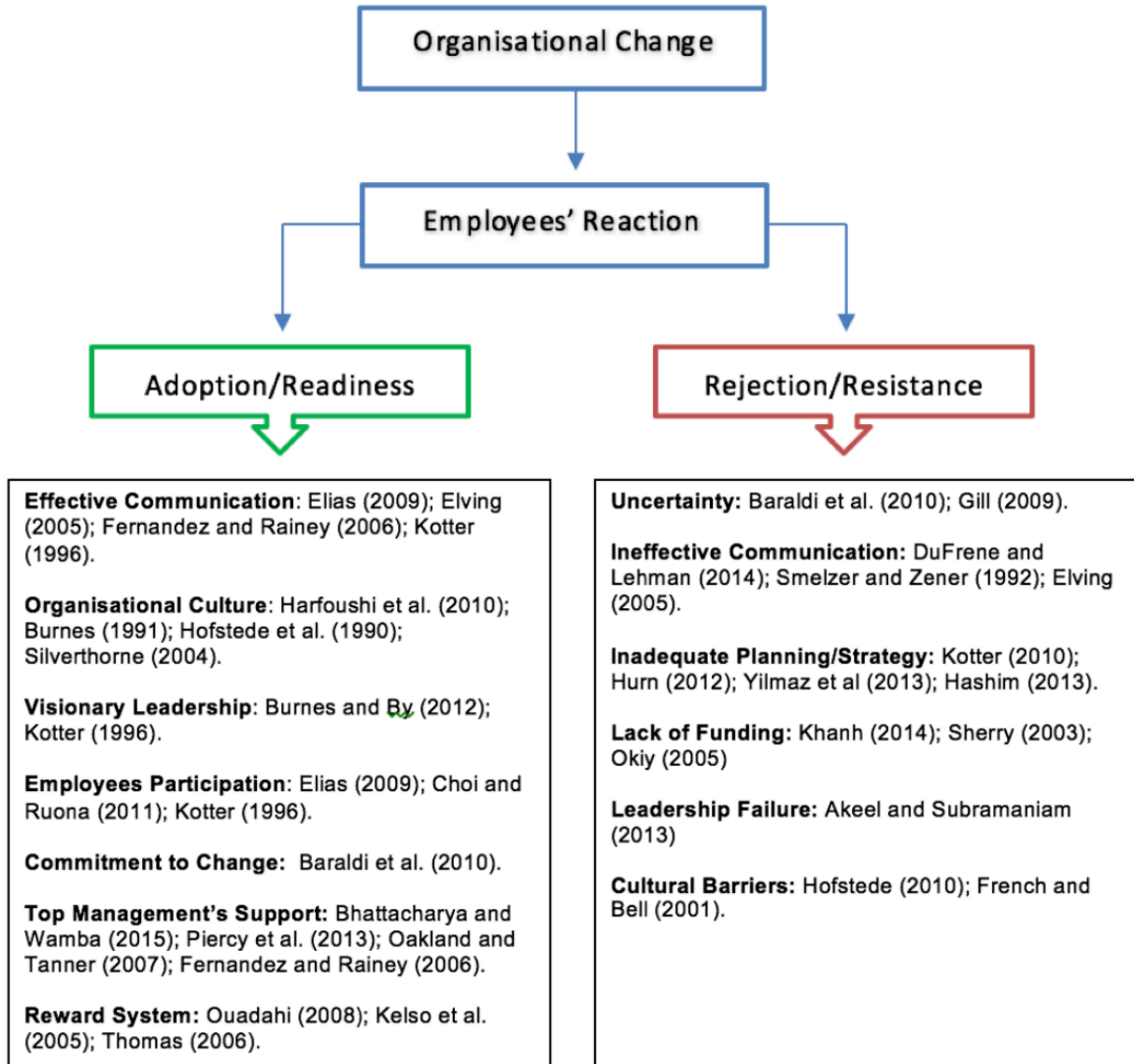


Figure 2-2 Key Factors that may Lead to Adoption or Rejection of Change

In the case of public sector organisations, existing values and norms shape the organisation and the way it carries out its mission (Cunningham and Kempling, 2009; Abdulraheem et al., 2013). Cunningham and Kempling (2009) give the example that, when the Canadian navy was told to change the colour of its uniforms from the traditional navy blue to dark green, in the hearts of the employees, there was a great resistance to this change. Thus, when the opportunity to change back to navy blue occurred, it took place with extraordinary speed and enthusiasm.

2.8.1 Employees' Rejection/Resistance to Change

Resistance is a natural part of the change and is to be expected (Manuela and Clara, 2003; Kotter, 2010). In the change management and organisational behaviour literature, resistance is defined as behaviour intended to inhibit the implementation or use of a new system or to prevent the system designers from achieving their objectives (Manuela and Clara, 2003). It is often concluded in the academic literature that an essential feature of organisational change behaviour is resistance, as employees attempt to negate the power and influence of their employers (Canning and Found, 2015). Studies related to change management and organisational development often see resistance to change as an important reason for change failures. However, published literature on resistance to organisational change has focused more on organisational issues rather than on individual psychological factors (Bovey and Hede, 2001).

Pardo-del-Val and Fuentes (2003) reviewed the literature on attitudes towards change and concluded that resistance should be seriously addressed to help the organisation to achieve the advantages of the transformation. Similarly, Manuela and Clara (2003) argue that resistance to change is an essential factor to consider in any change process and appears to be more influential in large-scale planned changes. Resistance to change is often seen as a major barrier to organisational change (Buick et al., 2015; Andrews et al., 2008; Coram and Burnes, 2001), which emerges from feelings of uncertainty (Coram and Burnes, 2001). However, some researchers criticise the widespread view on resistance and present a more multifaceted perspective on individuals' attitudes toward organisational change. For example, Choi and Ruona (2011), Knowles and Linn (2004), and Waddell and Sohal (1998) believe individuals are not naturally resistant to change; rather, they resist the imposition of change, or the way change is imposed on them.

Within the context of public sector organisations, Doherty and Horne (2002) elaborated on why some public sector employees resist change. They emphasised that a large number of public sector organisations continue to operate in a mechanical manner –

performing their roles in a structured fashion – resulting in greater resistance to change. They further argued that public sector employees find it difficult to convey decisions to senior management despite the devolution of the decision-making process. In order to manage change effectively in public sector organisations, it is thus essential that change managers first stand back and analyse the organisation before implementing any sort of change (Doherty and Horne, 2002). Administrators need to understand, why an employee's initial reaction to a new proposal, that is, uneasiness and fear of the unknown, sometimes accelerates into negative behaviour (Kiernan-Stern, 2005). Therefore, it can be seen that the role of top management and change leaders is very important to initiate successful change in public sector organisations (Meier et al., 2013). Many researchers advocate the top-down approach with senior management taking an active role to reduce resistance to change. For example, Stanley et al. (2005) argue that a higher employees' assessment of management competencies relating to the change process lead to a less uncertain attitude towards the change. Nastase et al. (2013), on the other hand, ascertained during their analysis of Romanian public service organisations that, without motivation, involvement and a system that rewards their effort, change recipients will not be determined to embrace change and will resist it as much as possible.

2.8.2 Employees' Acceptance/Adoption of Change

In the change management literature, acceptance is defined as a belief, intention, attitude and behaviour regarding the extent to which change is needed and the organisational capacity to achieve it successfully (Susanto, 2008; Rafferty and Simons, 2006). According to Bernerth (2004), acceptance/adoption is a state of mind during the change process that reflects a willingness or interest to change the old way of doing things. In the examination of reactions to organisational change initiatives, change adoption reflects not only positive attitudes towards the change but also alignment with the change, intentions to support it and a willingness to work on behalf of its successful implementation (Herold et al., 2007).

The acceptance of and support for organisational changes on the part of organisational members is generally viewed as critical for the success of planned organisational changes (Herold et al., 2007). A review of the literature suggests that organisations are increasingly required to improve their ability to enhance employees' support or acceptance for change initiatives (Kotter, 1996; Elias, 2009; Gelaidan and Ahmad, 2013). In studies that have surveyed the conditions in which employees' support/adopt organisational change, researchers have focused on various attitudinal constructs that represent employees' attitudes toward organisational change. The constructs, which frequently serve as key variables in these studies, include adoption for change, readiness for change, commitment to change and openness about organisational change (Choi and Ruona, 2011; Herold et al., 2007). These constructs are similar to one another in that they all reflect an individual's overall positive or negative evaluative judgment of a specific change initiative.

Rogers (2003) highlighted numerous factors that appear to influence whether people accept or reject a change. These factors included the categories of people in a social system (such as innovators, opinion leaders, and early adopters); the attributes of the change itself; and the stages that adopters go through when considering whether or not to adopt a change (Marker et al., 2014). According to Harfoushi et al. (2010), the most important change management factors that play a key role in successful change adoption are leadership, motivation, culture and human capabilities. To promote adoption, Marker et al., (2014) suggest considerations such as enlisting the right people to lead a change, leveraging a change's positive characteristics to try to offset its potentially negative characteristics, and cooperatively aiding adopters' progression through several adoption stages. However, a largely neglected yet potentially important change factor that may affect change reactions consists of the context within which a change occurs. Therefore, it is important for leaders of change to carefully examine the contextual factors prior to change implementation.

2.9 Summary

This chapter began with an overview of organisational change. Then it laid emphasis on change in public sector organisations and topics related to it, such as approaches to manage change (reform), models of change, factors related to change and the role of employees in times of change. This chapter also examined the available body of literature on change in Pakistani public organisations, which is the research context of the study. It also demonstrated various core categories of change factors (drivers and barriers), which the researcher generated after reviewing relevant, published literature on that topic (see Tables 2-4 and 25 on pages 34 and 35).

As shown from the reviewed literature, there are conflicting views and contradictory theories regarding the most suitable approach to manage change: planned or emergent, top-down or bottom-up. The key issue, it seems, is that leaders must take into account the holistic context in which the organisation operates, and what objectives their change initiatives are attempting to achieve before deciding on the most appropriate approach to manage change. It can also be seen from the literature that identifying the factors that can affect the adoption and implementation of public reforms (change) at both national and organisational level, is necessary and may hold the answer that will help a government to define the right approach. The 'people' element however is the most crucial in change management. Therefore, cultural aspects that include leadership, communications, staff training and motivation are all significant for successful change management.

Whilst the significance of an organisation's internal and external contextual factors has been widely debated by researchers, the majority of the research is within private organisations with little research on public sector organisations. According to a recent article presenting a review of the literature on management of change in public sector organisations, there is a lack of research on the factors that influence the change (reform) and determine its success or failure (Kuipers et al., 2014). Additionally, in the context of implementing change in the public sector, most of the research has been carried out in developed countries with a strong tradition of routine change. However, in

developing countries, particularly Pakistan, change management is under-researched and our specific knowledge is limited. In addition, no research has been found that examines the contextual factors constraining or facilitating transformation of public organisations in Pakistan, particularly in the KPK region. This indicates that research is needed to better understand the process of change within public organisations particularly in the context of developing countries. Therefore, in order to address the current research gap and facilitate implementation of public reform in Pakistan, as an example of a developing country, this study investigates the factors that can influence the progress of reform. The research framework for this study is discussed next.

Chapter 3: Framework Development

3.1 Introduction

In this chapter, the aim is to develop a conceptual theoretical framework identifying the critical factors influencing the adoption of change (reform) in the context of a developing country. The proposed conceptual framework will be used as a road map for empirical data collection and analysis, and to establish a comprehensive overview of change adoption and implementation in a Pakistani context. There are six main segments in this chapter:

Sections 3.2 and 3.3: Review the concepts of models and frameworks of change (reform) adoption.

Section 3.4: Introduce the TOE model and its contextual elements (Technology, Organisation, and Environment).

Section 3.5: Identify the technological factors for change (reform) adoption.

Section 3.6: Identify the organisational factors for change (reform) adoption.

Section 3.7: Identify the environmental factors for change (reform) adoption.

Sections 3.8 and 3.9: Present the conclusive framework and summary of the chapter.

3.2 Research Framework

A conceptual framework is primarily a model that helps researchers to better understand the research problem, explain what and why things are happening, and include their own ideas about the phenomenon being studied (Maxwell, 2005). Maxwell (2005) further argues that a conceptual framework is a useful method to explain the key issues to be studied as it allows researchers to present the key factors, concepts, or variables, and the presumed relationships among them. Frameworks are useful because they help researchers to organise and incorporate the diverse aspects of the research problem in a simple and consistent way, assuring the attainment of the pursued outcomes (Montagna, 2005).

While some scholars use the terms conceptual framework and model interchangeably, Jabareen (2009) disagrees and believes that they are different. He explains that the

term conceptual framework is better used when employing concepts alone, whereas the term model is better used when employing variables or factors. The author agrees with this scholar's view. Therefore, this section presents the conceptual framework proposed by the researcher and a final model will be developed after the completion of the empirical work in Pakistan.

The literature related to the process of change in the public sector highlights many contextual factors related to managerial, regulatory, technical and environmental issues. The literature review (Chapter 2) clearly suggests that ignorance of these elements can easily lead to reform failure. It also revealed the limited number of studies examining these issues and factors in a developing country's environment. In addition, most of these studies, models and frameworks are developed from a citizen perspective and not a government perspective, which is the scope of the current research. Therefore, this research fills this gap in the literature and addresses the need to develop a reform adoption framework suitable for developing countries.

3.3 Conceptual Contextual Causal Change Framework

The relationship between the organisation and its environment had been the subject of study before the landmark work of Lawrence and Lorsch (1967). Process models (see for example Nadler and Tushman, 1989; Burke and Litwin, 1992), typically emphasise components that are dimensions of the environment or context for the change. The environment may be both external and internal for the organisation. Such models utilise aspects of the PESTEL framework for decomposing the external environment into political, economic, social, technological, ecological or environmental and legal factors or forces. Factors describing the internal context often draw upon the work of the Aston studies for example, Pugh (1973). Factors such as the organisational - as opposed to national - culture, size and maturity are often included along with the organisation's strategy, structure and systems, as summarised in a basic theoretical model presented in Figure 3-1 (part a). The use of a directional arrow from the environmental variables to the dependent 'change adoption' variable implies a causal link between the two – a relationship often referred to as environmental determinism (see for example Emery and

Trist 1965; Hrebiniak and Joyce, 1985). Environmental determinism is generally accepted as a perspective that claims that internal organisational responses are wholly or mainly shaped, influenced or determined by external environmental factors. For some organisations, however, the arrow may be shown to exist in both directions as organisations may have the power to influence their environment.

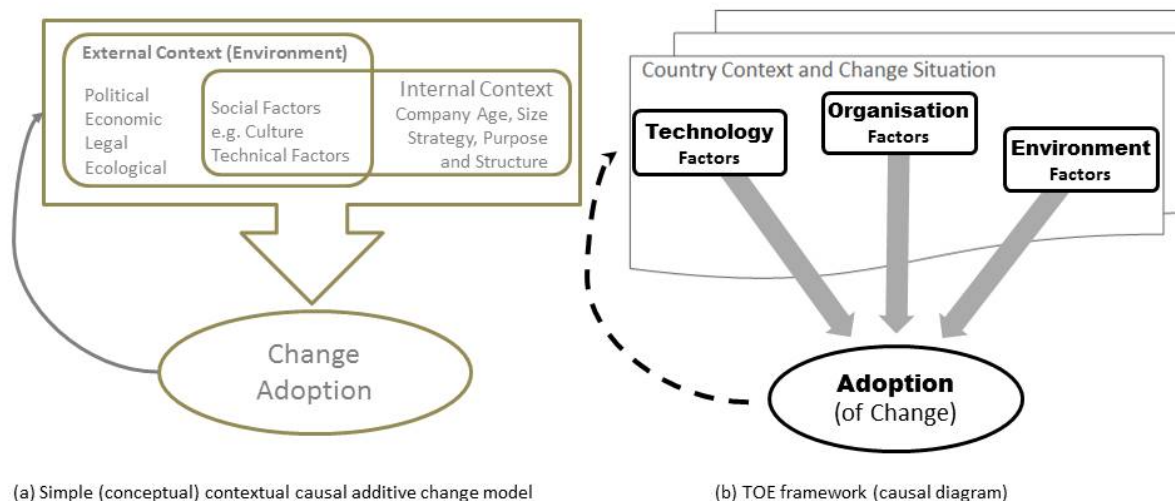


Figure 3-1 Conceptual Change Models

One specific change model that focuses on the context in the process of change is the TOE (Technical, Organisational and Environmental) framework (Tornatzky and Fleischer 1990). The TOE framework, see Figure 3-1 (part b), posits that an organisation’s adoption of change is dependent upon factors from three contextual categories: technology, organisation, and environment. TOE framework is explained in detail in following sections.

3.4 TOE Framework

One of the most established approaches in studying change adoption entails identifying contingency factors that can affect adoption decisions in organisations (Troshani et al., 2011; Ciganek et al., 2014). Tornatzky and Fleischer (1990) proposed the TOE framework, which identifies three contextual factors (technology, organisation and environment) that can influence an institute’s innovation adoption, which ultimately impacts upon its performance (Srivastava and Teo, 2007; Ciganek et al., 2014).

As mentioned above, the TOE framework posits that an organisation's decision to adopt change/innovation is dependent on factors from three contextual categories: technology, organisation, and environment. The technological context describes both internal and external technologies relevant to the organisation. Its focus is on how technological characteristics can influence the adoption process (Troshani et al., 2011). The organisational context describes the characteristics of an organisation that constrain or facilitate the adoption of change or innovation process (Yoon and George, 2013). Examples of organisational context include: top management support, organisational culture, organisational structure and the availability of resources (Thi et al., 2014). The external environmental context is the arena in which a firm conducts its business, such as the industry it belongs to, socio-cultural settings, regulations and governments with which it interacts (Bernroider and Schmollel, 2013; Cui et al., 2008). The environmental context focuses on the external factors that drive organisations to adopt change such as competition and government incentives and regulations (Thi et al., 2014). As change adoption is complex and context-sensitive, specific factors of each category can vary across different domains and contexts. As a result, there are persistent calls in the literature to extend TOE approaches to unexplored domains and contexts (Troshani et al., 2011; Teo et al., 2007).

3.4.1 Prior Studies that used the TOE Framework

Although TOE is not specifically used for government reforms, it has been widely employed in e-government, e-business and e-commerce for the public sector. These applications have similar contexts and share common features with governmental reforms. A number of empirical studies using the TOE framework have been undertaken in different countries (see Table 3-1). Each study contributes in providing a strong theoretical understanding of the TOE factors.

Ramdani et al. (2009) used the TOE framework to examine the influence of technological factors (relative advantage, compatibility, complexity, trialability and observability), organisational factors (top management support, organisational readiness, IT experience, organisational size and industry sector), and environmental

factors (competitive pressure, external IS support and market scope) to examine the adoption of change among UK Small and Medium Enterprises (SMEs). Several factors were found to be significant in influencing an enterprise system's adoption in an SME, such as relative advantage, top management support, organisational readiness and organisational size. Surprisingly, environmental factors were found to be insignificant.

Srivastava and Teo (2007) used the TOE framework as the guiding theoretical lens to empirically examine the drivers of e-government and e-business development in the context of Singapore. The findings of this study demonstrate that the national IT infrastructure, quality of national human capital and national environment (institutional and macro-economic) appeared to be the key enablers for e-business and e-government.

A more recent study conducted by Thi et al. (2014) examined the effect of Technological factors (IT infrastructure, Compatibility, Security and Relative advantage), Organisational factors (Top management support, culture, HR and Financial resources) and Environmental factors (Government support and Competition pressure) on the usage of e-government among Jordanian public listed companies. The results revealed that TOE factors had a significant effect only on advanced adopters of e-government that mainly used e-government for financial and business integration purposes. However, TOE factors had an insignificant effect on companies categorised as basic adopters of e-government.

Ramdani et al. (2013) empirically explored the TOE factors influencing small to medium-sized enterprises' (SMEs') adoption of enterprise applications (EA) within the UK. The findings of the study revealed that Technological context had a positive impact on SMEs' adoption of EA. Relative advantage, compatibility, complexity, trialability and observability were all found to be significant technological factors in determining EA adoption by SMEs. Similarly, Organisational context had a positive impact on SMEs' adoption of EA. Size, top management support and organisational readiness were found to be significant organisational factors in determining EA adoption by SMEs.

Finally, Environmental context also showed a positive impact on SMEs' adoption of EA. Industry, market scope and competitive pressure were found to be significant environmental factors in determining EA adoption by SMEs.

This section has thoroughly analysed the empirical literature of the TOE framework and presented a thorough description of studies that draw on this theory. It can be seen that the TOE framework has consistent empirical support, although specific factors identified within the three contexts vary across different studies. As a summary, Table 3-1 provides a list of prior studies that used the TOE framework to investigate the factors related to the adoption/implementation of change in public organisations.

Reference	Research using TOE framework	Research Focus (Factors Studied)
Thi et al. (2014)	Examining the effect of TOE factors on the usage of e-government among Jordanian public listed companies	Top management support, culture, HR, Financial resources, Government support, IT infrastructure, Compatibility and Security
(Troshani et al., 2011)	Exploring the public sector adoption of Human Resource Information System	Top management commitment, human capability, regulatory compliance, technology competency, organisational size, degree of centralisation
Ramdani et al. (2013)	exploring the TOE factors influencing small to medium-sized enterprises' (SMEs') adoption of enterprise applications (EA) within UK	compatibility, complexity, trialability, Size, top-management support, industry, competitive pressure and organisational readiness
Pudjianto and Hangjung, (2009)	Factors Affecting e-government Assimilation in Developing Countries	Top management support, Organisational compatibility, Extent of coordination, Regulatory environment, Competition environment, ICT Infrastructure, ICT expertise
Altameem, (2007)	E-government critical factors in public sector organisations in Saudi Arabia	Government factors, vision, strategy, Telecommunication infrastructure, top management support, organisational structure,
Srivastava and Teo, (2007)	What facilitates e-government development? A cross-country analysis	ICT infrastructure, technology development, human capital, public institutions, macro economy
Molla et al. (2010)	The Use of E-Business in Agribusiness: Investigating the Influence of E-Readiness and TOE	Technology competence, financial commitment, environmental e-readiness, organisational size
Bernroider and Schmollerl, (2013)	A TOE analysis of decision making methodologies and satisfaction in the context of IT induced business transformations	Technology infrastructure, IT support, management support, legislative regulation
Yoon and George, (2013)	Factors affecting organisational adoption of the internet in the context of the TOE framework	Firm size, organisational support, E-readiness, external pressures, government policies, staff competence, level of participation
Cui et al., (2008)	Exploring IT Adoption Process in Shanghai firms	IT infrastructure, Management support, government regulations, government promotion

Table 3-1 Some Significant Studies based on the TOE Framework

3.4.2 Justification for using the TOE Framework

The TOE framework provides a sturdy base for assessing the critical factors for change within public organisations. The main benefits of the TOE framework are its comprehensible structure, sound theoretical basis and its wide recognition and usage in

the literature (Bernroider and Schmollerl, 2013). The researcher highlights several advantages of using the TOE model below:

1. The TOE framework is robust and has been extensively utilised to explain adoption and implementation decisions in a variety of contexts (Ciganek et al., 2014).
2. The TOE model matches the research methodology design, as this research is executed at two levels: national and organisational. The national level is controlled by politicians and regulatory and economic conditions. This is represented in the TOE model in the Environment factor. The second level is controlled by the organisational top management and management systems. This is represented in the Organisation factor.
3. The TOE highlights technology, organisation and environment as the main contextual factors in order to achieve change and innovation; these factors are quite similar to the categories identified by the researcher in the literature review section (see Table 2-5 on page 35).
4. The TOE is flexible and accepts the expansion of the model to include more categories and factors. This will allow the researcher to add multiple levels of factors and adapt the framework according to the findings in later stages of the study.

Based on the arguments above, the author chooses to use the TOE framework as the basis for the current research. The next sections explore and discuss the Technological, Organisational and Environmental factors for change (reform) adoption and implementation. Each TOE factor and its sub-factors are discussed in detail. Finally, a conclusive theoretical framework for change is presented which describes the relationship between TOE-related variables identified in the study.

3.5 Technical Factors for Change (Reform) Adoption

The term 'technology' is used to refer to the 'entire set of devices' that facilitate the adaptation of groups to their environments; the machinery, equipment, processes, methods, systems and procedures used to enable the organisation to carry out its work and deliver its services, converting inputs to outputs (Kelly et al., 2015). Aside from applications in robotics and manual work it is most commonly associated with enabling

humans in their mental work and in facilitating communication between people. Information technology (IT) describes the hardware and software that are used to store, retrieve and manipulate information. IT extends beyond computing to include telecommunications, office equipment and more automated work procedures. The technology context focuses on the manner in which technology characteristics can influence change (Troshani et al., 2011). Organisations are heavily dependent upon the national and regional *IT (external) infrastructure* which is generally based on communication technologies such as the Internet, fixed and mobile telephony each measured in terms of penetration levels, availability and reliability (Torres et al., 2015). However, a strong internal *IT infrastructure* within the organisation is equally important. This may be considered in terms of the availability and reliability of the intranet and availability and competence of IT professionals within the organisation. An excellent infrastructure is the key success factor for change (reform) initiatives in developed countries argues Nawafleh (2012). A final element of the technology factor is often thought to be *collaboration* between public organisations as enabled by IT (Cunningham and Kempling, 2009; Piercy et al., 2013; Khanh, 2014; Ndou, 2004; Layne and Lee 2001). Thus, technology is an important catalyst or enabler for change and determinant of reform adoption. The next sub-sections describe key technical factors such as IT infrastructure, Technical infrastructure and Collaboration in detail.

3.5.1 Information Technology (IT) Infrastructure

The role of IT and organisational change has been widely discussed and many researchers remark, that IT now has become a major component for organisational change (Khanh, 2014; Applegate et al, 1996; Ndou, 2004). Furthermore, function of Information Technology is becoming more and more important in public administration (Khanh, 2014; Heeks, 2003; Waller and Genius, 2015). Since the introduction of the internet in the late 1980s, governments have been actively pursuing IT to improve operating efficiency and to enhance internal communication. The advent of the Internet, digital connectivity and the explosion and use of e-commerce and e-business models in the private sector are encouraging the public sector to reconsider hierarchical and bureaucratic organisational models (Ndou, 2004). Akbulut (2002) is of the opinion that

IT can facilitate government organisations to increase productivity and performance, improve policy-making, and provide better public services to the citizens. Moreover, there is an opportunity to obtain productivity and various business benefits from an intelligent IT infrastructure built on the pervasive computing paradigm (Khanh, 2014). Recent discussions on the introduction of change in the public sector to improve government efficiency, effectiveness and public service delivery also acknowledge the advantages of using IT in public entities (Alshehri et al., 2012; Waller and Genius, 2015; Kumar and Best, 2006; Alshehri and Drew, 2011).

Chen et al. (2006) observed that developed countries such as the UK, USA, Australia and Canada are pioneers in public reforms and that their e-Government projects in particular have achieved remarkable success. Waller and Genius (2015) noted that the availability of IT infrastructures together with a government's willingness to use the technology were drivers to the successful introduction of IT systems within the developed world. On the other hand, many developing countries face challenges and barriers to the implementation of information systems in public administration (Ndou, 2004; As-Saber et al., 2006). Developing countries are often challenged by infrastructure weaknesses and lack of resources that have undermined or hindered the successful implementation of change (reform) in public organisations (Ndou, 2004; Jaeger and Thompson, 2003).

IT infrastructure at organisational level is usually based on elements such as availability and reliability of the internet and IT professionals within an organisation. Similarly, IT infrastructure at the national level is generally based on five elements: estimated Internet users, number of main fixed telephone lines, number of mobile subscribers, number of wireless broadband subscriptions and number of fixed broadband subscriptions (Torres et al., 2015). It can be seen from the literature review that a well-built IT infrastructure is essential for governments trying to change/improve public service delivery (Waller and Genius, 2015; Ndou, 2004). Therefore, leaders of change should pay attention to providing adequate IT infrastructure at both organisational and national levels.

3.5.2 Technical Infrastructure

Generally, the manner in which change/innovation opportunities are exploited by organisations depends on the degree of match between innovation characteristics on the one hand, and the practices and technological infrastructure currently adopted by organisations, on the other (Troshani et al., 2011). Similarly, Thi et al., (2014) explain that technical infrastructure plays a significant role in a firm's adoption decision as it determines the firm's ability to benefit from change (reform) initiative. Public Administration literature indicates that change (reform) initiatives are more successful in developed countries rather than developing countries (Bangura, 2000; Baraldi et al., 2010). Vastly advanced and excellent infrastructure is the key success factor for change (reform) initiatives in developed countries (Nawafleh, 2012); however, less developed countries often do not have such good infrastructures (Odat, 2012).

Hardware and electricity/power grid are the main components of technical infrastructure. However, the literature indicates that the technical infrastructure, particularly the power supply, in many developing countries is unreliable and unstable (Heeks, 2002, 2003; Ruhode and Owei, 2009). Thus, many public employees and citizens are often unable to access government portals (Waller and Genius, 2015). Relatedly, Adeyemo (2010) concluded that one of the major barriers to the government reform in Nigeria is the lack of a regular source of electrical power. Governments thus need to develop an adequate technical infrastructure prior to change (reform) implementation (Troshani et al., 2011; Nawafleh, 2012; Zhu et al., 2003).

3.5.3 Collaboration

Bardach (1999) defined collaboration as any joint activity by two or more organisations working together that is intended to increase public value by their working together rather than separately. Among numerous definitions offered by public management literature, Bardach's definition of collaborations is one of the most widely cited. However, there is a confusion in the literature regarding the distinction between coordination and collaboration (O'Leary and Vij, 2012). Gray and Wood (1991) noticed that these concepts are different because 'coordination' does not apprehend the

dynamic, evolutionary nature of 'collaboration'. In a Government Services Context, the term 'Collaborative Public Management' is often used (see for example, McGuire and Silvia, 2010; Agranoff, 2006). According to O'Leary and Vij (2012), collaborative public management is a concept that explains the process of facilitating, operating and accelerating in multi-organisational arrangements to solve issues that cannot be resolved or easily resolved by single organisations. Collaborative means to co-labour, to achieve shared goals, often working across boundaries and in multi-sector and multi-actor relationships (O'Leary and Vij, 2012).

Collaboration can re-invigorate organisations by fully engaging employees and improving retention and can help employees prosper in an ever-changing, diverse workplace (State Services Commission, 2008). The significance of collaboration and coordination among public sectors and the use of new innovative technologies as enablers or means of achieving effective and efficient governments are prominent issues constantly being addressed by academics, governments, and the public (Bovaird and Loffler, 2003). Furthermore, Ambtman et al. (2015) explicate that managing a portfolio of interdependent change projects requires various forms of coordination. They further explain that coordination is important to mitigate risk and control resource utilisation, but also to ensure that the end users experience the outcome of various change projects as integrated solutions to their needs. Therefore, integration of functions and collaboration of departments is often regarded as essential to the successful adoption/implementation of change and to deliver improved public services (Wear, 2015; O'Leary and Vij, 2012; Ambtman et al., 2015; Bovaird and Loffler, 2003).

To address the issues associated with change and access to new/improved services, many governments have focused on improving the coordination of government decision making and the integration of services (Bovaird & Loffler, 2003). However, there is often a lack of coordination and collaboration among public organisations, particularly within developing countries (Waller and Genius, 2015). The major reason for this is the bureaucratic culture and lack of technical resources to integrate. Diversity among organisations' cultures may also present challenges for collaborative networks (O'Leary

and Vij, 2012). Therefore, trust, communication and shared vision should be introduced to develop a collaborative culture (Kelly, 2014), support change and integrate public services.

3.5.4 Summary of the Technical Factors

A list of technical factors that influence the adoption of a Change (Reform) project as indicated from and explored in the literature review is provided in Table 3-2 below.

Technical Factors	Source
IT Infrastructure	Khanh, 2014; Heeks, 2003; Akbulut, 2002; Torres et al., 2015; Waller and Genius, 2015; Ndou, 2004; Jaeger and Thompson, 2003.
Collaboration	Bardach, 1998; McGuire and Silvia, 2010; Agranoff, 2006; O’Leary and Vij, 2012; Ambtman et al., 2015; Bovaird and Loffler, 2003.
Technical Infrastructure	Troshani et al., 2011; Thi et al., (2014); Bangura, 2000; Baraldi et al., 2010; Nawafleh, 2012; Odat, 2012.

Table 3-2 List of the Technical Factors Influencing Change (Reform) Adoption

In summary, it can be seen that technical factors such as IT infrastructure, Technical Infrastructure and Collaboration can have a significant influence on people’s intention to adopt change. The following figure 3-2, further presents the developed framework for change (reform) adoption in terms of Technical factors.

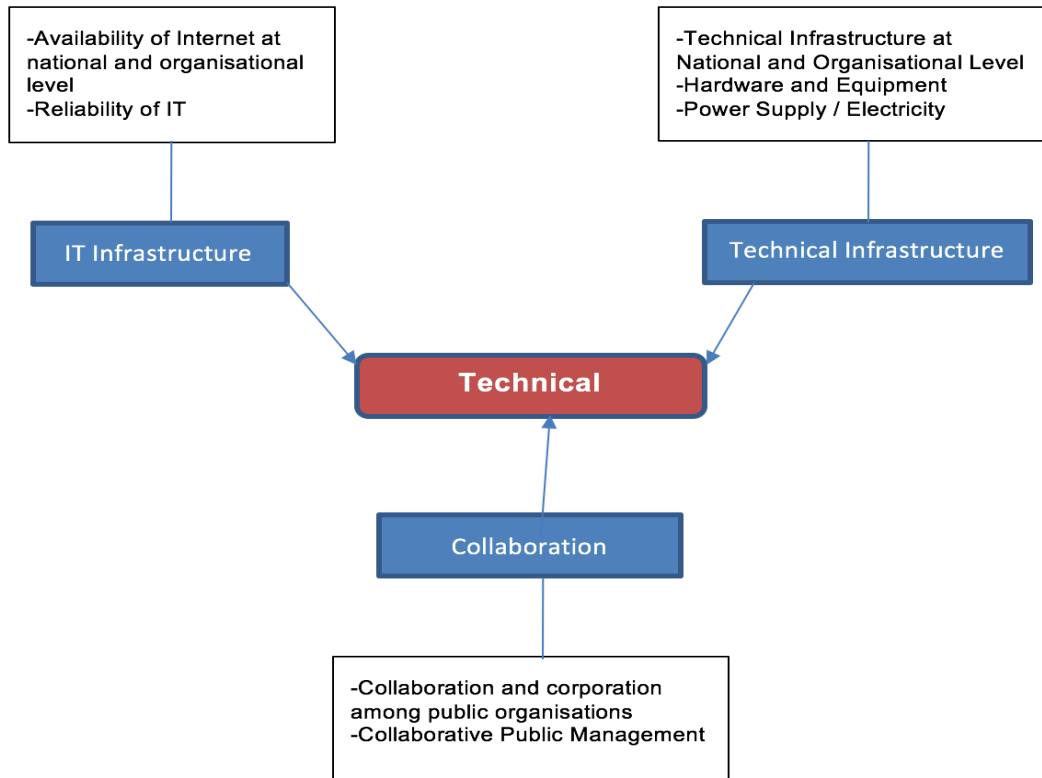


Figure 3-2 Technical Framework for Change (Reform) Adoption

3.6 Organisational Factors for Change (Reform) Adoption

The Organisational context describes the nature of organisational characteristics that may facilitate or inhibit change adoption (Troshani et al., 2011). Organisational factors may relate to structural and cultural issues, such as management strategy, poor relations and communication between departments (Ebrahim and Irani 2005). In times of change, organisational factors generally represent internal organisational characteristics such as organisation culture, financial support, managerial beliefs and top management support that influence change adoption decisions (Bhattacharya and Wamba, 2015; Bernroider and Schmollerl, 2013). It is important to understand the organisational context to identify the supportive presence within the organisation that initiates the adoption and implementation of change. It is the internal characteristics of the organisation that facilitate the easy and fast adoption of change – although the internal characteristics may be similar among organisations but differ in having an impact on change adoption. Therefore, it is important for this research to study some of

the important and popular characteristics of an organisation that may be favourable or barriers to the adoption of change.

The commitment/support of *top managers* and leaders of the organisation is required to make things happen (Soltani et al., 2007 and Troshani et al., 2011). Many studies of senior managers in the public sector provide evidence of their role in determining strategies, affecting implementation and influencing performance (Boyne 2004; Soltani et al., 2007). Additionally, *human capacity* is considered a driving force for organisational change (Campeanu-Sonea, 2010). Within organisations people exist in groups that share beliefs and assumptions about what they are there to do and how they should do it. *Organisational culture* is a complex and multi-dimensional phenomenon (Hofstede et al., 1990; Schein 1996). Process-oriented cultures, i.e., bureaucratic ones, (Hofstede et al., 1990) are considered resistant to change in contrast to results-oriented cultures.

Public-management literature contains substantial evidence for the importance of determining the strategy for change and communicating it persuasively. A well-planned communication programme is vital in the implementation of change (Kotter, 1996; Elving, 2005; Fernandez and Rainey, 2006). Elving (2005) argues that one of the main purposes of change communication should be to inform employees about change. This informative function of communication will affect employees' readiness for and acceptance of change. On the other hand, little or poor communication during the change process may result in rumours and resistance to change, exaggerating the negative aspects of the change (Smeltzer and Zener, 1992). The final organisation factor involves the *reward system* (Thomas, 2006). Cawsey and Deszca (2007) discuss how reward systems may be used to motivate efficiency and therefore drive change (see also Carnall, 2007; Burke, 2008).

Whilst there are many important factors to consider in the organisational context, this study focuses on five: top management, human capacity, organisation culture, change management, and communication and reward systems. The next sub-sections describe

these factors in more detail.

3.6.1 Top Management

The commitment/support of the more senior (top) managers and leaders of an organisation is required to make things happen (Singh and Waddell, 2004). The decisions made by the top management are likely to impact organisational growth and development because the higher management level has a greater influence upon strategic decisions (Carpenter et al., 2004). According to Bhattacharya and Wamba (2015), top management's commitment and support is vital for change/innovation adoption decisions. Top management officials are widely believed to make a difference in the outputs and achievements of public sector organisations (Boyne et al., 2011). Many studies of senior managers in the public sector provide evidence of their role in determining strategies, affecting implementation and influencing performance (Hill, 2005; Boyne, 2004; Brewer and Selden, 2000). On the other hand, few studies raise the key question concerning whether top management is a threat to or an opportunity for change initiatives (Soltani et al., 2007). Nevertheless, public sector studies offer adequate evidence of the critical role that senior public managers play in bringing about organisational change (e.g., Fernandez and Rainey, 2006; Borins 2000; Soltani et al., 2007).

Top management's commitment and support are one of the important and critical success factors for change (reform) adoption (Bhattacharya and Wamba, 2015; Khanh, 2014; Soltani et al., 2007). In public organisations, the decision maker is very likely to be in the top management team and his/her commitment and support are crucial for the adoption to take place. Barzelay's (2002) investigation of NPM-based reforms in different countries, for instance, reports that Aucoin (1990) attributes the failure of reforms in Canada to a lack of commitment and support from cabinet ministers, who simply did not care much about the change (reforms). A recent study conducted by Troshani et al. (2011) demonstrates that management commitment is considered to be a key driver for change (reform) adoption in the Australian public sector as it represents a source of support and funding, which are both critical for adopting change.

Top management's support mainly refers to management's skills, ability and knowledge required to support organisational change. Top management's ability and commitment have a significant impact on the adoption rate of strategic change at the organisational level (Naranjo-Gil, 2014; Alkhater et al., 2014; Fernandez and Rainey, 2006). In addition, support from top management is essential because they have the ability to formulate the change and lack of support can result in unsuccessful organisational change (Roberts et al., 2003). The involvement and support of the organisation's top authorities would enable officials to implement the change project with more confidence. This may result in higher levels of success and avoid problems such as mismanagement and resistance to change (Bhattacharya and Wamba, 2015; Kotter, 1996; Fernandez and Rainey, 2006 and Roberts et al., 2003). Moreover, support and commitment from the senior management is essential for the prevention of misuse of public funds (World Bank, 2013). Thus, it can be seen that top management's commitment, support and ability to manage people are essential for the successful implementation of change.

3.6.2 Human Capacity

In any organisational context, the human element occupies the central place, both in terms of importance and as a determinant factor and agent of progress. The human resource in general and skilled (trained) workforce in particular is the driving force for organisational change, the factor that determines it and channels it, and the agent that ensures the functioning for the purpose of change and adaptation of all the other change factors (Campeanu-Sonea, 2010). On the other hand, employees' lack of technical ability and the lack of proper training within organisations are considered as barriers to change (reform) implementation (Obeidat and Abu-Shanab, 2010). Therefore, it is very important for organisations to develop their human resource (HR) capacity and capability before implementing change (Mishra and Sharma, 2013).

Successful organisational change management must gain the hearts and minds of the people involved (Tang and Gao, 2012), and training is one of the key factors that may enhance the employees' commitment and ability to change (Gelaidan and Ahmad,

2013). In a change management and organisational development context, training is one of the most essential issues when people need to become familiar with work under the new circumstances and to be prepared for changes (Singh and Waddell, 2004; Zarei et al., 2008; Choudrie et al., 2005). Therefore, lack of training resources may result in a decrease of normal development procedures, and lead to an increasing risk of change initiative failure. Similarly, Vienazindiene and Ciarniene (2007) concluded that, despite the fact that the public sector is defined as a rather stable, secure structure with little external pressure, the changing social, economic and political situation increases the range of qualifications public employees are required to have. These requirements stress the importance of an adequate education and training programme for public employees to cope with the change.

3.6.3 Change Management Strategy

The public-management literature contains substantial evidence of the importance of determining the strategy for change and persuasively communicating it through a continuing process of exchange with as many stakeholders and participants as possible (e.g., Fernandez and Rainey, 2006; Kotter, 2010; Kickert, 2014; Elving, 2005). The ability to manage organisational change is crucial for both public and private sector organisations to either survive or grow in a highly competitive and ever-changing environment (Hurn, 2012; Yilmaz et al., 2013; Hashim, 2013).

The main aspect of a course of action that appears crucial for change management in the public sector includes the clarity or degree of specificity of the strategy (Fernandez and Rainey, 2006). Similarly, Kotter (1996) explains that the basic elements of an organisation's vision should be organised into a strategy for achieving that vision so that the transformation does not disintegrate into a set of unrelated and confusing directives and activities. Thus, public managerial leaders must develop an adequate and clear course of action or strategy to employ change. This strategy may serve as a road map for the organisation, offering direction on how to achieve the desired results, identifying barriers and suggesting measures for overcoming those barriers (Fernandez and Rainey, 2006).

A well-planned communication programme is vital in the implementation of strategy to initiate organisational change (Elving, 2005). The general importance of communication during planned organisational change has been empirically demonstrated and generally agreed among researchers and practitioners (DuFrene and Lehman, 2014; Kotter, 1996; Elving, 2005; Fernandez and Rainey, 2006). Elving (2005) argues that one of the main purposes of change communication should be to inform the employees about the change, and how their work will be altered because of the change. This informative function of communication will have an effect on employees' readiness for and acceptance of change. On the other hand, little or poor communication during the change process may result in rumours and resistance to change, exaggerating the negative aspects of the change (DuFrene and Lehman, 2014; Smelzer and Zener, 1992). For that reason, Proctor and Doukakis (2003) suggest that, whatever strategy is adopted, management should be the first source for information, rather than employees relying on the rumour mill or the media for updates.

3.6.4 Organisational Culture

French and Bell (2001) define culture as values, assumptions and beliefs held in common by members of an organisation. Similarly, Burnes (1991) explains that the cultural factors relate to the attitudes and beliefs held by individuals and groups in organisations. These attitudes and beliefs not only shape how organisations plan and execute change, but also affect how attempts to effect changes that do not fit in with these may be resisted and rejected (Burnes, 1991). In order to take full advantage of the potential offered by change (reform) initiatives, government organisational culture and individual attitudes within the organisation need to be changed (Li, 2003). However, the danger of any change exercise is that old cultures may re-emerge and employees may revert to old habits, norms and values (Blackburn, 2014). Therefore, change management literature often suggests that staff need to be rewarded and trained in the new culture if change is to transpire (Boyd, 2011, Blackburn, 2014; Gelaidan and Ahmad, 2013).

Some organisations are relatively more process-oriented, with conservative attitudes

towards change or innovation (Hofstede et al., 1990; Ciganek et al., 2014). These organisations are resistant to change, risk and new technology, and only exert minimal effort in their routine work tasks (Hofstede et al., 1990). Resistance to change is more likely to increase the duration of the decision-making process (Ciganek et al., 2014). In contrast to process-oriented organisations, results-oriented organisations are relatively risk-oriented and promote an environment that encourages and actively supports the use of innovations and innovative ideas and techniques for the survival and growth of the organisation (Hofstede et al., 1990). An organisation perceived to be more risk-oriented will have shorter decision durations (Ciganek et al., 2014) and is more likely to adopt change agenda (Gelaidan and Ahmad, 2013). Similarly, a study conducted by Silverthorne (2004) concluded that organisations dominated by a bureaucratic or conservative culture demonstrate the lowest level of organisational commitment, an innovative culture often reflects a middle level of commitment and a supportive culture demonstrates the highest level of organisational commitment. Traditionally, public organisations are dominated by a bureaucratic and conservative culture that often raises the issue of resistance to change. Thus, understanding the relationship between culture and employees' behaviour plays a decisive role in developing effective interventions in order to guide change processes (Gelaidan and Ahmad, 2013).

In the case of public organisations, changes that are aligned with the existing organisational culture may be embraced with enthusiasm and implemented quickly. However, changes that threaten the underlying culture are very difficult to implement (Cunningham and Kempling, 2009). Whilst organisational change in the public sector is increasingly oriented towards the development of a post-bureaucratic organisational culture, there remains a limited empirical understanding of culture in public organisations (Parker and Bradley, 2000). Lack of understanding of the organisational culture in the public sector is of concern because research on organisational culture indicates that culture is often central to the change process and strategic objectives (Bluedorn and Lundgren, 1993; Parker and Bradley, 2000; Hofstede et al., 1990; Schein, 1996). Similarly, Kanter et al. (1992) argue that it is vital for change leaders to understand current organisational culture. This will enable them to develop better

change management strategies that are more appropriate for the organisational context. Therefore, better understanding of culture within the public sector provides a basis for selecting appropriate strategies for achieving improved outcomes in the public sector (Parker and Bradley, 2000).

3.6.5 Reward System

Reward in an organisation generally refers to a monetary payment granted in appreciation of an activity performed successfully by an employee who brought some unanticipated credit or attainment to the organisation (Rajmohan, 2015). There are a number of components in a total reward system. The most commonly used system is that of compensation and benefits, which includes wages, bonuses, vacations and health insurance (Holston and Kleiner, 2015).

In the current era of intense competition and ever-changing business environment, companies must find ways to maintain their competitive advantage. One such method is through the strategic use of rewards to attract, retain and motivate their staff (Holston and Kleiner, 2015). Similarly, Rajmohan (2015) argues that employing modern change management techniques and making successful management reforms requires a balance to be struck between employee satisfaction and operational performance.

One specific form of organisational change that continues to have a significant impact on attempts at public sector transformation (reforms) is the adoption of new managerial mechanisms that are borrowed from the private sector (Piercy et al., 2013). In particular, great emphasis has been put on performance appraisals and reward systems, which are seen as mechanisms to align employees' actions with output delivery (Azzone and Palermo, 2011). The reward system should be well defined and aligned to motivate employee performance that is consistent with the firm's strategy, attract and retain people with the knowledge, skills and abilities required to realise the firm's strategic goals, and create a supportive culture and structure (Altameem, 2007).

3.6.6 Summary of the Organisational Factors

A list of Organisational factors that influence the adoption of a Change (Reform) project as indicated from and explored in the literature review is provided in Table 3-3 below.

Organisational Factors	Source
Top Management	Bhattacharya and Wamba, 2015; Piercy et al.,2013; Oakland and Tanner, 2007; Fernandez and Rainey, 2006; Khanh, 2014; Kamal, 2006; Boyne et al., 2011; Carpenter et al., 2004; Soltani et al., 2007; Naranjo-Gil, 2015; Alkhater et al., 2014; Roberts et al., 2003.
Organisational Culture	Hofstede et al., 1990; Schein, 1996; Burnes, 1991; Li and Steveson, 2002; Ciganek et al., 2014; Bluedorn and Lundgren, 1993; Parker and Bradley, 2000; Kanter et., 1992; French and Bell, 1999; Gelaidan and Ahmad, 2013.
Change Management	Fernandez and Rainey, 2006; Kotter, 2010; Kickert, 2014; Elving, 2005; Hurn, 2012; Yilmaz et al., 2013; Hashim, 2013.
Human Capacity	Campeanu-Sonea, 2010; Tang and Gao, 2012; Zarei et al., 2008; Vienazindiene and Ciarniene, 2007; Obeidat and Abu-Shanab, 2010; Mishra and Sharma, 2013; Troshani et al., 2011.
Reward System	Rajmohan, 2015; Holston and Kleiner, 2015; Azzone and Palermo, 2011; Altameem, 2007.

Table 3-3 List of the Organisational Factors Influencing Change (Reform) Adoption

In summary, it can be seen that organisational factors such as Top Management, Organisational Culture, Change Management, Human Capacity and Reward System can have significant influence on people’s intention to adopt change. The following figure 3-3, further presents the developed framework for change (reform) adoption in terms of Organisational factors.

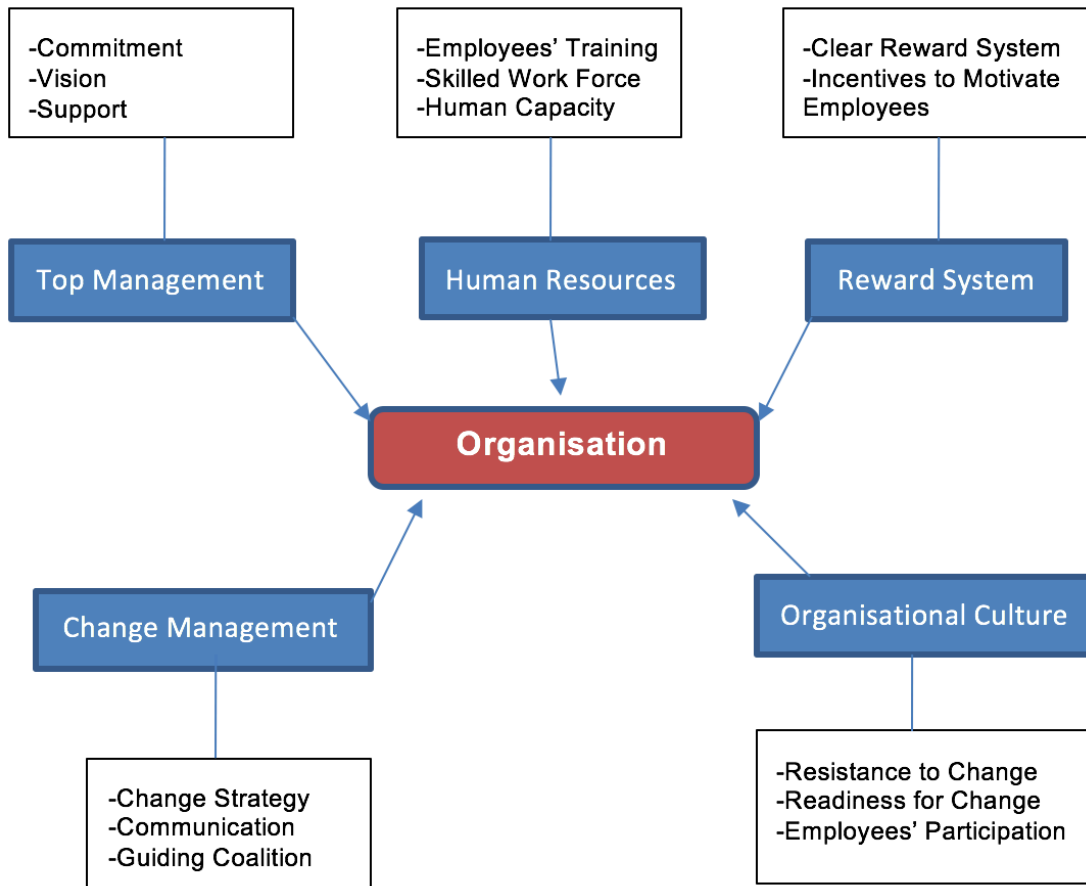


Figure 3-3 Organisational Framework for Change (Reform) Adoption

3.7 Environmental Factors for Change (Reform) Adoption

The Environmental context represents the arena where organisations operate. In management literature, external organisational factors that influence functioning and decision making, e.g., governmental push, technology standards development, legal environment, consumer readiness with increasing awareness, technological breakthroughs, etc., have been characterised as environmental factors (Bhattacharya and Wamba, 2015). The Environmental context represents the arena where organisations conduct their business, and includes industry characteristics, government regulation and supporting infrastructure (Troshani et al., 2011). In the context of public organisations, the environment is mostly associated with the political, social, economic and regulatory aspects (Angel-Sveda, 2013; Bernroider and Schmollerl, 2013; Tornatzky and Fleischer, 1990; Thi et al., 2014).

Organisational behaviour and strategic management studies suggest that organisational change adoption decision-making is highly influenced by the contextual environmental factors (Al-Zoubi, 2013; Bhattacharya and Wamba, 2015). Similarly, Jacobs et al. (2013) highlight the strong relevance of the macro-environment for organisational change. Thus, an understanding of the institutional environment in which businesses operate is very important.

Management literature recommends the PESTLE approach as an organising framework to understand external factors (Johnson et al., 2011; Kelly and Ashwin, 2013). This framework combines the analysis of political (P), economic (E), social (S), i.e., cultural etc., technological (T) and legislative (L) and sometimes ecological (green) issues. The *political* environment within which change (reform) initiatives are undertaken is of foremost importance because politics represents the authoritative allocation of values or goals for society (Nour et al., 2008). Political overseers can influence the outcome of planned organisational change by creating and conveying a vision that explains the need for that change, as well as by selecting political appointees who are committed to the change and have adequate knowledge and skills for managing the transformation (Fernandez and Rainey 2006). However, political instability, civil war and low levels of democratisation may hinder initiatives. These issues create a difficult environment for change adoption. Both the legal and economic environments are closely entwined with the political environment (Kelly and Ashwin, 2013). *Economic* factors influencing the development of change (reform) initiatives include issues such as costs, budgets allocated, donor support and financial resources. A strong economic environment and adequate funding facilitates the infrastructure required to implement change in public sector organisations and helps achieve the associated targets and milestones in terms of reform implementation. According to Okiy (2005), the significance of funding in providing improved public services cannot be over emphasised. Failure to provide sufficient resources in support of planned change leads to feeble implementation efforts (Boyne 2003; Fernandez and Rainey 2006). The next sub-sections describe these environmental factors in more detail.

3.7.1 Political

The notion that leadership is a key factor in the organisational change process appears in the literature on organisational change (see e.g., Kotter, 1996; Burnes and By, 2012). Leadership is also regarded as an important driver of change in the literature on change in public sector organisations. However, the role and characteristics of political leadership in public sector organisations are quite different from leadership in private sector organisations (Kuipers et al., 2014). The political environment in which change (reform) initiatives are undertaken is of great importance because politics represents the authoritative allocation of values or goals for the society (Nour et al., 2008). Public policy scholars have observed the impact of support from political overseers or sovereigns on the outcome of new policy implementation (see for example Fernandez and Rainey, 2006; Berman and Wang 2000; Julnes and Holzer, 2001). Burke and Wright (2002) also noted that the state governor's high level of support and commitment for particular reforms in Florida had a substantial influence on the degree of adoption and implementation.

In the context of developing countries, Heeks (2003) explains that the key reason for public reform failures is that the political environment in less developed countries has a 'power culture', which values self-interest and hidden agendas. Thus, a supportive political environment for change in public organisations, particularly in the context of developing countries, is very important. Additionally, people lose trust in their governments whenever there is a history of dictatorship, political instability or large-scale corruption (Ndou, 2004). Further problems associated with the developing countries' political environment are: political instability, civil wars and low levels of democratisation. These issues may create a difficult environment for change (reform) project development and adoption. However, the negative impact of these factors can be reduced if there is a strong political will and support for change (reform) projects. Therefore, successful organisational change in the public sector depends on the degree of support from and ability of political overseers and other key external stakeholders (Kickert, 2014). Political overseers can influence the outcome of planned organisational change by creating and conveying a vision that explains the need for change, as well as

by selecting political appointees who are committed to the change and have the adequate knowledge and skills for managing the transformation (Fernandez and Rainey, 2006).

3.7.2 Economic

Economic factors that influence the development of change (reform) initiatives include issues such as costs, budgets allocated, donor support and financial resources. A strong economic environment and adequate funding facilitate the infrastructure that is required to implement change in public sector organisations and help achieve the associated targets and milestones in terms of reform implementation (Khanh, 2014). Additionally, as mentioned previously, public reform initiatives are long-term projects, and therefore they need long-term financial support from the government. This can be a major challenge, especially when the funding has to come from a government with limited financial resources and great political influence or instability (Al-Shafi and Weerakkody, 2010; Khanh, 2014). Generally, developing countries face various economic challenges such as high unemployment, high poverty rate, and large budget deficits, which often results in reform failure.

A fairly consistent finding in the literature is that change is not cheap or without trade-offs (Fernandez and Rainey, 2006). Thus, successful change (reform) usually requires ample resources to support the process (Boyne, 2003). According to Okiy (2005), the significance of funding in providing improved public services cannot be over emphasised. Failure to provide sufficient resources in support of a planned change leads to feeble implementation efforts, higher levels of interpersonal stress, and even neglect of core organisational activities and functions (Fernandez and Rainey, 2006). Lack of funds is certainly a hindrance, especially when adopting a change means that an individual or organisation must go through a learning curve and possibly take on new responsibilities (Sherry, 2003). To implement change (reform) successfully, the governments need to develop specific and reasonably attainable goals, and understand what resources are available to achieve those goals (Altameem, 2007; Fernandez and Rainey, 2006; Boyne, 2003). Only then will they will be able to formulate a plan that can

be implemented in full, rather than being cut short before any gains are realised due to lack of resources.

3.7.3 Socio-Cultural

Socio-cultural factors are customs, lifestyles and values that characterise a society (Rosman et al., 2009; Hofstede, 2005). In terms of change adoption, researchers seek to describe how cultural values and beliefs can affect the perception and adoption of new ways of doing things. Various studies were carried out to understand the influence of socio-cultural factors on government reforms and e-government adoption (Yasin and Yavas, 2007; Khalil, 2011; Kovacic, 2005; Hill et al., 1998). As a result, multiple factors were identified, including: religion, language, economic status and education. However, there is still a gap in the literature of understanding how national cultural influence employees' decision to adopt change (reform).

Hall (2003) and Hofstede (2005) revealed a number of dimensions to explain their cultural theories. Hall distinguishes between countries with high-context and low-context. In a high-context culture, there are many contextual elements that help people to understand the rules. As a result, much is taken for granted. In a low-context culture, very little is taken for granted. Hence, there is more explanation and less misunderstanding. Similarly, Hofstede identified four dimensions of national culture which are: individualism-collectivism; uncertainty avoidance; power distance (strength of social hierarchy) and masculinity-femininity (task orientation versus person-orientation). Hofstede's model is the most well-known and has been widely used in academia.

Heeks (2003) refers part of the failure of change (reform) projects in most if not all developing countries to the scant consideration of the specific national country context in terms of cultural issues (including: organisational culture, social issues, literacy, gender and religion). Moreover, Liao and Jeng (2005) argue that public administration involves planning and implementing various policies in order to solve various complex problems posed by the social and political environment. Therefore, significant social challenges will need to be understood well to support those efforts that attempt to

accomplish governmental transformation (Affisco and Soliman, 2006).

3.7.4 Legislative

Public reform is likely to change the way the public sector is doing business; thus, a change programme requires new regulations and legislative acts to cope with the changes. These legislations may include electronic signatures, archiving data protection and the right to information, etc. (Al-Shafi and Weerakkody, 2010; Altameem, 2007). In context of a developing world, a culture of fraud and corrupt practices has seeped far into government organisations, which can be curbed through efficient and powerful laws that aim at limiting the possibilities of corruptive practices (OECD, 2007). In addition, Heeks (2001) clarified that regulatory changes are required for a host of activities, from procurement to service delivery. Failure to introduce an adequate legislative framework may result in change (reform) progress being severely delayed and hindered. A good example of this is in the UK, where implementation of e-government progress was hindered by the data protection and privacy laws that prevail in the country (Bonham et al., 2003). However, compared with developing countries, Public sector organisations in the UK and other developed countries have been through better successful transformation over a period of time. Key to this success was the adequate legal framework introduced to support change (reform). Stewart and Walsh (1992) have highlighted major UK-based reforms, which were backed by adequate legislation. For example, the Education Reform Act 1988 introduced a wide range of changes including the national curriculum and assessment tests for pupils at specified ages. The Local Government Planning and Land Act 1980 and Local Government Act 1988 required local authorities to put out to tender a specified range of services. During the National Health Service reforms, the government's proposals were set out in the White Paper Caring for Patients (Department of Health and Social Security 1989) and implemented through subsequent legislation.

Obeidat and Abu-Shanab (2010) investigated the barriers to the adoption of e-government reforms in Jordan as an example of a developing country. According to them, one of the biggest difficulties that the Jordanian government encountered in its

electronic government reform experience was the absence of legislation to regulate electronic payments and related issues. As a result, Obeidat and Abu-Shanab (2010) suggest importing developed countries' successful experience to facilitate the implementation of a comprehensive legal framework. However, as discussed formerly, there is no 'one best way' to manage organisational change; public sector organisations need to adopt an approach to implement change that matches their needs and situation.

3.7.5 Summary of Environmental Factors

A list of Environmental factors that influence the adoption of Change (Reform) project as indicated from and explored in the literature review is provided in Table 3-4 below.

Environmental Factors	Source
Political	Kuipers et al., 2014; Kotter, 1996; Fernandez and Rainey, 2006; Berman and Wang 2000; Heeks, 2003; Ndou, 2004; Kickert, 2014.
Economical	Al-Shafi, 2009; Khanh, 2014; Okiy, 2005; Sherry, 2003; Altameem, 2007; Fernandez and Rainey, 2006; Boyne, 2003.
Socio-Cultural	Rosman et al., 2009; Hofstede, 2005; Yasin and Yavas, 2007; Khalil, 2011; Kovacic, 2005; Hill et al., 1998.
Legislative	Al-Shafi, 2009; Altameem, 2007; Heeks, 2001; Bonham et al., 2003; Stewart and Walsh, 1992; Abu-Shanab et al., 2010; Obeidat and Abu-Shanab, 2010.

Table 3-4 List of Environmental Factors Influencing Change (Reform) Adoption

In summary, it can be seen that Environmental factors such as Political, Economic, Socio-Cultural and Legal have a significant influence on change (reform) adoption/implementation. Figure 3-4 further presents the developed framework for

change (reform) adoption in terms of Environmental factors.

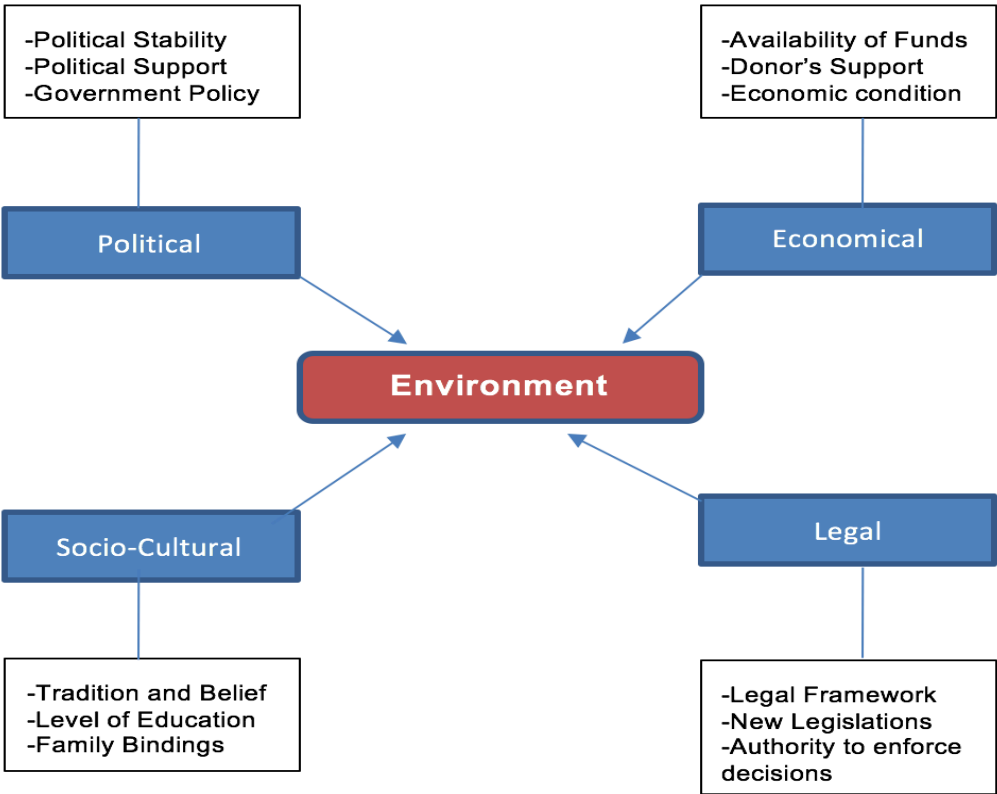


Figure 3-4 Environmental Framework for Change (Reform) Adoption

3.8 Change (Reform) Adoption Framework

From the developed frameworks (Technical, Organisational and Environmental), which are presented in previous sections (see Figures 3-2, 3-3 and 3-4), the researcher has devised a final conceptual framework for change (reform) adoption and implementation, now presented in Figure 3-5 below.

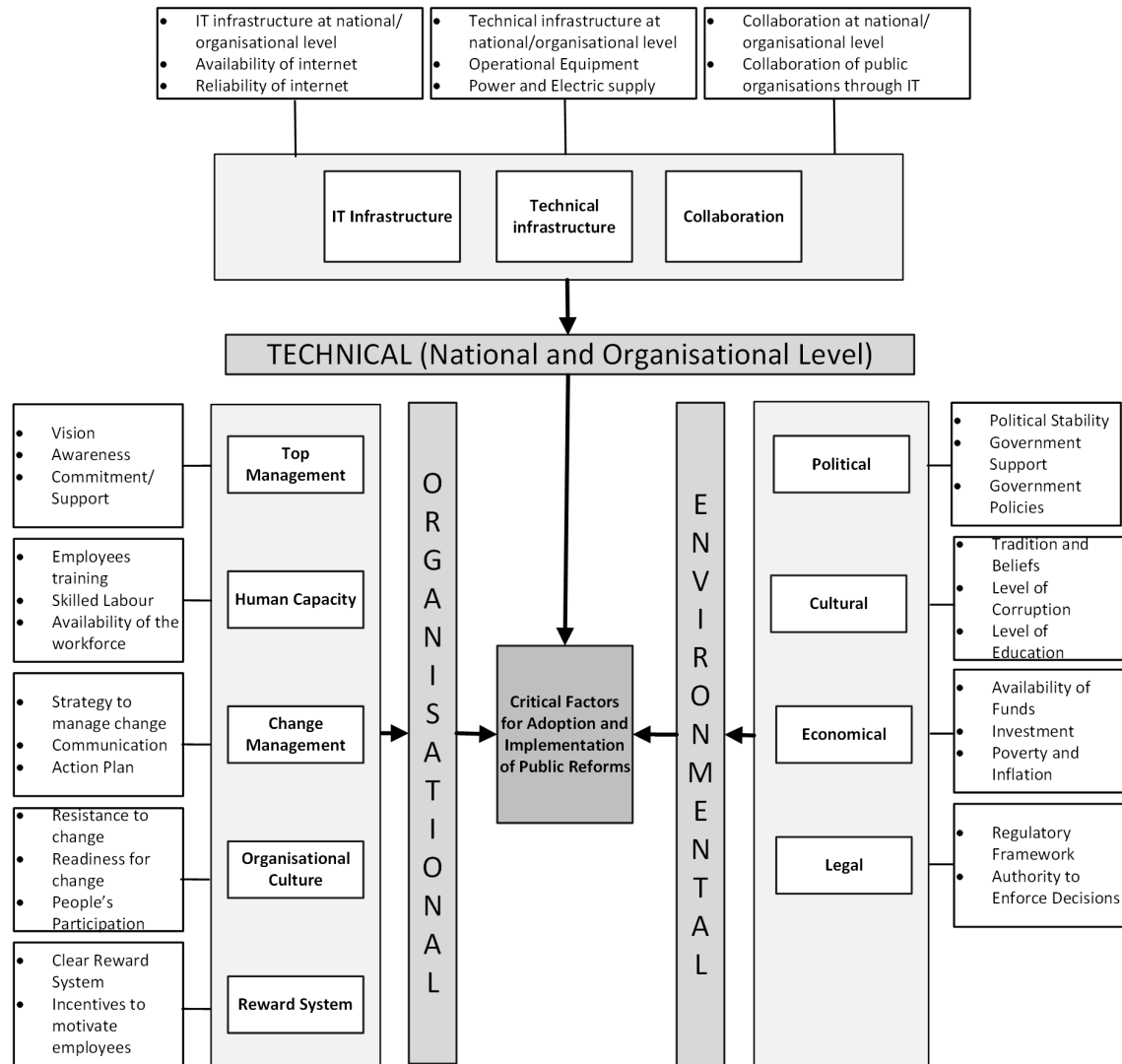


Figure 3-5 Final Framework for Change (Reform) Adoption/Implementation

The final conceptual framework based on the TOE model consists of 12 factors – top management, culture, human capacity, reward system, change management strategy, political, economic, social, legislative, IT infrastructure, technical and collaboration – that may influence the adoption/implementation of change in public organisations. These factors are classified into three different categories based on the nature of their influence: technology-related factors, organisational-related variables and external environment-related factors. Technology-related factors represent infrastructural issues within public organisations that have influenced change acceptance and adoption decisions; organisational factors represent different internal organisational elements that have affected change adoption decisions over the years in various research settings;

and external environment-related factors include PESTLE-related issues. These external factors were found to affect change adoption/implementation in various developing countries and are expected to be influential in Pakistan based on contextual similarities.

3.9 Summary

This chapter has identified many factors in relation to the technology, organisational and environmental contexts. The factors extracted from the literature are believed to be of high significance for reform adoption/implementation, especially from a governmental perspective. Although numerous other factors exist in the literature, as highlighted in Table 2-4 on page 34, two issues were considered: the emergent stage of reforms and the context of developing countries.

The chapter has achieved its aim by proposing an initial conceptual framework that provides a holistic view of critical factors for change adoption. It is theorised that three types of factors (technology, organisational and environmental) exist that have a major influence on the employees' intention to adopt/implement change. The framework development followed a multi-dimensional approach, offering a practical framework to be used for further investigation. Therefore, the proposed framework (Figure 3-5) is carried on to the next phase of the research, as a guideline for examining the challenges and driving forces related to the change (reform) adoption/implementation process in Pakistan. The following chapter discusses the methodology and methods employed in the study in order to achieve the research aim and objectives.

Chapter 4: Research Methodology and Methods

4.1 Introduction

The research methodology is a procedural process and framework within which research is conducted (Remenyi et al., 1998), and the design is a logical sequence that establishes the empirical data from the research questions through to the conclusions of the study (Yin, 1994). In order to reveal the key factors that affect the progress of reform initiatives being implemented in Pakistan (KPK region) and to achieve other research objectives, it is essential to have a well-defined research methodology, methods and research design. However, selecting an appropriate research methodology, design and strategy is not simple; it is necessary to consider a number of factors such as the research topic, objectives, research questions and nature of the research problem. It has been outlined that these factors together with the researcher's personal experiences and skills, resources and time frame to conduct the research, and access rights largely influence the design and strategy choices (Yin, 2003).

This chapter begins with a discussion regarding the philosophical stance adopted for the study (section 4.2). The research purpose and approach are discussed in sections 4.3 and 4.4 respectively, before a detailed discussion of the research methods used to obtain quantitative and qualitative data for evaluation, appears in sections 4.5, 4.6, 4.7 and 4.8. Statistical tests utilised to analyse the collected data are presented in section 4.9. Section 4.10 clarifies the ethical considerations taken into account by the researcher in conducting the study, and, finally, a brief summary is offered in section 4.11.

4.2 Research Philosophy

Research philosophy is connected with the way a researcher thinks about the development of knowledge. This section is concerned with the philosophical stance of the researcher, in which the method to be adopted for the research is decided. Researchers in social sciences must start their research design by recognising the theoretical and philosophical assumptions supporting their investigations (Saunders et al., 2009). Understanding the philosophy of the research helps to recognise which

research strategy may be most beneficial. It shows the relation between data and theory and hence helps to frame the research strategy (Easterby-Smith et al., 2002).

Researchers vary in terms of their philosophical approach to research. Historically, two views or paradigms dominate the literature on organisational studies: positivism and interpretivism, also known as phenomenology (Hussey and Hussey, 1997; Aliyu et al., 2014). Positivism is well known as a scientific approach and is quantitative, and interpretivist is known as non-positivist and qualitative. Positivists believe that a good and reliable understanding of organisations can only be achieved by studying the organisations' activities scientifically using quantitative techniques, while the interpretivists argue that, because human beings are involved in organisational activities, understanding organisations can better be achieved through qualitative evaluation of the practical experiences of the organisational subjects (Uduma and Sylva, 2015). In order to select appropriate methods to carry out this research, it is necessary to understand and explain both approaches.

Positivism

Positivism is based upon values of reason, truth and validity, and there is a focus purely on facts gathered through direct observation and experience and measured empirically using quantitative methods such as surveys (Eriksson and Kovalainen, 2008; Easterby-Smith et al., 2008; Wilson, 2010; Bryman and Bell, 2011; Saunders et al., 2012). This method can be applied to gain understanding of human attitudes, perception and behaviours in the way it reveals information about people through objective values. Being a scientific approach, it deals with the numbers in an objective fashion and applies statistical methods for analysis. According to Burrell and Morgan (1979), quantitative research seeks to explain and predict what happens in the social world by searching for predictabilities and casual relationships between its fundamental elements. Therefore, it is widely acknowledged that positivists develop explanatory and predictive models through establishing causal relationships between different social phenomena (Furlong and Marsh, 2010).

It can be seen that the main benefits of using a positivist approach include aiding managers to be able to make predictions about future events and outcomes (Uduma and Sylva, 2015). However, managers' practical experience has shown that the positivists mainly describe the problem and the likely causes without any attempt to prescribe solutions to them, thus leaving the managers confused. Positivism has also been criticised for its inability to consider the characteristics of the human elements in the organisation and has been labelled 'unrealistic' (Uduma and Sylva, 2015; Aliyu et al., 2014).

Interpretivism

Taking account of various scholars, it is theoretically understood that the interpretive paradigm allows researchers to view the world through the perceptions and experiences of the participants (Thanh and Thanh, 2015). In seeking the answers to a study, the investigator who follows the interpretivist paradigm uses those experiences to construct and interpret his/her understanding from gathered data. Specifically, interpretivism supports scholars in terms of exploring their world by interpreting the understanding of individuals. Furthermore, interpretivists believe an understanding of the context in which any form of research is conducted is critical to the interpretation of data gathered.

The interpretivist approach can be applied to gain deep understanding of human behaviours with regard to revealing people's values, interpretive schemes and belief systems (Cavana et al., 2001). Unlike positivists, interpretivist researchers believe that reality is subjective, complex, multiple and continuously changing (Collins and Hussey, 2009; Creswell, 2014). Interpretivism is a more subjective and qualitatively inclined approach whose view can help to acquire a better understanding of organisations from the standpoint of the practical experiences of organisational actors, especially the employees. Therefore, for the interpretivist, a good understanding of the organisation can only be achieved subjectively using qualitative techniques (Uduma and Sylva, 2015).

Differing from positivists, who are more rigid and often accept only one correct answer, interpretivism is much more inclusive, because it accepts multiple viewpoints of different individuals from distinct groups. The acceptance of multiple perspectives in the interpretivist paradigm often leads to a more comprehensive understanding of the situation (Morehouse, 2011). Although interpretivism has become an increasingly important perspective in social research, criticism of interpretive approaches exists to a certain degree. Arguments range from concerns about false consciousness to the relativism of the paradigm (Aliyu et al., 2014). Additionally, several researchers have shown concern about the lack of ability to generalise the findings of interpretivist research to broader social contexts (Furlong and Marsh, 2010; Creswell, 2014).

Clearly, these two paradigms (positivism and interpretivism) present different perspectives and methodological choices; however, it is important to select the correct methodological paradigm in order to appreciate methods and decisions that can be controversial. It can be seen that both methods have some strengths and weaknesses, which is well summarised by Amaratunga et al. (2002). According to them, the positivist approach is faster and more economical and can cover a wide range of the population, while the data collection method is inflexible. However, in the case of the interpretivist paradigm, data gathering methods are seen as more natural than artificial. This method supports easy understanding of people's meanings and ideas. However, it can be tedious and requires more sources for data collection. Additionally, interpretivism is more difficult in analysis and interpretation than the positivist approach (Amaratunga et al., 2002). Table 4-1 further highlights different features of these two main paradigms, positivism and interpretivism/phenomenological.

Theme	Positivist Paradigm	Phenomenological Paradigm
Basic Beliefs	The world is external and objective.	The world is socially constructed and subjective.
	Observer is independent.	Observer is part of what is observed.
	Science is value free.	Science is driven by human interest.
Research Should	Focus on facts.	Focus on meanings.
	Look for causality and fundamental laws.	Try to understand what is happening.
	Reduce phenomena to simplest elements.	Look at the totality of each situation.
Preferred method in the research	Formulate hypotheses and test them.	Develop ideas through induction from data.
	Operational single concepts, so that they can be measured.	Using multiple methods to establish different views of the phenomena.
	Taking large samples.	Small samples investigated in depth or over time.

Table 4-1 Overview of Differences between Positivist and Interpretivist Paradigms
Source: Easterby-Smith et al. (1991)

The research questions and objectives of this study are the driving force behind the choice of philosophical paradigm. Given that the main purpose of the study is to identify the factors hindering or supporting the adoption of public reforms in Pakistan through testing the validity of a proposed model, it is obvious, for many reasons, that a positivist paradigm would be suitable. However, it is also recognised that, as the objective of the study is also to explore some unobservable aspects of the research problem relating to people’s beliefs and experiences, the traditional positivist approach with its quantitative composition will not be effective, and thus the researcher believes a modified version of the positivist paradigm would be more suitable. This paradigm is described as post-positivist. Therefore, a post-positivist paradigm will guide the investigation in this research.

Post-positivism

Post-positivism is one of the paradigms that are frequently adopted in a social research context. Post-positivist researchers appreciate the complicated and interrelated relationship between an individual's behaviour and attitudes, external environment, and socio-cultural matters (Crossan, 2003). Therefore, they highlight the need for multiple measures and observations to obtain a better picture of what is happening in reality through what is called 'Triangulation'. Moreover, triangulation provides deeper understanding of a topic and helps to overcome the practical constraints and ensure the quality of findings by cross checking the results (Bryman, 1984; Bryman and Bell, 2007). According to Clark and Creswell (2008), triangulation refers to the use of multiple data collection methods to collect quantitative and qualitative data in order to understand the phenomenon at hand.

According to Stewart and Floyd (2004), modern researchers have recognised that traditional survey research has limits, and other forms of inquiry are also required. Thus, direct experience can be better understood using post-positivist reflections (Henderson, 2011). It is important to mention that post-positivism does not suggest that positivism is no longer relevant but rather that something exists subsequent to positivism that also is worth considering. Acknowledging and using a post-positivist paradigm may enable researchers to expand their options for data collection and will also underline the pragmatic need to conduct research and examine findings that work (Henderson, 2011). Moreover, Ryan (2006) described the characteristics of post-positivism as broad, bringing together theory and practice, allowing acknowledgment of and encouragement for the researchers' motivation and commitment to the topic, and recognising that many appropriate techniques can be applied to collect and analyse data. Post-positivism thus legitimises the potential for using mixed methods to gain a better picture of what is happening in reality.

The study adopts the post-positivist paradigm for two main reasons. The first is its intention to explore the current status of change adoption in Pakistan and to highlight the key factors that influence the adoption/implementation of change. This will require

the empirical testing of a proposed model (TOE) using quantitative data, and a semi-structured interview exercise to achieve more in-depth data. The post-positivist philosophical perspective is the most appropriate in such a situation, as it provides the means for achieving the objectives whilst simultaneously allowing new theory to emerge. The second reason is the fact that the use of mixed-method research in this post-positivist approach will facilitate a profound understanding of Pakistani public employees' views and perceptions about recent change programme.

4.3 Research Purpose

According to Polit et al. (2001), explorative studies are undertaken when a new area is being investigated or when little is known about an area of interest. It is used to investigate the full nature of the phenomenon and other factors related to it. Exploratory research involves seeking to understand more about something the research has noticed or observed, often generating hypotheses for future research (Robson, 2011). Kowalczyk (2013) states that exploratory research helps to understand the drivers and barriers of the environment issues, the possibilities and situations of interest that exist, and identifies the variables that will be relevant to the research.

Exploratory studies are particularly useful when the intent is to create more understanding about unclear issues, where the researcher is uncertain about the important characteristics and relationships and which theories are relevant to a given situation (Gray, 2009; Yin, 2003; Saunders et al., 2012). Therefore, exploratory research is usually adopted when there is uncertainty in the field and little is known about the research problems (Polit et al., 2001; Brink and Wood, 1998; Gray, 2009).

According to Uys and Basson (1991), an exploratory research design is a flexible research design that provides an opportunity to examine all aspects of the problem being studied and often strives to develop new knowledge. In exploratory studies, literature review, direct observation, interviews, case studies and focus groups are used as data collection techniques that can yield both qualitative and quantitative data in

order to reveal clear patterns about the problem at hand (Collins and Hussey, 2009; Saunders et al., 2012; Gray, 2009).

Unlike exploratory, explanatory studies try to answer 'why' and 'how' questions regarding the occurrence of an event or the nature of the relationship among research variables (Zikmund, 2010; Gray, 2009; Collins and Hussey, 2009). Explanatory research is an attempt to relate ideas to identify the cause and impact of research problem, reports Kowalczyk (2013). Explanatory research thus defines any causal relationship between the variables that affect research. It is considered explanatory because the initial data results obtained from the exploratory stage are explained further with the new set of data and analysis. It is also considered sequential because the initial exploratory phase is followed by the explanatory phase. In explanatory studies, the researchers use existing theories to develop hypotheses about the expected relationships among the variables and then collect both quantitative and qualitative data in order to test the hypothetical relationships (Sekaran, 2003; Blumberg et al., 2011). Creswell (2014), however, noted that explanatory research design is popular in fields with a strong quantitative orientation (hence the project often begins with quantitative research).

Descriptive studies, on the other hand, usually describe the characteristics of the important variables in a certain phenomenon. According to Hedrick et al. (1993) and Burns and Grove (2003), the purpose of a descriptive study is to provide a picture of a phenomenon as it naturally occurs. It may be used to justify current practice and make a judgement and also to develop theories. A descriptive technique moves the investigation beyond the reach of exploratory and explanatory studies by searching for answers to 'what, when, who, where' and 'how' questions. Another important distinctive attribute of descriptive research compared to alternative types of studies relates to the fact that, while descriptive research can employ a number of variables, only one variable is required to conduct a descriptive study (Enayet and Supinit, 2016). Quantitative data collection methods are usually adopted to collect descriptive data, which is then subjected to statistical analysis, with findings being presented in the form

of numbers, figures and diagrams (Collins and Hussey, 2009). Enayet and Supinit (2016), however, suggest that descriptive studies can contain the elements of both qualitative and quantitative data collection methods within a single piece of research.

With reference to Giddens's (1984) framework, this research begins with an exploratory phase that comprises an investigation process and a research framework designing process, which is followed by an explanatory phase that consists of a testing process and an analysis process. Within these two phases, a mixed-methods approach that involves both quantitative and qualitative techniques seem suitable, as suggested by the post-positivist paradigm. In line with advice from Gray (2009), one reason for using multi-methods is that the current research project includes a number of different research questions, so a research method appropriate for one question may be inappropriate for another.

In this research, the first stage (exploratory phase) seeks to investigate change adoption in the public sector of developing countries, using Pakistan as an example. The exploratory phase helps in understanding different factors as well as their perceived interaction for the phenomenon under investigation (Kratwohl, 1997). Thus, the exploratory phase in the current study will assist in examining change adoption in developing countries at an organisational level and in gaining insight into various issues that may influence change adoption in similar settings.

In this research, the literature review is a very important element of the exploratory phase in order to understand the topic under investigation and clarify important issues, revealing how this topic is treated and studied. In the exploratory phase, the literature review assists in specifying the theoretical perspectives that can be used to study change (reform) adoption in developing countries; therefore, conceptualising the determinants of change adoption/implementation in developing countries. Taking into account the lack of change management studies in the region, semi-structured interviews were also proposed and conducted to gain rich information and deeper

understanding of the key factors (drivers and barriers) for change adoption/implementation in Pakistan.

In the explanatory phase of the study, a theoretical model of the critical factors influencing the adoption of change in Pakistan is developed according to the literature. This proposed integrated model is tested to identify the nature of the relationships among its variables, and to establish cause-effect relationships in order to provide better understanding of the main research problem.

4.4 Research Approach

There are two types of research approach used, in line with the diverse schools of thought in the various philosophies (Saunders et al, 2012). These are Inductive and Deductive. However, several researchers refer to the two approaches as quantitative and qualitative research approaches (Collins and Hussey, 2009; Creswell, 2014).

Each of these approaches is individually associated with one of the main research philosophies that a researcher selects. The deductive approach is usually associated with positivism and the inductive approach is associated with interpretivism (Bryman and Bell, 2011). Saunders et al. (2012) state that it mainly depends on the nature and scope of the research study and that the researcher should select the most appropriate research approach that suits the data to be collected.

Deductive content analysis is often used in cases where the researcher wishes to re-test existing data in a new context (Elo and Kyngas, 2008). This may also involve testing categories, concepts, models or hypotheses. In the view of Wilson (2010), the deductive approach can be explained as developing hypotheses which are derived from some existing theory, and then formulating a research strategy for hypotheses testing. According to this approach, a set of hypotheses are developed and then tested through data collection and analysis with the view of accepting or rejecting the given hypotheses. Therefore, in the deductive approach, there is a well-established role for existing theory since it informs the development of hypotheses, the choice of variables,

and the resultant measures that researchers intend to use (Bryman and Bell, 2011; Ali and Birley, 1998). Pelissier (2008) thus refers to this method as the waterfall approach. In his view the deductive approach starts from broad observations and then moves towards some specific interpretation. Within the deductive approach, results are shown in the form of numbers that are presented in figures. In other words, the deductive approach relies mainly on measuring and analysing numerical data in order to find the nature of relationships among various sets of data (Eldabi et al., 2002).

In contrast, research based on the inductive approach starts with detailed observation by the researcher and moves towards more generalised interpretations. Here the researcher develops an idea through observations and then collects data in order to create a new idea or theory as a result of analysis of the data collected (Bryman and Bell, 2011; Sekaran, 2003; Zikmund, 2010). Therefore, the inductive approach is also called the bottom-up, or hill-climbing approach, as the researcher starts a piece of research simply from an observation and then gradually moves towards explaining that idea, which eventually ends at some existing or new theory (Lodico et al., 2010).

Unlike the deductive approach, the emphasis in inductive research is on defining an event as a narrative, taking into consideration the importance of describing the context and considering the view of those who are influenced by a phenomenon when trying to assign meaning to it. Therefore, the inductive approach is best used to acquire in-depth information about a problem, and to reveal fundamental motives, feelings, values and perceptions (Hair et al., 2004). Furthermore, in the opinion of Bernard (2013), the inductive approach does not bind the researcher to a specific theory, and thus the researcher can freely develop different patterns of ideas in the process as well as changing the direction of the study as relevant according to the observations made.

The nature of the research topic, aims and objectives determines the most appropriate research approach. It can be seen from the above discussion that a deductive approach is appropriate where the topic is already well researched and the researcher can develop a theoretical framework and test hypotheses based on previous research work.

On the other hand, if the research topic is relatively new and there is no clear theory governing it, it is more suitable to follow inductive reasoning in order to develop more understanding of the topic and arrive at new theory by collecting and analysing more contextual data. However, in the opinion of Creswell (2014), employing both approaches in different stages of the same study is possible. Moreover, both inductive and deductive approaches are useful and important and therefore they should not be viewed as rival approaches but rather as complementary to each other (Bryman, 1984; Creswell, 2014). Thus, a combination of both approaches can provide excellent results in achieving the aims and objectives of any research.

Given the primary aim of this study already mentioned, deductive reasoning involving the testing of relationships among the TOE model variables is deemed an appropriate approach. However, since there is a limited amount of information available about key stakeholders' perspectives in the Pakistani context, inductive reasoning is also used, as relying on one single approach may reduce the effectiveness of the study. These two approaches are used in different stages of the study. Deduction is used in the first stage to develop the theoretical model based on the related literature. Thereafter, quantitative data are collected and statistically analysed in order to test the associations among the model variables. Induction is used in the later stage, when qualitative data is collected and classified in order to arrive at general inferences and patterns regarding the adoption of change in the Pakistani public sector.

Additionally, one of the key reasons for choosing a mixed-methods research approach was to facilitate the triangulation of results and to ultimately enrich the credibility and strengthen the conclusions of the research (Hesse-Biber, 2010). Mixed-methods research is also thought to assist in enhancing understanding of the research problem itself (Johnson and Onwuegbuzie, 2004; Clark and Creswell, 2008; Creswell, 2014). Mixed methods research has also been carried out in the management and organisational field (Molina-Azorin, 2012; Stanley 2015; Currall and Towler, 2003). This research follows such a trend and adopts a mixed quantitative and qualitative approach.

4.5 Research Strategy

Research strategy is the broad plan of how to achieve the determined research objectives. The choice of which strategy to follow is dependent upon the nature of the research problem (Noor, 2008). Saunders et al. (2009) argue that there are six research strategies that can be employed in any research design: ethnography, experiment, survey, case study, grounded theory and action research. This section describes each of them.

While *ethnographic research* involves an ongoing attempt to place specific encounters, events and understandings into a fuller, more meaningful context (Myers, 1999), *action research*, which was originally proposed by Lewin (1946), goes beyond traditional research of social action (e.g., describe, analyse, theorise) to act with social subjects to change or create human and social practices (Oates 2006; Somekh, 2006). The *experimental strategy* includes studies that take place within a designed, controlled environment and usually involves special treatment of different groups to contrast the precise relationships among variables (Galliers, 1991). Researchers carefully measure and observe the outcome of the experiment and are able to explain it as well as predicting future events (Oates, 2006). *Grounded theory*, which was originally introduced by Glaser and Strauss (1999), seeks to formulate hypotheses based on conceptual ideas of 'what is going on out there' by means of empirical data. According to them, grounded theory is a research method that aims to systematically gather and analyse data in order to develop a theory that is grounded in the data (Glaser and Strauss, 1999). *Case studies* allow exploration of the phenomenon in depth with context and with people's perceptions taken into consideration. According to Yin (2009), a case study allows the researcher to explore a contemporary phenomenon in detail, within its real-life context, and especially when the boundaries of the phenomenon and the context are not very clear. It enables the enquirer to interpret the opinions, behaviour and actions of the individuals who are influencing the existence of the phenomenon under investigation. Research based on case study can either be positivist or interpretive, depending on the underlying philosophical paradigm of the researcher (Oates 2006). The *survey strategy*, on the other hand, is amongst the most utilised

strategies in social research (Babbie, 2004; Saunders et al., 2007). Surveys are generally associated with the quantitative approach and allows the low-cost gathering of quantitative data that can be representative of the whole population (Saunders et al., 2007). Surveys can be carried out in person, over the phone, by post, through a website or via email (Easterby-Smith et al., 2002). In the present research, the survey strategy and the case study strategy seem to be appropriate for quantitative parts and qualitative parts respectively; thus, they are adopted.

4.6 Research Methods for Data Collection

Research methods describe the tools and resources used for data collection, and the tools and techniques applied for data analysis. According to Krathwohl (1997), the key activity in a research project is data collection, which depends on the study objectives and is influenced by the researcher's environmental factors. In this research, the data collection methods are selected based on the underlying philosophy and research objectives. As discussed earlier in section 3.3, the study employs a mixed-methods approach, which suggests the use of mixed quantitative and qualitative data collection methods. This section discusses data collection techniques adopted for each phase of the current research.

4.6.1 The Mixed-Methods Approach

The choice of data collection methods is influenced by four issues, these being: researcher's skills, ensuring credibility, time and cost constraints (Frechtling and Sharp, 1997). Punch (2005) argues that quantitative research allows the researcher to establish relationships amongst variables, whereas it fails to explain those relationships. Due to an inability to measure some phenomena using quantitative methods as well as the inability to explain some results collected by quantitative techniques, a demand for an alternative approach has been raised, leading to the use of qualitative research (Streubert and Carpenter, 1999). The adoption of multiple data collection methods can help to gain more benefits from diverse sources. The use of a variety of data collection methods from different sources can strengthen the validity of the results and minimise the weaknesses of a single method approach (Yin, 2009).

Given all these factors, and consistent with the researcher's post-positivist stance, this study adopted a mixed-methods approach, gathering both quantitative and qualitative data to obtain the attitudes of public employees towards recent change in Pakistani public organisations. Therefore, in the first phase, the current study sought to collect quantitative data through a survey questionnaire, and later, in the second phase, gathered qualitative data through semi-structured interviews. In this research, each phase is made more explicit and data collected from each phase is used to synthesise the analysis and triangulate the findings from each phase. The rationale is to respond to the complexity of change adoption and implementation at an organisational level in Pakistan, given the lack of rigorous public management research in the region.

The methodological triangulation approach integrates the quantitative and the qualitative methods as the principal research technique for this study, it seeks to answer two types of research questions: the quantitative side will target 'what' components of the research question and the qualitative side will seek answers to the questions 'how' and 'why', which relate to the factor aspects of implementing change in public organisations in Pakistan.

4.7 Phase One: Quantitative Approach Using a Questionnaire-Based Survey

The survey is probably the most commonly used research design in organisational research and the social sciences (Mathers et al., 2009). Surveys are commonly used because they allow researchers to collect a considerable amount of data by investigating a large number of subjects in a highly effective manner, thereby facilitating the generalisability of research findings to the whole research population (Sekaran, 2003; Saunders et al., 2012).

In order to offer generalisations, it was necessary to conduct a survey to determine if the generalisations about the critical factors for change (reform) adoption can indeed be accepted. Hence, in this study, quantitative data from at least 400 participants were the target on the basis that this number would provide the researcher with sufficient data to be able to generalise the research findings to the whole research population (see

sample size calculations in page 100). Thus, the researcher chose to utilise a survey questionnaire to collect the needed quantitative data in the first phase of the current study.

4.7.1 Questionnaire Development

The process of developing a survey questionnaire is based on what kind of information is required. In this study, the questionnaire was developed based upon related literature and modified by reviewing previously validated questionnaires. In the domain of employees' adoption/readiness for and rejection/resistance to organisational change, many researchers have used survey instruments to collect the data. Among them are Rafferty and Simons (2006), who worked on an examination of the antecedents of readiness for fine tuning and transformation change; Harfoushi et al. (2016), who evaluated employees' ability and willingness to adopt cloud computing in Jordanian hospitals; and Shah (2011), who studied factors affecting readiness for organisational change in Pakistani public universities. All these researchers applied survey questionnaires to collect the data, which is an efficient way of collecting data for specific variables of interest (Hussey and Hussey, 1997; Bovey and Hede, 2001).

The questionnaire contains detailed brief and clear instructions, and was arranged to facilitate ease of response. Respondents were advised by the information letter (Appendix 2A on page 368) about the nature of the research, the researcher's background, and why the research was being carried out. They were assured of privacy and confidentiality and were offered the opportunity to receive a copy of the research upon its completion. In addition, they were informed that they could fill in the questionnaire in either English or Urdu, and 15 to 20 minutes was the maximum time they would need to complete it. The original questionnaire was developed in the English language. However, translation of the questionnaire into Urdu was necessary because most of the respondents spoke Urdu as their first language. For translation, the researcher took into consideration the accuracy, fluency and ease of use. The questionnaire translation stage was important and necessary to maintain the validity of the data, as ineffective translation could result in lost or misconstrued meanings

between languages. A back-translation method was adopted to avoid any miscommunication and misinterpretation. In the first phase, a professional translator translated the English version of the questionnaire into Urdu. In the second phase, the interpreter translated the Urdu version back into English. The initial English version was then compared with the second. Furthermore, to improve the reliability of the translation further, another person who is bilingual in English and Urdu checked the cross-linguistic comparability of the English and the Urdu versions.

Sekaran (2003) noted that question wording and the overall organisation of a questionnaire are the most important principles in any questionnaire design process. Therefore, some design issues were taken into consideration in order to arrive at the final layout of the questionnaire, shown in Appendix 2A on page 368.

As mentioned previously, all measurement scales used in this study's questionnaire were based on a combination of previously validated instruments from several TOE-based studies in change adoption fields. Appendix 2C on page 383 shows various sources from which the current research instrument has been developed. A five-point Likert scale was the main instrument in the questionnaire to explore participants' agreement or disagreement with the statements. In survey questionnaires, a Likert scale is commonly used to measure attitudes (Miller and Brewer, 2003). In line with the advice from Oppenheim (2009), a Likert scale was adopted in the survey partly because the reliability of Likert scales tends to be good and partly because of the greater range of answers permitted to respondents.

Clear, concise instructions were provided for all sections. The arrangement and length followed the suggestions of Saunders et al. (2009) that a longer and more detailed survey/questionnaire could be used when the population was very specialised in the topic. As was suggested by Bryman and Bell (2011), the shorter and most straightforward questions were placed at the beginning of the questionnaire. The questionnaire was structured with a variety of response opportunities, and was arranged as follows:

Part One – Background information about the participants

This section of the questionnaire required respondents to answer the demographic questions in tick-list or short answer format.

Part Two – Critical factors related to change (reform)

Respondents were asked to indicate whether they agree or disagree with the presence and importance of factors related to recent change initiative. This section offered an agreement/disagreement level, in which rating was done on a scale of 1-5, with 1 = Strong Disagreement, and 5 = Strong Agreement. This part was divided into three main sections and sub sections as illustrated below:

- Section one: Organisational Factors
 1. Top Management
 2. Organisational Culture
 3. Human Resource
 4. Reward System
 5. Change Management Strategy
- Section two: Technical Factors
 1. IT Infrastructure
 2. Collaboration
 3. Technical Infrastructure
- Section three: Environmental Factors
 1. Political
 2. Economy
 3. Socio-Cultural
 4. Legal

After these sections, there was a question asking respondents to indicate whether the project is a success or a failure on a scale of 1-5, where 1 = Very unsuccessful and 5 = Very successful. Furthermore, a five-point scale question was added to investigate the

extent of employees' intention to adopt change, where 1 = Very low extent and 5 = Very high extent.

In all cases, a rating of 3 indicated a neutral position. Finally, an open-ended question was asked for the critical factors related to recent change (reform) project in the KPK region of Pakistan. As mentioned earlier, in developing the survey document, the first step was a thorough literature review, including close scrutiny for possible use of questions generated by other researchers on this topic.

4.7.2 Pilot Study

Before full-scale distribution, the researcher implemented pilot testing on the questionnaire. This was performed to find any errors or difficulties that might have been introduced in the development phase (Bryman and Bell, 2011). Bryman and Bell (2011) further suggest that this step enables the researcher to avoid any potential wording confusion or misunderstood instructions.

According to Saunders et al. (2009), it is essential to test the questionnaire before implementing formal data collection. The main goals of the pilot study are to make sure that respondents do not face any difficulties in answering questions and obtain early indications of reliability for the instruments to be used. Pilot testing the questionnaire helps in confirming that the research instrument's validity and reliability are at an acceptable level, which in turn promises that this instrument will work well in the full-scale data collection phase (Saunders et al., 2009; Bryman and Bell, 2011).

4.7.3 Validity and Reliability of the Questionnaire

According to Saunders et al. (2012), a valid questionnaire is one that enables the researcher to collect the best possible accurate data. Reliability, on the other hand means the consistency of the collected data in different research settings. Next sections discuss the validity and reliability issues of the research in detail.

Validity

According to Kumar (2011), research validity is the degree of precision to which the researcher measures what he/she set out to measure. Thus, validity answers the question as to whether the actual measurement corresponds to the intended measurement. Validity can be viewed from two dimensions – internal and external. Internal validity ensures that the researcher investigates what he/she claims to be investigating. On the other hand, external validity is the extent to which the research findings can be generalised to a wider population (Winter, 2000).

To determine the validity of a data collection method, several types of validity tests are available such as face and content, concurrent and predictive, and construct validity (Bryman and Bell, 2007). However, the most common type in social sciences is face and content validity (Sekaran, 2003).

Content validity refers to the degree of adequacy with which the research instrument covers all aspects of the intended research concepts (Saunders et al., 2009; Sekaran, 2003). In simpler terms, content validity refers to the extent to which all sides of a given research construct are represented by questions in the research instrument.

A number of methods can be used to enhance the content validity of a given research questionnaire: first, carefully outlining the research topic through comprehensive review of the related literature. Second, using a panel of experienced individuals who are able to judge the extent to which the instrument's questions are adequate to measure the intended concept. Finally, allowing comments and suggestions to be made by others through pre-testing the instrument (Saunders et al., 2009).

To ensure the current research instrument's validity in general and content validity in particular, the following steps were taken:

- The development of the research instrument was based on the related literature review and previously validated questionnaires.

- A panel of five experienced individuals (three research experts from LJMU and two senior public officials from Pakistan) reviewed the questionnaire. Suggestions and recommendations provided by the experts were incorporated into the final version.
- A back-translation method was employed in order to translate the questionnaire into Urdu without any significant variations from the original English version. Professionals were hired for this job.
- A pilot study was conducted to find possible difficulties and problems respondents might face while answering the questions. Comments about clarity of wording, question order, instruction and time were taken into consideration in preparation of the final version of the questionnaire.

Reliability

Reliability is the ability to produce consistent measurements each time (Kumar, 2011); that is, if research findings are able to replicate themselves over a number of times or when the research is conducted again. In general, a number of reliability tests are usually employed in order to confirm the consistency of an instrument's output; nevertheless, among academics, the most widely held method for measuring reliability is the internal consistency method, which can be examined through the inter-item consistency reliability test. According to Sekaran (2003), the internal consistency of a measure is suggestive of the consistency of the construct's items and how these items correlate with one another.

Cronbach's alpha coefficient is considered the most frequently used test of inter-item consistency reliability (Saunders et al., 2009). In general, higher coefficients (closer to 1) indicate better inter-item reliability, which implicitly leads to a better measurement instrument. However, instruments with coefficients less than 0.6 are viewed to have poor reliability (Nunnally, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010).

In order to assess the internal consistency of the measured items in the questionnaire (all scale measures), a Cronbach's alpha test was carried out by running the data using IBM SPSS version 22. Table 4-2 below shows the summary of these results.

Serial No.	Construct	No. of Items	Cronbach's Alpha	Comments
1	All Construct	49	.803	Accepted
2	IT Infrastructure	6	.848	Accepted
3	Technical Infrastructure	6	.863	Accepted
4	Collaboration	6	.734	Accepted
5	Top-Management	3	.877	Accepted
6	Human Capacity	3	.795	Accepted
7	Change Management	4	.746	Accepted
8	Organisational Culture	4	.863	Accepted
9	Reward System	3	.742	Accepted
10	Political	4	.887	Accepted
11	Economy	4	.578	Not Accepted
12	Socio-Cultural	3	.742	Accepted
13	Legal	3	.912	Accepted

Table 4-2 Initial Reliability Test Results for Questionnaire Constructs

As shown in the Table 4-2, Cronbach alpha for the 'Economy' construct is below the recommended level (0.6). Consequently, in order to improve the reliability of the construct, item (ECO4) was dropped as suggested by the Table 4-3 produced by the SPSS. After excluding the problematic item, Cronbach alpha for the 'Economic' construct and the overall reliability of all constructs were improved (see Table 4-4).

Item Coding	Items related to 'Economy' Construct	Cronbach's Alpha if Item Deleted
ECO1	Donor's support to implement change	.381
ECO2	Enough funds available to implement change	.382
ECO3	Economic growth in the region supports change	.337
ECO4	Government's ability to increase productivity of their economies	.818

Table 4-3 Reliability Results of the Pilot Test if Item Deleted

Serial No.	Construct	No. of Items	Cronbach's Alpha	Comments
1	All Construct	48	.823	Accepted
2	IT Infrastructure	6	.848	Accepted
3	Technical Infrastructure	6	.863	Accepted
4	Collaboration	6	.734	Accepted
5	Top-Management	3	.877	Accepted
6	Human Capacity	3	.795	Accepted
7	Change Management	4	.746	Accepted
8	Organisational Culture	4	.863	Accepted
9	Reward System	3	.742	Accepted
10	Political	4	.887	Accepted
11	Economical	3	.818	Accepted
12	Socio-Cultural	3	.742	Accepted
13	Legal	3	.912	Accepted

Table 4-4 Final Reliability Test Results for Questionnaire Constructs

4.7.4 Population and Sampling

In general, decisions regarding the sampling method and the minimum sample size required for research purposes are influenced mainly by the availability of resources; specifically, information about the research population, financial resources available to the researcher, and time available to select the sample and to collect and analyse the required data (Saunders et al., 2009).

The setting of the study is public institutions in KPK, and the purpose of the investigation is to explore the key factors that affect the progress of reform initiatives at both institutional and sub-national levels. Therefore, the population of this study is to be defined at two levels, at the institutional level and then at the government level. For the first level, employees of all public institutions in KPK form the population of the study. At the second level, the population is the heads of all public institutions, ministers and decision makers at the government level.

For the first level, the quantitative data was collected from a convenience sample of KPK government employees irrespective of their gender, sector, grade, pay scale or department. In the KPK province of Pakistan, there are 21 provincial departments

(undergoing change process) with approximately 9,000 provincial government servants (bureaucrats).

The survey questionnaire was distributed to a total of 500 public sector employees between the period of December 2014 and April 2015. Of the study population, 320 subjects completed and returned the questionnaire. However, only 300 were usable (N=300) of which there were 145 low-grade staff and 154 high-grade staff (based upon pay scale – one respondent preferring not to say).

Based on Yamane's formula (Yamane, 1973; Israel, 1992), the size of the current research sample was initially calculated to be 382 as illustrated below:

$$n = \frac{N}{1+N(e)^2} = 382.97$$

Where:

n : Sample size N : Population e : Sampling error (usually 0.05 acceptable error)

However, other considerations concerning the adequacy of the sample size for specific statistical techniques also influence the sample size decision (Field, 2009; Hair et al., 2010; Zikmund, 2010). As the current research employed several sophisticated multivariate statistical techniques such as Exploratory Factor Analysis (EFA), Multiple Regression and Structural Equation Modelling (SEM), the researcher ensured that the sample size was appropriate.

Tabachnick and Fidell (2013) suggest a sample size when using multivariate statistics that is greater than $50 + 8m$, where m is the number of predictor variables (up to 12 in this study, i.e., $50 + (12 \times 8) = 146$). More specifically, they state that "*as a general rule of thumb, it is comforting to have at least 300 cases for factor analysis*" (Tabachnick and Fidell, 2013, p. 588). Similarly, Hair et al. (2010) suggest that a sample of 100 to 400 observations is adequate for FA and SEM. Therefore, the sample size ($n=300$) of this research seems appropriate to represent the research population and undertake sophisticated statistical analysis.

4.8 Phase Two: Qualitative Strategy using the Case Study Method

Phase two of this study was investigated using a case study approach. Case studies provide the means by which a phenomenon can be studied with consideration of the context in which it occurs (Yin, 1994). Similarly, Baxter and Jack (2008) illustrate that the case study method allows researchers to explore a phenomenon within its real-life context. The study of organisational culture and its effects on organisational change is particularly suited to case studies as context is critical to understand people's behaviours and interaction. The main purpose of choosing a case study for phase two of this research is the researcher's hope to contribute to the limited number of documented case studies that have addressed governance reform and improvement in public organisations (Edwards, 2002). Case studies are particularly well suited to new research areas or research areas for which existing theory seems inadequate (Eisenhardt, 1989). In relatively less known areas, such as the subject of this study, where there is less experience and theory available to serve as a guide, it is considered that an intensive study of a selected example is a useful method of gaining deeper insight (Ghauri and Gronhaug 2005).

According to Yin (1994), a case study is particularly applicable when 'how' or 'why' questions are being asked about a contemporary set of events over which the investigator has little or no control. Yin (1984) also notes that case studies have a special role in evaluation research, because they can explain the causal links in real-life interventions that are too complex for analysis by surveys or experimental strategies. In case studies, interviews are one of the most important sources of evidence, because case studies usually deal with human affairs and interaction (Yin, 1984). Moreover, interviews serve the purpose of obtaining multiple realities of one single case. It was important in the current study to carry out research by asking questions to the key stakeholders and policy makers who are currently involved in change projects as change leaders.

4.8.1 Data Collection Procedure using Semi-Structured Interviews

Interviews are a key qualitative data collection method for social research (Easterby-Smith et al., 2004). This method is useful as the researcher can ask in-depth questions about the topic and also follow-up on the topic with the participants (Saunders et al., 2012; Seaman, 1999). The main advantage of interviews is that they have the potential to create deep, rich data because they explore topics in considerable detail as opposed to surveys and questionnaires, which are generally superficial (Ellis, 2016). Interviews unlike surveys and set questionnaires allow the interviewer to respond to and probe responses, tailoring the interview to what they hear (Sarantakos, 2012).

Whilst interviews provide a source of rich data, however, the lack of prior interviewing experience can be a major obstacle to high-quality data collection when using this technique. Another obvious disadvantage of conducting any type of research interview is that they are time consuming, particularly if they are recorded and fully transcribed (i.e., word for word). Additionally, small issues such as the phrasing of questions or the tone of voice can have an enormous impact on how the interviewees respond (Ellis, 2016). Therefore, researchers need to be careful to avoid or minimise the disadvantages associated with the interview as a method of data collection.

In addition to face-to-face interviews, phone interviews and interviews through the Internet, e.g., Skype or Yahoo Messenger, are common ways of interviewing participants. However, face-to-face interviewing may be more appropriate, particularly where depth of meaning is important and the research is primarily focused on gaining insight and understanding (Saunders et al., 2012).

According to Easterby-Smith et al. (2004), interviews can take various forms: structured, semi-structured and unstructured, as outlined below.

The *structured interview* is essentially a means of collecting quantitative data via a set of standardised questions asked of all participants. This type of interview is usually employed as an alternative to self-administered questionnaires (Saunders et al., 2012).

The *unstructured interview* is an encounter in which the researcher aims to explore aspects of a given research problem in more depth, and, in this case, there may not be any pre-planned sequence or specific type of questions, most of the questions emerging from the immediate conversation setting (Ellis, 2016; Saunders et al., 2012; Easterby-Smith et al., 2004). The *semi-structured interview* is a more flexible approach, which includes open-ended main interview questions but allows for the conversation to evolve based on the participant's responses (Goodell et al., 2016). Remeyi et al. (2005) state that the semi-structured interview provides an opportunity to probe complex issues in a relaxed atmosphere. Semi-structured interviews can be used with almost all qualitative research methodologies but they cannot be regarded as being as exploratory as unstructured interviews, thus limiting the interpretation of their findings (Ellis, 2016).

Semi-structured and unstructured interviews are most frequently used methods for data collection in qualitative research (Bryman and Bell, 2011). However, unstructured interviews are much more exploratory than semi-structured interviews and as such allow the researcher to gain insight into a topic without having formed any prior conceptions (Ellis, 2016). On the other hand, semi-structured interviews are more suitable for collecting data for explanatory studies as the goal is to understand the nature of relationships among all variables in more specific research situations (Easterby-Smith et al., 2004; Bryman and Bell, 2011; Saunders et al., 2012).

Given these observations, and consistent with the current research objectives, this research adopts a semi-structured face-to-face interview for qualitative data collection. The researcher was able to narrow down some areas or topics that he wanted to ask to the participants based on the research framework (TOE) and survey results. A completely un-structured interview has the risk of not eliciting the required information. The insights gained from the interviews provide an in-depth understanding of the research problem as well as the factors affecting employees' adoption/implementation of change in Pakistani public organisations.

As mentioned earlier, the initial conceptual framework and the literature review provided the frame of reference to draw relevant research questions in preparing the initial semi-structured interview themes. The interview themes were reviewed and evaluated by conducting a pilot interview. Based on the pilot interview, the questions and interview themes were revised and modified.

Questions covered in the interview guide were about general change (reform) project information, reform background, status of the reform project, and challenges encountered during the implementation of the project (Appendix 3B on page 387).

Having developed and tested the interview themes, the researcher began to identify the potential participants to be interviewed amongst the KPK cabinet ministers. There are all together 10-12 key ministers involved in the change process. However, the activity was restricted to three interviewees.

A selection criterion was used to choose the participants so as to reduce bias and again wider in-depth, information about the research questions (Silverman, 2010). According to De Vaus (2004), the required sample size depends on two key factors: the degree of accuracy required for the sample and the extent to which there is a variation in the population in regard to the key characteristics of the study. Other issues such as the available time and financial resources have an influence on the sample size as well. For this study, participants who are somehow involved in decisions related to the recent change project are needed to respond to issues related to the adoption and implementation of change. Among the 10-12 key ministers (leaders of change), a sample size of three is adequate, particularly when the participants are from the highest level and are holders of knowledge in the research area.

The respondents' organisations and positions are as follows:

1. Education Minister (Highest Position in the Education Sector)
2. Health and IT Minister (Highest Position in the Health Sector)

3. Law Minister (Highest Position in the Law Sector)

Whilst undertaking the interviews, the researcher initially faced access problems. Therefore, to arrange the interviews, friends and relatives who knew someone, who knew someone else, through networking, on a few occasions facilitated first contact and eased the process. The researcher's network has contacts with strong political backgrounds within KPK that helped to gain access to important ministers. However, the researcher faced some delays and interruptions while performing the interviews. Because of frequent interruptions (phone calls, etc.), meetings sometimes extended for up to 120 minutes or more. KPK ministers proved to be very busy people, and interruptions and delays were therefore expected while performing interviews.

The researcher started the interview by introducing himself, giving a brief overview of the research being undertaken and its purpose, and presenting the meaning of some terms and concepts related to the topic. Then, respondents were free to express themselves on any question asked. The semi-structured face-to-face interviews were carried out from September 2015 to November 2015 with the highest Government officials. The semi-structured 'interview themes' were designed in English. However, both researcher and respondents conversed in a mixture of two languages, English and Urdu. In Pakistan, it should be noted that Urdu has been the country's sole official language since 1947, but English is widely used in general and in public organisations in particular. Many Urdu words have become part of common usage in informal English and vice versa, thus interchanging Urdu and English is common in the country. In some situations, some English or Urdu words may not be able to fully describe the real situation; thus, it was more appropriate to use mixed languages to obtain clear and detailed information. This is one of the advantages in using the interview method in non-English countries, as long as the interviewer has a background in the native language.

In order to ensure the reliability of the qualitative data collected via the interviews, simple and standard procedures were followed when conducting each interview, when recording the proceedings, transcribing the data and interpreting the data. The

interviews were recorded with the permission of the interviewees to facilitate the transcription of their answers for the data analysis. Saunders et al. (2009) noted that this method allows the researcher to: concentrate on asking questions and listening, to the answers listen to the interview more than once, provide an accurate and unbiased record, and use direct quotes. All interviewees were assured confidentiality and told that their names would not be identified in the transcripts of the interviews as requested. Additionally, only themes supported (triangulated) by several different sources (interviewees, policy documents and government web portals) were taken into consideration, thus enhancing the validity of the process.

4.8.2 Interview Guide

The researcher prepared a list of questions to guide him through the interview process. Appendix 3B on page 387 presents the complete interview guide, which consists of questions and themes formulated for the interviews.

The questions were based on the TOE (Technical-Organisational and Environmental) related factors. Questions were refined several times with the aim of ensuring that they were clear and unbiased. The researcher also made sure that the questions were designed in a logical and coherent order. It should be noted that some follow-up questions were included and asked only to offer interviewees the chance to provide their own perspectives and views on particular topics that are of interest to the researcher. The interview guide was divided into the following main themes:

1. General questions to 'warm up' the participants.
2. Background information about change (reform) initiative in Pakistan.
3. Background information about the change (reform) initiative in a particular ministry/department to gain an insight into the extent of reform maturity and development.
4. Interviewees' perceptions of change (reform) initiative in Pakistan to find out their real views, perceptions and expectations.

5. Interviewees' perceptions about Technical Factors related to change (reform) initiative in Pakistan.
6. Interviewees' perceptions about Organisational Factors related to change (reform) initiative in Pakistan.
7. Interviewees' perceptions about Environmental Factors related to change (reform) initiative in Pakistan.
8. Interviewees' perceptions about the drivers to change (reform) initiative in Pakistan.
9. Interviewees, perceptions about the barriers to change (reform) initiative in Pakistan.
10. Interviewees' perceptions about the current extent and the future of the change (reform) initiative in Pakistan.

The collected qualitative data was then uploaded to NVivo 11 software in order to code the data, clarify meanings, organise and explain the data, search for relationships, and gain an understanding of the various dimensions explored.

4.9 Validity and reliability

Saunders et al. (2009) identified three important issues related to semi-structured interviews (in qualitative research): reliability, bias and validity. Reliability refers to whether alternative research would reveal similar information (Berg, 2012), while validity is concerned with the extent to which the researcher gains access to the participants' knowledge and experience. There are two types of bias that should be considered in the qualitative research: interviewer, and response bias. To avoid bias and ensure reliability and validity, Saunders et al. (2007) suggested the following methods:

- The researcher should plan and prepare for the interviews in advance, to prevent poor performance.
- The researcher should provide the participants with a list of interview themes before the event, to enable the interviewees to prepare themselves for the discussion in which they are to engage.

- The researcher should establish good relationships with the participants, to create a confidential climate and make the interviewees relaxed and open about the information they are willing to discuss.
- The researcher should ask clear questions.
- The researcher should provide the interviewees with a reasonable amount of time, listen to their explanations, and make notes and record the interviews.

In this study, validity and reliability were established using all of the above suggested methods.

4.10 Statistical Analysis Techniques Used for the Study

Data analysis is a process of examining, categorising and rearranging the collected data with the purpose of finding a solution to the research problem (Yin, 2003). It is generally acknowledged that the most important changes in statistics in the last decades have been driven by technology, more specifically, by the development and universal availability of fast computers and of devices to collect and store ever-increasing amounts of data. Moreover, data analysis software increases the credibility and reliability of the results.

Two statistical software packages, namely the Statistical Package for Social Sciences (SPSS) version 22 and Analysis of Moment Structures (AMOS) version 22, were used to analyse the quantitative data gathered via the questionnaire, and NVivo 11 software was used to analyse the qualitative data obtained from the semi-structured interviews and the relevant secondary qualitative data. A more detailed description of each appears in chapters 5 and 6 respectively.

4.11 Ethical Considerations

Ethical issues are present in any kind of research and ethical principles can be used to

guide the research in addressing the initial and ongoing issues arising from the research in order to meet the goals of study as well as to maintain the rights of the research participants (Orb et al., 2001). The ethical considerations require that issues of privacy, accuracy and confidentiality relating to participants should be treated with the utmost care (Rogerson, 2007).

Prior to the data collection (Questionnaire and Interviews) the research design application was prepared and submitted to the university for approval by the University Ethics Committee in September 2014. The research was conducted according to the prescribed guidelines, including observing confidentiality of information observed and accessed during the conduction of the research. The informants were informed of their rights to remain anonymous and to withdraw their participation whenever they so desired, and there was a statement in the consent form (Appendix 3A, page 383) advising them of such option and asserting their confidentiality.

4.12 Summary

This chapter has provided a detailed discussion of the methodology and methods adopted within the study. It has been shown that after due consideration of the various alternatives, a mixed-methods approach was selected based on the nature of the study and the research objectives. A post-positivist philosophical paradigm was found to be the most appropriate, allowing both quantitative and qualitative data to be collected using questionnaires and semi-structured interviews, the purpose of the interviews being to elaborate on the findings from the quantitative data. All choices made in respect of methodology and data collection methods have been fully justified, and the ethical approach to the study has been carefully detailed. The next chapter presents the findings and data analysis for stage one (quantitative data using questionnaires) of the study.

Chapter 5: Quantitative Data Analysis

5.1 Introduction

The previous chapter provided the details about the research methodology and a significant portion was dedicated to methods used in the study. Since phase one of the study adopted quantitative methods in which a survey questionnaire was applied to obtain the data, this chapter presents results relating to the questionnaire that forms the basis of the investigation. Various statistical techniques based on the Statistical Package for Social Sciences (SPSS 22) and structural equation modelling (SEM) based on AMOS 22 software are used to analyse the quantitative data. This chapter comprises three main sections. The first section reports the results of the descriptive data analysis, and starts with a preliminary consideration of the data; this involves the response rate and the process of data screening and cleaning. The demographic profiles of the respondents are discussed, and a preliminary reliability check of the questionnaire's main constructs is made. The second section considers the data-reduction/factor-extraction achieved through EFA, reports the findings of CFA and lastly discusses the procedures relating to the measurement model validation and the structural model, and the causal relationships among the proposed model variables. Finally, the third section presents the alternative structural models achieved through multiple regression analysis using the stepwise method.

5.2 Data Management

This quantitative data collection activity was undertaken from December 2014 to April 2015. The survey questionnaire was distributed by post, email and personal visits to 500 participants who were selected by random sampling from different public organisations in the KPK region of Pakistan. The participants were all public sector employees with different pay grades, levels of education and experience. During data collection, due process was followed such as sending reminders (at least two) to non-respondents after two weeks. However, participants were not forced to fill in the form at any particular time or in any particular place.

As mentioned above, this study is primarily based on statistical package for social sciences (SPSS) version 22 for Windows to assess the descriptive statistics and

exploratory factor analysis. After exploratory factor analysis, factors were assessed via confirmatory factor analysis on the basis of structural equation modelling (SEM). Then analysis of moment (AMOS) software version 22 was applied to assess the model fit of the study. SPSS programs, deal with quantitative data, thus all the participants' responses were entered according to the numeric response value. Before entering the data into the SPSS spreadsheet, columns and rows were developed by coding of questions (items/variables). Therefore, any information about the case can be identified across the data editor. In the name column of SPSS, questionnaire items were coded with numbers along with an abbreviation of the variable. Similarly, in the label column question items were written in abbreviated format. The value section of the column was developed from '99', showing information not provided, and then '1' for 'Strongly Disagree' to '5' 'Strongly Agree' on a five-point Likert scale. Finally, data was cleaned by descriptive statistics tests to gauge the responses to each question according to column section entry to confirm that the correct figures had been entered.

5.3 Data Screening and Cleaning Prior to Analysis

Before data is analysed, a few steps are required to make sure that it is suitable for further analysis. The first step is data screening. According to Hair et al. (2010), data screening and cleaning are very critical, especially when the intention is to use multivariate analysis. For the purposes of data cleaning, initially two types of analysis were applied. These are missing data and outliers. This study further confirmed the data by screening the normality, linearity and reliability before inferring results from the data.

5.3.1 Missing Data

Missing data often occurs when a respondent fails to answer one or more questions in a survey (Hair et al., 2010; Kline, 2011). Missing data occurs for a variety of reasons but the most common reasons in social science research are long questionnaires and/or participants who accidentally miss out questions. Hair et al. (2010) highlight that the problem of missing data affects the statistical analysis of the original dataset in two ways; firstly, by reducing the power of the statistical techniques in indicating any

relationships in the dataset; and secondly by generating bias in the process of parameter estimations.

From 320 responses, there were 20 responses marked as incomplete. In line with the recommendations from Hair et al. (2010), questionnaires that had missing data were then no longer considered for further analysis, which related to around very small percentage (6.25%) of the total responses; Malhotra et al. (2013) describe this procedure for removing missing data as case-wise deletion. Therefore, 300 completed questionnaires were considered to be usable for further analysis, which is an acceptable number of responses for this study.

5.3.2 Outliers

After treating the missing values, the next logical step was to consider outliers (univariate and multivariate), representing those cases with odd and/or extreme scores from other dataset observations. Errors in data entry, erroneous sampling techniques, missing values in calculation, and extreme responses on multi-point scales are among the many causes of outliers (Kline, 2011). According to Hair et al. (2010), outliers are observations with a unique combination of characteristics identifiable as distinctly different from other observations. Hair et al., (2010) classified outliers into four classes: (1) procedural error due to data entry or error in coding; (2) observation that occurs as the result of an extraordinary event; (3) extraordinary observation in which cannot be explained by the researcher; and (4) observations that come under the ordinary range of values for each of the variables.

For the purposes of this study, outliers were detected through univariate and multivariate perspectives. Univariate outliers were identified from the value of z-scores from the data set of the questionnaire. Tabachnick and Fidell (2007) suggest that, if the value of z-score is more than ± 3.29 , the data is considered as univariate outliers, and will be eliminated from further analysis. They further suggest that extremeness of a standardised score depends on the size of the sample (N); with a very large N, a few

standardised scores in excess of 3.29 are expected. Based on z-score, no item was found to have univariate outliers (z-score > ± 3.29) in the data set.

Next, multivariate outliers were detected by calculating the Mahalanobis distance (D^2) which represents the distance of a case from the multidimensional mean of a distribution. Then, those calculated D^2 were compared with a critical of 84.044, which is the Chi-squared distribution (χ^2) value that corresponds with degrees of freedom of 45, which equals the number of the current study variables, and probability of ($p < 0.001$). The results revealed that there were 9 multivariate outliers within the dataset. Table 5-1 shows those results, which reveal that χ^2 value for those cases ranged from 87.0475 to 116.1161, thus requiring further consideration as they might affect the requirements of multivariate statistical tests such as factor analysis and SEM.

Case No.	Mahalanobis distance (D^2) MD	Probability_MD 1 - CDF.CHISQ (MD,48)	Outliers Probability_MD<.001
22	116.11612	0.00000	1
32	115.46323	0.00000	1
34	113.56233	0.00000	1
67	93.89688	0.00008	1
98	93.42804	0.00009	1
112	93.21822	0.00010	1
231	91.01757	0.00018	1
234	89.06016	0.00029	1
238	87.04755	0.00048	1
246	83.86853	0.00104	0
247	83.22821	0.00121	0
255	82.74920	0.00136	0
259	81.73049	0.00172	0
278	81.49212	0.00182	0

Table 5-1 Multivariate Outliers

Note: **CDF.CHISQ** is cumulative distribution function for Chi-Square and **DF (48)** is degrees of freedom which is the total number of variables.

It can be seen that the number of these outliers is relatively small compared to the overall sample size (300). Therefore, in line with the advice from Kline (2011) who suggests that a few outliers within large samples should be seen as less problematic

and not harmful to the data analysis and interpretations; the researcher decided to retain these outliers.

5.3.3 Reliability, Normality and Linearity

The reliability of a measurement instrument refers to the extent to which it yields accurate, consistent and stable responses over time. When the result is consistent, a conclusion can be drawn that the results are not affected by chance (Field, 2009; Saunders et al., 2009). It is worth mentioning that an internal consistency test was performed at this early stage of data analysis to ensure that all constructs had acceptable Cronbach's alpha scores before applying any further statistical techniques (Factor Analysis, SEM, etc.). Therefore, in order to assess the internal consistency of all measurement items in the survey (all scale measures), Cronbach's alpha test was performed by running the data using SPSS 22. The results shown in table 5-2 below indicate that Cronbach's alpha scores for all individual constructs are in the range of 0.756 to 0.971, the overall score being 0.830. Hence, all were above the recommended level of 0.7 (Nunnally, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010). Consequently, it could be said that no internal consistency problem was revealed up to this stage of data analysis.

Constructs	Cronbach's Alpha
	Accepted > 0.7
Top Management's Support	0.848 Accepted
Organisational culture	0.867 Accepted
Availability of Human Resource	.0.965 Accepted
Organisational Change Management	0.953 Accepted
Reward System	0.963 Accepted
Organisation's IT infrastructure	0.971 Accepted
IT Infrastructure Nationwide	.0.756 Accepted
Organisation's Technical Infrastructure	.0.850 Accepted
Technology Factors NW	.0.825 Accepted
Collaboration of Organisations	.0.888 Accepted
Collaboration NW	.0.873 Accepted
Political Factors	0.845 Accepted
Cultural Factors	.0.821 Accepted
Legal Factors	.0.759 Accepted
Economic Factors	.0.786 Accepted
Dependent variables	0.777 Accepted

Table 5-2 Reliability Test

Later, a Normality test was used to ensure the data is normally distributed. In statistics, normality refers to the data distribution which is a fundamental assumption in measuring the variation of variables. When analysing the data, it is not always required but is found better if the variables are normally distributed (Tabachnick and Fidell, 2007).

Although true normality is considered to be a myth (Elliott and Woodward, 2007), researchers can look for normality visually by using normal plots (Ghasemi and Zahediasl, 2012; Field, 2009) or by significance tests, that is, comparing the sample distribution to a normal one (Altman and Bland, 1996; Ghasemi and Zahediasl, 2012; field, 2009). However, Trowler (2014) argues that it is better to look at the shapes of the data distribution plots instead of using formal inference tests (e.g., skewness and kurtosis), particularly when the sample is large, i.e., more than 200.

This study assessed normality through visual inspection of the data distribution. Frequency distribution (histogram), scatter-plot and P-P plot (probability-probability plot) are often used for checking normality visually (Field, 2009; Ghasemi and Zahediasl, 2012). The frequency distribution that plots the observed values against their frequency, provides both a visual judgement about whether the distribution is bell shaped and insights about gaps in the data and outliers outlying values (Peat and Barton, 2008). The P-P plot plots the cumulative probability of a variable against the cumulative probability of a particular distribution (e.g., normal distribution). Additionally, when data is presented visually, readers (especially non-statisticians) of an article/research work can easily judge the distribution assumption by themselves (Altman and Bland, 1996; Ghasemi and Zahediasl, 2012).

In this study, normality assessment was made from the residual analysis using the expected normality P-P plot for the regression residuals as shown in Figure 5-1 below. An acceptable level of normality was revealed as the standardised predicted value formed a line with the standardised residuals. Likewise, the bell-shaped histogram and normal pattern of scatterplot visually indicated that the data is approximately normally distributed (Figure 5-1). Nevertheless, it is important to note that normality tests are

sensitive to sample size (Field, 2006). Therefore, with large enough sample sizes (such as $n=300$ in the present study), a slight violation of the normality assumption may not cause major problems (Pallant, 2007; Ghasemi and Zahediasl, 2012).

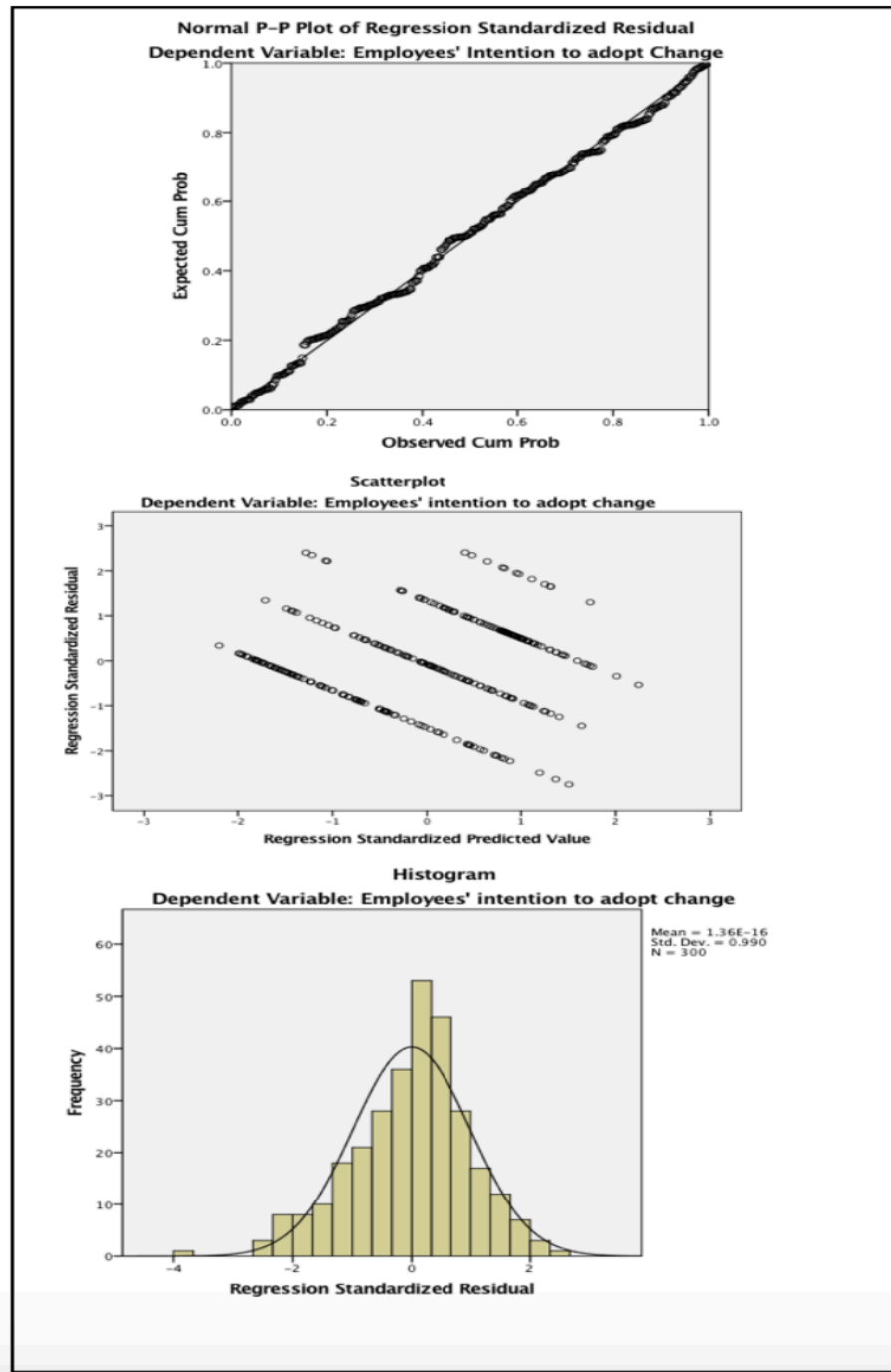


Figure 5-1 Visual Indications of Normality

As well as normality and reliability, examining the relationships of variables is also important to identify any variances that may affect the correlation. According to Hair et al. (2006), an implicit assumption of all multivariate techniques based on co-relational measures of association, including factor analysis, multiple regression and structural equation modelling, is linearity. Therefore, examining the relationships of variables is important to identify any departures that may affect the correlation. In statistics, linearity can be measured by Pearson's correlations or a scatter plot (Field, 2006; Tabachnick and Fidell, 2007; Hair et al., 2006). This study applied Pearson's correlations and found all independent variables significantly positively correlated to the dependent variables (see Tables 5-3 and 5-4). Furthermore, results of this test showed that almost all variables are linear with each other.

Pearson's correlation coefficient is denoted by r and is defined by:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{\{n \sum x^2 - (\sum x)^2\} \{n \sum y^2 - (\sum y)^2\}}}$$

The value of r always lies between -1 and 1 inclusive, that is, $-1 \leq r \leq 1$. If Y increases when X increases, there is positive or direct correlation between variables. However, if Y decreases when X increases (or vice versa), they are negatively or inversely correlated (Field, 2006). The correlation coefficients in the following tables 5-3 and 5-4, reveal a medium/large strength of linear association and positive direction between the dependent and independent variables.

	DV	TM	ORGCUL	HR	CM	RS	IT	ITNW	TEC	TECNW	COL	COLNW	POL	CUL	LEG	ECO
Level of change project's success	1															
Top-Management™	.167**	1														
Organisational culture (ORCUL)	.247**	.408**	1													
Human Resource (HR)	.290**	.213**	.592**	1												
Change Management (CM)	.469**	.119*	.316**	.390**	1											
Reward System (RS)	.350**	.001	.061	.232**	.315**	1										
IT infrastructure (IT)	.502**	.107	.089	.097	.294**	.380**	1									
IT Nationwide (ITNW)	.410**	.025	.040	.064	.239**	.455**	.591**	1								
Technical Infrastructure (TEC)	.420**	.134*	.228**	.288**	.475**	.082	.314**	.147*	1							
Technology Nationwide (TECNW)	.224**	.066	.088	.062	.239**	.126*	.107	.008	.179**	1						
Collaboration (COL)	.598**	.145*	.131*	.113*	.276**	.198**	.521**	.225**	.356**	.099	1					
Collaboration Nationwide (COLNW)	.380**	.143*	.095	.037	.161**	.036	.334**	.075	.445**	.100	.630**	1				
Political Factors (POL)	.605**	.153**	.325**	.334**	.401**	.127*	.382**	.096	.302**	.332**	.303**	.136*	1			
Cultural Factors (CUL)	.323**	.005	.111	.354**	.369**	.419**	.243**	.370**	.258**	-.035	.083	-.049	.138*	1		
Legal Factors (LEG)	.673**	.158**	.281**	.338**	.456**	.223**	.428**	.195**	.434**	.216**	.532**	.352**	.744**	.333**	1	
Economical Factors (ECO)	.167*	.002	.010	.118*	.193**	-.005	.113	.011	.004	.095	.013	-.013	.183**	.097	.046	1

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Table 5-3 Pearson's Correlations with DV (Level of Success)

	DV	TM	Cul	HR	CM	RS	IT org	IT INW	Tech Org	Tech NW	Col Org	Col NW	Pol	Cul	Leg	Eco
Employee's intention to	1															
Top Management's Support	.380**	1														
Organisational culture	.314**	.408**	1													
Avalibility of Human	.298**	.213**	.592**	1												
Organisational Change	.421**	.119*	.316**	.390**	1											
Reward System	.270**	.001	.061	.232**	.315**	1										
Organisation's IT	.372**	.107	.089	.097	.294**	.380**	1									
IT Infrastructure Nationwide	.246**	.025	.040	.064	.239**	.455**	.591**	1								
Organisation's Technical	.412**	.134*	.228**	.288**	.475**	.082	.314**	.147*	1							
Technology Factors NW	.209**	.066	.088	.062	.239**	.126*	.107	.008	.179**	1						
Collaboration of	.451**	.145*	.131*	.113*	.276**	.198**	.521**	.225**	.356**	.099	1					
Collaboration NW	.322**	.143*	.095	.037	.161**	.036	.334**	.075	.445**	.100	.630**	1				
Political Factors	.464**	.153**	.325**	.334**	.401**	.127*	.382**	.096	.302**	.332**	.303**	.136*	1			
Cultural Factors	.241**	.005	.111	.354**	.369**	.419**	.243**	.370**	.258**	-.035	.083	-.049	.138*	1		
Legal Factors	.538**	.158**	.281**	.338**	.456**	.223**	.428**	.195**	.434**	.216**	.532**	.352**	.744**	.333**	1	
Economical Factors	.043	.002	.010	.118*	.193**	-.005	.113	.011	.004	.095	.013	-.013	.183**	.097	.046	1

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Table 5-4 Pearson's Correlations with DV (Intent to Adopt)

5.4 Response Rate and Description of the Sample

The data collection (survey) was completed within four months, which shows the interest of participants in the issue being studied. Of the 500 questionnaires distributed among public employees from different public sector organisations in the KPK region of Pakistan, 320 were returned, which shows a response rate of 64%. This high response rate could be due to the fact that the questionnaires were mostly handed over face-to-face and the researcher followed a procedure in which at least two reminders were sent out.

The demographic characteristics of the respondents such as age, gender, department, education and pay grade were sought in the questionnaire. Demographic characteristics of the participants (Table 5-5) show that:

- Out of the 300 participants, 75.0% (n=225) of participants were male and 25.0% (n=75) were female. The researcher found that this result reflects the overall gender diversity of the workforce in the KPK region of Pakistan; that is 79.9% and 20.1% for males and females respectively (Idrees et al., 2013).
- Participants of different ages were included in the study. However, the majority of participants – 56% (n=170) – are 21-40 years old. This result reflects the ground reality of Pakistani public organisations where the minimum recruitment age is 21 and the age of retirement is 60 (Establishment Code Khyber Pakhtunkhwa, 2011).
- In terms of educational level, 72.3% (n=217) participants are degree holders or above. The implication is that the majority of the respondents are well educated. This result is understandable as most government employees are well educated in general (Establishment Code Khyber Pakhtunkhwa, 2011).
- The participants represent different pay scales, organisations and years of experience. This is a good indication that the researcher included participants from various backgrounds as shown in table 5-5 below.

Demographic	Category	Frequencies	Percentage
Gender	Male	225	75.0
	Female	75	25.0
Age	20 or Less	18	6.0
	21- 30	71	23.7
	31- 40	99	33.0
	41- 50	75	25.0
	51- 60	37	12.3
Education	High School	34	11.3
	Diploma	49	16.3
	Bachelor	78	26.0
	Masters	119	39.7
	PhD	20	6.7
Pay Grade	1- 4	27	9.0
	5- 9	62	20.7
	10- 15	57	19.0
	16- 22	152	50.7
	Prefer not to say	2	0.7
Years of Experience	5 or Less	68	22.7
	6- 10	76	25.3
	11- 15	54	18.0
	16- 22	76	25.3
	Prefer not to say	26	8.7
Department/Organization	Excise and Taxation	31	10.3
	Health	56	18.7
	Education	61	20.3
	Planning	11	3.7
	Finance	17	5.7
	Agriculture	5	1.7
	Environment	17	5.7
	Communication	18	6.0
	Energy and Power	21	7
	Transport	4	1.3
	Law	53	17.7
	Tourism	3	1.0
	Others	3	1.0

Table 5-5 Demographic Characteristics of Participants

5.4.1 Descriptive Analysis of Respondents' Responses

This section presents a descriptive analysis of the data obtained from the sample. The full results appear in Appendix 8 on page 398. The following sub-sections report

responses from the sample on the major constructs (Independent Variables) of the present study in the form of central tendency and dispersion.

The questionnaire consists of 12 major constructs which were measured by 48 different items (statements) using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Respondents were asked about their agreement or disagreement with each statement. Responses were coded as follows: number 5 indicated that they strongly agreed with the statement, number 4 agreed, number 3 neutral, number 2 disagreed, and number 1 strongly disagree with what the statement states. Moreover, number 3 was chosen as the midpoint on the scale in order to make a distinction between the respondent's agreement and disagreement.

IT Infrastructure

Respondents were asked to indicate the extent to which they comprehend the availability and adequacy of IT infrastructure to implement change in public organisations of Pakistan. The results show the mean scores of the six items used to measure IT infrastructure are between 3.05 and 3.63 with standard deviation ranging from .89 to 1.03. It could be concluded that most of respondents (mean score is more than the midpoint of 3) were agreed about the availability of suitable IT infrastructure to initiate change (reform) programme.

Technical Infrastructure

The findings reveal that the mean scores for six items related to 'technical infrastructure' were between 1.87 and 2.50, thereby indicating that a significant number of respondents believe that there is a lack of suitable technical infrastructure to implement change (reform) successfully. Moreover, the descriptive statistics for technical infrastructure also revealed that the respondents were not very dispersed around their mean scores on individual items (standard deviations between 1.02 and 1.08).

Collaboration

Using a five-point Likert scale and six items, the 'Collaboration' construct was measured. As shown in Appendix 8, the observed mean ratings ranged from 2.35 to 2.76 and standard deviations from .745 to 1.01. These statistics suggest low agreement among respondents regarding the collaboration and corporation between public organisations.

Organisational Culture

The computation of respondents' perceptions of the extent to which 'organisational culture' is participative and supportive to recent change programme revealed mean scores of the four items used to measure the construct as 2.65, 2.35, 2.77 and 2.33. The results suggest that most survey participants tend to disagree with the presence of innovative culture, organisational readiness, flexible structure and peoples' general acceptance for change within public sector of Pakistan.

Human Capacity

Three items were used to measure the 'human capacity' construct in this study. The mean scores were 2.61, 2.32, and 2.84, all below the midpoint of three on the five-point Likert scale. The average mean score was 2.59, which indicated the participants' disagreement on the scale measures. Specifically, these results mean that the majority of the respondents identified lack of human capacity to implement reforms successfully. Again, the average standard deviation was 1.05 indicating low desperation among respondents' scores around the average mean.

Top Management

Three items were used to measure the 'top management' construct in this study. The mean scores were 3.45 and 3.38 (above the midpoint 3 on the five-point Likert scale) for the items related to 'top management support' and 'commitment of top management' to implement change. This shows that most respondents are of the opinion that top managers are committed to change and provide ample support to recent change project. However, the mean score of item related to the 'top management's ability to

implement change' was just below the midpoint (2.89). Again, the average standard deviation was 1.03 indicating low desperation among respondents' scores around the average mean.

Change Management Strategy

Respondents' perceptions towards the change management strategy in Pakistani public organisations were measured by seven items, the average mean scores for which were 1.02 on the five-point scale, thus reflecting respondents' disagreement with the items. In addition, the average standard deviation of 1.01 indicates a little dispersion from that mean score. Respondents disagreed that the change management strategy for recent reforms is suitable.

Reward System

Respondents were asked to give their opinions concerning three statements related to the degree to which they perceived the presence of reward system in public organisations of Pakistan. The findings revealed that the three items had means below three (i.e. midpoint), and an average mean of 1.01, indicating that a relatively high level of disagreement existed among respondents about this construct.

Political

Regarding the political construct, respondents were asked to respond to four statements in order to measure the extent of their observation concerning political support, government policies and political stability. The mean scores reveal an average of 1.13, indicating a level of disagreement among the respondents. Specifically, they reported very low agreement on the second statement which related to the political stability within Pakistan.

Economy

Three items were used to measure the 'Economy' construct in this study. The mean scores were 3.35 and 3.69 (above the midpoint 3 on the five-point Likert scale) for the items related to 'donor support' and 'availability of sufficient funds' to implement change.

This shows that most respondents are of the opinion that there are ample financial resources to implement change in Pakistani public sector. However, the mean score of item related to the 'economic growth in the region' was just below the midpoint (2.97). Overall, the results suggest that there are no financial issues with regard to implement change in Pakistani public organisations. Again, the average standard deviation was .77 indicating low desperation among respondents' scores around the average mean.

Socio-Cultural

The 'socio-cultural' construct was measured by three items on the five-point Likert scale where 3 represents a midpoint between agreement and disagreement levels. All mean scores were below 3, reflecting a low level of agreement among the respondents, with the highest mean score of 2.94 being found for 'local tradition/belief support change', and the lowest mean 2.39 being for 'literacy rate in the KPK'. Moreover, the average mean score was 2.69 with an average standard deviation of .92. The results suggest that respondents see socio-cultural construct as a barrier to change.

Legal

Three items were used to measure the 'legal' construct in this study. The mean scores were 3.47, 3.99, and 3.11, all above the midpoint of three on the five-point Likert scale. The average mean score was 3.52, which indicated the participants' agreement on the scale measures. Specifically, these results mean that the majority of the respondents identified legal framework suitable for recent change (reform) programme. Again, the average standard deviation was 1.21 indicating low desperation among respondents' scores around the average mean.

5.4.2 Demographic Characteristics of Respondents and Dependent Variables

The dependent variables (DVs) in this study are the 'intent to adopt change' (DV1) and 'the level of change success' (DV2). The researcher included two statements aimed at measuring the responses for DVs. Respondents were asked to indicate on a five-point scale, 'To what extent do employees in your organisation intend to adopt change and

development programmes?' (DV1) and 'In relation to the recent change (reform) project that is being carried out within your organisation, how successful is this project in your view?' (DV2). Both dependent variables were significantly positively correlated with each other: $r = .636$, $n = 300$, $p < .05$. The demographic variables including age, pay grade, organisation, level of education and years of service were then analysed using ANOVA.

5.4.3 Analysis of Variance (ANOVA)

One-Way ANOVA was used to analyse the relationships between demographic variables such as age, level of education, pay grade and experience and the dependent variables (DV1 and DV2).

Both dependent variables were significant in failing to accept the null hypotheses (indicating at least one difference in means) as a function of the respondents' **level of education**, $F(4,295) = 65.689$, $p < .000$ (Project success) and $F(4,295) = 54.432$, $p < .000$ (Intent to adopt). The descriptives are shown in the following figures (5-2, 5-3 and 5-4). Similarly, both dependent variables differed significantly when factored by the respondents' **age group**, $F(4,295) = 14.340$, $p < .000$ (Project success) and $F(4,295) = 12.151$, $p < .000$ (Intent to adopt). This supported the view that less well-educated and younger employees were less likely to view recent reform as successful, or to perceive other employees as intending to adopt change. The research then investigated the respondents' **pay grade** and also failed to accept the null hypothesis (indicating at least one difference in the means) for both dependent variables. The lower the pay grade, the more likely that the respondents would indicate a lower extent of intent to adopt change, $F(4,295) = 93.094$, $p < .000$ (Intent to adopt). For example, respondents in pay scale 1-4 ($N = 27$) had a mean score of 1.9 (low intent), whereas for the higher pay scales of 16-22 ($N = 152$) the mean score was 3.8 (high intent). Given the analysis by age and pay grade it was perhaps unsurprising to find that the respondents' **years of service** failed to accept the null hypothesis: $F(4,295) = 9.408$, $p < .000$ (Project success) and $F(4,295) = 14.313$, $p < .000$ (Intent to adopt). Respondents were asked to indicate whether they had worked in the KPK public sector for less than 5 years ($N=68$), 6-10

years (N=76), 11-15 years (N=54) or 16-22 years (N=76) – 26 respondents preferred not to say. The results showed that those employees with under 10 years' service were, on average, likely to select a low intent to adopt change whereas the longer serving employees indicated a neutral to high extent. Similarly, those with more service were more likely to indicate that recent change in their organisation had been successful in their view. Finally, an analysis of where the respondents were working (**the sector**) with relation to the dependent variables was undertaken. However, the sector of work did not explain the dependent variables.

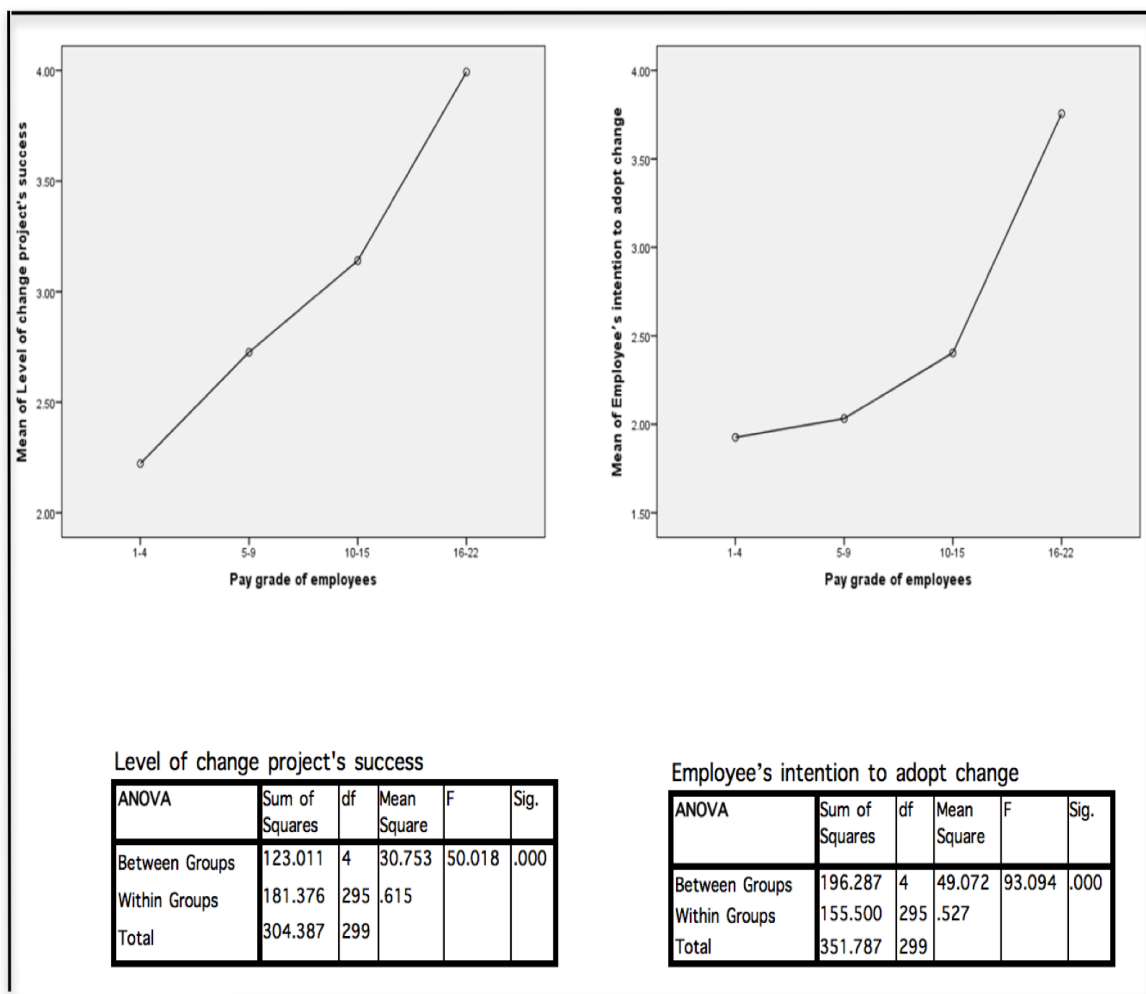


Figure 5-2 ANOVA Results for Pay Grade of Employees

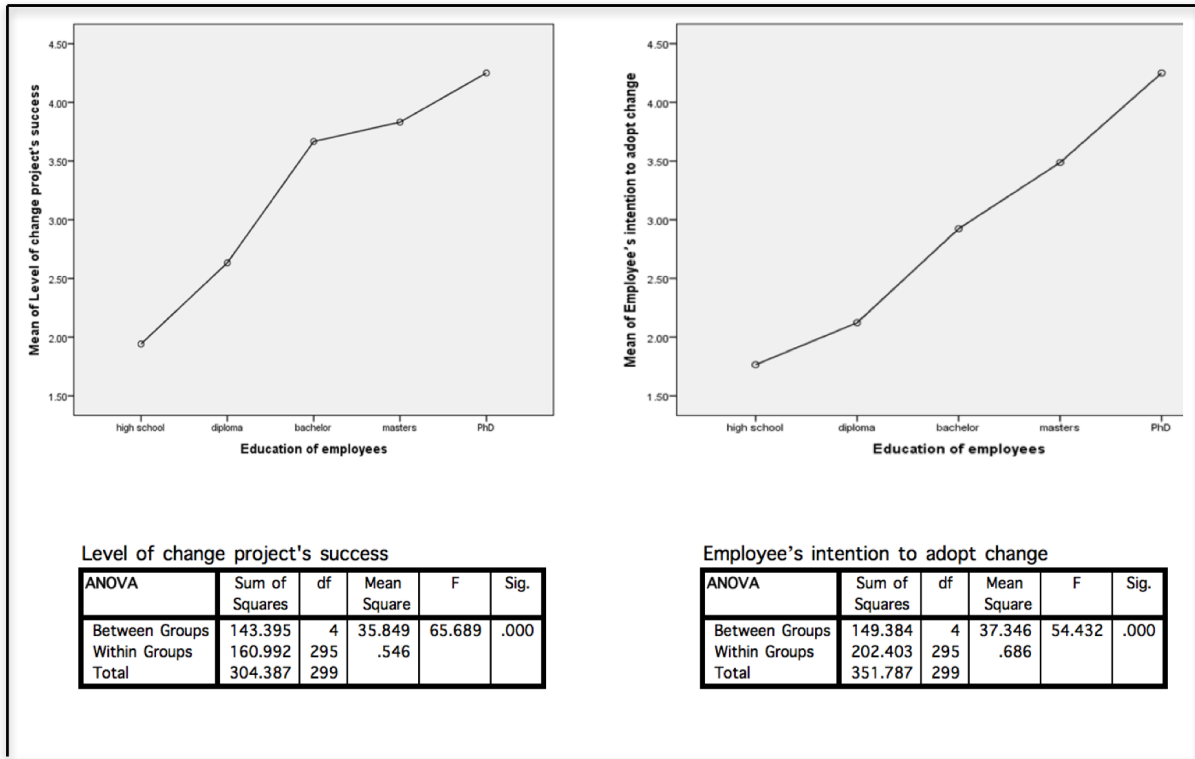


Figure 5-3 ANOVA Results for Education of Employees

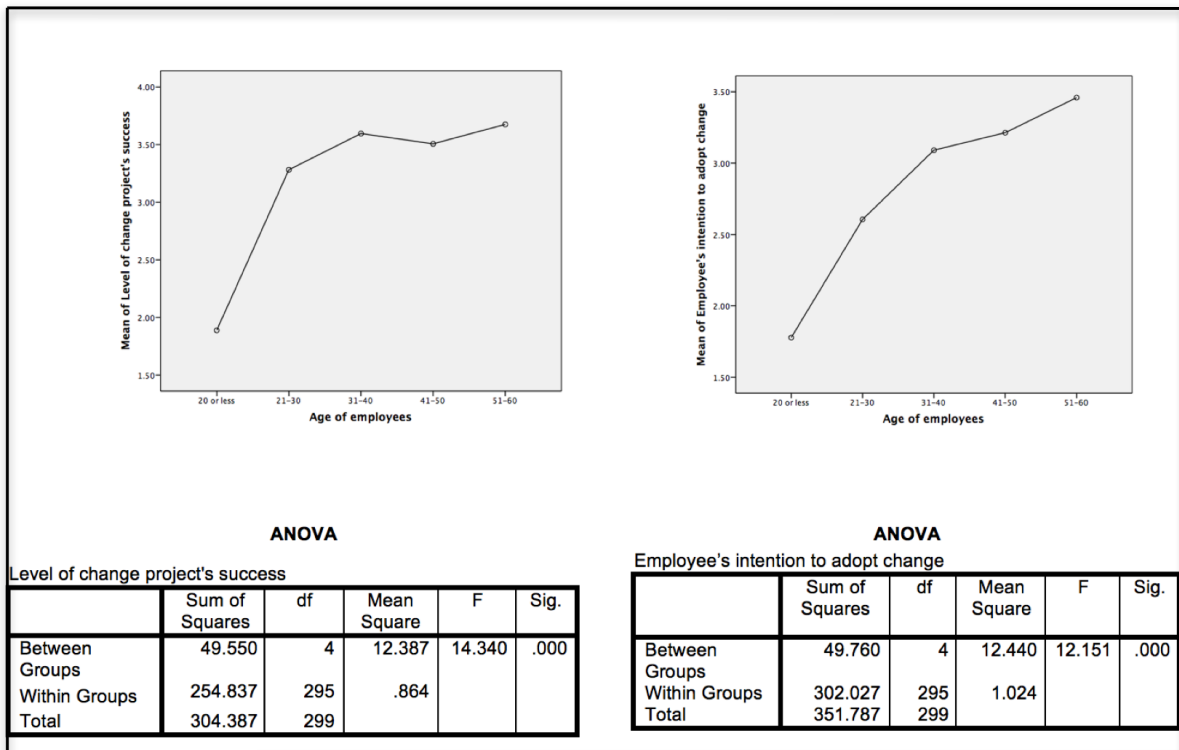


Figure 5-4 ANOVA Results for Age Group of Employees

One-way ANOVA analysis suggested that there are significant differences between levels of independent variables when compared with dependent variables. Therefore, a Post Hoc test was used to identify these differences.

5.4.4 Post Hoc Analysis for DV1 (Intent to Adopt Change)

Post Hoc comparisons using Duncan’s test for DV1 (Intent to Adopt Change) revealed that respondents in the 16-22 pay grade had a significantly higher mean intention to adopt (above neutral) than those in the 10-15 group (below neutral), which in turn was higher than the 1-4, 5-9 and 10-15 pay grades (all below neutral – note 10-15 was included in both low mean groupings).

Similarly, Post Hoc comparisons using Duncan’s test for DV1 revealed that the well-educated employees (Degree holders and above) had a significantly higher mean intention to adopt than the less educated employees, who were below neutral (see Figure 5-5).

Likewise, Post Hoc comparisons using Duncan’s test for DV1 revealed that the older employees (41 years and above) had a significantly higher mean intention to adopt than younger employees, who were below neutral (Figure 5-5).

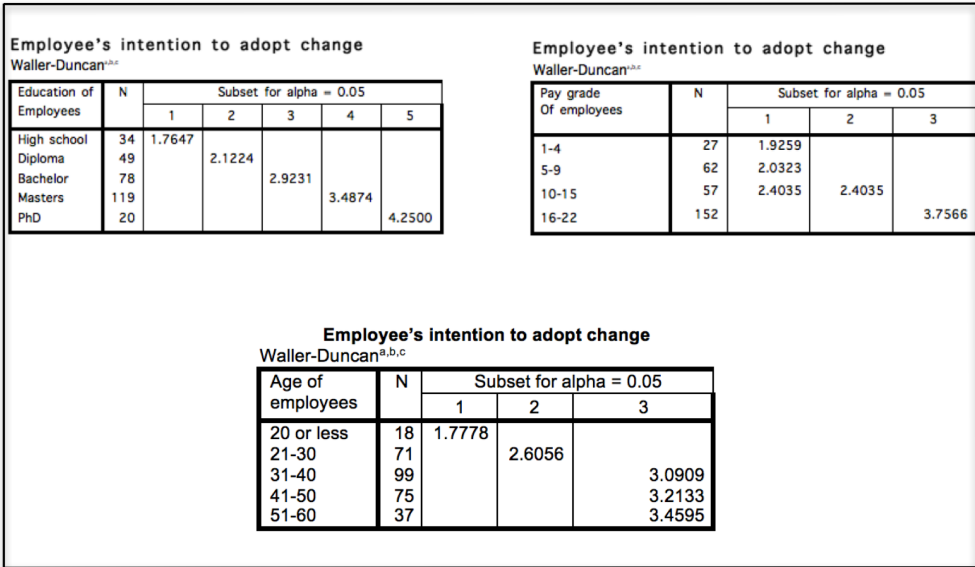


Figure 5-5 Post Hoc Results for DV1 'Intent to Adopt Change'

5.4.5 Post Hoc Analysis for DV2 (Level of Change Success)

Post Hoc comparisons using Duncan's test for DV2 (Level of Change Success) revealed that the high-grade employees (16-22 pay grade) had a significantly higher mean (above neutral) than the low-grade employees (1-15 pay grade).

Similarly, Post Hoc comparisons using Duncan's test for DV2 revealed that the well-educated employees (Degree holders and above) had a significantly higher mean than the less educated employees, who were below neutral (see Figure 5-6). The result suggests that, compared to less educated people, well-educated people are more confident and positive towards the output of recent reforms.

Likewise, Post Hoc comparisons using Duncan's test for DV2 revealed that the older employees (41 years and above) had a significantly higher mean for change success than younger employees, who were below neutral (Figure 5-6).

Level of change project's success			
Duncan ^{a,b}			
Age of employees	N	Subset for alpha = 0.05	
		1	2
20 or less	18	1.8889	
21-30	71		3.2817
41-50	75		3.5067
31-40	99		3.5960
51-60	37		3.6757

Level of change project's success					
Duncan ^{a,b}					
Education of employees	N	Subset for alpha = 0.05			
		1	2	3	4
high school	34	1.9412			
diploma	49		2.6327		
bachelor	78			3.6667	
masters	119			3.8319	
PhD	20				4.2500

Level of change project's success			
Duncan ^{a,b}			
Pay grade of employees	N	Subset for alpha = 0.05	
		1	2
1-4	27	2.2222	
5-9	62	2.7258	2.7258
10-15	57		3.1404
prefer not to say	2		3.5000
16-22	152		3.9934

Figure 5-6 Post Hoc Results for DV2 'Level of Change Success'

5.5 Exploratory Factor Analysis

Exploratory factor analysis is a method of factor loading into groups to extract primary latent factors. It is a technique used for 'take what the data gives you' and involves grouping variables together on a factor or a precise number of factors (Hair et al., 2006). Factor analysis is primarily used to reduce a large set of variables or scale items to a smaller and more manageable number of factors (Pallant, 2011). In this domain the technique is effective for further testing of structural models (Hair et al., 2006). Initially, this study applied exploratory factor analysis and then applied confirmatory factor analysis (CFA) and structural equation modelling (SEM) to confirm correlations and infer causal relationships among factors.

Prior to EFA, the factorability of all TOE-related items was examined. Several well-recognised criteria for the factorability of a correlation were used. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .776, above the recommended value of .6, and Bartlett's test of sphericity was significant (χ^2 (820) = 9351.608, $p < .05$) as shown in the following table 5-6.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
	Approx. Chi-Square	9351.608
Bartlett's Test of Sphericity	Df	820
	Sig.	.000

Table 5-6 KMO and Bartlett's Test

In addition, a reliability test using Cronbach's alpha was also conducted to measure the internal consistency of the items in the survey instrument. This test was conducted on all independent and dependent variables. The result of Cronbach's alpha demonstrates an alpha of 0.75 and above (Table 5-2 on page 116), which is acceptable within the normal context of a statistical test where the general guideline says that an alpha value above 0.7 indicates good reliability (Field, 2009).

A suitable approach to EFA was then determined. This involved establishing the factor extraction method, factor retention criteria, factor rotation method, and the interpretation of resulted factor loadings. Firstly, the precise factor extraction method was chosen, so that the minimum number of factors that could represent the associations among the set of variables in the best way could be established (Pallant, 2013). Among many extraction methods, the principal component extract method which is the most common and default in SPSS programme was used to extract minimum set of variables accounted for the maximum variance in the data (Tabachnick and Fidell, 2007). Secondly, with regard to factor retention criteria, there are several approaches to the determination of the number of factors which best describe the underlying relationships among the study variables, including Kaiser's criterion and the Cattell's scree test. Kaiser's criterion - also known as the 'eigenvalue-greater than-one' rule - is found to be the most commonly used. According to Pallant (2013) and Field (2006), since eigenvalues refer to as the amount of total variance explained by a factor, an eigenvalue of one or more denotes a significant amount of variation. On the other hand, the Cattell's scree test plots the eigenvalues and then checks where the plot curve changes to become horizontal. According to (Hair et al., 2006), the Scree test is derived by plotting the latent roots against the number of factors in their order of extraction, and the shape of the resulting curve is used to evaluate the cut-off point (Hair et al., 2006). In this study, Kaiser's criterion and Cattell's scree plot test were both employed to establish the number of retained factors for further analysis. Thirdly, as researchers have found that the output resulting from factor analysis are not easy to interpret, they recommend rotating the resulting factors in order to produce results in a simpler form (Hair et al., 2006; Tabachnick and Fidell, 2007). Moreover, rotation is important to select for improving the interpretability and scientific utility of the solution. It is used to maximise high correlations between factors and variables and minimise low ones (Hair et al., 2006). Rotation methods generally fall into two broad categories: orthogonal methods which include (Varimax, Quartimax, and Equamax), and oblique methods which include (Promax and Direct Oblimin). This study applies a varimax of orthogonal techniques which is most commonly used in rotation for maximising variance. According to Tabachnick and Fidell (2007) the goal of varimax rotation is to maximise the variance

of factor loading by making high loadings higher and low ones lower for each factor. In line with the advice from (Hair et al., 2006), the factor loadings above +/- .50 were considered practically significant.

As discussed above, this study carefully adopted and followed the procedures that are available for factor analysis in SPSS. The next section discusses the process (factor extraction, retention and rotation) and results of factor analysis conducted for all 48 items that measured the TOE factors that influence the adoption/implementation of change in public organisations.

5.5.1 Factor Analysis Results (Factor Extraction, Retention and Rotation)

Factor extraction refers to removing the common variance that is shared among a set of variables (Kieffer, 2004). There are currently several different techniques available for the extraction of common variance (e.g., principal component analysis and principal factor analysis), and the results generated by the analysis can differ based on the particular method of extraction utilised. Of the techniques available, principal component analysis and principal factor analysis are the two most widely used extraction methods in EFA (Hair et al., 2006). Although some researchers have argued that the difference between these extraction methods is negligible, other researchers have contended that the difference is substantial enough to warrant careful consideration (Kieffer, 2004). In social sciences, principal component analysis (PCA) is the most common strategy used for factor extraction (Henson et al., 2004; Alexander and Colgate, 2000). Moreover, several change-related studies in public organisations have successfully used PCA strategy (see for example: Al-Shafi and Weerakkody, 2010; Alam and Noor, 2009). This study thus applied principal component analysis (PCA) for factor extraction.

After running PCA, an eleven-factor solution was achieved based on eigenvalues greater than one. Table 5-7 on the next page shows these results together with the total explained variance. It can be seen from table 5-7 that an eleven-factor solution emerged from PCA when applying Kaiser's criterion 'eigenvalue-greater-than-one' rule. It is also clear that these eleven factors explained a total of 76.19% of the variance in the

dataset, with factor one contributing 20.94% alone and the remaining ten factors varying in contribution from 10.60% for factor two to only 2.62% for factor eleven. Since different retention methods can often generate conflicting results, it is generally important to examine more than one factor retention method (Kieffer, 2004). Therefore, Cattell's scree test plot shown in Figure 5-7 was drawn in order to confirm the Kaiser's criterion result. The scree plot makes it clear that eleven factors were above the curve of the plot line, proving that the eleven-factor solution resulting from the 'eigenvalue-greater-than-one' rule earlier was accurate.

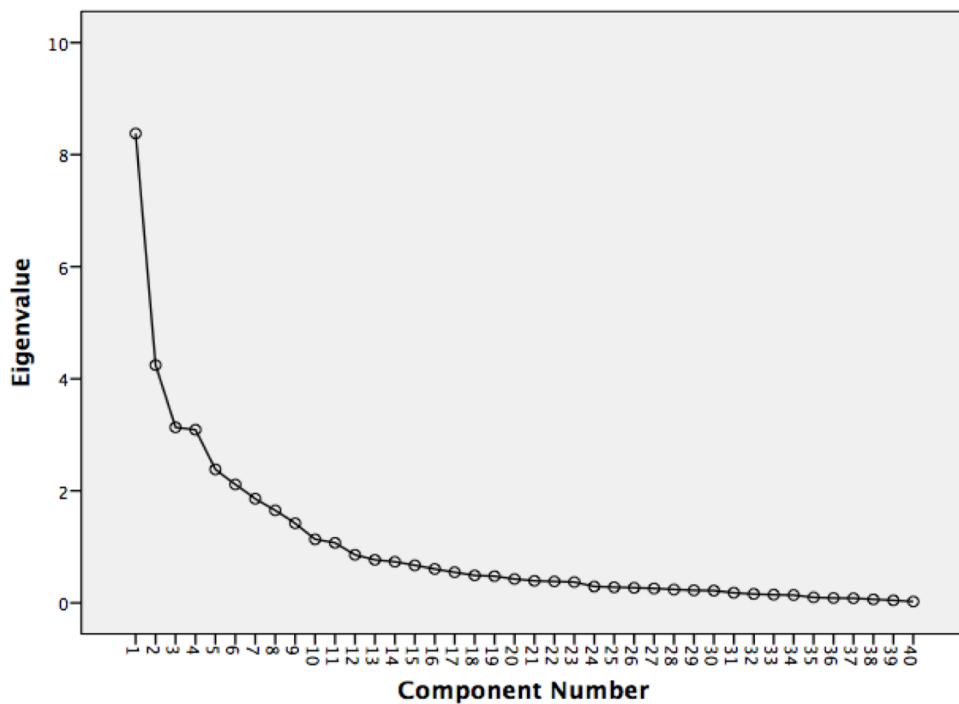


Figure 5-7 Scree Plot

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.37	20.945	20.945	8.37	20.945	20.945	3.80	9.51	9.51
2	4.24	10.608	31.553	4.24	10.608	31.553	3.57	8.93	18.44
3	3.13	7.834	39.387	3.13	7.834	39.387	3.43	8.57	27.02
4	3.09	7.727	47.114	3.09	7.727	47.114	2.96	7.39	34.42
5	2.38	5.953	53.067	2.38	5.953	53.067	2.73	6.82	41.24
6	2.11	5.283	58.351	2.11	5.283	58.351	2.67	6.67	47.92
7	1.85	4.647	62.998	1.85	4.647	62.998	2.63	6.58	54.50
8	1.65	4.130	67.128	1.65	4.130	67.128	2.42	6.05	60.56
9	1.42	3.551	70.679	1.42	3.551	70.679	2.21	5.53	66.09
10	1.13	2.835	73.514	1.13	2.835	73.514	2.04	5.10	71.19
11	1.07	2.678	76.192	1.07	2.678	76.192	1.99	4.99	76.19
12	.857	2.142	78.334						
13	.767	1.916	80.250						
14	.732	1.830	82.080						
15	.669	1.673	83.753						
16	.604	1.510	85.264						
17	.547	1.367	86.631						
18	.490	1.225	87.856						
19	.477	1.191	89.047						
20	.425	1.064	90.111						
21	.393	.982	91.093						
22	.382	.955	92.048						
23	.371	.926	92.975						
24	.291	.728	93.702						
25	.279	.697	94.400						
26	.269	.673	95.072						
27	.256	.641	95.713						
28	.238	.595	96.308						
29	.224	.560	96.868						
30	.219	.547	97.416						
31	.180	.451	97.867						
32	.160	.400	98.266						
33	.147	.368	98.634						
34	.140	.351	98.985						
35	.099	.248	99.233						
36	.088	.220	99.453						
37	.084	.210	99.662						
38	.064	.159	99.821						
39	.047	.116	99.938						
40	.025	.062	100.000						

Extraction Method: Principal Component Analysis.

Table 5-7 Total Variance Explained

Once factors have been extracted, it is necessary to know to what degree variables load onto them. Rotation is thus important for improving the interpretability and scientific utility of the solution. It is used to maximise high correlations between factors and

variables and minimise low ones. Similarly, Kieffer (2004) explains that it is usually necessary to rotate the factors to formulate a better solution that is more interpretable (i.e., has better 'simple structure'). Different techniques can be used to develop factors from variables but the rotation method is very helpful (Field, 2006). PCA/EFA literature defines rotation as performing arithmetic to obtain a new set of factor loadings (Jennrich, 2006; Yamamoto and Jennrich, 2013). There are two major rotation strategies available for researchers: orthogonal and oblique rotation (Kieffer, 2004; Field, 2006; Hair et al., 2006). However, the method most commonly used is varimax rotation of orthogonal techniques. Since, in many situations, it is unnatural for factors to be orthogonal to one another, a number of oblique rotation methods have been developed (Yamamoto and Jennrich, 2013). However, as different methods of extraction give similar results with a good data set, so also different methods of rotation tend to give similar results if the pattern of correlations in the data is fairly clear (Tabachnick and Fidell, 2007).

There are several advantages to employing orthogonal rotation strategies, particularly Varimax. First, the factors remain perfectly uncorrelated with one another and are inherently easier to interpret. Secondly, the factor pattern matrix and the factor structure matrix are equivalent and thus, only one matrix of association is to be estimated (Kieffer, 2004). This means that the solution is more parsimonious (i.e., fewer parameters are estimated) and thus, in theory, is more replicable. Nevertheless, orthogonal rotation of factor solutions may oversimplify the relationships between the variables and the factors, and may not always accurately represent these relationships (Kieffer, 2004). Yet, Varimax orthogonal techniques are most commonly used in rotation particularly in studies related to social sciences (Alexander and Colgate, 2000). A similar study carried by Alam and Noor (2009) also used this method to investigate factors affecting IT adoption in the Malaysian public sector. Therefore, the researcher decided to use the Varimax rotation technique for this study.

The Varimax rotation technique was developed by Kaiser (1960), it produces factors that have large pattern/structure coefficients for a small number of variables and near-

zero or very low pattern/structure coefficients with the other group of variables (Kieffer, 2004). According to Tabachnick and Fidell (2007), the goal of Varimax rotation is to maximise the variance of factor loading by making high loadings higher and low ones lower for each factor. Hair et al. (2010) suggest that if the factor loadings are +0.50 or greater, they are considered to be very significant, and can be used for further analysis. In this study, 43 of 48 items had factor loadings of more than 0.50. However, as certain components had cross loadings or only had one item loaded, problematic items/variables were identified and excluded, resulting in 11 final factors and 39 items (with stronger correlation) that were subject to further analysis. The results are shown in table 5-8 below (along with Cronbach's alpha and % of variance explained for each factor).

Items/Variables	Components										
	F1 IT	F2 Leg	F3 ORGCUL	F4 TM	F5 RS	F6 TEC	F7 ECO	F8 CM	F9 POL	F10 COL	F11 TNW
Reliability of IT nationwide	.767										
IT availability within organisation	.746										
Organisation integrate through IT	.731										
Internet coverage Nation Wide	.704										
Organisation's IT infrastructure	.661										
Monitoring of Network	.656										
Political support for new Laws		.866									
Govt. support for new legislations		.841									
New legislations		.780									
Adequate legal framework		.683									
Org's readiness for change			.942								
Acceptance for change			.941								
HR within organization			.925								
Clear vision of Organisation			.721								
Capability of Top-Management				.945							
Support of Top-Management				.941							
Commitment of Top-Management				.934							
Incentives for employees					.784						
Reward system awareness					.740						
Reward system emplace					.695						
Availability of skilled HR					.648						
Availability of equipment						.873					
Continual power supply						.828					
Adequate technical infrastructure						.746					
Region's economic growth							.910				
Funds available for change							.867				
Donor's support for change							.745				
Active communication								.789			
Established need for change								.786			
Adequate plan for change								.729			
Consistent govt. Policies									.762		
Political stability									.761		
Government's authority									.685		
Info sharing through ICT										.786	
Integration through ICT										.720	
Collaboration through ICT										.684	
Tech infrastructure nationwide											.846
Tech support by Government											.787
Sufficient power supply nationwide											.678
Cronbach's Alpha for Reliability Analysis:	0.84	0.89	0.93	0.97	0.76	0.89	0.81	0.82	0.73	0.71	0.74
% of variance explained:	20.9	10.6	7.83	7.72	5.95	5.28	4.64	4.13	3.55	2.83	2.67
Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser; Rotation converged in 8 iterations											

Table 5-8 Factor Loadings

Based on the items that have been grouped into 11 final constructs, each of them were named and labelled as below:

1. Factor 1: IT infrastructure [F1 ITST]
2. Factor 2: Legal [F2 LEG]
3. Factor 3: Organisational Culture [F3 ORGCUL]
4. Factor 4: Top Management [F4 TM]
5. Factor 5: Reward System [F5 RS]
6. Factor 6: Organisation's Technical Infrastructure [F6 TEC]
7. Factor 7: Economic [F7 ECO]
8. Factor 8: Change Management [F8 CM]
9. Factor 9: Political [F9 POL]
10. Factor 10: Collaboration and Corporation [F10 COL]
11. Factor 11: Technical Infrastructure Nationwide [F11 TNW]

5.5.2 Interpretation of Factors (Constructs) after Rotation

Generally, it is difficult to name the components generated from the factor analysis appropriately. After the rotation process, a second logical step is to label each of the factors based on a general theme that can be established from the items within the component. The result of this factor analysis also will affect the hypothesis model/framework that has been suggested in Chapter 3. Each of the factors is discussed below:

IT infrastructure [ITST]

The first factor as displayed in table 5-8 shows six items that have the highest factor loading. This factor is named IT Infrastructure [ITST], as items relate to the availability and reliability of Internet services within public organisations. Most responses show positive feedback, with the mean for each item recorded greater than 3.0 (Neutral). Each of the items was previously measured in the survey as agreement through a Likert scale represented by 1 to 5, where 1 was rated strongly disagree and 5 rated strongly agree. Details of the responses are shown in table 5-9 below.

Descriptive Statistics for IT infrastructure [ITST] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Reliability of IT nationwide ITST1	+	199	3.6033	.98788
IT availability within org ITST3	+	200	3.6333	.92831
Orgs integrate through IT ITST2	+	190	3.4467	.97485
Internet coverage NW ITST4	+	186	3.5733	.89103
Org's IT infrastructure ITST5	+	199	3.5333	1.03560
Monitoring of Network ITST6	+	178	3.0533	.89433

Table 5-9 Mean and Frequency Results for Factor 1 [ITST]

Legal [LEG]

The second factor that was generated from factor analysis is labelled Legal [LEG]. Four items are present in this component. All of them relate to the existing legal framework and new legislations introduced by the Government to support change. The overall response to the items/questions was very positive. Table 5-10 below explains that the highest mean rating is 3.99 for the item 'New Legislation'. The lowest mean rating, 3.48, is for the item 'Government Support', which is nevertheless greater than 3.0 (Neutral).

Descriptive Statistics for Legal [LEG] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
New legislation LEG1	+	198	3.9967	1.21721
Adequate legal framework LEG3	+	189	3.4733	1.01952
Political commitment LEG4	+	198	3.5300	1.18904
Government support LEG2	+	182	3.4800	1.24153

Table 5-10 Mean and Frequency Results for Factor 2 [LEG]

Organisational Culture [ORGCUL]

The third factor has been named Organisational Culture [ORGCUL], where most of the items are related to the internal organisational aspects, i.e., the organisation's readiness for change, employees' acceptance for change, HR within the organisation and the organisation's clarity of vision. There are altogether four items present in this factor. The overall response to the items/questions was negative. As shown in table 5-11, the highest mean rating of 2.65 is for the item 'Clear Vision of Organisation', which is however lower than a rating of 3.0 (Neutral). Table 5-11 below details the result.

Descriptive Statistics for Organizational Culture [ORGCUL] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Org's readiness for change ORGCUL2	-	58	2.3533	1.08893
Acceptance for change ORGCUL4	-	53	2.3300	1.06688
HR within organization ORGCUL5	-	54	2.3233	1.06265
Clear vision of Organisation ORGCUL1	-	85	2.6500	1.13363

Table 5-11 Mean and Frequency Results for Factor 3 [ORGCUL]

Top Management [TM]

The fourth factor has been named Top Management [TM], where most of the items are related to the level of commitment and support provided by the top management to implement change (reform) project. Three items are loaded in this factor, all of which have been answered negatively by the respondents, with the highest mean rating of 2.45 for the item 'Commitment of Top Management', which is nevertheless lower than a rating 3.0 (Neutral). This shows the participants' lack of confidence in the ability and commitment of top management to handle change. Table 5-12 below outlines the result.

Descriptive Statistics for Top-Management [TM] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Capability of Top Management TM1	-	114	2.9133	1.04524
Support of Top Management TM3	+	190	3.4467	.97485
Commitment of Top Management TM2	+	186	3.5733	.89103

Table 5-12 Mean and Frequency Results for Factor 4 [TM]

Reward System [RS]

The fifth factor is labelled Reward System [RS]. This factor has been named as such since all of the items that fall into this component reflect the reward system in place to motivate employees to support change. There are three items in this factor, all of which have been answered negatively by the respondents, with the highest mean rating of 2.9 for the item 'Awareness of Reward System', which is lower than a rating of 3.0 (Neutral). Table 5-13 below outlines the result.

Descriptive Statistics for Reward System [RS] (n=300)				
Items	+/ -	No. Of Positive Responses	Mean	Standard Deviation
Incentives for employees RS1	-	118	2.8667	1.04524
Reward system awareness RS3	-	114	2.9133	1.04524
Reward system emplace RS2	-	101	2.8433	0.99436

Table 5-13 Mean and Frequency Results for Factor 5 [RS]

Organisation's Technical Infrastructure [TEC]

The sixth factor has been named Organisation's Technical Infrastructure [F6 Tec], as most of the items are related to the technical setup within the organisation. There are three items in this factor, Availability of Equipment, Continual Power Supply and Organisation's Technical Infrastructure, all of which have been answered negatively by the respondents, which shows the respondents' lack of trust in the adequacy of the existing technical infrastructure available to implement change. Table 5-14 below outlines the result.

Descriptive Statistics for Technical Infrastructure [TEC] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Availability of equipment TEC1	-	70	2.5033	1.08347
Continual power supply TEC3	-	71	2.4400	1.07560
Org's tech infrastructure TEC2	-	64	2.2933	1.06978

Table 5-14 Mean and Frequency Results for Factor 6 [TEC]

Economic [ECO]

The seventh factor has been named Economic [ECO], in which most of the items are related to the economic conditions related to the current change programme in the KPK region of Pakistan. There are three items in this component, which are Region's Economic Growth, Funds Available for Change and Donor's Support for Change. The mean score suggests that most respondents tend to agree with the availability of funds and donor support to implement change. However, mean score of 2.28 suggest that respondents disagreed with the suitable level of economic growth in the region.

Descriptive Statistics for Economy [ECO] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Region's economic growth ECO2	-	56	2.2867	.83675
Funds available for change ECO4	+	178	3.3467	.77578
Donor's support for change ECO1	+	150	3.6767	.86484

Table 5-15 Mean and Frequency Results for Factor 7 [ECO]

Change Management [F8 CM]

The eighth factor generated from factor analysis is labelled Change Management [F8 CM]. Three items fall into this component, all of which relate to the management of change, i.e., established need for change, active communication and adequate plan for change. Generally, items have been answered negatively by the respondents, with the highest mean rating of 2.7 for the item 'Established Need for Change', which is lower than a rating of 3.0 (Neutral). Table 5-16 below outlines the result.

Descriptive Statistics for Change Management [CM] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Active communication CM1	-	76	2.6700	1.01548
Establish need for change CM2	-	90	2.7767	1.01500
Adequate plan for change CM3	-	78	2.6667	1.03236

Table 5-16 Mean and Frequency Results for Factor 8 [CM]

Political [F9 POL]

The ninth factor is labelled Political [F9 POL]. This factor has been named as such since all of the three items that fall into this component are related to the political aspect of change. The respondents showed a mixed response to the items related to the political factor. Employees generally agreed with the government's authority; however, they disagreed with political stability and consistent policies. Table 5-17 below outlines the results.

Descriptive Statistics for Political [POL] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Consistent govt. Policies POL2	-	76	2.6033	1.07230
Political stability POL3	-	62	2.7367	1.06353
Government's authority POL1	+	137	3.1167	1.20050

Table 5-17 Mean and Frequency Results for Factor 9 [POL]

Collaboration and Corporation [F10 COL]

The tenth factor has been named Collaboration and Corporation [F10 Co], as most of the items are related to the level of collaboration and corporation in Pakistan's public organisations. Most participants disagreed with the variables/items related to this factor. Table 5-18 below shows the highest mean rating of 2.76 for the item 'Integration of organisations', which is lower than a rating of 3.0 (Neutral).

Descriptive Statistics for Collaboration & Corporation [COL] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Info sharing through ICT COL1	-	87	2.7200	0.99913
Integration through ICT COL2	-	90	2.7600	1.01283
Collaboration through ICT COL3	-	78	2.6967	0.94568

Table 5-18 Mean and Frequency Results for Factor 10 [COL]

Technical Infrastructure Nationwide [F11 TNW]

The last factor has been named Technical Infrastructure Nationwide [F11 TNW], as most of the items are related to the technical setup at national level. There are three items in this factor, availability of technical support from the government, sufficient power supply and adequate technical infrastructure at national level. All items have been answered negatively by the respondents, which shows the respondents' lack of trust in the adequacy of existing technical infrastructure at national level that is available to implement change. Table 5-19 below outlines the result.

Descriptive Statistics for Technical Infrastructure [TNW] (n=300)				
Items	+/-	No. Of Positive Responses	Mean	Standard Deviation
Tech infrastructure NW TNW1	-	91	2.3633	0.86050
Tech support by Government TNW2	-	107	2.5533	1.02175
Sufficient power supply nationwide TNW3	-	11	1.8733	0.67241

Table 5-19 Mean and Frequency Results for Factor 11 [TNW]

Reliability and factor analysis are complementary procedures in scale construction and definition (Coakes and Steed, 2007). Therefore, after defining the name and label for each of the components, the final step in the factor analysis was to determine Cronbach's alpha for each component for the reliability measurement (see Table 5-20 below).

Components (Factors) Extracted	No. Of variables	Cronbach's Alpha	Comments
IT infrastructure [F1 IT]	6	0.84	High Reliability
Legal [F2 LEG]	4	0.89	High Reliability
Organizational [F3 ORG]	4	0.93	Excellent Reliability
Top Management [F4 TM]	3	0.97	Excellent Reliability
Reward System [F5 RS]	4	0.76	High Reliability
Organization's Technical Infrastructure [F6 TEC]	3	0.89	High Reliability
Economic [F7 ECO]	3	0.81	High Reliability
Change Management [CM]	3	0.82	High Reliability
Political [F9 Pol]	3	0.73	High Reliability
Collaboration and Corporation [F10 Co]	3	0.71	Acceptable Reliability
Technical Infrastructure Nationwide [F11 TNW]	3	0.74	Acceptable Reliability

Table 5-20 Factor Loading and Cronbach's Alpha for Final Components

5.6 Structural Equation Models (SEMs)

Structural Equation Modelling (SEM) is a statistical technique that allows the researcher to examine multiple interrelated dependence relationships in a single model (Hair et al., 2003). It is often based on causal relationships among latent variables and the use of SEMs provides an adequate answer to the requirements of validity and operationality (Hackl and Westlund, 2000). There are four main criteria to be met so that causal assertions can be made (Hair et al., 1998): (1) sufficient association between the two variables; (2) temporal antecedent of the cause versus the effect; (3) lack of alternative causal variables; and (4) a theoretical basis for the relationship. However, it must be highlighted that the ultimate demonstration of causality requires the active and absolute control of the variables involved, which is clearly not possible in the social sciences (Everitt and Dunn, 2001).

SEM is a second-generation multivariate data analysis method often used in research because it can test theoretically supported additive causal models – such as the TOE model. A structural equation model implies a structure of the covariance matrix of the measures. Once the model's parameters have been estimated, the resulting model-implied covariance matrix can then be compared with an empirical or data-based covariance matrix. If the two matrices are consistent with one another, then the structural equation model can be considered a plausible explanation for relations between the measures.

There is a general agreement that all the SEMs involve two aspects: first, an estimate of the multiple interrelated dependent relations between variables, and second the ability to construct latent variables while accounting for estimated measurement error associated with the imperfect measurement of variables (Hair et al., 2003). Therefore, SEM has become an increasingly popular tool for researchers to validate theoretical models (Gefen et al., 2000).

Prior to SEM, confirmatory factor analysis (CFA) was used because it enables the researcher to assess instruments resulting from the previous phase (Kelloway, 1998).

CFA is a statistical technique used to test a pre-specified relationship of observed measures. According to Klein (2007), CFA is used to validate the hypothesised theoretical constructs (or factors).

Hair et al. (2006) argue that the confirmatory factor analysis approach differs from the exploratory factor analysis (EFA) approach in that the latter extracts factors based on statistical results not on theory and can be conducted without prior knowledge of the number of factors or which items belong to which construct. In contrast, with CFA, both the number of factors within a set of variables and which factor each item will load highly on, is known to the researcher before the results can be computed. CFA as a tool enables the researcher to either confirm or reject the preconceived theory. Furthermore, CFA provides an assessment of fit while EFA does not. The process of identifying measurement model fit and validity for this study is explained in the following sections.

Using the results of exploratory factor analysis, CFA was employed in order to validate the underlying structure of the main constructs in the study, examine the reliability of the measurement scales, and assess the factorial validity of the theoretical constructs. This study used AMOS 22 software to create the measurement model shown in Figure 5-8 below based on the EFA findings.

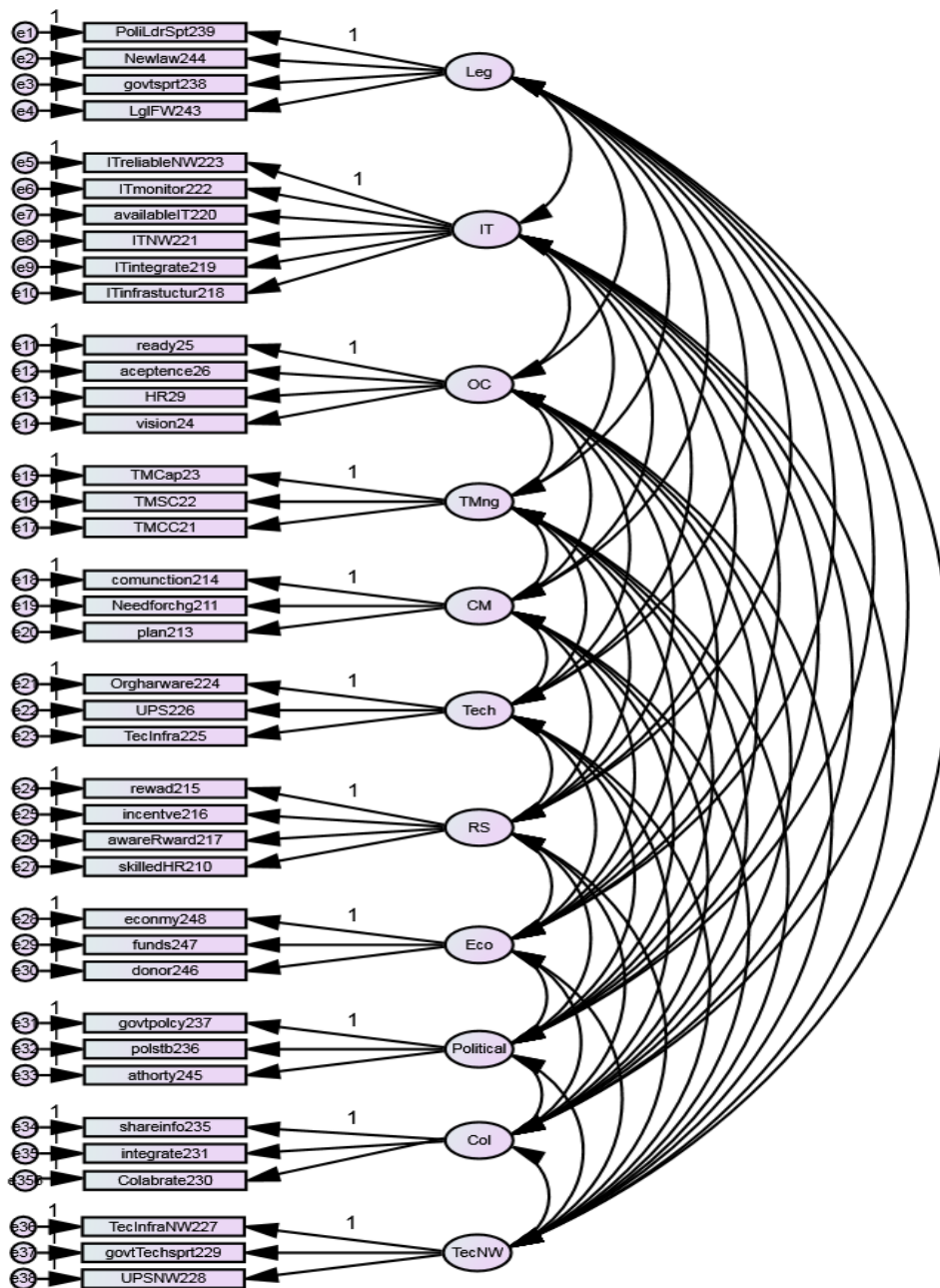


Figure 5-8 The Original Measurement Model Based on EFA Results

Whilst in EFA, factors are not presumed to directly cause one another; SEM often does specify particular factors and variables to be causal in nature. A structural equation model was created based on the results of EFA as shown in the above Figure 5-9.

Latent variables are shown as ovals and observed variables as rectangles. Two-headed connections indicate covariance between constructs and one-headed connectors indicate a causal path from a construct to an indicator. The diagram also shows how the errors influence each question, but do not influence the latent variable(s). SEM provides numerical estimates for each of the parameters (arrows) in the model to indicate the strength of the relationships. Thus, in addition to testing the overall theory, SEM therefore allows the researcher to diagnose which observed variables are good indicators of the latent variables.

5.6.1 Assessment of Model Fit

Each of the measurement and structural models was subject to the assessment of overall model fit in order to decide whether the model adequately represents the set of causal relationships or not. This is usually achieved through the assessment of the Chi-square goodness-of-fit measures. However, studies with larger samples may not rely on the Chi-square goodness-of-fit index (GFI) as a sole indicator of model fit (Hair et al., 2006). The other popular model fit indices include root mean square residual (RMR), root mean square error of approximation (RMSEA) and comparative fit index (CFI).

Root mean square residual (RMR) measures the average of the residuals between individual observed and estimated covariance and variance terms. Lower RMR and standardised root mean square residual (SRMR) values represent better fit and higher values represent worse fit (Hair et al., 2006). A value less than .05 is widely considered good fit and below .08 adequate fit (Kline, 2010).

Root mean square error of approximation (RMSEA) takes into account the error of approximation in the population (how well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?). It explicitly tries to correct for both model complexity and sample size by including each in its computation. Values less than 0.05 indicate good fit and values as high as .08 represent reasonable errors of approximation in the population. AMOS also reports the 90 % confidence interval around the RMSEA value along with the closeness to fit p

value. The narrow interval values around the RMSEA value with insignificant p value ($p > .05$) is indicative of how well the model fits the data (Byrne, 2001).

Comparative fit index (CFI) is also a commonly used measurement model fit index, where ranges between 0-1 with higher values indicate better fit. Values less than .90 are not usually associated with a model that fits well (Byrne, 2001; Hair et al., 2006; Kline, 2010).

AMOS generates 25 different goodness-of-fit measures and the choice of which to report is a matter of dispute among methodologists. Hair et al. (2006) recommend reporting Chi-squared statistics in addition to another absolute index such as RMSEA and an incremental index such as CFI. When comparing models of varying complexity, they recommend adding a PNFI measure. Others report GFI or, more recently, SRMR instead. This study used the following ‘Rules of Thumb’ criteria for a structural equation model fit.

Goodness of fit (GOF) Measure	Criterion	References
χ^2 / Degree of freedom	≤ 3	Hair, et al., 2010
GFI	> 0.8	Etezadi-Amoli and Farhoomand, 1996
AGFI	> 0.8	Etezadi-Amoli and Farhoomand, 1996
CFI	> 0.8	Lau, 2011; Kline, 2010
RMR	< 0.05	Hair, et al., 2001; Kline, 2010
NFI	> 0.9	Wang and Wang, 2012
TLI	> 0.9	Hair, et al., 2010
RMSEA	< 0.10	Devaraj, et al., 2002; Byrne, 2001

Table 5-21 ‘Rules of Thumb’ for Measurement and Structural Models Fit Indices

Subsequently, to test the measurement model, CFA through AMOS 22 was conducted using the Maximum Likelihood (ML) method, which is the most widely used method for parameters estimation in SEM (Schermelleh-Engel et al., 2003). Figure 5-9 below shows the output path diagram of the CFA first-run, and is followed by the overall goodness-of-fit statistics in table 5-22. The full model-fit summary for the first-run of CFA appears in Appendix 5B on page 393.

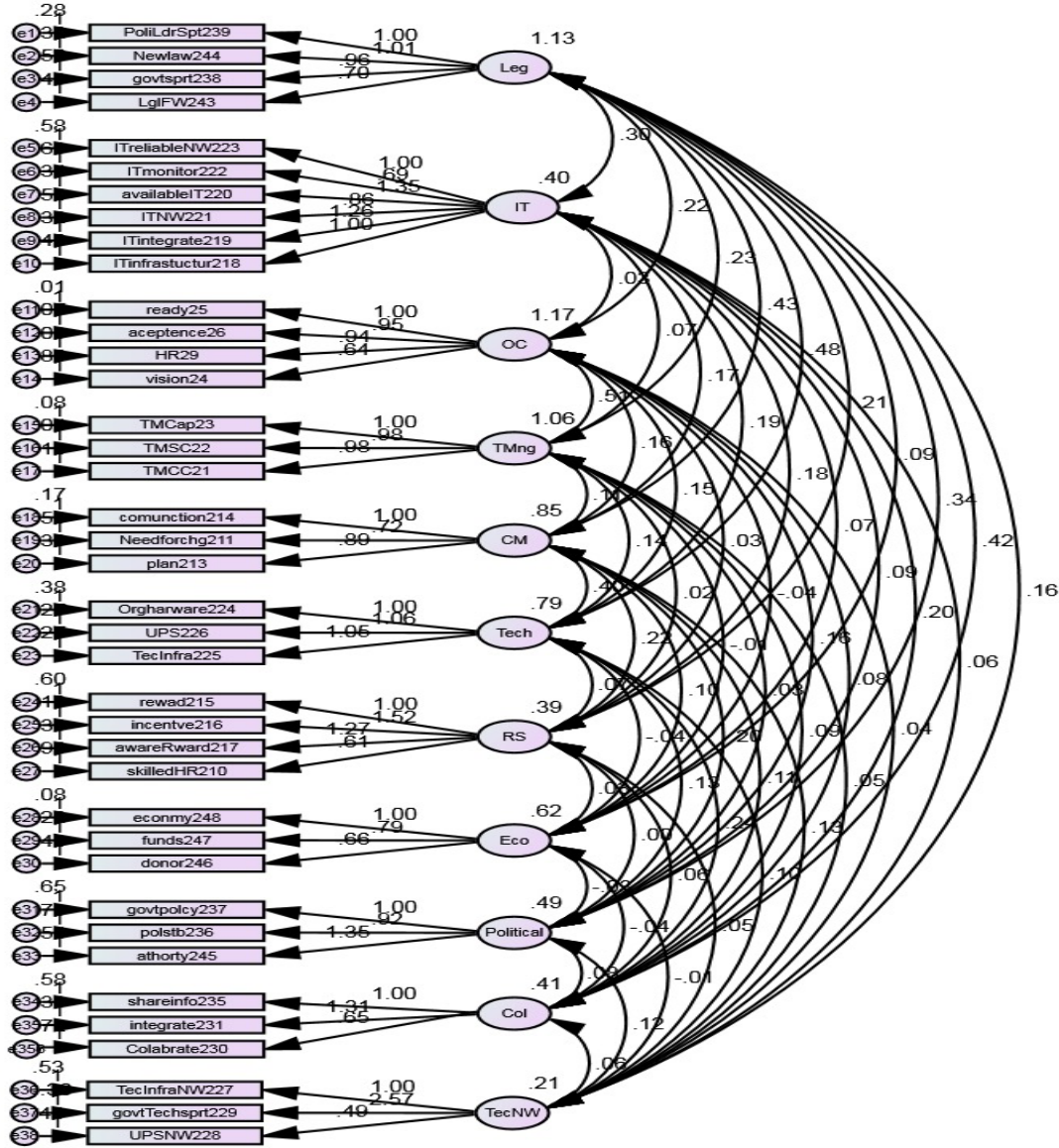


Figure 5-9 CFA Output Path Diagram (first-run)

It can be seen from table 5-22, that while most fit indices indicated a satisfactory level of model adequacy, three showed the opposite, these being the AGFI, DF and RMR. Specifically, the RMR (0.067) was well below the recommended value (0.08). Therefore, the unacceptable values of AGFI and RMR suggested that there was room for further model adjustments in order to achieve a good model.

Goodness of fit (GOF) Measure	Conceptual Model (First Run)	Criterion	Acceptable/Unsatisfactory	References
χ^2 / Degree of freedom	3.705	≤ 3	Unsatisfactory	Hair, et al., 2010
GFI	0.843	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.688	> 0.8	Unsatisfactory	Etezadi-Amoli and Farhoomand, 1996
CFI	0.924	> 0.8	Acceptable	Lau, 2011; Kline, 2010
RMR	0.067	< 0.05	Unsatisfactory	Hair, et al., 2001; Kline, 2010
NFI	0.094	> 0.9	Acceptable	Wang and Wang, 2012
TLI	0.908	> 0.9	Acceptable	Hair, et al., 2010
RMSEA	0.095	< 0.10	Acceptable	Devaraj, et al., 2002; Byrne, 2001

Table 5-22 Measurement Model Goodness-of-Fit Indices (CFA First Run)

5.6.2 The Measurement Model Enhancement

To improve the measurement model goodness-of-fit, several modifications were introduced to the first-run model shown in Figure 5-10. The modifications/adjustments were based on the following guidelines provided by Hooper et al. (2008), Hair et al. (2010) and Byrne (2013).

- Standardised Regression Weights (SRW): known as factor loadings in EFA, these regression weights represent the correlation between the observed and latent variables. These weights are recommended to be above 0.5, but higher values (close to 1) are much better. Any measurement variables less than 0.5 would be considered for elimination due to the weak correlation with their latent variable.

- Squared Multiple Correlations (SMC): these values represent the percentage of variance in the latent variable that can be explained by each individual observed variable. While values above 0.5 are considered acceptable, higher values (close to 1) are more favourable.
- Standardised Residuals (SR) matrix: since standardised residuals represent the differences between the data covariance matrix and the model-estimated covariance, observed variables with high-standardised residuals are considered to be a poor fit in the model. A good model should generate standardised residuals close to zero. Therefore, standardised residuals of more than +2.56 or less than -2.56 are usually indicators to determine the causes of the model misfit.
- Modification Indices (MI): these indices indicate the effect of freeing pre-fixed parameters on Chi-square (χ^2). Therefore, checking these values would help the researcher to determine which path should be added to the model in order to decrease the Chi-square (χ^2) statistic, which in turn improves the model fit. Large modification indices (usually more than 6.63) determine which parameters should be set free in order to achieve better model suitability. A common practice in this regard is to correlate parameter errors that are part of the same factor. Moreover, parameters that show high covariance between their errors and at the same time have high regression weights, are candidates for deletion.

Accordingly, the SEM output results were examined carefully in order to identify any room for further improvements. The following modifications were made in order to enhance the measurement model goodness-of-fit:

1. Deletion of items/variables based on SR and MI analysis: according to Byrne (2001), only those items that demonstrate high covariance plus high regression weight in the modification indexes should be candidates for deletion. As for the other criteria, if an item proves to be problematic on most of the levels mentioned above, then it is also a candidate for deletion. Based on that, the problematic items were deleted. This

resulted in deletion of three constructs (POL, TECNW and CO).

- Covariance of 10 error terms as follows: (e2 with e3), (e4 with e5), (e13 with e14), (e16 with e17), and (e22 with e23) based on the Modification Indices displayed in Table 5-23 below.

Covariance Path			M.I.	Covariance Path			M.I.
e34	<-->	e36	14.962	e14	<-->	e29	10.499
e29	<-->	e37	26.681	e14	<-->	e25	19.926
e28	<-->	e34	14.466	e14	<-->	e23	13.883
e28	<-->	e30	16.708	e12	<-->	e14	19.760
e27	<-->	e37	11.994	e11	<-->	e14	10.627
e26	<-->	e33	12.717	e9	<-->	e38	17.162
e25	<-->	e34	18.818	e9	<-->	e32	14.217
e25	<-->	e28	10.295	e9	<-->	e30	16.233
e22	<-->	e32	19.513	e9	<-->	e25	14.336
e22	<-->	e23	19.069	e9	<-->	e18	20.097
e21	<-->	e34	27.065	e8	<-->	e38	48.431
e20	<-->	e38	12.729	e5	<-->	e34	17.672
e20	<-->	e37	14.059	e5	<-->	e33	27.015
e20	<-->	e34	13.521	e3	<-->	e33	22.004
e18	<-->	e33	17.653	e3	<-->	e19	15.432
e18	<-->	e26	37.462	e3	<-->	e10	14.728
e18	<-->	e25	22.415	e3	<-->	e5	11.471
e18	<-->	e21	16.481	e16	<-->	e17	16.481
e14	<-->	e34	12.574	e14	<-->	e34	12.574
e14	<-->	e31	18.227	e14	<-->	e31	18.227
e14	<-->	e29	10.499	e2	<-->	e4	16.423
e14	<-->	e25	19.926	e2	<-->	e3	36.472
e14	<-->	e23	13.883	e1	<-->	e21	11.301
e12	<-->	e14	19.760	e1	<-->	e9	18.548
e13	<-->	e14	10.627	e2	<-->	e4	16.423
e9	<-->	e38	17.162	e2	<-->	e3	36.472
e9	<-->	e32	14.217	e1	<-->	e21	11.301
e9	<-->	e30	16.233	e1	<-->	e9	18.548
e2	<-->	e3	12.345	e4	<-->	e5	17.876

Table 5-23 Modification Indices for CFA First Run

An inspection of MI presented in Table 5-23 above showed several large values that were used effectively to enhance the measurement model goodness-of-fit.

After introducing the above model modifications, a second CFA run was made. Table 5-24 shows the overall goodness-of-fit statistics that resulted from the second run of CFA and the following Figure, 5-10, shows the related output path diagram. The full model-fit summary for the second-run of CFA can be found in Appendix 5C on page 394.

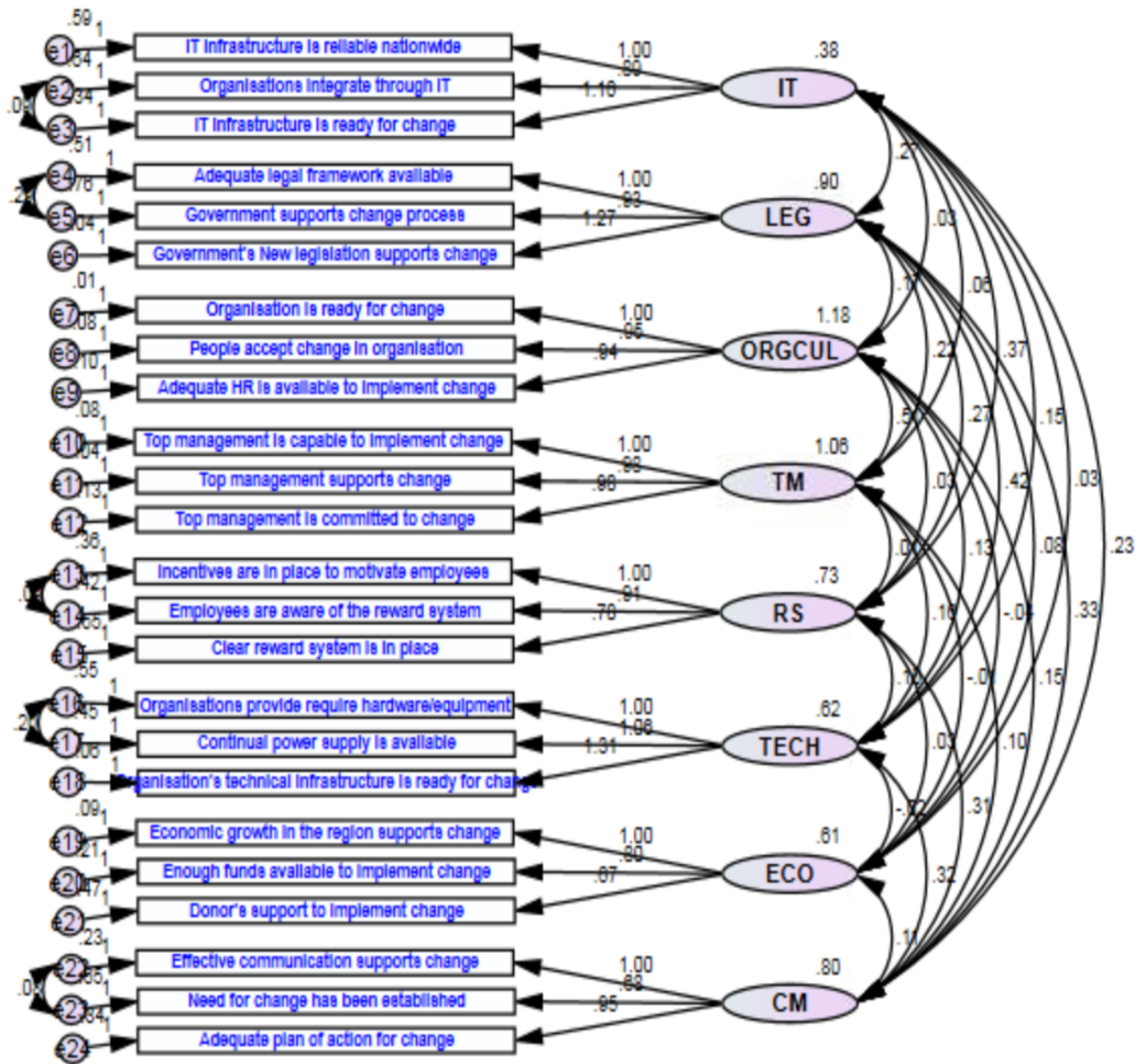


Figure 5-10 CFA Output Path Diagram (Second Run)

In this study, the associated fit statistics indicate that this is a reasonably good fit model. In keeping with advice from Kline (2010) - who recommends reporting the Chi-squared test, the RMSEA, the CFI, and the RMR – with regard to the model shown in Figure 5-10, the root mean square residual (RMR) was .042, a value of .08 or less being indicative of an acceptable model; the goodness of fit index (GFI) score was only a reasonably good fit at .868, with a value in excess of .900 indicating acceptable model fit; the comparative fit index (CFI) analyses the model fit by examining the discrepancy between the data and the hypothesised model, whilst adjusting for the issues of sample size inherent in the Chi-squared test of model fit, and the normed fit index. The CFI value of .940 also indicated acceptable model fit. The following Table 5-24 further expounds the goodness-of-fit indices for this study.

Goodness of fit (GOF) Measure	Conceptual Model (First Run)	Criterion	Acceptable/Unsatisfactory	References
χ^2 / Degree of freedom	2.598	≤ 3	Acceptable	Hair, et al., 2010
CFI	0.940	> 0.8	Acceptable	Lau, 2011; Kline, 2010
GFI	0.868	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.819	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
RMR	0.042	< 0.05	Acceptable	Hair, et al., 2001; Kline, 2010
NFI	0.987	> 0.9	Acceptable	Wang and Wang, 2012
TLI	0.925	> 0.9	Acceptable	Hair, et al., 2010
RMSEA	0.073	< 0.10	Acceptable	Devaraj, et al., 2002; Byrne, 2001

Table 5-24 Measurement Model Goodness-of-Fit Indices (CFA second-run)

It can be seen from Table 5-24 that introduction of the above-mentioned modifications improved the overall goodness-of-fit of the model to an acceptable level. Therefore, since the revised model was confirmed to fit the empirical data adequately, it was decided that no further modification was necessary.

5.6.3 Construct Reliability

After establishing the goodness-of-fit for the measurement model, the next step was to assess the composite reliabilities of the model constructs. Composite Reliability (CR) resulting from using SEM is considered to provide better reliability estimation than that by using Cronbach's alpha coefficient (Peterson and Kim, 2013). Therefore, introducing CR in this study was a means of providing another reliability test to judge the accuracy of the results obtained from the Cronbach's alpha coefficient test. The following formula proposed by Fornell and Larcker (1981), was applied to calculate the CR for all model constructs:

$$CR = \frac{\left(\sum_{i=1}^n \lambda_i\right)^2}{\left(\sum_{i=1}^n \lambda_i\right)^2 + \left(\sum_{i=1}^n \delta_i\right)}$$

Where λ represents the standardised regression weight and δ represents the error

Table 5-25 below presents the results of CR for the final constructs obtained from CFA. The results indicate that all constructs showed high CR coefficients that were all above the cut-off point of 0.7, thereby indicating adequate internal consistency. It can be seen from Table 5-25 that the reliability estimations acknowledged high coefficient values ranging from 0.815 for the ITST construct to 0.981 for the ORG construct.

Construct	CR	Comments
Top Management [TM]	0.974	Accepted (>0.7)
Organisational Cultural [ORGCUL]	0.981	Accepted (>0.7)
IT infrastructure [ITST]	0.815	Accepted (>0.7)
Political [POL]	0.902	Accepted (>0.7)
Economic [ECO]	0.832	Accepted (>0.7)
Technical Infrastructure [TEC]	0.894	Accepted (>0.7)
Change Management [CM]	0.835	Accepted (>0.7)
Reward System [RS]	0.820	Accepted (>0.7)

Table 5-25 Composite Reliability Results

5.6.4 Construct Validity

The next logical step at this point was to determine the construct validity. Construct validity, which can be assessed through convergent and discriminant validity tests (Hair et al., 2010).

Convergent validity is estimated by Standardised Regression Weights (SRW), Composite Reliability (CR) and average variance extracted (AVE). In order to report convergent validity, the recommended values for each should be as follows: SRW >0.7, CR >0.7 and AVE >0.5 (Hair et al., 2010). The following formula proposed by Fornell and Larcker (1981) was applied to calculate the AVE for each construct:

$$AVE = \frac{\sum_{i=1}^n L_i^2}{n}$$

Where L represents the standardised regression weight, n represents the total number of observed variables.

Construct	AVE	Comments
Top Management [TM]	0.926	Accepted (>0.5)
Organisational Cultural [ORGCUL]	0.946	Accepted (>0.5)
IT infrastructure [ITST]	0.606	Accepted (>0.5)
Political [POL]	0.754	Accepted (>0.5)
Economic [ECO]	0.629	Accepted (>0.5)
Technical Infrastructure [TEC]	0.737	Accepted (>0.5)
Change Management [CM]	0.632	Accepted (>0.5)
Reward System [RS]	0.608	Accepted (>0.5)

Table 5-26 AVE Results

To further confirm the construct validity, a discriminant validity test suggested by Hair et al. (2010) was conducted. Discriminant validity is the extent to which a construct is truly

distinct from other constructs (Hair et al., 2006), and it can be measured by using average variance extracted (Fornell and Larcker, 1981; Hair et al., 2006).

The results of average variance extracted should be greater than the squared correlation estimates (Fornell and Larcker, 1981; Hair et al., 2006). Using this approach, the researcher found discriminant validity in all latent constructs (see Table 5-27). The results showed that the values of all average variance extracted are greater than the relevant squared correlation estimates, thereby confirming discriminant validity.

	[TM]	[Org]	[ITST]	[Pol]	[Eco]	[Tech]	[CM]	[RS]
[TM]	0.962							
[Org]	0.458	0.972						
[ITST]	0.125	0.067	0.779					
[Pol]	0.207	0.203	0.431	0.868				
[Eco]	-0.018	-0.050	0.137	0.117	0.793			
[Tech]	0.154	0.154	0.389	0.490	-0.054	0.859		
[CM]	0.111	0.157	0.188	0.426	0.140	0.482	0.795	
[RS]	0.036	0.038	0.303	0.302	0.036	0.130	0.379	0.780

Table 5-27 Discriminant Validity

In summary, the overall results of construct validity using convergent and discriminant validity assessment of the measurement model provided statistically and theoretically valid constructs. Thus, the underlying latent variables for the structural equation model testing stage were robustly established.

5.6.5 Structural Equation Modelling (SEM) with DVs

Having established the measurement model goodness-of-fit and confirmed the validity of all relevant constructs, the researcher then investigated how the model may be used to predict an employee's intention to adopt change (DV1) (see Figure 5-12) and their

view of project success (DV2) (see Figure 5-13). In both cases acceptable model fit was observed with the refined eight latent variables. The full model-fit summaries for the SEM with both DVs can be found in Appendix 6A and Appendix 6B on pages 395-396.

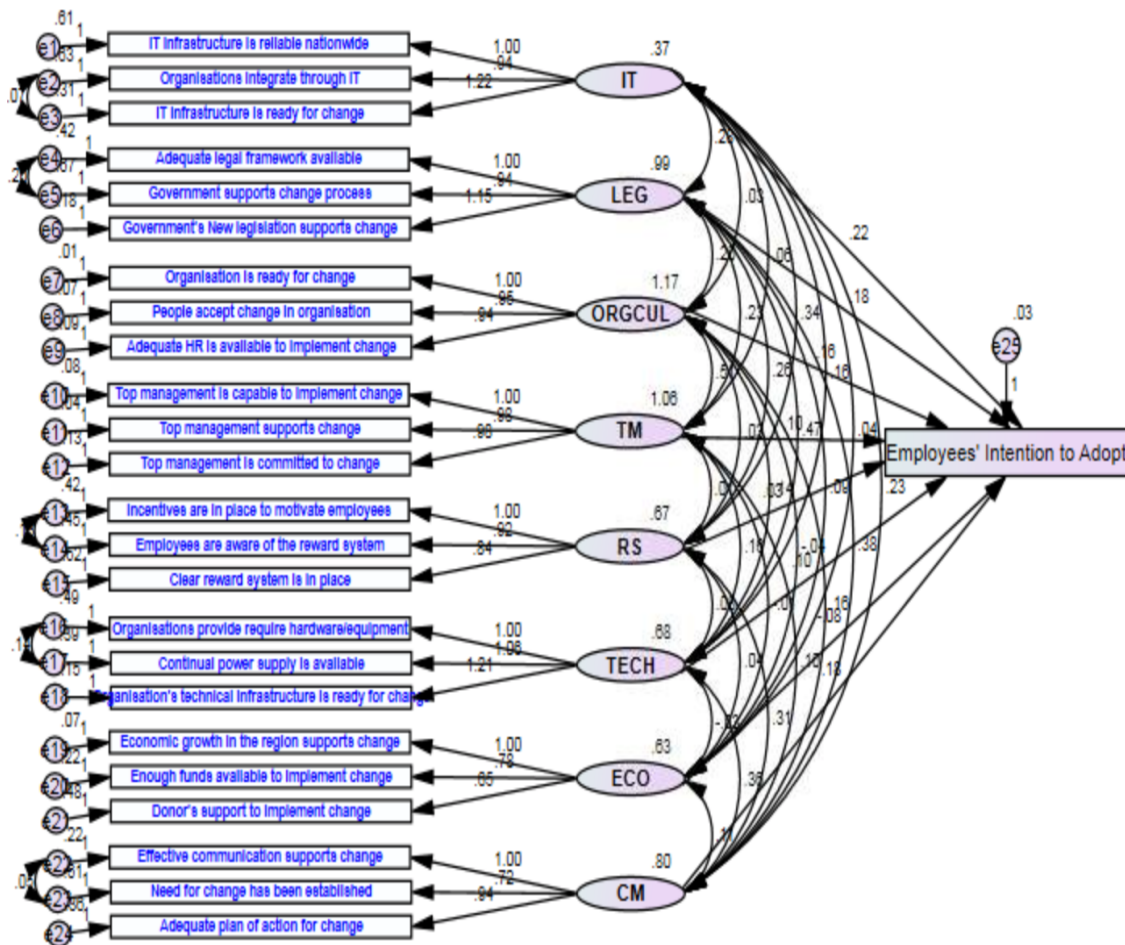


Figure 5-11 GF Model to Forecast DV1 (Adoption of Change)

Model Fit: $\chi^2 / DF = 2.658$; CFI = .940; GFI = .862; TLI = .923; AGFI = .810; RMSEA = .074 and NFI = .908

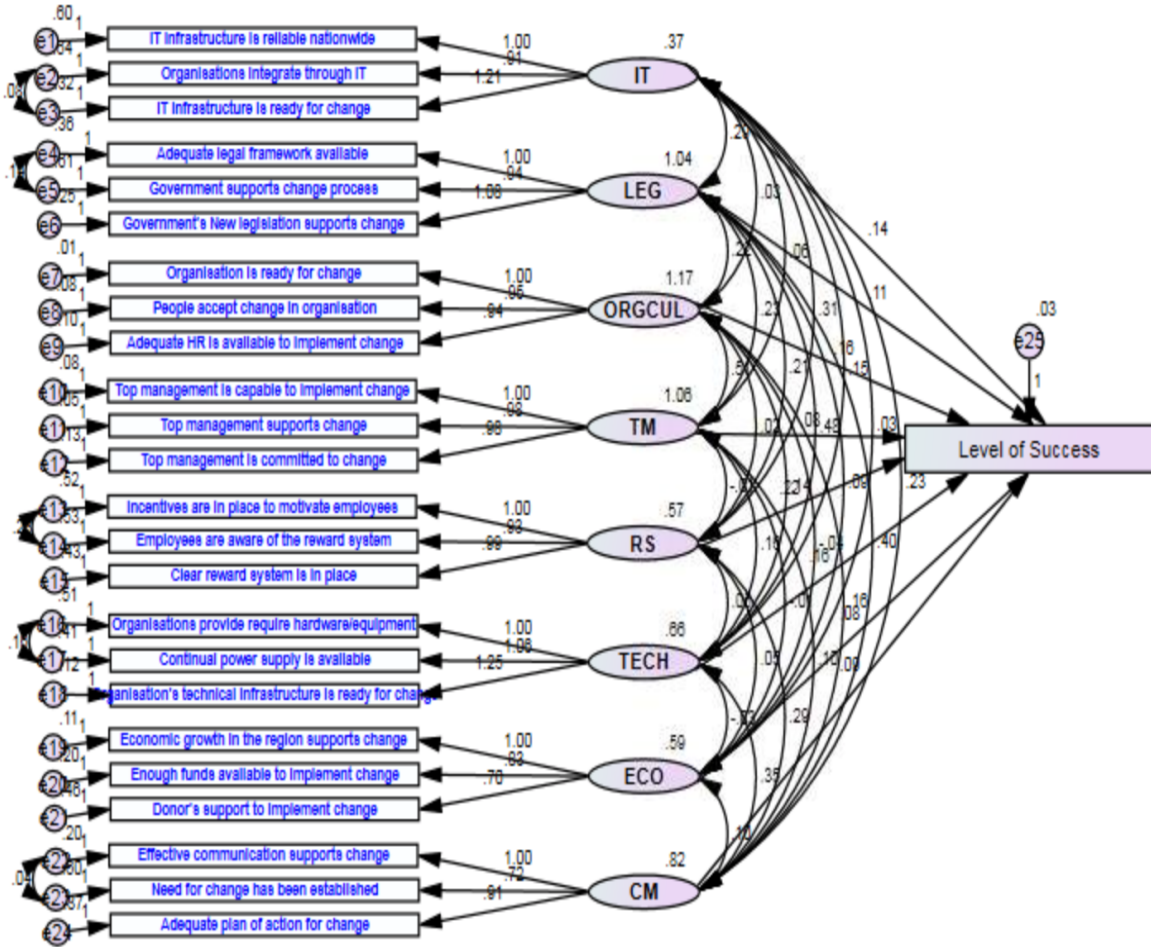


Figure 5-12 GF Model to forecast DV2 (Success of Change)

Model Fit: $\chi^2 / DF = 2.629$; CFI = .941; GFI = .864; TLI = .924; AGFI = .812; RMSEA=.074 and NFI = .908

In order to assess the explanatory power of the research models shown in Figures 5-12 and 5-13, Squared Multiple Correlations (SMC) estimates for the Endogenous Factors were analysed. The SMC results are shown in the following table, Table 5-28.

Endogenous Factors	Squared Multiple Correlations (SMC)
Intent to Adopt (DV1)	.801
Level of Success (DV2)	.811

Table 5-28 Squared Multiple Correlation

From reviewing Table 5-28, it emerges that DV1 and DV2 explain a total of 80.1% and 81.1% of the variance respectively.

5.7 Revised Change Models

Having successfully validated the structural models' goodness-of-fit to the data, the next step was to examine the research assumptions (TOE) using path measurement coefficients (regression weight estimates and critical ratios) from the SEM analysis performed with AMOS 22. Figures 5-13 and 5-14, and Tables 5-29 and 5-30 on the next pages summarise these results, from which it is seen that only 8 of the 12 hypothesised causal paths in the structural models were found significant at the 0.05 level.

Dependent Variables	Path	Independent Variables	Estimate	S.E.	C.R.	P	Comments
Intent to Adopt	<-----	IT	.222	.055	4.044	***	Significant (P<0.05)
Intent to Adopt	<-----	LEG	.181	.021	8.532	***	Significant (P<0.05)
Intent to Adopt	<-----	ORGCUL	.164	.014	11.813	***	Significant (P<0.05)
Intent to Adopt	<-----	TM	.100	.015	6.747	***	Significant (P<0.05)
Intent to Adopt	<-----	RS	.101	.058	2.373	.018	Significant (P<0.05)
Intent to Adopt	<-----	TECH	.098	.026	3.822	***	Significant (P<0.05)
Intent to Adopt	<-----	ECO	-.104	.066	-1.586	.113	Not Significant (P > 0.05)
Intent to Adopt	<-----	CM	.183	.024	7.759	***	Significant (P<0.05)

*** p< 0.001, *Cut off (C.R >±1.96) (Hair et al., 2010)

Table 5-29 Path Coefficient Weights for Structural Model (DV1)

Dependent Variables	Path	Independent Variables	Estimate	S.E.	C.R.	P	Comments
Level of Success	<-----	IT	.140	.050	2.767	.006	Significant (P<0.05)
Level of Success	<-----	LEG	.115	.019	5.987	***	Significant (P<0.05)
Level of Success	<-----	ORGCUL	.160	.013	12.229	***	Significant (P<0.05)
Level of Success	<-----	TM	.077	.014	5.524	***	Significant (P<0.05)
Level of Success	<-----	RS	.217	.042	5.149	***	Significant (P<0.05)
Level of Success	<-----	TECH	.161	.025	6.334	***	Significant (P<0.05)
Level of Success	<-----	ECO	.083	.018	4.619	***	Significant (P<0.05)
Level of Success	<-----	CM	.094	.022	4.345	***	Significant (P<0.05)

*** p< 0.001, *Cut off (C.R >±1.96) (Hair et al., 2010)

Table 5-30 Path Coefficient Weights for Structural Model (DV2)

The main objective of the quantitative data analysis is to predict the causal relationships between dependent variables (intent to adopt and level of success) and independent variables, which are technical infrastructure (TEC), information-technology infrastructure (IT), collaboration (COL), reward system (RS), social (SOC), political (POL), organisational culture (ORGCUL), change management (CM), legislative system (LEG), top management (TM), human resource (HR) and economy (ECO). In this study, independent variables were categorised as Technical, Organisational and Environmental factors and were expected to positively influence DVs (see section 3-8). In the initial conceptual framework (Figure 3-5), IT, Col and TEC were categorised as Technical factors. Similarly, ORGCUL, HR, CM, RS and TM belonged to the Organisational context. Finally, POL, ECO, SOC and LEG were related to the Environmental factors.

However, in an attempt to secure a decent and stable model that would better fit the empirical data, problematic constructs such as SOC, POL and COL were deleted to achieve good model fit for both DVs (see Figures 5-11 and 5-12). Additionally, the insignificant regression path was excluded from the models, due to its ineffectual impact on DVs. The revised change models based on the initial TOE framework with empirical backing are shown in Figures 5-13 and 5-14 on the next page.

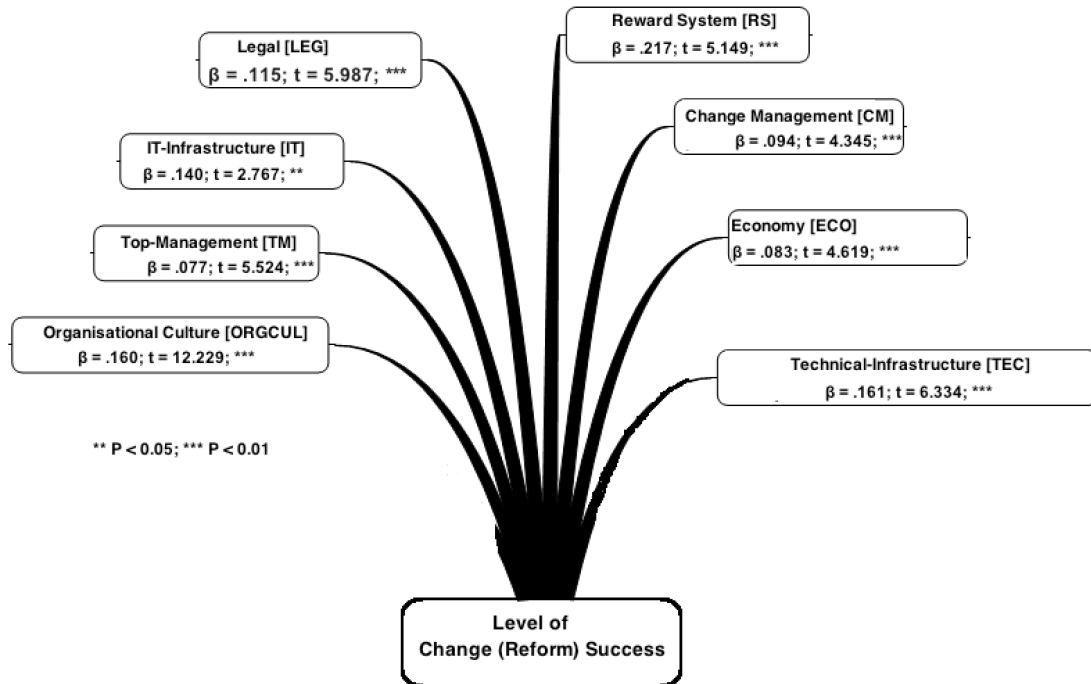


Figure 5-13 Revised Model to forecast DV (Level of success to change)

Model Fit: χ^2 /DF = 2.629; CFI = .941; GFI = .864; TLI = .924; AGFI = .812; RMSEA=.074 and NFI = .908

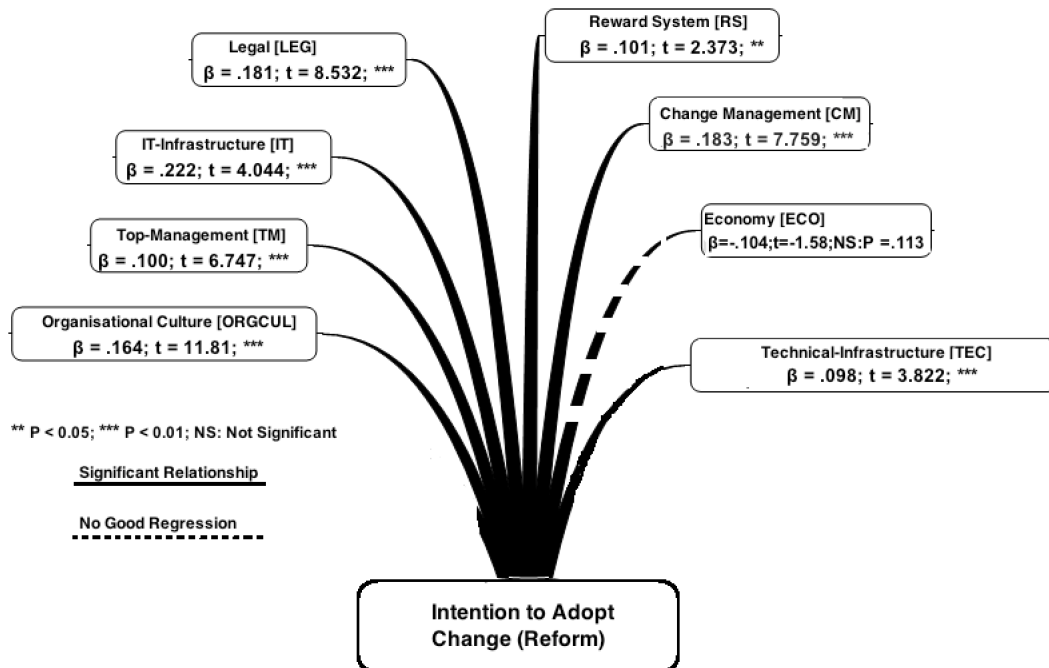


Figure 5-14 Revised Model to forecast DV (Intent to adopt change)

Model Fit: χ^2 /DF = 2.658; CFI = .940; GFI = .862; TLI = .923; AGFI = .810; RMSEA=.074 and NFI = .908

5.8 Multiple Regression Analysis

Whereas the factor analysis driven SEM utilises the individual TOE items as observed variables, alternative models such as multiple regression utilise collapsed data and thus present an alternative view of the data and therefore a complementary model to aid prediction and understanding.

Multiple regression analysis is a statistical technique that can be used to analyse the relationship between a single dependent and several independent variables. Its main purpose is to examine the ability of the independent variable(s) to predict the single dependent variable (Hair et al., 2010).

A regression using one single Independent Variable (IV) is called simple regression analysis while a regression using more than one IV is called multiple regression analysis. In keeping with advice from Uyanik and Guler (2013), multiple regression analysis was used in this research to answer questions such as: “Are there any relations between DVs and IVs?”, “What is the strength of relation if there is any?”, “Is it possible to make future-oriented predictions regarding the DV?”, and “If certain conditions are controlled, what influences does a special variable or group of variables have over another variable or variables?”. Multiple regression models are formulated as in the following:

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2 \dots b_nX_n + e$$

Where:

\hat{Y} = dependent variable

$X_1 - X_n$ = independent variables

$b_1 - b_n$ = parameters

e = error

The assumptions of multivariate regression analysis are normal distribution, linearity and freedom from extreme values and missing data. The missing data, outliers and multivariate normality and linearity have already been analysed (see section 5.3). Multicollinearity is another common problem when estimating linear or generalised

linear models, including logistic regression and Cox regression. It occurs when there are high correlations among predictor variables, leading to unreliable and unstable estimates of regression coefficients (Hair et al., 2006). In regression analysis, the existence of multicollinearity negatively affects the predictive ability of the regression model (Myers, 1990) and causes problems for the success of a model. Therefore, examining the existence of the multicollinearity problem is very important. Tracing whether the data suffers with this problem of multicollinearity, SPSS software provides two options to estimate the tolerance and variance inflation factor (VIF). VIFs exceeding 10 are a sign of a serious multicollinearity issue, (Uyanik and Guler, 2013; Myers, 1990) and similarly, if tolerance values are higher than .10, no multiple relation between variables is detected (Uyanik and Guler, 2013). The findings concerning these values are shown in the following tables (5-31 and 5-32).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1								
	(Constant)	-1.408	.414					
	Top Management's Support	.283	.050	.269	5.699	.000	.816	1.226
	Organisational culture	.022	.081	.016	.274	.784	.529	1.892
	Avalibility of Human Resource	.004	.110	.002	.035	.972	.511	1.958
	Organisational Change Management	.118	.079	.085	1.485	.139	.558	1.792
	Reward System	.133	.067	.106	1.972	.050	.626	1.597
	Organisation's IT infrastructure	-.062	.085	-.048	-.730	.466	.414	2.413
	IT Infrastructure Nationwide	.118	.084	.083	1.405	.161	.528	1.896
	Organisation's Technical Infrastructure	.137	.063	.124	2.170	.031	.563	1.777
	Technology Factors NW	.054	.074	.034	.727	.468	.824	1.213
	Collaboration of Organisations	.280	.101	.182	2.782	.006	.425	2.354
	Collaboration NW	.064	.101	.039	.636	.525	.490	2.041
	Political Factors	.248	.100	.188	2.482	.014	.317	3.151
	Cultural Factors	.078	.115	.039	.679	.498	.565	1.768
	Legal Factors	.130	.099	.108	1.322	.187	.271	3.692
	Economical Factors	-.028	.070	-.018	-.398	.691	.866	1.154

a. Dependent Variable: Employee's intention to adopt change

Table 5-31 Regression Analysis for DV1

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1							
	(Constant)	-1.733	.306				
	Top Management's Support	.031	.037	.032	.846	.398	.816
	Organisational culture	-.014	.060	-.011	-.226	.821	.529
	Availability of Human Resource	-.004	.081	-.002	-.046	.963	.511
	Organisational Change Management	.079	.059	.061	1.352	.177	.558
	Reward System	.099	.050	.085	1.976	.049	.626
	Organisation's IT infrastructure	-.145	.063	-.121	-2.288	.023	.414
	IT Infrastructure Nationwide	.339	.062	.255	5.465	.000	.528
	Organisation's Technical Infrastructure	.057	.047	.056	1.228	.221	.563
	Technology Factors NW	.024	.055	.016	.429	.668	.824
	Collaboration of Organisations	.475	.074	.332	6.383	.000	.425
	Collaboration NW	.110	.075	.072	1.476	.141	.490
	Political Factors	.472	.074	.385	6.396	.000	.317
	Cultural Factors	.157	.085	.083	1.839	.067	.565
	Legal Factors	.093	.073	.083	1.278	.202	.271
	Economical Factors	-.005	.052	-.003	-.092	.926	.866

a. Dependent Variable: Level of change project's success

Table 5-32 Regression Analysis for DV2

Values achieved for both VIF and tolerance signify that there is no multicollinearity problem in this study. Tables 5-31 and 5-32 illustrate that the VIF for both models varied between 1.154 for Economy and 2.413 for IT infrastructure, which are below the recommended level (Myers, 1990; Stevens, 1996). Tables 5-31 and 5-32 further demonstrate that all the predictors have a higher tolerance value than 0.10. As a result, both the VIF and tolerance values suggest that the independent variables included in this test of study do not suffer from the problem of multicollinearity.

5.8.1 Results

Evaluating the results of a multiple regression analysis is based on the following statistical criteria (Hair et al., 2010): (1) the overall regression model is considered a significant model by using F statistic at P values < 0.05; (2) the strength of relationships between the independent variables and dependent variable are represented by R². The value of R² ranged from 0 to +1.0; it represents the amount of variation in the dependent variable by independent variables. The higher value of R² close to 1.0 indicates a strong relationship between independents and dependent; (3) the degree of the impact and the direction (positive/negative) of the independent variables on the dependent variable are represented by coefficient betas (β). The value of β ranged from -1.0 to +1.0. The

higher value of β indicates that an independent variable has a greater impact on the dependent variable; and (4) the beta coefficient(s) (β) must be significant for each of the independent variables using the t statistics at P values < 0.05, when β is significant, which indicates that an independent variable is a good predictor of the dependent variable.

DV1: ANOVA^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	169.544	15	11.303	17.614	.000 ^b
Residual	182.242	284	.642		
Total	351.787	299			

a. Dependent Variable: **Employee's intention to adopt change**
b. Predictors: (Constant), TM, ORGCUL, HR, CM, RS, IT, ITNW, TEC, TECNW, COL, COLNW, POL, CUL, LEG, ECO

DV2: ANOVA^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	204.882	15	13.659	38.984	.000 ^b
Residual	99.505	284	.350		
Total	304.387	299			

a. Dependent Variable: **Level of change project's success**
b. Predictors: (Constant), TM, ORGCUL, HR, CM, RS, IT, ITNW, TEC, TECNW, COL, COLNW, POL, CUL, LEG, ECO

Table 5-33 Regression Analysis: ANOVA (DV1 and DV2)

DV1: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694 ^a	.482	.455	.80106

a: Predictors: TM, ORGCUL, HR, CM, RS, IT, ITNW, TEC, TECNW, COL, COLNW, POL, CUL, LEG, ECO
b: Dependent Variable: **Intention to Adopt Change**

DV2: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.820 ^a	.673	.656	.59192

a: Predictors: TM, ORGCUL, HR, CM, RS, IT, ITNW, TEC, TECNW, COL, COLNW, POL, CUL, LEG, ECO
b: Dependent Variable: **Level of Success**

Table 5-34 Regression Analysis: Models (DV1 and DV2) and Summary

As shown in the above tables (5-33 and 5-34), a regression analysis was performed with Intention to adopt change (DV1) and Level of change success (DV2) as the dependent variables, and the following predictor variables: IT infrastructure, technical infrastructure, organisational culture, change management, legal, financial and top management.

A total of 300 cases were analysed. From the analysis with DV1, a significant model emerged ($F(15, 300) = 17.614, p < 0.001$), as shown in Table 5-33, with the adjusted R square being 0.455 (Table 5-34). Similarly, the analysis of DV2 also produced a significant model ($F(15, 300) = 38.984, p < 0.001$) (Table 5-33) with the adjusted R square being 0.656 (Table 5-34). The measure R square is the square of R, representing the proportion of variation in the response variable, explained by the regression model, and consists of a value between (0) and (1). Reasonably high R Square value was observed (Table 5-34) for both DVs that may be seen as evidence of a good fit of the model tested.

As demonstrated in Table 5-30, the size of β suggests that change management and organisational culture have the largest impact in the explanation of variation of behavioural intention to adopt change. This is followed by the information-technology, legislation, technical infrastructure and reward system constructs. However, β value of economy showed a negative effect on DV1 (Intent to adopt change).

Similarly, the size of β values in Table 5-31 suggests that reward system and organisational culture have the largest impact in the explanation of DV2 (Level of success). This is followed by information-technology, change management, technical infrastructure, economy, legislation and top management constructs. Finally, on correlation analysis, some IVs were found not to be significantly correlated with DVs ($p < 0.05$ and $p < 0.01$). Therefore, the next logical step was to use stepwise regression analysis to generate optional models for DVs.

5.8.2 Stepwise Regression Analysis

For multiple regression analysis, SPSS offers several methods such as 'enter', 'stepwise', 'forward' and 'backward' to choose from. It was found after initial analysis (using the 'enter' method) that some of the independent variables did not show (P value < 0.05) significant positive correlation with DV1 (Intent to adopt change) and DV2 (Level of success). Therefore, a 'stepwise' method was used to generate an optional model for

DVs. The stepwise method produces models that only include IVs that have the significant Pearson correlation with the DV.

The stepwise process systematically adds the most significant variable or removes the least significant variable during each step. Stepwise methods are frequently employed in educational and psychological research, both to select useful subsets of variables and to evaluate the order of importance of variables (Thompson, 1995). In this study, it is really important to know the order of importance of factors influencing change (reform) adoption and implementation in public organisations of the KPK. Leaders of change can thus allocate resources accordingly. The following sub-section explains the results of the stepwise regression analysis.

5.8.3 Results

Tables 5-35 and 5-36 shows the overall results of a stepwise multiple regression analysis for collapsed independent variables (IVs) with the first dependent variable (DV1). VIF and Tolerance values shown in the output tables suggest that there is no multicollinearity issue. The final model achieved for DV1 was one where all the predictor variables were significant, i.e., $p < .05$ (as shown in the following table, Table 5-35).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
6	(Constant)	-.822	.256		-3.215	.001		
	Legal Factors	.319	.067	.266	4.773	.000	.590	1.695
	Top Management's Support	.297	.046	.283	6.482	.000	.962	1.039
	Organisational Change Management	.160	.074	.116	2.174	.030	.645	1.551
	Collaboration of Organisations	.250	.079	.163	3.153	.002	.687	1.456
	Reward System	.164	.057	.131	2.857	.005	.869	1.150
	Organisation's Technical Infrastructure	.150	.057	.135	2.609	.010	.684	1.463

a. Dependent Variable: Employee's intention to adopt change

Table 5-35 Stepwise Regression Analysis for DV1

DV1: Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
6	.681 ^f	.464	.453	.80238		
Predictors: (Constant), Legal Factors, Top Management's Support, Organisational Change Management, Collaboration of Organisations, Reward System, Organisation's Technical Infrastructure						
Dependent Variable: Employee's intention to adopt change						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
6	Regression	163.148	6	27.191	42.234	.000
	Residual	188.639	293	.644		
	Total	351.787	299			

Table 5-36 Stepwise Regression Analysis for DV1: ANOVA and Model Summary

This was a six-predictor model and accounted for 45.3% of the variance: $R^2 = .464$ (adjusted $R^2 = .453$). The regression equation, using the unstandardised coefficients from SPSS, for this model takes the following form:

$$\hat{Y} (\textit{intention to adopt change}) = -.822 + .319 (\textit{legal factors}) + .297 (\textit{Top Management's Support}) + .160 (\textit{Organisational change management}) + .250 (\textit{Collaboration}) + .164 (\textit{Reward System}) + .150 (\textit{Organisational Technical infrastructure}) + \textit{error}$$

The researcher then subjected the (SPSS) regression model to further analysis in AMOS (see Figure 5-15). The error, calculated in AMOS, was then incorporated into the regression equation, which became:

$$\hat{Y} (\textit{intention to adopt change}) = -.822 + .320 (\textit{legal factors}) + .300 (\textit{Top Management's Support}) + .160 (\textit{Organisational change management}) + .250 (\textit{Collaboration}) + .160 (\textit{Reward System}) + .150 (\textit{Organisational Technical infrastructure}) + .630$$

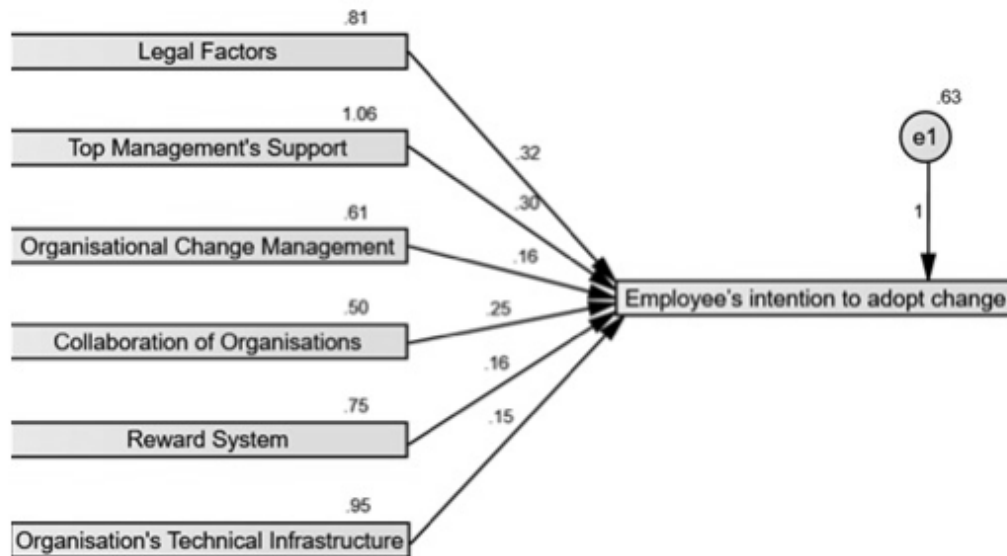


Figure 5-15 Multiple Regression Analysis in AMOS (Level of Adoption being DV)

Model Fit: $\chi^2 = 6.495$ $p < .05$; CFI = .993; GFI = .995; TLI = .795; RMR .000 and NFI = .992 Note: covariance's not included

Next, focus turned to the second dependent variable – the level of success. The preferred multiple regression model as shown in Table 5-37 below indicates that each of the predictor variables was significant ($p < .01$). The five-predictor model was able to account for 64.6% of the variance: $R^2 = .652$ (adjusted $R^2 = .646$). Whilst this model made use of fewer predictors it did account for a greater amount of variance in the dependent variable than the model reported earlier in Table 5-32.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
5	(Constant)	-1.232	.213		-5.795	.000		
	Legal Factors	.184	.067	.165	2.745	.006	.328	3.045
	IT Infrastructure Nationwide	.326	.048	.245	6.803	.000	.910	1.099
	Collaboration of Organisations	.469	.059	.328	7.878	.000	.684	1.461
	Political Factors	.381	.065	.311	5.911	.000	.427	2.344
	Organisational Change Management	.155	.051	.120	3.039	.003	.757	1.321

a. Dependent Variable: Level of change project's success

Table 5-37 Stepwise Regression Analysis for DV2

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
5	Regression	198.487	5	39.697	110.209	.000 ^f
	Residual	105.899	294	.360		
	Total	304.387	299			
Predictors: (Constant), Legal Factors, IT Infrastructure Nationwide, Collaboration of Organisations, Political Factors, Organisational Change Management						
Dependent Variable: Level of change project's success						
DV2: Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
5	.808	.652	.646	.60017		

Table 5-38 Stepwise Regression Analysis for DV2: ANOVA and Model Summary

The regression equation, using the unstandardised coefficients from SPSS, for this model takes the following form:

$$\hat{Y} \text{ (level of change project's success)} = -1.232 + .184 \text{ (legal factors)} + .326 \text{ (IT infrastructure nationwide)} + .469 \text{ (Collaboration)} + .381 \text{ (Political factors)} + .155 \text{ (Organisational change management)} + \text{error}$$

The researcher then subjected the (SPSS) regression model to further analysis in AMOS (see Figure 5-16). The error, calculated in AMOS, was then incorporated into the regression equation, which became:

$$\hat{Y} \text{ (level of change project's success)} = -1.232 + .180 \text{ (legal factors)} + .330 \text{ (IT infrastructure nationwide)} + .470 \text{ (Collaboration)} + .380 \text{ (Political factors)} + .150 \text{ (Organisational change management)} + .350$$

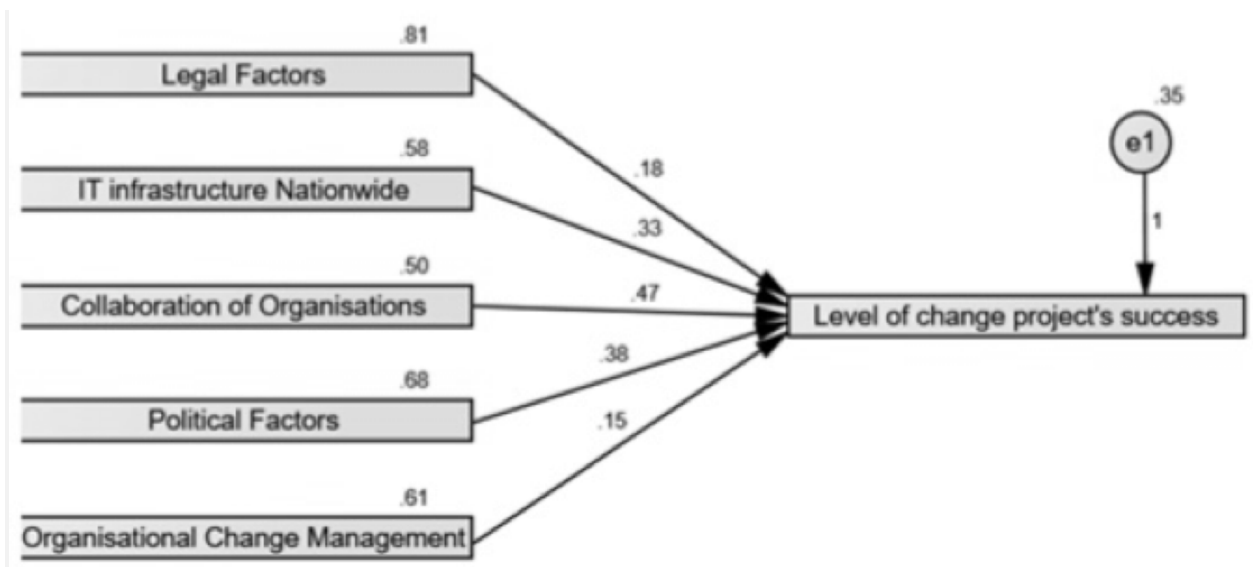


Figure 5-16 Multiple Regression Analysis in AMOS (Level of Success being DV)

Model Fit: $\chi^2 = 4.939$ $p < .05$; CFI = .995; GFI = .995; TLI = .904; RMR .006 and NFI = .994 Note: covariance's not included

The associated fit statistics indicate that these are acceptable fit models for Pakistan, again in keeping with advice from Kline (2010). Thus, both models indicated an acceptable fit (CFI, GFI, RMR and NFI values are of particular note in this regard).

A high R square value was observed for both DVs, which may be seen as evidence of a good fit of the model tested. As demonstrated in the previous section (Table 5-35), the size of (β) suggests that legal (LEG), top management (TM) and change management (CM) have the largest impact in the explanation of variation of behavioural Intention to adopt change. This is followed by the collaboration (COL), reward system (RS) and technical infrastructure (TEC) constructs. Similarly, in the case of DV2, the size of (β) suggests that LEG, IT and COL have the most significant impact in the explanation of level of reform's success (Table 5-37). This is followed by the political (POL) and change management (CM) constructs.

5.9 Summary

This chapter has presented the findings from the final purified scales and theory (TOE framework) testing. Initially, data was screened through pointing out missing data and

data outliers in order to prepare for further analysis. Accuracy of data was assessed through linearity, normality and reliability tests to infer accurate results portrayed by the data. This section was followed by an explanation of factor loading to identify the groups or clusters of variables. An exploratory factor analysis technique was used to show the relationship of items/variables to factors. In this section, factors were extracted with the help of eigenvalues and scree plot. Applying the Varimax of orthogonal technique in principal component analysis, factors were rotated which showed maximum variance of factor loading. The finding showed significant results in which 11 factors were extracted out of 12. The measurement scale for this research was subjected to confirmatory factor analysis (CFA) after the exploratory factor analysis. The measurement model and structural model was assessed in AMOS 22 software on the basis of 300 cases. Before inferring results, reliability and construct validity tests were also conducted in which all measurement scales were found satisfactory. Standardised estimates and t-values showed statistically significant positive relationships between independent variables and the dependent variable. Most independent variables related to TOE factors were found positively and significantly correlated to the two DVs. However, a few factors – *collaboration*, *political* and *technical infrastructure nationwide* – were not found significantly related to DVs. One factor, 'Economy', showed a comparatively weak relationship with DV1 (Intent to adopt). Finally, findings from Multiple Regression Analysis, using collapsed variables, presented an alternative view of the data and therefore a complementary model to aid prediction. The results of significant relationships between constructs were nearly as theoretically expected. However, more detailed discussion of the findings will be provided in Chapter 7. The following chapter presents the semi-structured interview findings.

Chapter 6: Qualitative Data Analysis

6.1 Introduction

In this section, the case study is analysed, and each of the change (reform) critical factors is separately analysed, based on the interviewees' experiences and knowledge. The aim is to confirm the significance of the identified factors in the previous chapters and explore any new key factors and elements that might influence the adoption of change (reform) in Pakistan at a sub-national level. The analysis reflects the thinking and strategic directions of the key stake holders and policy makers. In view of that, this chapter contains five main parts, which are:

Overview of Qualitative Stage (section 6.2): this section provides an overview of stage two (qualitative data analysis) of the study. Its purpose is to provide readers with a rich overview about the procedures that the researcher carried out during the data collection stages.

Data analysis procedure (section 6.3): this part describes the analysis steps, from start to finish, including data processing and structuring of findings.

Analysis of factors (sections 6.4, 6.5 and 6.6): this part deals with the qualitative data analysis process. The analysis in this part was guided by the initial conceptual framework (TOE) and therefore consists of three main sections: (1) analysis of the Technology factors; (2) analysis of the Organisational factors; and (3) analysis of the Environmental factors.

Revision of the initial framework (section 6.7): the findings in the previous section called for revision of the framework, which was modified in light of the new complete picture.

Summary of the chapter (section 6.8): at the end, a summary of the chapter is provided.

6.2 Overview of the Qualitative Stage

The interviews were used to build on what was learned in the quantitative stage (survey analysis) of the study. This is because the researcher wanted to develop and build towards a more refined understanding of the topic under study. Moreover, the qualitative approach allowed the researcher to gain an insight into the participants' ideas

and thoughts, which may have been overlooked by the quantitative approach. This research was conducted with participants in their work settings.

The personnel hours required to complete interviews, which, compared with questionnaires, makes interviews extremely costly (Silverman, 2000). However, they have many potential advantages. For example, the meanings of responses can be explored, contradictions can be explained and corrected, individuals with poor self-insight can be assessed more accurately, and interpretations of meanings can be corrected. Similarly, Rabionet (2011) is of the opinion that qualitative interviewing is a flexible and powerful tool to capture people's voices and the ways that people make meaning of their experiences. Moreover, interviews allow more 'in-depth probing'. This is carried out by using question-asking techniques that are best suited to each individual in relation to their knowledge, experience, level of education and perspectives.

The most common tool is the open-ended interview, in which the researcher can ask key respondents for the specific facts of a matter, as well as their opinions about events (Yin, 1994). In this study, the semi-structured interview was selected because the researcher was able to narrow down some areas or topics after the first stage (survey) of the study. A completely un-structured interview has the risk of not eliciting the topics or themes more closely related to the research questions (Rabionet, 2011). The semi-structured interviews involved list of topics about which the interviews sought information. These topics were developed on the basis of the theoretical interest of the study and the related findings from the literature review and the survey results. However, the questions tended to be fairly general and were designed to allow the respondents to develop their ideas and views fully, with minimal guidance from the interviewer.

First, some background and demographic information about the interviewees was requested. Then the interviewees' perceptions regarding TOE factors that affect successful adoption/implementation of change were sought. Finally, the interviewees were asked to state if there were any other factors that they thought might affect change

(reform) adoption in the KPK region of Pakistan. Detailed interview themes and questions can be found in Appendix 3B on page 387.

6.2.1 Sampling and Selection of Key Participants

While quantitative sampling tends to be a random technique that selects a representative sample from the study population, qualitative sampling is viewed as purposive and seeks to select a sample of participants that the researcher believes will provide in-depth information that will assist in answering the research questions adequately (Miles and Huberman, 1994). Similarly, Oates (2006) argues that the fact that qualitative researchers aim at exploring a topic in depth rather than seeking generalisation of results makes a random sampling technique inappropriate for selecting a sample of participants in a piece of qualitative research.

Purposive sampling means researchers intentionally choose a sample that they feel is more likely to generate valuable data that meets the research objectives (Miles and Huberman, 1994; Oates, 2006). The researcher conducted purposive sampling in which people who were deemed useful to the study were interviewed. As mentioned in Chapter 4 (research methodology), criteria for participants' selection included key stakeholders who were involved with the decision to implement change (reform) in KPK. Therefore, three key state ministers were selected to gain deep insight of the reform project.

6.2.2 Data Collection

Interviews

As mentioned earlier, the researcher decided to conduct face-to-face, semi-structured interviews as the major method of qualitative data collection. This approach enables the in-depth exploration of the participants' personal experiences and feelings. The interviews for the study were carried out between May 2015 and July 2015. At the beginning of each interview, the researcher introduced himself and explained the purpose of the study. The interviewees were provided with the study protocol and ethical committee approval prior to the meeting (see Appendix 3A on page 384). Each

interviewee signed a written informed consent form, in which anonymity and confidentiality were assured and the right to withdraw from the study or refuse to answer specific questions was specified. All interviews were audio/video recorded with the participants' consent. The interviews were conducted in English; thus, no translation was required. Therefore, consistency was promoted and data analysis was made easier.

Documents

To increase the reliability of the study, the researcher decided to depend on additional methods of data collection including documents, reviews and field notes. This is in line with Eisenhardt (1989), who asserted that relying on multiple methods in case research studies is a way of strengthening and supporting the research findings. In addition to the interviews as a main source of data collection, the researcher relied on reviewing several documents related to the change (reform) initiative in KPK as a second source of data collection. These documents included governmental publications and governmental public announcements in newspapers and through government websites, as well as governmental reports, booklets, presentations and white papers. Table 6-1 illustrates all the documents reviewed for this research.

Serial No.	Title of Documents/Videos	Source
1	Reforms Initiatives in Khyber Pakhtunkhwa June 2014 PDF	http://lgkp.gov.pk/wp-content/uploads/2014/03/Reforms-Implementation-Cell-KP-Report.pdf
2	PAKISTAN Country Snapshot The World Bank Group 2015 PDF	http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/T_MNA/2015/10/11/090224b083138fb7/1_0/Rendered/PDF/Pakistan000Country0snapshot.pdf
3	Government of KPK - WHITE PAPER 2015-16 PDF	http://www.kpkep.gov.pk/documents/White%20Paper%202015-16.pdf
4	Government's Annual Plan 2016-17 PDF	http://www.pc.gov.pk/wp-content/uploads/2016/06/AnnualPlan2016-17.pdf
5	Head of KPK Reform Implementation Cell Video Interview	https://www.facebook.com/UDarOfficial/videos/844970972259663/
6	KPK Government Web Portal Official Website	http://kp.gov.pk/
7	Asian Development Bank 2016 Report	http://www.adb.org/countries/pakistan/economy

Table 6-1 List of Documents used for Data Collection

Furthermore, figure 6-1 demonstrates the hierarchy chart of all sources matched by number of nodes and sub-nodes. Area size reflects the number of coded nodes/sub-nodes. A larger area indicates that more nodes code the item.

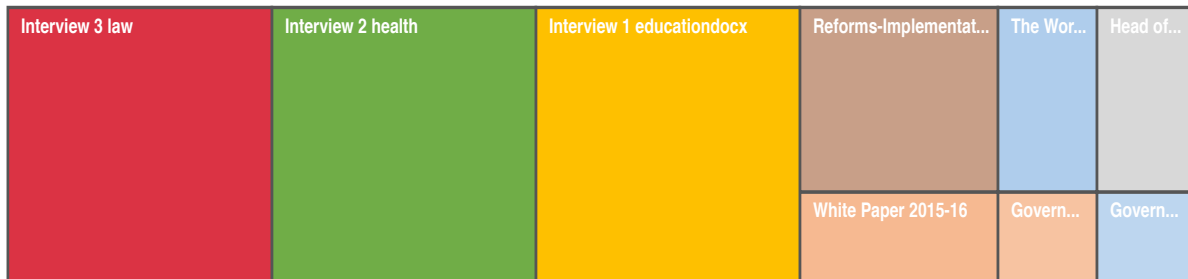


Figure 6-1 NVivo Hierarchy Chart of Sources

6.3 Data Analysis Procedure

In the previous chapters the author developed and tested the initial conceptual framework (TOE); the factors already classified in the framework were coded and presented as the first set of codes. The primary data was then pattern matched with the pre-coded factors, while the new identified factors and emergent themes were classified and new codes were created as needed.

Saunders et al. (2007) argue that there are two main approaches to qualitative data analysis: deductive and inductive. A deductive approach relies on an existing theory to outline the research process and analysis. An inductive approach, on the other hand, seeks to develop a theory that is grounded in the data. The aforementioned scholars illustrate that qualitative analysis can be performed by carrying out either deductively-based analytical procedures or inductively-based ones.

As mentioned earlier, data collection (interviews) involved list of topics that were developed on the basis of the theoretical interest of the study and the related findings from the literature review and the survey results. Therefore, a deductive approach was found to be more appropriate to analyse factors related to the TOE framework.

Saunders et al. (2007) argue that researchers can choose from a variety of software packages to aid them in the coding process and the analysis of qualitative data.

Additionally, Bergin (2011) states that software packages designed for qualitative data, such as NVivo, can accelerate the analysis process. However, software packages remain tools that assist researchers in the analysis but they do not replace the researcher's role of thinking, analysing, interpreting and reflecting on the data (Basit, 2003).

One of the advantages of using software is that it offers a single location for storage that provides easy access to material and the ability to handle large amounts of data with consistent coding schemes. Other advantages include improvements in the consistency of approach, assistance with team research and the ability to help in theory building (Weitzman, 2000). Conversely, disadvantages include the amount of time and effort taken to become proficient in using the program; prescriptive approaches to analysis with reluctance to change categories of information once they have been developed; and the tendency for the analyst to take short cuts (Bergin, 2011; Weitzman, 2000).

What called for the use of the NVivo software at this study is the large amount of data collected and transcribed by the researcher, as well as the fact that the latest NVivo 11 software was being offered free of charge to postgraduate students and training courses were also offered to students (the researcher took three such courses). NVivo 11 also facilitated the process of tracing back the sources of the interview transcripts very quickly since it automatically referenced each interview and gave it a unique referencing number.

As mentioned above, the author used a combination of resources to collect the primary data, including: interviews and documents. This data was then analysed following the analytical steps suggested by Creswell (2009) and illustrated in Table 6-2.

No.	Step	Description
1	Preparing data for analysis	- Transcribing interviews and translating them into English where needed - Organising the documents and observation notes - Prepared tables according to the pre-coded set of factors
2	Reading through all the data	The author went through the whole data and wrote general ideas about its information and the participants' thoughts
3	Coding process	Although there was a pre-defined set of codes using TOE framework, great flexibility was introduced during analysis and new concepts were accepted for coding. Newly identified topics and findings were given new codes
4	Identifying themes/factors	Narrating a story around the new findings through connecting the different themes and factors.
5	Interrelating themes/factors	Performing an analytical discussion about the factors and their interrelation, the multiple perspectives and themes.
6	Interpreting the meanings	The author gave meaning to the data, through comparison with the literature and the author's own understanding and interpretation

Table 6-2 Data Analysis Steps

The data analysis is an iterative process, and by moving backward and forward between the analysis steps a researcher obtains a better understanding and explanation of data (Creswell, 2009; Miles and Huberman, 1994). Therefore, a number of iterations were made during the analysis process, especially between steps 1, 2 and 3. The following sections report on steps 4, 5 and 6 of the analysis based on the TOE aspects of the initial framework and its associated steps.

6.4 Analysis of the Technical Factors

This section describes the following technological attributes: IT Infrastructure, Technical Infrastructure and Collaboration. Previous chapters (Literature Review and Quantitative data analysis) identified these attributes as being essential for the adoption/implementation of change initiatives in the Pakistani public sector. Each of the attributes is discussed in detail in the following sub-sections.

6.4.1 IT Infrastructure

Recent discussions on government efficiency, effectiveness and public service delivery recognise the advantages of using IT in public entities (Kumar and Best, 2006; Alshehri and Drew, 2011). IT infrastructure is an important dimension revealed as a critical factor for change (reform) adoption in public organisations. It includes the many components of hardware, software, connectivity and database management systems. An adequate

IT infrastructure both at both national and organisational levels is very important to change and improve the public services.

The head of KPK reforms cell explained, “...Adequate IT infrastructure is essential because the Government is determined to develop KPK Data Centre, Prison Management System, Automation of Arms Licences, Automation of Public Service Commission and Digitisation of Property Tax Record”. According to the Annual Report (2014-15) published by the Ministry of Planning, Development and Reform, “...Information Technology related infrastructure have been provided to enhance the capacity of the Implementing Agencies which include enhancement of Management Information System at Supreme Court of Pakistan, automation of Law and Justice Commission of Pakistan, automation of Federal Shariat Court, Islamabad, development of MIS software for Federal Ombudsman, data entry digitalisation of complaints record of Wafaqi Mohtasib Secretariat, strengthening and streamlining of Sindh Ombudsman office, website for provincial Ombudsman, establishment of Urdu Translation Units in Law Departments, trial through video conferencing between Central Jail and District Judiciary at Lahore, automation of Prosecution Department, Punjab and Prisons Management Information System”.

Information and communication technologies (ICTs) have become a critical component of the public sector in many developing countries around the world (Waller and Genius, 2015). Nowadays, ICTs have been recognised for their potential to transform governments by enhancing the efficiency and effectiveness of the delivery of public services by governments (Kumar and Best, 2006; Waller and Genius, 2015).

IT infrastructure enables public organisations to collaborate, share information and participate effectively in change (reform) initiatives. The data revealed that government organisations that lack IT infrastructure are reluctant to participate in any information-sharing process because the organisation will be required to invest in the installation of new equipment and train its personnel prior to considering adoption of change initiatives.

A minister explained, “...public organisations needs to develop a culture which encourages and promotes the use of information technology in the daily activities and tasks”. Another participant stated, “...Government is investing in IT infrastructure that is vital to deliver improved services, minimise efforts and reduce human errors”. Yet another minister stated, “...Adequate IT infrastructure is present at both organisational and national level. However, there are not enough IT professionals within our organisation”. Similarly, another minister highlighted, “...There are enough IT infrastructures to support change project. However, people resist introduction of IT based technologies. For example: a bio matrix attendance system is being introduced to improve the transparency which is facing great resistance”. Another minister revealed, “...Some employees have been working at their jobs for over 30 years and are close to the retirement age, so they find it difficult to learn new technology at this stage of their lives. Thus, these employees resist change”.

The previous statements indicate that the public organisations appreciate the importance of IT infrastructure for the change (reform) project. However, these organisations need to train and motivate people in the use of IT-based technologies in order to deliver better services. Correspondingly, the Annual Report (2014-2015) published by the Ministry of Planning, Development and Reform stated, “...The information management system (IMS) plays an important role in decision-making. An organisation cannot work effectively without a well-managed information system. Therefore, 2,000 relevant users have been trained”.

During the interviews, a number of participants indicated that collaboration between public sectors would be viable if each agency had an appropriate IT infrastructure. For example, a senior minister explained, “...High-speed broadband with fibre optic cables and mobile technology with 4G connectivity is available nationwide. However, there are still many public offices who communicate through postal letters. Fax, email and other modern communication tools are still not being used by many public offices”. Furthermore, another minister explicated, “...Whilst there is enough IT infrastructure available at both national and organisational level, email is still not considered as an

official mode of communication". He further explained, "...*Emails are often used to communicate, however, only faxes and letters are considered as an official communication*".

6.4.2 Technical Infrastructure

The literature review (section 3.5) suggests that ample technical infrastructure at both organisational and national levels is vital for change (reform) projects. During the interviews, a number of participants pointed out the importance of a well-built technical infrastructure. For example, one participant stated, "...*Road networks, port, rail and airport infrastructure is essential for the successful reform implementation*". Similarly, a minister specified, "...*Adequate Technical Infrastructure is essential to implement change. Therefore, our ministry is making arrangements to acquire appropriate and up-to-date hardware, machinery, labs and equipment*". Another minister explained, "...*We are a developing country and in a state of war; thus, our technical infrastructure is not adequate. However, technical infrastructure at the national level is getting better continuously as the government is investing a huge amount of financial resources for the development of infrastructure*".

Yet, the World Bank (2015) paints a dire picture of Pakistan's infrastructure. According to the World Bank Report, "...*Pakistan's transport system largely operates within the public sector, but in a manner that is unsustainable. Maintenance and investment have been inadequate for many years. Physical condition of the roads is poor – about a quarter of the federal network and two-thirds of the remaining network of provincial, district, and other roads need rehabilitation*".

The White Paper (2015–2016) published by the Government of KPK explained, "...*Government is aware that an efficient transport and communication system contributes to the economic growth by lowering domestic production costs, enhancing economies of scale in the production process and creating process and creating economic opportunities. Road transport is the main communication mode. Therefore, for*

financial year 2015-2016, a sum of Rs. 6,066.378 million has been earmarked for the development of transportation infrastructure”.

Electricity is also an important component of a country’s technical infrastructure. The literature indicates that the power supply in developing countries is unreliable and unstable (Waller and Genius, 2015; Ruhode and Owei, 2009). Thus, at times many citizens and public officials are unable to access government portals. Those who do have access to electricity often suffer from lack of access to technologies such as PC, printers and other important hardware. Furthermore, those who do have access to the technology are sometimes not willing to use that access because of issues of trust, as well as social and financial barriers (Waller and Genius, 2015).

According to the Government’s Annual Plan (2016-17), *“...Pakistan is facing severe energy shortages since 2006. The main reasons include inadequate capacity addition, limited exploration and ineffective exploitation of hydro, coal and renewable potential and inefficient use of energy resources. The situation leads to a demand supply gap resulting in the load-shedding of electricity and gas in the country”*. Similarly, a minister explained, *“...Currently we are facing a great energy crisis which is a major barrier to the change (reform) project. We are currently facing 3000 MW shortfall of electricity. As a result, both private and public organisations are facing great problems”*. According to the report published by the World Bank (2015), *“...Pakistan’s energy sector is in serious crisis, with constraints in supplies of gas and electricity. Energy shortages undercut economic growth and exacerbate poverty while heavy government subsidies have a high fiscal cost”*. A minister further explained, *“...Existing technical infrastructure has become inadequate due to the enormous growth of population in recent years. Public offices and organisations operating in developed cities have comparatively better technical facilities, tools, hardware and equipment. In contrast, there is a lack of technical infrastructure in organisations operating in small cities, towns and villages”*. Generally, in developing countries, much of the infrastructure is concentrated in urban areas (Waller and Genius, 2015). In many rural communities, people are yet to benefit from some of the most basic technical infrastructure. In remote areas of the KPK, the

access to electricity is unstable and the Internet is unavailable. Thus, many people are unable to access government information or conduct government-related transactions digitally.

6.4.3 Collaboration

One of the first critical factors identified by participants is collaboration. The adoption of change (reform) initiatives necessitates collective efforts from various public organisations and functional units. However, qualitative data (interviews and public documents) revealed that organisational collaboration was uncommon. Each organisation in the government of KPK relies heavily on its own endeavours to conduct and accomplish everyday responsibilities. Participants explained that lack of an information and knowledge-sharing system results in unnecessary delays and poor performance. A minister stated, *“...To improve the public services and monitor the outcomes of reform, it is important to coordinate the effort of all departments and to collaborate with local and national governments”*. Another minister explained, *“...There is enough coordination within the organisation at all levels. However, there is a lack of coordination and information sharing among different public organisations”*.

Interviewees spoke about the difficulty in coordinating and collaborating among organisations. A participant shared his experience, *“...There is no mechanism of information sharing within public organisations. Sometimes it takes months to get the reply from other departments or organisations”*. He further explained, *“...In order to improve the public services, it is very important to have sound coordination and collaboration arrangements”*. According to the White Paper (2015-2016) published by the Government of KPK, *“...Bureaucracy and lengthy delays in communication have resulted in poor Government performance”*. Therefore, improved interdepartmental integration is important for better public services. A report by KPK’s Reform Implementation Cell indicated, *“...The preparation of an Integrated Development Strategy (IDS) is in process, in consultations with all stakeholders”*.

A senior minister explained, “...Successful adoption of current reform initiatives will necessitate a culture that promotes inter-organisation collaboration”. He further explained that, “...Even if there is [currently] any collaboration within the organisations or between different public organisations, this collaboration is very basic and not enough to achieve change (reform) objectives”. Another minister suggested, “...The successful collaboration between organisations can be done through awareness and training programmes”.

It is essential that there is effective communication between departments and different public sectors. To facilitate this, internal applications need to be developed and utilised by employees to share information and improve communication. E-mail is the most obvious success story for improved communications, but other applications can be enhanced to improve communications as well. The head of the Reform Implementation Cell revealed, “...A dedicated web portal and a Smartphone App (Android) for citizens and employees has been introduced to improve integration. The new system would help in effective service delivery to citizens, promote accountability and transparency in government functioning, support better governance through e-governance and ensure a culture of quantified performance management for government employees”.

Based on the aforementioned empirical findings, Table 6-3 attempts to summarise the case study interviews findings related to the technological theme.

Factors	Description	Sources
IT Infrastructure	Government is aware of the importance of a good IT infrastructure to promote reforms and improve services. Data revealed that there is an adequate IT infrastructure both at national and organizational level. However, there is lack of IT professionals in public organisations.	Interviews; Public Documents; Personal Observation.
Technical Infrastructure	Key officials and state ministers acknowledge the importance of a sturdy technical infrastructure to support change program. However, recent energy crisis and lack of technical infrastructure in rural areas of KPK is a barrier to change.	Interviews; Public Documents; Personal Observation
Collaboration	Despite the well-known importance of collaborative environment and integration of departments, change team did not adopt faster ways to communicate. In KPK, email is still not considered as an official mode of communication.	Interviews; Public Documents; Personal Observation

Table 6-3 Summary of the Technical Theme

To further synopsis, an NVivo Visual Map and Tree Node for Technical factors IT-infrastructure, Technical infrastructure and Collaboration are illustrated below (Figure 6-2).

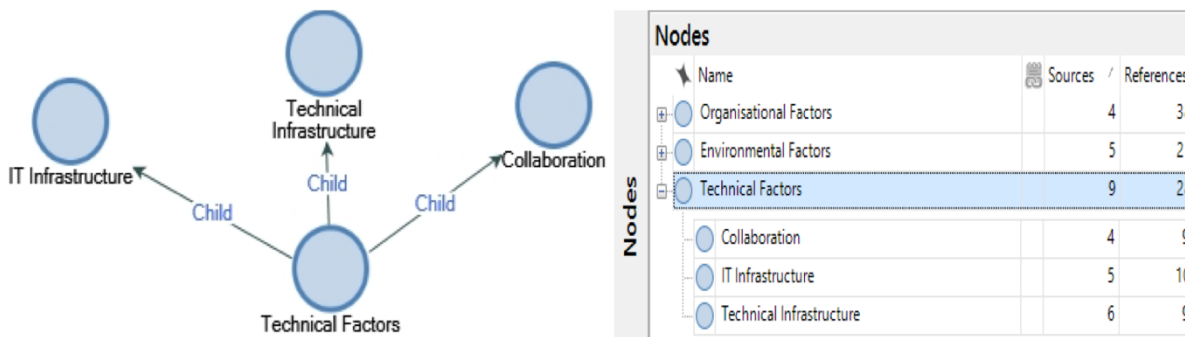


Figure 6-2 NVivo Visual Map and Tree Node for the Technical Factors

6.5 Analysis of the Organisational Factors

In addition to the Technological and Environment factors, participants identified the organisational factors as being equally important to the adoption of change (reform) initiatives in Pakistani public organisations. An organisation's success in achieving its goals is influenced by the organisational factors that exist within that organisation. The literature review and survey results suggested that the following factors should be addressed prior to the adoption/implementation of reform initiatives: Top Management, Human Capacity, Change Management, Organisational Culture and Reward System. Each of the factors is now discussed in detail.

6.5.1 Top Management

If top management is not committed to the effort, Julnes and Holzer (2002) found that a change in the public sector is not likely to be adopted. In the Pakistani public sector, Top management's capability and support is one of the most important factors recognised by the research participants as essential to the adoption of change (reform) initiatives. The government organisations are hierarchically structured, and all the decision-making processes are transmitted from the top management to the middle management and, at the base, to the concerned group or individuals responsible for the implementation. Therefore, top management's support is considered one of the key factors that can facilitate or hinder the adoption of change initiatives.

The role of top managers in firm performance is central to strategic management (Hermano and Martín-Cruz, 2016). The data collected from the interviews revealed that the role of Top Management during recent turnaround attempts is crucial in the Pakistani public sector. One minister stated that, *"...People generally resist change. However, commitment of top management drives the change process"*. This view was supported by another interviewee, who observed that: *"...Top-down change is the requirement of KPK culture. If top management is committed to implement change, it gets done predominantly. Otherwise, people resist leaving the comfort zone and adopting new way(s) of doing things"*. Another minister shared his experience: *"...There are many employees who feel uncomfortable with new ways of doing things and thus*

resist change. Resistant people often slow down the process. However, in KPK resistant employees have no other choice but to accept change. Top management and political leadership is firm about the change programme”.

In order to implement change effectively, the top management need to understand the change projects completely. A key participant stated, “...*There is enough support from top management in terms of adopting change. However, there is lack of knowledge and ability from Top Management side, which makes change less effective*”. Most interviewees agreed that governance skill and knowledge levels play an important role in reform adoption/operation. One minister stated, “...*Key people who implement change must have the knowledge, competence and organising capacity to implement it effectively*”. For this reason, several interviewees indicated that during reform adoption adequate knowledge and skills would be acquired as necessary.

6.5.2 Human Capacity

Human resource development (HRD) has been proposed as being one of the core drivers of the modernisation of the public sector (Bruns, 2014). He further argues that local governments can potentially derive valuable organisational outcomes in terms of efficiency gains or public service improvements when their HR policies and practices strengthen a sustainable HRD.

One of the major areas of concern identified by participants is the lack of human capacity in public organisations. One minister stated, “...*There is enough Human Resource in general; however, there is lack of skilled HR. We don't have enough qualified, trained and skilled people, [which] results in poor performance*”. One minister revealed the reasons for this lack of skilled HR. He stated, “...*Public organisations have not many capable and competent people. Our political/administrative system is corrupt and not in a position to recruit people on merit*”.

This situation is even worse in remote areas of KPK. One minister explained, “...*Public organisations generally have no HR issues. However, in remote areas or less*

developed areas, skilled professionals are not enough. In big cities like Peshawar, Mardan and Swat, availability of skilled HR is better compared to small towns and villages”.

The Government is aware of the fact that development of human capacity is important for change (reform) adoption and can prove to be very useful. However, this will require a large-scale training programme for all public sector personnel. A member of the parliament stated, “...*We are very aware of the fact that ICT skills and training are key factors for change adoption and implementation*”. Another member of parliament explained: “...*To improve the human capacity, training programme at levels are being provided*”. Similarly, one minister stated, “...*Training is very important to improve the level of service being provided by public organisations. Therefore, the Government has introduced training programmes at all levels*”. Training its human resources brings many benefits to an organisation: it provides staff with new or improved skills and competences so that they can carry out better work, and it makes peoples more efficient and they become more productive, in terms of quality (Velciu, 2014).

Despite the multiple programmes and initiatives introduced to provide training at different levels, the number of skilled, trained staff competent with the required ICT remains very limited. A senior member of the KPK parliament explained, “...*Government is providing reasonable levels of training for employees in different sectors and organisations. We even offer training abroad for staff to gain advanced skills and knowledge, but they often quit after a short time and prefer to move into the private sector rather than take government positions*”. Furthermore, the report published by the Reform Implementation Cell explained, “...*To improve the human capacity and technical knowledge of employees, Government has taken following actions: (1) Establishment of Technical Universities; (2) Establishment of Technical Education and Vocational Training Agency (TEVTA) and (3) Adoption of National Vocational Qualification Framework*”.

6.5.3 Change Management

Pakistan has a socio-political system that is grounded in routines and patterns that are embedded in the cultural context. Such contexts are sticky and latent, and therefore, they are difficult to transform. To improve the services provided by the public sector, radical changes are essential. However, the current change project is viewed as the most difficult challenge managers are likely to face. A key official stated that, “...*One of the main concerns of the top management in change initiatives is change management*”. He added, “...*Change management is hard going and we are not very good at it*”. One manager sees that, “...*Change management is a difficult process which requires full attention, especially in large, complex government organisations such as ministries*”. The report published by KPK’s Reform Implementation Cell explained, “...*a Change Management Unit has been established that is dedicated to steer and oversee the reforms interventions across different sectors. The Unit will facilitate the implementation of a reform agenda through provision of specialist inputs as well as by developing a time-bound and costed action plan for sectorial change management. The Change Management Unit will monitor and streamline the reform initiatives being undertaken by the Provincial Government and will work in close coordination with the Reforms Implementation Cell, established to implement the sectoral reforms of the government. The Change Management Unit will enable departments in devising and implementing a prioritised reform implementation agenda by employing principles of organisational change management*”.

The above statements show that the KPK government is committed to improving in terms of the quality of public services provided, which will require public organisations to undertake major change projects. However, despite the strategic importance of change (reform) initiatives, public organisations often encounter fierce resistance when trying to implement them (Taher et al., 2015), and KPK is no different. One minister confirmed that, “...*Change initiatives are facing resistance from many employees*”. He further explained, “...*People voted for change and people appreciate change. However, when it comes to their own personal issues, they want their job done at any cost. Whenever an*

application is refused on merit, we face resistance both from inside and outside the organisation”.

In one's opinion, “...*There are many employees who feel uncomfortable with new ways of doing things and thus resist change. Resistant people often slow down the change process*”. He further proposed that, “*Visionary leadership and effective communication are essential for implementing change, especially given the particular cultural conditions of the KPK. Moreover, change should be a continuous process supported by communication.*” Effectively communicating the vision, the mission and the objectives of the change effort helps employees understand how these changes will affect them personally subsequently reducing barriers to change (Blackburn, 2014). Participants seemed to agree with the importance of communication to minimise resistance and maximise readiness to change. One minister said, “...*We are aware that constant communication at all levels through an appropriate medium is required to bring people on board*”. Another minister explained, “...*There is enough communication at all levels of the organisation. IT based technologies like email and fax are now becoming main medium of communication*”.

6.5.4 Organisational Culture

Interview subjects were next asked about the role and importance of organisational culture in the change (reform) process. There was a general consensus that culture is a key factor in the change (reform) project. One participant stated, “...*It is very important that the reform strategy is aligned with the organisational culture, local needs and requirements*”. Another minister explained, “...*Skilful and realistic design and implementation of strategy depend on better understanding and knowledge of local requirements that reduces state expenditure*”. Change adoption/implementation is achieved through the proper identification of organisational culture, and its potential modification in the desired direction (Porter, 1992).

The most important aspect of management is the continuous adaptation of an organisation's strategy to emerging changes. However, the correct design of a strategy

requires familiarity with the specificity of the sector, because an organisation's strategy must be embedded in a particular context of its environment, which determines the key assumptions adopted for the design of the strategy and for the implementation of planned activities (Wronka-Pospiech and Fraczkiewicz-Wronka, 2016). A study conducted by Australian researchers (Baird et al., 2007) concluded that culture and change strategy condition each other. They further explain that, in order to implement a specific strategy, it is necessary to build a proper organisational culture, and that the organisational culture leads to the selection and implementation of a specific strategy for the organisation. Similarly, one senior minister stated, "*...Organisational culture influences the behaviour of employees and managers, and their behaviour leads to the adoption or rejection of a new strategy*".

The primary reason why change programmes experience such high failure rates is often due to the organisation's inability to 'unfreeze' prior to a change event (Creswell et al., 2014). KPK ministers also see organisational culture as a barrier to change. One minister stated that, "*...Pakistani public organisations generally have strong bureaucratic orientation, avoiding both change and risk*". Another minister stated that, "*...Bureaucratic culture and lack of people's involvement in Pakistani public organisations is a barrier to change*". He further explained that, "*...Regardless of the pressures on organisations to change, KPK's organisational culture is sticky and hard to change*". One minister explained that, "*...We are aware that existing organisational culture and bureaucratic nature of organisations impede reform project. Therefore, the Government is focused on decentralisation and local governance to strengthen the different aspects of public reforms*".

Another minister explained in detail that, "*...Main purpose of the change (reform) project is to introduce new and improved ways of doing things. People are not satisfied with the existing system and are fed up with the old way of managing things. Aim of the change project is to facilitate people and improve the lifestyle of the common man. He further explained that, "...Government change policy is based on decentralisation. This is an exciting time for devolution in Peshawar, and across the KPK. Government is taking all*

necessary steps to ensure the smooth process of devolution of powers to local government". Similarly, another minister stated that, *"...Our focus is the transformation of hospitals into autonomous corporations. Therefore, we are providing them with administrative and operational independence and financial authority"*.

6.5.5 Reward System

Performance appraisal and reward systems are based on the assumption that employees' performance and motivation can be improved by establishing a clear link between efforts and reward through formalised and specified individual targets (Azzone and Palermo, 2011). In the public sector, it can be seen that the NPM has stressed greater flexibility in managers' rewards from the beginning (Hood, 1991). In times of change, public managers and employees are first required to gain the technical knowledge and competence necessary to implement and use the new systems. However, the data collected from the interviews revealed that, due to the absence of a reward system within most organisations, individuals were reluctant and unwilling to participate in new projects and accept added responsibilities.

A minister recognised the shortcoming of public sector bureaucracy, and emphasised that *"... To implement the reform project, we need to incorporate financial compensation, promotion, and bonuses which set the adopters aside from individuals who have little or no input into the improvement and reform of the public administration"*. Generally, an organisation succeeds in escalating its workers' output by offering job promotions, bonuses, extra benefits and monetary incentives. However, in the case of the Pakistani public sectors, particularly in KPK, a structured reward system does not exist. The participants emphasised the importance of introducing a reward system to facilitate the adoption and implementation of change initiatives. A key minister explained, *"...There is a lack of incentives for public employees that results in a low level of motivation"*. He further explained, *"...Government organisations have no clear reward system; thus, people with strong political and family connections get promoted"*.

In addition to a reward system, accountability is also required in Pakistani public organisations. Participants therefore recommended that people should be accountable and answerable. One minister stated, “...*At the present time, there are no rewards for exceptional employees, just as there are no penalties for poor performers*”. Another minister added. “...*Government is determined to institute a system where dazzling performers are rewarded and poor performers are penalised*”.

6.5.6 Corruption

This is a new challenge that was identified during the interviews and was not included in the initial conceptual model proposed in Chapter 3 (Figure 3.1). During data analysis, three new themes appeared: lack of transparency, bribery and favouritism. The researcher, however, believes that they can all be categorised as one theme: ‘*Corruption*’.

Corruption was mentioned by all participants. According to a senior minister, “...*Corruption has become a norm of the society and part of the government projects*”. One minister added, “...*In public organisations, corruption is now an open secret. Unfortunately, corruption is a cancer which is slowly killing us*”. According to the respondents, “...*The primary reason for corruption is the complex bureaucratic procedure involved in the government projects which often leads to corrupt practices*”. A senior minister further explained, “...*There is a lack of transparency in public organisations that stimulates exploitation and injustice. Government project contractors often use back channels, family connections and bribes to secure contracts. Government officials are thus unable to enforce quality of work and other work specifications*”.

In developing countries, the conviction rate in corruption cases is very low, hence corruption has become low-risk, high-profit activity for the people involved (Singh, 2012). Similarly, a study conducted by Hussain and Riaz (2012) concluded, “*the weak accountability mechanism is the major cause of corruption in Pakistani public departments*”. They further suggest that the education curriculum should place more

emphasis on moral values to bring about behavioural change against corruption. In the current study participants seemed to agree that corruption represents a main obstacle on the road to good governance. There are several indicators of the corruption in the Pakistani public sector, such as bribery, embezzlement, fraud, extortion, favouritism and nepotism (Hussain and Riaz, 2012). The Corruption Perception Index (CPI) of Transparency International consistently positions Pakistan among the lowest strata, as shown in Table 6-4 below.

Year	Score (10= highly clean and 0= highly corrupt)	Rank
1995	2.25/10	39/41
1996	1.0/10	53/54
1997	2.53/10	48/52
1998	2.7/10	71/85
1999	2.2/10	88/99
2000	NA	NA
2001	2.3/10	79/91
2002	2.6/10	77/102
2003	2.5/10	92/133
2004	2.1/10	129/145
2005	2.1/10	144/159
2006	2.1/10	142/163
2007	2.4/10	138/179
2008	2.5/10	134/180
2009	2.9/10	139/180
2010	2.3/10	143/178

Table 6-4 Historical Trend of CPI Rating for Pakistan
Source: Transparency International (2012)

However, many participants believe that recent reforms have helped to overcome corruption-related issues. One minister stated that, “...*Adequate legislation such as ‘Right to information act’ and ‘Right to services act’ has improved transparency and discouraged favouritism/corruption*”. About the whistle-blowers law, one minister stated, “...*It was aimed at eradication of corruption, adding that the government would ensure protection to all those extending cooperation*”. He further explained, “...*The whistle-blowers would be given commendation certificates and 30% of the recovered money and fine, while their identity would be kept secret*”. He further said that those disclosing the whistle-blowers’ identity would be fined.

As a result, Pakistan's ranking in the Corruption Perceptions Index (CPI) 2014 has improved and Transparency International (TI) has expressed the hope that the government will work more vigorously to combat the menace (Ahmed, 2014). The TI described Pakistan's CPI score of 29 out of 100 and ranking of 126 among 175 countries as the country's best to date. The country has never achieved before this distinction since the first CPI was issued in 1995.

Based on the aforementioned empirical findings, Table 6-5 attempts to summarise the case study interview findings related to the organisational theme.

Factors	Description	Sources
Top Management	In times of change, Top Management's commitment/support is required to reduce resistance and bring people on board. Change leaders indicated that top-management lack in ability nevertheless, they do support change process.	Interviews and Personal Observation
Human Capacity	Participants highlighted the importance of human resource (HR) especially skilled HR. One of the major area of concern identified by the interviewees is the lack of human capacity in public organisations.	Interviews; Public Documents; Personal Observation
Change Management	Participant see change management as a challenging process, especially in public organisations. There is great resistance to change. Therefore, many suggest that visionary leadership and effective communication is required to implement change.	Interviews; Public Documents; Personal Observation
Organisational Culture	There was a general consensus among participants that culture is an essential factor to transform public organisations. Many participants directed that bureaucratic culture is a barrier to change. However, Government is focused on decentralization and devolution of power.	Interviews; Public Documents; Personal Observation
Reward System	Government officials revealed that due to an absence of a clear reward system, managers and employees were unwilling to participate in change process and reluctant to accept new responsibilities.	Interviews and Personal Observation
Corruption <i>New Factor</i>	The empirical findings show that lack of transparency, favouritism and bribery results in corrupt public sector which is a major barrier to change.	Interviews; Public Documents; Personal Observation

Table 6-5 Summary of the Organisational Theme

To further synopsis, an NVivo Visual Map and Tree Node for Organisational factors are illustrated below (Figure 6-3).

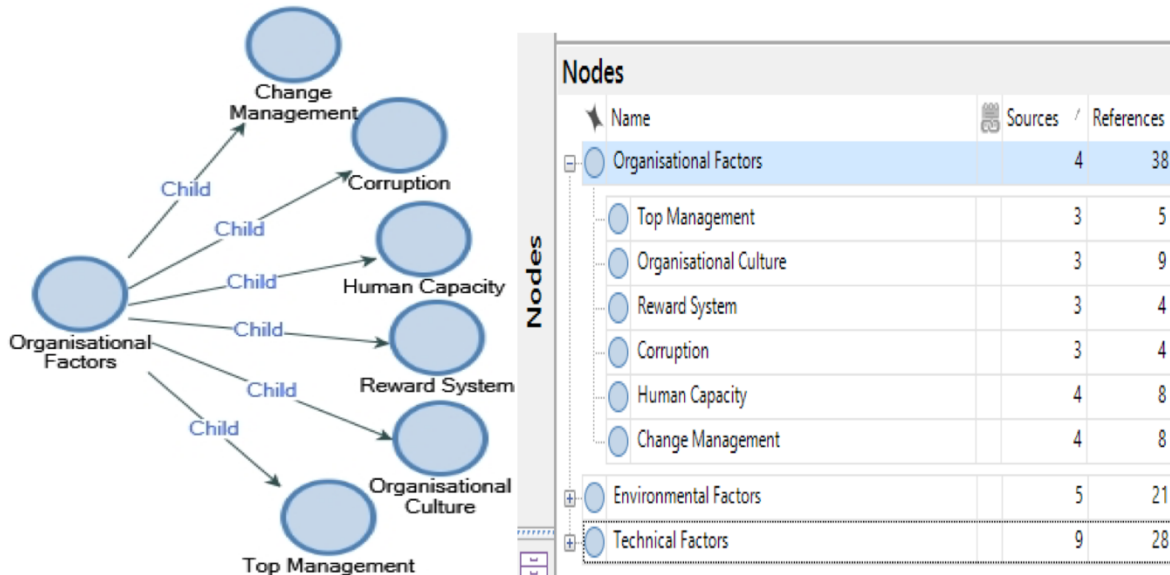


Figure 6-3 NVivo Visual Map and Tree Node for Organisational Factors

6.6 Analysis of the Environmental Factors

This section describes the environmental factors, which, relatively, have been less examined in the literature, compared with technological and organisational factors. In addition to the internal organisational factors, participants identified the external organisational factors to be equally important to the adoption/implementation of change in the Pakistani public sector. However, organisations have comparatively less control over external (environmental) organisational factors.

In this study, the environmental factors are: political, economic, social and regulatory. Each of these factors is now discussed in detail.

6.6.1 Political

Interviews and public documents revealed that political leaders' commitment/support is a key driver to the adoption/implementation of public reforms. The government of KPK has recognised the important role that current reforms can play in the socioeconomic development of the region. Hence, current reform is receiving strong political backing. Many interviewees expressed similar views. One minister stated, "...*Politicians can play a vital role in the reform adoption. In KPK, senior political leadership, particularly the*

chief minister, is very determined and cooperative to introduce change”.

Leadership is often distinguished from management by its focus on adapting organisations to changing circumstances while management is primarily concerned with processes that keep a complicated system of people and technology functioning smoothly (Kotter, 1996). However, political leadership and change management are interlinked and should not be seen as separate entities. Leading a change, no matter how small, will require similar skills and attributes that are associated with both concepts (Norman, 2012).

A key minister expressed his views, “...KPK’s Political leadership is highly motivated and determined to implement change. However, there is a lack of support from the federal Government”. One minister stated, “...Lack of support from Federal Government often slows down the change process. Provincial autonomy has given more power and independence to the provinces; however, there are many strategic matters where federal support is required”. Another minister added, “...Federal ministers see provincial government as rivalries and there is a lack of coordination and collaboration among governments”. In addition to the lack of support from federal/central government, political instability was also identified as a barrier to change. A minister explained, “...Since independence in 1947, Pakistan has enjoyed only a few spells of political stability. Regular army interventions and several marshal laws have caused huge political and economic upheavals”.

Lack of political stability often results in inconsistent government policies. A minister stated that, “...Due to political instability, the country has faced inconsistent government policies which is a great barrier to change”. He further added, “...Public employees generally believe that the government’s policies will change with the change of government. Therefore, even those employees who are not resistant to change do not put their 100 % effort to implement change”.

6.6.2 Economy

Pakistan being a developing country faces great economic related issues. According to the Asian Development Bank 2016 report, “...*In Pakistan, 12.4% of the population lives below the national poverty line*”. Many of the interviewees discussed the effect of poverty on the implementation and acceptance of the change (reform) project in Pakistan. They believed that poverty is a major issue that the government should consider and deal with when adopting the change (reform) project, as it would be difficult to convince people of the benefits of having change projects such as e-government, one-stop shop and national data base when they cannot afford the very basic things in life such as food and shelter.

One public employee expressed, “...*the government should enhance its existing services to people by providing suitable facilities and infrastructure such as proper health care system, paved roads, improved education structure, better transportation system, and well suited housing, before launching ambitious change initiatives that are unreasonable at the current stage while a large number of citizens are still suffering from poverty and unemployment*” Likewise, Li (2003) indicate that one of the major barriers to implementing a successful e-government project in Scotland is that IT investments such as e-government are often not perceived as a top priority when they compete with other fundamental projects such as building new schools and roads.

Change (reform) implementation projects will happen only with financial and institutional support. Hence, funding is the major factor related to the adoption/implementation of change projects. According to the World Bank (2015), “...*Pakistan has made impressive progress in reducing poverty and improving prosperity. The banking sector remains profitable, capital adequacy is above the minimum regulatory requirements, and there is sizeable growth in investments and advances*”. Similarly, key participants (policy makers) in KPK do not see current economic conditions as a barrier to change. They believe that adequate financial resources are available to implement a change (reform) programme that can improve people’s lifestyle. One minister stated, “...*Senior political leadership, particularly the chief minister, is very determined and cooperative to*

implement change. Therefore, availability of funds is not a barrier to recent change (reform) programme". Another minister added, "...Political leadership's involvement and international donor support has helped to overcome financial issues". On the other hand, a key minister explained, "...Whilst, however, the chief minister has assured us to allocate adequate funding to implement change, the major funds are used for security purposes as KPK region is in a state of war against terrorism".

6.6.3 Socio-Cultural

Different socio-cultural features were highlighted by the interviewees. Participants pointed to the low level of change acceptance in the KPK region of Pakistan. Experts and key participants regard this as being due to low levels of education, lack of transparency, nepotism and lack of participative culture.

One minister stated, *"...There are several cultural barriers that affect change. For example, lack of transparency and favouritism in public organisations often result in poor performance. People do not get recruited on merit. Family influences are often used for recruitment, promotion and transfer issues".* Another minister summarised, *"...In the KPK, social-cultural factors are the main barriers to change. Nepotism, favouritism and employee's resistance are important issues which need to be addressed".* He further explained, *"...In the KPK, unfortunately it depends on who you are and whom you know. Lack of transparency, favouritism and family ties often lead to corrupt practices".*

Another minister explained, *"...The social barriers have a great influence on change (reform) project. The type of society that we have is very much interlinked. We have a tribal society with tradition of joint family system. People generally depend on each other. Therefore, people have many expectations and they ask for favours and use family ties to get their job done. This results in lack of transparency and merit".* He further explained, *"...Government ministers are trying to minimise the social barriers to improve the transparency. However, they have to face great resistance from both general public and employees".* Similarly, another participant explicated, *"...When the*

Government does recruitment for public organisations, friends and families expect favours and people use family influences, which affects merit". One participant added a similar comment, "... *People with strong political and family connections often get promotions*". He further explained, "...*There is a lack of transparency in public organisations. People use family ties, caste system and other pressures to serve their own course*".

A report by the KPK Reform Implementation Cell stated, "...*Due to the cultural barriers and low female literacy in the KPK, it is very difficult for women to assert their rights, especially in accessing police services. To fix this, the KPK Police Department has established Women Desks that provides women victims with easy access to police remedial services*". He further explained, "...*An increase in female labour force or a reduction in the gap between women's and men's labour force results in faster economic growth. Therefore, women's empowerment is one of the top priority of recent change (reform) agenda*". In general, therefore, it seems that low level of education, nepotism and employees' resistance to change are barriers to adopt/implement change in Pakistani public sector.

6.6.4 Regulatory and Legislative

Laws issued by parliament, all forms of regulations and ordinances from the government or government agencies with formal powers to control, evaluate and direct public sector services play a vital role in change (reform) adoption/implementation (Bejerot and Hasselbladh, 2013).

Since independence, there had been no national legal framework developed for the purpose of regulating and supporting change (reform) implementation in Pakistan. Large-scale public reforms need legislation to be prepared prior to the implementation phase, but many acts and laws related to change have only been approved relatively recently. According to the Head of KPK Reforms Cell, "...*30 historic bills of public interest passed in just 10 months*". Table 6-6 shows some of the recent acts and laws that have been introduced to support adoption/implementation of recent reform project.

Serial No.	Legislation	Status
1	Health Care Commission Act, 2015	Active
2	Right to Public Services Act, 2014	Active
3	Right to Information Act, 2014	Active
4	Environmental Protection Act, 2014	Active
5	Farm Services Canters Act, 2014	To be approved
6	Food Safety Authority Act, 2014	Active
7	Protection of Breast-Feeding and Child Nutrition Act, 2015	To be approved
8	Medical Teaching Institutions Reforms Act, 2015	Active
9	Medical Officers and Dental Surgeons Act, 2015	Active
10	Tibb and Homeopathic Employees Act, 2014	Active
11	Regulation of Lady Health Workers Program & Employees Act, 2014	Active
12	Medical Transplantation Regulatory Authority Act, 2014	To be approved
13	Injured Persons and Emergency (Medical Aid) Act, 2014	To be approved
14	Terms & Condition of Parliamentary Secretaries, KPK, 2014	Active
15	Khyber Pakhtunkhwa Ehtesab Commission Act, 2014	Active
16	Establishment of Civil Mobile Courts Act, 2015	Active
17	Promotion, Protection and Enforcement of Human Rights Act, 2014	Active
18	Appointment of Law Officers Act, 2014	Active
19	Prohibition of Employment of Children Act, 2015	To be approved
20	Shops and Establishments Act, 2015	Active
21	Higher Education Scholarship Endowment Fund Act, 2014	Active

Table 6-6 Recent Legislations Pertaining to Change (Reform) Initiatives
Source: Government of Khyber Pakhtunkhwa (2015)

Many interviewees highlighted the importance of adequate regulatory framework to support change. The participants also revealed the important laws that have been recently introduced to overcome barriers related to change. One minister stated, “...Government is focused to introduce an adequate legal framework that can ensure transparency which may result in better performance. For example; Right to Information

Act 2014 has been a driver of change". Another minister agreed and stated, "...New legislations such as *Right to Information Act* and *conflict of interest* are being effectively used to overcome social-cultural barriers. These laws are expected to improve transparency and reduce corruption". Similarly, one key minister revealed, "...*Health Care Commission Act 2015* has been approved by provincial assembly to support change in health sector. This will also regulate private hospitals and clinics".

Nonetheless, endorsing these laws was not straight forward. According to a senior minister, "...We needed a lot of preparation. For example, we had to train the public employees prior to introducing new laws". Another participant added, "...We had to take members of parliament on board, explain the terminologies and clarify the risks and potential threats resulting from the misuse of new laws".

A report published by the Reform Implementation Cell stated, "...Main purpose of the newly introduced laws is to ensure administrative efficiency, accountability and good governance. For example: *Right to Services Act*, *Right to Information Act* and *Accountability Commission Act* are designed to form a transparent management system and reduce corruption in public organisations".

Based on the aforementioned empirical findings, the following table, Table 6-7 attempts to summarise the case study interviews findings related to the environmental theme.

Factors	Description	Sources
Political	Participants seemed to agree that political stability and political leadership’s commitment and support is essential to implement change. Empirical findings suggest that strong political will to adopt change is a major driver to change.	Interviews; Public Documents; Personal Observation
Economical	Participants highlighted the importance of financial resources, funding and donor’ support to adopt/implement change initiatives. Pakistan being a developing country has limited funds. However, senior political leadership has allocated enough funds to implement reforms.	Interviews; Public Documents; Personal Observation
Socio-Cultural	Participants see cultural related issues as an important factor to adopt/implement change. They believe that large scale corruption, employee’s resistance and bureaucratic culture are barriers to change. The participants also highlighted the impact of war against terrorism.	Interviews; Public Documents; Personal Observation
Regulatory and Legislative	There was a general consensus among participants that successful introduction of change needs backing of appropriate legislation. Many participants are hopeful that new legislations will help to reduce corruption, resistance and poor performance.	Interviews; Public Documents; Personal Observation

Table 6-7 Summary of the Environmental Theme

To further synopsis, an NVivo Visual Map and Tree Node for Environmental Factors are illustrated below (Figure 6-4).

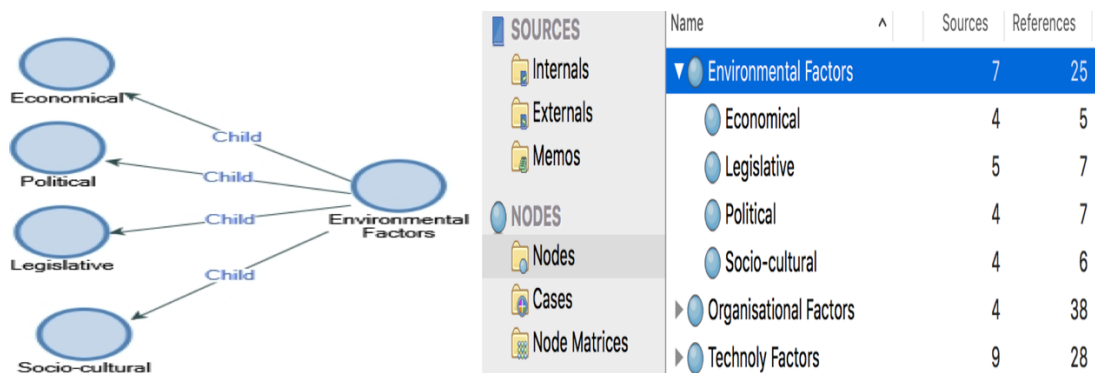


Figure 6-4 NVivo Visual Map and Tree Node for Environmental Factors

6.7 Revision of Framework

The detailed interviews with key stakeholders and decision makers and the imperative data gained from documents, in addition to the quantitative analysis in Chapter 5, enabled a better understanding and defining of the key issues affecting the adoption of change (reform) in Pakistan, at the organisational and sub-national level. Additionally, new sub-factor (Corruption) was identified within the Organisational context, which indicated influence on change adoption/implementation. In context of the Pakistani public sector, Figure 6-5 shows previously identified TOE-related factors as well as the new factor (corruption).

It can be seen from Figure 6-5 that the qualitative data analysis has provided a much clearer picture of the reality of employees' adoption of change (reform) in Pakistan. Moreover, the integration of quantitative and qualitative data has extended our understanding and provided valuable insights regarding how employees perceive different variables that have been identified as significant for change (reform) adoption in Pakistan. In short, the findings from the semi-structured interviews have provided additional support as well as revealing important insights underpinning further interpretations of the quantitative data.

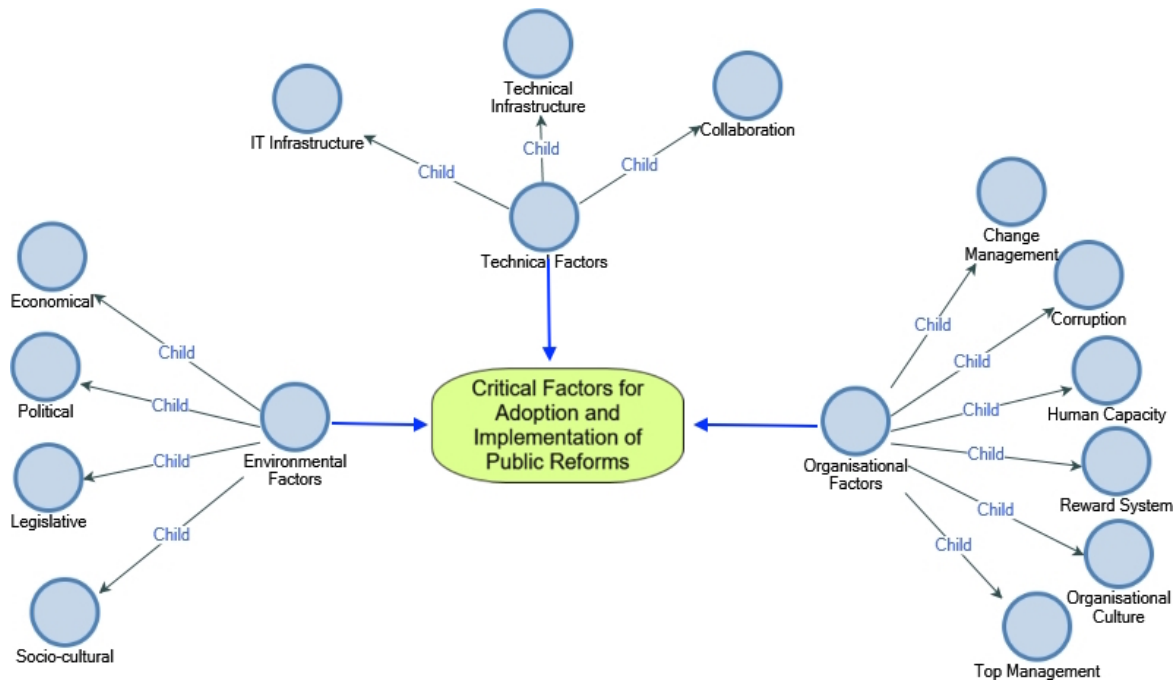


Figure 6-5 Qualitative Data Findings Integrated with the Research Model

6.8 Summary

This chapter has presented the overall procedures that were applied in collecting and analysing the data for this case study research. It has also provided justifications for all the decisions that have been taken in selecting the sampling techniques, key participants, data collection sources and the qualitative data analysis approach used for this study. It has also illustrated the use of the NVivo qualitative data analysis software package to assist in the analysis process.

The researcher identified three Technical factors (IT infrastructure, Technical infrastructure and Collaboration), six Organisational factors (Top management, Human capacity, Organisational culture, Change Management, Reward system and Corruption) and four environmental factors (Political, Economical, Socio-Cultural and Legislative) which are essential for the development of a change (reform) adoption model for the Pakistani public sector. It was seen that the majority of interviewees confirmed the findings of the questionnaire (Chapter 5), although differences were noted. Finally, in order to complete the picture and to give a full understanding of the phenomenon under

consideration, the interview findings were incorporated in the final research model (Figure 6-5) to provide a fully comprehensive framework for understanding the potential to adopt/implement change (reform) in Pakistan.

In the following chapter, the researcher presents a comprehensive discussion on the analysis of the results and findings that have been presented in previous chapters in order to obtain triangulation between both the qualitative and quantitative approaches, and, furthermore, an examination of the literature review.

Chapter 7: Discussion

7.1 Introduction

This chapter provides interpretation of the research findings (both quantitative and qualitative) presented in chapters 5 and 6. The discussion links these findings to those from prior research work considered in the Literature Review (Chapters 2 and 3) and concentrates on how these findings provide answers to the research questions, and, in turn, meet the objectives of the study. The sections of this chapter deals with each of the research objectives and research questions presented in Chapter 1.

The structure of this chapter is as follows. First, the population and sample issues are presented and second, scale refinement is considered. Third, the findings of all TOE related factors are reviewed and compared with previous research. Finally, the results of the demographic Characteristics and their influence on employees' decision to adopt change will be discussed.

7.2 Population and Sample Issues

The research was designed to collect data from a large sample of government employees from a developing country (Pakistan) in order to develop the theoretical change framework (Figure 3-5 on page 75) and explore how it corresponds with reality in developing countries, investigating the importance or local effects of the component factors. This study was conducted in public sector organisations in the KPK region of Pakistan. The total population of public employees is approximately 9,000 in all public sector areas such as health, education, police and excise etc. In line with the advice from Tabachnick and Fidell, (2007) and Hair et al. (2006), a random sampling was carried out for data collections. Therefore, people from different backgrounds, organisations, pay-scales and educational levels form the population of the study (Table 5-5, Page 122). Of the 500 questionnaires distributed, 320 were returned, which shows a response rate of 64%. According to Comery and Lee (1992), a sample size of 50 - 100 is treated as poor, 200 as fair, 300 as good and 500 as very good. A large enough sample was applied to represent the population and underlying structure because the researcher wanted to examine the reliable correlations and prediction power of factors (Tabachnick and Fidell, 2007; Hair et al.,2006). Thus, this study provided a substantive

representation of the total population of public sector organisations.

Dealing with missing data is an important issue. In social science research, there are various suggestions such as using the mean of the scores on the variance (Stevens, 1992) or excluding the respondent(s) who do not respond to any question (Norusis, 1995). In this study, 20 questionnaires out of 320 were found to have missing data which is 6.25%, but this does not make any difference to the outcome of the analysis (for detail, see section 5.3.1, page 113). Thus, 20 incomplete questionnaires were deleted from the data and then the data was tested to find outliers. Outliers cannot be categorically characterised as either beneficial or problematic (Hair et al., 2006); however, they can bias the mean and inflate standard deviations (Field and Hole, 2003). Thus, the researcher should be aware of such values because they bias the model research fit to the data (Field, 2006). The researcher used univariate and multivariate perspectives to detect outliers (section 5.3.2 on page 114). Based on the z-score and Mahalanobis distances test (Hair, et al., 2006), only one item was identified and deleted and no item was found to have univariate outliers. In general, therefore it seems that there is no real concern related to the research population and sample of the study.

7.3 Measurement Scale Refinement

Based on a robust TOE (Technology-Organisation-Environment) Framework (Ciganek et al., 2014; Bernroider and Schmollerl, 2013), this study examined the factors influencing change (reform) adoption/implementation in the KPK region of Pakistan. After an extensive review of the related literature, several factors were theoretically justified to be important for the adoption/implementation of change; these were incorporated into the proposed framework (Figure 3-5 on page 75). As shown in the following table, Table 7-1, these factors were classified into three main categories based on the nature of their influence.

	T-O-E Factors	Number of Variables/Items
Technical	IT Infrastructure	6
	Technical Infrastructure	6
	Collaboration	6
Organisational	Top-Management	3
	Human Capacity	3
	Change Management	4
	Organisational Culture	4
	Reward System	3
Environmental	Political	4
	Economy	3
	Socio-Cultural	3
	Legal	3

Table 7-1 TOE Factors for Change (Reform) Adoption/Implementation

These factors have been found to affect the acceptance, adoption, readiness and implementation of change (reform) in different developing countries over the years (see for example: Srivastava and Teo, 2007; Thi et al., 2014 and Pudjianto and Hangjung, 2009). Hence, they were theoretically assumed to have such an influence on recent reforms being implemented in the KPK region of Pakistan based on contextual similarities. In order to examine the influence of these factors, SPSS 22 and AMOS 22 were employed to analyse the quantitative data, and NVivo 11 was used to analyse the qualitative data.

Initially, 48 items were observed to measure the effect of TOE related factors on people's intention to adopt change and level of reform success. As mentioned above, the scale for the study was developed primarily on the basis of conceptual literature. Thus, the first issue to be discussed is the operationalisation and validation of the concepts in this study. The item pool for the scale was subjected to quantitative enhancement. Content and face validity were assessed in a pilot study in which

participants were asked to give their opinions about the items (for details, see section 4.7.3 on page 96). In addition, the survey instrument was assessed through expert field researchers in the university at the initial stage of the research. Experts were asked to comment on the lists of scale items. The developed scales were subjected to two rounds of data reduction. In addition, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), several statistical tests like convergent validity (CV), discriminant validity (DV), composite reliability (ρ), Cronbach's alpha reliability (α) and average variance extracted (AVE) were performed. As a result, theoretically and operationally valid and reliable scales were developed and hypothesis testing was performed with the scale. However, some inferences were made on the scale development and enhancement issues which are discussed as follows.

The dimensionality of almost all 12 constructs was consistent with those reported in the literature and presented in the preliminary conceptual framework (Figure 3-5). However, only 11 factors were extracted through the exploratory factor analysis method. Thus, in line with the advice from Stamatis (2002), the researcher extracted 'take what the data gives you' for testing conceptual scales. Variables related to the 'Socio-Cultural' factor and 'Internal Organisational Culture' factor loaded on the same factor or group of predictors. After careful examination of all variables loaded in this group, the researcher named this new construct as 'Organisational Culture'. In addition, it should be noted that variables related to other factors such as top management, political, economic, technical infrastructure and IT infrastructure used in this scale were loaded to their respective predictor. The results of factor analysis can be found in Table 5-8 on page 139. However, it is worthy of mention here that variables with extraction values below the recommended factor loading cut-off value of 0.6 and cross loading items were dropped and hence excluded from any further analysis. The final 11-factor solution was found to explain 76.5% of the variance in the dataset. The value of Cronbach's alpha for all factors was found to be greater than .70, which confirms the reliability of the final constructs (Table 5-2 on page 146).

Whilst EFA was used to determine the possible underlying factor structure based on the

observed variables, CFA/SEM was used in verifying and confirming the factor structure derived from the EFA, and to assess construct validity and composite reliability for the researched factors. CFA/SEM was subsequently applied in two steps: the first step involving confirmation of the EFA results, and a check on the related validity and reliability, and the second, the testing of the research assumptions concerning the causal relationships among these factors.

While 11 factors were loaded through EFA, only eight of them (ITST, Leg, Org, TM, RS, Tec, Eco, CM, Pol, Co, TNW) were empirically shown as significant (see Tables 5-29 and 5-30 on page163). The final eight validated factors accredited by CFA/SEM are listed below (Table 7-2).

Numbers of Factors/Constructs	Construct (Abbreviation)
One	IT infrastructure [ITST]
Two	Legal [LEG]
Three	Organisational Cultural [ORGCUL]
Four	Top Management [TM]
Five	Reward System [RS]
Six	Organisation's Technical Infrastructure [TEC]
Seven	Economic [ECO]
Eight	Change Management [CM]

Table 7-2 Final Factors Resulting from CFA

Each of these factors and their associated themes are discussed in detail in the following sections. The importance of defining these factors is that it demonstrates the current situation and explains the challenges and opportunities surrounding the adoption process. Without such understanding it would be difficult for policy makers to set strategies and plans, or to direct government investment appropriately.

In summary, the findings from the scale refinement reflect two main ideas. First, when the scale is adapted and applied to another culture and region, it is necessary to assess the relevance of the context of the scale to achieve the validity of inferences (Singh,

1995). The first and most fundamental question may be whether the same context exists in another country. Moreover, if it exists, it may not have the same form or it may have different elements in other countries (Craig and Douglas, 2000). Second, to ensure the applicability of adapted scales, it is crucial to assess external validity in addition to internal criteria such as reliability and validity (Craig and Douglas, 2000; Clark and Watson, 1995). However, the researcher assessed construct validity, which is a necessary condition for further theory testing and development (Peter, 1981; Reise et al., 2000).

7.4 Research Objective 1

As outlined in Chapter 1, the first research objective aimed to identify the challenges, barriers and opportunities hindering or supporting the adoption of public reforms in developing countries, with a specific focus on the KPK region of Pakistan. In order to achieve the objective, the following research question was formulated.

Research Question 1:

“What are the key factors that support or hinder the adoption and implementation of change (reform) in the context of developing countries, specifically Pakistan?”

In order to answer this question, the final eight significant factors for change (reform) adoption/implementation in the Pakistani context are discussed below. They are IT Infrastructure, Legal, Culture, Top Management, Reward System, Technical Infrastructure, Economy and Change Management.

7.4.1 Factor One – IT Infrastructure [ITST]

The first factor found to influence DVs (change readiness and success) is the IT infrastructure at organisational and national level – discussed earlier on page 217. IT is a variable that can be used to enhance the quality and timeliness of organisational intelligence and decision making, thus promoting organisational development (Dewett and Jones, 2001). The collapsed mean score for the six observable variables used to measure the ITST factor was 3.53 (greater than the scale midpoint of 3), reflecting

agreement among respondents on this factor's variables. This result shows that most survey participants (66.6% of sample) considered that adequate IT infrastructure was available to implement recent reforms.

The EFA table (Table 5-8) exhibited that all six observable variables related to the ITST construct were loaded on factor one and were highly correlated with each other. Moreover, factor one (ITST) alone explains 20.9% of the total variance in the data and reliability ($\alpha=0.85$) is adequate (Table 5-2). Additionally, CFA results confirmed that the ITST construct has a high composite reliability coefficient and a high level of construct validity (convergent, discriminant, and nomological). However, three measurement variables were later dropped, as suggested by the CFA first-run, in order to enhance the measurement model goodness-of-fit. Regarding the influence of ITST on the DVs, the preliminary research framework (Figure 3-5) anticipated that ITST would have a significant positive influence on 'intention to adopt change' and 'level of change success'. The results of path measurement coefficients (Table 5-29 on page 163) revealed that the causal path between the ITST construct and DVs was significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that information technology positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

The qualitative data (Chapter 6) also revealed ITST as a significant predictor of people's intentions to adopt/implement change. It was a common perception among the interviewees that IT infrastructure was a driving force for the successful adoption of change initiatives. Interviewees believed that ample IT infrastructure is available to implement successful reforms in KPK. However, there is an interesting finding from the interview analysis that indicates that electronic communications such as emails are still not considered as an official mode of communication within public organisations. Interviewees further revealed that people who lack IT skills show great resistance to change. Interviewees therefore suggested that public sector organisations need to have an IT infrastructure as part of the effort to develop a culture that encourages and promotes the use of IT in daily activities and tasks. The qualitative data analysis further

concluded that, while there is an appropriate level of IT infrastructure available in Pakistan, employees need more IT training and many organisations need to develop interactive and informative web portals to improve public service delivery.

These results are consistent with findings from prior studies. For example, research by Vander Elst and De Rynck (2014) implied that an adequate IT infrastructure and IT alignment is essential to grasp the complexity of public organisations. A similar study conducted by Srivastava and Teo (2010) using the TOE framework found that Information technology is positively associated with the development of a government sector. The current study result is also in line with a study conducted by Al-Zoubi (2013), which confirmed the positive influence of an IT infrastructure on the successful adoption of e-business in the public sector. Likewise, Waller and Genius (2014) established that an IT infrastructure is not only a powerful driver of wealth creation and growth in the business space, but these technologies also have the potential to enhance government efficiency and effectiveness, as well as public service delivery. It is thus essential for the public organisations to manage the appropriate level of IT infrastructure development which this study considers a critical factor for change (reform) adoption/implementation.

Today, most governments have recognised the potential of IT to transform public organisations by enhancing the efficiency and effectiveness of the delivery of public services (Kumar and Best, 2006; Khanh, 2014). Hence, IT has widely become a critical component of the public sector (Waller and Genius, 2015). However, in many parts of the developing world, neither governments nor citizens have access to adequate IT (Alshehri and Drew, 2010; Waller and Genius, 2015), but this study shows that Pakistan has distinguished itself in this regard. However, whilst there is an adequate IT-Infrastructure in Pakistan, IT has not yet been widely incorporated into strategies for changing/improving public service delivery.

IT offers the potential to dramatically improve the way in which people communicate and collaborate within the organisation – presumably aiding greater participation,

involvement and motivation in difficult times of change (Dewett and Jones, 2001; Olesen and Myers, 1999). In summary, the presence of a well-developed IT infrastructure is critical for change (reform) adoption and employment of efficient public service delivery. Therefore, government organisations need to have an IT-Infrastructure that is capable of supporting and enabling the execution of change (reform). Moreover, the incorporation of IT into the public sector's human resource management strategies can be instrumental in capacity-building and improving the managerial, technical and professional skills of public employees, which may develop their readiness and support for change.

7.4.2 Factor Two –Legal [LEG]

The literature suggests that implementation of new government policies and programmes is usually motivated and facilitated by laws and related regulations (Lee at al., 2016). Similarly, the survey data findings in Chapter 5 demonstrate the importance of an adequate legal framework to support large-scale change projects in Pakistan. Most participants (66% of sample) felt assured by new legislation supporting change, resulting in a maximisation of their encouragement to adopt the change. LEG1, LEG2, LEG3 and LEG4 were observed to measure this construct. The collapsed mean score for these four items was 3.53, which revealed that most respondents considered the legal framework for change (reform) program in Pakistan to be appropriate.

EFA results revealed that these measurement items were exclusively loaded on factor two and were highly correlated to each other. Factor two explains 10.6% of the total variance in the data. The construct reliability was ensured ($\alpha=0.89$) using Cronbach's alpha (Table 5-20). CFA confirmed these results and provided statistical evidence of internal consistency and construct validity of the LEG construct (Tables 5-25 and 5-27). The results of path measurement coefficients (Table 5-29 on page 163) revealed that the causal path between the LEG construct and DVs constructs were significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that the legal factor

(LEG) positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

The qualitative results also identified legislation as an essential predictor for change (reform) adoption/implementation. All interviewees reported that they share the same perceptions that legislation is an influential factor prior to and during the implementation of a large-scale change project in government organisations. Many interviewees believed that successful introduction of change needs the backing of appropriate legislation. They further highlighted that an evolving framework of laws and policies has been influencing the speed, scope, and direction of recent change (reform) initiatives in Pakistan. Interviewees concluded that new legislation such as the 'Ehtesab (Accountability) Commission Act 2014' and 'Right to Information Act 2014' is already helping to reduce corruption which often lead to inequitable distribution of resources. Conclusively, empirical data from the interviews asserts that new regulations have improved transparency and thus positively affected employees' decision to adopt/implement change.

This result accords well with the findings of Heeks (2001) and Altameem et al. (2006), who argued for the importance of an adequate legal framework to support change (reform) projects. This is also consistent with the findings of Bejerot and Hasselbladh (2013). In the context of the Swedish public sector, their study found that adequate laws and regulations are essential to carry out public reforms. This current study result is also in line with a study conducted by Lee and Nam (2016), which confirmed the positive effect of laws and regulations on the successful implementation of e-government in the public sector. Furthermore, a qualitative study of public sector reforms by Azzone and Palermo (2011) found 'law' to be the most relevant external factor (driver) in Italian settings. Similarly, Troshani et al., (2011) concluded that the need and urgency for achieving regulatory compliance can be a strong driver accelerating adoption of change initiatives in public organisations. This is important because legal framework legitimises, authorises and enables change and reform to take place (Lee et al., 2016).

Therefore, it can be seen that adequate legislation is essential to implement change (reform) in public organisations and 'legal reforms' can be the driver of all other public reforms. However, corrupt governments of many developing countries often introduce legislations for their own private benefits (World Bank, 2000). Nevertheless, this study's results suggest that the recent legislative reforms of KPK are set to improve transparency and reduce favouritism, bribery and corruption which are often barriers to change (reform). Examples of these reforms include the Right to Information Act 2014, which was designed to develop transparency in the public sectors; Right to Services Act 2013, which was designed to provide improved services; Health Care Commission Act 2014 (an Act that ensures the adequate health services in the province) and Civil Mobile Courts Act 2015, which was designed to provide cheap and speedy justice. Moreover, the KPK Government has recently approved a Whistle-Blowers Protection Law 2016 that is aimed at curbing corruption. Thus, one can argue that there are substantial and well-established government related institutional arrangements that can facilitate change (reform) in Pakistani public organisations.

In practical terms, this study suggests that leaders may need to change laws to introduce public management reforms successfully. New or modified laws would also be necessary if there are gaps in traditional public management laws. This study therefore supports the notion that the deeper the public management reforms, the more fundamental the refurbishing of the legal framework.

7.4.3 Factor Three – Organisational Culture [ORGCUL]

Organisational culture is the collective behaviour of the workforce (Burnes, 1991); it is thus important for managers to pay attention to culture when reacting to or planning major organisational change. Culture is particularly important when an organisation is undergoing significant transformation or when introducing major reforms which require different or new cultural or value traits from those exhibited in the past (O'Donnell and Boyle, 2008).

The collapsed mean score of the items/variables observed to measure this construct (ORGCUL) was 2.35. This result suggests that very few respondents considered that their organisation has an innovative culture, flexible structure and general acceptance for change. Four items (ORGCUL1, ORGCUL2, ORGCUL4 and ORGCUL5) were identified by the EFA as ORGCUL measurement items (Table 5-8). Three items were highly correlated (above 0.925) with each other; however, one item (ORGCUL 4) was comparatively less correlated (below 0.75). Factor three (ORGCUL) explains 7.83% of the total variance in the data. The construct's reliability ($\alpha=0.93$) was confirmed using Cronbach's alpha (Table 5-20). Additionally, CFA results confirmed that the ORGCUL construct has a high composite reliability coefficient and a high level of construct validity (convergent, discriminant, and nomological). Regarding the influence of ORGCUL on the DVs, the preliminary research framework (Figure 3-1) anticipated that ORGCUL would have a positive influence on 'intention to adopt change' and 'level of change success'. The results of path measurement coefficients (Table 5-29) revealed that the causal paths between the ORGCUL construct and DVs were significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that ORGCUL positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

Interviewees also confirmed this outcome, as they agreed that the culture of acceptance of change plays a great role in facilitating the change process. However, interviewees articulated that the existing organisational culture and lack of people's participation is a key barrier to providing improved public service delivery in KPK. The qualitative findings further suggest that Pakistani public organisations generally have a strong bureaucratic orientation that often resists transformation. Interviewees debated that when employees are not culturally ready for organisational change, they are more prone to resist it. Therefore, they proposed that it is very important that reform strategy is aligned with the organisational culture and native requirements. They further explained that, in order to overcome cultural-related issues and to minimise the resistance to change, the KPK Government is focused on decentralisation and the devolution of power. Senior KPK ministers indicated that the centralisation of public sector and governmental institutions

in the capital, Peshawar, requires employees located in other cities to often commute and connect to the capital in order to complete certain transactions. This aggravation and inconvenience motivated the Government to decentralise the powers to provide better services and aid the change. Interviewees further explained that at the heart of the public reform agenda is the desire to decentralise and deliver bespoke, integrated local services that meet the requirements of service users while increasing efficiency.

The findings support earlier research outcomes on change adoption. There are some significant insights on the role of culture as a source of resistance to change (Cooper, 1994; Kotter, 1995; and Schein, 1992). Therefore, public institutions need to have a 'culture' that encourages change (Kezar and Eckel, 2000). In addition, public management literature suggests that organisational culture that is participative and decentralised rather than authoritative and centralised is more likely to adopt change initiatives (Parker and Bradley, 2000). A recent study, carried out to investigate the outcomes of planned organisational change (reform) in Nigeria as an example of a developing country found organisational culture as an obstacle to change (Abdulraheem et al., 2013). They further suggested that the government should seek to understand the culture of the place where any institution is located so as to understand its values and to analyse the dilemma in the system before a reform is formulated. Similarly, a qualitative study that investigated the culture-based resistance to organisational change has strengthened the argument that culture is a crucial factor in change management (Danisman, 2010). Hence, understanding the nature and source of resistance to organisational change requires the elaboration of existing organisational culture.

Therefore, from a management perspective, a better understanding of organisational culture in the public sector is essential as culture is central to the change process and to the attainment of strategic objectives (Bluedorn and Lundgren, 1993). From a policy maker's perspective, an awareness of the nature of public sector organisational culture provides a basis for both explaining and assessing the appropriateness and outcomes of the reform process (Parker and Bradley, 2000). Pakistan, particularly KPK has a high level of uncertainty avoidance culture (Hofstede, 1984), which can be attributed to the

very conservative nature of its tribal-based society, which often hinders change, particularly from the outside (Mushtaq, 2011). To overcome uncertainty avoidance within Pakistani society, it is important to involve stakeholders at all levels, so that change (reform) can be implemented more successfully and with minimum resistance. However, high uncertainty avoidance index is often accompanied by high level of bureaucracy (Kelly, 2009).

In practical terms, it is very difficult to transform public administration without a transformation of the beliefs, attitudes and behaviours of people and how they relate to each other and their capacities for positive engagement (Herold et al., 2007; Van der Voet, 2014). Moreover, if institutions are transformed without any mechanism for minimising people's concerns and mobilising grassroots participation, then the reforms are less likely to achieve their desired results (Dulek, 2015). However, the challenge for countries/regions in conflict situations such as KPK is to identify which mechanisms best suits their own situation based on their capacities and expectations. As a solution to ease regional conflicts, improve public services and reduce resistance to change (reform), decentralisation is a process where a government transfers political, fiscal and administrative powers to lower levels in an administrative and territorial hierarchy (Duncan, 2007; Antwi-Boasiako, 2010). However, during reforms, it is important for governments to decide whether — and what — services to decentralise to provide improved service delivery (Gaster, 1991). In Pakistan, Decentralisation and Local Governance is a multi-year, multi-tier, multi sector and multi-stakeholder project launched by the government to strengthen participatory federalism and decentralisation against the backdrop of the 18th Constitutional Amendment in year 2010 (Sattar, 2010). The primary objective of this project is to develop policy support mechanisms and create institutional mechanisms to strengthen effective service delivery in a manner that is more transparent. Therefore, it is expected that recent devolutions of power and a new local governance system within KPK may accelerate employees' motivation and acceptance of change and reform public service delivery.

In summary, the freedom and autonomy of working in a decentralised way, where employees maintain a greater level of control over their own business, provides them motivation and a sense of ownership (Malone, 2004). An implication of these results could be that change leaders should provide administrative and operational independence, and financial authority to public organisations. This will help to develop a supportive culture for change and may reduce the resistance to change. Moreover, decentralisation can help people become engaged in managing public affairs and committed to change (reform) progress (World Public Sector Report, 2010).

7.4.4 Factor Four – Top Management [TM]

The role of leadership and top management is well documented in the literature (Fernandez and Rainey, 2006; Bhattacharya and Wamba, 2015; Khanh, 2014; Soltani et al., 2007). In this study, the average mean score for the three observable items used to measure the TM construct was 2.40 indicating respondents' general disagreement about these items. This result confirms respondents' reservations regarding top management's commitment, capacity and ability to implement change.

Three items (TM1, TM2, and TM3) were identified by the EFA as TM measurement items. All three measurement items related to the TM construct showed the highest correlation on the rotated component matrix table (Table 5-8) and loaded on factor 4. Factor four (TM) explains 7.72% of the total variance in the data. The construct reliability ($\alpha = 0.97$) was confirmed using Cronbach's alpha. CFA confirmed these results and provided statistical evidence of internal consistency and construct validity of the TM construct (Table 5-27). The results of path measurement coefficients (Table 5.6) revealed that the causal path between the TM construct and DVs constructs were significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that Top management (TM) positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

The qualitative data also revealed TM as a significant element for peoples' intention to adopt change. All interviewees agreed that top management's ability and support is an

essential factor for employees' adoption of new ways of performing routine work. They further explicated that top management must have the knowledge, competence and organising capacity to implement change effectively. Interviewees showed some confidence in top managements' commitment; however, they had several doubts about their ability to implement change successfully. Moreover, some interviewees suggested that top-down change is a requirement of KPK's high power distance culture; thus, it is essential for top management to acquire necessary knowledge and skills to implement change effectively.

The findings complement literature asserting that knowledgeable and committed top management is behind many success stories (Ireland and Hitt, 1999; Carpenter et al., 2004; Boyne et al., 2011). Conversely, whenever there was lack of top managements' ability and support, the process of change was inhibited.

The current study result is aligned with a study conducted by Lee and Nam (2016), which confirmed the positive effect of top management support on the successful implementation of change in the public sector. Similarly, Bingham and Wise (1996) found that successful implementation of new programmes depends profoundly on top managements' ability to communicate and convince employees of the urgency of change. A similar study related to latent factors influencing government reforms indicated that top management's support and commitment is essential for successful change implementation in the public sector (Fernandez and Rainey, 2006). Additionally, results of a TOE-based study conducted by Pan and Jang (2008), supports the view that the adoption of change requires top management support. A more recent study that used SEM to examine the relationship between top management and change also indicated that top management positively affects change and innovation (Shaar et al., 2015).

Thus, it can be seen that the success of the government in achieving public sector development depends on the knowledge, ability and attitude of the top management. However, it is questionable whether public sector bureaucrats have such knowledge

and capacity skills (Azzone and Palermo, 2011). Therefore, top public managers (bureaucrats) are first required to gain the technical knowledge and competence necessary to implement and use the new systems (Kuipers et al., 2014). In practical terms, the Civil Service (Bureaucracy) is especially critical to the reform and development process since it is at the centre of planning, implementing, monitoring and evaluating the delivery of essential public services (such as health care, education, agriculture, law, etc.). Countries like Pakistan that do not have effective civil service institutions are likely to lag behind in achievement of the institution development and administrative reform goals (World Public Sector Report, 2010).

This study thus indicates that a public organisation's senior managers (bureaucrats) of the public organisation should have adequate knowledge and skills and a clear understanding of the benefits and drawbacks related to change to enable them to address resistance from the employees and eliminate their fears about the adoption of the new procedures. Hence, this study is supportive of the notion that top managerial support is vital for faster and optimal change adoption and that managerial skills and knowledge play an important role in communicating the importance of change initiatives. Moreover, improving the effectiveness of the top management in conflict environments (such as KPK) is crucial because of serious weaknesses in the capacity of public administration either to carry out government policies or to achieve an organisation's strategic goals.

7.4.5 Factor Five – Reward System [RS]

Employees are at the centre of any change programme; therefore, it is important to develop a well-defined reward system to attract/retain people in difficult times of change and create a supportive culture (Cawsey and Deszca, 2007; Burke 2008; Altameem, 2007).

Three variables (RS1, RS2, and RS3) were observed to investigate the existence of factor five (RS) to support reform adoption/implementation in the public sector of Pakistan. The descriptive statistics of the measured items suggest that most survey

participants disagreed with the presence of an adequate reward and recognition system for public employees (see Appendix 8 on Page 398). The collapsed mean score of RS-related items was 2.40, which suggests that there is a lack of efficient reward policies and practices to help attract, retain and motivate people in difficult times of change.

EFA (Table 5-8) shows that items related to RS are highly correlated with each other and all of them loaded on Factor five. RS explains 5.95% of the total variance in the data and the reliability of this construct ($\alpha = 0.76$) was confirmed using Cronbach's alpha. Additionally, CFA results confirmed that the RS construct has a high composite reliability coefficient and a high level of construct validity (convergent, discriminant, and nomological). Regarding the influence of RS on the DVs, the preliminary research framework (Figure 3-1) predicted that RS would have a positive influence on 'intention to adopt change' and 'level of change success'. The results of path measurement coefficients (Table 5.6) revealed that the causal paths between the RS construct and DVs were significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that RS positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

The interviewees also supported this notion, as they all emphasised the importance of an adequate reward system for successful change (reform) development. They believed that an organisation succeeds in escalating its workers' output by offering job promotions, financial compensations, bonuses and extra benefits. However, the majority of the interviewees articulated that a structured reward system does not exist in Pakistani public organisations. Additionally, some interviewees raised the importance of accountability for poor performers in the public sectors. Interviewees also highlighted the fact that skilled human resources (HR) either migrates abroad or prefer private sector organisations. They therefore suggested extra benefits for public employees to attract skilled HR to the public sector.

This result is consistent with previous change-related studies that frequently refer to the importance of effective reward policies and practices to help attract, retain and motivate

people in times of change (see e.g. Rajmohan, 2015; Holston and Kleiner, 2015). Similarly, Azzone and Palermo (2011) found that employees are more likely to devote their time and effort to change projects if top managers can acknowledge and value their contributions. On the other hand, people are less in favour of change unless they are rewarded for it. Likewise, Mottaz (1988) and Yoon and Thye (2002) advocated that tangible rewards are the most useful way to facilitate and motivate employees to perform tasks and remain with an organisation. This suggests that employees who receive encouragement and rewards for change are more likely to act willingly in support of change objectives and contribute to overall organisational effectiveness (Thomas, 2006; Cawsey and Deszca, 2007; Burke, 2008).

Therefore, an adequate reward system is often seen as a driver for change intent. Motivation theories, either content or process, have long focused on the drivers for human behaviour in the workplace. For example, Vroom's (1964) expectancy theory posits that individuals will only act when they have a reasonable expectancy that their behaviour will lead to a desired outcome and reward. Thomas (2006) argues for a need to "[create] a receptive environment and the conditions necessary for change". According to Thomas (2006), it is important not only to implement the right incentives but also to remove disincentives. Varghese (2004) suggests that, aside from using macro policy to induce change, institutional changes could be brought about by relying on either 'mandates' or on 'rewards'.

Thus, it can be seen that, on the basis of a clear reward system, public employees can be more open and ready for organisational change. However, often developing countries particularly conflict regions such as KPK are not capable of providing any meaningful pay to public servants. Whilst such countries need to attract talented and skilled people into the public service, the inability to reward them adequately presents a real challenge to initiate change (World Public Sector Report, 2010). Hence, the 'brain drain' of highly qualified workers is a common problem of many developing countries and Pakistan is no exception. Rowland and Hall (2014) therefore propose that an effective reward and recognition process is likely to be the glue that retains and

motivates the high-quality public employees of the future. In addition, adequate financial rewards can turn public employees into an effective human resource which is essential to implement change successfully (Azzone and Palermo, 2011).

This study thus supports the notion that employees who receive encouragement and rewards for change are more likely to act willingly in support of organisational change objectives and contribute to the overall organisational development. However, results suggest that a structured reward and recognition system does not exist in Pakistani public organisations. Hence, the government needs to introduce a reward system that is set to motivate employees' performance, and attract and retain people with the knowledge, skills and abilities required to achieve the organisation's strategic goals. Moreover, providing an environment that encourages emotional attachment, a feeling of pride and good pay/wages/rewards can help organisations to effectively influence employee attitudes and behaviours towards change.

7.4.6 Factor Six – Technical Infrastructure (TEC)

Large scale public reforms and attempts to provide improved public service delivery demand an up-to-date and suitable infrastructure. The technology used for this purpose should enable various potential applications (Zarei et al., 2008). This is not a critical issue in developed countries (Bangura, 2000); however, the extant inefficient technical systems in developing countries like Pakistan is a major challenge, hence, it is required to be included as a major milestone in the organisational development path (Zarei et al., 2008).

The EFA results revealed that three measurement items (TEC1, TEC2, and TEC3) were highly loaded on this factor (TEC). The collapsed mean score of these items was 2.35, which shows a general disagreement among the respondents regarding the availability of sufficient technical infrastructure to support change adoption/implementation in Pakistan. Factor six (TEC) was found to explain 5.28% of the total variance in the data. The construct's reliability ($\alpha = 0.89$) was confirmed using Cronbach's alpha. Additionally, CFA results confirmed that the TEC construct has a high composite reliability coefficient

and a high level of construct validity (convergent, discriminant, and nomological). Regarding the influence of TEC on the DVs, the preliminary research framework (Figure 3-1) anticipated that TEC would have a positive influence on 'intention to adopt change' and 'level of change success'. The results of path measurement coefficients (Table 5.6) revealed that the causal path between the TEC construct and DVs was significant at a level of $p < 0.001$. As the Beta value was positive, these results demonstrate that TEC positively influences employees' intentions to adopt change and the level of reform's success in Pakistan.

The qualitative data also revealed TEC as a significant factor for employees' intention to adopt change. They believed that successful implementation of change will require public organisations to have an adequate technical infrastructure that fulfils the requirements of change. Most interviewees however indicated that there is a lack of technical infrastructure in Pakistan at both national and organisational levels. Additionally, some interviewees raised the issue of power supply (electricity), which is an important component of the technical infrastructure. The electricity-generation capacity of Pakistan stands at 17,000 MW, and with an average demand of 22,797 MW, the shortfall lies between 4,000 and 5,000 MW, which is expected to increase manifold in the coming years as the population is predicted to expand by almost 2% annually (Zeb, 2016). In addition to the electricity, general communication and transportation means were also found to be inadequate. The qualitative data showed that this situation is even worse in remote areas of KPK.

The quantitative and qualitative results are consistent with earlier studies that have shown a strong positive link between technical capacity and change adoption/implementation. For example, this result is consistent with results reached by Chau and Hui (2001) that indicated adequate infrastructure and technical support as fundamental requirements for change/innovation adoption. This result is also aligned with the result reached by Preker and Harding (2000). Their study found technical inefficiency to be critical problem for reforming public health services. The current study result is also in line with a study conducted by Kamal (2006), which stated that a high

level of technological compatibility can have a positive impact on change adoption in government organisations. Furthermore, a TOE-based study conducted by Zhu et al., (2003) concluded that technology competence (infrastructure and technical skills) is a significant adoption facilitator.

Depending on the existing practices and hardware/equipment currently used, some organisations may require more effort to introduce change than others. The question can be viewed as the degree of match between the characteristics of the change and the current technological setting of an organisation (Chau and Tam, 1997). In the case of most developing countries, technical infrastructures such as hardware, means of communication and electricity are either expensive, outdated and/or inoperable (Waller and Genius, 2015). This has made the successful implementation of change (reform) initiatives more challenging in less developed countries such as Pakistan. Additionally, in instances where the infrastructure does exist, it is usually concentrated in cities and urban areas (Jorge, 2002; Furuholt and Wahid, 2008).

In times of change, organisations generally tend to focus more on the benefits from adoption than on their ability to adopt. As long as organisations believe that they do not have sufficient technical capabilities to adopt change, they should rather maintain their existing systems and routines (Chau and Tam, 1997). Similarly, an official report published by the UK Cabinet Office (2011) suggested that in order to be more responsive to changing requirements and reduce the risk of project failure, a government needs to ensure that technology requirements are considered earlier in the policymaking process. Therefore, from a policy maker's standpoint, governments should build technical competence at both organisational and national levels prior to the implementation of change (reform) initiatives.

In summary, one of the critical factors in achieving a successful change (reform) programme is to have a proper infrastructure in place and to have all public sector institutions at the same level of readiness. Unfortunately, this is not the case in the KPK region of Pakistan. The diverse levels of technological advancements amongst different

institutions are very obvious. In addition to that, public institutions are using different hardware and software, which increases the incompatibility between them. Therefore, for change (reform) to be effective within Pakistan, the necessary technological infrastructure must be present and provide a standard service nationwide.

7.4.7 Factor Seven – Economic [ECO]

The EFA results revealed that three measurement items were highly loaded on this factor (ECO1, ECO2, and ECO4). The collapsed mean score (2.82) for these items reflects the respondents' slight disagreement with this latent factor's statements. ECO explains 4.64% of the total variance in the data and the reliability of this construct ($\alpha = 0.81$) was confirmed using Cronbach's alpha.

Additionally, CFA results confirmed that the ECO construct has a high composite reliability coefficient and a high level of construct validity (convergent, discriminant, and nomological). ECO was proposed to influence people's intention to adopt change as reported in several change adoption studies (Al-Shafi and Weerakkody, 2010; Khanh, 2014; Boyne, 2003; Fernandez and Rainey, 2006; Alshehri and Drew, 2010; Moon, 2002). However, the results of path measurement coefficients (Table 5-29) revealed that the causal paths between the ECO construct and DVs were insignificant ($P > 0.05$) and thus provided no support for this assumption. As the Beta value was negative and $P > 0.05$, these results surprisingly infer that the ECO construct is not a significant positive predictor of intention to adopt change in the Pakistani context. The most likely justification for this contradiction with previous studies is the precise Pakistani context. For example, recent financial growth in Pakistan (World Bank, 2015) and top political leadership's commitment/involvement to improve the public sector have reduced the financial-related issues to adopting change. Moreover, due to generous support from national and international donors for the implementation of recent reforms, the research sample did not perceive excessive costs associated with change (reform) to affect their intentions to adopt.

The interviewees provided further support for this position. Indeed, most participants referred to the financial support provided by the chief minister and international donors in Pakistan as the reason for this insignificant influence.

The qualitative findings further explained that there is great financial support to implement reforms; however, the corrupt practices are hindering to change/improved public service delivery in the KPK. Interviewees explicated that financial resources are either being mismanaged or misused at all levels. They further explained that major causes for the mishandling of public funds in KPK are favouritism, bribery and lack of transparency.

Interestingly, investigating the adoption of IT based changes by small and medium enterprises (SMEs) in Korea, Jeon et al. (2006) also found that the cost, financial and competitive pressures of the industry do not have a significant effect on change adoption. Similarly, findings of the study conducted by Shiau et al. (2009) did not support the hypothesis that the higher cost of change/innovation implementation in SMEs has a strong and negative relationship with adoption in Taiwan. They provided reason that in Taiwan, there are many different branches of government providing services for SMEs, such as the Council for Economic Planning and Development, the Council of Labour Affairs, the Ministry of Finance, the Ministry of Economic Affairs, and many others, thus SMEs can improve quality of services.

A study by Grandon and Pearson (2004) regarding financial pressures, showed contrary results to what was expected; organisational readiness, which includes the financial and technological resources to adopt change, was not found to be a significant factor in the decision to either adopt or reject change. According to the findings of a study related to the Malaysian public sector, perceived cost was not found to have any direct impact on information and communication technology (ICT) adoption in the country (Alam and Noor, 2009). One possible reason they provided was that recently the Malaysian government has been providing all types of financial support to the organisations to promote ICT. Overall, it could be concluded that the economy (ECO) does not

contribute directly to the adoption behaviour of public employees in Pakistan. However, in order to achieve reform objectives, the Pakistani Government needs to implement the necessary institutional arrangements required to enhance public sector financial management transparency and accountability.

7.4.8 Factor Eight – Change Management [CM]

Making change is not easy; it is an art, not a science (Clegg, 2016). Compared with private institutes, change is more difficult in the public sector because of the large number of components within an organisational system, such as ministries. Similarly, Doyle et al. (2000) indicate that change in the public sector has a higher negative impact on change receivers, who report less satisfactory experiences than those within the private sector. Therefore, public organisations' ability to manage change is vital in order to face the challenges and improve performance. However, in the KPK context, the collapsed mean score for the items measured to investigate the CM construct was 2.70 (lower than the scale midpoint of 3). This result suggests that there is a perceived lack of change management policies and practices to facilitate change (reform) projects in Pakistan.

Three items (CM1, CM2, and CM3) were observed to measure the change management (CM) construct. CM was identified by EFA results as the eighth factor among those influencing change (reform) adoption and implementation in Pakistan. Factor eight (CM) was found to explain 4.13% of the total variance in the data and the construct's reliability ($\alpha=0.93$) was confirmed using Cronbach's alpha (Table 5-8 on page 139).

The results of path measurement coefficients (Table 5-29) revealed that the causal paths between the CM construct and DVs constructs were significant at a level of $p < 0.001$. As the Beta value was positive, these results infer that change management (CM) positively influences employees' intention to adopt change and level of change success in Pakistan.

The qualitative analysis findings also revealed CM as a significant influence for peoples' intention to adopt change. Most interviewees highlighted effective communication and visionary leadership as key characteristics of organisational change management. All interviewees agreed on the vast presence of resistance to change in public organisations in Pakistan. They believe that resistance often slows the change (reform) process and thus increases the cost. Additionally, many interviewees emphasised that the KPK Government is aware of the importance of people's involvement during change (reform) activity. Therefore, 'Change Management Units' are being established that are devoted to drive and oversee the reforms interventions across different sectors. The main function of these units is to provide adequate strategy, effective communication and visionary leadership to facilitate the process of change.

This result is consistent with previous change management studies. It has been found (Kotter, 2010; Coram and Burnes, 2001) that successful implementation of change in the public sector requires an effective change policy that has influences on the organisations' performance, and this policy could be external – from the government – or internal – from within the organisation. Many studies have found active communication, clear strategy and visionary leadership to be the main elements of successful change management required to reduce resistance and enhance readiness for change (Aladwani, 2001; Elving, 2005; Lee and Nam, 2016 and Kotter, 1996). The significant influence of active leadership on change (reform) adoption in the Pakistani context has been reported by Ryan and Tipu (2013). They found that active transformational leadership positively affects change propensity. Similarly, Elving (2005) investigated the role of communication in organisational change, and found that it is vital to the effective implementation of organisational change. His suggested model portrays that communication has not only an effect on readiness for change, but also reduces uncertainty. Blackburn (2014) also found vision, leadership and communication to be the necessary elements of successful change management during public sector reform in Tasmania.

The results (quantitative and qualitative) suggest that problems and obstructions in administration and transformation of Pakistani public organisations exist in several areas. These problems include various and incongruent standards of public services among different organisations, lack of people's involvement, allocation of work that does not match public employees' qualifications and ineffectiveness of communication between top managers and public employees. Therefore, from a policy maker's standpoint, adequate change management principles such as strong leadership, clear vision and effective communication are required to implement current reforms successfully.

In public management literature, leadership is generally highlighted as one of the key drivers for the implementation of organisational change (Kavanagh and Askkanasy 2006; Kuipers et al., 2014; Van der Voet, 2014; Pollitt and Bouckaert, 2011; Burnes and By, 2012). By articulating a vision, fostering the acceptance of group goals, and providing individualised support, effective leaders change the basic values, beliefs, and attitudes of employees so that they are willing to adopt new ways and perform beyond the minimum levels specified by the organisation (Van der Voet, 2014). While studies often highlight the importance of leadership during change (e.g. Gill, 2002; Kotter, 1996), there is little empirical evidence concerning the influence of leadership on employee support for change (Van der Voet, 2014; Herold et al., 2008), especially in the public sector (Fernandez and Pitts, 2007). The results of this study however provide empirical support for the notion that visionary leadership is the key element for successful change adoption in public organisations. In times of change, leadership is critical to establish appropriate systems, enhance human resources, fairly manage scarce resources, promote knowledge, and encourage innovation and technological usage. Moreover, leaders must have a vision of the future in order to implement institutional reforms (Burnes et al., 2016). They must also be able to mobilise the people around them to move reforms in the right direction and achieve shared goals.

Public sectors often face difficulties during the implementation and management of change because their employees feel the change is not required. Hence, awareness in

this case is very important. This study indicates that change managers can have a powerful positive effect on employees by expressing positive and encouraging messages to the workforce. In the absence of encouragement and confidence-building efforts, articulating a vision may have a neutral or even negative influence on employees (Rafferty and Griffin, 2004). Therefore, inspirational communication appears to be particularly important when expressing a vision for the future. Additionally, a poor organisational structure (lack of communication and information sharing) hinders innovative ideas, while a rich organisational structure is considered to be the catalyst for the adoption of innovative behaviour (Shaar et al., 2015).

An implication of these results could be that leaders of change need to introduce a well-planned awareness programme and constant communication at all levels using an appropriate medium to bring people on board. Furthermore, strong leadership and the development of a clear vision may set the scene for successful organisational change in Pakistan. This study therefore suggests that knowledgeable leadership and better communication of the reform's relative advantages to the employees may influence their perceptions towards the change and promote a positive attitude.

7.4.9 Summary of Employees' Attitude and Government's Perspective

The synthesis of the quantitative and qualitative data for Technical, Organisational and Environmental factors is summarised in Table 7-3 below, which provides the overall attitude/perspectives of the employees, government officials and change leaders.

	Factors	References	Employees' Attitude	Government's Perspective
Technical	IT Infrastructure	Srivastava and Teo (2007); Al-Zoubi (2013)	Most public employees (66.6% of 300) think that IT infrastructure is enough both at organisational and national level to implement reforms.	Interviewees revealed that there is an adequate IT infrastructure; however, there is lack of IT professionals in public organisations.
	Technical Infrastructure	Chau and Hui (2001); Kamal (2006)	70% survey participants sense that level of technical infrastructure is not enough at organisational and national level to successfully implement reforms	Interviewees agree with the overall poor infrastructure. They further highlighted that availability of technical infrastructure is worse in remote areas of KPK
Organisational	Top Management	Shaar et al. (2015); Fernandez and Rainey (2006)	Survey results found ample commitment/support of top-managers. However, less than 20% believe in top-management's capacity/capability to implement change.	Qualitative data revealed the importance of top-management's commitment which is present in KPK organisations. Nevertheless, interviewees pointed out the lack of knowledge and ability of top-managers that hinders change.
	Change Management	Kotter (2010); Coram and Burnes (2001)	Most participants (50% or more) disagreed with the presence of adequate plan to implement change and effective communication to support change.	Qualitative data has shown the huge presence of resistance to change. Therefore, Interviewees suggest that strong leadership and the development of a clear vision may set the scene for successful organisational change.
	Organisational Culture	Kezar and Eckel (2000); Schein (1992); Kotter (2010)	Out of 300 survey participants, less than 20% considered that their organisation has innovative culture, flexible structure and general acceptance for change.	Qualitative data analysis suggests that bureaucratic culture and lack of people's involvement in Pakistani public organisations is a barrier to change.
	Reward System	Thomas (2006); Cawsey and Deszca (2007); Burke (2008)	33.7% of 300 survey participants reflect that there is an adequate reward management system in KPK public sector	Government ministers of KPK revealed that due to an absence of an effective reward management system, managers and employees are unwilling to participate in change process and reluctant to accept new responsibilities.
Environmental	Corruption	Fitzsimons (2009); Hussain and Riaz (2012)	This factor (Corruption) was not included in initial conceptual framework. Thus, variables related to corruption were not included in questionnaire. However, many survey participants through open-ended questions stressed that the corruption flows deep into Pakistani Economy and is a major setback to her development.	Interviewees explained that the strong attachment to extended family system and ethnic ties encourages nepotism. The qualitative findings further suggest that lack of transparency, favouritism and bribery often result in corrupt public sector.
	Economic	Shiau et al. (2009); Grandon and Pearson (2004)	Survey results suggest that large number of participants (64.6% of 300) consider that there is a lack of financial resources to implement change successfully.	Interviewees explained that lack of funding is expected in Pakistan being a developing country. However, they further explained that top leadership's active involvement and international donor's support has helped to overcome financial issues.
	Legal	Troshani et al. (2011); Heeks (2001)	Survey findings show that (66%) of 300 Participants felt assured by new legislations supporting change, resulting in a maximisation of their encouragement to adopt the change	All interviewees shared the same perception that that successful introduction of change needs backing of appropriate legislation. They further explained that introduction of new legislations are drivers to change project.

Table 7-3 Summary of the Overall Perspectives of Government Officials and Employees' Attitude towards Change (Reform) Project

Technical Factors

Among technical factors, IT infrastructure, received a lot of attention from the government employees and it was considered a critical factor for the progress of the whole project. Another factor related to the IT infrastructure is the government's informative and interactive websites. This factor has so far received less consideration, but change leaders in KPK have pointed to its importance as the main element of improved public service delivery. In the technical infrastructure factor, the recent problems with electricity in Pakistan was considered as one of the main obstacles in providing improved services. Additionally, the lack of adequate road network, means of communication and obsolete hardware/equipment were considered crucial factors and have been highlighted as barriers to change in the Pakistani public sectors. Unlike the findings of previous studies related to change in public sectors, this study did not find collaboration to be an influential or important factor for the adoption/implementation of change (reform) projects in Pakistan.

Organisational Factors

The analysis of the Organisational factors showed the importance of the top management support and the presence of an adequate reward system to facilitate the adoption/implementation of reforms. Change management and organisational culture were also found to be important for change (reform) adoption and implementation. The interviewees (ministers) and public employees however showed concerns related to the incompetence of top management, bureaucratic culture and resistance to change in Pakistani public organisations. Unlike previous studies related to change in public sectors, this study did not find human resource (HR) factor to be an important predictor of change (reform) adoption/implementation in Pakistan.

Environmental Factors

According to the Environmental analysis, the legal factor demonstrated a great positive impact on change (reform) adoption in Pakistan. The results also suggested that there are ample public funds available to support change. The interviewees (ministers) and public employees however expressed their concerns and indicated mismanagement

and misuse of available funds as major obstacles for the adoption and implementation of change (reform) projects. Unlike many similar studies, this research did not find the political factor to be an important predictor of change (reform) adoption in Pakistan.

The key findings discussed previously and illustrated in Table 7-3 helped to deeply understand the issues and challenges relevant to the Pakistani context. The developed understanding and findings enabled the author to organise these factors according to their impact on the change adoption process. Some of these factors inhibited the successful adoption of change (reform) initiatives in the public sector, while other factors acted as a catalyst that supported the progress of the change implementation and adoption process. The list of the new arrangement of the critical factors is illustrated in Table 7-4 below.


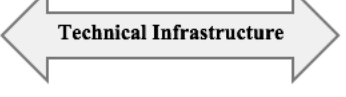
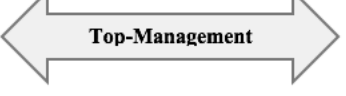
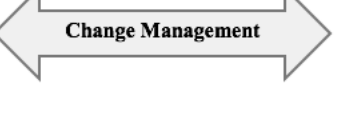
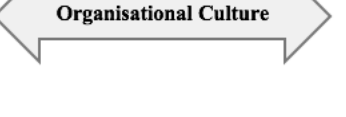

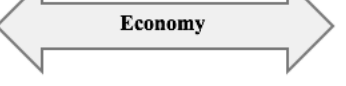
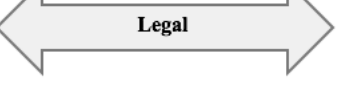
Barriers to change (reform) Adoption in Pakistan	T-O-E Factors	Drivers to change (reform) Adoption in Pakistan
<ul style="list-style-type: none"> Lack of IT Professionals. Lack of E-collaboration and E-communication environment. 		<ul style="list-style-type: none"> Adequate IT infrastructure is available at organisational and national level. Recent introduction of fiber optic broadband and mobile technology with 4G connectivity nationwide.
<ul style="list-style-type: none"> Lack of Technical infrastructure at both organisational and national level. 		
<ul style="list-style-type: none"> Lack of Top-Managements' ability to implement change. 		<ul style="list-style-type: none"> Top-Managers are committed to change Top-Managers support the change process
<ul style="list-style-type: none"> Lack of plan to implement change. Lack of effective communication at all levels. 		<ul style="list-style-type: none"> Introduction of 'Change Management Units' to oversee and steer the change in KPK.
<ul style="list-style-type: none"> Bureaucratic, complex and Inflexible systems. Resistance to change. High level of uncertainty avoidance and conservative culture of KPK. Corruption (lack of transparency, bribery and favouritism). 		<ul style="list-style-type: none"> Government's efforts for the decentralisation and devolution of powers. Introduction of new local governance system.
<ul style="list-style-type: none"> Lack of adequate reward system for public employees. 		
<ul style="list-style-type: none"> Misuse and mismanagement of public funds. Major funds are being used for security purposes (war against terrorism). 		<ul style="list-style-type: none"> Senior Political leadership has allocated ample funds for reforms. Generous support of national and international donors.
		<ul style="list-style-type: none"> Newly introduced laws to ensure administrative efficiency, accountability and good governance

Table 7-4 Critical Factors (Drivers and Barriers) for Change Adoption/Implementation in Pakistan

In addition, Table 7-4 highlights the links between the technological, organisational and environmental elements and their joint role in the process of change. It also shows how

a change in one element can affect another; for example, new legislations can improve transparency and accountability and may ensure the adequate use of public funds. The overall picture developed from the findings and discussion has helped the researcher to develop a deeper understanding of the factors (drivers and barriers) influencing the change (reform) adoption/implementation process in Pakistan. However, the key question that arises from this study is how leaders of change in Pakistan can utilise the findings of this study to increase the chance of a successful implementation of the change initiative and reduce the possibility of the initiative failing.

First and foremost, leaders of change need to be aware that the identified drivers do not necessarily lead to the success of the change (reform) initiative nor would barriers immediately lead to the failure of the initiative. It all depends on the way leaders of change cope with these forces. The researcher argues that the best way to make the most out of these drivers or barriers is to look at them as opportunities that need to be dealt with. If leaders are able to handle these opportunities properly then they are considered as strength forces that lead to change (reform) success, whereas if they are unable to handle them properly, they are considered as weakness forces that lead to change (reform) failure. Therefore, recognition of potential drivers and barriers as illustrated in table 7-4 represents a great opportunity for leaders of a change (reform) programme. Leaders can increase the chance of a successful implementation of the initiative by working on sustaining, enhancing and improving the identified drivers. They also can reduce the possibility of the initiative failing by trying hard to search for logical solutions to overcome or decrease the identified barriers.

7.5 Research Objective 2

The second objective of the study aimed to assess the perceptions and attitudes of multiple stakeholders involved in the implementation process of reforms at both organisational and governmental levels. In order to achieve Research Objective 2, research question 2 was formulated as follows:

Research Question 2:

“How is the adoption of change by Pakistani public employees influenced by demographic variables?”

In order to answer the second research question, the following sub-sections discuss the effects of demographic variables such as age, level of education and pay scale on employees' intention to adopt change and level of change (reform) success.

Descriptive analysis, Chi-square tests, t-tests and ANOVA were used to explore the role of each demographic variable in the decision to adopt or reject change, and to investigate the differences among groups in relation to DVs. The results showed that demographic variables such as gender and sector had no significant influence on employees' decision to adopt change. Moreover, these demographic groups did not show a significant difference related to DVs. However, age, education level and pay grade groups were found to hold different perceptions about change adoption and success during reform. The differences are discussed in detail in the next sub-sections.

7.5.1 Level of Education

In terms of education level, the current study's findings indicated a significant difference in the willingness to adopt change according to the level of education of the respondents. Participants with high education levels appeared to be more willing to adopt change than less educated employees. Similarly, less educated employees were less likely to view recent reform projects as successful compared to higher educated employees.

Despite belonging to the same organisation, inferential analysis revealed that the less educated employees (N=83) had a mean success score range from 1.9 to 2.6 (i.e., perceiving recent reforms and changes to have been unsuccessful) on the DV relating to level of change project's success, whilst the higher status employees (N=139) had a mean success score of about 3.9 (i.e. perceiving recent reforms and changes to have been successful). The inferential analysis on the second dependent variable

(employees' intention to adopt change) revealed similar results. The less educated employees mean score for employees' intention to adopt change ranged from 1.7 to 2.1, suggesting they believed employees in their organisation would adopt change to a low extent, as opposed to the highly educated people who perceived this at a higher extent (Mean=4.2). In general, these results suggest that change adopters are typically highly educated employees.

The Chi-square results further validated that there was a dependence/association ($P < 0.05$) between the level of education of the adopters and non-adopters, showing more educated individuals being more willing to adopt change compared with less educated employees. Hence, it was inferred that 'level of education' is an influential factor in determining the adoption/success of change in Pakistan.

This outcome reinforces previous findings that level of education acts as a dependent on change adoption behaviour. For example, Al-Shafi and Weerakkody (2010) argue that education can be considered as a variable to explain the differences between adopters and non-adopters of change in public organisations. Similarly, Burgess (1986; cited in Dwivedi and Lal, 2007) explains that individuals who have better educational qualifications are more likely to adopt organisational change/innovations than those who do not.

7.5.2 Level of Pay Grade

Typical of various countries, Pakistani public organisations are dominated by a bureaucratic culture. Key attributes of bureaucratic cultures include status and hierarchy which were reflected in the demographic variable of pay scale (section 5.3). Status groups were found to embrace different perceptions about DVs. Within any public organisation, employees will have differing relationships with change and reform. Some will lead the 'fight' for change (sponsors, champions), yet others may have a specific change role (change agents and managers), and then there will be the recipients of change – those employees affected by the change. Understanding, as a contextual factor, the nature of the organisations' workforce can help in preparations for reform.

Such an understanding may help determine likely resistance to, or readiness for change, and therefore an understanding of how to drive the reforms in an efficient manner. This study conflated the pay grades into two groups: high (Pay grades > 16) and low (<16) status employees. The study then compared the two groups' mean scores on the DVs. The results showed a significant difference ($P < 0.05$). Low status employees were less likely to view recent reform projects as successful and perceived employees in their organisation as having a lower intent to adopt change. Despite belonging to the same organisation, inferential analysis revealed that the lower status employees ($N=145$) had a mean success score of 2.8 (i.e. perceiving recent reforms and changes to have been unsuccessful) on the DV relating to level of change project's success, whilst the higher status employees ($N=154$) had a mean success score of 3.974 (i.e. perceiving recent reforms and changes to have been successful). An independent-samples t-test was conducted: $t(297) = -12.329, p < 0.05$. The results indicate higher status employees tend to perceive change success more favourably than lower status employees. The inferential analysis on the second dependent variable (employees' intention to adopt change) revealed similar results: $t(297) = -18.238, p < 0.05$. However, in this case the difference was more acute. The low status groups' mean score for employees' intention to adopt change was 2.15, suggesting they believed employees in their organisation would adopt change to a low extent as opposed to the higher grade who perceived this at a higher extent (Mean=3.73).

These findings corroborate the work of Martin et al. (2006), who investigated status differences in employee adjustment during organisational change. The results of their study revealed that upper-level staff reported more positive attitudes during change. This is important since it has been argued that most failures are due to human factors such as change related responses, attitudes and behaviours (Kotter, 1995). Employee attitudes towards organisational change affect not only the overall success of the change process but other important outcomes such as employee satisfaction. Based on these findings, change leaders should not treat all employees as a single group when contemplating reform. Managers and officers are more involved in the change process, and in a sense 'drive' the changes; they have more expedient access to information and

greater understanding of the rationale for change. In contrast, lower level employees may feel disempowered and less confident during organisational change. Consequently, higher-level staff have more positive perceptions about the extent to which leaders exhibited a vision for the organisation than middle or lower-level staff, argues Martin et al. (2006). Furthermore, higher-level staff also appraised change more positively in their study, with significantly higher levels of perceived control over the changes and confidence in their ability to continue to perform well. Change managers should therefore take a more proactive approach to identifying low status employees and seek to involve them further. Whilst change resistance is not a new concept, the findings of this study suggest resistance is likely to be more salient in hierarchical organisations such as those found in bureaucratic cultures. Given these findings it may seem prudent to expand the TOE model to utilise status, as measured by pay grade, as a means to operationalise bureaucracy and understand its influence in change or reform success.

7.5.3 Age Group

The current study's results indicated a significant difference in the willingness to adopt change according to the age group of the respondents. Mature participants appeared to be more willing to adopt change than younger employees. Similarly, young employees were less likely to view recent reform projects as successful compare to older/senior employees. Figure 5-4 on page 129, further demonstrates that from the adoption of change amongst the public employees there is an increase of change adoption with the increase of age.

Despite belonging to the same organisation, descriptive analysis revealed that the younger employees (30 years or less) had a mean success score ranging from 1.8 to 3.2 (i.e. perceiving recent reforms and changes to have been either unsuccessful or neutral) on the DV relating to level of change project's success, whilst the older employees (41 or more) had a mean success score about 3.6 (i.e. perceiving recent reforms and changes to have been successful). The descriptive analysis on the second dependent variable (employees' intention to adopt change) revealed similar results. However, in this case the significant difference was more acute. The younger

employees mean score for employees' intention to adopt change ranged from 1.7 to 2.6, suggesting they believed employees in their organisation would adopt change to a low extent as opposed to the older employees who perceived this at a higher extent (Mean=3.4). Moreover, middle-aged employees (31 – 40) had a mean success score that ranged from 3.0 to 3.5 (i.e. closer to neutral) on both DVs. In general, these results suggest that senior employees are more likely to adopt change compared to young ones.

The Pearson's Chi-square test further validated that there was a dependence/association ($P < 0.05$) between the age groups of the adopters and non-adopters, showing older employees (41 or more) being more willing to adopt change compared with the young ones (see section 5.4). Hence, it was inferred that age is an influential factor in determining the adoption/success of change in Pakistan.

The results regarding age in the current study confirm the findings from previous studies. For example, Venkatesh et al. (2003) found that there is a significant, direct and moderating effect of age on the behavioural intention, adoption and usage behaviours. Moreover, Al-shafi and Weerakkody (2010) reported that the younger age group in their study were rated very low for adopting the e-government system in Qatar. In contrast, they found that people from the older age group were more likely to adopt change in Qatar's government sector. However, this particular finding concurs with Niehaves and Becker (2008), who assert that elderly people resist change as they are less likely to become accustomed to new skills because they find it difficult to understand and remember new complex methods.

7.6 Research Objective 3

The third objective in the current research was to develop and test a conceptual framework that portrays the critical factors that affect change (reform) adoption and implementation in the Pakistani public sector. In order to achieve research objective 3, two research questions were formulated as follows:

Research Questions 3 and 4:

“What is the level of validity of the proposed factors (drivers & barriers) in Pakistan in terms of reform adoption and implementation?”

“How do known factors influence public reform (change) and are there additional factors to consider when undertaking reform in Pakistan?”

The following sub-section discusses how the study’s findings have answered these questions related to the contextual model of change developed for the Pakistani public sector.

7.6.1 The Revised (Final) Models

As explained in earlier sections, this study utilised empirical data, factor analysis, SEM and multiple regression to enhance the understanding of reform, by specifying a context-based change model that fits the reality in developing countries, the purpose of which is to improve the chances of change adoption and success in developing countries. If leaders can predict change uptake and identify predictors of success, they can focus resources on appropriate interventions and initiatives thus driving the efficient utilisation of what are often scarce resources.

Causal models, like the TOE framework, can help us to understand change and indicate how to intervene in the change process to enhance chances of success (effectiveness). Models are widespread across the social sciences and SEM has been widely applied in the field (Wong, 2013). However, they need to be representative (Frank, 2002) i.e. correspond with the system under study (isomorphic) and ‘fit’ the data collected. Thus, conceptual models are of limited use to change practitioners. The TOE-based SEM examined in this study produced a set of acceptable fit indices indicating that the model is an acceptable fit with the empirical data and the DVs ‘intention to adopt change’ and ‘level of success’ are influenced significantly by several latent variables.

The SEM results (GFI, CFI, RMSEA and AIC) of the final eight-construct model represented a relatively better model fit compared to the original model with 12 constructs and 48 variables. Therefore, the results of the current study advance understanding of the applicability of the TOE model in a Pakistani context. The findings did not support the influence of all proposed factors presented in Chapter 3 (section 3.3). Rather, the results showed that, among TOE-related factors, collaboration, political and human capacity have an ineffectual impact on DVs, and thus were excluded from the final model. However, the results (quantitative and qualitative) of the study provide ample support for the final research models (Figures 7-1 and 7-2) and for the causal relationships among the variables. According to the final research model, the intention to adopt change and level of reform's success are determined by eight contextual factors, ITST, LEG, ORGCUL, TM, RS, TEC, ECO and CM. The emergent theme 'Corruption' and three descriptive factors (age, education and status) were also found to be influential in determining the adoption and implementation of change in Pakistan. Figures 7-1 and 7-2 illustrate the results of the aforementioned validated factors that affected the change (reform) adoption/implementation in the KPK region of Pakistan.

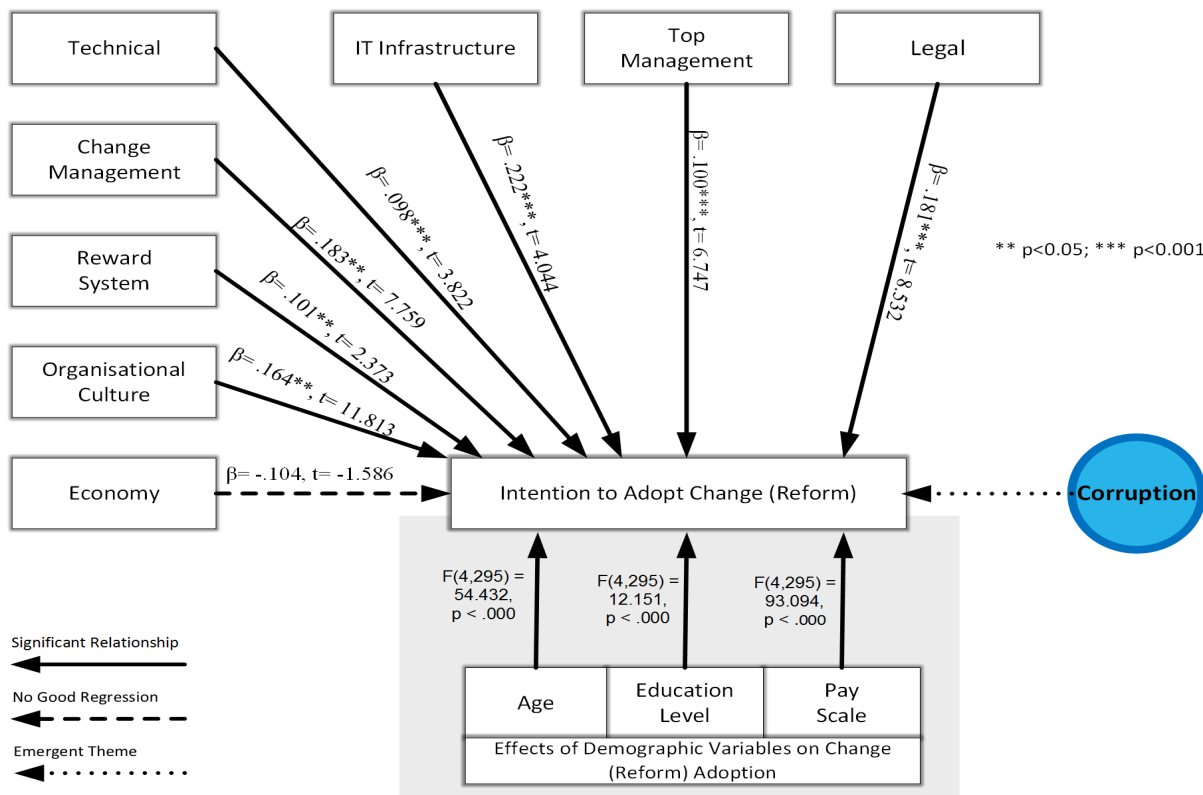


Figure 7-1 Validated Factors Affecting Change (Reform) Adoption in Pakistan

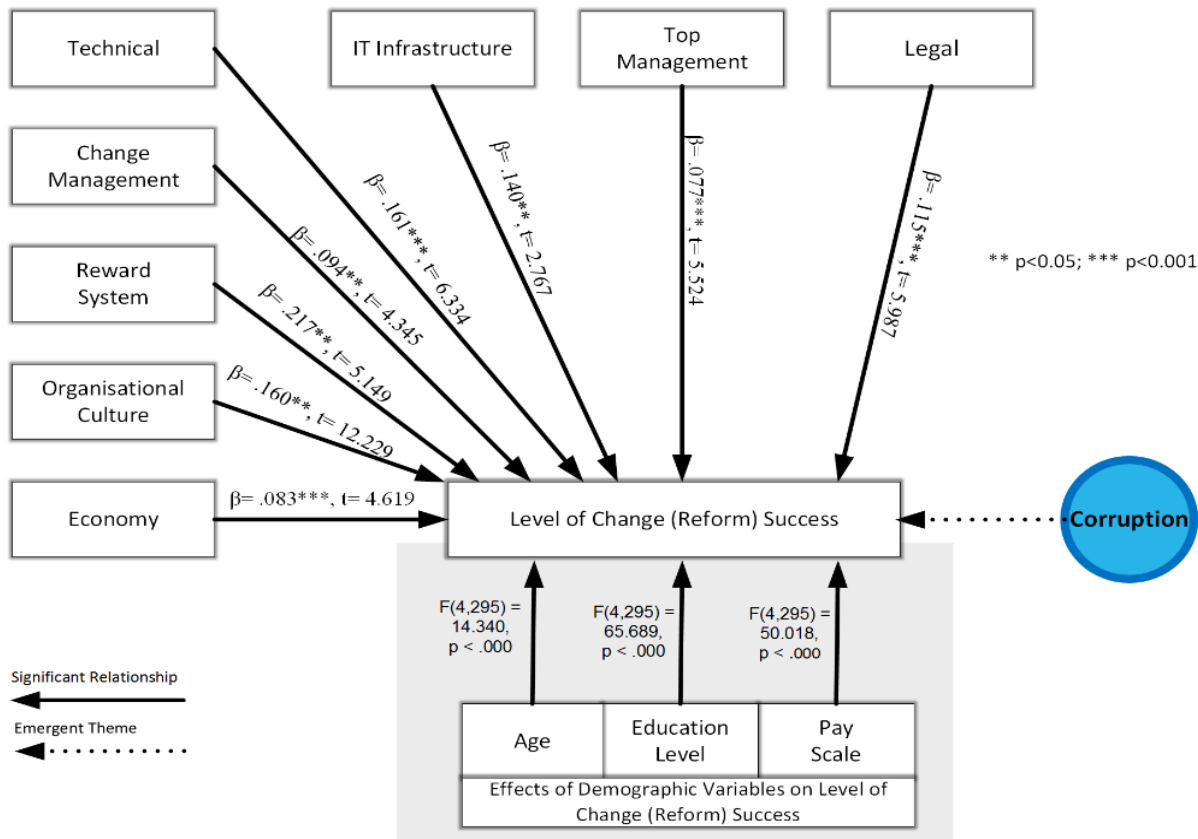


Figure 7-2 Validated Factors Affecting Successful Change Implementation in Pakistan

Squared multiple correlations obtained by SEM indicate that the explanatory power of the proposed model in this study (in respect of adoption) is shown as 80.1% (Table 5-28 on page 162). The path statistics exhibited in Table 5-29 (standardised regression weight=-.104, critical ratio=-1.586, and p-value>0.05) revealed that 'economy' had the least impact on the adoption of a change (reform) project in Pakistan. Instead, legal, top management and IT infrastructure are most important determinants of DV (Adoption). However, in the case of DV2 (level of success), economy was found to be a significantly influential factor (as $p < 0.01$). As discussed earlier (section 7.2), despite a few unexpected results, most of the results are very much aligned with the qualitative findings and prior studies related to change (reform) adoption/implementation.

The results of multiple regression analysis (MRA) using a stepwise method further confirm these results (Table 5-10). MRA allows the researcher to examine the independence of variances explained by each predictor and rightfully conclude which

predictors are 'more explanatory' than others within the current sample. According to the final model produced by stepwise regression analysis, legal, top management and change management are the most explanatory predictors of people's intention to adopt/reject change. In the case of DV2 (level of success), legal and IT-infrastructure were found to be the most explanatory predictors. It is very advantageous for change leaders to know the levels of explanatory of each factor, as they can thus allocate resources accordingly.

Overall, it could be concluded from the foregoing discussion that the models proposed in the current study provide a good understanding of factors that influence employees' intention to adopt/implement change in KPK (Pakistan). This new insight into reform in developing countries will be of use to those responsible for bringing about change in similar settings. Moreover, the final change models can help organise thinking regarding where to focus attention when planning and implementing change; how to intervene and enhance reform success.

7.7 Summary

This chapter has presented a discussion of the combined results gathered via the questionnaire and interviews. It has considered the key findings related to each research question in the light of the literature, in an attempt to show how the research objectives have been met.

Overall, 8 of the 12 variables tested in the preliminary research model were found to have a significant influence on the adoption and implementation of change in the Pakistani public sector. Therefore, these variables (ITST, LEG, ORGCUL, TM, RS, TEC, ECO and CM) have been incorporated in the final models. Variables that had no noteworthy influence on DVs were excluded. Moreover, the results of comparisons between demographic groups revealed these groups significantly differed from each other in terms of attitudes towards all variables investigated in the present study.

The final change models proposed in the study were validated, confirmed, and proved to be effective in explaining employees' intentions to adopt change and a level of reform's success. The revised (final) models presented in this chapter (Figures 7-1 and 7-2) are a novel contribution in themselves as they encapsulate the following:

- These models are one of the first attempts to explore and understand technical, organisational and environmental factors in terms of change (reform) implementation in Pakistani public organisations. The initial conceptual model (Figure 3-5) was influenced by a robust TOE model, thus providing a strong and theoretically supported frame of reference for studying change (reform) adoption and implementation.
- The final models (Figure 7-1 and 7-2) hold practical implications by acting as a recommendation tool for policy makers to understand different factors affecting decision to adopt change (reform).
- The final models can be used by academics and researchers to understand and analyse challenges and factors confronting government efforts in terms of adopting and implementing change (reform) initiatives.

In the following chapter, the thesis is drawn to a final conclusion, the contributions made by the study are outlined, recommendations based on the findings are discussed, and the limitations of the study are presented. Some directions for future research are also offered.

Chapter 8: Conclusion

8.1 Introduction

This chapter consolidates previous discussions, presenting the theoretical and practical contribution made by this study to develop an understanding of the factors that influence employees' intention to adopt change in Pakistan. Additionally, study limitations and the potential direction for the future research are presented.

The chapter is the final part of the thesis. It summarises the overall research and the key findings in section 8.2. The next section, 8.3, discusses the research contribution and implications for theory, methodology and practice. The limitations of the study are presented in section 8.4, and finally, in section 8.5, directions for future research are highlighted.

8.2 Research Summary

The research presents a comprehensive discussion on change (reform) adoption and implementation in public organisations. The purpose of this research was to examine the influence of critical factors on change (reform) adoption/implementation in the KPK region of Pakistan and to answer and explore the following: (1) What are the key factors that support or hinder the adoption and implementation of change (reform) in the context of developing countries, specifically Pakistan? (2) How is the adoption of change by Pakistani public employees influenced by demographic factors? (3) What is the level of validity of the proposed factors (drivers and barriers) in Pakistan in terms of reform adoption and implementation? (4) How do known factors influence public reform (change) and are there additional factors to consider when undertaking reform in Pakistan? (5) How can leaders and change managers in Pakistan overcome change barriers and improve future reform projects? In order to answer the above questions, a research design and methodology was created and implemented and was discussed in Chapter 4, after having first reviewed the existing literature (see Chapter 2). Two major outcomes derived from analysis of the literature. The first was a comprehensive list of the key drivers and barriers affecting the adoption and implementation of change in public organisations (Table 2-4 on page 34). The second was the identification of three core categories of factors (drivers and barriers) affecting change (reform): internal,

external and technical factors (see Table 2-5 on page 35).

The literature review confirmed that despite significant research into the types and reasons for change in both the public and private sectors, there has been relatively little research into how public sector organisations actually go about adopting/implementing change (reforms), particularly in the context of developing countries. In addition, little is known about the contextual factors of change in the Pakistani public sector and it is not clear what factors support or hinder change (reform) progress. This study addresses this gap.

A research framework was developed to investigate the factors hindering or supporting recent reforms in Pakistan (Chapter 3). Based on a review of the extant literature and different theoretical perspectives, a robust theoretical framework TOE (originally developed by Tornatzky and Fleischer, 1990) was adopted and modified which is composed of a Technical, Organisational and Environmental Context. The main benefits of the TOE framework are its clear structure, sound theoretical basis and its wide recognition within the literature (Bernroider and Schmollerl 2013); though it should be noted that the relative importance of each factor can vary across different domains and contexts. Therefore, based upon the literature review and research context, the framework incorporated 11 relevant factors divided between the three main categories in the TOE model (see Figure 3-5 on page 75).

Chapter 4 comprised two main parts; the first discussed the philosophical paradigms within the field of change management and looked at various research approaches, methods and different sources for collecting data. The second part proposed the research methodology used for this study along with justifications for the chosen methodology. It gave reasons for the choice of a post-positivist paradigm rather than positivist and interpretivist paradigms. It also justified the combining of qualitative and quantitative approaches. Additionally, it explained the motivations behind the selection of the survey and case study methods over other research methods such as action research, ethnography, and grounded theory. All sources that this research chose to

investigate, such as public documents, and the research methods chosen, surveys and interviews, were also discussed, together with explanations for such choices. Finally, Chapter 4 described in detail the procedures carried out during the phases of data collection and analysis.

Phase one involved the collection of data using a questionnaire distributed to KPK's state government departments (Chapter 5). The measurement scales were designed to investigate how the TOE factors affect change (reform) adoption and implementation. Prior to the final distribution of the survey, the questionnaire was translated, pre-tested and piloted. To ensure data quality, public employees from different backgrounds, pay-scales and departments were included. After the survey administration, descriptive statistics were employed to assist in detecting mistakes and missing data as well as in describing the demographic characteristics of the sample. In addition to describing the demographic characteristics of the study sample, normality assessments and potential bias examinations were addressed in Chapter 5 as parts of the data validation.

To identify the specific factors that affect change (reform) adoption and implementation, the study framework was carefully assessed; this involved the assessment of measurement as well as structural models. While the measurement model was concerned with reliability and validity evaluation, the structural models involved testing the research models and propositions related to change adoption/implementation. The process started with an initial reliability test and exploratory and confirmatory factor analysis. Construct validity and reliability were evaluated, which generally satisfied the minimum criteria. Inferential analyses were then conducted to test models and propositions related to change adoption/implementation.

Phase two involved the collection and analysis of the qualitative data (Chapter 6). Interviews were the main source of data; however, public documents, government websites and personal observations were also used. Key ministers were interviewed to gain an in-depth insight about concerns related to recent reforms. The security concerns and media scrutiny of parliamentarians particularly, ministers is extensive. As a result,

state ministers are generally a difficult to access demographic. This study was therefore enriched by a rare opportunity to understand their perspectives and make a practical contribution to knowledge on change in public organisations of Pakistan. Phase two results were consistent with the theoretical framework (TOE) and the expected findings. There were no interview responses that challenged the initial theoretical framework (Figure 3-5). However, interviewees identified an additional concept (Corruption) that was subsequently included in the final models (Figures 7-1 and 7-2 on page 254). It was interesting to note that all interviewees pointed out the negative effects of bribery, favouritism and lack of transparency on change (reform) adoption and successful implementation.

While the statistical findings assisted by enabling testing of the theoretical framework, the qualitative analysis, of the semi structured interviews, triangulated the quantitative findings of change concerns amongst public firms in the KPK. Subsequently, to help identify managerial and practical implications related to change (reform) adoption and implementation in this little-explored region (KPK), interpretations based on the study findings were discussed, as presented in Chapter 7. Research findings were discussed and linked with previous works in the field. Finally, Chapter 7 presented a final model that portrays the critical factors affecting the change (reform) adoption and implementation in the Pakistani public sector. Eight factors (drivers and barriers) were found to have a significant influence on employees' intention to adopt change and the level of reform's success. These factors are discussed in the following paragraphs prior to discussion about the contributions of this research.

IT-Infrastructure: The research findings supported the notion that IT-infrastructure is essential to implement change, and reform public organisations successfully. Moreover, the results of SEM analysis indicated that, among the final models' factors (see Figures 7-1 and 7-2), IT-Infrastructure was found to be one of the most influential predictors of 'employees' intention to adopt change' and 'level of reform success' in Pakistan. This finding is supportive of previous studies on change adoption/implementation in the public sector (see for example: Waller and Genius, 2014; Kumar and Best, 2006;

Khanh, 2014). According to the interviewees, three main information technological barriers are hindering the development of the change initiative in the KPK. These are lack of IT professionals, lack of E-collaboration and E-communication environment among public organisations (Table 6-3 on page 191). It was interesting to note that 'Electronic Mail' which has currently become the most effective mode of communication is still not considered as an official mechanism of communication in the Pakistani public sector. On the other hand, unlike many developing countries, Pakistan has an appropriate IT infrastructure nationwide. The presence of an adequate IT-infrastructure at both organisational and national level within KPK, has been found as a fundamental element that encourages the adoption and implementation of change. For instance, the electronic National Database and Registration Authority (NADRA) has gained international recognition for its success in providing solutions for e-governance and facilitating the public (Government of Pakistan, 2017). In addition, strong IT infrastructure and electronic databases have helped the KPK Government to successfully introduced e-policing (Dawn, 2013). Interestingly, the KPK has become the first province of Pakistan to initiate an online complaint registration system which has helped to reform the police department. This will encourage other public organisations and employees to adopt and implement modern electronic management systems.

Technical Infrastructure: Technology, machinery and equipment has always played a vital role in public service delivery. As governments face the dual challenges of decreasing funding and increasing demand, they have found new ways of utilising technology to deliver services more effectively and enable their staff to work in new ways, increasing productivity and reducing costs (Kamal, 2006; Chau and Hui, 2001; Chau and Tam, 1997). The results of this study also back the importance of technology competence (infrastructure and technical skills) for change management and organisational transformation within the public sector. SEM results as illustrated in final models (Figures 7-1 and 7-2 on page 254) show the significant influence of Technical Infrastructure on adoption and implementation of change (reform) in the Pakistani public sector. The qualitative results provided further support for the theory that governments need to strengthen their technical infrastructure to fulfil the requirements of change

(Chapter 6). In addition, interviewees addressed technical hurdles amongst the major issues that negatively affect the development of current change (reform) projects. Regions such as KPK that suffer from chronic fragility, conflict and violence – are often the ones that have minimum technical competence to achieve change (reform) objectives (World Bank, 2006). Two interesting findings from the empirical study are shortage of electricity and distinct technical structures among public institutions of KPK. While some institutions have adequate technical infrastructure, and are benefiting from the latest technologies, others are short of qualified employees and have obsolete technologies. Moreover, compared with the urban belt, remote areas (villages and small towns) have very low levels of electricity supply and technological arrangements (see Table 7-3 on page 243). However, recent employment of the China-Pakistan Economic Corridor (CPEC) mega project is expected to boost the overall infrastructure of Pakistan (SDPI, 2016), particularly KPK, which will facilitate the achievement of change objectives.

Top Management: Based on the research results, the next important predictor of ‘people’s intention to adopt change’ and ‘level of change success’ is top management. Consequently, for change to be accepted and successfully implemented, the top managers’ active role is essential. It is thus believed that any escalation in top management’s ability, commitment and support will positively influence employees’ intentions to adopt/implement change. Again, this finding is supportive of previous studies on change management and organisational development (see for example: Fernandez and Rainey, 2006; Lee and Nam, 2016). Moreover, results of this research recognised top managements’ commitment and support amongst the driving forces that push towards a successful adoption/implementation of change (reform) in Pakistan. However, survey participants and interviewees showed less confidence in top managements’ overall capacity to inspire people and implement change (see Table 7-4 on page 246). They thus suggested the introduction of training programmes to develop the knowledge, skills and abilities of the top managers, which are essential to motivate employees and steer the change effectively. In general, therefore, it seems that the success of the KPK Government to achieve public sector development depends

profoundly on the knowledge, ability and attitude of the top managers (senior bureaucrats and change leaders). Therefore, it is important to activate the role of the top managers, as they are the ultimate guiding authority that can steer all institutions to stay on track in regard to the implementation of the change (reform) programme.

Reward System: The next important factor associated to employees' acceptance and readiness to change, revealed in this study, is the reward and recognition system. Employees are more likely to devote their time, energy and efforts to change initiatives if leaders can acknowledge and value their contributions (Azzone and Palermo, 2011; Rajmohan, 2015; Holston and Kleiner, 2015). Similarly, in context of the KPK, it seems that reward system has a significant and positive influence on employees' intention to adopt and implement change (Figures 7-1 and 7-2). The strong influence of this factor suggests that rewarding employees adequately would increase their overall readiness and commitment to change and hence improve the chances of change (reform) success. However, while reward system exists in Pakistani public organisations, most survey participants and interviewees questioned its adequacy and transparency. Therefore, the results suggest that lack of a well-defined reward system and top-managers' inability to acknowledge and appreciate employees' contribution, presents a real challenge to introduce change in Pakistan. Compared with private sector and overseas organisations, the public sector needs to offer more to skilled employees to attract and retain them in difficult times of change. The appropriate reward system would certainly decrease the level of turnover as well as resistance to change in the Pakistani public organisations.

Organisational Culture: There are some significant insights on the role of culture as a source of acceptance for and resistance to change (Parker and Bradley, 2000; Kezar and Eckel, 2000; Cooper, 1994; Kotter, 1995; and Schein, 1992). Based on the research results, in this category, seven main elements have been recognised to impede the development of the change project in Pakistan; Bureaucratic culture, complex/inflexible systems, change resistance, favouritism, lack of transparency, high level of uncertainty avoidance and conservative culture. However, Government's efforts for the devolution

of powers, recent introduction of local governance system and ongoing training programmes are seen as driving forces for change. The results thus support the argument that organisational culture is a crucial factor for change management and organisational development (Figures 7-1 and 7-2 on page 254). The results obtained from the semi-structured interviews further suggest that organisations with a supportive culture are more likely to adopt and implement change compared with those dominated by a bureaucratic or conservative culture. Being a tribal based collectivist society, relationships and family bindings are likely to influence routine dealings in the Pakistani public sector (for details, see Chapter 6). It is also believed that Pakistan has a high level of uncertainty avoidance, which could be attributed to the very conservative nature of its society that hinder change initiatives (Mushtaq, 2011). Therefore, it can be seen that culture is one of the most important factors which need more focus and consideration in the change adoption/implementation process. Moreover, enriched understanding of organisational culture is essential for leaders to develop effective change management strategies that are more suitable for the local context (KPK).

Economy: Public reforms initiatives are generally large-scale and long term projects, and therefore, they need adequate funding and a strong economic environment (Khanh, 2014; Al-Shafi and Weerakkody, 2010; Boyne, 2003; Fernandez and Rainey, 2006). According to the initial theoretical framework (Figure 3-5 on page 75) and prior studies (see for example: Alshehri and Drew, 2010; Moon, 2002), economic factors such as costs, budgets allocated, donor's support and financial resources have a significant influence on change (reform) adoption and implementation. However, the findings of the current study do not support the preliminary hypothesis and previous research discoveries. SEM results as illustrated in the final model (Figure 7-1) show the minor impact of economy on DV1 (employees' intention to adopt change) in the Pakistani public sector. Similarly, in case of DV2 (level of reform success), the final model (Figure 7-2) shows that economy is the least influential factor. The interviewees explained that recent financial growth in the region, political leadership's commitment and donor's support have reduced the financial related concerns among public employees (Chapter 6). Country's recent shift from federalism to provincial autonomy has given KPK and

other provinces more financial resources and control (Sattar, 2010), which has further minimised economic concerns. Another possible reason could be the Government's recent measures taken to reduce high scale financial corruption, which severely affects organisational development (Table 7-3 on page 243). Finally, great financial benefits associated with CPEC is being seen as financial game changer for Pakistan (BBC News, 2015). In view of all that has been mentioned so far, one may suppose that economy is the least significant predictor of employees' decision to adopt change in the KPK region of Pakistan.

Change Management: Good practice change management techniques may help accommodate change now, and sustain that change well into the future (CIPD, 2012). Active communication, clear strategy and visionary leadership are key elements of effective change management (Aladwani, 2001; Elving, 2005; Lee and Nam, 2016 and Kotter, 1996). Compared with private organisations, change (reform) in public organisations is a very complex issue and the rate of reform failure is very high, particularly in developing countries (Sarker, 2006; Akeel and Subramaniam, 2013; Angel-Sveda, 2013). Therefore, an adequate change management strategy is required to bring people on board (improve readiness) and reduce resistance to change (CIPD, 2012; Kotter, 2010; Coram and Burnes, 2001). The results of the study supported the notion that change management strategies have significant influence on peoples' decision to either adopt or reject change. The management of change in the Pakistani public sector was found to be a challenging and complex issue due to public sector characteristics of bureaucracy, red tape, and inflexibility. Based on the quantitative results, key barriers related to change management issues are: absence of a clear/effective plan to implement change and lack of communication at all levels. Similarly, analysis of the data collected during the interviews has highlighted insufficient planning for the implementation of the change (reform) project in Pakistan (Chapter 6). The implementation process is characterised with poor strategies, inappropriate approaches, unrealistic time frames, irrational goals, and lack of reliable decisions. However, the recent forming of 'Change Management Units' to oversee and steer the change in KPK is seen as a driving force for change (see Table 7-4). According to the

interview participants, these units are facilitating the implementation of reform agenda through provision of specialist inputs as well as by developing a strategy for change management. In general, therefore it seems that active communication, clear strategy and visionary leadership are essential to motivate employees and handle the change effectively.

Legal: The absence of a legal framework means the lack of an umbrella under which change (reform) processes, re-defined role of employees and business process re-engineering are carried out legitimately. Therefore, many change scholars are of the opinion that the successful introduction of public reforms needs the backing of appropriate legislation (Lee et al., 2016; Heeks, 2001 and Altameem et al., 2006). New legislation legitimises and supports change, hence various studies have confirmed the positive affect of an adequate legal system on the successful adoption/implementation of change in the public sector (see for example: Lee and Nam, 2016; Azzone and Palermo, 2011; Troshani et al., (2011). Similarly, in the context of the KPK, a decisive aspect in reform development is related to the legislative and regulatory matters. According to the SEM results, the Legal construct was found to have a significant and positive influence on 'employees' intention to adopt change' and 'level of reform success' (Figures 7-1 and 7-2). Together with the results obtained from the qualitative analysis, this suggests that the availability of the adequate legal framework in the KPK and introduction of new laws to support change are fundamental elements that encourage the progress of change (reform). Moreover, interviewees emphasised a need to set clear regulations and requirements for all government services as well as for all employees' promotions and appointments in the government organisations (Chapter 6). This will discourage corrupted or power hungry employees at all levels and prevent them from using their influence in the wrong way. Additionally, clear regulations and requirements will eliminate confusion amongst employees and will improve readiness for change which eventually could increase level of public reform success.

In summary, previous discussions (chapter 7) have shown that in the context of KPK, IT infrastructure, Technical infrastructure, Legal, Top management, Economy, Change

management strategy and Organisational culture are significant predictors of DV1 (employees' intention to adopt change) and DV2 (level of reform success). However, collaboration, political and human capacity were found to have no significant influence on DVs, thus excluded from the final models. This is somewhat surprising as many previous studies in various contexts found these elements to be influential for the successful adoption and implementation of change (see for example: McGuire and Silvia, 2010; Campeanu-Sonea, 2010 and Burnes and By, 2012). This information can be used by leaders of change to allocate resources appropriately and develop targeted interventions.

In addition to TOE factors, chapter 7 also discussed the influence of demographic factors on DVs within the Pakistani public organisations. According to the results, gender and sector had no significant differences between groups and therefore these groups had no influence on DVs. Interestingly, age, education level and pay grade groups were found to hold different perceptions about change adoption and success during reform. Moreover, these groups proved to be influential in determining peoples' intention to adopt and implement change in Pakistani public sector (Figures 7-1 and 7-2). In this regard, the descriptive analysis and mean difference test results revealed the following:

- Change adopters are typically highly educated employees.
- Compared to low educated employees, highly educated employees are more positive about change.
- Senior and high status employees are more likely to adopt change compared to young ones.
- Senior and higher status employees tend to demonstrate change success more favourably than lower status employees.

Since the above-mentioned demographic characteristics have a significant influence on an employees' intention to adopt and implement change, leaders of change can use this information to motivate non-adopters and potentially influence their perceptions and

attitudes about change.

Public organisations, especially in developing countries, as the targets for reform typically have a bureaucratic orientation. This creates a specific context (that differs from many contemporary commercial organisations) for the reform as such organisations have tall hierarchies and employee groups of both high and low status. The study findings that low status employees show less intent to change or adopt reforms and have a lesser belief that change will be successful are important as they impact upon change or reform success. The implications for this are clear. Practitioners seeking to facilitate reform in developing countries within bureaucratic public organisations will need to dedicate more time and resource to making the organisation ready for change. This may mean spending more time communicating the need, legitimacy and mechanisms of reform, to lower status employees.

In general, therefore, it seems that it is important to understand the context for reform if change managers are to have more success in its implementation. After reviewing the research process, significant contextual factors and key findings, the following section will highlight the major contributions of this research.

8.3 Research Contributions

The findings highlighted in the previous section have made a novel contribution to the theoretical knowledge in the field of change management and organisational development particularly when reforming a developing country. The outcome of the critical factors and development of change adoption/implementation models also make a constructive contribution to both academic research and practice. These contributions are discussed in the following sections.

8.3.1 Theoretical Contributions

After reviewing extant literature in the domain of change management, a conceptual framework was developed on the basis of technical, organisational and environmental contexts that influence employees' attitudes, beliefs, and behaviours towards change. In

the framework, the direct influence of twelve TOE related factors on employees' readiness for organisational change was investigated (Figure 3-5 on page 75). This understanding was conceptualised on the basis of prior studies (Low et al., 2011; Gangwar et al., 2015; Ramdani et al., 2009; Kuan and Chau, 2001; Wang et al., 2010). Statistical results showed that only eight factors (top management, legal, change management, IT-infrastructure, organisational culture, technical infrastructure, reward system and economy) were found to be positive and significant to employees' readiness for change (reform) (Figure 7-3 Page 254). However, factors such that collaboration, human capacity and political were not found to be significant and positive to employees' readiness (intent to adopt) for change thus removed from the final model. The findings of the current study show that the final refined model is valid and exhibits good explanatory power in predicting the intentions of employees to adopt change. Therefore, one major contribution of this study to the existing theory is the validation of the research model with empirical data collected from the public employees in Pakistan.

It has been emphasised in the literature review (Chapter 2) that there is a need for further investigation into critical factors which influence organisational development and change management (Lines et al., 2015; Chrusciel and Field, 2006). Moreover, there is a lack of research that focuses on exploring these factors in the public sector, particularly in context of developing countries (Kuipers et al., 2014; Van der Voet, 2014; Kickert, 2013; Boyne, 2006; Karp and Helgo, 2008; Rusaw, 2007). The current study contributes significantly to previous studies by filling a gap through exploring and examining the critical factors (drivers and barriers) that stimulate or impede the development of change initiatives in public organisations within the context of a developing country (Pakistan). Additionally, it explains the role of each factor and the nature of the relationships between several factors.

Despite the importance of organisational change for public management practice, organisational change is generally not studied as an implementation problem in public management research (Van der Voet et al., 2013; Stewart and Kringas, 2003). While many studies have focused on change in the public sector, the public management

literature has considerable shortcomings from the perspective of the implementation of organisational change (Kuipers et al., 2013; Van der Voet et al., 2013). This study thus contributes to the body of knowledge by focusing on the change (reform) implementation process in public organisations.

A recent literature review of research on change management in the public sector by Kuipers et al. (2013) found that most studies did not address the outcomes or success of change initiatives. This study thus fills the gap by providing the 'level of change success' and examining factors that influence change (reform) success in public organisations of Pakistan. This is particularly important given the amount of foreign aid and Government's budget (financial resources) made available to recent reforms.

It has also been highlighted in Chapters 2 and 3 that the current literature lacks the generic and valid models and frameworks for change adoption/implementation in the developing countries' context. Moreover, implementing change (reform) requires each country to have a unique model that fits its environment (Kuipers et al., 2014; Pettigrew et al., 2001; Coram and Burnes, 2001; Heeks, 2001). Therefore, in this study, the researcher has developed a model suitable for the Pakistani context (see Figure 7-1). We believe that this is the first of its kind and has been developed as a result of unprecedented data access (3 ministers and 300 public officials). The proposed model links Technology, Organisational and Environmental factors influencing change in Pakistani public sector. Understanding the influence of TOE factors on reform adoption/implementation and the causal relationships among them will facilitate policy makers to better manage change initiatives, and develop appropriate strategies aimed at increasing future adoption rates and minimising reform failure.

Furthermore, this study contributes to theory by providing new insights into the factors that influence change adoption and implementation in the Pakistani public sector. While there are several elements, which provide a holistic framework for introducing change (Popara, 2012; Cunningham and Kempling, 2009, Kotter, 2007), there is a need for a better understanding of how certain elements might be more useful in settings where

informal culture is strong. This study has identified eight factors as important predictive factors of peoples' intentions to adopt/implement change. These factors, based on the degree of their importance, are in the following order: legal, top management, change management, IT-infrastructure, organisational culture, technical infrastructure, reward system and economy. Moreover, the analysis in Chapter 5 and Chapter 6 helped to identify two types of factors and sub-factors; one that helps and supports the change adoption/implementation process and one that inhibits the process (see Table 7-4 Page 246). The classification of the factors (drivers and barriers) increases the knowledge of critical factors and elements surrounding the process of change. The identified factors endorse other researchers' understanding and analysis of the benefits and challenges facing change (reform) adoption. The specific combination of factors formed in this study is unique and it is completely appropriate for the Pakistani context (Table 7-4).

In addition, the study applied a novel research design based on a mixed-methods approach. Despite the mixed-methods approach being common in social research, it was the first time this strategy had been used to study change adoption/implementation in Pakistan (see Section 4.6.1). Two data collection phases were applied; quantitative data was collected in the first phase using a survey questionnaire and qualitative data was gathered thereafter via a semi-structured interview exercise. Linkages were made within and across the two research phases in order to obtain a rich picture of change (reform) adoption/implementation, which had been previously investigated only through a single research design (quantitative). Moreover, to the best of the researcher's knowledge, this study is the first in the Pakistani context that proposed a novel change model (Figure 7-1) that could be used as a tool to understand relationships related to key factors of change (reform) success or failure. Therefore, another key contribution relates to the fact that this study brings empirical evidence from a relatively new cultural context, taking into account that most of the reform studies have taken place in the Australia, Canada, UK and USA.

Finally, one major contribution of this study is the development of a 30-item instrument (Appendix 2A on page 368) involving two dependent variables and eight independent

variables designed to measure the employees' attitudes and perceptions towards the factors influencing their intention to adopt/implement change. The instrument development process included reviewing the related literature for empirically confirmed items, choosing appropriate items, pilot testing, and finally testing the instrument empirically. Moreover, several steps were involved in the validation of the developed instrument scales. Initially EFA was employed to identify the major change adoption/implementation dimensions, and then CFA was used to validate the underlying structure of the main constructs of the instrument as well as to assess the composite reliability and construct validity. High internal consistency levels were reported among all constructs using two reliability indicators (Cronbach's Alpha and composite reliability). The constructs of the final proposed instrument also demonstrated high convergent and discriminant validities. Therefore, it is believed that this instrument can be used with conviction by change adoption/implementation researchers in South Asian developing countries and other regions that have a similar culture and share the same contextual issues. Especially, other provincial governments of Pakistan can benefit from the final results and use the lessons learned to avoid any pitfalls or challenges facing change (reform) adoption/implementation.

8.3.2 Practical Contributions

The study's findings have implications for change managers and change leaders from both public and private sector organisations. In order to ensure the successful implementation of a change (reform) project, it is important for managers/leaders to acquire a comprehensive understanding of factors affecting employees' intentions to accept/reject new ways. Without these fundamental understandings, it is hard for leaders to suggest what kind of factors have strategic importance, and what are irrelevant in terms of change implementation. Moreover, it is believed that this understanding will enable leaders to become more effective in allocating and utilising scarce resources. In this regard, the study has identified eight critical factors that influence 'employees' intentions to adopt public reforms' and 'level of reform success' in Pakistan (Table 5-29 and 5-30 on page 163). Likewise, in this context, three insignificant factors (collaboration, human-capacity and political) were identified that

require less attention. Understanding the influence of these factors on *intention* and *success*, and the causal relationships among them will provide a roadmap for change leaders to help increase future adoption rates and reform success. Also, the findings of this research have implications that can assist practitioners in charge of the implementation of change (reform) in Pakistan to anticipate future challenges and determine why or why not change projects are progressing inside different institutions.

Additionally, this study provides the Government of KPK with TOE-based causal change models (Figure 7-1 and 7-2). These models can be utilised by change leaders as guides and tools to support and improve the decision making process regarding the implementation of public reforms in Pakistan. As a causal change model, TOE can help organise thinking regarding where to focus attention when planning and implementing change; how to intervene and enhance reform success. However, a generic TOE model does not allow to hone in on what is of particular or salient importance for any given context or situation. Contingency theory suggests a need to adapt such models for specific situations i.e. contextual change models and theories are not universal. Therefore, this new insight into reform in developing countries will be of use to those responsible for bringing about change. Moreover, these models could be applied to other developing countries with a similar cultural context, thereby providing them with an effective tool to enhance the acceptance and success of change (reform) in these countries.

In addition to that, the researcher has contacted the 'KPK Reform Cell' in Pakistan and offered to present the findings of this research through targeted workshop(s). This will enable managers to benefit from the research results by examining the identified key forces that can stimulate or impede the development of the Pakistani public reforms. It will also give them the opportunity to discuss the proposed recommendations and strategies with the researcher in person, so they can learn how to handle the encountered forces and gain a competitive advantage from the implementation of change in public organisations. They have welcomed the idea and agreed to allow the researcher to arrange workshops in different districts of KPK. This can lead to informing

practice within a public organisation.

Whilst the main contributions of this study are the empirically derived change models for developing countries like Pakistan, the researcher has also created set of recommendations for practice. Therefore, the final contribution is the study's presentation of a set of specific recommendations to overcome the main research problem, which is the low adoption/implementation level of public reforms in developing countries such as Pakistan. Policy makers and leaders can use these recommendations to identify key factors influencing decisions to adopt and to be able to make informed decisions. These practical recommendations and guidance are presented in the following section.

Recommendations

The literature review and the empirical findings indicate that managers/leaders of change in Pakistan must acknowledge critical factors if they seek to improve the level of change (reform) adoption and implementation. In this study, the significant factors of change were identified and explained in detail. Based on that, a number of recommendations for leaders trying to implement change (reform) in Pakistan are suggested as follows:

- Change requires leadership (Kotter, 2012; Lee and Nam, 2016). The senior management of public organisations were identified as having the authority to make strategic decisions and lead change initiatives. This study finds that employees are willing to devote their time and effort to initiate new projects if top managers can support their efforts and appreciate their contributions. Although the results showed a good level of Top-Managements' commitment and support to implement change (reform) in Pakistan, this support should be strengthened in order to increase the acceptance and readiness for change. Top managements' ability to handle change and capacity to bring employees on board however was found unsatisfactory, which is seen as a barrier to change (Table 7-4 on page 246). This study thus suggests that Top-Managers must gain knowledge, skills and a clear understanding of the

benefits and drawbacks related to change to encounter resistance from the employees and minimise their fears about the implementation of the new systems. Moreover, it may be beneficial for top management to setup a team of change champions to oversee, guide and evaluate the whole change process. These actions will enhance the organisation's overall ability to communicate, adapt and implement change.

- Given the data collected and the literature reviewed, it is recommended that IT infrastructure be viewed as integral to organisational change, particularly complex large-scale public sector reforms. It is thus important for government organisations to develop an IT-Infrastructure that can support and enable the implementation of change (reform). Moreover, employees need more IT training and public organisations need to develop interactive and informative web portals to reform public service delivery. Such arrangements may reduce negative attitude towards new technologies among the employees. This is important as the KPK Government is trying to implement e-government services to improve the activities of public sector organisations.

- Culture is central to the change process and to the attainment of change (reform) objectives. Participative, supportive, decentralised and innovative culture in the workplace can lead to openness or readiness for organisational change. However, in the public sector organisations of Pakistan, bureaucratic and authoritative culture, resistance to change and a high level of uncertainty avoidance were found to hinder change progress (Table 7-4 on page 246). In order to develop a supportive culture for change and reduce resistance to change, leaders should provide administrative and operational independence, and financial authority to public organisations. Moreover, a decentralised organisational culture can help people become more participative and committed to change. It is thus recommended that all stakeholders involved in carrying out the mandate of the organisation should be involved in the change process. Stakeholder engagement is a critical factor in the success of organisational change, especially organisational transformation, which may require

significant cultural change. Butt et al. (2016) and White (2000) suggest that involving stakeholders democratises organisational operations and culture and improves efficiencies and effectiveness. Given this, the recommended approach is to ensure stakeholders' active participation and promote participative culture to support change management processes. These actions will enhance the organisations' ability to adapt to change.

- In order to improve change readiness and employees' active participation to implement reforms; guiding principles of change management and suitable change policies are essential (Fernandez and Rainey, 2006; Kotter, 2010; CIPD, 2012; Kickert, 2014; Elving, 2005). This study finds that strong leadership, clear vision and effective communication are significant predictors of employees' intention to adopt/implement change. It is thus recommended that the vision and objectives for the change be clearly communicated to employees prior to the change implementation. This recommendation is aligned with the fourth step of Kotter's (2010) eight step model for transforming an organisation, which is to communicate the vision as widely as possible (Table 2-1 on page 18). Moreover, communication is recommended to be consistent, frequent and at all levels. Consistent communication of the reform's relative advantages to the employees particularly, low status employees can help to encourage their perceptions towards the change and promote a positive attitude. Given low status employees propensity to resist through ignorance, there is a need for a change communications plan that ensures their involvement. Finally, change management strategies and policies must be continually monitored and evaluated to make sure it can be easily adjusted/altered as situations on the ground change.

- The legal framework is associated strongly with employees' intention to adopt change and level of reform success. Survey participants and interviewees emphasised the backing of appropriate legislation for successful introduction of change (reform). The results further suggested that an evolving framework of laws and policies has been supporting the speed, scope, and direction of recent change

(reform) initiatives in Pakistan. Therefore, prior to change implementation, it is important for government to introduce new legislation to overcome gaps and to support and legitimise new systems. In particular, special attention should be paid to enforce effective e-commerce laws that would protect all parties conducting business over the Internet within the country. Despite the availability of a suitable IT infrastructure nationwide, people are hesitant to use e-commerce websites, e-transactions, e-billings and e-government services. An appropriate regulatory framework and e-commerce laws would build trust, confidence and support for change (new ways of doing business).

- Technical infrastructure was reported to strongly explain and forecast employees' intention to adopt and implement change. Interviewees also suggested that organisational technical competence (infrastructure and technical skills) are significant facilitators of change adoption and implementation. However, Pakistan being a developing country has poor technical infrastructure (roads, tools, equipment, hardware and machinery) and national power shortfall soars beyond 6,000MW, necessitating load-shedding of over eight hours throughout the country and even more in the rural areas of the country (Dawn, 2016). It is thus important for Pakistani public sector to overcome such issues and try to obtain adequate technical infrastructures that fulfil the requirements of change. In order to reduce concerns associated with lack of technical infrastructure, change leaders need to provide adequate funds to build a sustainable infrastructure for the public organisations, where it may not be feasible to build nationwide. It is thus recommended that public organisations of the developing world should be able to manage their own infrastructures despite the difficulties present in their environment to initiate change.
- Economic factors such as costs, budgets, donor's support and financial resources facilitates the infrastructure that is required to implement change. Organisational change is an expensive exercise (Fernandez and Rainey, 2006), particularly change in the public sector is often a large-scale and a long-term project that requires great financial resources. Although adequate financial resources are available to

implement change in public organisations of Pakistan, corrupt practices misuse and mismanagement of public funds hinder change progress (Table 7-4). The Government thus need to introduce transparent management system and accountability to ensure the adequate use of funds to bring about public good. One way to address financial corruption is to use readily available technologies to encourage more of an arms-length relationship between public officials and civil society (World Bank, 2017); in this respect, Information Technology (IT) has been proved to be an effective tool to improve transparency and reduce corruption (Andersen et al., 2011).

- Successful implementation of public reforms is highly dependent on employees' readiness and motivation (Kealesitse, 2013). It is therefore important for change leaders to find out what motivates public employees so they can plan an effective reward system and gain better results. Moreover, efficient reward policies and practices are essential to help attract, retain and motivate people in times of change (Rajmohan, 2015). For example, results of the study indicated that employees are more likely to devote their time and effort to change projects if leaders can acknowledge and value their contributions. However, interviewees highlighted the fact that due to the absence of a clear reward management system in the Pakistani public sector, employees are unwilling to participate in change processes and accept new responsibilities. Moreover, leaders' inability to reward skilled employees' adequately results in a brain drain (see Table 7-4). Therefore, the Government needs to introduce a reward system that is set to motivate employees' performance, attract and retain people with the knowledge, skills and abilities required to achieve the reform objectives.

8.4 Research Limitations

Like any other research, this study is subject to limitations, which need to be taken into consideration when attempting to generalise findings to the whole research population or trying to apply its proposed model to other research contexts.

One of the limitations encountered by the researcher is the nature of the research topic, as 'change in public organisations' can be seen as sitting at the cross-roads between a number of other research domains, particularly e-government, public administration, organisational development, human resource management and political science.

Secondly, the restrictions on resources (time and funds) meant that only fifteen of twenty-six KPK districts were included in the process of sampling for the questionnaire survey. Although the findings can be generalised to the overall research population with a suitable level of confidence, the researcher is aware that the inclusion of more geographical areas could have enhanced the representativeness. However, it is obvious that a researcher will hardly ever be in a situation where the whole population can be scrutinised (Milanzi et al., 2015).

Thirdly, there were limitations in collecting qualitative data. Access to many of the interviewees presented issues. Participants (senior ministers) in this study are usually overworked and for this reason arrangements for the interviews were difficult. Indeed, state ministers are a hard-to-reach population (Interfax, 2011) that presented a variety of methodological challenges to the research. Some of the participants initially were unable to fit in a meeting with the researcher so social skills were employed to convince them to re-arrange their schedules and take part in the study. Also, it was not easy to contact many of the political leaders for security and privacy reasons. However, family network connections made it possible to reach and interview three political figures (Senior State Ministers).

Fourthly, the generalisability of the current study findings is limited to its specific context (Pakistan). Other countries may have different circumstances, cultures and different public services, which are subject to different technical, organisational and environmental factors (Van der Voet, 2014; Coram and Burnes, 2001). Therefore, the contextual differences should be taken into account when trying to generalise the findings of this study or applying its proposed model to other countries.

Fifthly, since the current study model was developed and validated to predict and explain the variance in employees' intentions to adopt change in a mandatory setting, care should be taken when applying it to examine the individuals' acceptance of change in voluntary settings where adopting new ways of doing things is not part of an individual's job.

One final limitation of this research is that the present research did not consider the stages of organisational change (reform). For future research, it is suggested that researcher(s) could examine the differences in employee attitudes and behaviours at different stages of reforms, depending on how long the change process had taken.

The acknowledged limitations of this research lead to recommendations for future research. This is to be described in the following section.

8.5 Directions for Future Research

This study provides various recommendations for future research. For instance, the study examined direct relationships between independent variables such as top management, IT-infrastructure, culture, technical competence, economy, legal framework, change management strategy and reward system to the dependent variables such as 'employees' intention to adopt organisational change' and 'level of change (reform) success'. One of the key ways for future researchers is to examine more sophisticated relationships between IVs and DVs. In this regard, future research could further develop a theoretical model concerning change adoption/implementation for different types of predictors' relationships. Therefore, it is reasonable to suggest that a variety of more complicated relationships among factors may exist that need further investigation.

Since the data in this study was collected at a single point of time through cross-sectional survey, in-depth longitudinal research would be useful in order to determine whether employees' attitudes and behaviours toward reform adoption change over time. This could be achieved by applying the research model to examine employees'

intentions to adopt/implement change in Pakistan at different points of time and comparing the findings for different data collection periods.

As this study has developed and validated a measurement instrument to predict employees' acceptance of change (reform), further validation studies in different contexts would be useful in order to improve the external validity of this instrument.

Similarly, in order to enhance the external validity of the proposed models of this study, future research could be directed to examine the change in other countries with a similar background to Pakistan, such as India, Bangladesh, Sirilanka and Afghanistan. The proposed models can also be examined in other provinces of Pakistan such as Sindh, Punjab and Baluchistan. Another interesting investigation in this connection would be the replication of this study in one or more countries with different cultural settings such as other developing or developed countries. This would develop the understanding of cross-cultural effects on the adoption of change as well as verify the robustness of the research models across different cultural settings.

Moreover, this research examined supply-side stakeholders' (public employees) perceptions of drivers and barriers to change management and organisational development. Hence, a remarkable expansion of this study would be to examine the demand-side stakeholders (citizens and private businesses) views and perceptions. Addressing the perceptions of both supply-side and demand-side stakeholders would lead to a more successful and effective implementation of the change (reform) initiative.

Despite the fact that the Structural Equation Models were able to provide valuable insights regarding the factors related to adoption and success of change (reform), future research could be directed towards improving their predictive power by including new emerging theme 'corruption' which was stressed by the interviewees.

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Appendices

Appendix 2A: The Questionnaire (English Version)



Liverpool Business School

Participant Information Sheet

Dear Sir / Madam

I am currently undertaking research as part of a PhD at Liverpool John Moores University.

You are being invited to take part in this research study by completing the following questionnaire. Before you decide to participate, it is important that you understand why the research is being done and what it involves. Please take time to read the following information.

Title of the research: **A Study of Government Reform (Change) Initiatives in the Khyber-Pakhtunkhwa Region of Pakistan**

The purpose of this research is to investigate factors that enable or hinder public reform initiatives in the KPK region of Pakistan and provide subsequent change management recommendations for the benefit of leaders seeking to overcome and manage similar challenges.

Answering the questionnaire will take approximately 10-15 min. It is up to you to decide whether or not to take part. You are free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights/any-future treatment/service you receive. The participation is anonymous and no names will be used in the study itself or in any further publications. The gained data will be used strictly for academic purposes. Therefore, I can confirm that there will be no risks for you due to your participation.

Any personal information collected as a part of the study will be transferred to UK for further analysis and will be treated confidentially, stored securely on password-protected computers or in a locked cabinet. Only the researcher and his supervisory team will have direct access to it. All personal information will be retained for a period of 2-4 years after analysis when it will then be destroyed.

By taking part in this study you implicitly confirm that you have read the information above and you agree to participate. If you have any questions regarding this study, please do not hesitate to contact me using the details below.

Muhammad Kamran Nawaz (Researcher at Liverpool JM University)

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(Pakistan) 0092 334 3589839

Thank you in advance for your participation in this research

SURVEY QUESTIONNAIRE FOR THE PUBLIC OFFICIALS

Target Audience: Public Officials grade 1 - 22

Part One– About you

(1.1) Please indicate your gender

Male Female

(1.2) Please indicate your age group (years)

20 or under 21 – 30 31 – 40
41 – 50 51 – 60 Other, please specify

(1.3) Please indicate your level of education

High school Diploma Bachelor
Masters Doctorate Other, please specify

(1.4) Please indicate your pay grade

1 – 4 5 – 9 10 – 15 16 – 22 Prefer not to say

(1.5) Please indicate your total years of service (KPK public sector)

5 or Less 6 – 10 11 – 15
16 – 25 Over 25 years Prefer not to say

(1.6) Which sector does your organisation belong to?

Excise and Taxation Health Education Planning & development
Finance Agriculture Environment Communication & Works
Energy & power Transport Law Local Government
Administration Tourism Welfare Other, please specify

Part Two-Participants' attitudes about critical factors related to change in public organisations of KPK

Note: This questionnaire is with reference to the current change programme being implemented in the public organisations of KPK. Thus, whenever change is mentioned in the questionnaire, it refers to this particular change (reform).

Using the rating scale provided, please tick (✓) in the box that indicates your level of agreement/ disagreement with the following statements.

Section 1- Organisational Factors					
Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A- Top Management					
(2.1) Top management is committed to change					
(2.2) Top management supports the change					
(2.3) Top management is capable of implementing change					
B- Organisational Culture					
(2.4) Our organisation has a clear, comprehensive vision to implement change					
(2.5) There is readiness for change within our organisation					
(2.6) There is general acceptance for change within our organisation					
(2.7) Our organisation has innovative culture/flexible structure					
C- Human Capacity					
(2.8) Our organisation provides regular training programmes for employees to cope with change					
(2.9) There is enough human resource to implement change					
(2.10) There is sufficient skilled workforce available to implement change					
D- Change Management					
(2.11) The need of change management is being introduced by top management					
(2.12) An adequate change management strategy is in place					
(2.13) Our organisation has an action plan to implement change					

Statements Continue	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
(2.14) There is constant communication through appropriate medium at all levels to manage change					
E- Reward System					
(2.15) There are clear reward systems in the organisation					
(2.16) Incentives are in place at all levels to motivate employees					
(2.17) All employees are aware of the existence of the reward system					
Section 2- Technological Factors					
Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A- IT Infrastructure (in your organisation)					
(2.18) IT infrastructure is ready for the change initiatives					
(2.19) IT infrastructure accommodates integration within the organisation to support change					
(2.20) There is ample availability of internet connection					
B- IT infrastructure at national level					
(2.21) There is an adequate Internet network coverage nationwide					
(2.22) Network is monitored to avoid internet crash					
(2.23) There is acceptable reliability of internet connection					
C- Technical Infrastructure (in your organisation)					
(2.24) Our organisation provides all needed hardware and equipment					
(2.25) There is an adequate technological infrastructure within our organisation					

Statements Continue	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
(2.26) Our organisation has an uninterrupted power supply					
D- Technical Infrastructure at national level					
(2.27) There is sturdy technical infrastructure					
(2.28) There is sufficient power and electric supply at all times					
(2.29) Government provides adequate technical support					
E- Collaboration (in your organisation)					
(2.30) Our organisation collaborates with other organisations using information and communication technology (ICT)					
(2.31) Our organisation integrates their functions and departments to share information via ICT					
(2.32) Our organisation regularly coordinates with its collaborators to improve communication					
F- Collaboration at national level					
(2.33) There is enough collaboration between government sectors					
(2.34) Government organisations communicate on regular basis via ICT					
(2.35) Government organisation share information via ICT					
Section 3- Environmental Factors					
Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A- Political					
(2.36) There is political stability					
(2.37) There are consistent government policies					
(2.38) There is government support for change					
(2.39) Public reform is a priority for the political leadership					

Statements Continue	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B- Socio-Cultural					
(2.40) There is a high literacy rate in KPK region					
(2.41) There is a transparent management system					
(2.42) Local tradition and beliefs support the change					
C- Legislative					
(2.43) Adequate legal/regulatory framework in place					
(2.44) Introduction of new legislation such as right to information act (2013) or right of services act (2013) supports the change					
(2.45) Government has authority to enforce decisions					
D- Economical					
(2.46) There is great donor's support to implement change					
(2.47) There are enough funds available to implement change					
(2.48) Economic growth in the region is satisfactory					

Part Three- Taking an overview of the whole project, please tick (✓) in the box that indicates your level of agreement/disagreement with the following statements about description of this change.

Statements	Level of agreement/ Disagreement				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This change (reform) project:					
(3.1) is abrupt					
(3.2) is well planned					
(3.3) is an opportunity for self-development for employees					
(3.4) does not meet the requirements of employees					
(3.5) is a much needed intervention					
(3.6) is not suitable for on the ground realities					
(3.7) is not encouraging for the future					
(3.8) is being implemented effectively					
(3.9) has/will improve the public sector efficiency					
(3.10) is unlikely to achieve desired results					
(3.11) does not involve people					
(3.12) actively involves all stakeholders					
(3.13) has a great level of acceptably amongst employees					
(3.14) has faced great resistance from employees					

3A- In relation to the recent change (reform) project that is being carryout within your organisation, how successful is this project in your view?

Very Unsuccessful	Unsuccessful	Neither Unsuccessful nor Successful	Successful	Very Successful

3B- To what extent do employees in your organisation intend to adopt change and development programmes?

Very low Extent	Low extent	Neutral	High Extent	Very High Extent

Part Four- If you would like to add more factors (drivers/barriers) or suggest recommendations for the recent change (reform) initiative to be successful then please record them below using your own words.

Thank you for your cooperation

Appendix 2B: The Questionnaire (Urdu Version)

سوالنامہ برائے سرکاری ملازمین

حصہ اول: آپ سے متعلق

(الف) جنس

مرد عورت

(ب) براہ مہربانی اپنی عمر کی نشاندہی کیجئے۔

20 سال یا کم 21 - 30 31 - 40

41 - 50 51 - 60 دیگر

(ج) آپ کی تعلیمی قابلیت۔

ہائی سکول ڈپلومہ بیچلر

ماسٹرز ڈاکٹریٹ دیگر

(د) براہ کرم اپنے سرکاری گریڈ کی نشاندہی کریں۔

1 - 4 5 - 9 10 - 15

16 - 22 نہیں بتانا چاہوں گا۔

(ر) براہ کرم اپنی سرکاری ملازمت کے دورانیے کی نشاندہی کریں۔

5 سال یا کم 6 - 10 11 - 15

16 - 25 25 سال سے زائد نہیں بتانا چاہوں گا۔

(ش) آپ کا ادارہ کس وزارت کے ماتحت ہے۔

ایکسٹرنل ڈیکسٹریشن صحت تعلیم

منصوبہ بندی و ترقی فنانس زراعت

ماحولیات مواصلات بجلی و توانائی

ٹرانسپورٹ قانون (پولیس) لوکل گورنمنٹ

انتظامیہ سیاحت فلاح و بہبود

دیگر

حصہ دوئم: KPK کے سرکاری اداروں میں تبدیلی کے اہم عوامل سے متعلق شرکاء کی رائے۔

نوٹ: یہ سوالنامہ KPK کے سرکاری اداروں میں ہونے والی حالیہ تبدیلی (اصلاحات) سے متعلق ہے۔ لہذا سوالنامے میں جہاں کہیں تبدیلی کا ذکر ہے یہ اسی مخصوص تبدیلی (اصلاحات) سے متعلق ہے۔

براہ کرم اس خانے کو منتخب (✓) کیجئے جو اس تبدیلی (اصلاحات) کے حوالے سے مندرجہ ذیل بیانات کے بارے میں آپ کے اتفاق یا عدم اتفاق کو ظاہر کر سکے۔

سیکشن 1، تنظیمی عوامل					
مکمل اتفاق	اتفاق	غیر جانبدار	عدم اتفاق	مکمل عدم اتفاق	بیانات
					(الف) سینئر مینجمنٹ (اعلیٰ انتظامیہ)
					اعلیٰ سطح کی انتظامیہ تبدیلی کے لیے مصروف عمل ہے۔
					اعلیٰ سطح کی انتظامیہ تبدیلی کی حمایت کرتی ہے۔
					اعلیٰ سطح کی انتظامیہ تبدیلی کو کامیابی سے لاگو کرنے کی اہل ہے۔
					(ب) تنظیمی ثقافت
					ہمارا ادارہ تبدیلی کو لاگو کرنے کے لیے واضح اور جامع نقطہ نظر رکھتا ہے۔
					ہمارا ادارہ تبدیلی کے لیے پوری طرح سے تیار ہے۔
					ہمارے ادارے میں تبدیلی کے لیے عمومی قبولیت پائی جاتی ہے۔
					ہمارے ادارے کی یکجہاں ساخت تبدیلی کے لیے موزوں ہے۔
					(ج) افرادی قوت و صلاحیت
					ہمارا ادارہ تبدیلی سے نبرد آزما ہونے کے لیے اپنے ملازمین کو مناسب تربیت فراہم کرتا ہے۔

مکمل اتفاق	اتفاق	غیر جانبدار	عدم اتفاق	مکمل عدم اتفاق	بیانات
					ہمارے ادارے کی افرادی قوت تبدیلی کو لاگو کرنے کے لیے کافی ہے۔
					تبدیلی کو لاگو کرنے کیلئے کافی ہنرمند افراد دستیاب ہیں۔
					(د) تبدیلی کے انتظام
					اعلیٰ انتظامیہ تبدیلی کے موثر انتظام کی ضرورت کو اجاگر کر رہی ہے۔
					تبدیلی کے انتظام کے لیے مناسب حکمت عملی موجود ہے۔
					ہمارے ادارے میں تبدیلی لاگو کرنے کیلئے واضح منصوبہ بندی موجود ہے۔
					تبدیلی کے بہتر انتظام کے لیے ہر سطح پر مسلسل رابطہ موجود ہے۔
					(ر) نظام اجر
					ہمارے ادارے میں شفاف نظام اجر موجود ہے۔
					ملازمین کی حوصلہ افزائی کے لیے انعامات و مراعات کا نظام موجود ہے۔
					تمام ملازمین اس نظام اجر کی موجودگی سے آگاہ ہیں۔
سیکشن 2، تکنیکی عوامل					
مکمل اتفاق	اتفاق	غیر جانبدار	عدم اتفاق	مکمل عدم اتفاق	بیانات
					(الف) انفارمیشن ٹیکنالوجی کا بنیادی ڈھانچہ (آپ کے ادارے میں)
					ہمارے ادارے میں انفارمیشن ٹیکنالوجی کا بنیادی ڈھانچہ تبدیلی کے عمل کو نافذ کرنے کے لیے تیار ہے۔
					انفارمیشن ٹیکنالوجی (ای میل وغیرہ) ادارے میں روابط کا موثر ذریعہ ہے۔
					ہمارے ادارے میں انٹرنیٹ کنکشن کی تسلی بخش سہولت دستیاب ہے۔

بیانات	مکمل عدم اتفاق	عدم اتفاق	غیر جانبدار	اتفاق	مکمل اتفاق
(ب) انفارمیشن ٹیکنالوجی کا بنیادی ڈھانچہ (قومی سطح پر)					
ملک بھر میں انٹرنیٹ کنکشن کی سہولت موجود ہے۔					
نیٹ ورک کو خرابی سے بچانے کے لیے مناسب اقدامات اور مسلسل نگرانی کی جاتی ہے۔					
ملک بھر میں قابل اعتماد انٹرنیٹ کنکشن دستیاب ہے۔					
(ج) ٹیکنیکی ڈھانچہ (آپکے ادارے میں)					
ہمارا ادارہ تمام ضروری ہارڈ ویئر اور آلات فراہم کرتا ہے۔					
ہمارے ادارے میں مناسب ٹیکنیکی ڈھانچہ موجود ہے۔					
ہمارے ادارے میں بلا تعطل بجلی کی فراہمی میسر ہے۔					
(د) ٹیکنیکی ڈھانچہ (قومی سطح پر)					
ملک بھر میں مضبوط ٹیکنیکی ڈھانچہ موجود ہے۔					
ملک بھر میں بلا تعطل بجلی کی فراہمی میسر ہے۔					
حکومت مناسب ٹیکنیکی معاونت فراہم کرتی ہے۔					
(ر) باہمی تعاون (آپکے ادارے میں)					
ہمارا ادارہ دیگر اداروں کی بذریعہ انفارمیشن ٹیکنالوجی معاونت کرتا ہے۔					
ہمارا ادارہ اپنے تمام محکموں سے معلومات کا تبادلہ بذریعہ انفارمیشن ٹیکنالوجی کرتا ہے۔					
ہمارا ادارہ دیگر حلیف اداروں سے باقاعدگی کے ساتھ رابطہ رکھتا ہے۔					
(س) باہمی تعاون (قومی سطح پر)					
حکومتی اداروں کے مابین مناسب تعاون موجود ہے۔					
حکومتی ادارے انفارمیشن ٹیکنالوجی کے ذریعے مسلسل رابطے میں رہتے ہیں۔					

					حکومتی ادارے آپس میں معلومات کا تبادلہ بذریعہ انفارمیشن ٹیکنالوجی کرتے ہیں۔
سیکشن 3، بیرونی عوامل					
	مکمل اتفاق	غیر جانبدار	عدم اتفاق	مکمل عدم اتفاق	بیانات
					(الف) سیاسی عوامل
					سیاسی استحکام موجود ہے۔
					حکومتی پارلیمنٹوں کا تسلسل موجود ہے۔
					تبدیلی (اصلاحات) کے لیے صوبائی حکومت کی مکمل حمایت حاصل ہے۔
					عوامی اصلاحات (تبدیلی) سیاسی قیادت کی اہم ترجیح ہے۔
					(ب) سماجی و ثقافتی عناصر
					صوبہ KPK میں شرح خواندگی اعلیٰ سطح پر ہے۔
					صوبہ KPK کے نظام انتظام (منجمنٹ سسٹم) میں شفافیت ہے۔
					صوبہ KPK کی مقامی روایات تبدیلی کے عمل میں رکاوٹ نہیں ہیں۔
					(ج) قانونی عوامل
					صوبہ KPK میں مناسب قانونی ڈھانچہ موجود ہے۔
					نئے قوانین مثلاً رائٹ ٹو انفارمیشن ایکٹ (2013) اور رائٹ آف سروئرز ایکٹ (2013) تبدیلی کے عمل میں مددگار ثابت ہو رہے ہیں۔
					صوبہ KPK کی حکومت اپنے فیصلوں کو نافذ کرنے میں بااختیار ہے۔
					(د) اقتصادی عوامل
					تبدیلی کے عمل میں بین الاقوامی ڈونرز اہم کردار ادا کر رہے ہیں۔
					تبدیلی کے عمل کو نافذ کرنے کے لیے مناسب فنڈز دستیاب ہیں۔
					صوبہ کی اقتصادی ترقی تسلی بخش ہے۔

حصہ پنجم - تبدیلی کا عمومی جائزہ

براہ کرم اس خانے کو منتخب کیجیے (✓) جو اس تبدیلی کے حوالے سے مندرجہ ذیل بیانات کے بارے میں آ کے اتفاق یا عدم اتفاق کو ظاہر کر سکے۔

اتفاق/عدم اتفاق کا حصول				بیانات
مکمل اتفاق	غیر جانبدار	عدم اتفاق	مکمل عدم اتفاق	یہ تبدیلی:
				اچانک ہے۔
				عمدہ منصوبہ بندی کے تحت جاری ہے۔
				ملازمین کو ترقی کے مواقع فراہم کرتی ہے۔
				تمام متعلقین کی ضروریات کو پورا نہیں کرتی۔
				اشد ضروری ہے۔
				زمینی حقائق سے مناسبت نہیں رکھتی۔
				مستقبل کے لیے حوصلہ افزا نہیں۔
				موثر انداز میں نافذ کی جا رہی ہے۔
				حکومتی اداروں کی کارکردگی بہتر بنا رہی ہے۔
				اپنے اہداف حاصل کرنے میں ناکام رہے گی۔
				کے عمل میں ملازمین کی شمولیت کو یقینی نہیں بنایا جا رہا ہے۔
				کے عمل میں تمام متعلقین کی شمولیت کا یقینی بنایا جا رہا ہے۔
				ملازمین کے لیے قابل قبول ہے۔
				کہ عمل کو ملازمین کی جانب سے مزاحمت کا سامنا ہے۔

۶۔ آپ کی رائے میں تبدیلی کا یہ عمل کس حد تک کامیاب/ ناکام ہے۔

انتہائی ناکام	ناکام	نہ کامیاب/ نہ ناکام	کامیاب	انتہائی کامیاب

۷۔ مجموعی طور پر، اس تبدیلی کو نافذ کرنے میں آپ کے ادارے نے جو مدد فراہم کی اس بناء پر اپنا اظہار اطمینان کیسے کریں گے۔

مکمل عدم اطمینان	عدم اطمینان	نہ اطمینان/ نہ عدم اطمینان	اطمینان	مکمل اطمینان

۸۔ آپ کے ادارے میں ملازمین اس تبدیلی کو اپنانے میں کس حد تک تیار ہیں۔

بہت کم حد تک	کم حد تک	نہ کم نہ زیادہ	زیادہ حد تک	بہت زیادہ حد تک

۹۔ اگر آپ تبدیلی (اصلاحات) سے متعلق مزید مددگار عوامل یا اس کی راہ میں حائل رکاوٹیں شامل کرنا چاہیں تو اپنے الفاظ میں تحریر کریں۔

آپ کے تعاون کا شکریہ۔

Appendix 2C: Sources of the Measurement Scales for the Questionnaire

Sections	Variables	Scale Type	Source(s)
Part One: Demographic Data	Q 1.1- Gender	2-point multiple choice	The researcher
	Q 1.2- Age Group	6-point multiple choice	The researcher
	Q 1.3- Education	6-point multiple choice	The researcher
	Q 1.4 Pay Grade	5-point multiple choice	The researcher
	Q 1.5 Experience	6-point multiple choice	The researcher
	Q 1.6 Sector	16-point multiple choice	The researcher
Part Two: Organisational Context	Top Management	5-Point Likert Scale (3 Items)	Lin and Lee (2005); Wang et al. (2010); Gangwar et al. (2015); Low et al. (2011); Ramdani et al. (2009); Teo et al. (2009)
	Organisational Culture	5-Point Likert Scale (4 Items)	
	Human Capacity	5-Point Likert Scale (3 Items)	
	Change Management	5-Point Likert Scale (4 Items)	
	Reward System	5-Point Likert Scale (3 Items)	
Part Three: Technical Context	IT infrastructure	5-Point Likert Scale (3 Items)	To and Ngai (2006); Wang et al. (2010); Low et al. (2011); Gangwar et al. (2015); Huang et al. (2008)
	Technical Infrastructure	5-Point Likert Scale (3 Items)	
	Collaboration	5-Point Likert Scale (3 Items)	
Part Four: Environmental Context	Political	5-Point Likert Scale (4 Items)	Low et al. (2011); Gangwar et al. (2015); Polard and Cater- Steel (2009)
	Economy	5-Point Likert Scale (3 Items)	
	Socio-Cultural	5-Point Likert Scale (3 Items)	
	Legal	5-Point Likert Scale (3 Items)	
Part Five: DV	Intent to Adopt	5-Point Likert Scale (single Item)	The researcher
	Level of Success	5-Point Likert Scale (single Item)	The researcher

Appendix 3A: The Interview Information Sheet



Liverpool Business School

Participant (Interviewees) Information Letter

Project Title: A Study of Government Reform (Change) Initiatives in the Khyber-Pakhtunkhwa Region of Pakistan

Dear Sir / Madam

I am currently a full-time PhD student in the Business School at the Liverpool John Moores University.

As part of my PhD research, I have to conduct a field work study that aims to investigate the key drivers and barriers of large-scale reform initiative in the Khyber-Pakhtunkhwa (KPK) region of Pakistan. The purpose of the study is to understand the challenges, barriers and opportunities hindering or supporting the implementation of public reforms in developing countries, with particular focus on the KPK region of Pakistan.

You have been invited to take part in this research due to your knowledge of the transformation process being taken place, or due to your involvement in, or knowledge of some managerial or organisational practices that have been used/developed in order to bring improved performance in the public sector of KPK.

Before you decide whether you participate in the study or not, please take your time in reading the following information. Should you need more information, please do not hesitate to contact me.

Do I have to take part in the study?

No, there is no obligation to participate in the study. Participation in the research study is voluntary. If you decide to take part in the study, I can provide you a copy of the result of the entire research study once completed. Please note that you are free to withdraw any information without giving reasons.

What will happen if I take part?

Your participation is completely voluntary – you do not have to participate in the study if you don't wish. If you agree to participate I will ask you to sign a consent form to show you have agreed to take part. You will be asked for an appointment to conduct an interview or to fill a questionnaire. Please allow about 1 hour for the interview and 15 minutes for the questionnaire. The entire research project will be conducted within 3 -4 years.

Use and publication of the results

The main outcome of this research is a PhD Thesis. It is also expected that part of the thesis will be published in academic management journals and/or in the form of an academic book. It is also part of the creation of academic knowledge, to present and discuss the outcome of the research in academic seminars and conferences. You will be advised where to access the full thesis and published or conference papers. You will also be offered the opportunity to receive a summary of the results.

Are there any payment and benefits?

There is no organisational or individual payment for participation in the research study.

Are there any risks?

There are no risks associated with the participation of the research study. The information obtained by the interview or the questionnaire will only be used in connection with the academic research.

Will the data be kept confidential?

I will follow ethical and legal practice and all information will be handled in confidence and treated anonymously. All published and unpublished reports will disguise the identities of the respondents. This means that any quotation from the participants' response used in all reports and papers will be anonymous. Data collected will be held securely and confidentially and will not be passed to any third-party.

The final decision about participation is yours. Please feel free to contact me if you have any questions regarding the research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Muhammad Kamran Nawaz'. The signature is stylized and includes the name 'KAMRAN' written above the main signature.

Muhammad Kamran Nawaz
M.K.Nawaz@2013.ljmu.ac.uk Tel: 0044
75344 34432

Appendix 3B: Interview Guide - Themes and Questions

General and Demographic Information:

Title	
Name	
Gender	
Age	
Education	
Position	
Ministry / Institution / Department	
Day	
Date	
Start time	
End time	
Email (optional)	
Contact number (optional)	
Agree or did not to record	

(1) General Questions:

1. How long have you been working in this ministry/department?
2. Can you explain briefly about the nature of your work?

(2) Background information about change (reform) initiative in KPK:

3. In your opinion, why the Government is interested in implementing change (reform) project?
4. Who is primary responsible for leading the implementation of change (reform) project?
5. What are the principle features of the change (reform) implementation strategy in KPK, its vision, roadmap and main objectives?
6. Were there any studies conducted to investigate key drivers or barriers to the current change (reform) initiative? If yes, what are the results?
7. Were there any pre-arrangements before implementing the change (reform) project? Training? Awareness campaigns? Buy new hardware or equipment?...etc

(3) Interviewees' perceptions about the critical factors (drivers and barriers) related to change (reform) initiative in KPK:

8. In your opinion, what are the critical factors (Technological, Organisational, or Environmental) affecting change (reform) adoption in KPK?
9. Can you describe the current successful indicators to the change (reform) project?
10. Can you describe general key drivers and specific ones that are found in your ministry/department that encourage the adoption and implementation of change (reform) project?
11. Can you describe the threatening indicators to the current change (reform) project?
12. Can you describe general key barriers and specific ones that are found in your ministry/department that inhibit the adoption and implementation of change (reform) project?

(4) Interviewees' perceptions about other issues related to change (reform) initiative in KPK:

13. Can you describe the extent of the overall acceptability of the reform project in your ministry/department? Any change resistance faced? From whom? Top management or employees? How was it dealt with?
14. Do political factors influence the change (reform) initiative in any way? Moreover, are politicians supportive enough to play a significant role in the adoption and implementation of change project?
15. How do you communicate and share information with other ministries, institutions, and departments? Manually or electronically?
16. Can all stakeholders communicate and share their comments and experiences with top management? How is it planned to deal with stakeholders 'comments'?
17. Do you believe that the technical infrastructure in your ministry/department is sufficient to keep up with the change (reform) project?
18. Do you believe that technical infrastructure in the KPK region is sufficient to keep up with the change (reform) project?
19. Do you believe that the human infrastructure in your ministry/department is sufficient to keep up with the change (reform) project? Or there is lack of skilled workforce?
20. Do you have enough financial resources to implement change (reform) project?
21. Are there any local cultural issues that influence the change (reform) initiatives?
22. How does the top management support affect the adoption and implementation of change (reform) project?

23. How does the employees support and acceptance affect the adoption and implementation of change (reform) project?

24. How does your ministry/department increase the readiness and acceptance amongst employees? Training courses? Rewards?

25. Have you considered regulatory issues and developed a national legal framework to support change (reform) initiatives?

(5) Interviewees' perceptions about the current extent and the future of change (reform) project in KPK:

26. So far, how successful is this project in your view?

27. How do you imagine your ministry and the public sector of KPK in general will appear in 5 years' time?

28. Any recommendations you would like to suggest for the recent change (reform) initiative to be successful.

Appendix 4A: Data Analysis Techniques Used

Techniques and (Software Package) used	Purpose of the Analysis
Cronbach's Alpha Test (SPSS 22)	-To assess construct internal consistency of the current study questionnaire (Inter-item consistency reliability).
Descriptive Statistics (SPSS 22)	-To create a profile data of the surveyed respondents' characteristics. -To summarise the results in a form of easy-to-understand tables and charts.
Data Management (SPSS 22)	-To check the normality of the quantitative data in the current research (the extent to which data distribution is close to normal distribution). -To check the missing data and potential outliers, which can affect the results of the analysis.
Independent t-test (SPSS 22)	-To compare the attitudinal mean differences between gender groups (Male and female) and pay scale groups (High-Grade employees and Low-Grade Employees).
ANOVA (SPSS 22)	-To compare the attitudinal mean difference between more than two groups. For example, Experience of employees, Age group of employees and levels of education.
Exploratory Factor Analysis (EFA) (SPSS 22)	-To identify the underlying structure of the research model constructs and the observable variables for these constructs. -To summarise and reduce the number of study variables to a smaller and more manageable set of variables. - To explain the variance in the observed variables in terms of underlying latent factors.
Kaiser-Meyer-Olkin (KMO) Bartlett's test of Sphericity (SPSS 22)	-To assess the suitability of the data set for EFA, sample size, and the pattern of relationships among the variables.
Confirmatory Factor Analysis (CFA) (AMOS 22)	-To assess the goodness-of-fit for the measurement model in the present study. -To validate relationships between the observed and latent variables. -To confirm the validity and reliability of the scales and measures derived from EFA.
Structural Equation Modelling (SEM) (AMOS 22)	-To assess the goodness-of-fit for the structural model of the present study. -To test the relationships among the different constructs in the proposed model.
Regression Analysis	-To analyse the relationship between dependent and independent variables. -To examine the ability of the independent variable(s) to predict the dependent variable.
Thematic Analysis (NVivo)	-To organise, classify, sort, and arrange qualitative data (primary and secondary). -To clarify meanings, organise and explain data, to search for relationships, and to gain an understanding of the various dimensions explored in semi-structured interviews

Appendix 4B: Commuality Statistics for the Observable Variables (EFA)

Communalities		
Variables	Initial	Extraction
Top management is committed to change	1.000	.958
Top management supports change	1.000	.950
Top management is capable to implement change	1.000	.883
Clear vision of organisation	1.000	.944
Organisation is ready for change	1.000	.933
People generally accept change in organisation	1.000	.946
Innovative/flexible structure of the organisation	1.000	.434
Training programme within organisation	1.000	.718
Adequate HR is available to implement change	1.000	.607
Skilled workforce within organisation	1.000	.657
Need for change has been established	1.000	.670
Adequate plan to implement change	1.000	.506
Adequate plan of action for change	1.000	.765
Effective communication supports change	1.000	.773
Clear reward system is in place	1.000	.647
Incentives are in place to motivate employees	1.000	.808
Employees are aware of the reward system	1.000	.727
Organisation's IT infrastructure is ready for change	1.000	.824
Organisations integrate through IT	1.000	.960
Organisation's IT infrastructure is reliable	1.000	.959
Adequate internet coverage nationwide	1.000	.959
Network is monitored to avoid crash	1.000	.585
IT infrastructure is reliable nationwide	1.000	.633
Organisations provide require hardware/equipment	1.000	.846
Organisation's technical infrastructure is ready for change	1.000	.832
Continual power supply is available	1.000	.813
Sturdy Technical infrastructure nationwide	1.000	.682
Sufficient power supply nationwide	1.000	.625
Government provides technical support	1.000	.783
Organisation collaborates through ICT	1.000	.609
Organisation integrates through ICT	1.000	.716
Organisation coordinates and collaborates regularly	1.000	.724
Good collaboration between government sectors	1.000	.731
Government sector communicate on regular basis	1.000	.692
Government sector share information regularly via ICT	1.000	.753
Political stability	1.000	.686
Consistent government policies	1.000	.695
Government supports change process	1.000	.825
Change is priority of Political leadership	1.000	.783
High literacy rate in KPK	1.000	.767
Transparent management system	1.000	.618
Local tradition/beliefs support change	1.000	.736
Adequate legal framework	1.000	.676
Government's New legislation supports change	1.000	.838
Government's authority to enforce decisions	1.000	.687
Donor's support to implement change	1.000	.734
Enough funds available to implement change	1.000	.762
Economic growth in the region supports change	1.000	.854

Extraction Method: Principal Component Analysis.

Appendix 5A: Standardised Regression Weights (CFA first-run)

Observed Variables		Latent Variables	Estimate
LEG1	<---	LEG	.897
LEG3	<---	LEG	.883
LEG4	<---	LEG	.821
LEG2	<---	LEG	.727
ITST1	<---	ITST	.639
ITST3	<---	ITST	.487
ITST2	<---	ITST	.825
ITST4	<---	ITST	.606
ITST5	<---	ITST	.815
ITST6	<---	ITST	.682
ORGCUL2	<---	ORGCUL	.995
ORGCUL4	<---	ORGCUL	.967
ORGCUL5	<---	ORGCUL	.957
ORGCUL1	<---	ORGCUL	.612
TM1	<---	TM	.964
TM3	<---	TM	.979
TM2	<---	TM	.943
CM1	<---	CM	.911
CM2	<---	CM	.656
CM3	<---	CM	.797
TECH1	<---	TECH	.822
TECH3	<---	TECH	.877
TECH2	<---	TECH	.874
RS1	<---	RS	.626
RS3	<---	RS	.908
RS2	<---	RS	.783
RS4	<---	RS	.363
ECO2	<---	ECO	.942
ECO4	<---	ECO	.799
ECO1	<---	ECO	.600
POL1	<---	POL	.657
POL3	<---	POL	.609
POL2	<---	POL	.790
COL1	<---	COL	.645
COL2	<---	COL	.835
COL3	<---	COL	.442
TECHNW1	<---	TECHNW	.535
TECHNW2	<---	TECHNW	1.159
TECHNW3	<---	TECHNW	.334

Appendix 5B: Model-fit Summary for CFA (first-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	133	2274.251	647	.000	3.705
Saturated model	780	.000	0		
Independence model	39	9398.224	741	.000	12.683

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.067	.843	.666	.600
Saturated model	.000	1.000		
Independence model	.263	.307	.270	.291

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.094	.723	.814	.908	.924
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.873	.662	.709
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1627.251	1485.675	1776.361
Saturated model	.000	.000	.000
Independence model	8657.224	8347.891	8973.011

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	7.606	5.442	4.969	5.941
Saturated model	.000	.000	.000	.000
Independence model	31.432	28.954	27.919	30.010

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.095	.088	.096	.000
Independence model	.198	.194	.201	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	2540.251	2581.332	3032.854	3165.854
Saturated model	1560.000	1800.927	4448.950	5228.950
Independence model	9476.224	9488.271	9620.672	9659.672

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	8.496	8.022	8.995	8.633
Saturated model	5.217	5.217	5.217	6.023
Independence model	31.693	30.658	32.749	31.733

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	93	97
Independence model	26	27

Appendix 5C: Model-fit Summary for CFA (second-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	81	568.971	219	.000	2.598
Saturated model	300	.000	0		
Independence model	24	6123.029	276	.000	22.185

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.062	.868	.819	.633
Saturated model	.000	1.000		
Independence model	.312	.343	.286	.316

Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
Default model	.907	.883	.941	.925	.940
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.793	.720	.746
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	349.971	283.254	424.360
Saturated model	.000	.000	.000
Independence model	5847.029	5595.727	6104.707

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.903	1.170	.947	1.419
Saturated model	.000	.000	.000	.000
Independence model	20.478	19.555	18.715	20.417

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.073	.066	.081	.000
Independence model	.266	.260	.272	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	730.971	745.752	1030.978	1111.978
Saturated model	600.000	654.745	1711.135	2011.135
Independence model	6171.029	6175.408	6259.919	6283.919

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.445	2.222	2.694	2.494
Saturated model	2.007	2.007	2.007	2.190
Independence model	20.639	19.798	21.501	20.654

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	134	143
Independence model	16	17

Appendix 6A: Model-fit Summary for SEM with DV1 (Intent to Adopt)

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	90	624.706	235	.000	2.658
Saturated model	325	.000	0		
Independence model	25	6758.632	300	.000	22.529

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.059	.862	.810	.624
Saturated model	.000	1.000		
Independence model	.310	.308	.251	.285

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.908	.882	.940	.923	.940
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.783	.711	.736
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	389.706	319.411	467.661
Saturated model	.000	.000	.000
Independence model	6458.632	6194.398	6729.241

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.089	1.303	1.068	1.564
Saturated model	.000	.000	.000	.000
Independence model	22.604	21.601	20.717	22.506

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.074	.067	.082	.000
Independence model	.268	.263	.274	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	804.706	821.849	1138.046	1228.046
Saturated model	650.000	711.905	1853.729	2178.729
Independence model	6808.632	6813.394	6901.227	6926.227

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.691	2.456	2.952	2.749
Saturated model	2.174	2.174	2.174	2.381
Independence model	22.771	21.888	23.676	22.787

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	131	139
Independence model	16	16

Appendix 6B: Model-fit Summary for SEM with DV2 (Level of Success)

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	90	617.705	235	.000	2.629
Saturated model	325	.000	0		
Independence model	25	6742.808	300	.000	22.476

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.060	.864	.812	.625
Saturated model	.000	1.000		
Independence model	.309	.309	.251	.285

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.908	.883	.941	.924	.941
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.783	.712	.737
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	382.705	312.925	460.150
Saturated model	.000	.000	.000
Independence model	6442.808	6178.895	6713.097

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.066	1.280	1.047	1.539
Saturated model	.000	.000	.000	.000
Independence model	22.551	21.548	20.665	22.452

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.074	.067	.081	.000
Independence model	.268	.262	.274	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	797.705	814.848	1131.046	1221.046
Saturated model	650.000	711.905	1853.729	2178.729
Independence model	6792.808	6797.570	6885.403	6910.403

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.668	2.435	2.927	2.725
Saturated model	2.174	2.174	2.174	2.381
Independence model	22.718	21.836	23.622	22.734

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	132	140
Independence model	16	16

Appendix 7: Summary of the Qualitative Findings using Different Sources

No.	Factors	Interviewees	Documents	Observations	Confirmed	Emerged
1	Technology	IT Infrastructure	Minister 1, 2 and 3			
2		Technical Infrastructure	Minister 1,2 and 3			
3		Collaboration	Minister 1, 2 and 3			
4	Organisation	Top Management	Minister 1,2 and 3			
5		Human Capacity	Minister 1 and 3			
6		Change Management	Minister 1, 2 and 3			
7		Organisational Culture	Minister 1, 2 and 3			
8		Reward System	Minister 2 and 3			
9	Corruption	Minister 1, 2 and 3				
10	Environment	Political	Minister 1, 2 and 3			
11		Economical	Minister 2 and 3			
12		Socio-Cultural	Minister 1, 2 and 3			
13		Legislative	Minister 1, 2 and 3			

Appendix 8: Descriptive Statistics for the Questionnaire Measurement Items

Items	Mean	Std. Deviation
Top Management		
Top management is committed to change	3.4500	1.07300
Top management supports change	3.3867	1.03314
Top management is capable to implement change	2.8900	1.06949
Organisational Culture		
Clear vision of organisation	2.6500	1.13363
Organisation is ready for change	2.3533	1.08893
People accept change in organisation	2.3300	1.06688
Innovative/flexible structure of organisation	2.7733	.78145
Human Capacity		
Training programme within organisation	2.6100	.90957
Adequate HR is available to implement change	2.3233	1.06265
Skilled workforce within organisation	2.8400	1.05107
Change Management		
Need for change has been established	2.7767	1.01500
Adequate plan to implement change	2.7200	.83100
Adequate plan of action for change	2.6667	1.03236
Effective communication supports change	2.6700	1.01548
Reward System		
Clear reward system is in place	2.8433	.99436
Incentives are in place to motivate employees	2.8667	1.04524
Employees are aware of the reward system	2.9133	1.01122
IT Infrastructure		
Organisations IT infrastructure is ready for change	3.6333	.92831
Organisations integrate through IT	3.4467	.97485
Organisation's IT infrastructure is reliable	3.5333	1.03560
Adequate internet coverage nationwide	3.5733	.89103
Network is monitored to avoid crash	3.0533	.89433
IT infrastructure is reliable nationwide	3.6033	.98788
Technical Infrastructure		
Organisations provide require hardware/equipment	2.5033	1.08347
Organisations technical infrastructure is ready for change	2.2933	1.06978
Continual power supply is available	2.4400	1.07560
Sturdy Technical infrastructure nationwide	2.3633	.86050
Sufficient power supply nationwide	1.8733	.67241
Government provides technical support	2.5533	1.02175

Collaboration		
Organisation collaborates through ICT	2.6967	.94568
Organisation integrates through ICT	2.7600	1.01283
Organisation coordinates and collaborates regularly	2.7500	.94365
Good collaboration between government sectors	2.3500	.74567
Government sector communicate on regular basis	2.5900	.91544
Government sector share information regularly via ICT	2.7200	.99913
Political		
Political stability	2.7367	1.06353
Consistent government policies	2.6033	1.07230
Government supports change process	3.4800	1.24153
Change is priority of Political leadership	3.5300	1.18904
Socio-Cultural		
High literacy rate in KPK	2.3967	.76240
Transparent management system	2.7167	.92334
Local tradition/beliefs support change	2.9433	.95735
Legal		
Adequate legal framework	3.4733	1.01952
Government's New legislation supports change	3.9967	1.21721
Government's authority to enforce decisions	3.1167	1.20050
Economy		
Donor's support to implement change	3.3567	.86484
Enough funds available to implement change	3.6967	.77578
Economic growth in the region supports change	2.9767	.83675