Resistance to change forms and effects in Greater Western Sydney: a multidimensional approach

Mathew Donald

Submitted in fulfilment of the requirements for the degree of Doctor of Philosophy - Business

School of Management/Faculty of Business
Western Sydney University

2017
Key Words

Organisational change factors, Resistance to Change (RTC), Group Dynamics, Organisational Development, Multidimensional, Change Effect, Management, Leadership, Workload, Power, Stakeholder Involvement, Trust, Politics, Communication, Culture, Survey, Semi-structured Interview, Confirmatory Factor analysis (CFA), Exploratory Factor Analysis (EFA), Pragmatic, Mixed Method.
Abstract

Researchers have postulated that the original studies of resistance to change (RTC) were surrounded by concepts of systems and group activities rather than being a pure individual response (Burnes 2004; Dent & Goldberg 1999; Patalano 2011). RTC has been investigated from an individual perspective where feelings, frustrations and motivational decrease are possible. RTC in this model has management as the controller, being responsible for any deficiency that eventuates in a suboptimal change outcome (Coch & French Jr 1948; Patalano 2011).

The increase of changing environments, market tension, combined with financial and technological change has resulted in more interest in RTC (Giangreco & Peccei 2005; Kanter, Stein & Jick 1992; King & Anderson 1995; Kotter & Schlesinger 1979; Pardo del Val & Martinex Feuntes 2003). Whilst resistance to technological change can be substantial (Bruckman 2008), appreciation of organisational change is essential (Burnes 2015), resulting in conflict and insecurity (Amos et al. 2011). The pace of change may have increased even to a speed that people may not be able to cope (Bruckman 2008; Toffler 1970).

There are now calls to investigate RTC in a multidimensional way as organisational systems, behaviour and the psychology of change maybe interwoven (Deetz 2008). Removing the management construct and replacing it with a multidimensional framework is considered important, where the single factor approach is holding back the understanding of change (Dawson 2007; Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003). The research to date has investigated resistance factors singularly, where there is now theory indicating that the RTC factors may co-exist and interrelate.

In recognition of a gap regarding multidimensional research in to RTC, in the Literature Review, this research has sought to determine if multiple forms of RTC co-exist and interrelate. In difference to the past positivist research and as a compliment to the research question, this research was conducted a
pragmatic paradigm in a mixed method. The first phase of this research entailed semi structured interviews of 25 senior change managers, where interview questions were based on RTC forms identified in the Literature Review. Despite not being statistically significant, the interview data appeared to support RTC forms co-existing (Donald 2014).

The second phase of this research was in the form of a survey, involving participants with experience in large Western Sydney organisations of a variety of industries. The survey achieved good internal reliability scores and discriminant scores, the data was explored in an Exploratory and a Confirmatory factor analysis, forming a valid explanatory model. The triangulation of the 2 research phases with the Literature Review has resulted in the conclusion that RTC factors co-exist and are interrelated.

There is indicative data in this research to confirm, with qualification, that multiple RTC forms may be multidimensional, aligning with gaps identified in the Literature Review. The most significant interrelated RTC factors detected in this research were Management, Leadership and Workload factors. RTC has historically been treated as negative and to be avoided, yet this research confirms past research where RTC may range from the positive to the negative (Lines 2005). The Leadership factor of this research indicates that it is more diverse than merely that of Communication, where Trust, Stakeholder Engagement and Politics may be key elements of Leadership.

RTC is commonly understood to be a negative effect on organisational change, where the Literature and now this research indicate that it may occur in the positive as well as the negative. There appears to be little evidence in this research data to suggest specific planning and strategy for RTC. As change managers develop an appreciation of the multidimensional nature of RTC they may need to consider specific RTC mitigation steps. These research findings are qualified based on the interview and survey sample sizes, where future research may be required to increase the significance of the findings.
This second research question was to determine if there was a link between RTC and the effects of quality, cost and time. The research has failed to find any additional RTC effects, where it appears that change managers lack the necessary information on Time and Cost. Quality is an effect that has been previously researched, where that effect is somewhat suggested rather than confirmed in this study. The lack of knowledge on change effect by those responsible for change was surprising, so may form an important area for future research.

The research survey has the potential to develop into a tool for the assessment of organisational change, where other exploratory or confirmatory models are possible. If the survey is used across organisations, across industries or longitudinally there is potential for increased information on RTC. Comparative information across industries may assist the change manager in developing improved change implementation methods. There is also potential to extend the number of survey factors beyond those identified in this research.
# Table of Contents

KEY WORDS ................................................................................................................... I

ABSTRACT ...................................................................................................................... II

TABLE OF CONTENTS .................................................................................................. V

TABLES AND FIGURES ............................................................................................... IX

ABBREVIATIONS .......................................................................................................... XII

Table of Acronyms used in this Research .................................................................... xii
Copyrights and Trade Marks ......................................................................................... xii

STATEMENT OF ORIGINAL AUTHORSHIP ................................................................ XIII

DEDICATIONS ................................................................................................................. XIV

ACKNOWLEDGEMENTS ............................................................................................... XIV

1 INTRODUCTION ....................................................................................................... 1

1.1 Problem Statement ................................................................................................. 1

1.2 Background ............................................................................................................ 2

   1.2.1 Rationale .......................................................................................................... 2

   1.2.2 Need for the study ............................................................................................ 3

   1.2.3 Conceptual Framework .................................................................................... 4

1.3 Specific research questions .................................................................................... 10

1.4 Research Method .................................................................................................. 14

1.5 Assumptions and limitations ................................................................................ 15

   1.5.1 Assumptions for this proposal ........................................................................ 15

   1.5.2 Limitations of this research ........................................................................... 16

1.6 Research Justification ............................................................................................ 18

1.7 Thesis Structure .................................................................................................... 19

1.8 Summary ................................................................................................................ 20

2 LITERATURE REVIEW ............................................................................................ 22

2.1 Literature Introduction .......................................................................................... 23

2.2 Organisational Change ......................................................................................... 26

2.3 Change management ............................................................................................. 28

2.4 RTC Research Linkages ....................................................................................... 32

2.5 Group Dynamics, Organisational Development (OD) ........................................... 34

2.6 Individual Psychology .......................................................................................... 36
2.7 Multidimensional Research .......................................................... 40
2.8 RTC Factors ................................................................................ 42
  2.8.1 Leadership ............................................................................. 43
  2.8.2 Management .......................................................................... 46
  2.8.3 Communication ...................................................................... 49
  2.8.4 Workload ............................................................................... 50
  2.8.5 Stakeholder engagement .......................................................... 51
  2.8.6 Project change analysis and planning ....................................... 53
  2.8.7 Change process and delivery .................................................... 54
  2.8.8 Politics and Power ................................................................. 56
  2.8.9 Culture .................................................................................. 60
2.9 Literature Comparison .................................................................. 62
2.10 Literature Gaps ........................................................................ 68
2.11 Literature Summary .................................................................... 69

3 RESEARCH METHODOLOGY ....................................................... 71
  3.1 Introduction ................................................................................ 71
  3.2 Philosophical considerations ....................................................... 71
  3.3 Ethics ....................................................................................... 76
  3.4 Qualitative Research ................................................................. 79
    3.4.1 Qualitative design ................................................................. 79
    3.4.2 Interview Transcription Process ............................................ 87
    3.4.3 Interview Data Coding ........................................................ 89
    3.4.4 Qualitative Method Summary .............................................. 90
  3.5 Quantitative Research ............................................................... 92
    3.5.1 Quantitative design ............................................................... 92
    3.5.2 Question Development ....................................................... 102
    3.5.3 Survey Distribution ............................................................ 105
    3.5.4 Survey Assessment Process ............................................... 106
    3.5.5 Quantitative Method Summary ......................................... 107
  3.6 Research method summary ....................................................... 107

4 QUALITATIVE RESULTS – PHASE 1 ............................................. 109
  4.1 Initial Interview Coding ............................................................. 109
  4.2 Interview Coding – Nvivo10® ..................................................... 112
  4.3 Interview Demographic Data ..................................................... 114
  4.4 Interview Word Analysis .......................................................... 119
  4.5 Interview RTC Factors .............................................................. 124
  4.6 Interview RTC Effect Data ........................................................ 131
  4.7 Qualitative Results Summary ................................................... 133
5 QUANTITATIVE RESULTS – PHASE 2 .................................................................................. 135
  5.1 Survey Data - Demographics .................................................................................. 135
  5.2 Validity Tests – Internal Reliability ......................................................................... 139
  5.3 Validity Tests – Normality, Skewness and Kurtosis .................................................. 142
  5.4 Validity Tests – Mean and Standard Deviation ....................................................... 147
  5.5 Validity Tests - Relationship Tests .......................................................................... 148
  5.6 Demographic Interrelationship Tests .................................................................... 151
  5.7 Goodness of fit relationship test .............................................................................. 153
  5.8 Missing Data Resolution ........................................................................................ 154
  5.9 Exploratory Factor Analysis (EFA) ......................................................................... 157
  5.10 Survey Data - RTC Effects .................................................................................... 169
  5.11 Confirmatory Factor Analysis (CFA) .................................................................... 171
  5.12 Quantitative Results Summary ............................................................................ 181

6 ANALYSIS ....................................................................................................................... 183
  6.1 Qualitative Analysis – Phase 1 ................................................................................ 183
    6.1.1 Demographic Analysis ....................................................................................... 183
    6.1.2 Interview Results Data ..................................................................................... 185
    6.1.3 Word Charts – Frequency and Similarity ......................................................... 187
    6.1.4 RTC Factor Discussion ..................................................................................... 188
    6.1.5 Change Effect Discussion ................................................................................ 194
    6.1.6 Qualitative Analysis Summary ....................................................................... 196
  6.2 Quantitative Analysis – Phase 2 ............................................................................ 197
    6.2.1 Survey Demographics ..................................................................................... 197
    6.2.2 Reliability Tests ............................................................................................... 200
    6.2.3 Discriminant Tests .......................................................................................... 202
    6.2.4 Exploratory Factor Analysis – 1st Research Question .................................... 202
    6.2.5 Exploratory Factor Analysis – 2nd Research Question .................................. 211
    6.2.6 Confirmatory Factor Analysis ........................................................................ 212
    6.2.7 Factor Analysis Summary .............................................................................. 215

7 CONCLUSION .................................................................................................................. 216
  7.1 Research Comparison ............................................................................................. 216
    7.1.1 1st Research Question ..................................................................................... 216
    7.1.2 2nd Research Question ................................................................................... 230
    7.1.3 Research Limitations Discussion ..................................................................... 232
  7.2 Conclusion ............................................................................................................... 233
  7.3 Research Contribution ............................................................................................ 234
    7.3.1 Theory .............................................................................................................. 234
    7.3.2 Knowledge ....................................................................................................... 236
    7.3.3 Practice ............................................................................................................ 238
7.3.4 Future research ................................................................. 240

8 APPENDICES .............................................................................. 242
8.1 Appendix 1 – Semi-Structured Interview Questions .................. 242
8.2 Appendix 2 – Survey Questions and Development .................. 244
8.3 Appendix 3 – Interview RTC (initial undefined) ....................... 247
8.4 Appendix 4 – Interview Classification Data .............................. 260
8.5 Appendix 5 – Survey P-Plots .................................................. 264
8.6 Appendix 6 – Survey Histograms ......................................... 268
8.7 Appendix 7 – Factor Independence Tests ............................... 272

9 REFERENCES ............................................................................. 275
Tables and Figures

**TABLES**

**TABLE 1.1 : ORGANISATIONAL DEFINITION** ............................................................... 7
**TABLE 1.2 : CODING GROUP DEFINITIONS SUMMARY .................................................... 12
**TABLE 1.3 : CHANGE EFFECTS DEFINITION SUMMARY .................................................. 13
**TABLE 4.1 : INITIAL INTERVIEW CODING GROUP SUMMARY ........................................... 111
**TABLE 4.2 : INITIAL CODING GROUPS NVIVO10® ......................................................... 112
**TABLE 4.3 : CHANGE SATISFACTION ............................................................................... 114
**TABLE 4.4 : CLASSIFICATION – OCCUPATIONS ................................................................ 115
**TABLE 4.5 : CLASSIFICATION – INDUSTRY BACKGROUND ............................................ 116
**TABLE 4.6 : CLASSIFICATION – CHANGE QUANTITY ...................................................... 117
**TABLE 4.7 : CLASSIFICATION – BUSINESS PROCESS OPINION ..................................... 118
**TABLE 4.8 : EDUCATION DATA BY CODE SUMMARY .................................................... 118
**TABLE 4.9 : RTC FACTORS AFTER RE-CODING ............................................................. 124
**TABLE 4.10 : CODING SUMMARY CONSOLIDATED ......................................................... 125
**TABLE 4.11 : PERSONAL LIKE OF CHANGE VERSUS CODED FACTOR ......................... 126
**TABLE 4.12 : GENDER DATA BY CODE ......................................................................... 127
**TABLE 4.13 : EXPERIENCE DATA BY CODE ................................................................. 128
**TABLE 4.14 : RTC EFFECT CODING TABLE ................................................................. 131
**TABLE 4.15 : CHANGE EFFECT DATA BY CODE ........................................................... 132
**TABLE 4.16 : CHANGE EFFECT DATA BY CODE COMBINED ....................................... 133
**TABLE 5.1 : PARTICIPANT AGE ANALYSIS ..................................................................... 135
**TABLE 5.2 : CHANGE EXPERIENCE LEVELS OF SURVEY PARTICIPANTS ..................... 136
**TABLE 5.3 : PARTICIPANT GENDER ANALYSIS ................................................................ 137
**TABLE 5.4 : PARTICIPANT INDUSTRY EXPERIENCE ..................................................... 137
**TABLE 5.5 : PARTICIPANT OCCUPATION ........................................................................ 138
**TABLE 5.6 : MANAGER STATUS ...................................................................................... 138
**TABLE 5.7 : CRONBACH ALPHA – LEADERSHIP INITIAL TEST RESULTS ....................... 139
**TABLE 5.8 : LEADERSHIP QUESTION TEST RESULTS .................................................... 140
**TABLE 5.9 : LEADERSHIP QUESTION OPTIMISED RESULT ........................................... 141
**TABLE 5.10 : RTC FACTOR CRONBACH ALPHA – POST OPTIMISATION ......................... 141
**TABLE 5.11 : CRONBACH ALPHA – STAKEHOLDER AND TRUST SEPARATED .............. 142
**TABLE 5.12 : SKEWNESS AND KURTOSIS – SURVEY FACTORS .................................... 145
**TABLE 5.13 : SKEWNESS 2nd TEST – SURVEY FACTORS .............................................. 145
**TABLE 5.14 : KURTOSIS TEST – SURVEY FACTORS ...................................................... 146
**TABLE 5.15 : KOLMOGOROV-SMIRNOV TEST – ALL GROUPED CONSTRUCTS ............... 147
**TABLE 5.16 : MEAN AND STANDARD DEVIATION – SURVEY FACTORS ....................... 148
**TABLE 5.17 : INDEPENDENCE TEST – MANAGEMENT VS. LEADERSHIP ..................... 149
**TABLE 5.18 : INDEPENDENCE TEST – MANAGEMENT ASSOCIATION ............................ 150
**TABLE 5.19 : HYPOTHESIS TEST – CHI-SQUARED ........................................................ 151
**TABLE 5.20 : AGE VERSUS EXPERIENCE ....................................................................... 152
**TABLE 5.21 : GOODNESS OF FIT – ALL VARIABLES ....................................................... 153
**TABLE 5.22 : MISSING SURVEY DATA - SUMMARY BY QUESTION .............................. 155
**TABLE 5.23 : LITTLES MCAR TEST RESULT ................................................................. 156
**TABLE 5.24 : LITTLES MCAR TEST RESULT – POST MISSING DATA ............................ 156
**TABLE 5.25 : KMO AND BARTLETT’S TEST RESULT ...................................................... 157
**TABLE 5.26 : COMMUNALITIES ....................................................................................... 158
**TABLE 5.27 : TOTAL VARIANCE EXPLAINED ................................................................. 159
**TABLE 5.28 : COMPONENT MATRIX ............................................................................... 161
FIGURE 8.6 : P-Plot - Trust .................................................................................................................. 267
FIGURE 8.7 : P-Plot - Stakeholders .................................................................................................. 267
FIGURE 8.8 : Histogram - Workload .............................................................................................. 268
FIGURE 8.9 : Histogram - Management .......................................................................................... 268
FIGURE 8.10 : Histogram - Stakeholders ......................................................................................... 269
FIGURE 8.11 : Histogram - Trust ..................................................................................................... 269
FIGURE 8.12 : Histogram - Politics .................................................................................................. 270
FIGURE 8.13 : Histogram - Power ................................................................................................... 270
FIGURE 8.14 : Histogram – Planning and Analysis ......................................................................... 271
Abbreviations

Table of Acronyms used in this Research

- Australian Human Resource Institute (AHRI)
- Australian Institute of Project Management (AIPM)
- Change Management Institute (CMI)
- Confirmatory Factor Analysis (CFA)
- CPA Australia (CPA)
- Exploratory Factor Analysis (EFA)
- Enterprise Resource Programme (ERP)
- Human Research Ethics Committee (HREC)
- Human Resource Function (HR)
- Human Resources Manager (HRM)
- Internet Protocol Address (IP)
- Kaiser-Meyer-Olkin Measure of Sampling (KMO)
- Missing Completely at Random (MCAR)
- National Ethics Application Form (NEAF)
- Principal Component Analysis (PCA)
- Probability Value (p-value)
- Project Management Book of Knowledge (PMBOK®)
- Organisational Development (OD)
- Resistance to change (RTC)
- Root Mean Square Error of Approximation (RMSEA)
- Western Sydney University (UWS)

Copyrights and Trade Marks

- 6 Sigma®
- Amos®
- Digital Voice Manager Software®
- Microsoft Word® and Excel®
- Nvivo10®
- PMBOK®
- SPSS®
- Survey Monkey®
Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

Mathew Donald

Date: 17th April, 2017
Dedications

Completing this Thesis for submission on a part time basis over the past nearly 6 years has been a challenge especially as I was employed full time during the period. My life outside of work and doing this research is full in lots of other ways so creating many challenges on a personal front. The largest impact of my study has been on my wife, Louanne Donald. I recognise and thank Louanne for her support and listening in respect of my journey to complete this Thesis. The release to pursue personal time, reflecting and completing time during the preparation of this Thesis is a significant sanction from someone very special.

Acknowledgements

As my principal Supervisor I would like to recognise the efforts of Dr Jim Mitchell who met with me on my first day, being supportive all the way through the past 6 years as an advisor and mentor. Dr Mitchell has been an encourager and supporter in my efforts to pass the Confirmation of Candidature, my multiple participations in the University 3MT competition, articles and conference presentations.

As my other supervisor I would also like to thank Dr Colin Sheringham who provided alternate angles when I had felt caught in a rut particularly early on in the research. Dr Sheringham was a supervisor with my research for nearly 5 of the 6 years. I have valued the stability of supervision throughout my research that has been achieved with Dr Mitchell and Dr Sheringham as my supervisors. Dr Terry Sloan has also assisted me throughout my research acting as an advisor, mentor and reviewer, whilst also supporting my 3MT participation across the full 6 years of study.

I have endured, led and managed many organisational change projects in a number of organisations for over 30 years. Some of these experiences have been positive, but unfortunately the majority could not be classified this way. As a manager and as a participant, I believe that there must be better ways
to introduce and deliver change to organisations as the optimal point cannot have been reached yet. The vast amount of effort, time, disorder and career change caused by organisational change is significant, requiring recognition and triage by Shareholders, Boards and Management. It is hoped that the advance of research into organisational change and in particular Resistance to Change (RTC), will result in deeper understandings and improved change outcomes for organisations and participants.

Despite the effort and the hurdles required to produce research I would encourage anyone who has a passion in a topic to think about spending the time to go down the PhD path. It will not be easy, but it provides those with a passion great satisfaction and fulfilment. The completion of a Thesis gives one an opportunity to learn more about their topic, creating opportunities to personally grow and meet others with similar interests.
1 Introduction

1.1 Problem Statement

This research is titled: Resistance to change forms and effects in Greater Western Sydney Region: a multidimensional approach.

The origins of Resistance to Change (RTC) research began 70 years ago where it was originally thought to be akin to inertia in the sciences. The phenomenon was thought to arise from a variance in individual responses where forces can promote or resist change (Lewin 1945; Patalano 2011). RTC has been defined as not standard, exhibiting itself in forms from overt or implicit to that of immediate or deferred (Agboola & Salawu 2011). Despite the long history of RTC research it is still estimated that between 28% and 93% of organisational change fails (Candido & Santos 2015; Decker et al. 2012) or between 60% and 90% (Wong et al. 2005), being costly and broad (Wolf III 2006), requiring more investigation and more understanding of the topic.

Past research has investigated singular RTC factors, where there are now calls to investigate RTC factors on the basis that they may co-exist and interrelate. A multidimensional group of researchers have emerged allowing organisational systems, behaviour and the psychology of change to be interwoven, where the participants in change are interdependent and the identification of resistance is difficult (Deetz 2008). There are many forms of RTC revealed in previous positivist research, where emerging research has identified interrelationships of human or psychological RTC forms.

The RTC phenomenon has been considered in relation to the research and is presented in the Literature Review in Chapter 2. A number of researchers have called for RTC research to adopt a multidimensional approach (Dawson 2007; Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003), where some limited multidimensional research already exists (Hoag, Ritschard & Cooper 2002; Oreg 2003, 2006). As multiple RTC forms have emerged in past positivist research it is conceivable that the various RTC forms may co-exist and be interrelated, where a
multidimensional approach may increase understanding on the interrelationships.

RTC for the purposes of this research is defined as being an influence on the change process that is not standard, exhibiting itself in forms from overt or implicit to that of immediate or deferred (Agboola & Salawu 2011; Fleming, P & Sewell 2002), also being multidimensional (Dent & Goldberg 1999), including individual responses that may attempt to prevent or improve their position during a change (Dent & Goldberg 1999). Multiple forms of RTC were reviewed as part of the Literature Review and revealed in the two phases of this research to have multidimensional relationships.

RTC factors were identified and defined if they were found to improve or hinder change process. RTC factors in the first phase of this research were identified and measured by the number of times interview discussion points were raised that met the definitions developed out of the Literature Review. The second phase of this research refined the RTC factors, where questions were developed for each RTC factor based on the Literature Review. The research has compared the Literature Review with the two phases of this research, concluding that multiple RTC forms may be interrelated.

1.2 Background

1.2.1 Rationale

The RTC phenomenon has been researched as a process (Brannick 1995; Coch & French Jr 1948; Lewin 1945; Mellon 1990; Schalk, Campbell & Freese 1998) and as one with a human or psychological perspective (Bennett & Durkin 2000; Dent & Goldberg 1999; Oreg 2003). RTC is now considered by researchers to be multidimensional rather than singularly determined (Adams, Bilbro & Stockert 1986; Dawson 2007; Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003; Schalk, Campbell & Freese 1998). In response to this multidimensional group of researchers and after consideration of the research questions, a multidimensional approach was adopted for this research.
The concepts for this research commenced from a review of the literature, identifying many of the RTC forms revealed in predominantly positivist frameworks. It was evident that with so many RTC forms they may co-exist and interrelate in change programmes. Past research had identified quality as a RTC effect (Lewin 1945; Smith, I 2011), where additional effects may be possible.

### 1.2.2 Need for the study

The research objectives and research questions for this research are an attempt to understand how the various RTC forms may interact. Multidimensional research has occurred in a limited research on human aspects (Oreg 2003; Stewart et al. 2009). There are additional calls for process forms of resistance to be reviewed in a multidimensional way (Dent & Goldberg 1999). There are many forms of RTC identified previously where a multidimensional approach may open new understanding of the potential correlations between the RTC forms. If multiple forms of RTC co-exist, they may not all hold equal influence and importance.

Quality has been researched as an effect of resistance (Lewin 1945; Smith, I 2011), where quality may form as an indicator of RTC existence. It is envisaged that not only the quality of the change programme may be affected by resistance, so there remains a possibility of other effects. Change projects may be created with timelines and dollar budgets (Project Management Institute 2004) in an attempt to control project delivery, these controls may be affected when RTC presents. There is a need to research RTC effects, where additional RTC effects have the potential to increase the importance of research and create understanding.

Behavioural aspects of change resistance have been researched using a multifactor scale (Bennett & Durkin 2000; Oreg 2003; Shah 2010; Stewart et al. 2009). The method of triangulating a Literature Review, Interviews and Survey combined with factor analysis has been considered appropriate where there are a number of interrelating RTC forms (Bennett & Durkin 2000; Schalk, Campbell & Freese 1998). Past research has
tested exploratory models created from survey data, when complemented with confirmatory factor analysis (Oreg 2003; Stewart et al. 2009) there may be an increase in quality of the exploratory research (Bennett & Durkin 2000).

There are many forms of RTC identified in past research in a positivist paradigm. There is a possibility that forms of RTC co-exist and are interrelated, where if found that information will change the way RTC is understood and may be treated. Multidimensional research has commenced in a limited way, where the research method has the potential to detect if and how multiple RTC forms may interrelate (Alas & Sharifi 2002; Bennett & Durkin 2000; Oreg 2003; Schalk, Campbell & Freese 1998).

There is also limited research into RTC effect that has revealed quality as an effect (Smith, I 2011), where other effects may be possible. Research into multiple forms of RTC, their interrelationship and effects is required to advance research on the topic and improve understanding. Change programmes are often managed using time and cost measures, where it was considered these additional effects may be readily available for revelation at interview and survey. Whilst quality has been researched previously, it was thought that enquiring on two alternate RTC effects may reveal additional information and understanding of the underlying RTC.

1.2.3 Conceptual Framework

The Literature Review of Chapter 2.4 to 2.6 revealed many forms of RTC, where it is possible that they may co-exist and be interrelated. The potential for interrelationships has important implications for future researchers and practitioners. After consideration of the Literature a diagrammatical representation of the conceptual framework for this study was created and is displayed at Figure 1.1 below.
The Framework above recognises the Group Dynamics body of knowledge, where change moves the organisation from one state to another (Lewin 1945). In recognition of the Individual Psychology body of knowledge the Conceptual Framework includes a People element, where the overall framework recognises the multidimensional nature of the phenomenon proposed by researchers (Goltz & Hietapelto 2003).

The Figure at 1.1 above portrays the basis of this research where an organisation can move from state 1 shown on the left of the figure over to the right, being then state after change. The process in the middle of the figure includes those factors that have emerged out of this research. This research began with a qualitative phase interviewing those involved in change that were familiar with the process of change, that had witnessed and could identify forms of RTC. The interviews were more interested in the middle of the construct in Figure 1.1 than the before or after change state, as that was considered the most appropriate way to find common elements of RTC and answer the research question.

In a change programme organisations regularly change organisational structures, affecting people and people are also involved in planning and managing change, As was identified in the Literature Review at Chapter 2.
of this research the human element may be the recipient of RTC as well as a perpetrator, where other elements of change may have significantly more impact. Those leading and managing change were found to be the most significant, interrelated RTC factors in this research so are included in the middle of Figure 1.1.

Research reviewed at Chapter 2 also indicates that RTC is not necessarily a negative factor, where this research has found that RTC may have a both positive and negative influence. In Figure 1.1 the arrows point forward and backward between the two organisational states acknowledging the potential for the RTC factors to influence in both directions.

The concept for this research is that the multiple forms of resistance to change may exist at the same time. As RTC may affect organisational change quality (Smith, I 2011) there is the possibility that it may have an effect on Time or Cost. A multifactor correlation analysis combined with exploratory and confirmatory analysis has the potential to assist in understanding. The multifactor approach has previously been used in understanding dispositional aspects (Oreg 2003), where it has also been proposed as the method for future RTC research (Goltz & Hietapelto 2003; Schalk, Campbell & Freese 1998; Smith, I 2011). The conceptual drawing below at Figure 1.2 is an attempt to visually portray the potential multidimensional nature of RTC, constructed after the Literature Review of Chapter 2.

RTC in this research has found multiple forms of RTC, aligning with past research reviewed in the Literature Review of Chapter 2. The first research required not only discovery of RTC forms but required interrelationships between multiple forms as previous research had researched forms one by one from a positivist position. Change in Group Dynamics begins from one state and transforms into another state as shown in Figure 1.1. In both Figure 1.1 and 1.2 the organisation has been considered as having three elements, the definitions and reasons for inclusion in the Figures of this is tabled below at Table 1.1.
Table 1.1: Organisational Definition

<table>
<thead>
<tr>
<th>Organisational Element</th>
<th>Comment on inclusion in model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Organisational items that are physically owned items by the organisation that could influence or be referenced in a change programme. Includes procedures, products and quality amongst others</td>
</tr>
<tr>
<td>People</td>
<td>Staff employed by the organisation that are of both employee or manager status. Includes attitudes, personality, stress and other elements of the individual and psychology.</td>
</tr>
<tr>
<td>Process</td>
<td>These are the way the organisation operates including processes, communication and structures.</td>
</tr>
</tbody>
</table>

This research began with a qualitative approach, exploring organisational change from a manager perspective, where a number of RTC factors emerged and appeared to be interrelated. A number of questions in the first phase of the research asked about the above elements of the organisation and change. The most important RTC factor that emerged from the qualitative research was that of Communication, appearing more frequently and more interrelated than other RTC factors. Counter to this a number of participants answered questions that change is more related to people than process. The interview questions were open and discussed quality, yet the RTC factors revealed in interview were less related to Assets than expected, despite the Literature identifying many RTC forms.
The below Figure 1.2 does not attempt to display elements of the second research relating to RTC effect, as the Literature indicates quality is the only RTC effect researched in the past. This research did not conclude that multiple RTC effects exist so was omitted from this Figure.

**Figure 1.2 : Multidimensional Resistance Concept**

In recognition of the interrelationships discovered in this research the above Figure 1.2 constructs a position where multiple forms of RTC co-exist and may interrelate. The RTC forms in Figure 1.2 are not exclusively those found in the research data, where a number of factors were identified from the Literature Review at Chapter 2 alone.
In the below Figure 1.2 managers are not the centre of the research, nor are the employee as might be expected in the Individual Psychology field of knowledge. This research has adopted a multidimensional approach, where multiple forms of RTC may coexist and be interrelated. The below construct leaves the organisation open, with forms of people, processes and assets, where those individually and collectively may assist the organisation to change.

The arrows shown at Figure 1.2 indicate that a number of RTC factors have been researched in the past. This research has successfully, albeit with qualification, found that a number of RTC factors may interrelate as indicated in Figure 1.2. This research has found in the qualitative phase that Communication may be linked to a number of other factors including Management and Leadership. Culture in the qualitative research may also be linked but was not tested in the quantitative research phase due to a rationalisation process.

As indicated in the Figure 1.2 many forms of RTC have been researched in the Psychology field of knowledge including sensegiving, power and culture. These forms of RTC have been extensively researched and discussed later in the Literature Review of Chapter 2. Some of these people related forms found in the Literature have also featured in this research including Power, Culture and Leadership. As required by the research question a number of RTC factors have been found to be interrelated including that of Leadership, Management and Communication.

The Individual Psychology body of knowledge has focused on the human elements of RTC, whereas the Group Dynamics has investigated the process elements of change (Coch & French Jr 1948; Lewin 1945). This research has adopted the concept of RTC being multidimensional, where Group Dynamics and Individual Psychology concepts are simultaneously possible. Rather than choosing RTC forms and investigating those in a positivist way, this research allowed the RTC forms to emerge from the Literature, be confirmed in interviews and explored in a survey.

This research method has aligned with other multidimensional research methods on RTC dispositional differences (Oreg 2003) and change
processes (Schalk, Campbell & Freese 1998). Correlation analysis in the form of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) was considered an appropriate way to detect multiple inter-item relationships.

1.3 Specific research questions

The Literature Review of Chapter 2 indicated that the gaps in past research that RTC forms may interrelate, where multidimensional research may reveal additional information on the phenomenon. The Literature Review indicated that multiple RTC factors may have interrelationships within their respective definitions. Upon review of the definitions of RTC factors that emerged in the research, there was indicative information that the forms of RTC may not just be interrelated, rather that some may have positive and negative forms. The Literature Review of Chapter 2 concludes that a gap in the Literature exists in respect to the multidimensional nature of RTC. This research has provided links with the Literature Gaps to improve the understanding of RTC by investigating potential interrelationships between multiple forms of RTC.

A number of RTC factors have been researched in the past as shown in the Literature Review of Chapter 2, where several RTC factors were identified in this research. It is conceivable that RTC factors co-exist and be interrelated as so many factors have been identified in past Positivist research. The research data has indicated that some of the RTC factors identified in the Literature Review may be interrelated not merely in their definitions.
Whilst some Literature has investigated potential effects of RTC in respect of quality, additional effects may be possible. The additional information on RTC effect may increase our understanding of the RTC topic as well as create more emphasis on the importance of the topic. As a result of reviewing RTC factors and the Literature the following were set as the questions for this research:-

- What interactions occur between multiple forms of resistance to change?
- What effect does resistance have on change programme time, cost and quality?

The first research question required this research to extend past multidimensional research by allowing forms of RTC to be openly seeking to find interrelationships, following research methods adopted with multiple RTC forms (Oreg 2003; Stewart et al. 2009).

The Literature Review of Chapter 2.7 reviewed past research in relation to the factors identified in the 2 research phases. These definitions were used in the coding process of the semi-structured interviews and as reference in the survey creation and analysis.

The table below summarises the coding nodes or factors defined from the academic review of the topic in the Literature Review of Chapter 2.7.
Table 1.2: Coding Group Definitions Summary

<table>
<thead>
<tr>
<th>Grouping (node) name</th>
<th>Definition used for coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Those qualities that involve inspiration, co-ordination, credibility (Schultz 2013) and influence (Skvoretz 1996), having the potential to improve or create barriers to organisational change (Ivanov 2014) by a person with status (Piazza 2014) or social influence (Chehmers 2014).</td>
</tr>
<tr>
<td>Management</td>
<td>A skill involving decisions (Smith 2008), thinking (Khandelwal 2010) and the co-ordination of inputs and outputs. Where the co-ordination includes that of efficiency and competitiveness (Singh 2006), people (Selby 2014), plans (Ketter 2014) and control (Griffin 2014).</td>
</tr>
<tr>
<td>Communication</td>
<td>An action that contains clear information (Green-Wilson 2014) on matters that are positive or negative (Marsh 2014), prepared at a given time (Witte 2014), in multiple forms ranging from social media (Polanska 2014) to that used historically of print and voice. Where the information delivered influences (Witte 2014) or empowers (Bolton 2003) people, affecting performance (Jing 2014).</td>
</tr>
<tr>
<td>Workload of Participants and Change Team</td>
<td>Workload is a margin between the tasks that are required versus that of the individuals coping capacity, or alternately, as a set of factors that contribute to stress (MacDonald 2003) where management decisions maybe a contributor (Pfeffer 2011). The elevated stress levels may result in reduced behaviours (Nel 2007, Maslach 1997, Cole 2011) or performance, together with various employee health issues (Pfeffer 2011, Hobfol 2000, Cole 2011, Maslach &amp; Leiter 2008, Maslach 2001) often displaying themselves as negative barriers in an organisational change programme (Sin 2011).</td>
</tr>
<tr>
<td>Stakeholder Engagement</td>
<td>An investment that may be achieved when an organisation includes communication, training and decision-making tools (Keleher 2009) to influence an employee’s performance, trust (Sloan 2013), skills and communication (Hauck 2014) or effectiveness (Cole 2011, Maslach 1996).</td>
</tr>
<tr>
<td>Change Delivery</td>
<td>Those activities required to implement change after it has been approved. These activities include that of processes (Ye 2007), strategy and decision making (Patanakul 2012), resource allocation (Yaghoobkar 2012), metrics and target setting (Mikosovic 2005, Barclay 2010, Marques 2011), participant behaviour (Ashforth 1998, George and Jones 2001, Whelan-Berry 2003), ethics (McKendall 1993), time, cost and quality. As engagement and communication have featured in the interviews as strong separate groups with their own coding groups they are specifically excluded from this coding group.</td>
</tr>
<tr>
<td>Politics and Power</td>
<td>Those activities that are aimed at influencing the organisation (Kanter 1977, R ussell 1938, Mintzberg 1984) either informally or formally (McKendall 1993), through position, coercion, positive rewards, expertise of leaders or personal character of the leader (French 1959).</td>
</tr>
<tr>
<td>Culture</td>
<td>Those shared assumptions, beliefs and values that are held dearly (Schlen 1985) including that of power and structure, performance and risk based on relationships (Wallach 1983, Koberg 1991).</td>
</tr>
</tbody>
</table>

The second hypothesis enriches the research question as to a link between barriers to change and change effect of quality, time and cost. As many organisational changes are performed as part of a project reference to the PMBOK® has been consulted as it is a reference book on ways to define and implement an organisational project.
For the purposes of coding and setting attribute classifications the following definitions have been used by this research in respect of change effects:

- **Time** – the time taken to deliver the project versus the original schedule. Time (Project Management Institute 2004) is said to be linked with that of planning where the planning includes workbooks and activities determined from experience of the planner and estimates of time for each.

- **Cost** – is the value of the accumulated project costs incurred from the commencement of the project planning to the completion of the project versus the original scoped plan or budget (Project Management Institute 2004).

- **Quality** – is the assessment of whether the original requirements of the planning were met using available metrics or deliverables stated (Project Management Institute 2004).

The second aim of this research was to investigate if barriers affect the delivery within the project deliverables of time and cost. The below is a summary of the definitions determined for the coding of effects and in classifications.

**Table 1.3 : Change Effects Definition Summary**

<table>
<thead>
<tr>
<th>Effect Name</th>
<th>Definition applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>the time taken to deliver the project versus the original schedule</td>
</tr>
<tr>
<td>Cost</td>
<td>the value of the accumulated project costs incurred from the commencement of the project planning to the completion of the project versus the original scoped plan or budget.</td>
</tr>
<tr>
<td>Quality</td>
<td>the assessment of whether the original requirements of the planning were met using available metrics or deliverables stated</td>
</tr>
</tbody>
</table>
1.4 Research Method

A positivist approach to RTC research has dominated research on the topic for the past 70 years. Positivism was considered for this research perspective as it has been relatively successful at identifying many RTC forms. To avoid criticisms of potential arbitrary selection of RTC forms out of the past research, a positivist approach was not adopted for this research. Longitudinal research was abandoned as a research method after consideration of the time constraints.

A Pragmatic approach has been taken in this research, being considered the most appropriate way to identify interrelated RTC forms. The RTC forms included in this research emerged from the themes in the Literature Review of Chapter 2. The themes were later analysed and combined with semi-structured interview RTC themes. The mixed method for this research was adopted as it was considered a way to reduced bias in the choice of RTC forms being researched. The combination of semi-structured interviews and a survey was considered a useful way to gather relevant information on the 2 research questions.

A mixed method approach for this research has enabled a conclusion to be formed by due comparison of the Literature and research data, where the data has been formed from semi-structured interview and survey. This comparative method reduced bias in the research as the themes for the final survey phase were developed from the semi-structured interview first phase rather than being randomly selected. The semi-structured interview questions were created after the initial Literature Review, where the most common factors of the interviews were used in the survey development. The emergent resistance factors are based on definitions tabled in the Literature Review at Chapter 2.7.

This research has made assumptions and created limitations by adopting this mixed method approach. In recognition the following Section details the significant assumptions and limitations that should be considered with this research and its findings.
1.5 Assumptions and limitations

This Section details and discusses the assumptions and limitations of this research that should be considered when reviewing this research.

1.5.1 Assumptions for this proposal

Previous research referenced in the Literature Review of Chapter 2 indicated that various RTC forms were detectable, where this research consequentially assumed that the RTC phenomenon is neither hidden nor too difficult to detect in interviews or survey. Research participants had been found to be accessible in past research, as indicated in the Literature Review of Chapter 2, so this research assumed that participation was likely to be attracted to this research. Managers and experienced practitioners of organisational change were the targeted population as other organisational participants may have been difficult to contact. Research invitations were not distributed through employers, as the method may have placed undue pressure on employees, creating concern for employees about their continuity of employment if they chose to not participate.

To date past research has shown a relationship between process of change and change programme success (Lewin 1945). This research has assumed that there may be an effect on the change programme quality, time or cost where RTC exists as change programmes often fail (Beer, M, Nohria, N. 2000; Todnem 2005). Previous research has indicated that RTC can have an effect on quality (Smith, I 2011), where other effects may be possible.

The invitations for both phases of this research have been distributed by Linkedin® groups. In combination with snowballing, this distribution means was considered appropriate to achieve representative participation quantities for this research. The first phase of this research sought participants with significant experience and responsibility in organisational change. The second research phase sought participants with similar experience levels subject to the strict demographic limitation discussed below at 1.5.2.
1.5.2 Limitations of this research

Research by its nature has limitations that the researcher cannot control that may introduce bias to the work, the research will also have delimitations that are introduced by the researcher deliberately (Price, J & Murnan 2004). The reasons why researchers do not openly describe limitations may because they were not well enough trained in research, or are hiding the limitations to improve publication odds, or that they believe the task is not theirs to do (Price, J & Murnan 2004). Delimitations on the other hand are the attributes for which the research can attest to representing, where these are controlled by the researcher (Price, J & Murnan 2004).

Each sampling method has limitations and ramifications for the statistical data, the over-arching choice of sampling needs to consider if the population is representative of the wider population (Kelley et al. 2003). A sampling error in the data occurs when a sample is not considered representative of the population (Arber 2001). Whilst not eliminated entirely the effect should be considered in sampling design for the research (Kelley et al. 2003).

To achieve higher response rates and reduce errors researchers send out reminders, seek to make their surveys understandable as well as considering alternatives of contact (Kelley et al. 2003). Not everyone who is approached to complete a survey will do so, the response rate is a source of bias, the rates of postal survey may be lower than survey but in either case the rate should be reported (Kelley et al. 2003). The non-response rate is harder to estimate when using online forms of survey (Wright 2005). Systematic self-selection bias may occur when survey or invitations are posted on line (Stanton 1998; Thompson et al. 2003), so being a major limitation and may be difficult to avoid as those who do not wish to engage on-line will ignore requests (Wright 2005).

Whilst every effort was made to maintain data integrity it is acknowledged that at times there will be limitations to data capture and analysis. When limitations have been considered significant they have been documented
and presented in this thesis. The following details the research limitations identified.

As the title and research goals were limited to the Greater Western Sydney Region, the region was defined in this research as being the region west of the Sydney Harbour Bridge as there are a number of areas making up the region (Montoya 2012). The broad area was defined in an attempt to improve the number of potential participants. The semi-structured interview participation was not limited to the region of Greater Western Sydney as interviews were aimed at gathering in depth information on the topic from experienced change managers. In contrast the survey data required participation in the locality of Greater Western Sydney.

This research required participants to have worked for a large organisation. The term of large organisation has been defined as one with 200 employees (Statistics 2002) and as one with 50 employees (ASIC 2017). This research considered the disparity in the definitions of a large organisation, where large organisation was defined for this research as being one with 100 employees.

The semi-structured interviews required the participants to be over the age of 18 years of age and preferably at a managerial level. This was not to exclude people on a discriminatory basis, rather it was considered that those under 18 years of age would have been unlikely to have had the necessary experience to impart a deeper understanding of the topic. Managers were preferred as it was considered a manager would be placed under less stress and worry about their employment if participating on a voluntary basis, compared to employees. Managers and non-managers were allowed to participate in the survey as it was anonymous, so reducing potential stress and issues of confidentiality for participants.

This research was limited to the resources, knowledge and time available from the researcher, combined with quality requirements of the researcher and supervisors. These limitations were considered in the development of the project plan scope, time and quality of this research. These limitations also contributed to research decisions in method, where
for instance longitudinal research was not considered appropriate due to time constraints.

This research deliberately sought participants with experience and responsibility in organisational change. The demographic of experienced participant was considered to be more likely to identify multiple forms of RTC and interrelationships, as compared to those with little experience. Whilst there was no preference for gender in the research the data shows that the first semi-structured interview phase achieved an almost even split between male and female participation. Despite the second phase research invitation being distributed over the same media of Linkedin® groups, the second survey phase achieved a significant participation skew towards males.

This research has been limited by the quantity of 25 semi-structured interviews as that was the number targeted and achieved. The second research phase survey has been limited by a quantity of 74 participants that were able to answer the criteria research questions on organisational size and location. The participation in both phases of the research was a result of invitations being posted to Linkedin® groups combined with associated snowballing.

1.6 Research Justification

The understanding of the RTC topic has been through the dominant use of positivist research methods, revealing many new and informative forms of RTC. The understanding of the topic is limited as the appreciation of the RTC forms is singular and has avoided the potential for RTC forms to co-exist and interrelate. The lack of appreciation for multiple RTC forms and interrelationships may be limiting understanding. The treatment of RTC may be substantially different if multiple forms co-exist and interrelate as some forms may be more influential than others. Whilst positivism has been successful in identifying multiple RTC forms it is unlikely to reveal interrelationships and hierarchies.

This research was required to extend past academic calls for additional multidimensional research. The current research has allowed RTC forms to fluctuate from positive to negative, rather than only being negative and
avoided. This extension of an open approach to the polarity of RTC forms has enabled further extension to the understanding of RTC.

Without research and information about multiple RTC forms and interrelationships it is possible that practitioners will randomly choose RTC forms for treatment. The arbitrary selection of RTC forms without may result in large quantities being spent on time and cost, without the expected improvements in organisational change outcomes. Research indicating RTC co-existence and interrelationships has the potential to improve understanding of the topic. Additional understanding may enable practitioners to rationalise resource and improve the efficiency of spend.

1.7 Thesis Structure

This Thesis is made up of a 7 Chapter structure, where this Chapter 1 was created as an introduction to the research. Chapter 1 has outlined how the research was developed, including the specific research questions and an overview of the method. This first Chapter also details the significant research limitations and assumptions.

The Literature Review of Chapter 2 created a deeper understanding of RTC, where the concepts identified formed into semi-structured interview questions. The Literature Review has explored the origins of organisational change, the management response and RTC research. The Literature Review shows that the RTC research have formed into 3 main bodies of knowledge that are recognised and discussed in Chapter 2. The Literature Review also defined the emerging RTC factors from both phases of this research that was used for interview coding, survey development and analysis. Through a comparison of the Literature any research gaps identified are detailed in Chapter 2.

The Methodology Chapter 3 explores the methodological choices with respect to the research questions. The Chapter reviews the choices in relation to past research in RTC, where past research has been dominated by positivist research. A number of philosophies were considered as alternates to positivism, where alternate research perspectives were reviewed in an attempt to answer the multidimensional nature of the research question. Chapter 3 details the way this research
was conducted, interview scripts and the relevant tests used to validate the data.

For the purpose of openness and clarity the data results of the two research phases are detailed at Chapter 4 and Chapter 5. Chapter 4 details the semi-structured interview data and analysis being the qualitative phase of the research. Chapter 5 details the quantitative second research phase of an on line survey. The Chapters detail the research data, demographic data, relevant validity tests and various analyses. The tests and analyses were required to understand the data so that the analyses could assist in forming a conclusion for this research.

The data and tests of Chapter 4 and Chapter 5 formed the base for the Analysis in Chapter 6. The Analysis is presented separately for the qualitative and quantitative research phases, where the Analysis sought to understand the data with relevance to the research questions. The analysis recognises the various data limitations and validity tests to determine meaning in the data.

In a triangulation of the two research phases with the Literature Review of Chapter 2, a research Conclusion is formed in Chapter 7. Chapter 7 compares the synergies and dichotomies of the data and analysis with reference to the research questions. The Chapter 7 includes a discussion of the research findings in relation to the contribution towards theory, knowledge and practice. Finally the chapter discusses possible future research direction arising from this research.

1.8 Summary

This Chapter 1 has described the Literature Review of Chapter 2 where the background to RTC was formed and the relationship to the research questions. The background of the topic indicates that it has been dominated by positivism that has detected many forms of RTC in the past. The RTC forms are high in quantity, where it is possible that the forms may co-exist. Included in this Chapter has been a discussion on the research method, the assumptions and limitations for this research.
RTC is now recognised as a multidimensional phenomenon (Goltz & Hietapelto 2003), where new research approaches to the topic may be required for the identification of RTC interrelationships. This research was designed after consideration of the possible research philosophies, where the chosen research philosophy was pragmatic. The pragmatic approach was chosen in an attempt to avoid arbitrary selection of RTC forms.

A limited amount of research has indicated that poor change programme quality may be linked to RTC (Smith, I 2011). It was considered that there may be other RTC effects beyond quality, where this research has included 2 additional effects of time and cost as potential effects of RTC. The organisation may approach RTC differently if additional effect relationships were identified.
2 Literature Review

This Chapter reviews the academic research on the topic of Resistance to Change (RTC) in an attempt to understand the topic and so form answers to the two research questions. The first research question requires an understanding of the RTC forms together with any potential interrelationship between the factors. The second research question is related to understanding if there are RTC effects related to the RTC forms, where two additional effects have been added to the past researched effects. The following Literature Review initially reviewed RTC and organisational change, so as to understand the process of change that may influence or be related to RTC factors.

Additional topics related to the research questions and the intial Literature Review emerged that had the potential to increase knowledge on RTC that was embedded in the research questions. Change management emerged as a field of study, where some organisations seek to influence or control change. Three clear fields of study emerged in the Literature Review as being related to RTC research, forming additional information that influenced understanding toward the two research questions.

The literature review began with an investigation as to why organisations change, before later investigating issues around how change is managed. The specific body of knowledge on RTC has formed into three main groups, presented in this Chapter under the Section headings of Group Dynamics, Individual Psychology and Multidimensional Framework.

In an attempt to understand RTC further, the literature has been compared and analysed later in this Chapter through a discussion of the topic’s issues and potential gaps. In the last Section of this Chapter 2 the factors developed in the first research phase of the semi-structured interviews are investigated with reference to the literature and defined. These factor definitions also resulted in a robust re-coding process where they were also used in the research analysis and conclusions of Chapters 4 to 7.
2.1 Literature Introduction

To first understand the research questions it was necessary to review past research into RTC and related topics. The first research question included RTC as a specific term, so investigating past research specifically on the term, its history and development was the base for this Chapter. The ensuing discussion reviews specific RTC research since 1940, exploring how the term has been used, defined and researched.

The origins of resistance research began nearly 70 years ago where the concept of groups developed from the individual and variances in individual responses led to a balance in forces that promote or resist change (Patalano 2011), something akin to inertia in the sciences. In Group Dynamics there are elements of interdependence in the task, where change begins with an initial state followed by an eventual equilibrium (Lewin 1945; Patalano 2011). The topic has been credited as beginning with attitudes to change (Coch & French Jr 1948), later developed into that of change readiness (Jacobson 1957), resulting in a concept that the perspective ranges from positive to negative (Lines 2005).

The history of organisational change has two historical groups within the scientist stream where Lewin’s research dominated up to the 1960s, followed by a group named Organisational Development (OD), holding alternate perspectives, where there is still confusion on the history of the topic (Burnes & Cooke 2012). The initial Lewin scientist of Group Dynamics approach has been described as waning and losing favour in the 1960s, where the topic expanded through the 1970s and 1980s (Burnes & Cooke 2012). Group Dynamics has been criticised as too slow in a time of rapid change (Burnes & Cooke 2012).

Since the 1990s the scientist approach has developed with more retrospective view and reassertion of Organisational Development (OD), where it has formed to be the dominant theory in organisational change (Burnes & Cooke 2012). Kurt Lewin’s work has been strongly linked to the components of OD (Benne 1976; Burnes 2007; Cooke, B 2007; Dent 2002; Freedman 1999; Schein 1988) so is not separate to OD as Group
Dynamics began with management participation and action research (Burnes & Cooke 2012; Cummings & Worley 2001; French, W 1982; French, W & Bell 1999; Harrison 1995)

Rather than purely being an individual response, researchers have shown that the original studies were surrounded by concepts of systems and group activities (Burnes 2004; Dent & Goldberg 1999; Patalano 2011). The concepts of Group Dynamics and scientific research on RTC developed around a body of knowledge that began in the 1940s and continues today, so in this Literature Review a Section has been named Group Dynamics otherwise often called Organisational Development (OD).

Resistance has been investigated from an individual perspective where feelings, frustrations and motivational decrease are possible. This individual based research still has management as the controller, being responsible for the deficiency and suboptimal change outcome (Coch & French Jr 1948; Patalano 2011). By the 1970s there was research attempting to improve strategies over employees so as to reduce resistance (Burnes 2015; Kotter & Schlesinger 1979), this created a change in research toward an individual perspective. The change in research perspective resulted in resistance being in the hands of the individual rather than management, where the individual responses are critical to the outcomes of change (Avey, Wernsing & Luthans 2008; Ford & Ford 2010; Ford, Ford & D'Amelio 2008; Georgalis et al. 2015; Pieterse, Caniëls & Homan 2012; Yerbury 1982). It is this body of research of the individual perspective that has been grouped in Section 2.5 as Individual Psychology.

A multidimensional group of researchers have emerged where organisational systems, behaviour and the psychology of change are believed to be interwoven, where the participants in change are interdependent and the identification of resistance is difficult (Deetz 2008). There are calls to remove the management construct of Group Dynamics and the Individual Psychology paradigms, by replacing them with a multidimensional framework as the single factor approach to research is holding back the understanding of change (Dawson 2007;
Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003). This body of knowledge is grouped in Section 2.6 named Multidimensional Research.

In light of the academic writing calling for a multidimensional approach to future research, the literature was undertaken in an attempt to understand and answer the research questions of :-

- What interactions occur between multiple forms of resistance to change?
- What effect does resistance have on change programme time, cost and quality?

The review of the literature began with a scan of academic and scholarly articles, reading of websites and other articles, where the scans began from the key words of “change management” and “change resistance”, then developing queries of many other words and related topics. The literature uncovered, was reviewed and assessed in the context of :-

a) how it adds to knowledge in understanding change and resistance
b) how it improves knowledge on resistance antecedents, resistance forms and resistance effects
c) how it improves knowledge on linkages between resistance with change

This section indicates that RTC has been researched extensively in the past, where a number of different fields of study have emerged. The fields of study are not in agreement on whether the manager should remain at the centre of the construct or if the research should continue in a positivist way or move to a multidimensional approach. The following section reviewed the Literature in relation to organisational change, where a notion of resisting change could not exist without the notion of change itself.
2.2 Organisational Change

Organisational change is increasing in speed, size, volatility (Burnes 2009; Burnes & Jackson 2011), where major world events have resulted in increased scope, variety and speed of change (Taylor, H & Cooper 1988). The pace of change may have increased even to a speed that people may not be able to cope (Bruckman 2008; Toffler 1970). So all business is inextricably linked and involved with organisational change today, where avoiding change is almost impossible (Shah 2010).

Change is often seen as essential for organisations and the future of human kind (Benn, Dunphy & Griffiths 2014; Burnes 2011; Kanter 2008; Sackmann, Eggenhofer-Rehart & Friesl 2009), where organisational survival may be dependent upon change (Burnes 2011; Company 2008) and competitive advantage lost if the organisation does not change (Kotter 1996). Organisational change has been attributed to market forces as well as corporate rationalisation, operational efficiency or deregulation (Bennett & Durkin 2000).

It is claimed that the failure rate of organisational change is as high as 70% (Burnes & Jackson 2011; Senturia, Flees & Maceda 2008) and the fail rate has been quoted as being 66% in a global survey (Company 2008). Some suggest that it is RTC that may play a key part of why organisational change fails (Georgalis et al. 2015), whilst others say employee resistance may be a main source of organisational change failure (Danisman 2010). The phenomenon of Resistance to Change (RTC) has been considered by management as a negative influence on organisational change, where the individual or employee group’s negative response should be treated and resolved (Collinson 1994; Georgalis et al. 2015; Iverson 1996; King & Anderson 1995; Kotter & Schlesinger 1979; Merron 1993; Trader-Leigh 2002; Waddell & Sohal 1998; Weber, P & Weber 2001).

The increase of changing environments, market tension, combined with financial and technological change has resulted in more interest in RTC (Giangreco & Peccei 2005; Kanter, Stein & Jick 1992; King & Anderson 1995; Kotter & Schlesinger 1979; Pardo del Val & Martinex Feuntes 2003). Whilst resistance to technological change can be substantial
(Bruckman 2008), an appreciation of organisational change maybe essential (Burnes 2015) and even unavoidable, resulting in conflict and insecurity (Amos et al. 2011).

There may be a dimensional difference between exploiting the current organisational resources versus that of seeking new possibilities, yet both may be important to sustained growth and change (Holland 1975; March 1991; Patalano 2011). Organisational adaption is required in times of rapid environmental and technological change, where the adaption is dependent upon employee support (Van Dam, Oreg & Schyns 2008). The change outcome is affected by the employee response that is often influenced by the leadership context that is experienced (Bommer, Rich & Rubin 2005; Van Dam, Oreg & Schyns 2008). Employee commitment can affect major organisational change, as individuals are not all satisfied with the direction, pace or outcomes of organisational change (Bennett & Durkin 2000).

People have tried to control or influence the type, method, time and quality of change, where organisational change has varying perspectives related to the time frame, occurrence rate, scale and method (Todnem 2005). Change is increasing in pace, despite this it is contended that there is little empirical evidence to track and measure the various theories (Todnem 2005). It is argued that the predispositions of people may be able to explain variances in reactivity to change and therefore future research should adopt a multidimensional approach (Taylor, H & Cooper 1988).

Organisational change is multidimensional in terms of scale, nature and time, the impacts of this change on employees and their reactions to change is also diverse (Dawson 2007), where organisational change research focus has been on the very large transformational, despite the derivation potentially coming from many other sources (Dawson 2007).

Procedural justice in developing countries can affect employee attitudes and behaviour, although these are not necessarily related to demographics of age and gender or marital status (Shah 2010). If the organisation does not invest in the individual in an environment of pace
the pressure on the individual to learn and change may affect the change process (Becker 2007).

The above discussion of organisational change indicates that change is fast and multidimensional, having elements including employees and processes that are affected when the organisation changes. This research also indicates that the modern organisational change creates difficulties in regard to coping with the nature and pace of change. There are many aspects to organisational change where the future of the organisation may be dependent upon its ability to cope and modify. The Literature above is not clear on how or if the employee response is related to the processes of change, so defining RTC for the purposes of this research required additional review of the literature.

The term RTC is closely linked with failed organisational change where management seek to reduce the existence of RTC to enable change in their organisations. The following Section reviews the literature on an area of knowledge called Change Management, being a body of knowledge where the manager is given responsibility to develop strategies and control the change.

2.3 **Change management**

RTC infers that there is some phenomenon that is slowing or attempting direct or indirectly against the organisational change process. The following is a review of Literature relating to how organisations seek to advance changes in organisations, where managers are often the guiding party in an organisational change. Potential RTC forms may exist due to any deficiencies in the process of change, so change management had potential to be important for understanding the first question of this research.

Whilst it is known that most change fails there has been little research on why that is the case (Buchanan, D et al. 2005; Burnes 2011). Some believe that change failure is due to deficiencies in the process of change or its planning (Burnes & Weekes 1989; Dent & Goldberg 1999; Huczynski & Buchanan 2001), while others believe it is more to do with the competence of management (Boddy & Buchanan 1992; Caldwell, R
There are many initiatives listing simple steps to manage change, yet it is unlikely that the issue can be managed as simply as it is often portrayed (Burnes 2011).

The task of controlling and implementing change is often given to the manager or management collective to execute (Smith, I 2011; Taylor, H & Cooper 1988). In an attempt to improve change outcomes there have been appointments of specific project managers to manage change, yet there are still a very high percentage of change projects that fail (Beer, M, Nohria, N. 2000; Todnem 2005). Resistance has been considered a pretext for managers and employees to blame one another when change fails (Georgalis et al. 2015; Piderit, S 2000). Managers may still be a key to the success of change as they dependent upon how changes are communicated to employees (Barrett, Thomas & Hocevar 1995; Ford & Ford 1995, 2009; Klonek, Lehmann-Willenbrock & Kauffeld 2014).

Whilst the term resistance to change has existed since the middle of the twentieth century, there is research indicating that management does not fully understand the topic (Alas & Sharifi 2002), where they also underestimated the learning and resistance to change activities (Alas & Sharifi 2002). In a grounded theory approach using participant observation and semi-structured interviews the factors of support, leadership and management were found to be important, rather than merely the control of change by management (Meston & King 1996).

Change agents promote change and initiate communication, so if the change agent cannot motivate employees to participate the change may fail (Klonek, Lehmann-Willenbrock & Kauffeld 2014), although the change can face obstacles by employees alone (Oreg 2003). Many managers would prefer that organisational change cease due to the increasing speed of change so they can become concerned about their position if there are issues (Hoag, Ritschard & Cooper 2002).

Resistance type and quantity can be influenced by management decisions as they influence the information supplied to employees, the level of employee participation and employee trust (Bordia et al. 2004; Oreg 2006). Alternately a management style that is more participatory may increase trust and inhibit resistance (Giangreco & Peccei 2005; Lawrence 1954, Reprint 1969), leading to higher employee commitment.
levels (Giangreco & Peccei 2005; Pugh 1993). Alternately participatory methods may be a way that managers can assess the organisational change process (Friedman 2011; Owen 2006) and the creation of change management tools attempt to improve the change process (Releases 2005).

The leadership and management of the executive can cause RTC when employee promises are not met (Hoag, Ritschard & Cooper 2002). Middle Managers have been noted for their role importance and influence on change outcomes (Balogun 2003; Floyd & Wooldridge 1994; Giangreco & Peccei 2005; Kanter 1983; Kanter, Stein & Jick 1992; Van Gils 1997), yet managers may have two roles in change as being promoters and as participants in change (Fenton-O’Creevy 2001; Giangreco & Peccei 2005). Change may also affect a manager by altering their level of power within the organisation (Fenton-O’Creevy & Nicholson 1994; Thomas, R & Dunkerley 1999), potentially altering their participation in the change. Managers often place organisational control factors like procedures and regulations to improve the change process, although those actions may inhibit an organisation’s ability to adopt change (Lewis, AC & Grosser 2012).

In a case study researching quality dimensions at La Trobe University change programme, there was a finding that quality and change are linked (Smith, I 2011), where organisations have developed important methods to control the change process by including quality techniques planning and monitoring (Smith, I 2011).

In recognition of the human interaction during change human elements are considered important, including strategies aimed at improving the workers' knowledge or involvement (Doppelt 2009; Kotter & Schlesinger 1979). A change process can range from that of coercion through to a mandatory or forced change, where a forced change can deliver adverse employee reactions but occasionally it is the most expedient strategy (Kotter & Schlesinger 1979). Whilst interventions by management may be useful, they are divergent ranging from systematic (Kotter & Schlesinger 1979) through to those that are less prescriptive (Doppelt 2009).
Organisational change is not uniform and may be linked to variable employee commitment (Bennett & Durkin 2000), or variable employee readiness for change (Shah 2010). Other factors leading to variation in human involvement may be derived from a diversity of employee personality and emotional intelligence (Taylor, H & Cooper 1988). Individuals under stress can have negative and positive reactions, where organisational change may also have positive and negative elements, resultant from the variety of human personalities (Taylor, H & Cooper 1988). Whilst personality is entrenched or genetic there is research to suggest that emotional intelligence can be learned, with some individuals having more positive stress responses than others (Vakola, Tsaousis & Nikolaou 2004).

The commitment of employees is variable during significant transformational change (Bennett & Durkin 2000), where employee commitment is related to job satisfaction (Bateman & Strasser 1984; Mowday, Porter & Steers 1982) and only indirectly to employee turnover (Jaros et al. 1993). Change affects the employee emotionally as well as affecting the distribution of resources and power (Vakola, Tsaousis & Nikolaou 2004). So a change in distribution of resources and power may affect the employees way of working, thereby potentially leading to fear or anxiety (Kotter & Schlesinger 1979). Perceived dissolution of power may lead employees to work against the goals of the organisation (Giangreco & Peccei 2005).

Management may only be able to lead and influence rather than control change as human participation in change is voluntary and variable, subject only to the remuneration contract (Kotter 1996). Change is widely accepted as not necessarily being smooth, where obstacles are common attributed to the organisation’s systems or direction (Danisman 2010; Kotter 1995). Research has shown that there can be wide deviation in perceptions of change results (Beer, M, Eisenstat & Spector 1990). The timing of change tasks is important to the change outcomes, so tasks that are delivered early they can be counterproductive to the process (Beer, M, Eisenstat & Spector 1990).
Project failure may be caused by participants leading the change, participants in the change, external parties, poor delivery process, poor task management or even communication. Researchers have sought to understand the origins of RTC due to the lack of organisational success in the past. The above indicates that there is considerable organisational change being experienced that often fails, despite the development of specific change managers. Research above indicates organisational change is variable, where there are gaps as to whether the change is managed, affecting employee attitudes or whether the human element is the driver of change. This variation in the way change is considered aligns with the conceptual framework presented at Figure 1.1 and 1.2, where change has elements of people, process and assets. The above also has found that there is research that links not only Management but also Leadership to change (Hoag, Ritschard & Cooper 2002), albeit that both are not linked to one another as required by the first question for this research.

2.4 RTC Research Linkages

As was discussed above, there are clear differences between research that attributes change success to the process of change compared to the research attributing success to individuals, employees and even personalities. Group dynamics was the first research type that investigated why change was not successful, this research had the manager in control, where change failure was considered a problem of process or control. Many forms of RTC emerged from the research into Group dynamics, where various sequences and types of preparation and process have been linked to RTC forms.

An alternate Individual Psychology form of RTC research has developed over the years, investigating the individual as being a RTC factor. Yet it is possible that the Individual is not the RTC source, where the human reaction is more a reaction to poor processes and control by Management or Leadership. Hence there is a conceptual linkage between the way an organisation changes, how it is led and managed and the employee response. Employee responses may be variable base
on how the individual relates to and is affected by a change, where those leading and managing the change may influence the employee reaction.

Whilst the RTC research has evolved from Group dynamics over to Individual Psychology in more recent years it is conceivable that they two research fields are not without common purpose. This literature review has included both fields of study as the first research question required multiple factors and interrelationships. As there are multiple RTC factors identified in both fields of research it is conceivable that they exist at the same time and are interrelated, being a key component for this research.

Employee RTC may be in many forms, derived from stress, anxiety, personality variation, where the resistance may be overt or hidden. Taking the group dynamics and organisational change perspective, those in control and leading a change may have impact on the employee that influences the change outcome. The factors derived in this research, also defined in this Chapter appear to come more from the change process, including management and communication, than those of the individual. Whilst the individual may react to the change process and become a secondary RTC factor itself, there was little discussion of that occurring during the first qualitative phase of this research.

The factors identified in this research may each influence an individual to be resistant to change. For instance, if an employee is not provided with sufficient communication, or of a type expected, the employee will lack knowledge and perhaps motivation to support an organisational change. The lack of support may in itself be a RTC form that has roots in communication rather than being an individual openly challenging a change. Additionally if an employee is overworked during a change it is possible for the employee to be tired, disengaged and behaving in a way that is detrimental to change success.

Despite the quite different fields of research first appearing to be opposing to one another, the following review of the research fields was required to build understanding of the topic. The research question was agnostic to the various forms of research and RTC forms, so investigation of Group dynamics, Psychology and Multidimensional research was included in the Literature Review for this research.
To gather knowledge on the RTC topic three Sections are presented on the body of knowledge investigating RTC, where RTC may be a key contributor to change failure. The first body of knowledge position management as being in control, where RTC is a result of process or control failure, this body of knowledge has been named Group Dynamics at Section 2.5. The second body of knowledge believe that RTC is dominated by the human response to change, where the individual is the key and has been named the Individual Psychology at Section 2.6. The final group of researchers investigating RTC believe that both the Group Dynamics and Individual Psychology are too simple, preferring that the future research be more open, this body of knowledge has been named the Multidimensional Research at Section 2.7.

2.5 **Group Dynamics, Organisational Development (OD)**

In Group Dynamics there are elements of interdependence in the task, where change begins with an initial state followed by an eventual equilibrium (Lewin 1945; Patalano 2011). Based on the idea that organisations have mechanical or scientific operations, the Group Dynamics view of organisational management formed where the balanced organisational state is preferred (Lewin 1945). In this Group Dynamic approach organisational change failures are seen as being a failure of the system, needing to be analysed and repaired, where failures should be avoided by management. The term resistance was first described by Coch and French (1948) where it was deemed to be failure to achieve change results (Dent & Goldberg 1999), but it is Lewin who is credited with the resistance to change theory (Dent & Goldberg 1999; Zander 1950).

Widely taught in management schools RTC is often presented as a proven fact despite not having a generally accepted definition for the term, where RTC is considered a regular occurrence in organisational change (Dent & Goldberg 1999). In Group Dynamics the commonly observed phenomenon of RTC occurs when an organisation appears to be static in the first stage of change, being akin to inertia in science (Pardo del Val & Martinex Feuntes 2003). Group Dynamics has the organisation in a dynamic process, operating optimally only when forces
within the business are in equilibrium (Lewin 1945). Under this theory a change to the organisation moves it from a stable state to an unstable state before returning to the equilibrium, where there are 3 defined phases of starting, moving and finishing a change process (Lewin 1945). Lewin derived this staged approach from a survey of management scientists where RTC was found to be present (Lewin 1945).

Lewin’s study found that there were many forces that could affect a project outcome (Lewin 1945), indicating that the process is more complex especially in the first phase (Zand & Sorensen 1975). Resistance is often attributed to an ineffective unfreezing process (Choi & Ruona 2011; Kotter 1995, 1996; Schein 1987, 1999), where the first stage of change moves from the equilibrium of the normal state, yielding organisational instability and uncertainty. This instability may have various sources, including that of management where they may not have adequately described the problem or its importance (Zand & Sorensen 1975). Human involvement in the change process may be merely one element of the change process, rather than being a central or dominant element (Fleming, P 2007) according to the Group Dynamics perspective. Additionally the Group Dynamics perspective also ignores the psychology of the response (Choi & Ruona 2011).

Lewin’s contribution is recognised in two significant ways, the first being the explorer of how democratic management may improve results versus autocratic management; secondly as one who explored various techniques in a real organisation developing action research over management theory (Burnes 2007; Burnes & Cooke 2012; Marrow 1969). As a branch of Group Dynamics, Organisational Development (OD) theory is not uniformly recognised, where some have denied that Lewin was an originator OD theory (Highhouse 2002) although that view is refuted (Burnes 2015; Burnes & Cooke 2012). The Lewin T-group that had its origins with unstructured groups, exploring participant behaviours and understanding of situations, is now considered one of the most important developments in the past one hundred years (Back 1972; Campbell, J & Dunnette 1968; Harrison 1995; Highhouse 2002; Kaplan 1986).
There have been many studies that have tried to explain resistance or ways to reduce it, where it has been found in one study that RTC can be reduced when participation is increased (Coch & French Jr 1948), so opening the idea that employee participation may, by deduction, reduce resistance. The Group Dynamic research has recommended an increase in the force for change or alternately reduce the forces resisting change (Dawson 2007). Resistance can include behaviours like strikes or absenteeism and covert means under Group Dynamics (Putnam et al. 2005).

The Group Dynamics model with a linear change assumption, equilibrium as the organisational goal, may be too simple a model for the modern organisation (Dent & Goldberg 1999), where it may be impossible in the modern organisational environment to achieve equilibrium. Despite these criticisms of Group Dynamics, research into Lewin’s first change phase has shown that building change readiness is important to managing change (Choi & Ruona 2011). The modern relevance of Group Dynamics has led to a belief that earlier interpretations were too restrictive (Burnes 2004).

In the past 10 years Group Dynamics has developed into a systems perspective, recognising that mechanisms to control change are not comprehensive enough (Dawson 2007). This systems approach now includes an appreciation of employee involvement, respect and dignity. The systems view, like Group Dynamics, has a central view that the organisational multilayered systems can still be managed and optimised. However unlike Group Dynamics the systems approach allows for multiple options and optimums. The followers of Group Dynamics have recognised that the RTC phenomenon is multidimensional (Dent & Goldberg 1999).

2.6 Individual Psychology

RTC research has evolved from Group Dynamics into one that is centred on the psychological being a negative effect (Dent & Goldberg 1999; Ford, Ford & D’Amelio 2008; Foster 2010; Georgalis et al. 2015), where the barriers are now more associated with the individual than the
organisation (Burnes 2015; Erwin & Garman 2010). Since the late 1990s the research has focused on the psychological parameters associated with change resistance (Van Dam, Oreg & Schyns 2008). This more recent research classified as Individual Psychology suggests that change success is closely aligned to the human or employee response (Georgalis et al. 2015), where the employee may have a disruptive influence on the change (Collinson 1994; Georgalis et al. 2015).

Diverging from Group Dynamics, Individual Psychology research replaced the research focus towards the psychology of the employee, where the focus was on the causes of resistance, rather than merely an imbalance in forces or systems (Dent & Goldberg 1999; Zander 1950). Individual Psychology has as a response by RTC has the individual attempting to prevent or improve their position during a change (Dent & Goldberg 1999) where employees are affected by more than simple structure and processes, as change can affect their attitudes, relationships and values leading to other antecedents of resistance (Choi & Ruona 2011).

Individual Psychology has RTC is as an act of humans, derived from uncertainty so causing the employee to feel anxious due to fear (Giangreco & Peccei 2005; Kotter & Schlesinger 1979). Forms of resistance may include people promoting their goals against that set by the organisation, or alternately reverting to political action if they perceive a change as potentially taking something away from them (Giangreco & Peccei 2005; Kotter & Schlesinger 1979). In this research paradigm human psychology is central and resistance may be even a form of dissent (Giangreco & Peccei 2005), where the dissent may have a diverse range of derivatives as an individual or a group, in forms that range from indifference through to that of passive or active (Giangreco & Peccei 2005). Even where a new change has benefits for the individual, a delay can be observed before an innovative change is adopted (Rogers 1995).

RTC may be an inevitable and predominantly a negative event derived from humans who fail to accept the change (Price, A & Chahal 2006). Individual Psychology has resistance as reviewing the social aspects of
change where technical optimisation is compared with human needs (Dawson 2007). As the human response will vary based on situation and individuality, the predictability of antecedents and correlations may be multidimensional rather than simple to resolve (Price, A & Chahal 2006). RTC is often management focused where the employee responses are logical or a natural response to change (Fleming, P 2007).

Rejecting Group Dynamics, Individual Psychology allows diversity where multiple organisational forms are possible based on the situation (Dawson 2007). Employees may be ambivalent at the outset of organisational change, where the ambivalence can be detected based on observations of employee discourse (Klonek, Lehmann-Willenbrock & Kauffeld 2014). Employees may seek to prevent or inhibit change as the effects may impact on their position, livelihood and standing (Cox 1997; Hoag, Ritschard & Cooper 2002; Kanter 1995; Klein 1970; Maslow, AH, Frager & Cox 1970; Watson 1970; Zaltman & Duncan 1977), where past change experiences may affect and interrelate with employee stress levels (Bruckman 2008).

RTC includes a cognitive approach (Coch & French Jr 1948; Zander 1950), where resistance activities, being behaviours and attitudes, may aim to slow or even reverse change (Fleming, P 2007; Meston & King 1996). Although the research continues with the premise that RTC is a negative event, where the employee versus manager construct is common, although noting resistance can be perpetrated by managers as well (Fleming, P 2007). There are calls for a more balanced approach, where a notion of ambivalence allows for the change response to be either positive or negative (Knowles & Linn 2004; Piderit, SK 2000), as employees may have views that are both positive and negative towards change (Arkowitz 2002; Klonek, Lehmann-Willenbrock & Kauffeld 2014).

Whilst RTC is usually researched as a negative response, there may be a reduction in resistance if individuals are provided with information and participation opportunities (Georgalis et al. 2015), or a more positive response if they perceive fairness in their treatment (Cobb, Folger & Wooten 1995; Georgalis et al. 2015). Information may be a key influencer on how the change is effected (Miller, V, Johnson & Grau 1994) as it may
also have a positive effect (Oreg 2006). Change may be dependent on the information content (Oreg, Vakola & Armenakis 2011) and the change success influenced by the change communication (Klonk, Lehmann-Willenbrock & Kauffeld 2014).

The benefits to the individual in change should be clarified as the perception of the individual can influence the resistance support (Oreg, Vakola & Armenakis 2011). RTC may not always be related to leadership or management as employee resistance may be related to diligence towards their role (Caldwell, S & Liu 2011). There may be a distinction between the changing organisation versus that of the reactions of participants (Oreg, Vakola & Armenakis 2011), so that consideration may assist in improved understanding of the change process (Caldwell, S, Herold & Fedor 2004; Fugate, Kinicki & Prussia 2008; Oreg 2006; Rafferty & Griffin 2006). Ensuring that the participant in change has ownership is important in new systems implementations (Gregory & Lodge 2015; Laurillard 2007).

As the research into Individual Psychology has broadened change resistance forms have developed into unsupportive language and even human behaviour that may impact the process of change (Goltz & Hietapelto 2003). When resistance is found to be in the behavioural form there may be degrees of resistance ranging from that of passive to that of active (Judson 1991). RTC has been found to be linked to a variety of factors including social differences in the workplace between technical and non-technical staff (Dent & Goldberg 1999) and organisational culture can affect the degree and type of resistance, where values of the employees are important during change (Heskett & Kotter 1992).

Change resistance is not standard, exhibiting itself in forms from overt or implicit to that of immediate or deferred (Agboola & Salawu 2011; Fleming, P & Sewell 2002), where there is currently an absence of universal measures for all of the phenomenon's forms. Commitment to change may also be an antecedent to resistance, where it has been described as being uneven for employees as well as managers (Beer, M, Eisenstat & Spector 1990). The unevenness of the employee response has led to a study that indicates that there is segmentation between
employees showing divergence between the length of service, as well as those who may seek group approval or not (Meston & King 1996). The variations in employee response may be related to factors beyond their demographical profiles, as for instance limited research has shown that sense givers may be important to the efficiency of change programmes by adding meaning to the organisational understanding to others (Drori & Ellis 2011).

This Section has reviewed the Individual Psychology body of research that has emerged in the last 40 years, this research has dominated over this period where the employee is more commonly seen as the barrier or RTC to be overcome when implementing organisational change. The change in focus from the processes of Group Dynamics over to psychology of the individual has improved and deepened knowledge on RTC where the phenomenon has aspects including others, non process linkages and an appreciation of segmentation. As the multiple forms of RTC have developed from Individual Psychology and Group Dynamics research there is now a body of knowledge gathering to research the topic in a multidimensional way that is explored in the following Section.

2.7 Multidimensional Research

After the last 70 years of research there is an emerging body of knowledge viewing organisational systems, behaviour and the psychology of change as interwoven, where participants in change are interdependent and the identification of resistance is difficult (Deetz 2008). In this emerging group there are calls to remove the management construct, the human origin bias from the research on resistance and replace with a multidimensional framework due to view that the research on single RTC factors inhibiting the understanding of change (Dawson 2007; Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003). There are also calls for the new research, named here as Multidimensional, should include positive and negative effects of resistance, allowing for peoples’ perception of cost and benefit (Giangreco & Peccei 2005), where resistance can also be external to the organisation by arising from other areas like media or community pressure groups (Putnam et al. 2005).
Extending the multidimensional perspective, resistors are allowed to have a wide variety of resistance options or forms, various mobility and interactivity from which to choose (Deetz 2008). Multidimensional RTC research is supported with the finding of linkages between the employee and the characteristics of management trust, employee participation and communication, employee change openness and length of service, where these may also relate to resistance levels (Van Dam, Oreg & Schyns 2008). Further support for multidimensional RTC research is that employee commitment may be influential on change reactions both in a positive (Iverson 1996) and negative ways (Van Dam 2005). Whilst Group Dynamics and Individual Psychology have researched communication and its importance to RTC, there is now research indicating that both communication and participation may be insufficient to avoid resistance, as they are also a potential antecedent to resistance (Lewis, LK 2006).

The removal of the process and psychology centric research of Group Dynamics and Individual Psychology has allowed change factors to be both internal and external to the organisation, various possible change type and methods, as well as a more sociological view of change management (Dawson 2007). Multidimensional research allows change to have an impact on the individual where the impacts can be of a social, operational of psychological nature (Singh, K 2010).

Research has also investigated alternate causes of resistance as there are linkages between RTC and an employee's psychological contract (Rousseau 1990), where variation in attitudes occur in both positive and negative directions (Schalk, Campbell & Freese 1998). Further new research has determined that change is non-linear, where processuralists interpret change as a continuum from evolutionary change through to less frequent revolutionary change (Dawson 2007). Segmentation of the organisation is possible as people do not uniformly take up change or innovation as there is a variety of participation possible and the participation rate deemed rational for each perspective (Rogers 1995). Furthermore, whilst not widely researched, the variable participation rates could be related to socio economic differences (Rogers 1995) and may explain the divergence in the delivery of change improvements.
RTC factors may be constituted by personalities, past experiences, group conformity, team culture as well as hierarchical structures, where some or all of these causes exist simultaneously (Meston & King 1996). Multidimensional research has also found RTC sources of deeply held values, gaps in change capabilities and politics during both strategic and evolutionary change (Pardo del Val & Martinex Feuntes 2003). Multidimensional research contemplates organisational power and change control occurring simultaneously, occurring with destablisation of resource control (Goltz & Hietapelto 2003; Mintzberg, H. 1983).

The emergence of Multidimensional Research allows the merging and comparing of the Individual Psychology and Group Dynamics research. Continuation of research with singular constructs may still find useful information, however the Group Dynamics (Dent & Goldberg 1999) as well Individual Psychology and Multidimensional Researchers (Meston & King 1996; Oreg 2003; Piderit, SK 2000) prefer that future RTC research should be with a multifactor approach.

2.8 RTC Factors

This Section has been created as a way of researching the factors that evolved out of the first semi-structured interview phase of this research. The initial coding in Nvivo10® was free form that resulted in too many factors for use later in the survey phase of this research so a re-coding of the interview data was required. To enable greater clarity on the factors coded it was decided to refer to the literature on the highest volume factors from the initial coding, thereby creating a more precise re-coding process. This Section includes a literature review of the factors as well as a list of definitions created from that review that have been used in the recoding process. These learnings from the literature on these factors have also been used in the Analyses of Chapters 4 and 5.

The RTC factors that emerged in the interviews are listed and explored with respect to the literature below. Whilst the factors appeared in the interview data to be discrete and separate, the Literature definitions explored below indicate that the factors may be partially interrelated. The
Literature Gaps, shown later in this Chapter, indicates that multidimensional research may be appropriate for enhanced learning on the topic. Potential bias may exist if the research RTC factors overly interrelate or overlap, such overlap could hinder the development of models and interrelationship and survey questions. For this research question development was tested during survey development and during survey data testing to ensure that questions were not overly interdependent. Factors of Leadership, Management and Communication were created from the interview data and used in the survey data, whilst closely related, in the below Literature Review and research data, they were not found in the data analysis to be substantial subsets of the same RTC factor.

The RTC factors developed in this research appear to have linkages to more than specifically RTC. The Literature Gaps discussed below indicates that RTC factors may have forms that are both and negative, so the forms may not be necessarily all negative as has often been researched in the past. The listed factors reviewed below are not specifically totally related to RTC, as a number of these factors are broad, relating to organisational change rather than specifically RTC. This is not to say that the RTC factors below are not related to RTC, rather that they may have linkages outside of the scope of RTC and this research.

2.8.1 Leadership

Leadership has been defined as a leader’s quality or ability to gather voluntary support from their followers (Etzioni 1965), where it is not the merely a mechanical routine following of an employee, nor of a higher or formal authority (Tolbert & Hall 2009), rather it is a layer of influence above (Katz & R. 1978). Leadership has been defined as having four functions being that of defining the mission of the organisation, choosing the desired method of achievement, defending organisational integrity and finally resolving internal conflict (Selznick 1957; Tolbert & Hall 2009). These four functions imply that it is not the authority, logic and control that dictate a leaders’ quality but rather it is their ability to influence others toward the direction of the organisation.
Organisational performance has been linked to organisational culture and leadership (Belias & Koustelios 2014) where leaders have been called upon to create vision to implement change (Bass 1985). Leadership is not a static action as leaders of the future may have to develop new skills supporting those at the bottom rather than driving the organisation from the top (Coulson-Thomas 2013). When an organisation exceeds its structure in terms of the leadership function may exhibit issues like conflict, inefficiencies stress and workload (Cooper, Nieberding & Wanek 2013). Requiring a mastery of a number of skills leadership is not simply that of personality traits or financial thinking rather it involves inspiration, co-ordination and credibility (Schein 2010).

The concept of leadership has many definitions causing the potential for it to be confusing to academics and students (Schein 2010). Leaders may often be perceived as performing confusing or illogical deeds or positions (Schein 2010), whereas it could be that not knowing how decisions are made that causes leadership to be perceived as mystical (Yukl, Gordon & Taber 2002). There are a variety of interests in a change with multiple answers possible, so if there is a lack of understanding the participants may perceive the change as illogical (Finstad 1998).

Unlike other organisational activities leadership is not merely the allocating of resources, developing systems and controls. Leadership has the potential to influence employee feelings, behaviours and efficiency, by inspiring participants to share a vision and explain what the organisational future will be (Kotter 1996), otherwise called transformational leaders (Burns, J 1978; Hechanova & Cementina-Olpoc 2013). Leaders that identify with high degrees of morality are less likely to develop unethical behaviours themselves (Joosten et al. 2014) yet they can affect behaviours. So if leaders do not support a change, even where change motivation is high, subordinates may feel burdened and so not participate in a proactive way (Singh, A & Shoura 2006).

Indicating that leadership may have a wider impact on ingenuity rather than just staff morale, a study has shown that innovation has be linked to shared and vertical leadership (Hoch 2013). It has been further argued that those with dispositions that are positive toward change may be
preferable to lead organisational change (Oreg, Vakola & Armenakis 2011). Pure vision from a leader may be but one ingredient of leadership, whereas other leadership elements may require initiative of all levels of the organisation (Singh, A & Shoura 2006). Employees may be in a position to distinguish between leadership styles, as academic organisations are rated as being more highly inspirational, challenging and providing encouragement versus that of business organisations (Hechanova & Cementina-Olpc 2013).

The ability of a leader to motivate, communicate and build teams has been shown to be antecedents to implementing successful change in an organisation (Gilley, McMillan & Gilley 2009), with the absence thereof may conversely be a barrier to change. A visionary leadership style versus that of a commanding style has been found to have created the highest engagement levels with the potential to improve or create barriers to organisational change (Stanislavov & Ivanov 2014). So leadership may not be something that sits by itself but rather it may be interrelated to culture (Schein 2010). Emotional intelligence of the leader may be important as it has a neutral to negative relationship with team performance (Feyerherm & Rice 2002).

The types and quantity of leadership qualities expected of an individual may often be related to the position of the individual within the organisation (Tolbert & Hall 2009), where the leader may not necessarily be the person in control as they could be a socially influential person aiding and enlisting support of others (Chemers 2014). Although leadership performance and influence may be perceived differently based on a person’s position, status can differentiate the way performance is perceived (Piazza & Castelluccio 2014), where status has been likened to that of differences in influence (Skvoretz & Fararo 1996).

Based on the literary investigation of the term Leadership above, the RTC factor of Leadership is defined as being those qualities that involve inspiration, co-ordination, credibility (Schultz, J 2013) and influence (Skvoretz & Fararo 1996), having the potential to improve or create barriers to organisational change (Stanislavov & Ivanov 2014) by a
person with status (Piazza & Castellucco 2014) or social influence (Chemers 2014).

### 2.8.2 Management

An early concept of management was that it was derived from a systematic approach to organising activities (Likert 1967), where the manager was responsible for converting inputs into business outputs as well as allocating resources, including capital and employees (Bordley & Pollock 2012). The skills required of a manager are considered wide (Griffin & Van Fleet 2013) with difficult choices, so they often allocate resources to issues rather than opportunities (Drucker 1963, 2006). Despite understanding the importance of change and being generally expected to be the leaders of change, many managers do not know how to implement change effectively (Rosenberg & Mosca 2011).

Management often expected to manage tasks that are not structured or not routine that causes difficulties which require resourcefulness to overcome them (Kanungo & Misra 1992). There is also difficulty of working within fragmentation and compartments, so managers tend to use behavioural, work or change processes to improve control (Garvin 1998). The controls put in place by management leads managers to adopt skills of organising, planning controlling and leading (Griffin & Van Fleet 2013). However, not all skills required of a manager have the same weighting, as the skill of financial management has been linked to career success, where its importance had led to it being included in management courses (Kay & Moncarz 2004).

Whilst defining management may be difficult there has been significant research involving the individual skills of management, where the skills may be essential for an organisation to be effective (DuBrin 1986). Management confronts complexity regularly so requiring elements of self-reflection, analysis, manager of context, change and relationships that need simultaneous blending of various information and perspectives (Gosling & Mintzberg 2003). Change may not necessarily be the sole responsibility of management (Singh, A & Shoura 2006), where a focus on team efficacy may reduce intra-team conflict (Ayoko & Chua 2014).
Further indicating that the fortunes of organisational change are not solely a management task, supervisor behaviour has been linked to employee commitment and perceptions of supervisors in family-supportive organisations (Mills et al. 2014). As organisational atmosphere and support is valued by employees, management are now focussing on retaining employees than recruiting in an attempt to potentially improve longevity and retention (Kumar, R & Arora 2012). Resource management skills may be insufficient for managers today as they need to possess skills of listening and ethics in an effort to be developers of people, relationships and communication (Seilby 2014). The skills required of a manager are broader than merely directing tasks or people, so they may need to possess assertiveness, presentation skills, skills to present negative and positive feedback, and listening (Marsh 2014).

Management performance is not hidden as deficiencies of managers in people skills or project management skills can be identified and rated (Seilby 2014). Extending the requirement of skills for managers there is research indicating that political skills may also be just as important to their performance as the technical skills (Bedi & Skowronsni 2014). Managers are also now expected to have conflict resolution skills especially where they perceive another employee has or is intending to frustrate a concern that they have (Thomas, K 1992). Due to the fast turbulent world that face managers today they may need to use intuition when making decisions (Sadler-Smith 2008), rather than purely facts or data. Although intuition is not necessarily a feeling without substance, as the intuitive thoughts may enhance thinking and provide insights (Khandelwal & Taneja 2010).

Managers have a role that can influence the behaviour within the organisation, the activity of knowledge sharing and interrelationships may be more influential than the traditional hierarchical control based methods (Caimo & Lomi 2014). Where management increases autonomy and creativity there may be improved distribution of knowledge and improved learning processes (Vivas-Lopez 2014).

Critical to the delivery of successful change is that of the involvement of top management (Felekoglu & Moultrie 2013). Success may also require
ethics, where ethics includes competence and professionalism, change agent commitment, confidence and role changes (Williams, R & Witte 1978). When the narrative is controlled or normalised during a change it has the potential to restrict the way an organisation views ethics (Rhodes, Pullen & Clegg 2010), being positioned as either ethical or unethical (Parker et al. 1998). Managers may not always uphold ethics, as they may prefer to ignore ethical concerns if their own job security is threatened (Meyersen & Scully 1995). An ethical change may assist in achieving planned goals if the change agent possesses skills of change process and effect (McKendall 1993).

Organisational change requires management of change in culture, technology and hierarchy if the organisation is to succeed in delivering the appropriate efficiency and competitiveness (Singh, A & Shoura 2006). Perhaps due to a broadening of the role of management and because managing people is a different skill to resource management a separate function of people management through a Human Resource Manager (HRM) has evolved. This HRM role can improve talent management, participate in change management and even influence business strategy, whilst avoiding administration and personnel tasks (Lawler 2005).

As there are so many skills required of a manager today, formal approaches to managing have developed clearly aimed at standardisation, controls and reliability of processes. Project management has developed into a formalised separate management function, where there is now calls for staff to be trained in the use of project management tools (Ketter 2014). The general management system or project management culture may affect the project implementation, where culture includes project management processes, methodologies and knowledge management (Shi 2011).

The literature indicates that management has a wide range of responsibilities that are quite distinct and separate to that of leadership. These responsibilities affect the way that work is distributed, monitored and the way that employees interact with the tasks. Based on the literature above, for the purpose of the coding in Nvivo® Management in for the research Analysis of Chapter 4, is defined as a skill involving
decisions (Sadler-Smith 2008), thinking (Khandelwal & Taneja 2010) and the co-ordination of inputs and outputs. Where the co-ordination includes that of efficiency and competitiveness (Singh, A & Shoura 2006), people (Seilby 2014), plans (Ketter 2014) and control (Griffin & Van Fleet 2013).

2.8.3 Communication

Communication is an activity that may be difficult, involving the exchange of information between people, where the information is required to be clear for both the sender and the receiver (Green-Wilson 2014). The communicator is also required to understand others that may also be difficult to do well (Maxwell, JC 2010). Managers today are expected to have a wide variety of communication skills including that of presentation skills, listening and paraphrasing, presenting feedback to employees on performance in positive and a negative issues (Marsh 2014). Employee anxiety can be reduced where they is an increase in change information or if there is an improvement in the quality of information (Rafferty & Restubog 2010).

Successful communication by middle management requires it to be timely, allowing knowledge to be improved and used for influence in the organisation (Wittek, Morales & Muhlau 2014), where influence is a skill that can be developed (Maxwell, JC 2010). Conversely well timed communication does not necessarily correlate with improved change outcomes (Wittek, Morales & Muhlau 2014) although it may even be essential for survival in a highly competitive market (Hola 2012).

The development of a strategy to manage internal communication has yielded a higher level of communication efficacy and so may reduce the issues of insufficient information (Hola & Pikhart 2014). When management communicate the corporate vision they may influence performance in a positive way, where sharing an organisational vision can impact staff retention, employee satisfaction and productivity (Jing, Avery & Bergsteiner 2014).

Forms of communication are evolving, becoming more diverse where social media is now used to distribute information on organisational plans and activities, including that of job advertisements (Polanska 2014).
Whilst organisations are using these new forms of communication research on the topic has found communication issues to be similar and dissimilar versus that of a traditional organisation (Ahuja & Carley 1998).

Rather than communication being purely about information dissemination, there may also be a responsibility to prevent or correct miscommunication (Hola 2012; Ramsey 2002). Employees have reported that internal communication can affect performance and behaviours in a significant way (Hola 2012), as the management of internal communication is important to the organisations performance, increased support, morale and engagement of staff (Hola & Pikhart 2014).

Communication may have external and internal elements with forms that are written, verbal and non-verbal making it a diverse item to define, containing multiple elements. Taking into account the literature above and the interviews, communication was defined for the purpose of the Nvivo10® grouping as being an action that contains clear information (Green-Wilson 2014) on matters that are positive or negative (Marsh 2014), prepared at a given time (Wittek, Morales & Muhlau 2014), in multiple forms ranging from social media (Polanska 2014) to that used historically of print and voice. Where the information delivered influences (Wittek, Morales & Muhlau 2014) or empowers (Bolton, Chatterjee & McGinn 2003) people, affecting performance (Jing, Avery & Bergsteiner 2014).

2.8.4 Workload

Workload is a margin between the tasks that are required versus that of the individuals coping capacity (MacDonald 2003), where stress can be derived from high work pace, role conflict and uncertainty in security (Nel & Spies 2007). During research at Macquarie University respondents indicated that a major contributor to stress during an organisational change was that there were too many changes occurring simultaneously, where time pressure was identified as the key source of stress (Sin, McGuigan & Chung 2011). If workload is not managed properly and stress is allowed to thrive, work can become meaningless and create
significant impacts on the individual (Cole et al. 2012; Maslach & Leiter 1997).

Management decisions that involve stress that lead to dismissals, long work hours or economic insecurity have been linked to poor employee mortality (Pfeffer 2011). Failure to address stress may ultimately lead to burnout as has been viewed by a number of researchers (Cole et al. 2012; Hobfoll & Shirom 2001), where stress correlates with mental and physical conditions (Leiter & Maslach 2008; Maslach, Schaufeli & Leiter 2001). Alternately stress may be reduced when employees are given more control over their roles (Karasek Jr 1979) and may be reduced when play therapies are included (Nel & Spies 2007).

Based on the literature reviewed above, the definition of workload for the purposes of coding Nvivo10® it is defined as a margin between the tasks that are required versus that of the individual coping capacity, or alternately, as a set of factors that contribute to stress (MacDonald 2003) where management decisions may be a contributor (Pfeffer 2011). The elevated stress levels may result in reduced behaviours (Cole et al. 2012; Maslach & Leiter 1997; Nel & Spies 2007) or performance, together with various employee health issues (Cole et al. 2012; Hobfoll & Shirom 2001; Leiter & Maslach 2008; Maslach, Schaufeli & Leiter 2001; Pfeffer 2011) often displaying themselves as negative barriers in an organisational change programme (Sin, McGuigan & Chung 2011).

2.8.5 Stakeholder engagement

Engagement may be where an employee is both dedicated to superior performance as well as confident with their personal effectiveness (Cole et al. 2012; Maslach, Jackson & Leiter 1996). To be in a position to change the organisation may require the support of stakeholders (Clayton 2014), where the engagement of stakeholders may be a key project management skill (Walker, Bourne & Shelley 2008). Stakeholder engagement may be an issue due to the lack of consultation and the involvement of others when making management decisions (Heller 1971). Although historically work engagement has not been well defined and if
there was a definition then research may be more effective (Bakker, Demerouti & Schaufeli 2005).

Engagement may not be merely motivational as it may be derived from employee participation, enjoyment and interest where employee involvement and learning may deliver a more effective workforce (Marcum 2000). Akin to an investment in the employee, engagement may yield improved performance if it includes communication, training and decision-making tools (Kelleher 2009). Emotional engagement practices have been found to have an impact on multi-stakeholder relationships and may improve trust (Sloan & Oliver 2013). So avoidance of simplistic human behaviour models may improve engagement practice and yield more effective people management principles (Erickson 2004).

When engagement is eroded it has been described as burnout (Cole et al. 2012), where burnout and engagement may be at opposite ends of a continuum (Schaufeli & Bakker 2004). In a large study, the term engagement was defined as having positive work attitude, including dedication and vigour (Schaufeli, Bakker & Slavanova 2006). So like that of stress or burnout, engagement associates with health, job satisfaction and commitment to the organisation by staff (Cole et al. 2012). There may be many interrelationships in RTC as increases in job workload and reduced resources have been linked to burnout, negative engagement has been related to the length of sickness periods and increased resources can predict engagement (Schaufeli, Bakker & Van Rhenen 2009).

There may be significant benefits if a change consultant is included in the change where they methodically define the change and build relationships (Schein 1969). Stakeholder engagement practices are increasingly being used by organisations to implement strategy (Sloan 2009), as well as for social problem resolution (Kanter 1998). Stakeholders may be quite a disperse group during a change where each may require different management strategies (Egan 1994).

For the purposes of the Nvivo10® coding group stakeholder engagement is defined as an employee investment that may be achieved when an organisation includes communication, training and decision-making tools
(Kelleher 2009) to influence an employee’s performance, trust (Sloan & Oliver 2013), skills and communication (Hauck 2014) or effectiveness (Cole et al. 2012; Maslach, Jackson & Leiter 1996).

2.8.6 Project change analysis and planning

Successful organisational change requires data collection and analysis that is methodical (Nadler 1977; Schein 1969), where a requirements analysis conducted before a project is commenced may improve project results (Groner et al. 1979). Project planning does not always have to be explicit as a study deemed the plan to be in existence if there was presence of a business case, scope, base line and risk assessment (Tasevska, Damij & Damij 2014). Project management guidelines of PMBOK® prefer that analysis and scope be conducted prior to a project plan being implemented (Project Management Institute 2004). So it is commonly held that planning is important where the implementation of planning may vary on a number of factors.

The planning and analysis process during organisational change may be dependent on the nature of the change. As a result there is advice when using a 6 Sigma® approach, to ensure that a project is assessed and analysed (Banuelas et al. 2006; Padhy & Sahu 2011), or further that the choice of project type may be important (Padhy & Sahu 2011). To avoid change difficulties clear knowledge may be required on project definition, project control and the method of implementation (Sven & Bjorn 2011). Other techniques like risk management may reduce the impact of risk items and may contribute to project success (Zwikael & Ahn 2011).

To assist change project success there may need to be an organisational link between the change, the strategy and planning, so the business outputs may also need to be aligned to strategy so that a project can be successful (Too & Weaver 2014). A successful Enterprise Resource Programme (ERP) may require clear management vision together with clear measures, change management techniques and knowledge transfers (Tchokogue, Bareil & Duguay 2005). Whereas an ERP system project without a strategic plan may result in a high proportion of poor performances (Cooke, D & Peterson 1998). Alternately planning success
may require appreciation of a situation in terms of timing, people, users and formats rather than adopting a singular planning approach (Laufer et al. 1994).

From the above there appears to be an evolving body of knowledge that links analysis and planning and its contribution to organisational success. For the purposes of coding in Nvivo10® coding group project analysis and planning is defined as those actions occurring prior to project approval relating to planning (Cooke, D & Peterson 1998; Zwikael & Ahn 2011), assessment (Project Management Institute 2004) and analysis (Banuelas et al. 2006; Groner et al. 1979; Padhy & Sahu 2011).

2.8.7 Change process and delivery

The change process has long been viewed through a mechanistic paradigm where efficiency, speed control and organising are important to the organisation (Fayol 1949; Keys 1991; Taylor, F 1911; Weber, M 1947). However this paradigm is now questioned as it may be too focused on time, budget and scope where a project strategy may be something that is missing from the project delivery (Patanakul & Shenhar 2012). Managing a project using rudimentary measures of time cost and quality may be inefficient, where multiple criteria measuring performance may be preferred (Marques, Gourc & Lauras 2011). Those that identify less with the organisation’s character are more likely to be interested in change outcomes rather than the process (Van Knippenberg, B, Martin & Tyler 2006).

The ability of participants to alter their behaviours and attitudes in a radical way may be more important than merely the change manager or the change plan (Ashforth & Mael 1998; George & Jones 2001; Whelan-Berry, Gordon & Hinings 2003). The delivery of change may be linked to engagement, where an individual engaged with organisational values may assist in the change process through increased behaviours, effort and support (Ashforth & Mael 1989; Dutton & Ashford 1993; Mael & Ashforth 1992; Tyler 2000; Van Dick et al. 2004).

An intergroup perspective may be required if organisational solutions do not have singular strategies so requiring the support of participants.
(Gleibs, Mummendey & Noack 2008). To achieve the support of employees there may need to be a detachment from the previous organisation (Ethier & Deaux 1994), although there is the possibility that they may not identify as strongly with the new organisation (Boen, Vanbeselaere & Cool 2005; Terry, D & O’Brien 2001; Van Knippenberg, D et al. 2002). Gathering employee support may not be easily achieved as their responses may be divergent, where low-status participants in a merger are more likely to be negative toward a merged organisation than that of a dominant or higher status group (Adams, Bilbro & Stockert 1986; Terry, D & Callan 1998; Terry, D, Carey & Callan 2001; Terry, DJ, Carey, C.J., Callan, V.J. 2001; Van Knippenberg, D et al. 2002).

When staff move through multiple projects there is a diminishing return on project time and productivity as it is quite difficult to manage multiple projects and remain on schedule with limited resources (Yaghootkar & Gil 2012). Change improvement is not achieved merely by adding resources to improve schedule time as it often decreases productivity (Brooks 1995; Yaghootkar & Gil 2012).

The setting of targets may be a way to enhance change management and control, where easy targets may diminish employee effort and reduce resource utilisation, or alternately, setting hard targets may lead to unnecessary risk taking (Bordley & Pollock 2012). To improve target setting projects may need to have a range of metrics aligning with multiple stakeholder interests in a project (Adams, Bilbro & Stockert 1986; Barclay & Osei-Bryson 2010; Marques, Gourc & Lauras 2011; Milosovic & Patanakul 2005). Multiple targets may need to be interrelated in a co-ordinated way or otherwise risk them being dysfunctional (Dweiri & Kablan 2006). Projects can be managed in silos rather in an interrelated way however that approach may cause poor project performance (Knoedel 2004; Too & Weaver 2014).

Whilst employees may understand a change, so it may be the processes and systems of change preventing individuals from assisting with a change (Frohman 1997). Successful change may not be purely dependent on management activities as employee involvement has resulted in enhanced change effects and reduced performance issues.
(Ye, Marinova & Singh 2007). The process of change is evolving with an increased pace of change, so organisations are developing team orientated structures, empowerment and agility concepts (Piderit, SK 2000). Agility may require the acknowledgement of a project plan including completion time, project details evolution, business requirements, stakeholder collaboration and finally a balance between time and resources (Franklin 2014).

Organisational size and processes, may influence the way that change is implemented where there is open communication or trust (Della Torre & Solari 2013). A mix of social processes may be required for change success including that of change leaders, benchmarking and competition (Martin & Metcalfe 2011). Individuals with divergent personal beliefs versus the organisation’s values may attempt to move the organisation towards their personal beliefs during a change, or at other times remain as quiet radicals (Meyersen & Scully 1995).

The research factor of Change Process and Delivery, for the purposes of coding this Nvivo10® group, is defined as those activities required for change implementation after it has been approved. These activities include that of processes (Ye, Marinova & Singh 2007), strategy and decision making (Patanakul & Shenhar 2012), resource allocation (Yaghoostkar & Gil 2012), metrics and target setting (Barclay & Osei-Bryson 2010; Marques, Gourc & Lauras 2011; Milosovic & Patanakul 2005), participant behaviour (Ashforth & Mael 1998; George & Jones 2001; Whelan-Berry, Gordon & Hinings 2003), ethics (McKendall 1993), time, cost and quality. The topics of engagement and communication are specifically excluded from this coding group as they form their own separate coding groups based on the initial coding discussed at Chapter 4.

2.8.8 Politics and Power

Participants may engage in power, politics and influence as a necessity (Buchanan, D & Badham 1999), where power in an organisational context has been described as influencing organisational outcomes (Kanter 1998; Mintzberg, H. 1984; Russell 1938). Politics may result in brief conflicts
that are required for organisational survival (Mintzberg, H. 1984), but has
generally has been portrayed as something to be avoided and otherwise
devious (Buchanan, D & Badham 1999). Organisational politics may be
derived from disputes over objective values, issue resolution or the
competing demands on resources and power (Markus 1983).
Organisational development or change followers, argue that change
should include values and goals, including that of employee
empowerment (French, W & Bell 1990; McKendall 1993).

Organisational performance is related to power where those gaining
powerful positions may not always be those with high performance
records, as there may be political skill required to gather power in a
modern organisation (Treadway et al. 2013). There is also segmentation
between those with and without power or control (Meston & King 1996).
Deviant forms of behaviour may affect the overall health of the
organisation (Lee, K & Allen 2002; Robinson & Bennett 1995), where the
deviant behaviour may appear in the form of politics that may increase in
activity during change (Agboola & Salawu 2011). In the pursuit of change,
politics may assist or hinder depending upon its use and motivations
(Buchanan, D, Badham, R. 2008).

Individuals, groups or managers with power may engage in resistance if
they perceive a change as threatening their survival, or where they
believe that the organisation is already operating optimally (Moore 1976).
Those in power may cause resistance in others if they do not pursue and
use the tools of power like the employee reward systems (Moore 1976).
Power may not just be a negative event as is that it may be used in a
positive way toward the delivery of an improvement or be used to reduce
resistance by improving conformity, if the power is legitimate (Cassidy
1997).

During organisational change the informal organisation is disrupted
thereby potentially increasing the power of managers by inducing
compliance and norms (McKendall 1993). Revealed through humour
analysis, the use of humour may also be associated with power (Dwyer
1991). Additionally, when considered through a power perspective, there
may be enhanced external power due to systems, internal power and
conflict when organisations increase in size (Mintzberg, H. 1984). Although the process of change may yield negative responses where participants’ power reacts one against another (Jermier, Knights & Nord 1994). Power motivation may not be the only initiator of change, as micro change initiators are not necessarily motivated by power or vision, so tending to be logical and following incremental change (Frohman 1997).

There is a certain amount of power and control in an organisational structure that may inhibit adaptability for the organisation, where frontline managers may need skills other than that of control (Hales & Rabey 2011). Organisational power may need to be assessed prior to selecting a change strategy as employee positions in different industries may have disparate power levels (Lee, JA 1977).

Power may be a predictor of career success in management (McClelland & Burnham 1995), but power may also be enhanced if a change agent has the role to implement structure and standardisation (Brimm 1972; McKendall 1993). Indicating power is not always in the hands of management, the employee may have power based on their closeness to physical assets, skills and power collectively (Pondy & Leavitt 1968), where the employee can exhibit power by creating issues for the manager to overcome (Friedman 2011). Power may have multiple elements, where the impact may vary upon the context of its use (Clegg 2013).

Organisations may be structured to diminish individual power as Human Resource systems are often based on promotion or performance, not necessarily valuing problem based individuals or those that question assumptions (Frohman 1997). The communication of decisions or plans are often presented as logical thereby hiding the political nature of their decisions (Buchanan, D & Badham 1999). There are various forms of politics within an organisation, even though power is not always the centre of politics (Mintzberg, H. 1984).

A stakeholder analysis may be used as a method to analyse politics during a complex or controversial change project but this may prove to be insufficient (Mintzberg, H. 1994). In analysing communication, power and politics there may be an appreciation that the social network within the
organisation may be altered or been broken during a change (Pettigrew 1972; Tichy & Fombrun 1979; Tichy, Tushman & Fombrun 1979; Zald 1970). The key to understanding social life may be derived through interactions and communication patterns (Simmel 1950).

Leadership power has been defined as having sources of being those of position, coercion, positive rewards, and expertise of leaders (French, J, Raven & Cartwright 1959). There may be an adverse organisational change effect if a leader’s power is reduced, so a power list may be required prior to embarking on a change (Lee, JA 1977). Senior management time and decision making is often critical to organisations so the employee’s ability to sell issues and gain the attention of senior management may be equally important (Dutton & Ashford 1993).

Technological change projects have often been looked at from a top down approach where change is required to improve performance of the organisation (Pichault 1995). The introduction of computer systems to an organisation may yield an increase in standardisation, tending to reduce informal systems and participant power, in so doing making it difficult for those projects to succeed (Grover, Lederer & Sabherwal 1988; Markus 1983; Pave 1989; Scarborough & Corbett 1992).

Change management theory and books have preferred to ignore politics, so the change agent role in politics is less understood, these skills may be complex and implicit requiring more investigation (Buchanan, D & Badham 1999). Whilst manipulation may be at the heart of a change, a change agent due to situations and structures, may not give sufficient consideration to the power of their position (Kelman & Warwick 1978). It has been argued that politics should not be engaged in by change agents but they should recognise its existence when managing change (Ward 1994). In contrast others believe that political strategies may assist the change process where it is required for wider spread change (Kumar, K & Thibodeaux 1990).

Politics and power are seen as distinct factors despite the Nvivo10® coding placing them together from the interviews in Chapter 4. With reference to the literature the term politics and power is defined as those activities that may influence the organisation (Kanter 1977; Mintzberg, H.
1984; Russell 1938), either informally or formally (McKendall 1993), through position, coercion, positive rewards or finally as leadership expertise and personal character of the leader (French, J, Raven & Cartwright 1959).

2.8.9 Culture

Organisational culture has been defined as being the sum of behaviours that establish how the organisation processes (Belias & Koustelios 2014), but also as a behavioural collective that defines one group from another (Belias & Koustelios 2014; Hofstede 1991), or could simply be a shared group of values (Deshpande & Webster 1989). Organisational culture is that where organisational participants share assumptions, beliefs and values that are held dearly (Schein 1985), being based on power and structure, performance, risk and relationships (Koberg & Hood 1991; Wallach 1983).

Organisational culture has been associated with performance of the organisation the culture may help an organisation anticipate change as they are integrated and co-ordinated (Ovidiu-Iliuta 2014). Culture may also be developed from past events, as poor past organisational change experience may lead to reduced commitment by participants (Rafferty & Restubog 2010). Contrary to common understandings, where often leadership is thought to influence culture, workplace culture may actually influence leadership behaviours (Hechanova & Cementina-Olpoc 2013; Schein 2004).

The organisational culture may be a main cause for employee resistance, especially when the employees are not ready for the change (Danisman 2010; Schein 1992). People may feel trapped if they do not believe that the culture will improve, so some will avoid conflict whilst others may battle for power and control (Argyris 2010). Organisational change success has often been linked to organisational culture which may affect the change process (Belias & Koustelios 2014).

The delivery of organisational change may need to include culture as the change may require a change in systems, beliefs and structures. One tool to achieve this may be that of facilitation where it may empower and
release the staff to assist with implementation of the change (Dickson & Coulter Smith 2013). Although when knowledge is well entrenched it is harder to implement organisational change (Bresnen, Goussevskaia & Swan 2005). It has been argued that work fulfils both physical and psychological needs (Maslow, A 1954; Sturman, Shao & Katz 2012), so it is not surprising that an ethical culture may impact a manager’s wellbeing directly and indirectly, in terms of engagement and exhaustion respectively (Huhtala et al. 2011).

Organisations may have policies requiring standards to ensure quality which may require employees to be ethical (Kaptein 2011). The hierarchical organisational design and varying sub cultures can affect behaviours and thinking (Pavett & Lau 1983), conversely creativity can be affected by culture (Kirton 1984) which is important to those organisations that are wanting to lead or create. Culture may not be homogenous across an organisation, as consultant wrongdoings may be treated differently to that of employees even in a whistleblowing culture (Ayers & Kaplan 2005).

Organisations that develop a more inviting culture will increase their chances of hiring the best people, improving retention and knowledge thus improving the organisations chances of performing (Cantanzaro, Moore & Marshall 2010). The influence that culture can have on the organisation and employee decisions should not be understated, so for instance female applicant employment decisions have been influenced when there was a perceived masculine organisation culture (Cantanzaro, Moore & Marshall 2010). Organisational culture is not limited to gender or ethnicity, as consideration of physical workplace items may also designate status in the workplace (Morrill 2008). The decisional impacts of culture should not be overlooked as people maybe more accepting of a lower salary if the organisation culture is perceived as being more supportive (Cantanzaro, Moore & Marshall 2010). Finally whilst culture is important to the organisation it is not homogenous as culture analysis of Western organisations may not be relevant when applied to other cultures (Sturman, Shao & Katz 2012).
For the purposes of coding factors for this research, the term culture is defined as those shared assumptions, beliefs and values that are held dearly (Schein 1985) including that of power and structure, performance and risk based on relationships (Koberg & Hood 1991; Wallach 1983).

2.9 Literature Comparison

The previous Section has reviewed literature pertaining to the questions for this research, where it was found that the topic has been researched for over 70 years, covering 3 main bodies of knowledge. Fundamental issues and differences remain in these RTC knowledge bodies regarding its nature and is considered by many authors and academics to be absurd or flawed (Burnes 2015; Choi & Ruona 2011; Ford, Ford & D’Amelio 2008; Hon, Bloom & Crant 2014), noting that some individuals may resist a change even when it may be beneficial to them (Burnes 2015; Oreg 2003).

The vast majority of RTC research assumes the phenomenon as a negative act to be avoided, although some studies now indicate that this construct is biased and does not allow for positive forces or positive impacts on change events. This bias may be attributed to Lewin’s work that reviewed poor success projects perceiving organisational change failure as a result of resistance.

With technology changes the forms of resistance may also evolve, allowing options to divulge secrets to the wider community more readily. Group Dynamics has been criticised as being too simple and aligned to a struggle of the classes, thereby inhibiting an understanding of the complex nature of resistance (Deetz 2008). Although research continues with the concept that management is in control of organisational change or is able to at least improve its results (Fleming, P 2007).

Managers do not only manage tasks but they may have opportunities to influence and develop culture and atmosphere within an organisation. There may be a close link between the skill of management and that of employee performance, behaviours or morale. So if there is a failure to understand perpetrator of RTC motivations, management maybe mislead on the appropriate reaction (Ford & Ford 2009). Organisational change has aspects of structure, politics, processes as well as human attitudes.
and behaviours. Group Dynamics prefers organisational change to be logical, with planning and project management techniques being responsible for delivering the change required.

Most of the historical research has the manager as being the responsible person for the resistance existence, or even attributing the resistance to the lack of leadership by management. As discussed in earlier Sections of this Chapter, Group Dynamics has the employee the perpetrator of resistance, where management perceive resistance as a range of forms including sabotage (Ford & Ford 2009). Whilst management may depend on leadership, the two concepts have rarely been compared with interdependence (Belias & Koustelios 2014).

There is emerging conceptual work that seeks to remove the polarity in research by reviewing change and resistance using a discourse perspective, removing past paradigms like the constructs of worker versus manager or power or through feminism (Putnam et al. 2005). This linguistic approach may be useful in identifying sources of resistance and improving an understanding of its origins. Language analysis may even improve the understanding of what the resistance it attempting to do and the consequences which appear to be missed in the classical or modern theories.

The Individual Psychology body of knowledge has the construct of the manager as the deliverer of strategy with the employee is the resistor. However, there is research that has found that middle managers do also participate in resistance (Giangreco & Peccei 2005). Whilst historically research has focussed more on the individual there is potential for the wider culture of an organisation or even the society to which it resides, may contribute to the emergence of resistance (Danisman 2010).

The current definitions of resistance do not take into a multi-layered view and has no way of ranking the antecedents in importance. Hence little or no conceptual frameworks have been established on whether it is the change, the organisational beginnings, human psychology or the method of change that is most important to the emergence of resistance. There is argument that RTC requires definitions, measures and individual levels of analysis where past research has focused on specific change and
antecedents rather than a more generalised view of the phenomenon (Stewart et al. 2009).

Whilst most research has the construct of manager versus employee and having RTC as a negative event, there is new theory conceptualising that resistance should be considered as a potentially positive event. There is still argument that resistance is useful and has the potential to improve management knowledge (Ford & Ford 2009). If management takes the view that change failure is due to resistance without evidence or measures, other potential antecedents to the failure may be missed.

The earlier researchers have preferred simpler constructs, although change may not be merely efficiency driven but may be a broader reaction to a convergence of forces of economics, technology or politics, where the organisation attempts to seek new forms of organising or adjusting to the pressures (Pettigrew et al. 2003). As the organisation is a subset of society, changes in the external and internal environment interact constantly. The human element of organisations can be divided into a variety of segments such as the dichotomy of worker versus manager, unionist versus non unionist, male versus female, educated versus less educated, where an endless array of segments possible. A person in an organisation may also be a member of external organisations such as religious, social or sporting clubs and professional bodies. Individual personalities vary across the organisation as does organisational culture and norms.

The RTC term is not universally defined, agreed or measured despite no longer considering the term a mere process reaction (Fleming, P 2007). There have been limited attempts to measure RTC in a multidimensional method, one example of this indicated a tendency to resist or avoid change individually being measured using factors of routine, emotions and cognitive rigidity and the results appear to have had relevance in an American university (Oreg 2003). Although that research has had less relevance when re-performed in the other cultures of Russia and Ukraine (Stewart et al. 2009). In combining past research paradigms there are calls for a measure on resistance, where future research should remain
wider than the work to date that covers a multidimensional perspective including attitudes, behaviour and cognitive properties (Piderit, SK 2000).

There are now calls for more systematic research to determine the relative importance of each of the variables across the various theories (Giangreco & Peccei 2005). So future multidimensional research may perceive change as starting from an organisational change, disrupting the Group Dynamics systems and forces, diffusing through the organisation where people have emotional, cognitive, discursive, behavioural and attitudinal changes as a result. Change may potentially even shift the power, training and sensegiving interactions in the organisation, each potentially a source of resistance.

Promoting a change in the direction of future RTC research some argue that the Group Dynamics optimisation of forces concept should be replaced with that of trade off, as organisations are often presented with options that may have incompatible polarity, like centralisation versus decentralisation (Pettigrew et al. 2003). In this way the methods used to solve the dilemma or trade-off is important, where the perception of the individual toward the decision making process or the outcome of the decision could lead to resistance activities (Pettigrew et al. 2003).

Diffusion research has developed in an attempt to understand the resistance, or that of an observed slow change implementation phenomenon, where human adoption of change rate is shown to be related to perceptions of change (Rogers 1995). Even when employees are otherwise supportive of a change, if they are unsure about how a change will be implemented, poor morale may result (Singh, A & Shoura 2006) This suggests that the human response to change is not an automatic response, rather it may be caused or influenced by the perception of the participants, where those perceptions may be influenced by the actions of management and leaders.

There is growing evidence in the research that many of the factors to change or RTC are interrelated. Taking a singular RTC related change factor of Communication, there are now links to other factors of knowledge management, company health and re-engineering (Hola 2012), also being interrelated, if restricted, to coalition forming patterns
and behaviours related to the power of the participants in a bargaining situation (Bolton, Chatterjee & McGinn 2003). There is also emerging research that indicates change factor interdependency with other change factors, as people management and communication underestimation skills emerged when participants were questioned on leadership (Harris et al. 2014).

The organisations of today may be more appropriately researched if there is allowance for simultaneous multiple determinants with different participation rates, so these constructs and multidimensional analysis in the future may assist in developing RTC knowledge. Resistance methods are not only what one does, as it may include the omissions, resistance has various action modes including that of behavioural, attitudinal, cognitive and discursive (Fleming, P 2007). So where a workplace has an entrenched masculine culture women may revert to reinforcing the culture, gaining personally and surviving, yet failing to change the culture (Miller, G 2004). Consequently, resistance may be related to the type and method of change combined rather than being restricted to a single type or method.

Group dynamics has approached RTC with a simple linear approach, not appearing to recognise the multidimensional nature of modern business where the increase in business change, complexity, speed and dimensions may have reduced the relevance of Lewin’s theory. Individual Psychologists, like the Group Dynamics research, remain with the premise that resistance should be minimised or controlled by managers (Dawson 2007). Group Dynamics creates the scene in an organisation that has culture with support being important, as the first step in change may take a long time to develop (Oreg 2006). Like the Group Dynamics research, Individual Psychology has developed around testing singular human antecedents rather than taking a multidimensional approach.

The Multidimensional research body may see resistance as having potential varying reactions based on a feminist or even a general discriminatory base. The latter of the 3 bodies of knowledge acknowledges the past research success and calls for future research to be multidimensional. There is limited emerging exploratory research
indicating that common forms of RTC exist that may be multidimensional (Hoag, Ritschard & Cooper 2002).

The development of Individual Psychology research moved the human to be central, where the theory has investigated psychological reasons for resistance one factor at a time. This has improved the understanding of the topic, however as there have been many studies with many singular psychological links to antecedents of resistance there is now scope to review the topic in a more multidimensional way. Whilst there is a disagreement in origin of the phenomenon there is increasing agreement in the direction of future research methods toward multifactor methods.

There is a divergence between the 3 bodies of knowledge on RTC where the phenomenon has been contemplated as process as well as human in nature. These differing views have not been compared to one another often and where they have the research was on singular forms or one aspect in a multidimensional way (Oreg 2003). As there are multiple forms of RTC researched that range from processes to individual psychology it may be reasonable to presume that the forms may be interrelated, hierarchical or otherwise involved simultaneously or even causally linked.

Some argue that RTC that is attributed to cost, workload (Zaltman & Duncan 1977) or legislation(Meyer 1976) is merely a fallacy (Hoag, Ritschard & Cooper 2002). Rather than being a lack of time (Kotter & Schlesinger 1979), RTC may be more related to priority decisions of managers (Hoag, Ritschard & Cooper 2002). Organisational change occurs from many sources that may themselves be sources of RTC (Hoag, Ritschard & Cooper 2002) including market conditions (Sachwald 1998), human resistors (Koopman 1991), changes in value systems (Newman 2000) or if not otherwise identified, the employees (Piderit, SK 2000). Organisational change may even be considered to be a factor that increases workload of employees thereby can contribute to stress in the employee affecting internal dynamics and power distribution within the organisation. There appears to be potential for segmentation of employee’s perceptions and needs, affecting the degree and method of resistance.
This Literature Review has reviewed organisation change, change management where RTC emerged as an area of research attempting to explain why change does not occur as expected. Three fields of research have emerged in RTC beginning with Group Dynamics that has attempted to explain RTC from a manager perspective, where change can be optimised. The second area of RTC research emerged from an individual perspective, based on the human psychology. The multidimensional field of research has recently emerged, removing the manager and the individual perspective, where multiple dimensions are possible. This research has adopted the multidimensional approach to cover gaps identified in the literature and are discussed in the following Section 2.10.

2.10 Literature Gaps

The process and human forms of the resistance to change phenomenon have been researched for a number of years using singular methods. Research on antecedents of change is not as analytical as would be expected for a term that was first raised more than 70 years ago (Giangreco & Peccei 2005). The term resistance to change largely remains an adversarial negative term that should be removed and replaced with a more situational theory (Waddell & Sohal 1998).

In summary, this literature review above has identified the following opportunities for future research :-

- All of the three main bodies of knowledge of RTC have called for future research to be conducted in a multidimensional approach. Individual Psychology researchers have begun to research the phenomenon in a multifactor way but have concentrated on the human form, rather than expanding to compare the human with the process views of Group Dynamics.

- The effects of the phenomenon have been focused on negative effects with researchers now calling for an approach that also allows for positive effects. This approach has only had limited research to date.

- Research on the effect of the phenomenon on change programmes is rare to find, with quality being a principal way the
negative effects have been measured (Lewin 1945; Smith, I 2011). It is conceivable that the effects of the phenomenon are much more widespread including time or cost, amongst others.

- Understanding of how society beyond the organisational structure affects resistance antecedents and effects
- Measure resistance effects using metrics in time, cost and quality
- Linking resistance mitigation actions to resistance causes and effects
- Calculations on the hidden costs of resistance and wider business effects

### 2.11 Literature Summary

This literature review has found that the term resistance to change has developed out of organisational theory, where there was a need to explain observed divergent change outcomes. There are many singular relationships in the classical view of the phenomenon using processes together with many relationships found to date with a modern or human perspective. Researchers with varying perspectives agree that the phenomenon should be researched using a multidimensional approach and that aligns to the definition of the term (Goltz & Hietapelto 2003).

Research has often used case study and survey as the principal method of understanding the phenomenon being good in providing an understanding of singular relationships. The multifactor analysis combined with confirmatory analysis is the accepted method to gather an understanding of phenomenon that is multidimensional as it allows cause and effect using correlation to be tested. The use of qualitative semi structured interviews is useful in gathering an understanding of the dimensions and allows grouping to be formed for use in quantitative survey methods.

The literature review above has found that Group Dynamics and Individual Psychology bodies of knowledge have used methods of action and participation research (Coch & French Jr 1948; Lewin 1945), situational or case studies (Danisman 2010; Schalk, Campbell & Freese
1998), cross Sectional studies (Stewart et al. 2009; Vakola, Tsaousis & Nikolaou 2004). The emerging Multidimensional research has involved quantitative and qualitative methods combined, where the analysis has been developed via correlation from multifactor methods, with either or both, exploratory and confirmatory analysis (Alas & Sharifi 2002; Bennett & Durkin 2000; Oreg 2003; Schalk, Campbell & Freese 1998; Stewart et al. 2009; Vakola, Tsaousis & Nikolaou 2004). The multifactor analysis approach is appropriate for a multidimensional phenomenon as it allows correlation and understanding of the various possible forms of the phenomenon with a range effects or alternate antecedents.

The literature supports the first question for this research that there may be multiple forms of RTC that may co-exist and be interrelated. Most of the research to date has been conducted in a positivist singular factor way rather than investigating relationships between RTC factors. The second question for this research is concerned with effects of RTC that are less researched, where research has established that most change fails with little investigation into the other effects of cost and time. Overall this literature review confirmed the need for this study into a multidimensional review of RTC factors where the method of this research is discussed in the following Chapter 3.
3 Research Methodology

3.1 Introduction

This Chapter commences with a philosophical consideration of the appropriate methods that are appropriate for the research questions. The first research requires an assessment of the multiple forms of RTC and their interrelationships. The second research question requires the research to investigate the effects of RTC. The research method for this research was an inductive one, where the remainder of this chapter details methods included in both phases of this research being Qualitative Research followed by Quantitative Research.

3.2 Philosophical considerations

This Section explores the methodology appropriate for the research questions. The choice of research method has the potential to constrain or liberate the research (Crane 1999; Starkey 1990). Epistemology is a theory of how knowledge is developed (Crotty 1998), its methods and scope, justifying opinions and beliefs., Historically business research has predominantly been conducted in a positivist, or the alternate interpretive paradigm (Crane 1999).

Positivism is value free and objective, based on large data samples and hypothesis seeking to find causes (Crane 1999) where the world is assumed to be systematic, real and solid (Burrell & Morgan 1979; Crane 1999). The Positivist approach has enabled many RTC forms to be discovered, adding deeper knowledge to a number of social science phenomenon. The quantitative methods of positivism have been criticised on quality (Bain 1995; Gladwin 1993; Randall & Gibson 1990), relevance (Crane 1999) and lack of knowledge (Mintzberg, H. 1989). The alternative interpretive or qualitative research originated from the limitations of positivist research (Prasad & Prasad 2002). The interpretive paradigm has reality based on a social construction, reality exists through meanings attributed by social players hence reality is not fixed (Crane 1999; Hassard 1993). The interpretive approach uses qualitative data that is
small in nature being subjective without the objectiveness of positivism (Crane 1999; Easterby-Smith, Thorpe & Lowe 1991).

Multiple paradigms may be required in the social sciences (Hassard 1993) as there may be dangers if attempting to stay with a single paradigm (Crane 1999). Interpretive research interprets the world from shared social meanings, so being subjective rather than objective as compared to the positivist entomology (Walsham 2006). Interpretive approaches should include reviews of other forms of data beyond that of the interview including literature review and survey (Walsham & Sahay 1999).

As the positivist and interpretive research are so diametrically and fixed it has been argued that the alternate multidimensional paradigm may be more useful (Crane 1999; Hassard 1993). Pragmatism as an alternative was originally developed in America by the work of Pierce and Dewey (Baert 2003; Levin 1983). In recognition of bias that will exist in all methods Pragmatism attempts to reduce or cancel bias by adopting mixed methods that may include both qualitative and quantitative methods (Jick 1979).

Triangulation has evolved in Pragmatism by comparing and explaining qualitative and quantitative research with one another (Greene, Caracelli & Graham 1989). Pragmatism is a philosophy that may be used if the research question is not clearly either positivist or interpretivist (Saunders, Lewis & Thornhill 2009). The epistemology of the pragmatist may go back as far as Plato, where humans are the knower, where truth is in the facts and their intellectual abilities are aimed at copying reality (Levin 1983).

Pragmatism of itself does not bind a researcher to mixed methods, qualitative or quantitative research (Morgan 2014) as the pragmatist prefers to not debate about the ontology and the epistemology (Badley 2003). Science is merely one of the many tools available (Rorty 1982) and Pragmatism is a build upon modern science, where reality is not constant (Baert 2003; Lewis, CI & Dewey 1930). The pragmatist gathers knowledge from assertions that are the result of experience with outcomes (Morgan 2014).
The ontology of the pragmatist is one of an external view where multiple realities are possible, where the choices are based on the research question (Saunders, Lewis & Thornhill 2009). The epistemological view of pragmatism can be through observation or subjective means, dependent upon the practical application of the research to interpret the data (Saunders, Lewis & Thornhill 2009). Pragmatism has an axiology that has values attached to it with or both objective and subjective views, where the methods can be either quantitative or qualitative (Saunders, Lewis & Thornhill 2009). Terms (Creswell 2003) and procedures have been described in the past for mixed method research (Creswell 2003; Tashakkori & Teddlie 1998).

Pragmatism may be described as incongruous with elements of realism and idealism, where the counter argument may be that the mixed methods are linked and will complement one another (Roberts 2002). The pragmatist is not overtly interested in truth, as the importance is of relevance, where truth is really a feature with a name attributed to it (Baert 2003). The pragmatist is more concerned to establish if a theory accomplishes what it set out to achieve, where truth may lie in the ability of the theory to deliver success (Baert 2003).

The pragmatist asserts force on an addressee by referring to reason rather than an object, where validity is gained through reason (Ray 2004). Pragmatism through its flexible style and its alternate conceptual and theoretical frameworks has assisted organisations in addressing issues that were important to people (Schultz, M 2010). The researcher should present information on methods and approach openly to avoid or reduce criticism of being overly subjective (Roberts 2002). Pragmatism has often criticised by realists on their empirical approaches and varying positions (Hildebrand 2003).

Whilst there are a variety of procedures allowed in pragmatism there are three common procedures being that of sequential, concurrent and transformative (Creswell 2003). The exploratory sequential procedure develops ideas originating from a literature review followed by theme development in a qualitative element, ending with a qualitative element to generalise and confirm the theory (Creswell 2003). The transformative
procedure likewise allows both qualitative and quantitative methods (Creswell 2003). The completion of qualitative and quantitative phases simultaneously is the way the concurrent method attempts to understand the topic (Creswell 2003).

The pragmatist prefers to use multiple methods to gather understanding, where there is no truth as the world is external and independent (Creswell 2013). The pragmatist can use different assumptions, world views and multiple data collection and analysis (Creswell 2013). The structured interview involves a fixed format or set of questions whereas the semi-structured interview asks for responses to situations (Fowler Jr 2013).

The use of qualitative and quantitative research does not necessarily mean that one is superior to the other, rather they may act as complimentary (Jarratt 1996; Stainback & Stainback 1988), potentially providing more understanding (Bryman 1988; Jarratt 1996). Whilst there are many forms of interpretive research there is a commonality that guides the concepts, design and implementation (Denzin & Lincoln 2011; Prasad & Prasad 2002). The ontology of reliability and rules of the positivist are not used by the modern interpretive researcher (Prasad & Prasad 2002).

The combination of qualitative and quantitative methods may assist in achieving triangulation of theory and testing (Bryman 1988; Denzin 1989; Jarratt 1996; Jick 1983; Strauss, A & Corbin 1990) and may improve knowledge and understanding beyond merely questionnaires (Carruthers 1990). Even if research is not being conducted by interview it may be a source in survey design (Qu & Dumay 2011). Quantitative data may be more to supplement the qualitative data rather than the opposite, where triangulation assists in reducing the weaknesses (Jarratt 1996; Jick 1983).

RTC research has historical methods including case studies, action research and survey (Coch & French Jr 1948; Lewin 1945) requiring a high degree of involvement (Baskerville & Myers 2004; Walsham 2006). Other methods used in this topic field include grounded theory using observation and interviews (Meston & King 1996), multifactor analysis from survey and interviews (Oreg 2003; Shah 2010; Vakola, Tsaousis &
Nikolaou (2004) and longitudinal studies (Bennett & Durkin 2000). Grounded theory has been criticised as being too culturally biased so less relevant for international research (Charmaz 2014). Additionally archival research has been criticised as being time consuming (Smith, I 2011).

The research questions for this research require an understanding of interrelationships between multiple factors. Future RTC research has been called up to be multidimensional in nature (Bennett & Durkin 2000; Goltz & Hietapelto 2003; Oreg 2003; Stewart et al. 2009), analysed with both exploratory (Shah 2010) and confirmatory analysis (Oreg 2003; Shah 2010; Stewart et al. 2009). The factors developed from a multifactor approach may be formed from the literature review (Bennett & Durkin 2000). Past multifactor research has developed hypotheses from a literature review, a self-administered random cross sectional survey (Shah 2010) analysed in a multifactor approach with the SPSS® product.

A pure qualitative or quantitative approach was considered for this research as RTC factors chosen for investigation may have been overly bias. A pure quantitative approach would have required an arbitrary selection of RTC forms out of the literature where a negative finding could have resulted as the forms chosen may not have been common. There are many multiple forms of RTC found in the Literature at Chapter 2.4 to 2.6, so a pragmatic research approach performed by a sequential mixed-method was considered the most appropriate research method.

In recognition of the many RTC forms found in past research it was decided that the research would commence with a first phase of qualitative semi-structured interviews. The interview format enabled exploration of the identified RTC forms combined with discussions of any other RTC forms experienced by participants. The second research phase, in the form of survey, was a way to create a model out of the common interview factors. The mixed method has been undertaken with a triangulation of the Literature Review and the 2 research phases. The triangulation enabled a deeper understanding and knowledge on RTC forms and interrelationships.

The multidimensional nature of so many RTC forms identified in past research resulted in the decision to use a mixed method, including
qualitative, quantitative aspects and triangulation for this research. This pragmatic approach to research has had implications on the population sampled, participation, location, invitation, ethics and distribution. The method for each phase of this research is described in later Sections of this Chapter 3.

The data of this research was summarised and analysed in the specialised software of Nvivo10® and SPSS®. The tests and techniques to analyse the data of each phase of this research is also explained in this Chapter. The later Chapters 4 and 5 detail the data created in this research together with the results of tests performed on the data.

3.3 Ethics

This research passed the Western Sydney University Human Research Ethics Committee processes (UWS HREC) at the commencement of this research. This Section details those ethical considerations used in the design of this research, where those methods are described later in this Chapter.

Ethics involves minimising harm and promoting positive outcomes whilst maintaining privacy of the participant (Orb, Eisenhauer & Wynaden 2001), where the researcher is assumed usually to be in a position of power (Vainio 2012). Confidentiality is often at the core of ethical considerations, although there are other issues (Allmark et al. 2009). There are a variety of norms available to achieve informed consent which is dependent upon the area of research (Wiles et al. 2006). It has been considered that the minimum research ethics should include are requirements of consent, deception avoidance, harm and exploitive minimisation for all approaches (Vainio 2012; Wiles et al. 2008).

Consent requires understanding of the research goals so it should be voluntarily given and be able to be withdrawn (Powell et al. 2012). When consent is received the use of the research material should be used based on the wishes of the participants (Vainio 2012). Consents are required as there is an imbalance in power between the two parties (Qu & Dumay 2011) and it is preferable that participants be informed of the
research purpose with an opportunity to ask questions at the outset (Kvale 1996; Qu & Dumay 2011).

Each semi-structured interview in this research commenced with conformation that the consent had been signed. The researcher also explained the format of the interview with a general description of the questions that were to follow. The survey achieved consent by requiring participants to pass through 3 mandatory pages that included information on the research goals, the consent and confidentiality.

There is the potential for any interview to harm an individual through the recollection of events, although there is some research to indicate that this may also be beneficial to a participant, so requires a balance (Allmark et al. 2009). The research harm potential to the participant and researcher arises if the issues covered are sensitive (Allmark et al. 2009; Boothroyd & Best 2003; Borbasi, Jackson & Wilkes 2005; Chaitin 2003; Clark & Sharf 2007; Cohn & Lyons 2003; Davison 2004; Foss & Ellefsen 2004; Hadjistavropoulos & Smythe 2001; Hess 2006; Hubbard, Backett-Milburn & D. 2001; Richards & Schwartz 2002; Sandelowski 1994). Participants in this research were given the right to close the interview at any time, or to withdraw their consent. At the point of finalising this Thesis no requests to withdraw information has been submitted by any of the participants.

Whilst researchers need to follow ethical rules they may need to apply judgement in implementing the methods (Brinkmann & Kvale 2005), as context and situations may change. When writing on the results of qualitative research it is preferable that data be grouped, summarised, or used with pseudonyms, so that it cannot be specifically identified, or identifying data should be altered when applicable (Vainio 2012; Wiles et al. 2006). Harm to participants was minimised in this research by ensuring that the participant was suitably informed about the study and its uses, so gaining informed consent. The data of this research has been grouped and summarised so protecting participant confidentiality.
This research has been taken into account the main ethical concerns of research (Crandall & Diener 1978; Walsham & Sahay 1999) being as follows:-

- **Harm to Participants/informed consent** – harm has been minimised in this research by achieving informed voluntary consent. The interview and survey of this research was approved by the UWS Human Research Ethics Committee (HREC) prior to the research phases commencing.

- **Invasion of privacy** – participants were informed that semi-structured interviews were recorded and the names of organisations or people was at their discretion. The consent form also explained that they could at any time withdraw.

- **Deception** – to avoid deception the informed consent statement was supplied to all participants identifying the researcher, the research topic and the HREC reference.

- **Confidentiality** – to achieve confidentiality the researcher has not included the participant name in the interview transcriptions. No direct quotes have been referenced in this thesis or other related published articles.

- **Organisational power** – no reference to any particular organisation has been made in this Thesis, so avoiding any potential reading exposure to underlying organisations.

- **Literary writing** – elements of this research involve personal interpretations. Elements of this work written by this researcher as way of conference paper and article (Donald 2014, 2016) have not included references to participants or organisations.

The following 2 Sections of this Chapter detail how the qualitative and quantitative research phases were conducted.
3.4  Qualitative Research

The questions for this research required an understanding of various RTC forms and any potential interrelationships between those factors. The first phase of this research, being interview and qualitative in nature, enabled the research to discover common, frequent RTC forms. The RTC forms were analysed in Nvivo10® as a way to answer the first research question, where the analysis confirmed some RTC to be interrelated, albeit in a non-statistically significant way. Similarly the formation of RTC effect factors were created out of the interview data, where the analysis confirmed, albeit to a lesser degree, some relationship between RTC factors and RTC effect. The analysis and confirmation of possible interrelationships in this qualitative research phase, contributed to answering the research questions. The success of this first qualitative research phase enabled the second research phase to also contribute towards understanding against the research questions, albeit in a more statistical way.

As was explained earlier in this Chapter the philosophy for this research was pragmatic with a mixed method, completed in a sequential research format. The philosophical choice had implications for the preparation, design and analysis of the interview data. This Section presents how the principles of qualitative research influenced the methodological decisions taken to form the first phase of this research.

3.4.1  Qualitative design

Interviews have been shown to be valid if participants are asked to recall information (Ericsson & Simon 1984; Jarratt 1996), although if they are performed casually without preparation they may lead to poor results (Hannabuss 1996; Qu & Dumay 2011). Structured interview decisions should include decisions on interviewee demographics, participant quantity, interview type and data analysis (Rubin & Rubin 1995). It has also been recommended that data coding from the interview data should be performed close to the interviews (Jarratt 1996; Strauss, A 1987).
Despite the legitimacy of email interviews, more research is required to establish their effectiveness (Meho 2006) so were not included in this research. The interviews were formally arranged with the participants at an agreed time and method, where the participant signed a consent form prior to interview completion. The interview data was transcribed by the researcher close to the interview period as a way to gather a deeper understanding of the data.

For qualitative research non random sampling is commonly applied where the sampling can be in the form of purposeful, convenience or snowball sampling (Kelley et al. 2003). Focus group interviews require less intervention by the researcher and may lead to less bias (Doyle 2004). Focus groups are not recommended if the topic is sensitive (Qu & Dumay 2011). Research interviews asked about employment experiences so a focus group forum was not considered appropriate for this research.

Snowballing is an indirect way that people may participate in research (Brace-Govan 2004) that is common across many disciplines, where the technique is used to find additional research participants (Brace-Govan 2004; Carson et al. 2001; Daymon & Holloway 2010; Lindlof & Taylor 2002; Miles & Huberman 1984; Patton 1990). The snowball technique is considered useful where populations are difficult to contact (Berg, Lune & Lune 2004; Biernacki & Waldorf 1981) and may be useful in developing trust (Brace-Govan 2004; Lofland & Lofland 1995). There may be power differentials to consider in snowballing, so consideration of women (Finch 1984) and social barrier differences like age, class (Brace-Govan 2004; Cotterill 1992) and ethnicity need to be considered (Ramazanoglu 1989; Riessman 1987).

The distribution of the invitations began as a hard copy request to several professional bodies where it quickly reverted to an online invitation due to requests. After the distribution of the invitations snowballing began quickly by participants informing their colleagues about the research. The potential power differentials were treated when the researcher provided an information sheet and a signed consent form to the participant.

The neo-positivist prefers structured or semi structured interviews (Qu & Dumay 2011) where random sampling is often not appropriate for
qualitative research due to the small sample sizes (Marshall 1996). All participants are not of equal value to the research as they do not necessarily have the same level of observation (Marshall 1996). The neo-positivist structured interview aims to reduce bias and find an objective reality, seeking to find insights that may assist in general theories (Qu & Dumay 2011). It was decided to not use a fully structured interview for this research as it may have overly limited the detection of RTC forms.

An alternative semi-structured interview (Qu & Dumay 2011) was used in this research as it has the advantage of gathering data that is rich with flexibility to change with the interviewee (Doyle 2004; Qu & Dumay 2011). The semi-structured interview may often be the easiest way of sourcing information (Kvale & Brinkmann 2009) as it effective at revealing behaviours that may normally be hidden (Kvale & Brinkmann 2009; Qu & Dumay 2011).

This research was required to investigate multiple forms of RTC and their interrelationships. The semi-structured interview was considered the most appropriate way to explore participant RTC experiences. This format allowed the researcher to introduce concepts from the literature yet still allow participants to expand and discuss any additional RTC forms. Open interview discussions in a semi-structured format were considered the most appropriate interview form, where the research required detection of multiple RTC interrelationships.

Initial interview questions were based on concepts that emerged in the Literature Review of Chapter 2.4 to 2.6. During the early interviews it became apparent that many of the discussions surrounded positive RTC experiences. The literature indicated that employees may be both positive and negative towards change (Arkowitz 2002; Klonk, Lehmann-Willenbrock & Kauffeld 2014) and that the RTC forms may exist in positive and negative forms (Knowles & Linn 2004; Piderit, SK 2000). As a result participants were allowed to recollect in the interview their positive or negative experiences.

Phone interviews may allow for a wider scope of participants, reduced travel and scheduling issues (Knox & Burkard 2009). For time and cost reasons this research conducted interviews over the phone, Skype® and
face to face. The use of phone interviews had the potential benefit of efficiency and improved anonymity (Knox & Burkard 2009) where phone interviews may not be significantly different to the face to face interview quality (Knox & Burkard 2009; Siemiatycki 1979). The length of interview may be important (Walsham & Sahay 1999) so the research interviews were limited to a maximum of 1 hour so reducing any potential interview stress on participants.

The researcher was not a participant as there was a risk of the researcher becoming too close to the data (Walsham & Sahay 1999). Biases may be inevitable in qualitative studies due to small sample sizes (Marshall 1996) where not all participants are as good as each other in observation techniques (Jackson 1970) nor are they normally distributed (Marshall 1996). Participants with past organisational change responsibilities were preferred for this research as it was considered those people may have experienced more RTC than those in the general population and so could improve the identification of RTC interrelationships. The semi-structured interview process was conducted over the period July 2012 to April 2013, where participation was voluntary.

Interview participants self nominated after the interview process was advertised on Linkedin® groups, where the nominations either occurred via email or phone to the researcher. Participants that identified as either currently working for large organisations or had done so in the past were admitted to the interview process. People identifying with limited work experience in change management were not selected for interview. Personal preference, gender and demographic or change bias differences in participants were not differentiated upon for the eligibility as participants. Despite the limited control of participation criteria the participants were asked a number of demographic, personality and bias questions as a way to analyse and assess bias in the data.

Early interview questions included demographic questions included to add information about the participant experience and background. These questions also served to enable some level of rapport with the researcher. Some questions in this early Section were aimed at
distinguishing the participants like or dislike of change and their beliefs on
the causes of RTC.

The semi-structured interview questions are listed in the Appendix 8.1 at
Tables 8.1 and 8.2. Whilst the researcher attempted to ask all questions
to all participants was not possible for all interviews. The reasons why all
questions were not asked of participants included a variety of divergence
in experience, industry backgrounds, answer type, answer length and
participant time availability.

A one hour interview may be common for interviews, where the time
choice should be justified in terms of its power including considerations of
cost, time and resources (Onwuegbuzie & Leech 2007). Participants each
confirmed that a 1 hour format was acceptable to them, where each had
a choice of interview times and dates.

For interview data to be classified as generalizable it must be represent
others in the population that have not been interviewed as well as
sufficient words, or otherwise the research will risk informant bias
(Maxwell, JA 2005; Onwuegbuzie 2003). As participant change
responsibility was preferred it was possible that their experiences were
not indicative of those without such experience. Those without change
experience responsibilities were not chosen for this research as there
was potential to place undue stress on those people as the interviews
included questions that may relate to their current employment.
Interviews were not distributed to organisations of employees but rather
to professional bodies where inclusion was on a voluntary informed basis.

There was potential for interviews to cover sensitive issues including
employee confidentiality breaches (Allmark et al. 2009), public interest
(Cowburn 2005; Shaw 2003), legal and professional issues (Davison
2004; Volker 2004; Wolcott 2002). The interviews included additional
ongoing verbal permissions by the researcher (Kvale 1996; Smith, B
1999) so as to reduce pressure on the participants. All interviews
included reassurances to ensure that the participant understood that they
were in control of the discourse content (Allmark et al. 2009; Byrne, M
2001; Nunkoosing 2005; Richards & Schwartz 2002) and could withdraw
at any time.
There may be some kind of relationship developed between the interviewer and interviewee that may be desirable (Allmark et al. 2009; Tillmann-Healy 2003). As this research was conducted in a pragmatic philosophy rather than a feminist paradigm the researcher did not seek to be with the position of the participant (Oakley 1981). The researcher adopted a position of neutral during the interviews, as other positions may have had dangers to avoid (Allmark et al. 2009; Antaki, Young & Finlay 2002).

The interview quality may be maintained if the conversation can flow, if the relationship remains good, attempting to avoid potential bias of the researcher (Shensul, Schensul & LeCompte 1999). To improve interview quality the interviewer asked follow up questions and did not ask leading questions and avoided opinions (Qu & Dumay 2011). There are a number of question types available to the interviewer to illicit different responses of the participant (Berg, Lune & Lune 2004), where there may be benefits if the researcher introduces the topic (Qu & Dumay 2011) requesting the participant to be open and informative (Mellon 1990).

The research interviews commenced with research information contained in the consent form so confirming the potential interview content and influencing participant expectations. Additionally the interview script included demographic questions and participant opinions early in the interviews to create interest. The open forum created through this sequence of questions encouraged participants to voice their opinions that assisted in later discussions on their change experiences.

An introduction of a variety of interview techniques may reduce the potential to introduce organisational politics rather than truth (Alvesson 2003; Qu & Dumay 2011). The semi-structured interview questions of this research were based on Literature Review concepts, asked in an open way, seeking identification of RTC factors. The interviews were in a flexible format enabling the researcher to embrace and seek more detail on relevant participant information. Participants were encouraged to talk about their organisational change experiences based on what they felt safe and free to talk about.
The sampling sizes for qualitative research have generally not been given the focus as it has in quantitative studies (Onwuegbuzie & Leech 2007), where sample size is a matter of judgement and the quality of information is important (Sandelowski 1995). A failure to capture sufficient word samples may cause a significant research bias (Denzin & Lincoln 2011; Onwuegbuzie & Leech 2007), where qualitative data cannot be generalised (Onwuegbuzie & Daniel 2003; Onwuegbuzie & Leech 2005). Whilst there is no hard consensus on qualitative sizes it is advised that up to 10 participants for phenomenological research and up to 30 for grounded theory (Creswell 2002; Onwuegbuzie & Leech 2007).

This first phase of the research targeted 25 senior staff that were responsible for organisational change in some respect. The target was not fixed where it could have been extended if additional RTC factors were revealed in later interviews. At the 20th interview it was apparent that the number of new concepts was diminishing, at the 25th interview interviews ceased due to a lack of new concepts being raised.

This research avoided issues of power regarding employees, children or older people (Jokinen et al. 2002), terminally ill (Beaver, Luker & Woods 1999; Davies et al. 1998; Raudonis 1992) or mental health issues (Allmark et al. 2009; Koivisto et al. 2001). These groups were not included in this research as they were unlikely to have extensive knowledge on managing organisational change (Thomas, N & O’Kane 1998).

Whilst this research was required to report on those with western Sydney experience of large organisations, the two criteria did not feature in the interview participation selection. The second survey phase of this research more strictly applied the location and organisational size criteria. The semi-structured interviews were initially offered to professional bodies as they were considered to have membership that would be relevant and interested in the topic of this research. Non-manager and non-voluntary participants were excluded from the interviews so as to avoid placing employees in a position where they could feel coerced and fearful of their employment.
The information and invitation to participate in this research phase were initially sent out in hard copy via mail to the following organisations:-

- Australian Institute of Project Management (AIPM)
- Chamber of Commerce Sydney NSW

These organisations were the approached for participation on the basis that their memberships may have been involved in or are managing organisational change.

Those invited to participate in the interviews may not always respond promptly so reminders are appropriate to avoid undue pressure (Meho 2006). The Sydney Chamber of Commerce replied in the negative towards support for this research. The invitation was subsequently revised by including statements about benefits of this research and an inducement. The inducement offered was that of a briefing on RTC by the researcher. The revised invitation then sent to a wider list of organisations as listed below :-

- Australian Human Resource Institute (AHRI)
- CPA Australia (CPA)
- Australian Institute of Management (AIM)
- Change Management Institute (CMI)

The AIPM stated that they would support the research by supporting the research invitation being placed on their AIPM Linkedin® groups. After approval by HREC the research invitation was distributed on Linkedin® groups.

Interviews can be conducted using a variety of forms including that of face to face, phone and email to reduce privacy issues (Oltmann 2011). Participant preparation and time can be improved if interviews are conducted by phone or email (Holt 2010; Moho 2006; Oltmann 2011; Stephens 2007; Sturges & Hanrahan 2004), where stronger anonymity may be perceived and achieved (Fenig et al. 1993; Kazmer & Xie 2008; McCoyd & Kerson 2006; Moho 2006).

Upon the posting of the research invitation several individuals volunteered as participants that was followed shortly thereafter by
snowballing. As a number of potential participants were busy a number of interviews were recoded and completed over the phone or via Skype®. This inclusion of multiple interview forms created more flexibility and options that improved participation. The interview recording assisted by freeing up the researcher to listen and provide follow up inquiries (Walsham & Sahay 1999).

The data was kept on USB without information of the participants so as to respect the confidentiality, anonymity of researcher and participant (Parry & Mauthner 2004). Whilst it is preferred that data be anonymised during transcription (Qualidata 2003), there are issues involved in data retention and confidentiality whilst the original data exists. Failure to organise data with appropriate tracking may lead to loss of data integrity (McLellan, MacQueen & Neidig 2003), so threatening confidentiality.

The semi-structured interviews of this research were recorded on a digital recorder combined with hand written notes. The consent form so included a statement acknowledging that the interview would be recorded with permission of the participant. At no point was the name of the participant used or recorded in the hand written notes or included in the interview recordings. Interview transcriptions were stored securely where they were also uploaded to the UWS email system to provide a backup capability. Hand written notes from the interviews were at all times held securely preventing people other than the researcher from reading them.

This Section has described this research method developed after consideration of appropriate philosophical and ethical issues. In summary the design of the first phase of this research has included 25 semi-structured interviews, where appropriate approvals, consent and interview content were included. The following Sections of this Chapter detail how the interviews were conducted, transcribed and coded.

### 3.4.2 Interview Transcription Process

The choice of recording media, be it tape or notes, is determined by the analysis tool interview (Patton 2002), the transcription method must also be decided, noting that even a very good transcription will not capture all that occurred (Emerson, Fretz & Shaw 1995; Green, J, Franquiz & Dixon
1997; Kvale 1996; McLellan, MacQueen & Neidig 2003; Poland & Pederson 1998). Transcription decision making is a construction from the verbal to written form, where this research did not include non-verbal, expressions and emotions (McLellan, MacQueen & Neidig 2003). The researcher chose to transcribe the data as a way to minimise costs of the research and to engage with the data more closely.

Consistent transcription rules are required around content, slang, punctuation and format (McLellan, MacQueen & Neidig 2003). The type of analysis will dictate the level of text required, so the transcription can be in summary or detail (McLellan, MacQueen & Neidig 2003). Transcriptions should be clear as to who was speaking at the time, labelled with a reference number so that each are clearly identified (McLellan, MacQueen & Neidig 2003). Whilst participant characteristic data will be captured it is not advisable for that information to be included in the labelling of transcriptions (McLellan, MacQueen & Neidig 2003; Qualidata 2003). Where parts of the transcript are missing they should be clearly identified in the transcriptions (McLellan, MacQueen & Neidig 2003; Qualidata 2003).

This transcription separated the interviewee and the participant data by formatting the words of each in a different formatted colour. Those few interview elements that could not be deciphered easily were distinctly noted in the transcription. The transcriptions were numbered in their file names and headings without reference to the participant names so ensuring confidentiality.

Transcriptions were randomly read compared back to their source as it was possible that the researcher could have missed or misinterpreted phrases (McLellan, MacQueen & Neidig 2003; Weiss 1994). The transcription rules for this research was to maintain natural words, preserving the structure and were not reduced to maintain simplicity (McLellan, MacQueen & Neidig 2003; Mergenthaler & Stinson 1992). The interviews were transcribed in alignment with the original semi-structured interview sequence to enable efficient data labelling during analysis.

A transcription service could have been faster and be more accurate than the researcher performing that work, however the alternate method would
have been more costly and reduced the researcher’s time with the data. The process of transcription enabled the researcher to gain a deeper understanding of the data and to form the initial coding groups more quickly. The researcher transcribed the interview data using headphones, maintaining privacy and allowing the researcher to listen to the conversation in detail. Despite the data limitations it is considered that the words have been transcribed accurately without any need to re-discuss or question participants.

A few interviews were transcribed from the research notes as there were few instances interviews where the recorder battery failed or through incorrect usage of the equipment. Data that could not be directly transcribed from the recordings are recognised in the transcription with a separate formatted colour. Upon completion of the transcription process the data was analysed in Nvivo10® at Chapter 4, where the following Section of this Chapter details the data analysis and coding process.

### 3.4.3 Interview Data Coding

A list of RTC concepts were separately created in Microsoft Excel® by the researcher during the transcription process. This initial list of RTC factors was summarised to form a group of RTC factors that were used for the initial data coding in Nvivo10®. This Section explains how the data was analysed and coded to form factors useful for the second survey phase of this research. The factors derived in this first research phase were based on factor definitions formed in the Literature Review of Chapter 2.4 to 2.6. This Section also details decisions made in respect of the data and the factor definitions.

The concepts developed during the transcription process were used as the initial coding factors as it was considered that they would be more useful than creating new free form codes. Any new concepts identified during coding were added in recognition that the initial codes may have been incomplete. The initial coding generated over 70 factors in Nvivo10® being far too many for use in the second research phase survey. It was identified by the researcher that a consolidation process
was required to reduce the codes into a smaller group of factors suitable for a survey.

The researcher, considered and rejected, the use of the consolidation function of Nvivo10® as it was not clear how to consolidate the varied codes that had been created. A consolidation process without structure and definitions would have been highly arbitrary. It was decided that definitions for the factors would reduce bias during the consolidation process. The consolidated factors of the re-coding were based on the most common concepts in the initial coding, where the factor definitions feature in the Literature Review at Chapter 2. The minor factors in the initial Nvivo10® coding excluded from the re-coding process as it was considered that interrelationships would more likely appear from the major RTC factors. As the initial coding and the Literature Review supported RTC factors being both positive and negative, the dual polarisation was included in the re-coding process for each factor.

The interview data was initially coded from groups formed from the subjective notes of the researcher combined with additional concepts that emerged during coding in Nvivo10®. The high volume of factors in the initial coding required a consolidation process so that the factors could be used in the second survey phase of this research. The data was re-coded based on definitions created in the Literature Review where the minor factors were excluded from the re-coding process.

The data created at the re-coding process was analysed so as to gather an understanding of RTC factors so formed. The data analysis included comparisons of the various demographic data in the interview questions including age, sex, industry background and experience. Key word frequency trees, word similarity clusters and comparisons were created in Nvivo10® so as to generate additional information on the data. Data and results of tests performed over the interview data are shown at Chapter 4.

### 3.4.4 Qualitative Method Summary

This section has reviewed the alternative research design and approach in relation to the two questions for this research. The first research question required RTC forms to be identified and then to discover if
interrelationships between factors exist. The Literature Review at Chapter 2 showed that there had been many RTC forms identified in the past, where so many forms could have been problematic to this research. Adopting a qualitative, exploratory interview process for this research was considered an appropriate way to identify common forms of RTC. RTC factors of frequency identified in the qualitative data were also tested for interrelationships in Nvivo10® as a way to answer the first research question.

The qualitative data of the research identified seven RTC factors that appeared to be frequent in nature, poling from negative to positive and appeared to be interrelated on a non-statistically significant basis. Various tests were performed over the qualitative data to identify bias and reveal potential interrelationships between the various demographic and opinion based answers of the interviews.

Qualitative data of this research was coded into groups, initially in free form without definitions. Emergent RTC factors of this initial coding were subsequently defined in the Literature Review of Chapter 2, the definitions then formed the basis for the data to be recoded against the definitions. Many more RTC factors were initially identified than could be used for quantitative testing so rationalisation of the RTC factors was required. Word frequency and word similarity tests were employed in the testing so as to ensure that significant RTC factors were included in the factor identification.

The coded RTC factors were compared to one another in Nvivo10® as a way of answering the first research question in relation to RTC factor interrelationships. As with the RTC factors, RTC effects were defined in the Literature Review, where coding against the effects were aligned to those definitions. To answer the second research question the coded groups of time, cost and quality were compared to the RTC factors in an attempt to identify relationships between the factors and the effects. The various demographic and opinion based questions were analysed against in an attempt to answer the second research question, relating to RTC effect.

PREPARED BY MATHEW DONALD
UniId 17300142 91 24/05/2018
This research adopted a pragmatic paradigm the research commenced with a review of the literature for RTC forms. The mixed method adopted for this research was structured with a first phase of semi-structured interviews that was followed by a survey. As there are many potential sources of RTC this research interviewed 25 people that had past organisational change responsibilities. This Section has detailed the decision making process that led to the interview type, invitation creation, distribution, recording process, transcription and coding process. To reduce bias and improve the coding process the most common RTC factors of the interviews were coded and rationalised through the use of factor definitions developed in Chapter 2 Literature Review. The following Section 3.5 details how the second research phase used the factors developed in this first interview research phase.

3.5 Quantitative Research

This Section details how the major factors developed in the first phase interviews were used in the second quantitative phase of this research. The quantitative tool of survey was selected as the most appropriate method for the research questions to be investigated in this research. This Section details the development of the research survey including decisions and methods undertaken in the survey design, preparation, distribution and validity testing.

3.5.1 Quantitative design

Survey design should include steps to reduce survey bias (Czaja & Blair 2005), where it is considered important to maximise survey participation by developing questions covering the research topic (Leung 2001). This research survey design was based on a review of the RTC factors developed and defined as part of the first interview phase of this research. Each factor was critiqued in terms of their ability to form questions that may have yielded high levels of validity and reliability. The process involved eliminating any factors or questions that were deemed as being too similar in an attempt to diminish the potential for concept rationalisation and data reduction (Schriesheim & Eisenbach 1995).
Paper surveys can have a response rate lower than 20 percent as the method is conducted without a relationship between the participant and the researcher (Kelley et al. 2003). The design of surveys should include similar or equal time as the data if a survey is required to also demonstrate validity and reliability (Kelley et al. 2003). The alternate web survey tools have become the most reviewed methods as reported by American research ethics boards (Buchanan, E & Hvizdak 2009).

There has been a significant rise in researchers that use surveys over the web and email with the introduction of phone surveys and random sampling (Cobanoglu & Cobanoglu 2003; Dillman 2000). Online survey preparation is no longer difficult and time consuming as they are now relatively cheap and easily distributed to large quantities of people (Wright 2005). The online survey advantages including being able to accommodate mobile individuals (Hewson, Laurent & Vogel 1996), efficiency (Alexander & Trissel 1996; Borer, Hebert & Breshears 1996) and improved response quality (Cho & LaRose 1999; Schaefer & Dillman 1998).

There are a number of online survey tools that have limitations that should be considered in the choice of tool (Wright 2005). HREC committees may have concerns where the online methods and ethics converge (Buchanan, E & Hvizdak 2009). Ethical considerations for online surveys include confidentiality, privacy, perceptions of surveys as spam (Scriven & Smith-Ferrier 2003), however there is little research in this area (Buchanan, E & Hvizdak 2009). As with qualitative ethics the purpose and use of the survey data it is important to consider the impacts on the participant (Gilbert 2001).

The quantitative research is required to achieve harm minimisation, research intent disclosure, confidentiality and relationship management (Punch 1986; Qu & Dumay 2011). The dilemma for quantitative research is achieving the disclosure when the researcher is remote (Kelley et al. 2003). Data should be kept in a restrictive way so that the informed consent based on confidentiality can be maintained (Gilbert 2001).

This research achieved confidentiality by not recording the names of the survey participants. Harm minimisation was achieved by the use of
information in the early pages of the survey and the survey invitation. The data of the survey was held in a secure way and was not published in a direct way. This research achieved approval of UWS HREC and informed consent and confidentiality based on the research method applied.

Whilst paper surveys were considered for this survey they were not included in the methods for this research. First research phase of interview indicated that the participants were busy and preferred electronic interactions. The online survey was chosen as the survey means due to its efficiency, interface with analysis tools and participant preferences. Once the survey had been setup in Surveymonkey® it was relatively easy to distribute, monitor and close and interface with SPSS®.

Groups of people and organisations have formed on line groups that provide additional populations to access if researchers are members (Wright 2005). The online survey allows access to great numbers of potential participants in relatively short time spans despite location distances (Bachmann, Elfrink & Vazzana 1996; Garton, Haythornthwaite & Wellman 1997; Taylor, H 2000; Wright 2005; Yun & Trumbo 2000) and may allow researchers to work on other tasks whilst the survey is open on line (Lliewa, Baron & Healey 2002).

Upon a review of Linkedin® groups it was considered there were a number of groups with members that potentially had experience in organisational change. Linkedin® was adopted as the distribution method for this research as it had been successful at attracting participation in the first research phase. It was also deemed that the large numbers of members in the Linkedin® groups would assist in gathering support and participation in this research due to their interests in change, projects and other related topics. Whilst there was potential for online surveys to derive low response rates due to typing skills (Brace 2008) it was not considered a significant risk with the selected Linkedin® groups.

The Linkedin® groups membership may have included people outside the research criteria on location and organisational size. Specific questions for these research criteria were inserted into the opening survey pages preventing participants from progressing through the survey if the answers to those questions were in the negative. The
SurveyMonkey® was selected as the survey tool as it met the confidentiality and functionality requirements of this research, where it had previously been approved for use by UWS HREC. SurveyMonkey® tool is compatible SPSS® so manual input was required to load into SPSS® thereby assisting with research time and accuracy.

Quantitative researchers consider that sampling is important and large samples of representatives are required to apply generalisation to its conclusions (Onwuegbuzie & Leech 2007). The size of the sample should be related to the research question and the significance of error sought (Marshall 1996). The targeted participant rate for this survey was that of 300 as that participation level is considered statistically significant (Comrey & Lee 1992; Tabachnick & Fidel 1996; Tinsley & Kass 1979).

The survey had a length of 60 questions, where a minimum participation rate of 70 was targeted to create a valid EFA model (Cochran 1952, 1954). The opening 2 survey questions required participants to answer in the positive in respect to their past organisational locations and organisational size. Government definitions of large organisations were disparate, ranging from 50 employees (ASIC 2017) to 200 employees (Statistics 2002), where 100 was considered an appropriate mid-point for this research.

The location of organisations in the Greater Western Sydney region is often defined as a group of council areas in government department definitions (Montoya 2012). The term was required to be simple to assist survey participants identify with the demographic requirement of this research. Whilst different to the government definition and different to maps of the region (University 2017), this research defined the Greater Western Sydney region as one that is located west of the Sydney Harbour Bridge. The research definition for the region approximates the government definition, where some additional minor inner Western suburbs of Sydney have been included.

Non-sampling errors may arise due to coding, questionnaire preparation and data entry, these may not be able to be corrected during analysis (Brace 2008). In terms of achieving a valid questionnaire with minimal bias and higher reliability it is recommended that pilot work be undertaken.
The survey content should be validated through the use of literature review and consultation (Bowling 1997). In an attempt to reduce participant boredom and the sequence of questions should be considered (Rattray & Jones 2005). Questions may need to be in both the positive and negative to avoid acquiescent bias (Rattray & Jones 2005).

It is recommended people review the wording in a pilot (Czaja & Blair 2005), setting the language simply in common language (Brace 2008), avoiding complexity in language (Thayer-Hart et al. 2010). Survey sentences should avoid double meanings and extensions, preferably with a single verb and subject (Thayer-Hart et al. 2010). Surveys should be easy to complete, interesting and varied so as reduce interest reduction (Brace 2008). Participants may respond more accurately about their attitudes if they answer questions quickly (Tourangeau, Rips & Rasinski 2000).

Questionnaires have been criticised in respect to their data accuracy, logic and computations (Galasinski & Kozlowska 2010; Gillham 2000). Survey question meanings have be challenged in terms of their objectivity (Bonilla-Silva & Forman 2000; Heath 1986; Potter & Wetherell 1987) and criticised for the perceived meanings as there is a separation between the participant and researcher (Galasinski & Kozlowska 2010). Alternately some participants may perceive questions to be true if they perceive the researcher as being expert (Lenski & Leggett 1960).

This research survey was finalised with a minimum of 3 questions per factor as it is considered an acceptable quantity of questions for later validity testing (Revilla, Saris & Krosnick 2014). The RTC factors of the first research phase were the basis of the survey questions developed after a review of Literature Review at Chapter 2 factor definitions. The question formation was an iterative process occurring from pilot contribution and feedback, where questions appearing to be closely related were either changed or removed.

The survey question development attempted to simplify language and remove double statements identified. In an attempt to reduce potential participant bias and boredom the option of random question sequence was selected in SurveyMonkey®. In an attempt to reduce unanswered
questions the survey required all questions on a page be answered prior to the next set of questions being displayed. It was still possible for participants to answer a full page and exit the survey without completing all survey pages.

It may be difficult to prevent a participant from completing the online survey multiple times (Andrews, Nonnecke & Preece 2003; Couper 2000), so this research survey reduced that risk as Surveymonkey® prevented multiple use of the participant Internet Protocol (IP) addresses (Wright 2005). There was no other multiple participation check in this research as it had assured participant confidentiality.

Survey questions require clarification and care so that they are reliable and consistent, benefiting from a preamble (Thayer-Hart et al. 2010). This survey included information regarding the object, consent and background of this research at the commencement of the survey. These 3 opening survey pages also informed the participant of their ability to withdraw and remain anonymous.

There are a number of survey scaling types including frequency, Guttman scaling, Rasch scaling and knowledge questionnaires that can feature multiple choice, yes or no answers or Likert scales (Rattray & Jones 2005). Whilst there are a variety of Likert scales available, those with 5 categories may yield a higher level of quality than scales of seven or eleven (Revilla, Saris & Krosnick 2014).

Surveys were previously thought to have bias responses if they were compiled without positive and negative questions (Anastasi 1982; Nunnally 1978; Schriesheim & Eisenbach 1995). There is now research showing that positive and negative questions may not always be appropriate as they could lead to survey reliability and validity issues (Benson & Hocevar 1985; Campbell & Grissom 1979; Schriesheim & Eisenbach 1995; Schriesheim, Eisenbach & Hill 1991; Schriesheim & Hill 1981; Simpson, Rentz & J. 1976) or the distortion of factor analysis distribution (Schmitt & Stults 1985). Survey responses may be best asked with a single dimension with 5 or 7 categories where neutral is allowed (Thayer-Hart et al. 2010).
As this research is attitudinal, most questions in this survey required a 5 point linear Likert scale, where response categories ranged from strongly agreed to strongly disagreed, including a neutral option (Bowling 1997; Burns, N & Grove 1997). The survey questions were asked in the positive in all occasions, as polar opposite questions can lead to bias and confusion (Schriesheim, Eisenbach & Hill 1991), where they be more valid and easier to administer (Oppenheim 1992).

Demographic and background questions were also included in the survey to improve knowledge on the data, where those questions included participant age, gender, education, occupation and industry. The demographic questions were supplied with a range of suggested answers that resulted in the standardisation of responses for later data analysis. The survey information asked participants to complete the survey based on their first answer rather than overly deliberating. The randomly select questions option within Surveymonkey® tool was chosen so as to make the survey interesting for participants.

Factor analysis is the investigation of the interrelationships between factors, measuring the level of attribute variance (Tucker & MacCallum 1997). The survey can be initially reviewed using an Exploratory Factor Analysis (EFA) followed by a Confirmatory Factor Analysis (CFA). EFA may be useful when data is treated for variable reductions, relationship analysis and data validity, where the analysis eventuates in construct development and proposes theory (Williams, B, Onsman & Brown 2010). EFA explores patterns in the data, whereas CFA attempts to confirm hypotheses (Yong & Pearce 2013). The use of EFA has steadily been declining whilst CFA has increased as a tool for analysing data (Brannick 1995; Stone-Romero, Weaver & Gleaner 1995). Although some have argued that CFA may at times be overused or incorrectly used (Hurley et al. 1997).

It is considered that whilst EFA is important to develop theories and models, the CFA process is considered more robust (Byrne, B 2005). The CFA process is a subset of structural equation modelling portraying relationships graphically, potentially developing causal relationship equations (Byrne, B 2005). It has been considered that EFA is theoretical
and CFA is more data centric (Byrne, B 2005). The optimal number of factors for factor analysis has been deemed at 5-7 where additional factors may not yield any reliability benefits (Green, S et al. 1997).

The first research phase suggested the possibility of interrelationships between factors, where the qualitative method used could not confirm the interrelationships in a statistical way. Conversely the survey data, being quantitative in nature, was suitable for an EFA as a way to explore factor interrelationships. The survey development phase required the first phase factors being placed through a rationalisation and review process. The rationalisation involved the limit of factors to ensure they were relevant for EFA and CFA uses. Amos® was chosen as the CFA tool as it was considered easy to use for new users, without the use of syntax (Van De Schoot, Lugtig & Hox 2012).

Tests may be criticised if they are not validated (Fleming, E & Fleming 1929), where there are now three recognised validity tests being convergent validity, discriminant validity and method variance (Campbell, D & Friske 1959; Strauss, M & Smith 2009). These new measures have taken over the more traditional tests criterion and content validity (Landy 1986; Strauss, M & Smith 2009).

The survey development began with the identification of multiple indicators for each of the first interview phase factors. These indicators were developed with reference to the factor definitions developed in the Literature Review of Chapter 2. In an attempt to detect the indicators for each factor, questions were created by the researcher and then piloted to gather feedback on the questions. As the factor definitions had multiple elements, at least 3 questions were developed for each factor in an attempt to reduce bias. The questions finalisation process involved a pilot and feedback, where the aim was to make the questions easily understandable with reduced bias.

Although the test may be overly sensitive to sample size, Chi-squared is often used to assess surveys for correctness (Saris, Satorra & Van der Veld 2009). Assessment of the controls is required in structural equation modelling so as to understand the research applicability and conclusion validity (Saris, Satorra & Van der Veld 2009). When a strong hypothesis
is not substantiated enquiry into issues of sampling, measures may be appropria
te (Cronbach & Meehl 1955). This research used chi-squared as an as-
messment tool, together with Cronbach Alpha, normality tests and rela-
tionship tests prior to performing EFA or CFA, as shown at Chapter
5.2.

Analysis with EFA in the early stages of research may be more appropriate than CFA (Kelloway 1995). Once EFA has been completed to form theory and hypothesised relationships, CFA may be appropriate to use. Hence both EFA and CFA can contribute to research (Gerbing & Hamilton 1996), especially when the whole range of evaluation tools are used in CFA (Hurley et al. 1997). EFA assists in the exploration of variable interrelationships without predefining the structure (Child 1990).

Survey data of this research was tested for its appropriateness for EFA, where the KMO statistic was calculated measuring the sampling adequacy that was combined with a Bartlett’s Test of Sphericity (Aldrich & Cunningham 2015) as shown at Table 5.3. A Cronbach’s coefficient alpha was used on the data as it is a common way to assess a survey’s reliability (Tavakol & Dennick 2011), as shown at Chapter 5.2. The survey data was also tested for skewness, where a skew test within the range of 1 to minus 1 is classed as normal (DeCarlo 1997). The second test for skewness was to check that three times the standard errors is less than the skewness absolute values (Groeneveld & Meeden 1984). To understand the data further this research calculated the mean and the standard deviation, where each measured the respective average response and variation.

CFA has a requirement to address any missing data or seriously risk bias in the conclusions (Byrne, B 2005). Missing data in this research survey data was reviewed and treated prior to placing data into Amos® to form a CFA model, shown at Chapter 5.8. Whilst being potentially simplistic with errors the assessment of a CFA model for fit commonly commences with a p-value score, where 0.5 and above is desirable (Gamst & Meyers 2014). The development of a valid CFA model involved the removal of questions with low estimates of covariance below 0.7.
If participants are appropriately informed, with confidentiality and research intent known, snowballing may be an acceptable way of gathering survey participants (Denscombe 2014; Kelley et al. 2003). Whilst incentives including cash can improve participation rates, there are a number of ethical concerns to ensure that conditions are expressed openly (Cobanoglu & Cobanoglu 2003). In all cases incentives introduce the potential for bias where there is potential for participants to complete the survey just for the incentive (Cobanoglu & Cobanoglu 2003).

An incentive was offered to participants in this research survey as there had been a very slow response rate after the initial distribution. The researcher offered participants access to the research upon publication. The incentive will be in the form of a link to the research that will be advertised in the various Linkedin® groups used for distribution during this research. Appreciating that professional groups may dislike constant surveys and reminders, invitations for this research only published invitations to Linkedin® groups of which the researcher was a member.

A survey introduction should establish trust, including information about the studies purpose, data usage to form an informed consent (Buchanan, E & Hvizdak 2009; Simsek & Veiga 2001). As it was thought participants would have concerns about disclosing sensitive past events the survey was prepared anonymously (Buchanan, E & Hvizdak 2009; Gunn 2002). A survey of HREC committees reported that the online survey was the most common research tool and featured in an exempt category so may have a perceived low risk (Buchanan, E & Hvizdak 2009).

The on line survey for this research contained initial pages included information on the research and its goals forming informed consent. Only 2 free for from questions were included in this research survey, thereby reducing issues of confidentiality. This research did not supply or distribute a paper version of the survey, so avoiding the potential for data integrity and recording issues. As the survey was only completed on line the data was compatible with an efficient load into the SPSS® analysis tool.

The second research phase of survey was undertaken online using the Surveymonkey® tool, being compatible with the analysis tool of SPSS®.
Prior to analysing the data it underwent validity testing and treatment for missing data. The factors included in the survey content were defined in as a way to improve the data coding process integrity (Bowling 1997). The survey data informational content was maximised by performing an EFA then a CFA. The final step in this research was to triangulate the research information between the Literature Review, the interviews and the survey data. The next Section of this Chapter details how the survey questions were developed, merged and separated to form a valid and reliable survey.

3.5.2 Question Development

The interview factors that were developed in the first phase of this research were the initial base for the survey question development. The survey questions developed with the establishment of probable indicators for each factor. These indicators and subsequent questions were created with reference to factor definitions developed in the Literature review of Chapter 2. During the survey development it was necessary to merge and separate some of the factors based on how distinguishable they were. This Section details the relevant decisions made in the process to form the research survey.

The Leadership factor emerged as a key factor in the first interview phase of this research, where at Chapter 2.7.1 it was defined as involving inspiration, co-ordination, credibility and influence. So the survey was developed with the proposition that leadership may be present where information exchange occurs with some level of frequency and quality. The survey questions for the Leadership factor seeking to find the indicators of change message communication, change understanding, regular communication, communication means understanding, communication type variations or leadership co-ordination.

The definition at Chapter 2.7.3 for the Communication factor indicates that it is one of the core qualities of Leadership. Contrastingly Leadership is not a key element of Communication, as those without leadership qualities may still communicate. The survey development process determined that the Communication factor was too aligned with the definition of Leadership to form separate indicators for the communication
questions. The inability to distinctly separate the factors of Communication and Leadership led to the merging of the two factors. Communication featured in the survey as an indicator and a measure of the Leadership factor rather than as a separate factor of itself.

The RTC factor of Management was defined at Chapter 2.7.2 as being a function of task control. It was proposed that there could be evidence of management activities when organisational control is identified. Indicators developed for the Management factor were deemed to be present if actions of support, control, management monitoring, resource allocations, decision making and fact consideration were present. Survey questions were created for the Management factor based on these indicators.

Workload was included as the third survey factor, where the definition at Chapter 2.7.4 defined that as being a marginal difference between task and individual coping capacity, or as a set of factors that contribute to stress. For the purposes of survey development it was deemed that workload would be present if there was evidence of resource restrictions or workplace stress. As the Workload factor may include resource restrictions, so the indicators developed for this factor included time insufficiency, budget dollar restrictions or people resource restrictions. Survey questions were designed to find these Workload indicators. Workload also was deemed to include occupational stress, so the survey also included questions seeking to find indicators of employee health issues, reduced behaviours or reduced performance.

Stakeholder Engagement at Chapter 2.7.5 was defined as being where the organisation invests in an employee that may influence an employee’s performance or trust. This Stakeholder Engagement factor was deemed to involve employee investment activities where indicators of employee training, influence, effective involvement and skills were sought in the survey. As it was thought that employee sickness and decreased trust may result from a deficiency in Stakeholder Engagement questions were developed for these indicators as well.

Project Change Analysis and Preparation factor of this survey was deemed have an indicator if there was a lack of planning and analysis prior to project approval. Analysis survey questions were created based on
indicators of risk assessment, business case preparation and methodical analysis. Planning indicators were deemed to be if a planning document existed, the existence of a requirement analysis and strategy.

The interview factor of Power and Politics was problematic for the development of survey questions. Power at Chapter 2.7.8 was defined as having sources of position, coercion, positive rewards, and expertise. Organisational Politics was less well defined where it is derived from disputes over objective values. A review of the pilot survey feedback found that the two factors of Politics and Power were incongruent as a single factor. The resulting change for the survey involved separating the interview factors into two separate factors of Politics and Power. If these 2 factors were actually part of a single factor the analysis would likely collapse these factors so there was low risk associated with the separation. The separation of the factors was required to avoid later calculation difficulties and data reduction.

In the formation of a separate Power factor at Chapter 2.7.8 there is an indication that control is a key element. It was deemed that indicators of Power would be ethics, standardisation, systems or leader power. The other separated factor of Politics may be was deemed to be related to the volume of conflict in an organisation. The indicators for this factor were determined to be organisational conflict, objectives disputes, dispute resolution, social network changes and change questions. Separate questions were developed, seeking indicators of the two separate factors for Power and Politics.

The Change Delivery factor derived in the first interview phase was eliminated and not included in the survey. The elimination was based on feedback and pilot process, where it was indicated that the factor was indistinguishable and likely to be a sub-element of the alternate Management factor. The definition in the Literature Review indicates that Change Delivery requires elements of control and planning. These elements that are often the responsibility of management, so may explain the reason for not finding separating questions between the Management and Change Delivery factors.
Appendix 2 displays the survey factor on the left combined with factor indicators and resultant questions on the right. At Appendix 2, Table 8.5 the various demographic questions included in the survey are shown, where the questions were included as a way to add information with potential to reveal additional understanding of the data and its relevance.

3.5.3 Survey Distribution

It is impossible to survey a whole population so a sample population is often taken when using quantitative surveys for research (Marshall 1996). This inability to survey all members of a population may included a a sampling technique that could be in the form of general, systematic, stratified and cluster random sampling (Kelley et al. 2003). Quantitative research attempts to draw a representative sample that may apply to the whole population (Marshall 1996).

This research deemed that if a participant was involved in multiple organisational changes they were more likely to have experienced RTC, being more likely to identify the various factor indicators. The first phase and second survey phase of this research sought participants with organisational change responsibility and experience. Those with less organisational change experience were deemed to be less likely to reveal a range of RTC forms and less likely to be able to identify interrelationships. This decision was taken despite the potential for some less experienced participants to have still added valuable information to the research.

Survey participation may be assisted if the online survey includes statements explaining the study goals, the data use and confidentiality (Buchanan, E & Hvizdak 2009; Simsek & Veiga 2001). Some chat or discussion groups may consider publication of invitations as rude or invading (Wright 2005) or as a form of spam so they may decline to participate (Cho & LaRose 1999; Mehta & Sivadas 1999; Noh 1998). Approaching a moderator prior to launching an invitation on line may be advisable where the benefits of the research can be communicated (Reid 1996; Wright 2005).
The moderator of AIPM Linkedin® groups recommended to the researcher that the distribution for this research be into their group. The researcher only distributed the survey invitation to Linkedin® groups of which he was a member. The survey invitation included information about the research to reduce the potential for it to be thought of as spam. The invitation included information about the research goals, confidentiality and data use.

A survey participation rate may be improved if a follow up invitation is issued, where inducements are recommended as a legitimate method (Thayer-Hart et al. 2010). This research posted reminders to the Linkedin® groups after a delay of several weeks in an effort to improve participation rates. The rate of reminder was randomly posted in an attempt to reduce any undue pressure on recipients.

The survey was distributed to various Linkedin® groups extended by snowballing. Reminders were used in this research to improve the participation rate. The survey distribution of Linkedin® groups chosen based on efficiency, where the groups were likely to have had members with experience with RTC and interest in the topic. The researcher provided a simple and achievable incentive to also increase the participation (Cobanoglu & Cobanoglu 2003).

3.5.4 Survey Assessment Process

The survey data was efficiently downloaded from SurveyMonkey® into the SPSS® software for analysis and coding. Factor analysis was chosen as the most appropriate way to test interrelationships of multiple RTC factors. The factor analysis was performed in the method of Exploratory Factor Analysis (EFA) and later Confirmatory Factor Analysis (CFA) (Yong & Pearce 2013). Despite the potential over sensitivity to sample size, the research survey data was assessed for correctness in Chi-squared tests (Saris, Satorra & Van der Veld 2009). Surveys are better analysed using Factor Analysis than the alternative of Principal Component Analysis (PCA) (Osborne & Costello 2009) so were chosen in this research as an analysis method.
The survey data was assessed for convergent validity as constructs should be correlated to a high degree (Trochim 2000). The relative correlation assessment was required to determine how good the questions were at supporting the measures. The survey was also tested for discriminant validity, where different factors should be less correlated than the questions within a construct (Trochim 2000).

Survey questions were based on the factors, shown at Chapter 4.5 being the first interview phase of this research. The survey data was analysed with EFA after the missing data had been treated and the various integrity tests had been completed. The EFA model after validation was placed into Amos® to create a CFA model. The use of both EFA and CFA was included in this research as the two analysis techniques can contribute to knowledge on the topic (Srnik & Koeszegi 2007). The combination of EFA and CFA was included in this research as it was a way to potentially increase knowledge on the topic. The EFA was performed on the same survey data as the CFA due to time and resource constraints.

3.5.5 Quantitative Method Summary

This research second phase was conducted as a survey that was created in SurveyMonkey®. The survey data was analysed in SPSS® to form a valid EFA model. The EFA model was subsequently used to form a valid CFA model in Amos®. Data underwent relevant validity testing to establish the value of the questions formed in the survey. Missing data has been assessed and treated in this research so as to form valid models in both EFA and CFA.

3.6 Research method summary

The philosophical theory related to the various research options has been considered in this Chapter 3 that has led to a pragmatic approach in a mixed method format. The choice of method was based on determining the method that was most aligned to answering the two research questions. This chapter has detailed the ethical and design considerations that influenced the elements of the qualitative and quantitative phases of this research.
A qualitative semi-structured interview process was chosen for the first phase of this research. The interview questions, interview process, transcription have been detailed in this Chapter 3. As the first phase factors appeared to be interrelated during analysis the RTC factors formed the factors in the second survey phase of this research. The survey was analysed with EFA and CFA to create valid models that included a series of tests.

For the purpose of openness and clarity the following Results Chapter 4 tables the data and results from the 2 research phases. The subsequent Chapter 5 analyses the data tabled in Chapter 4, seeking to gather valuable information from the data. Finally Chapter 6 provides a triangulation of the 2 research phase analyses combined with the Literature Review of Chapter 2 to form a conclusion.
4 Qualitative Results – Phase 1

This Chapter 4 summarises the qualitative research methods and results that sought to provide insight into the first and second research questions of this research. The data created in the 2 phases of this research came in the forms of raw data, demographic data, graphs, tests and analysis data. This Chapter 4 details the various data forms and test results. The discussion and analysis of this research data is discussed in Chapter 6. The triangulation of the two research phases and the Literature Review form the research conclusion at Chapter 7.

The first research phase was qualitative through interview, being the phase that sought to discover common RTC forms and interrelationships relevant to the first research question. The interview data of this qualitative research phase has revealed a number of RTC forms, where some appear to be interrelated and co-existing. Whilst not statistically significant, this first research phase found interrelationships between several RTC forms that were relevant to the first question of this research. The additional questions in the interviews found less information on the second research question related to effect than expected.

The qualitative step in this mixed method research was in the form of semi-structured interview with 25 participants that had past change experience and responsibility. The interview script was developed from the themes that emerged in the Literature Review of Chapter 2. This Section details the interview data, demographics and results for the first interview phase of this research.

4.1 Initial Interview Coding

Interviewing coding was formed from the RTC factors defined in the Literature review, where codes were used to discover common RTC forms experienced by the participants. This coding was principally included in the research as a way of answering the first research question in relation to interrelationships between various RTC forms. Quantity of references was used as an analysis tool as it was more likely to reveal
interrelationships if the RTC forms were more frequent, so more useful in answering the first research question.

During the transcription process the researcher made arbitrary notes of key change factors that became apparent in each of the interviews. Appendix 3 lists the initial ungrouped concepts that were collated prior to any formal definitions being developed. The Table lists those concepts identified during the interview transcriptions as they occurred. At the end of the transcription process many of the items on the list were given arbitrary group codes that are shown on the left hand side of the Table 8.6. In an attempt to gather early concepts out of the interview data it was summarised based on these arbitrary group codes, shown below at Table 4.1.
Table 4.1: Initial Interview Coding Group Summary

<table>
<thead>
<tr>
<th>Interview factors</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td>31</td>
</tr>
<tr>
<td>Communication</td>
<td>4</td>
</tr>
<tr>
<td>Environment</td>
<td>16</td>
</tr>
<tr>
<td>Measures</td>
<td>2</td>
</tr>
<tr>
<td>Team</td>
<td>9</td>
</tr>
<tr>
<td>Employee</td>
<td>54</td>
</tr>
<tr>
<td>Action</td>
<td>41</td>
</tr>
<tr>
<td>Information</td>
<td>9</td>
</tr>
<tr>
<td>Position</td>
<td>4</td>
</tr>
<tr>
<td>Leadership</td>
<td>42</td>
</tr>
<tr>
<td>(blank)</td>
<td>42</td>
</tr>
<tr>
<td>Process</td>
<td>104</td>
</tr>
<tr>
<td>Communication</td>
<td>18</td>
</tr>
<tr>
<td>Employees</td>
<td>11</td>
</tr>
<tr>
<td>Measures</td>
<td>2</td>
</tr>
<tr>
<td>Method</td>
<td>38</td>
</tr>
<tr>
<td>Planning</td>
<td>24</td>
</tr>
<tr>
<td>Power</td>
<td>4</td>
</tr>
<tr>
<td>Skills</td>
<td>5</td>
</tr>
<tr>
<td>Structure</td>
<td>1</td>
</tr>
<tr>
<td>Team</td>
<td>1</td>
</tr>
<tr>
<td>Structure</td>
<td>48</td>
</tr>
<tr>
<td>Grand Total</td>
<td>279</td>
</tr>
</tbody>
</table>

The above Table 4.1 was prepared without formal definitions for the factors, where the most referenced RTC was that for Process, Employee and Leadership. It was recognised that the list of factors shown at Table 4.1 was also arbitrary and too high in quantity for use in a survey, so coding in Nvivo10® occurred subsequently.
4.2 Interview Coding – Nvivo10®

The initial interview coding in Nvivo10® was based on the list in Table 4.1, where any additional codes identified were added to the list. The first coding Table 4.2 in Nvivo10® is shown below at Table 4.2.

Table 4.2: Initial Coding Groups Nvivo10®

<table>
<thead>
<tr>
<th>Name</th>
<th>Sources</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>busns process neg</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>change leader neg</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Change leader pos</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>change plan neg</td>
<td>22</td>
<td>112</td>
</tr>
<tr>
<td>change plan pos</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>comms neg</td>
<td>21</td>
<td>80</td>
</tr>
<tr>
<td>Communication positive</td>
<td>21</td>
<td>90</td>
</tr>
<tr>
<td>current state</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>demographic pos</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>discourse neg</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>discourse positive</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>domgraphic neg</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>emp depart neg</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>emp depart pos</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>employe inv neg</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>employe involv pos</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td>employee fear neg</td>
<td>22</td>
<td>54</td>
</tr>
<tr>
<td>employee fear pos</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Employee level negative</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Employee level pos</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Employee neg</td>
<td>23</td>
<td>89</td>
</tr>
<tr>
<td>Employee pos</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>enviro neg</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>envrio pos</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>influence neg</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>influence pos</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Information negative</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Information pos</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>leadership neg</td>
<td>20</td>
<td>51</td>
</tr>
<tr>
<td>leadership pos</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>measurement neg</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>measurement pos</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>measures neg</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>measures pos</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>method chng neg</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>method chng pos</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>mgt action neg</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>mgt action pos</td>
<td>11</td>
<td>24</td>
</tr>
</tbody>
</table>
 organ hist neg | 14 | 25 |
organ hist post | 7 | 9 |
personality neg | 7 | 10 |
personality positive | 1 | 1 |
politics | 20 | 35 |
power neg | 12 | 21 |
power pos | 5 | 8 |
prj res pos | 6 | 6 |
prjct anl neg | 14 | 32 |
prjct res neg | 12 | 17 |
proj delivery neg | 13 | 21 |
proj delivery pos | 11 | 19 |
proj mg neg | 8 | 13 |
proj mg pos | 7 | 9 |
proj team neg | 6 | 11 |
Proj Type neg | 1 | 1 |
Proj type pos | 1 | 1 |
proj anal pos | 4 | 5 |
project benefits | 2 | 4 |
project team pos | 6 | 10 |
quotes | 11 | 17 |
results | 0 | 0 |
cost neg | 7 | 8 |
cost pos | 15 | 19 |
quality neg | 8 | 9 |
quality pos | 16 | 19 |
time neg | 8 | 8 |
time pos | 9 | 11 |
scale neg | 4 | 4 |
scale pos | 1 | 3 |
skills neg | 13 | 29 |
skills pos | 8 | 14 |
stakeholder eng pos | 5 | 7 |
stakholder eng neg | 9 | 16 |
structure neg | 13 | 22 |
structure pos | 6 | 9 |
Team Neg | 6 | 9 |
Team Pos | 9 | 11 |
tech neg | 8 | 14 |
tech pos | 3 | 5 |
workload neg | 16 | 41 |

Each of the codes shown at Table 4.2 above were created in Nvivo10® with positive and the negative codes, recognising that RTC may have positive influences, rather than just the negative. At this early point in the analysis of the interview data, on an arbitrary basis, Communication had emerged as the highest positive factor and the second highest positive
factor. The most referenced negative factor had emerged as the employee. It was evident that the list at Table 4.2 was too long for use in a survey, prior to re-coding and rationalising the data a review of the demographic data occurred to gather additional understanding of the data.

4.3 Interview Demographic Data

Demographic data was included in the interview questions and data analysis as the data gathered may provide additional insight into answering both research questions. Demographic data was not restricted to merely age and gender, as questions included beliefs and attitudes toward change. A number of analyses were performed between the RTC factors coded and the demographic and other questions as a way to reveal bias and additional information on the RTC forms. The first research question required relationships between the RTC forms, so the additional information was analysed and the data suggested some relationships. The potential existence of interrelationships informed and provided a base for the later quantitative research that is detailed at Chapter 5.

The interview scripts included a number of demographic questions so as to add valuable information to the interview data. The classification data attached to the interviews is shown in the Appendix 4. Classifications were also attached to the interview data based on the second research question related to RTC effect, also shown at Appendix 4.

Interviews included a question as to whether participants had been satisfied with their past change, a summary of the response data is shown at Table 4.3 below.

**Table 4.3 : Change Satisfaction**

<table>
<thead>
<tr>
<th>Change Satisfaction Score</th>
<th>Count of satisfaction of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>1</td>
</tr>
<tr>
<td>Nil</td>
<td>7</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 4.3 reveals that most participants were satisfied to very satisfied with their previous change experiences, where only 3 reported being unsatisfied. This data has to be considered in relation to the small sample size of 25 interview participants and the way that this research targeted people with change responsibilities. It may be that those responsible for change are more satisfied than the broader population affected by change. Whilst not definitive, it may be that those with more influence and information on the change are assisted by their position to understand the change and have skewed this data towards the positive.

A question was asked in relation to the occupation of participants as a means to understand the interview data as shown below at Table 4.4 below.

### Table 4.4: Classification – Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count of occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bids and Proposals Mgr</td>
<td>1</td>
</tr>
<tr>
<td>Change analyst</td>
<td>1</td>
</tr>
<tr>
<td>Change manager</td>
<td>12</td>
</tr>
<tr>
<td>Consultant</td>
<td>4</td>
</tr>
<tr>
<td>Engineer</td>
<td>2</td>
</tr>
<tr>
<td>General Manager</td>
<td>1</td>
</tr>
<tr>
<td>Health services Manager</td>
<td>1</td>
</tr>
<tr>
<td>HR manager</td>
<td>1</td>
</tr>
<tr>
<td>nil</td>
<td>1</td>
</tr>
<tr>
<td>Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

Whilst there was a wide distribution of 10 occupations out of just 25 participants in the interviews there was a significant skew. Participants with change responsibilities and experience were sought for this research as a way to gather common RTC forms detected by practitioners. The role of change manager was identified by almost half of the participants,
creating a significant skew in the data. Despite the skew, significant quantity of RTC forms were detected as shown at Section 4.5.

Except for the experience criteria the interview invitation remained quite open, where participants were asked to identify the industry that they worked in, as shown at Table 4.5.

<table>
<thead>
<tr>
<th>Industry Background</th>
<th>Count of Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Mgt</td>
<td>2</td>
</tr>
<tr>
<td>Consultant</td>
<td>1</td>
</tr>
<tr>
<td>Defence</td>
<td>1</td>
</tr>
<tr>
<td>Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Finance</td>
<td>6</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>IT</td>
<td>1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>Mining</td>
<td>2</td>
</tr>
<tr>
<td>Services</td>
<td>1</td>
</tr>
<tr>
<td>Various</td>
<td>6</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

As with occupation the industry background of participants was wide, with 11 industries listed at Table 4.5. The finance industry represented the highest participation in the interviews at 6. Those interview participants identifying as various were also the highest at 6, where they were change managers acting as consultants not being tied to a specific industry.
Participants were asked during the interviews about the volume of change they had experienced in the past three years, no definition for type or quantity was defined before asking the question. Data generated from this question is shown at Table 4.6.

**Table 4.6 : Classification – Change Quantity**

<table>
<thead>
<tr>
<th>Quantity of change</th>
<th>Response Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2-3</td>
<td>1</td>
</tr>
<tr>
<td>30-40</td>
<td>1</td>
</tr>
<tr>
<td>4-5</td>
<td>1</td>
</tr>
<tr>
<td>5+</td>
<td>1</td>
</tr>
<tr>
<td>50+</td>
<td>6</td>
</tr>
<tr>
<td>Nil</td>
<td>14</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

The data of Table 4.6 indicates that 6 or nearly 25% of participants have reported that their organisation has had more than 50 changes in the past 3 years. The high number of non-responses for this question at a quantity of 14 may have related to the lack of definition in the question as a number of participants found the question difficult to answer.

As RTC early research surrounded processes involving freezing and unfreezing (Lewin 1945) a question was included in the interviews enquiring if processes operated as normal during organisational change. Table 4.7 below lists the answers to the question on business processes where the response sought was in a range from no to yes including a neutral classification.
### Table 4.7: Classification – Business process opinion

<table>
<thead>
<tr>
<th>Processes normal during change</th>
<th>Count of business processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td>Nil</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

Table 4.7 above indicates that 15 of the 25 participants declaring that business processes operated as normal during their organisational changes. Whilst there was a significant level of responses answering as nil or neutral there was a low rate of response at 3 indicating that their processes did not work as normal.

Each participant was asked to detail their level of education, where the data was cross tabulated with the number of positive and negative RTC references. The cross tabulation was created to investigate if the level of education influenced the outlook on RTC forms as is shown in Table 4.8 below.

### Table 4.8: Education Data by Code Summary

<table>
<thead>
<tr>
<th>A : Interview attributes:Education = Bachelor Degree</th>
<th>B : Interview attributes:Education = Masters Degree</th>
<th>C : Interview attributes:Education = HSC or equiv</th>
<th>D : Interview attributes:Education = Diploma no degree</th>
<th>E : Interview attributes:Education = Diploma+Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Negative</td>
<td>75</td>
<td>149</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Positive</td>
<td>46</td>
<td>93</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

The data at Table 4.8 shows that most participant classifications reported more negative RTC references than positive. Those with only a diploma reported exclusively with positive references and nil negatives. Interview participants did report into category C, being HSC only education. The lack of participation in category C may be attributed to the invitation distribution being direct towards members of professional LinkedIn® groups, where higher educational qualifications were expected.
Prior to undertaking a re-coding and rationalisation process to gather a reduced set of factors for interview the data was analysed in relation to various word analyses. It was considered that a review of words, similarities and clusters would assist in identifying key concepts and factors in the interview data.

4.4 Interview Word Analysis

The first research question required an appreciation of RTC forms and interrelationships, where the discovery of various RTC forms from the interview data was important. Word analysis was included in this research as a way to analyse the data in an attempt to reveal any additional forms of RTC not explicitly coded and detailed at 4.1 and 4.2 above. Word frequency and similarity tests were included in data analysis as a way to provide additional information on any RTC forms included in the data.

In an attempt to understand the interview data more deeply and as a way to confirm that major themes were included in the data coding a range of word frequency and clusters were analysed. As the RTC forms identified in the coding had been set up with positive and negative separate codes it was possible to analyse the references separately. A Tree Map for the positive interview references is shown at Figure 4.1 listing common key words are shown in a tree like format. Common less informative words like “the” were removed from the data calculation to form the Tree Maps.
Figure 4.1: Word Frequency Tree Map – Positive Enhancers

The above Figure 4.1 indicates that the highest word counts in the positive interview data as being people and change, where both words...
were not surprising given the interview questions. The second level of the Tree map shows Management and Process in the same arm of the tree. The third level of the same arm shows Communication and Project. This Tree format does not confirm interrelationships but does suggest that these key words may be important concepts from the interview data. Many less important unrelated to RTC appear also in the Tree map that were ignored when analysing the data in respect to the research questions.

Another format to the Tree Map was available in Nvivo10® and is shown below at Figure 4.2, the data set is the same as that used in Figure 4.1.

![Figure 4.2: Positive Enhancers to Change](image)

The above Figure 4.2 shows words in larger fonts based on their frequency in the data, where change and people are the most prominent. A review of the interview questions indicated that the 2 most common words were introduced during the interview questions. Other prominent words in Figure 4.2 that may be positive RTC factors are communication, management, project and process.

A Tree map for the negative references was created in Nvivo10® with a median setting for word similarity, shown at Figure 4.3 below.
Figure 4.3: Word Frequency Tree Map – Negative Barriers
Figure 4.3 shows the same most common words in the negative that were also the highest in the positive shown at Figure 4.1. These words for people and change may be the most common based on the topic and the interview questions. Appearing in Figure 4.2 as negatives on the change arm are words of management, project, process and communication. Whilst these are the same prominent words as in Figure 4.1, they appear on a different arm of the tree in Figure 4.2. This data suggests, even if only slightly that RTC forms may vary from the positive to the negative.

The same data as in Figure 4.3 was reformatted in Figure 4.4 where the most common words are displayed with the largest font.

**Figure 4.4: Word Frequency - Negative Barriers to change**

The more prominent words at Figure 4.4 appear to be generally the same as those for the positive in Figure 4.2. A significant difference between the positive and the negative word analysis is that resistance appears to be prominent in Figure 4.4, where it was insignificant in the positive review at Figure 4.2.

The above word analysis provided additional concepts that were considered prior to the re-coding of the interview data. There also appeared in the above that RTC concepts may vary from the positive to
the negative. The following Section 4.5 reviews the interview data that emerged upon the re-coding, where the Literature Review definitions for the factors were used as the basis for coding.

4.5 Interview RTC Factors

The first research question for this research required the discovery of interrelationships between multiple RTC forms. The interview first phase of this research was included in this research as a way of revealing various RTC forms, where those forms revealed could be tested for interrelationships. As was discussed at Sections 4.1 and 4.2 the initial coding of the interview data was based on arbitrary groupings, where the number of factors derived were too high in number to be included in a survey. As there were no definitions for these initial factor groups consolidation of concepts was not possible without arbitrary decision making. There RTC factors coded in the data had the potential to be overly bias, where the data was re-coded subsequently in line with the RTC factor definitions listed in Chapter 2.7 above. As the re-coding had continued with the concept that RTC factors may vary from the negative to the positive, a table of RTC factors was created and shown at Table 4.9.

Table 4.9 : RTC Factors after Re-coding
The above Table 4.9 shows that all interviews had at least one positive reference to RTC, where 24 of the 25 interviews had at least one negative reference to RTC. The highest level of references was for the Communication factor in both the positive and the negative, Stakeholder Engagement was the second highest also in both polarities. The number of interviews covering a topic may be another indicator of commonality where Communication was the most sourced negative factor at 22. The factors of Management and Power and Politics were the most sourced factors in the positive.

Whilst the differentiation of factor polarity shown in Table 4.9 was useful, the factors were combined at Table 4.10 to see if the data varied in intensity and significance. The first data column lists the number of interview sources that contributed to the factor, the second data column shows the number of references to the factor.

Table 4.10 : Coding Summary Consolidated

<table>
<thead>
<tr>
<th>Factor</th>
<th>Sources</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>communication consolidated</td>
<td>25</td>
<td>184</td>
</tr>
<tr>
<td>culture consolidated</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>delivery node consolidated</td>
<td>24</td>
<td>116</td>
</tr>
<tr>
<td>Leadership consolidated</td>
<td>23</td>
<td>86</td>
</tr>
<tr>
<td>Management consolidated</td>
<td>24</td>
<td>104</td>
</tr>
<tr>
<td>Power politics combined</td>
<td>23</td>
<td>126</td>
</tr>
<tr>
<td>Project planning consolidated</td>
<td>23</td>
<td>31</td>
</tr>
<tr>
<td>stakeholder consolidated</td>
<td>24</td>
<td>134</td>
</tr>
<tr>
<td>workload consolidated</td>
<td>25</td>
<td>167</td>
</tr>
</tbody>
</table>

Table 4.10 above shows that most interviews covered most RTC factors, where the Culture factor was the least supported on the basis of source quantity or reference quantity. Communication combined to be the highest sourced and referenced factor, followed by Workload and Stakeholder Engagement.

An interview question was included to gather information on whether the participant liked change when it was first announced, the exact question is shown at Appendix 2. For analysis purposes the participant like for change was compared to the RTC factors in positive and negative polarity as shown below at Table 4.11.
Table 4.11: Personal like of change versus Coded Factor

<table>
<thead>
<tr>
<th></th>
<th>A: Interview attributes: personal like = very positive</th>
<th>B: Interview attributes: personal like = positive</th>
<th>C: Interview attributes: personal like = neutral</th>
<th>D: Interview attributes: personal like = negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Negative</td>
<td>15</td>
<td>86</td>
<td>165</td>
<td>50</td>
</tr>
<tr>
<td>2: Change Negative - Delivery</td>
<td>4</td>
<td>17</td>
<td>33</td>
<td>8</td>
</tr>
<tr>
<td>3: Communication Negative</td>
<td>5</td>
<td>20</td>
<td>54</td>
<td>14</td>
</tr>
<tr>
<td>4: Culture Negative</td>
<td>3</td>
<td>12</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>5: Leadership Negative</td>
<td>1</td>
<td>8</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>6: Management Negative</td>
<td>4</td>
<td>20</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td>7: Politics and Power- Negative</td>
<td>2</td>
<td>19</td>
<td>48</td>
<td>17</td>
</tr>
<tr>
<td>8: Project Negative- Change Analysis and Planning</td>
<td>2</td>
<td>29</td>
<td>27</td>
<td>7</td>
</tr>
<tr>
<td>9: Stakeholder Engagement Negative</td>
<td>1</td>
<td>15</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>10: Workload Negative- Team and Participants</td>
<td>7</td>
<td>30</td>
<td>58</td>
<td>13</td>
</tr>
<tr>
<td>11: Positive</td>
<td>16</td>
<td>53</td>
<td>124</td>
<td>25</td>
</tr>
<tr>
<td>12: Change Positive- Delivery</td>
<td>3</td>
<td>13</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>13: Communication positive</td>
<td>10</td>
<td>13</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td>14: Culture Positive</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>15: Leadership Positive</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>16: Management positive</td>
<td>0</td>
<td>10</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>17: Politics and Power- Positive</td>
<td>1</td>
<td>7</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>18: Project Positive- Change Analysis and Planning</td>
<td>3</td>
<td>5</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>19: Stakeholder Engagement Positive</td>
<td>5</td>
<td>12</td>
<td>40</td>
<td>11</td>
</tr>
<tr>
<td>20: Workload Positive- Team and Participants</td>
<td>3</td>
<td>9</td>
<td>25</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4.11 above shows that there were more negative RTC references than positive, in most categories of liking change. Those who were very positive to change were balanced between the polarities, with a slight preference towards the positive RTC factors. In all categories of change like the most positive factor was that of Communication. In the negative there was no clear most common RTC factor, although the Workload factor was the most referenced for 3 of the 4 categories. The most referenced factor for those who perceive change as negative was Politics and Power. The factor of Culture was the least referenced factor in most categories of change like.

As shown in Appendix 4 the participation between males and females in the interviews was almost evenly split. A comparison of gender to the RTC factors was created and is presented at Table 4.12 below.
The above Table 4.12 shows that both males and females presented more negative RTC references than in the positive, with nearly 50% more negatives in both. Females presented more references in the positive and the negative RTC factors. The highest reference in the positive for males and females was Communication. The highest referenced factor for males was Communication, although females reported the highest negative factor as Workload.

The data was analysed comparing years of experience to the RTC factors, shown at Table 4.13 below.
Table 4.13: Experience Data by Code

<table>
<thead>
<tr>
<th></th>
<th>A: Interview attributes: Years of experience ≤ 5 years</th>
<th>B: Interview attributes: Years of experience = 5-10 years</th>
<th>C: Interview attributes: Years of experience = 10-20 years</th>
<th>D: Interview attributes: Years of experience = 20+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Negative</td>
<td>149</td>
<td>128</td>
<td>124</td>
</tr>
<tr>
<td>2</td>
<td>Change Negative - Delivery</td>
<td>13</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Communication Negative</td>
<td>28</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Culture Negative</td>
<td>7</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Leadership Negative</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Management Negative</td>
<td>11</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Politics and Power Negative</td>
<td>17</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>Project Negative - Change Analysis and Planning</td>
<td>12</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>9</td>
<td>Stakeholder Engagement Negative</td>
<td>20</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>Workload Negative - Team and Participants</td>
<td>35</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>11</td>
<td>Positive</td>
<td>75</td>
<td>99</td>
<td>97</td>
</tr>
<tr>
<td>12</td>
<td>Change Positive - Delivery</td>
<td>10</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>13</td>
<td>Communication positive</td>
<td>19</td>
<td>37</td>
<td>24</td>
</tr>
<tr>
<td>14</td>
<td>Culture Positive</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>Leadership Positive</td>
<td>3</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>16</td>
<td>Management positive</td>
<td>6</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>17</td>
<td>Politics and Power - Positive</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>18</td>
<td>Project Positive - Change Analysis and Planning</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>Stakeholder Engagement Positive</td>
<td>14</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>Workload Positive - Team and Participants</td>
<td>10</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

The Table 4.13 above shows that all experience categories reported more negative RTC references than positive. Those with less than 5 years of experience and those with 20 years of experience reported a higher proportion of negative references than those in the other 2 categories. Communication was the most reference positive RTC factor in all categories of experience. The most referenced negative RTC in each experience category varied significantly, whilst Communication featured in the data it was only the most referenced in the category of 5-10 years.

As a means to see how widely distributed the interview data was towards either the negative or positive RTC references a group query between the reference poles to interview participation was created, shown at Figure 4.5 below.
The above Figure 4.5 shows a very even distribution between RTC negative and positive factors to the interviews, where each interview has contributed at least one of each.

Interview data was interrogated using the word similarity clusters of Nvivo10® to review if there were any interrelationships between the factors that were created in the re-coded data. Figure 4.6 below shows the word similarity cluster for positive RTC factors.
The above Figure 4.6 shows that a number of the RTC positive factors being interrelated where Culture was at the top of the hierarchy. Communication appeared to be most related to the Stakeholder Engagement, whilst Change delivery and Workload were closely related.

The above Figure 4.7 shows that many of the RTC negative factors as being related, albeit in a different way to those shown at Figure 4.6. This Figure 4.7 has featured Culture and Leadership together, forming on a separate arm in the cluster to the other factors. Change delivery and
Change Analysis and Planning formed together and separate to other factor in Figure 4.7. Similar to Figure 4.6 the negative RTC effects of Communication and Stakeholder Engagement feature close to one another.

The interview data could not confirm interrelationships between RTC factors in a statistically significant way, yet the analysis of the interview data in this Section does suggest co-existence of RTC forms. Potential data interrelationships are shown in the analysis presented in this Section, where it is clear that RTC may vary from the positive to the negative. The importance and interrelationship between RTC factors appears to vary with some demographics and vary within the polarities.

4.6 Interview RTC Effect Data

The second research question required this was to investigate RTC effects of quality, cost and time. Research questions were created in response to the research question and the Literature, enquiring about participant knowledge on RTC effects. The RTC effects identified in the data were coded and analysed based on their frequency and the nature of the effect, positive or negative. This coding regime enabled additional information to be gathered on RTC effect as required by the second research question. The data showed a non statistically significant towards the three RTC effects being researched, where the quality effect was the most related and significant. The interview data was coded for RTC effect, shown at Table 4.14.

Table 4.14: RTC Effect Coding Table
As shown above at Table 4.14, there were more positive sources and more positive references for each RTC effect, than those of the negative.

As RTC effect may be linked to RTC forms, a comparison between RTC effect and RTC factors were created, shown at Table 4.15.

**Table 4.15 : Change Effect Data by Code**

<table>
<thead>
<tr>
<th>1 : Negative</th>
<th>A : Interview attributes: Time = on or under time</th>
<th>B : Interview attributes: Time = over time</th>
<th>C : Interview attributes: Cost = on or under cost</th>
<th>D : Interview attributes: Cost = over cost</th>
<th>E : Interview attributes: Quality = on quality or above the plan</th>
<th>F : Interview attributes: Quality = below quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>168</td>
<td>90</td>
<td>164</td>
<td>114</td>
<td>91</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>10</td>
<td>33</td>
<td>22</td>
<td>18</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>18</td>
<td>44</td>
<td>31</td>
<td>32</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>20</td>
<td>13</td>
<td>7</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>7</td>
<td>17</td>
<td>8</td>
<td>7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>20</td>
<td>34</td>
<td>21</td>
<td>16</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>24</td>
<td>41</td>
<td>32</td>
<td>36</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>22</td>
<td>34</td>
<td>21</td>
<td>12</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>8</td>
<td>28</td>
<td>18</td>
<td>19</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>24</td>
<td>64</td>
<td>44</td>
<td>30</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>73</td>
<td>136</td>
<td>69</td>
<td>87</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>20</td>
<td>29</td>
<td>17</td>
<td>23</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>35</td>
<td>54</td>
<td>31</td>
<td>39</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>15</td>
<td>9</td>
<td>7</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>9</td>
<td>26</td>
<td>8</td>
<td>8</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>12</td>
<td>15</td>
<td>9</td>
<td>7</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>25</td>
<td>8</td>
<td>14</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>11</td>
<td>29</td>
<td>10</td>
<td>21</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

The data above at Table 4.15 shows that for all RTC effects, positive or negative, they were more referenced with the negative RTC form than the positive. The negative Workload factor was the most referenced RTC effect for projects delivered on time and on cost. Projects that were delivered over time or over cost were most associated with negative Workload and Power and Politics. The most referenced positive RTC factor was Communication for all RTC effects be they positive or negative.

As the effect data above at Table 4.15 was not clear in terms of association between effect and RTC factors the factor polarities were combined and re-compared to effect data, shown at Table 4.16.
Table 4.16 : Change Effect Data by Code Combined

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>A: Interview attributes: Time = on or under time</th>
<th>B: Interview attributes: Time = over time</th>
<th>C: Interview attributes: Cost = on or under cost</th>
<th>D: Interview attributes: Cost = over cost</th>
<th>E: Interview attributes: Quality = on quality or above the plan</th>
<th>F: Interview attributes: Quality = below quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>communication consolidated</td>
<td>83</td>
<td>51</td>
<td>93</td>
<td>58</td>
<td>67</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>culture consolidated</td>
<td>18</td>
<td>14</td>
<td>27</td>
<td>16</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>delivery node consolidated</td>
<td>61</td>
<td>29</td>
<td>59</td>
<td>38</td>
<td>13</td>
<td>37</td>
</tr>
<tr>
<td>4</td>
<td>Leadership consolidated</td>
<td>25</td>
<td>18</td>
<td>31</td>
<td>17</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>Management consolidated</td>
<td>40</td>
<td>29</td>
<td>57</td>
<td>28</td>
<td>24</td>
<td>44</td>
</tr>
<tr>
<td>6</td>
<td>Power politics combined</td>
<td>63</td>
<td>25</td>
<td>60</td>
<td>36</td>
<td>39</td>
<td>47</td>
</tr>
<tr>
<td>7</td>
<td>Project planning consolidated</td>
<td>39</td>
<td>32</td>
<td>46</td>
<td>31</td>
<td>24</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>stakeholder consolidated</td>
<td>67</td>
<td>29</td>
<td>67</td>
<td>34</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>9</td>
<td>workload consolidated</td>
<td>89</td>
<td>33</td>
<td>86</td>
<td>52</td>
<td>46</td>
<td>65</td>
</tr>
</tbody>
</table>

The data of Figure 4.16 above was analysed where the highest 4 references for each RTC effect were coloured in light blue. The colouring of the data in Figure 4.16 shows that the most widely referenced factors were Workload and Communication, as they appeared in the highest 4 in each RTC effect. The Power, Politics and Stakeholder Engagement were also highly referenced RTC effects. The Leadership factor failed to rate in the highest 4 references in any of the RTC effect categories.

Whilst the interview data on RTC effect does not show statistically significant relationships between RTC effect and RTC factors, there did appear to be variances in relationship intensities. There appeared to be sufficient data to suggest that the RTC effects of Time, Cost and Quality were related sufficiently for the second phase to include these for further research.

4.7 Qualitative Results Summary

Aligning with the first research question of an investigation into RTC forms and interrelationships, this first qualitative research phase has found that RTC forms may co-exist and be interrelated, albeit from a non-statistical analysis. This statistically insignificant method was successful at identifying a number of frequent RTC forms that appeared to be interrelated. The second research question relating to RTC effect was less indicative from the first phase data, where the quality effect appeared to be more important and understood than the other two.
The RTC forms that emerged from the first phase data were useful towards answering the research questions as they indicated a level of interrelationship. Interrelationships in RTC forms was an important element in this research, as the interrelationship provided a basis to perform the second phase of this research. The word analysis and other tests in this data showed that the seven RTC factors that have emerged as the most significant in the interview data.

Communication emerged as the most significant RTC factor in this first research phase, clearly related to all the other RTC factors identified. Communication as a RTC factor in itself is unsurprising as it is widely researched to be a RTC factor, as shown in the Literature Review of Chapter 2 above. Despite the lack of statistical significance in the data, due to its method, the data has indicated that RTC factors may be in co-existence and interrelationships being a core requirement of the first research question.

Many factors of the interview data, including Culture, were omitted from the second research phase due to their insignificance in frequency. The removal of the additional factors was more to do with research resources and time than the significance of those items. It is quite possible that RTC factors omitted from later testing in the second phase of this research are just as frequent or as important as the ones emergent in this research should a wider population be included in interviews of future research.

The semi-structured interviews of the first research phase were part of the methodology, included as a way of detecting common RTC forms and potential factor interrelationships. This Chapter 4 has detailed the original interview data coding, initial coding in Nvivo10® and final re-coded data and analysis. The interview data formed into 9 RTC factors after re-coding was conducted using the factor definitions created in the Literature Review of Chapter 2. The various data and results that are detailed in this Chapter are discussed at the Analysis Chapter 6.
5 Quantitative Results – Phase 2

The research survey questions were created from first phase semi-structured interview RTC factors. The survey questions are shown at Appendix 2. This Chapter details the research survey data and test results, where the associated analysis is detailed at Chapter 6. The triangulation of the 2 research phases and the Literature Review is formed into a research conclusion at Chapter 7.

5.1 Survey Data - Demographics

As the participation characteristics affect the generalisability of the results and form a bias in the data. This Section details the various demographic data formed from a number of questions in the survey.

A survey question was included for age of the participants, shown at Table 5.1 below.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-30</td>
<td>1</td>
<td>.9</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>30-40</td>
<td>20</td>
<td>18.5</td>
<td>27.0</td>
<td>28.4</td>
</tr>
<tr>
<td>40-50</td>
<td>25</td>
<td>23.1</td>
<td>33.8</td>
<td>62.2</td>
</tr>
<tr>
<td>50-60</td>
<td>21</td>
<td>19.4</td>
<td>28.4</td>
<td>90.5</td>
</tr>
<tr>
<td>60+</td>
<td>7</td>
<td>6.5</td>
<td>9.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>34</td>
<td>31.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above age data at Table 5.1 shows 34 of the 108 participants did not answer most survey questions. Upon review, the missing data would appear to have developed when those participants could not answer the criteria questions in the positive. Missing data was separately treated as part of this research, shown at Section 5.8. The data of Table 5.1 shows that the highest participation occurred with those aged 40 to 50 years, followed closely by those aged 50 to 60 and aged 30 to 40. An older demographic may have appeared in this survey than the general population as the invitations were targeting people with experience.
A table was prepared to indicate the years of participant experience, shown at Table 5.2.

**Table 5.2 : Change Experience Levels of Survey Participants**

<table>
<thead>
<tr>
<th>How much experience would you say that you have in leading or supervising an element of organisational change</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 years of experience in leading or supervising an element</td>
<td>18</td>
<td>16.7</td>
<td>24.3</td>
<td>24.3</td>
</tr>
<tr>
<td>6-10 years of experience in leading or supervising an element</td>
<td>23</td>
<td>21.3</td>
<td>31.1</td>
<td>55.4</td>
</tr>
<tr>
<td>11-15 years of experience in leading or supervising an element</td>
<td>20</td>
<td>18.5</td>
<td>27.0</td>
<td>82.4</td>
</tr>
<tr>
<td>16-20 years of experience in leading or supervising an element</td>
<td>8</td>
<td>7.4</td>
<td>10.8</td>
<td>93.2</td>
</tr>
<tr>
<td>21-30 years of experience in leading or supervising an element</td>
<td>5</td>
<td>4.6</td>
<td>6.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>34</td>
<td>31.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above Table 5.2 shows that 58.1% of participants identified with experience levels of either 6 to 10 or 11 to 15 years. Whilst the age profile of participants was skewed with more than 98.6% above 30 years of age, there were 24.3% of participants with 5 or less leading or managing change.

Participants were asked to identify their gender where data of the responses to that question are shown at Table 5.3.
Table 5.3: Participant Gender Analysis

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Male</td>
<td>48</td>
<td>44.4</td>
<td>64.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>26</td>
<td>24.1</td>
<td>35.1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>34</td>
<td>31.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3 shows that 64.9% of the survey participants identified as male. This data varies significantly to the first interview phase where the participation was almost equal between the genders.

As the research location was specific to the Greater Western Sydney region it was considered important to review the industry profile of participants, shown at Table 5.4.

Table 5.4: Participant Industry Experience

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Service</td>
<td>29</td>
<td>26.9</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>24</td>
<td>22.2</td>
<td>32.4</td>
</tr>
<tr>
<td></td>
<td>Mining</td>
<td>7</td>
<td>6.5</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td>7</td>
<td>6.5</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>Industrial</td>
<td>6</td>
<td>5.6</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>1</td>
<td>0.9</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>34</td>
<td>31.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The survey data presented at Table 5.4 above shows that 79.7% of the participants identified as being in the service, manufacturing or industrial organisations. The low proportion of people identifying as being in the Finance sector is consistent with the perceived industrial nature of the Greater Western Sydney region, where the finance sector would be more likely to be found in the Sydney city region.

The first interview phase of this research determined there was a significant data skew, where the change manager occupation was the...
dominant category, shown at Chapter 4.3. The survey data was analysed for occupation identified, presented at Table 5.5.

Table 5.5: Participant Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>36</td>
<td>33.3</td>
<td>48.6</td>
<td>48.6</td>
</tr>
<tr>
<td>Finance</td>
<td>14</td>
<td>13.0</td>
<td>18.9</td>
<td>67.6</td>
</tr>
<tr>
<td>Engineer</td>
<td>8</td>
<td>7.4</td>
<td>10.8</td>
<td>78.4</td>
</tr>
<tr>
<td>Human Resources</td>
<td>6</td>
<td>5.6</td>
<td>8.1</td>
<td>86.5</td>
</tr>
<tr>
<td>Business and Financial Operations</td>
<td>5</td>
<td>4.6</td>
<td>6.8</td>
<td>93.2</td>
</tr>
<tr>
<td>Project Mgr</td>
<td>3</td>
<td>2.8</td>
<td>4.1</td>
<td>97.3</td>
</tr>
<tr>
<td>Change Mgr</td>
<td>2</td>
<td>1.9</td>
<td>2.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above survey data by occupation at Table 5.5 shows that 59.4% of participants identified as being in operations or engineering occupations. The level of change manager at 2.7% was considered low as compared to the interview data of Chapter 4.3, where the strict demographic of location may have contributed to the variance. The earlier interview phase had allowed those outside of the Greater Western Sydney region to participate, where they were not allowed in the survey second research phase.

The survey had asked participants to identify as a manager or not, the data relating to this question is shown at Table 5.6.

Table 5.6: Manager Status

<table>
<thead>
<tr>
<th>Manager Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I am a manager</td>
<td>50</td>
<td>46.3</td>
<td>67.6</td>
<td>67.6</td>
</tr>
<tr>
<td>No, I am not a manager</td>
<td>24</td>
<td>22.2</td>
<td>32.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>68.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.6 shows that 67.6% of the participants identified as being in roles with a manager status. The survey targeted people with experience, with no preference towards managers or not.
The survey invitation had been distributed in LinkedIn® groups that may have also had more people in a professional manager role status than the general population. The demographic data shows that the survey was completed by participants identifying in the Greater Western Sydney region. Participation appears to be skewed towards an older demographic, with a more operational and industrial background than the general population.

5.2 Validity Tests – Internal Reliability

The survey questions were formed to identify indicators for each of the RTC factors identified in the first research phase. Prior to conducting either an EFA or CFA the factors were assessed with a Cronbach’s alpha score as it is a measure of internal validity within a factor. The process involved running reliability statistics showing the Cronbach alpha score for each factor, where SPSS® output assessed and suggested optimisation. Various questions were removed in this process where removal occurred if the factor Cronbach alpha score improved by its removal. Table 5.7 shows the output for the Leadership factor prior to any questions being removed.

Table 5.7 : Cronbach Alpha – Leadership Initial Test Results

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha Based on Standardized Items</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
</tr>
</tbody>
</table>

The Cronbach Alpha score shown above at Table 5.7 at 0.805 is considered good (Hof 2012), where a score of 0.9 would have been excellent and questionable to poor if it had been less than 0.6 (Gliem & Gliem 2003).
A detailed Table 5.8 shows the various questions included in the Leadership internal reliability test, showing alternate Cronbach Alpha scores that would eventuate if each question was removed.

**Table 5.8 : Leadership Question Test Results**

<table>
<thead>
<tr>
<th>Item-Total Statistics</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>The change has been explained to me</td>
<td>14.1000</td>
<td>13.917</td>
<td>.536</td>
<td>.292</td>
<td>.780</td>
</tr>
<tr>
<td>The organisational changes make</td>
<td>13.8429</td>
<td>13.207</td>
<td>.557</td>
<td>.340</td>
<td>.775</td>
</tr>
<tr>
<td>The communication on change is regular</td>
<td>13.5143</td>
<td>12.659</td>
<td>.666</td>
<td>.461</td>
<td>.750</td>
</tr>
<tr>
<td>I understand the</td>
<td>14.0143</td>
<td>12.333</td>
<td>.586</td>
<td>.437</td>
<td>.770</td>
</tr>
<tr>
<td>The change is explained in a</td>
<td>13.6143</td>
<td>12.994</td>
<td>.676</td>
<td>.457</td>
<td>.750</td>
</tr>
<tr>
<td>The changes are co-ordinated</td>
<td>13.7000</td>
<td>14.532</td>
<td>.378</td>
<td>.232</td>
<td>.814</td>
</tr>
</tbody>
</table>

**Scale Statistics**

<table>
<thead>
<tr>
<th>Mean</th>
<th>Variance</th>
<th>Std. Deviation</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.5571</td>
<td>18.395</td>
<td>4.28897</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 5.8 above shows that a higher Cronbach Alpha score of 0.814 was possible should the last question be removed. The revised score would be higher than the 0.805 achieved when all questions were included in the factor, shown at Table 5.7.

The last question of Table 5.8 was removed and the Cronbach Alpha score for the Leadership factor was recalculated as shown at Table 5.9 below.
The Cronbach alpha optimisation continued for each RTC factor in an iterative process, where the resulting optimised factors are shown at Table 5.10.

**Table 5.10: RTC Factor Cronbach Alpha – Post Optimisation**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>.814</td>
<td>.815</td>
<td>5</td>
</tr>
<tr>
<td>Management</td>
<td>.727</td>
<td>.735</td>
<td>5</td>
</tr>
<tr>
<td>Workload</td>
<td>.892</td>
<td>.893</td>
<td>9</td>
</tr>
<tr>
<td>Politics</td>
<td>.845</td>
<td>.845</td>
<td>4</td>
</tr>
<tr>
<td>Power</td>
<td>.757</td>
<td>.762</td>
<td>4</td>
</tr>
<tr>
<td>Planning and analysis</td>
<td>.798</td>
<td>.799</td>
<td>5</td>
</tr>
<tr>
<td>Stakeholders</td>
<td>.911</td>
<td>.911</td>
<td>8</td>
</tr>
</tbody>
</table>

Each RTC factor was optimised through the removal of various questions, achieving the highest score possible for each factor. Table 5.10 above shows that all scores were above 0.7, considered good. The Stakeholder Engagement factor being above 0.9 was considered as excellent. The lowest Cronbach Alpha score, or the factors with the least internal reliability, were those of Management and Power.

During the survey development and pilot testing there was a point raised that Trust and Stakeholder Engagement factors may separate factors. To confirm and test the separation another reliability test was calculated for
Trust and Stakeholder Engagement. The result of the factor split is shown at Table 5.11.

Table 5.11 : Cronbach Alpha – Stakeholder and Trust separated

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder (excl trust)</td>
<td>.807</td>
<td>3</td>
</tr>
<tr>
<td>Trust</td>
<td>.866</td>
<td>4</td>
</tr>
</tbody>
</table>

The split of Stakeholder Engagement into 2 factors shown at Table 5.11 above resulted in 2 Cronbach Alpha scores above 0.8, where they both were considered good reliability scores.

This Section has reviewed each group of survey questions developed from the semi-structured interview factors shown at Chapter 4.5. The reliability for each factor was assessed through the calculation of a Cronbach Alpha score for each group of questions. The factor internal reliability was optimised through the assessment of the Cronbach Alpha score where some questions were omitted in order to gain higher reliability. Each of the optimised Cronbach Alpha scores and the associated internal reliability for each survey factor was considered as good.

5.3 Validity Tests – Normality, Skewness and Kurtosis

Survey data was assessed for statistical normality as the resulting answer would affect the methods chosen for testing in EFA. The first normality assessment was performed in a P-P plot in SPSS®, being a visual method to review the data where there were no valid numeric scores for the assessments. The P-Plot does not assess skewness or kurtosis, so was included purely as a first step to understand the data distribution. The skewness and kurtosis were tested separately and are detailed later in this Section.
A P-Plot was performed in SPSS® for each factor or construct group created and optimised in Table 5.11 above. Figure 5.1 below shows the P-Plot for the optimised Leadership factor.

![P-Plot Leadership](image)

**Figure 5.1 : P-P Plot - Leadership**

The P-Plot for leadership at Figure 5.1 above suggests skewness and data that is not normal in distribution as there are deviations from the line (Chambers et al. 1983). Equivalent P-Plot tests were completed for each of the other RTC factors, where most of the data appeared to not be of normal distribution, shown at Appendix 5. The P-Plot is a visual test that
can be misleading, so additional tests were completed and are detailed later in this Section.

The next level data distribution assessment was performed in SPSS® with a histogram, where a normal curve was presented over each factor data. The Leadership factor is presented in a histogram below at Figure 5.2.

![Histogram - Leadership](image)

**Figure 5.2 : Histogram - Leadership**

The histogram for the Leadership factor at Figure 5.9 indicates a level of skewness and kurtosis, where some level of normality is shown.

Each survey RTC factor was reviewed with a histogram, where the data generally appeared to be of normal distribution for each factor with some level of skewness and kurtosis. The histograms created for each of the other RTC factors is shown at Appendix 6.

Whilst the histogram review of normality is informative and visual, it does not provide data that can be objectively assessed. To improve the objectiveness over the data the following SPSS® skewness and kurtosis calculations performed for each factor, shown at Table 5.12.
The skewness score for each factor shown at Table 5.12 was reviewed, a score of 1 or above represents data that is skewed, where a score within the range of 1 to minus 1 is classed as normal (DeCarlo 1997). As can be seen at Table 5.12, each of the factors presented as normal distributed on this first skewness test.

Skewness can be alternately assessed, where the data is considered to be normally distributed if 3 three times the standard errors is less than the skewness absolute values (Groeneveld & Meeden 1984). A calculation was performed using this alternate skewness test, where the data and calculation are presented below at Table 5.13.

Table 5.13 : Skewness 2nd Test – Survey Factors

<table>
<thead>
<tr>
<th></th>
<th>workload_group</th>
<th>management_group</th>
<th>leadership_group</th>
<th>stakeholder_group</th>
<th>trust_group</th>
<th>politics_group</th>
<th>power_group</th>
<th>planning_analysis_group</th>
<th>stakeholderan_group</th>
<th>dTrust_group</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>71</td>
<td>70</td>
<td>71</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.645</td>
<td>.484</td>
<td>.327</td>
<td>-.236</td>
<td>.045</td>
<td>.340</td>
<td>.365</td>
<td>-.636</td>
<td>-.065</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.287</td>
<td>.287</td>
<td>.287</td>
<td>.287</td>
<td>.285</td>
<td>.287</td>
<td>.285</td>
<td>.287</td>
<td>.287</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.210</td>
<td>.767</td>
<td>-.823</td>
<td>-.109</td>
<td>-.1081</td>
<td>-.1076</td>
<td>-.498</td>
<td>-.210</td>
<td>-.1156</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.566</td>
<td>.566</td>
<td>.566</td>
<td>.566</td>
<td>.563</td>
<td>.566</td>
<td>.563</td>
<td>.566</td>
<td>.566</td>
<td></td>
</tr>
</tbody>
</table>

Normal (3* error<skewness score) Y/N | N | N | N | N | N | N | N | N | N | N | N

Prepared by Mathew Donald

UniId 17300142 145 24/05/2018
Table 5.13 above shows a Skewness score for each RTC factor, calculated as 3 times the standard deviation. The score for each RTC factor ranged from 0.854 to 0.860, as each calculation was greater than the standard error of skewness they each failed to show normality. The red line in the table recognised the failure to achieve normality. The calculation at Table 5.13 confirmed all RTC factors as not being normally distributed.

A test for the data distribution flatness or peak in the data, called Kurtosis, was performed also on the survey data (DeCarlo 1997). Data that has a very small standard deviation or a very large one may have kurtosis issues, often the test is that the score be less than 1 but may be as high as 2 before concluding kurtosis issues exist (Sposito, Hand & Skarpness 1983). An extension of this test is to calculate if the absolute value of the kurtosis score is less than the multiplication of the standard error of kurtosis by 3. Where the absolute value of the kurtosis score is less than the multiplication then there will not be any kurtosis issues in the data.

Taking the Kurtosis score and the Standard error at Table 5.12, a Kurtosis test was calculated, shown at Table 5.14 below.

<table>
<thead>
<tr>
<th>Kurtosis</th>
<th>Std. Error of Kurtosis</th>
<th>Std Error of Kurtosis by 3</th>
<th>Normal (3* error&lt;kurtosis score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>workload_group</td>
<td>management_group</td>
<td>leadership_group</td>
<td>stakeholder_group</td>
</tr>
<tr>
<td>-0.210</td>
<td>0.767</td>
<td>-0.823</td>
<td>-1.069</td>
</tr>
<tr>
<td>0.566</td>
<td>0.566</td>
<td>0.566</td>
<td>0.566</td>
</tr>
<tr>
<td>1.699</td>
<td>1.699</td>
<td>1.699</td>
<td>1.699</td>
</tr>
</tbody>
</table>

Table 5.14 above shows the calculation of the multiplication of the Standard error of Kurtosis multiplied by 3 on the third line. As the calculation shows the multiplication being above the absolute value of Kurtosis on line 1 there is a strong indication that the survey data had Kurtosis. The failure of line 3 to be below the first line of Table 5.14 is displayed as red on the last line of the table.
A Kolmogorov Smirnov test over all factors is often performed over data as the normality of distribution affects choices in the performance of EFA (Massey Jr 1951). This research performed an EFA and shown at Section 5.9, so it was considered useful to perform a Kolmogorov Smirnov test over the data. The result of the test performed over the survey data is shown at Table 5.15 below.

**Table 5.15 : Kolmogorov-Smirnov Test – All Grouped Constructs**

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distribution of workload_group is normal with mean 33.21 and standard deviation 6.597.</td>
<td>One-Sample Kolmogorov-Smirnov Test</td>
<td>.0031</td>
<td>Reject the null hypothesis.</td>
</tr>
</tbody>
</table>

Asymptotic significances are displayed. The significance level is .05.

1 Lilliefors Corrected

Table 5.15 above shows that only the Workload factor had normal distribution, where all the other factors did not have normal distribution. The result of most factors not being of normal distribution affected the EFA choices in calculation method of SPSS®, detailed later in this chapter at Section 5.9.

This Section 5.3 has reviewed the survey data and RTC factors for normality, determining after a variety of tests that most of the data was normally distributed. The data was also tested for skewness and kurtosis, where the data was confirmed as being skewed and with kurtosis. The following Section reviews the mean and standard deviation in the data, as the tests are a measure of bias in the data.

### 5.4 Validity Tests – Mean and Standard Deviation

Standard deviation is a tool to measure the level of diversity in the data. Bias is considered to be low where the sample size is 75 or more as it more likely reflects the general population (Begg & Mazumdar 1994),
whereas sample sizes below 75 may be not as reliable. The survey of this research achieved a low number of participants, close to this minimum preferred sample size of 75 so the standard deviations were assessed.

The standard deviation and mean was calculated for each RTC factor created, shown below at Table 5.16 below.

Table 5.16 : Mean and Standard Deviation – Survey Factors

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>management_group</td>
<td>70</td>
<td>14.1286</td>
<td>3.23442</td>
</tr>
<tr>
<td>leadership_group</td>
<td>70</td>
<td>13.7000</td>
<td>3.81207</td>
</tr>
<tr>
<td>workload_group</td>
<td>70</td>
<td>33.2143</td>
<td>6.58697</td>
</tr>
<tr>
<td>stakeholder_group</td>
<td>70</td>
<td>9.8286</td>
<td>2.88912</td>
</tr>
<tr>
<td>trust_group</td>
<td>71</td>
<td>15.1831</td>
<td>4.59599</td>
</tr>
<tr>
<td>politics_group</td>
<td>70</td>
<td>10.8429</td>
<td>3.14221</td>
</tr>
<tr>
<td>power_group</td>
<td>71</td>
<td>10.6901</td>
<td>2.76504</td>
</tr>
<tr>
<td>planning_analysis_group</td>
<td>70</td>
<td>16.1000</td>
<td>3.63218</td>
</tr>
</tbody>
</table>

Table 5.16 above shows that the Workload factor with the most deviation at 6.587, where it was also the highest mean at 33.2143, indicating significant diversity for this factor. The lowest deviations were for the Power factor at 2.765 followed by Stakeholder Engagement at 2.889. Standard deviations above 2 indicate significant variance in responses.

This Section has reviewed the mean and standard deviation for each RTC factor, where each factor was assessed with significant variation. The following Section shows the Relationship Tests used to assess the independence of the RTC factors.

5.5 **Validity Tests - Relationship Tests**

A valid factor analysis requires the factors to be discriminant or independent, so the factors were tested for interrelationships in cross tab tests of SPSS®. The optimised groups created during the internal reliability tests at Table 5.10 above were compared to see how they
interrelated. If the factors were overly interrelated there was a potential for factors to be merged in the subsequent EFA, described at Section 5.9.

A test was performed between the Management and Leadership factors to see how interrelated they may be. The cross tab relationships were not performed on all possible factor combinations as this was a test for data suitability for an EFA. This cross tab was performed as a lead indicator as to whether the data was independent or not.

The Pearson’s chi-squared can be considered preferable to alternative interrelationship tests (Hosmer et al. 1997). As the sample size for this research was 70, being larger than 20, the tool is considered a valid test (Cochran 1952, 1954). An initial independence test was performed between the RTC factors of Management and Leadership, shown below at Table 5.17.

**Table 5.17 : Independence Test – Management vs. Leadership**

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>299.362</td>
<td>225</td>
<td>.001</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>151.020</td>
<td>225</td>
<td>1.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>20.675</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 256 cells (100.0%) have expected count less than 5. The minimum expected count is .01.

In relationship tests, a p-value of zero would result in the null hypothesis being rejected as variables are considered to have an association, if the p-value is lower than 0.0 interrelationships would be considered unlikely (Sakoda, Cohen & Beall 1954). The Table 5.17 independence test shows that the two factors have a p-value of 0.001 indicating that factors of
Management and Leadership have an association. Table 5.17 above shows the probability factor independence rather than confirming interrelationships.

A number of additional association tests were completed as a method to assess the discriminant properties of the RTC factors listed at Table 5.10. Additional tests were performed between Management and a number of other RTC factors where association was detected, the data is shown in Appendix 7.

A table was created in SPSS® summarising the cross tab interrelationships of the Management factor to the other RTC factors, shown in Table 5.18 below.

Table 5.18 : Independence Test – Management Association

<table>
<thead>
<tr>
<th>Construct 1</th>
<th>Construct 2</th>
<th>p-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Leadership</td>
<td>0.001</td>
<td>Likely associated</td>
</tr>
<tr>
<td>Management</td>
<td>Politics</td>
<td>-</td>
<td>Likely associated</td>
</tr>
<tr>
<td>Management</td>
<td>Stakeholders</td>
<td>0.064</td>
<td>Unlikely association</td>
</tr>
<tr>
<td>Management</td>
<td>Trust</td>
<td>0.100</td>
<td>Unlikely association</td>
</tr>
<tr>
<td>Management</td>
<td>Workload</td>
<td>-</td>
<td>Likely associated</td>
</tr>
<tr>
<td>Management</td>
<td>Planning/Analysis</td>
<td>-</td>
<td>Likely associated</td>
</tr>
</tbody>
</table>

The association tests were prepared to establish if associations exist between at least one RTC factor, where factor analysis requires associations between factors. Table 5.18 shows that Management was associated with 4 of the 6 other factors. Trust and Stakeholder Engagement were deemed to hold an unlikely association based on the p-values listed above at Table 5.18. The subsequent EFA detailed later at Section 5.9 shows that these 2 factors loaded into Leadership rather than with Management.

A chi-squared test was performed as an alternate association test, where it is considered preferable to alternative interrelationship tests (Hosmer et al. 1997). A chi-squared test was created for each survey RTC factor and combined as shown at Table 5.19 below.
Table 5.19 : Hypothesis Test – Chi-squared

Hypothesis Test Summary

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The categories of management group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.000</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>2 The categories of leadership group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.006</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>3 The categories of stakeholder group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.059</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>4 The categories of trust group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.073</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>5 The categories of politics group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.000</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>6 The categories of power group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.000</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>7 The categories of planning analysis group occur with equal probabilities.</td>
<td>One-Sample Chi-Square Test</td>
<td>0.007</td>
<td>Reject the null hypothesis.</td>
</tr>
</tbody>
</table>

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.19 above indicated that most factors were interrelated, where the only factors unrelated may be Stakeholders and Trust. These 2 unrelated factors were also considered as unrelated to the Management factor in Table 5.18, being a different test type. It was necessary to show some or all factors with interrelationships before taking the data into an EFA, as inter-item relationships is a requirement for an EFA.

This Section has assessed the survey RTC factors for interrelationships, where a number of interrelationships have been detected. The following Section 5.6 extends the interrelationship tests, where the demographic survey data was included.

5.6 Demographic Interrelationship Tests

To extend the previous Section 5.5 relationship tests a few interrelationship tests were performed over the survey demographic data.
A Chi-Square test was performed between Age and Experience, shown at Table 5.20.

**Table 5.20 : Age versus Experience**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>42.389a</td>
<td>16</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>48.750</td>
<td>16</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>29.137</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .07.

Table 5.2 test of relationships between Age and Experience did not support there being any interrelationships. A number of alternate cross tab tests using Pearson’s Chi-squared were also performed to establish how independent the nominal data was in the survey. A comparison of gender versus industry yielded a $p=0.032$ indicating independence, whilst a comparison of gender versus occupation did indicate a correlation with a $p=0.115$ (Landau & Everitt 2004).

This data shows that the gender of a participant was not an indicator of their work industry, although there was a relationship between their gender and their occupation. A subsequent cross tab of age, gender and occupation yielded a test result of interdependence with a $p=0.752$. The result of this cross tab indicates that the participant age, sex and occupation are interrelated.

This Section reviewed the interrelationships between the demographic nominal data where only gender, age and occupation appeared to have interrelationships. Other demographic data appeared to be independent.
5.7 Goodness of fit relationship test

The relationship tests at Section 5.5 above indicated an association between some RTC factors. Prior to commencing an EFA on this survey data, an additional goodness of fit test was performed with Pearson’s chi-squared as it is considered a traditional test for data of this type (Nevill et al. 2002). Each RTC factor was combined for the Chi-square test to assess goodness of fit, shown at Table 5.21 below.

Table 5.21 : Goodness of Fit – All Variables

<table>
<thead>
<tr>
<th>Test Statistics</th>
<th>stakeholder+trust</th>
<th>mgt</th>
<th>leadership</th>
<th>workload</th>
<th>stakeholder</th>
<th>trust</th>
<th>politics</th>
<th>power</th>
<th>planning_analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>17.371</td>
<td>75.371</td>
<td>32.400</td>
<td>24.914</td>
<td>19.143</td>
<td>26.099</td>
<td>42.000</td>
<td>40.380</td>
<td>31.943</td>
</tr>
<tr>
<td>df</td>
<td>21</td>
<td>15</td>
<td>15</td>
<td>21</td>
<td>11</td>
<td>17</td>
<td>13</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.688</td>
<td>.000</td>
<td>.006</td>
<td>.251</td>
<td>.059</td>
<td>.073</td>
<td>.000</td>
<td>.000</td>
<td>.007</td>
</tr>
</tbody>
</table>

A non-parametric test using Chi-squared to measure the levels of goodness of fit for the data often uses 0.05 as the threshold to determine the null hypothesis (Sakoda, Cohen & Beall 1954). The data of Table 5.26 suggests that the factors of Stakeholder, Trust and Workload may be independent, where the Workload factor may be more statistically independent at 0.251. The factors of Management, Leadership, Politics, Power and Planning Analysis scored less than 0.05 in Table 5.21 and were considered as being interrelated. The data validation of this Section has concluded that the survey data is interrelated so being valid for use in factor analyses.

This Section concluded that RTC factors were interrelated, being sufficient for the data to be used in a factor analysis, where the EFA performed is described at Section 5.9.
5.8 Missing Data Resolution

The survey was prepared online where questions on each page were required to be fully completed before a participant could move onto the next page of questions. It was anticipated that there would be minimal missing data allowing ease of data analysis. This Section 5.8 details the treatment of missing data uncovered in the survey data as treatment of missing data is important for factor analyses.

The survey included 2 criteria questions for location and organisation size, where 34 participants failed to answer both questions in the positive. Missing data that resulted from the failure to answer these opening questions were omitted from all analyses in this research as treatment of missing data in that regard was not possible. The remainder of this Section details how the minor missing data was treated, being data of those who completed the survey and the criteria questions.

The questions with minor missing data were checked for randomness or bias using the Littles test (Little 1988), where the test can confirm if missing data can be inferred validly or not. The inference of data should generally not be undertaken unless the missing data is less than 5% of the data (Little 1988).

A summary of the survey questions and associated missing data was created so as to assess if the level of missing data was acceptable for data inference, shown at Table 5.22 below.
Table 5.22: Missing Survey Data - Summary by Question

<table>
<thead>
<tr>
<th>Question, Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Missing Count</th>
<th>Percent Low</th>
<th>Percent High</th>
</tr>
</thead>
<tbody>
<tr>
<td>q0009_mgt</td>
<td>72</td>
<td>2.5972</td>
<td>.89851</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0010_mgtR</td>
<td>72</td>
<td>2.7222</td>
<td>.96739</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0011_work</td>
<td>72</td>
<td>3.7222</td>
<td>.95272</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0012_work</td>
<td>72</td>
<td>3.2639</td>
<td>1.07459</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0013_work</td>
<td>72</td>
<td>2.9583</td>
<td>.92596</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0014_work</td>
<td>72</td>
<td>3.7778</td>
<td>.89162</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0015_stakR</td>
<td>72</td>
<td>2.3750</td>
<td>.95589</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0016_stak</td>
<td>72</td>
<td>2.9167</td>
<td>1.24188</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>q0017_pol</td>
<td>72</td>
<td>3.0000</td>
<td>.94943</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0018_polR</td>
<td>72</td>
<td>3.8889</td>
<td>.88103</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0019_powerR</td>
<td>72</td>
<td>2.4583</td>
<td>.76798</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0020_powerR</td>
<td>72</td>
<td>2.6066</td>
<td>.99047</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0021_pa</td>
<td>72</td>
<td>3.4722</td>
<td>1.07431</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0022_pa</td>
<td>72</td>
<td>3.0684</td>
<td>.90890</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0023_leader</td>
<td>72</td>
<td>2.4583</td>
<td>.90285</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0024_leader</td>
<td>72</td>
<td>2.6944</td>
<td>1.01591</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>q0025_mgt</td>
<td>71</td>
<td>2.6056</td>
<td>.97803</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0026_leader</td>
<td>71</td>
<td>3.0282</td>
<td>.99960</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0027_mgt</td>
<td>71</td>
<td>3.6761</td>
<td>.96769</td>
<td>2</td>
<td>2.7</td>
<td>1</td>
</tr>
<tr>
<td>q0028_leaderRR</td>
<td>71</td>
<td>2.5352</td>
<td>1.14431</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0029_work</td>
<td>71</td>
<td>3.8732</td>
<td>.98459</td>
<td>2</td>
<td>2.7</td>
<td>11</td>
</tr>
<tr>
<td>q0030_work</td>
<td>71</td>
<td>3.8592</td>
<td>1.03228</td>
<td>2</td>
<td>2.7</td>
<td>12</td>
</tr>
<tr>
<td>q0031_workR</td>
<td>71</td>
<td>2.4666</td>
<td>.78977</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0032_work</td>
<td>71</td>
<td>4.1690</td>
<td>.82784</td>
<td>2</td>
<td>2.7</td>
<td>4</td>
</tr>
<tr>
<td>q0033_stak</td>
<td>71</td>
<td>3.4789</td>
<td>1.08046</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0034_stakR</td>
<td>71</td>
<td>1.9014</td>
<td>.61307</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>q0035_trustRR</td>
<td>71</td>
<td>2.7324</td>
<td>1.09489</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0036_trust</td>
<td>71</td>
<td>3.1690</td>
<td>1.09526</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0037_psl</td>
<td>71</td>
<td>2.5211</td>
<td>.96893</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0038_psl</td>
<td>71</td>
<td>2.9577</td>
<td>1.03422</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0039_power</td>
<td>71</td>
<td>2.5915</td>
<td>.80316</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0040_power</td>
<td>71</td>
<td>2.8451</td>
<td>1.00921</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0041_pa</td>
<td>71</td>
<td>3.3944</td>
<td>.88606</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0042_pa</td>
<td>71</td>
<td>2.6479</td>
<td>.94262</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0043_mgt</td>
<td>71</td>
<td>2.2535</td>
<td>.69113</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>q0044_mgt</td>
<td>71</td>
<td>3.0000</td>
<td>1.12122</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0045_leader</td>
<td>71</td>
<td>2.9296</td>
<td>.93081</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0046_leaderR</td>
<td>71</td>
<td>2.8310</td>
<td>1.01399</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0047_work</td>
<td>71</td>
<td>3.6761</td>
<td>1.02504</td>
<td>2</td>
<td>2.7</td>
<td>1</td>
</tr>
<tr>
<td>q0048_work</td>
<td>71</td>
<td>3.8310</td>
<td>1.20696</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0049_stak</td>
<td>71</td>
<td>3.3803</td>
<td>1.06054</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0050_trust</td>
<td>71</td>
<td>3.0000</td>
<td>1.19525</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>q0051_trust</td>
<td>71</td>
<td>3.0141</td>
<td>1.17708</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>q0052_trust</td>
<td>71</td>
<td>3.2676</td>
<td>.97039</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0053_psl</td>
<td>71</td>
<td>2.3521</td>
<td>.81238</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0054_pslR</td>
<td>71</td>
<td>2.2958</td>
<td>.72495</td>
<td>2</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>q0055_power</td>
<td>71</td>
<td>2.4507</td>
<td>.80691</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0056_power</td>
<td>71</td>
<td>2.8028</td>
<td>.99455</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0057_pa</td>
<td>71</td>
<td>3.4789</td>
<td>1.09361</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0058_paR</td>
<td>71</td>
<td>2.5352</td>
<td>1.06678</td>
<td>2</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>q0060</td>
<td>64</td>
<td>2.8906</td>
<td>1.02535</td>
<td>9</td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td>q0061</td>
<td>64</td>
<td>2.7500</td>
<td>.87287</td>
<td>9</td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td>q0062</td>
<td>64</td>
<td>3.2813</td>
<td>.96722</td>
<td>9</td>
<td>12.3</td>
<td></td>
</tr>
</tbody>
</table>

a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).
Table 5.22 above shows that there was only 1.4% to 2.7% of missing data for all except the last 3 questions, being the 3 questions on change effect. These last 3 questions, related to change effect were not included in the factor analyses as they had more than 5% missing data.

Prior to treating the missing data a Littles MCAR test was calculated over those questions with less than 5% of missing data, result shown at Table 5.23.

**Table 5.23 : Littles MCAR Test Result**

| Little's MCAR test: Chi-Square = 116.351 | DF = 100 | Sig. = 0.126 |

Table 5.23 above shows the result of the SPSS® Expectation Maximisation test, where the significance calculated was 0.126 being greater than 0.00. The significance level being above zero allowed the survey data to be classified as random in nature, where inference of the data was possible (Little 1988).

Subsequently the missing data was treated using SPSS® Expectation Maximisation technique, where the resulting Little’s MACAR test is shown at Table 5.24.

**Table 5.24 : Littles MCAR Test Result – Post Missing Data**

| Little's MCAR test: Chi-Square = 60.639 | DF = 50 | Sig. = 0.144 |

Table 5.24 above shows the result of the MCAR test after the data was treated for missing data.

As the survey data had been successfully tested in the above Sections 5.2 to 5.7 and had been treated for missing data shown in this Section 5.8 the data was considered appropriate for use in an EFA. The following Section 5.9 details how the survey data was analysed, forming into a valid EFA model.
5.9 Exploratory Factor Analysis (EFA)

It was considered appropriate to assess the data further for its appropriateness before completing the EFA. The testing for EFA began using the factors created in the internal reliability tests at Section 5.2.

The survey data was assessed by measuring sampling adequacy using a KMO statistic combined with a Bartlett’s Test of Sphericity in SPSS® (Aldrich & Cunningham 2015), shown at Table 5.25.

Table 5.25: KMO and Bartlett’s Test Result

<table>
<thead>
<tr>
<th>KMO and Bartlett’s Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of</td>
<td>.793</td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td>Approx. Chi-Square</td>
</tr>
<tr>
<td></td>
<td>df</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
</tbody>
</table>

Table 5.25 shows that when the factors were compared to one another a KMO score of 0.793 was produced. Scores above 0.6 are considered worthy inclusion in an EFA (Aldrich & Cunningham 2015). The Bartlett’s Test of sphericity had a significance of 0.000, where the data may produce relationships useful for factor analysis (Aldrich & Cunningham 2015).

A communalities table shown below at Table 5.26 was prepared based on the factors created in the internal reliability section 5.2, rather than loading and analysing the data from individual questions.
### Table 5.26: Communalities

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>mgt</td>
<td>1.000</td>
<td>.693</td>
</tr>
<tr>
<td>leadership</td>
<td>1.000</td>
<td>.830</td>
</tr>
<tr>
<td>workload</td>
<td>1.000</td>
<td>.679</td>
</tr>
<tr>
<td>stakeholder</td>
<td>1.000</td>
<td>.758</td>
</tr>
<tr>
<td>trust</td>
<td>1.000</td>
<td>.858</td>
</tr>
<tr>
<td>politics</td>
<td>1.000</td>
<td>.794</td>
</tr>
<tr>
<td>power</td>
<td>1.000</td>
<td>.610</td>
</tr>
<tr>
<td>planning_analysis</td>
<td>1.000</td>
<td>.804</td>
</tr>
<tr>
<td>What is your sex?</td>
<td>1.000</td>
<td>.769</td>
</tr>
<tr>
<td>What is your age?</td>
<td>1.000</td>
<td>.841</td>
</tr>
<tr>
<td>Which of the following best describes your occupation?</td>
<td>1.000</td>
<td>.576</td>
</tr>
<tr>
<td>What industry would you say that you currently work in?</td>
<td>1.000</td>
<td>.702</td>
</tr>
<tr>
<td>Are you in a role that is designated as a Manager?</td>
<td>1.000</td>
<td>.646</td>
</tr>
<tr>
<td>How much experience would you say that you have in leading or supervising an element of organizational change?</td>
<td>1.000</td>
<td>.833</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component

This data in the above Table 5.26 shows that 69.3% of the variance in the Management factor can be explained by the other high loading factors. The calculation of communalities is an important test for determining factor analysis applicability (Aldrich & Cunningham 2015).

A Total Variance Explained Table was created in SPSS® so as to investigate the number of factors that may be interrelated, shown at Table 5.27 below.
Table 5.27 : Total Variance Explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total % of Variance</td>
<td>Cumulative %</td>
<td>Total % of Variance</td>
</tr>
<tr>
<td>1</td>
<td>5.850</td>
<td>41.787</td>
<td>5.850</td>
</tr>
<tr>
<td>2</td>
<td>1.987</td>
<td>14.191</td>
<td>1.987</td>
</tr>
<tr>
<td>3</td>
<td>1.395</td>
<td>9.967</td>
<td>1.395</td>
</tr>
<tr>
<td>4</td>
<td>1.161</td>
<td>8.293</td>
<td>1.161</td>
</tr>
<tr>
<td>5</td>
<td>.858</td>
<td>6.129</td>
<td>.858</td>
</tr>
<tr>
<td>6</td>
<td>.643</td>
<td>4.596</td>
<td>.643</td>
</tr>
<tr>
<td>7</td>
<td>.546</td>
<td>3.903</td>
<td>.546</td>
</tr>
<tr>
<td>8</td>
<td>.384</td>
<td>2.741</td>
<td>.384</td>
</tr>
<tr>
<td>9</td>
<td>.316</td>
<td>2.259</td>
<td>.316</td>
</tr>
<tr>
<td>10</td>
<td>.267</td>
<td>1.906</td>
<td>.267</td>
</tr>
<tr>
<td>11</td>
<td>.212</td>
<td>1.517</td>
<td>.212</td>
</tr>
<tr>
<td>12</td>
<td>.191</td>
<td>1.365</td>
<td>.191</td>
</tr>
<tr>
<td>13</td>
<td>.110</td>
<td>.783</td>
<td>.110</td>
</tr>
<tr>
<td>14</td>
<td>.079</td>
<td>.562</td>
<td>.079</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

Table 5.27 above shows that the first 4 factors account for 74.2% of the overall variation when all of the factors are considered together. These 4 factors also have Eigen values higher than 1, where Eigen values less than 1 are generally not considered to be important (Aldrich & Cunningham 2015).

A Scree Plot was also produced in SPSS® as a visual method to display the data relationships, shown at Figure 5.3 below.
Figure 5.3 being a Scree Plot, graphically displays the relative importance of the first 4 factors being Management, Leadership, Workload and Stakeholder Engagement.

As the first 4 factors were the most significant in the data shown below it was decided to undertake a review of the SPSS® Component matrix as shown at Table 5.28 below.
Table 5.28 : Component Matrix

<table>
<thead>
<tr>
<th>Component Matrix</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>mgt</td>
<td>.763</td>
<td>.072</td>
<td>.226</td>
<td>.233</td>
</tr>
<tr>
<td>leadership</td>
<td>.884</td>
<td>.038</td>
<td>.025</td>
<td>-.215</td>
</tr>
<tr>
<td>workload</td>
<td>.812</td>
<td>-.026</td>
<td>.044</td>
<td>.130</td>
</tr>
<tr>
<td>stakeholder</td>
<td>.856</td>
<td>-.093</td>
<td>-.125</td>
<td>-.010</td>
</tr>
<tr>
<td>trust</td>
<td>.902</td>
<td>.168</td>
<td>.020</td>
<td>-.127</td>
</tr>
<tr>
<td>politics</td>
<td>.879</td>
<td>.040</td>
<td>-.019</td>
<td>-.139</td>
</tr>
<tr>
<td>power</td>
<td>.680</td>
<td>.261</td>
<td>.215</td>
<td>-.180</td>
</tr>
<tr>
<td>planning_analysis</td>
<td>.861</td>
<td>.165</td>
<td>.061</td>
<td>.178</td>
</tr>
<tr>
<td>What is your sex ?</td>
<td>-</td>
<td>.208</td>
<td>.374</td>
<td>.764</td>
</tr>
<tr>
<td>What is your age ?</td>
<td>-</td>
<td>.077</td>
<td>.699</td>
<td>-.532</td>
</tr>
<tr>
<td>Which of the following best describes your occupation ?</td>
<td>-</td>
<td>.015</td>
<td>.007</td>
<td>.390</td>
</tr>
<tr>
<td>What Industry would you say that you currently work in ?</td>
<td>-</td>
<td>.236</td>
<td>-.433</td>
<td>-.183</td>
</tr>
<tr>
<td>Are you in a role that is designated as a Manager ?</td>
<td>-</td>
<td>.419</td>
<td>-.586</td>
<td>-.327</td>
</tr>
<tr>
<td>How much experience would you say that you have in leading or supervising an element of organisational change</td>
<td>-</td>
<td>-.147</td>
<td>.828</td>
<td>-.343</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

The above Component Matrix at Table 5.28 shows that Management is highly related to the other 7 factors. The demographic data of age, gender and industry appeared to have little significant interrelationships. The only significant relationship with demographic data occurred between experience and the Leadership factor at a score of 0.828.

The rotated Component matrix using Principal Component analysis showed little change from the data shown at Table 5.28 above after 4
iterations. The data may be interrelated as it did not pass the orthogonal rotation, so an EFA model was created using Principal Access Factoring as the extract method, where that was combined with a Promax rotation method (Aldrich & Cunningham 2015). As oblique rotation is recommended it was adopted for this research (Byrne, B 2005).

The various data tests at Sections 5.2 to 5.7 above were performed over grouped factors that were formed in the reliability tests at Section 5.2.

An EFA model was created from the individual survey questions, excluding the questions removed in the reliability tests of Section 5.2. The Pattern Matrix created from the EFA is shown at Table 5.29 below.
### Table 5.29: EFA Pattern Matrix

<table>
<thead>
<tr>
<th>Pattern Matrix*</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
<th>Factor 8</th>
<th>Original Factor</th>
<th>Question #</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am involved in the change process</td>
<td>.880</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>political</td>
<td>q0016</td>
</tr>
<tr>
<td>The objectives of the change are correct</td>
<td>.830</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>political</td>
<td>q0037</td>
</tr>
<tr>
<td>My superior supports my involvement</td>
<td>.806</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>political</td>
<td>q0053</td>
</tr>
<tr>
<td>People resolve disputes during the change</td>
<td>.797</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>political</td>
<td>q0017</td>
</tr>
<tr>
<td>The change aligns with the strategy</td>
<td>.779</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pa</td>
<td>q0042</td>
</tr>
<tr>
<td>The change is not hidden</td>
<td>.776</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>trust</td>
<td>q0051</td>
</tr>
<tr>
<td>I trust that the change is right</td>
<td>.762</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>trust</td>
<td>q0056</td>
</tr>
<tr>
<td>The change has been explained to me</td>
<td>.727</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0021</td>
</tr>
<tr>
<td>The changes are logical</td>
<td>.709</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>political</td>
<td>q0038</td>
</tr>
<tr>
<td>The organisational changes make sense</td>
<td>.707</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0024</td>
</tr>
<tr>
<td>The communication on change is regular</td>
<td>.671</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0026</td>
</tr>
<tr>
<td>The change is explained in a number of ways</td>
<td>.665</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0045</td>
</tr>
<tr>
<td>People listen to my concerns about the change</td>
<td>.509</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0033</td>
</tr>
<tr>
<td>I can follow the rules in the change</td>
<td></td>
<td>1.100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0027</td>
</tr>
<tr>
<td>The resources are allocated well in the organisational changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0030</td>
</tr>
<tr>
<td>The resources are adequate for the change</td>
<td></td>
<td>1.096</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0029</td>
</tr>
<tr>
<td>There are enough people to do the change</td>
<td></td>
<td></td>
<td>.889</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0047</td>
</tr>
<tr>
<td>We have time to make the change</td>
<td></td>
<td></td>
<td></td>
<td>.611</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0048</td>
</tr>
<tr>
<td>There is sufficient time to perform the changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.576</td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0032</td>
</tr>
<tr>
<td>I am enjoying the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.510</td>
<td></td>
<td></td>
<td>workload</td>
<td>q0009</td>
</tr>
<tr>
<td>People respond to my feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>leadership</td>
<td>q0057</td>
</tr>
<tr>
<td>There is control in the organisational changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.788</td>
<td></td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0009</td>
</tr>
<tr>
<td>The organisational changes are thought through</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.768</td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0044</td>
</tr>
<tr>
<td>The project was well planned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.587</td>
<td></td>
<td>pa</td>
<td>q0057</td>
</tr>
<tr>
<td>There was good analysis before the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.544</td>
<td></td>
<td>pa</td>
<td>q0021</td>
</tr>
<tr>
<td>The change is documented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pa</td>
<td>q0057</td>
</tr>
<tr>
<td>The rules are consistent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0043</td>
</tr>
<tr>
<td>The change will result in more standardisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>power</td>
<td>q0039</td>
</tr>
<tr>
<td>There is more formality from the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>power</td>
<td>q0055</td>
</tr>
<tr>
<td>There are procedures for the changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>power</td>
<td>q0040</td>
</tr>
<tr>
<td>People are well during the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.631</td>
<td></td>
<td>workload</td>
<td>q0013</td>
</tr>
<tr>
<td>People are happy during the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0057</td>
</tr>
<tr>
<td>There is little stress during the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q0012</td>
</tr>
<tr>
<td>Decisions are made on the organisational changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0043</td>
</tr>
<tr>
<td>The organisational changes are monitored</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mgmt</td>
<td>q0025</td>
</tr>
<tr>
<td>Risks of the change were documented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pa</td>
<td>q0041</td>
</tr>
<tr>
<td>A business case is prepared for the changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pa</td>
<td>q0022</td>
</tr>
<tr>
<td>There is sufficient budget to perform the change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>workload</td>
<td>q012</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 18 iterations.
Table 5.29 above shows the EFA model created in SPSS® from the survey data, where 8 factors loaded into the model after missing data had been inferred. The Table 5.29 was limited to show scores above 0.5, where the lowest scores in each factor are coloured in pink. The right hand column of Table 5.29 shows the factor that the question had been associated with in the reliability tests at Section 5.2 above. Factor scores above 0.7 are considered important for discriminant reliability in EFA models when the survey sample size is lower than 100 (Gordon et al. 1980). Table 5.29 indicates strong reliability between the first 4 factors as many of the questions had scores over 0.7.

A review and discussion about the factors and the specific questions included is shown at the Analysis Chapter 6. Chapter 6 also discusses why some questions did not load together into complete factors, including why some factors had combined with others in the EFA model of Table 5.29. Upon the review of the EFA and associated data, the factors are named at Chapter 6.

The communalities is a test where a result of 0.5 is required for questions to load into a factor (Widaman & Herringer 1985). Tables 5.30 and 5.31 show the Communalities created from the survey data calculated in the EFA model.
### Table 5.30: Communalities (Part A) - Individual Questions

<table>
<thead>
<tr>
<th>Communalities</th>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is control in the organisational changes</td>
<td>.604</td>
<td>.428</td>
</tr>
<tr>
<td>There is sufficient time to perform the changes</td>
<td>.755</td>
<td>.612</td>
</tr>
<tr>
<td>There is sufficient budget to perform the change</td>
<td>.685</td>
<td>.578</td>
</tr>
<tr>
<td>People are well during the change</td>
<td>.762</td>
<td>.659</td>
</tr>
<tr>
<td>People are happy during the change</td>
<td>.725</td>
<td>.609</td>
</tr>
<tr>
<td>I am involved in the change process</td>
<td>.819</td>
<td>.762</td>
</tr>
<tr>
<td>People resolve disputes during the change</td>
<td>.780</td>
<td>.648</td>
</tr>
<tr>
<td>There was good analysis before the change</td>
<td>.819</td>
<td>.679</td>
</tr>
<tr>
<td>A business case is prepared for the changes</td>
<td>.643</td>
<td>.589</td>
</tr>
<tr>
<td>The change has been explained to me</td>
<td>.648</td>
<td>.475</td>
</tr>
<tr>
<td>The organisational changes make sense</td>
<td>.812</td>
<td>.642</td>
</tr>
<tr>
<td>The organisational changes are monitored</td>
<td>.690</td>
<td>.638</td>
</tr>
<tr>
<td>The communication on change is regular</td>
<td>.703</td>
<td>.561</td>
</tr>
<tr>
<td>The resources are allocated well in the organisational changes</td>
<td>.853</td>
<td>.850</td>
</tr>
<tr>
<td>There are enough people to do the change</td>
<td>.805</td>
<td>.680</td>
</tr>
<tr>
<td>The resources are adequate for the change</td>
<td>.869</td>
<td>.836</td>
</tr>
<tr>
<td>There is little stress during the change</td>
<td>.609</td>
<td>.473</td>
</tr>
<tr>
<td>People listen to my concerns about the change</td>
<td>.774</td>
<td>.723</td>
</tr>
<tr>
<td>I trust that the change is right</td>
<td>.880</td>
<td>.793</td>
</tr>
</tbody>
</table>
Table 5.31: Communalities (Part B) - Individual Questions

<table>
<thead>
<tr>
<th>Statement</th>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the change are correct</td>
<td>.766</td>
<td>.631</td>
</tr>
<tr>
<td>The changes are logical</td>
<td>.852</td>
<td>.693</td>
</tr>
<tr>
<td>The change will result in more standardisation</td>
<td>.796</td>
<td>.746</td>
</tr>
<tr>
<td>There are procedures for the changes</td>
<td>.802</td>
<td>.672</td>
</tr>
<tr>
<td>Risks of the change were documented</td>
<td>.597</td>
<td>.509</td>
</tr>
<tr>
<td>The change aligns with the strategy</td>
<td>.732</td>
<td>.621</td>
</tr>
<tr>
<td>Decisions are made on the organisational changes</td>
<td>.651</td>
<td>.555</td>
</tr>
<tr>
<td>The organisational changes are thought through</td>
<td>.758</td>
<td>.646</td>
</tr>
<tr>
<td>The change is explained in a number of ways</td>
<td>.821</td>
<td>.672</td>
</tr>
<tr>
<td>We have time to make the change</td>
<td>.845</td>
<td>.779</td>
</tr>
<tr>
<td>I am enjoying the change</td>
<td>.885</td>
<td>.798</td>
</tr>
<tr>
<td>People respond to my feedback</td>
<td>.733</td>
<td>.641</td>
</tr>
<tr>
<td>I can follow the rules in the change</td>
<td>.771</td>
<td>.665</td>
</tr>
<tr>
<td>The change is not hidden</td>
<td>.780</td>
<td>.679</td>
</tr>
<tr>
<td>The rules are consistent</td>
<td>.744</td>
<td>.571</td>
</tr>
<tr>
<td>My superior supports my involvement</td>
<td>.719</td>
<td>.584</td>
</tr>
<tr>
<td>There is more formality from the change</td>
<td>.676</td>
<td>.407</td>
</tr>
<tr>
<td>The change is documented</td>
<td>.815</td>
<td>.661</td>
</tr>
<tr>
<td>The project was well planned</td>
<td>.821</td>
<td>.773</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Axis Factoring.
Table 5.30 and 5.31 above represent the relationships between the survey questions that were calculated when the EFA model was created. The questions with the lowest relationships are coloured blue in Tables 5.30 and 5.31, questions with the highest communality scores are coloured yellow. The yellow or most interrelated questions may be summarised as being related to resources, trust, planning and time.

Measurement of the EFA model was performed with a KMO and Bartlett’s Test, based on individual questions, the result is shown at Table 5.32 below.

Table 5.32: Factor Analysis KMO and Bartlett’s Test

<table>
<thead>
<tr>
<th>KMO and Bartlett's Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling</td>
<td>.848</td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td>Approx. 2025.767</td>
</tr>
<tr>
<td></td>
<td>df</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
</tbody>
</table>

Table 5.32 above shows that the KMO value was above 0.8, with a Bartlett’s Test of Sphericity significance of 0.00, where the EFA model was considered as containing useful information (Aldrich & Cunningham 2015).

The EFA model also calculated a Factor Correlation Matrix, shown at Table 5.33.
Table 5.33: Factor Correlation Matrix

<table>
<thead>
<tr>
<th>Factor Correlation Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.

Table 5.33 shows the Factor Correlation Matrix that resulted when the EFA model was created out of the interview question data. A colour was placed into the matrix over the 2 highest absolute value correlations, where red represented the negatives and green the positives. The higher correlations occurred more in the first 3 factors, where more colour is shown in Table 5.33. The right hand column of Table 5.33 shows the names for each of the factors that was determined in the review of the EFA model and associated data, at the Analysis Chapter 6.

The EFA model loaded questions into factors different to those included in the survey and tested in the reliability tests of Sections 5.2 to 5.7. The questions were analysed for meaning and comparison, where related discussion is presented in the Analysis Chapter 6.1.5, including how these EFA factors were named.

The EFA model of Table 5.29 shows that factor 5 and factor 8 loaded with a single so were not included in the later CFA presented at Section 5.11. The exclusion of the 2 factors with a single question was necessary as the survey sample size was less than preferred, where a single question factor would not be reliable in further testing.

The Analysis at Chapter 6 reviewed the EFA model and associated data where appropriate names were given to a number the EFA factors based on the factor definitions created in the Literature Review of Chapter 2. A CFA model was created, shown at Section 5.11, where 2 of the EFA factors were excluded where they were based only 1 question each.
The EFA factors used as the base for the subsequent CFA are as follows:

- Factor 1 – Leadership
- Factor 2 – Workload
- Factor 3 – Management
- Factor 4 – Power
- Factor 5 – Act and Monitor
- Factor 6 – Planning and Analysis

This Section has detailed how the initial model and tests were calculated using the survey factors created and optimised in the reliability tests of Section 5.2. As the data indicated that there were interrelationships between factors, an EFA model was created based on the survey questions, where questions removed in the reliability test at Section 5.2 were excluded from the EFA. The EFA model presented with a high KMO score, so was considered adequate for analysis purposes. The EFA model shown at Table 5.29 was later used as the base for a CFA that is presented at Section 5.11.

5.10 **Survey Data - RTC Effects**

As was discussed at Section 5.8 there was considerable missing data for the survey RTC effect questions. The effect questions were presented on the last page of the survey, where it cannot be reliably determined why participants did not complete the questions. It is not clear if participants left the survey early due to boredom, lack of time or some alternate reason.

The survey RTC effect question data is shown at Table 5.34 below.
### Table 5.34 : Change Effect Data

#### The change was delivered on time

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>1</td>
<td>9.9</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Agree</td>
<td>30</td>
<td>27.8</td>
<td>46.9</td>
<td>48.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>12</td>
<td>11.1</td>
<td>18.8</td>
<td>67.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>17</td>
<td>15.7</td>
<td>26.6</td>
<td>93.8</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>4</td>
<td>3.7</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>59.3</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>44</td>
<td>40.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### The cost of the change was on budget

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>34</td>
<td>31.5</td>
<td>53.1</td>
<td>53.1</td>
</tr>
<tr>
<td>Neutral</td>
<td>12</td>
<td>11.1</td>
<td>18.8</td>
<td>71.9</td>
</tr>
<tr>
<td>Disagree</td>
<td>18</td>
<td>16.7</td>
<td>28.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>59.3</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>44</td>
<td>40.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

#### The change delivered the benefits expected

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly agree</td>
<td>1</td>
<td>9.9</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Agree</td>
<td>15</td>
<td>13.9</td>
<td>23.4</td>
<td>33.3</td>
</tr>
<tr>
<td>Neutral</td>
<td>18</td>
<td>16.7</td>
<td>28.1</td>
<td>61.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>25</td>
<td>23.1</td>
<td>39.1</td>
<td>92.2</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>5</td>
<td>4.6</td>
<td>7.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>59.3</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>44</td>
<td>40.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>108</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The RTC question data at Table 5.34 shows that the questions with 40.7% missing data, being too high for the missing data to be treated at Section 5.8, or for inclusion in the EFA. The data of Table 5.34 shows a high degree of neutral responses to the questions on time at 18.8%, Cost at 18.8% and for quality at 28.1%. The questions regarding time and cost were answered in the positive at 48.8% and 53.1% respectively, where the quality question only received 25.0% in the positive.

The following Section details how the EFA model of Section 5.10 was used as the base for the creation of a CFA model. The Section also discussed the associated validation tests performed on the CFA model created.
5.11 Confirmatory Factor Analysis (CFA)

The combination of EFA and CFA was considered a useful way to investigate the survey data, potentially providing additional information towards the research questions. The CFA model was created in Amos® from the EFA Pattern Matrix data shown at Table 5.29 above. This Section details the process undertaken to create a valid CFA model in Amos®.

CFA models can be measured with a RMSEA score where the ideal score is below 0.1 or around 0.08 (Pett et al. 2013; Van De Schoot, Lugtig & Hox 2012). The initial data load into Amos® yielded data errors and did not achieve the desired RMSEA. The errors were removed on an iterative basis by referring to the modification indices in Amos®.

The first valid CFA model created in Amos® is shown at Table 5.35 below.

Table 5.35: CFA Results – 1st Valid Model

Table 5.35 shows that the Probability level or p-value at 0.000, being considered desirable (Pett et al. 2013). The diagram created for this first Amos® model is shown below at Figure 5.4.
Figure 5.4 above shows interrelationships between each of the 6 factors that were loaded from the EFA model shown at Table 5.29. The higher inter factor relationships are shown as being between Workload and Management at 0.52, Management and Planning and Analysis at 0.42, followed by Workload and Planning and Analysis at 0.40. The least interrelated factors were between Workload and Power.
An invariance test was performed to test the structure across various demographics as a means to ensure that the data created was meaningful (Cheung & Rensvold 2002). CFA is one of the most common methods to test invariance (Milfont & Fischer 2010). The invariance test is more useful on larger sample sizes than the 70 received in this research, where an invariance test was undertaken despite the limitation as a means to gather more information on the topic.

The Table 5.36 below shows the data produced from the invariance test.

**Table 5.36 : CFA Results – Post Invariance Test**

<table>
<thead>
<tr>
<th>Notes for Model (Default model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computation of degrees of freedom (Default model)</td>
</tr>
<tr>
<td>Number of distinct sample moments: 550</td>
</tr>
<tr>
<td>Number of distinct parameters to be estimated: 122</td>
</tr>
<tr>
<td>Degrees of freedom (550 - 122): 428</td>
</tr>
<tr>
<td>Result (Default model)</td>
</tr>
<tr>
<td>Minimum was achieved</td>
</tr>
<tr>
<td>Chi-square = 713.369</td>
</tr>
<tr>
<td>Degrees of freedom = 428</td>
</tr>
<tr>
<td>Probability level = .000</td>
</tr>
</tbody>
</table>

Table 5.36 above shows that a valid model was achieved in the invariance test, where the $p$-value of 0.000 was achieved. The diagrammatical representation of this invariance tested model is shown below at Figure 5.5 below.
Figure 5.5 : CFA Model - Post Invariance Test

Figure 5.5 shows that a number of the questions and factors were removed in the production of the invariance tested model when compared to the initial CFA model shown at Figure 5.4. The factors of Management and Planning/Analysis were removed for the invariance test, indicating that they were not consistent across the demographics. The removal of these factors may not have been required had the sample size been larger, so cannot be reliably explained.

Negative variances were required to be removed in the development of CFA models, as the negatives can cause estimation problems, where the removal is performed by creating constraints (McDonald 1985). A CFA
model was created once the negatives had been removed in Amos®, shown at Table 5.37 below.

**Table 5.37 : CFA Results– Post Negative Removal**

<table>
<thead>
<tr>
<th>Notes for Model (Default model)</th>
<th>Computation of degrees of freedom (Default model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of distinct sample moments: 275</td>
<td>Number of distinct parameters to be estimated: 72</td>
</tr>
<tr>
<td>Degrees of freedom (275 - 72): 203</td>
<td></td>
</tr>
</tbody>
</table>

Result (Default model): Minimum was achieved.

Chi-square = 307.623  
Degrees of freedom = 203  
Probability level = .000

Table 5.37 above shows that the CFA model was valid with a p-value of 0.000. The diagrammatical representation of the model with negatives removed is shown below at Figure 5.6.
Figure 5.6: CFA Model – Post Negative Removal

Figure 5.6 above CFA model was created after the removal of negatives, where the highest inter factor relationships appeared between Workload and Planning and Analysis at 0.40, Leadership and Workload at 0.38, Management and Power at 0.35. The least interrelated factors were between Power and Workload at 0.27.

A chi-squared test is also considered reasonable as a test of the measure of fit if there is a sample size of 75 to 200, where 200 should be seen as a goal (Bentler & Bonett 1980). A Chi-squared goodness of fit was performed over the data where the resulting model is presented below at Table 5.38.
Table 5.38 : CFA Results – Chi-squared Goodness of Fit

Table 5.38 shows that when the 4 factors are constrained, the data passed the chi-squared goodness of fit test with a p-value of 0.000. The survey participation was only 70 and did not meet the goal of 200, so the chi-squared goodness of fit test cannot be considered valid and representative of the wider population as a result. The test was performed in an effort to create additional information that may have been useful. The diagrammatic representation of the model is shown at Figure 5.7 below.
Figure 5.7: CFA Model – Chi-squared Goodness of Fit

Figure 5.7 above shows a relationship between Leadership and Planning at 0.89, where the lowest relationship score was 0.30 between the factors of Workload and Power.

A latent variable test may result in more accurate estimates than other traditional methods, as this test corrects measurement errors and allows estimations (Lee, HW 2011). Despite the sample size limitations of this research a latent variable test was performed in Amos® and is shown below at Table 5.39.
Table 5.39 : CFA Results – Latent Variable test

Table 5.39 shows that a valid CFA model was achieved with a p-value of 0.000, where the iterations limit was reached and the data was noted by Amos® as not being reliable. A diagrammatical representation of the model created with the Latent variable test is shown below at Figure 5.8.
Figure 5.8 shows the same number of factors and questions as presented above at Figure 5.7, where the model may be unreliable as the iteration limit was reached. Despite further efforts to create a valid model in Amos® by removing further questions a limit was reached, as shown at Table 5.40 below.
Table 5.40 shows the final data set achieved in Amos®, where the notation shown is a result of insufficient data. At the point of receiving the model data at Table 5.40 only 2 factors remained in the model. The low number of participants in this survey resulted in no further constraints or models being created.

This section has detailed how the EFA model was used to create a number of valid CFA models in Amos®. The CFA models produced showed relationships between all of the factors that varied significantly. The CFA model was tested for invariance, negatives were removed, where the model passed at Chi-square goodness of fit test. The model failed to create an equation as the sample size of 70 was less than the required 200. The models in this Section were created as a means to increase understanding of the relationships between the factors.

5.12 Quantitative Results Summary

This Chapter has detailed how an EFA model was created from the survey data, achieving a KMO score that was considered good, where the data was considered useful for analysis. The EFA model contained valid exploratory information about the interrelationships between RTC factors. The lack of sample size has inhibited the CFA model development, although a number of models have been created with p-value of 0.000, indicating useful information in those models. A further reliability test of re-performing this survey with a larger sample size greater than 200 is recommended for the data to produce an equation.
The following Analysis Chapter 6 explores for information and understanding from the data presented in this Chapter and the previous Chapter 4. The later Chapter 7 triangulates the 2 research phases with the Literature Review of Chapter 2 to form a research conclusion.
6 Analysis

Chapter 6 analyses the data results of the qualitative and quantitative research phases presented in Chapter 4 and Chapter 5 respectively. The data results of the 2 research phases have provided additional information and understanding of RTC interrelationships. The Analysis of Chapter 6 is compared with the Literature Review of Chapter 2, forming a triangulation and research conclusion at Chapter 7.

6.1 Qualitative Analysis – Phase 1

The semi-structured interviews were the first phase of the pragmatic approach in a mixed method adopted for this research. The first research question required an understanding of RTC factor interrelationships. The second research required investigation and information on potential RTC effects. This Section of Chapter 6 analyses the qualitative interview data results that have been presented in Chapter 4, seeking information and understanding regarding the 2 research questions.

6.1.1 Demographic Analysis

The classification of data was included in the interview data as it is important in presenting the context and constraints of the data. This Section contains a discussion of a range of interview classification attributes in a way to gather knowledge and provide insights into RTC.

The interview data analysis began with a review of the demographic data, discussed previously in Chapter 4.3. Interview participant profile indicates that they were generally were experienced managers from a variety of industry backgrounds. The industry backgrounds were skewed towards those identifying as being in the change management, where the skew may be due to using Linkedin® groups as the distribution method. This distribution method may have attracted participants who particularly identified with change management.

Table 4.3 showed that participants were generally positive towards organisational changes when organisational change is first announced. The participants were generally satisfied with their organisational change
experiences, where only 3 participants identified as having a negative response. This satisfaction was surprising as Table 4.6 indicated that a number of participants reported experiencing over 50 changes in the past 3 years.

Participants may have been optimistic towards change due to their occupations, or perhaps their managerial positions, where either occupation or manager roles may have had significant control and influence over the change processes. Contrastingly interview participants reported their perception that recipients of change are generally adverse towards change, where recipients seek to slow change through overt and covert means. The source of the opinion disparity between the implementer of change and the recipient could not be determined from the research data.

Table 4.7 shows that the majority of participants believe that normal business processes continued to work during their organisational changes. This interview question was a high level opinion without any definition of business process from the researcher. Despite the lack of clarity, the responses may indicate that normal business continue to operate during change so may not be an immediate source of RTC.

The interview participant gender split was almost even between males and females at Table 4.1. The RTC factors created were reviewed with a variety of demographic splits at Tables 4.11 to 4.13, where those various demographic classifications all indicate more negative references than the positive. The number of interviews citing at least one negative barrier was 24 out of the 25 interviews, where at least one positive reference featured in all interviews. The interview data suggests that positive organisational change experiences may be almost as common those in the negative, where the negative predominates.

A total of 24 interview participants held at least 1 tertiary qualification of at least a Bachelor Degree as shown in Appendix 4, Table 8.7. A number of the participants held post Bachelor Degree qualifications where 10 held a Masters Degree and 2 with a Doctor of Philosophy. All categories identified more negative references to RTC than positive, where those with a diploma and degree had the lowest proportion of negative
experiences. The research chose to distribute the invitation in LinkedIn® groups where the memberships had interest in the topic and experience with organisational change. The groups invited to participate in the interviews were not necessarily indicative of the wider population in respect to their education profile.

The participant working experience at Appendix 4, Table 8.7 shows that only 5 participants had less than 5 years of experience. This bias was expected as the distribution method for the interview in LinkedIn® groups had specifically sought those with experience in organisational change. It was envisaged that those with more experience may be more likely to have seen multiple RTC forms, so being in a higher position to recognise interrelationships between multiple RTC factors. It was considered during the research design that participants with less experience would form a lower probability of enabling detection of multiple RTC interrelationships. Those participants with less experience were not selected for semi-structured interview.

The first criteria of this research related to large organisations, where the size was defined at Chapter 3.5.1 as being an organisation with 100 employees or larger. The interview participants reported that 15 of 25 had large organisational experience. The remaining participants were working in small consulting organisations where they had connections to organisations meeting the defined large size. The second research criteria required this research to report on participants that had experience in the Greater Western Sydney region, where the region was defined at Chapter 3.5.1. These 2 criteria were relaxed during the interviews in an attempt to include participants with significant experience in organisational change. So as to meet the research requirements, the criteria of location and size were more strictly applied in the phase 2 survey that is detailed later in Section 6.2.

6.1.2 Interview Results Data

This Section reviews the qualitative data results of the first research phase being the semi-structured interviews of Chapter 4. The data is analysed and combined to form additional information and understanding
of the 2 research questions. Finally this Section summarises the factors used in the second research phase of survey.

A review of negative RTC references at Table 4.15 shows that both males and females record their highest negative barriers, by quantity, as Communication, Workload, Politics and Power. These highest negative factors each appear in a similar proportion and intensity between the genders. The Culture factor was the most negative and the most disparate factor between the genders, where the female negative references to Culture were twice the number as for males.

Participant experience shown at Table 4.13 confirmed that Communication as the most important RTC factor, irrespective of experience levels. This aligns with the dissection of the data based on gender. The most experienced participants provided the highest volume of positive and negative references in line with their overall participation numbers. The more experienced people had the highest negative references as Power and Politics. The least experienced participants had their highest references as Workload factor.

Table 4.11 indicates that those with a negative response towards organisational change announcements had the highest negative factor as Planning and Analysis, followed by Communication. Each of the other dispositional groups reported Workload as their highest negative factor. Culture was reported as the least referenced factor by those supportive of organisational change. Table 4.11 also shows that those with a positive disposition toward change had the highest number of references as Communication closely followed by Stakeholder Engagement.

The interview data appeared to vary between the factors depending upon the classifications used to split the data. This variation in results may suggest that RTC factors are not fixed and may be interrelated. The data results of Chapter 4 appeared to indicate that the factors developed in the interview re-coding process varied from the positive to the negative, also suggesting variability. The following Section reviews the frequency and similarity of words in the interviews as a way to confirm the coded factors and as a way to identify additional codes that may have emerged in the data.
6.1.3 Word Charts – Frequency and Similarity

The re-coding of the interview data was based on the factor definitions in the Literature Review of Chapter 2. It was also considered useful to review the data with the word frequency and word similarity functions of Nvivo10®, with the functions set at a medium level. The stop word function of Nvivo10® was used to remove unrelated concepts, allowing the more common relevant words to feature more prominently in Figures 4.1 to 4.4.

The word frequency chart created from the positive RTC references shows, at Figure 4.2, a number of prominent RTC factors including Management, Communication and Processes. The Workload factor is deemed to have presented in Figure 4.2 as elements of the factor appear being the words of training, resource and worked as they feature in the factor definition of the Literature Review. A same word frequency chart was created using the negative references as the base, where the prominent words of Management, Communication, Process and Project feature. The word frequency charts confirmed 4 of the 9 factors feature where the tool is limited to word counts and limits in the programme settings.

As the first research question involved the detection of RTC factor relationships it was considered important to investigate potential interrelationships in the interview factors created. The word similarity cluster function in Nvivo10® was used on the RTC factors created as it graphically shows potential interrelationships. Figure 4.6 showed that across the positive interview factors, Communication and Stakeholder Engagement were interrelated, where the potential interrelationship was shown between Change Delivery and Workload. The Management factor plus the Politics/Power factor both appear to be interrelated to a smaller degree to the 4 factors, being Communication, Stakeholder Engagement, Change Delivery and Workload.

Another Word Similarity chart using the negative factor references shows additional significant relationships at Figure 4.7. The chart shows Workload with Stakeholder Engagement as potentially interrelated. Other interrelationships indicated in the chart are between Politics/Power and
Management, Change Delivery and Project Planning/Analysis, Culture and Leadership.

The potential interrelationships created in the word similarity clusters of Figures 4.5 and 4.6 are not definitive nor are they statistically significant. Interviews were included in this research as a way to explore RTC concepts, seeking common RTC forms with a potential to be interrelated. The word frequency analysis did not yield any words related to additional RTC forms so no additional testing on the data was performed. The RTC factors created were considered based on data and the word similarity charts to have a significant potential to be interrelated. The RTC interview factors formed the base for the second survey phase of this research described at Section 6.2 of this Chapter.

6.1.4 RTC Factor Discussion

Phase 1 of this research began with a series of questions formed out of the Literature Review of Chapter 2 seeking to understand various change events described by the participants. Interview elements that involved influencing organisational changes in the positive or negative were specifically coded against RTC factors defined in the Literature Review in Nvivo10®. The consolidation in Nvivo10® of these interview elements were counted and analysed against the demographic questions of the participation group.

Analysis conducted over this interview data involved positive and negative analysis of the RTC factor forms, together with various word comparisons of the coded data. Standard tools within Nvivo10® were used over word count frequency and similarity, with the underlying bias that is inherent in the tool. The word analysis was conducted so as to develop and confirm that the RTC factors defined in the Literature Review, ensuring that no additional or new themes had emerged from the interview data.

The first word count shown at Figure 4.1 was based on the interview elements that had been identified as being positive enhancers to the change process, where the highest words were that of people and change, followed by management, process and business. These words
were considered to have appeared in the Literature Review of Chapter 2 RTC factor definitions so were not considered to have revealed any additional factors, being the reason for the analysis. Whilst the quantity of word appearances is not wholly indicative of all RTC factors, it was able to confirm those listed in the Literature.

The nine RTC factors coded out of the interview data in Chapter 4 were defined in the Literature Review of Chapter 2. It was considered important to review the factors based to ensure their appropriateness for inclusion in the second research phase of survey. The following discussion is based on the interview coding, tests and detail together with recollections of the researcher from the interviews. This discussion was conducted as a way to form additional understanding of the factor interrelationships that the interview data potentially provided.

The word similarity tests discussed at Section 6.1.3 above suggested that there may be a relationship between the Leadership and Culture factors. Culture is based on performance results, values and beliefs (Koberg & Hood 1991; Wallach 1983), where two of the elements being results and values, also form part of the Leadership. A number of interview participants called for additional leadership involvement, where they appeared to be seeking more of the leadership qualities of power, trust and communication.

The word similarity Figures 4.6 and 4.7 indicated that Change Delivery and Planning/Analysis factors may be linked to one another. The linkage between these 2 factors may arise from the mere sequence of events, where Change Delivery sequentially occurs after Planning/Analysis. The relationship between these 2 factors appears at Table 4.11 to vary from the positive to the negative, with interview references in 2 directions for both Planning/Analysis and Change Delivery factors. The process of planning and delivery is one requiring control and resource allocation, where those are both the responsibility of Management. Apart from being potentially interrelated these 2 factors may be also be sub-sets of the broader Management Factor.

The word similarity charts also indicate potential interrelationships between Management and the Power and Politics factor. This
The interrelationship may arise as the manager role is involved in authority, where the authority may require power to be excerpted within the organisation. A number of interview participants discussed negative references where managers had used their authority and power to inhibit organisational change. The activity of change inhibition appeared to occur when the manager position was threatened, where power and internal politics were used to manoeuvre the organisational changes toward their personal benefit.

The word similarity at Figure 4.7 indicated that Stakeholder Engagement, Communication and Workload factors may be interrelated in the negative. Only Communication and Stakeholder Engagement may be linked in the positive. These potential relationships at Table 4.11 suggest that Communication and Stakeholder Engagement vary when RTC is either positive or negative. The Workload factor, or stress, appeared more in the negative so it may present more when other factors are deficient.

The Politics and Power factors were combined in the coding process as the participants appeared to merge the two concepts. The research interviews anecdotaly appeared to contain a higher emphasis on Politics than Power. Participants indicated that those involved in politics often had power that was associated to their seniority in the organisation. Participants appeared to indicate that leaders of managers could reduce or settle politics through conversation, directives or even dismissal. The interviews indicated that lower level employees do not generally engage in power or politics. Employees who occasionally involve themselves in power or politics appear to prefer collective groups, such as unions.

The interviews included examples of people in power using politics to slow or prevent change. Whilst the interview examples varied, the change inhibition attempts were performed in both overt and covert ways. Anecdotally, participants made reference to politics being deployed where job losses were possible, or where education and skills were changing, or if there was going to be a shift or loss of power. The Power factor was often discussed in relation to it being a legitimate tool of management, with the potential to enhance change. A number of participants believed
that people with positions of authority had an obligation to inspire and support organisational change.

Interview participants expected leaders to influence and participate in the change. The reference to leaders appeared also to relate to those with seniority and power, where the participant often indicated that additional leadership involvement may have assisted their change programme. The dual meaning and expectation for leaders may indicate that leaders and managers are expected to have qualities of one another. The interview data at Table 4.1 indicated that there is a relative balance between the references in direction between the positive and negative influence of leaders.

The Workload factor is twice as negative across each demographic at Table 4.1. Interview participants often reported that they were overly busy before or during the organisational change. The references to Workload were often described with resource constraints where it appeared to be also related to issues around the pace or volume of work. Unless specifically removed, organisational change appears to occur as an addition to employee normal workload. The additional workload may result in excess work over the individual capacities where an employee was also busy in the pre-change state. This combination may make it unlikely for an employee to have sufficient time, skills, resource or focus to perform additional allocated change activities.

The Stakeholder Engagement factor is shown to have positive and negative references in the interviews at Table 4.11. The interviews appeared to often discuss Stakeholder Engagement in a negative direction, where it often to be related to issues of resources and workload. This potential interrelationship may indicate that Engagement strategies need to consider the change project and resources as important factors to stakeholders.

The participants appeared to use the stakeholder term in relation to an employee or manager rather than alternatives of shareholders, suppliers or customers. The interviews indicated that there was considerable diversity in the time and costs allowed to engage stakeholders. There were a few examples in the interviews where organisations had
deliberately pushed for change without consultation, where the method may have been formed as a way to increase change speed. Where stakeholder engagement was low there appeared to have been increased stress and workload issues.

Communication was the most referenced positive and negative factors in the interview data, as shown at Table 4.11. It was clear in the interviews that communication is closely related to organisational change success. A number of participants were seeking communication in the form of information about the change plans, information regarding the reason for the change, or details about change implementation. The communication deficits appeared to relate to communication regularity, timing and information content rather than quantity, type or form. It was also observed that participants appeared to value the level of openness and honesty in any communication.

A high number of participant interviews referred strongly to planning or analysis as a significant RTC factor as is shown at Table 4.11. The factor of Planning and Analysis was more referenced in the positive than the negative in each demographic category, indicating that it may be more of a positive influence when present, less important if it is in deficit. The planning and analysis deficits appeared to often relate to early phases of project developments where they were associated with issues of resourcing, project delivery and project direction. A few participants also referenced improvements in their change programme where project management principals had been adopted, including that of PMBOK®.

The Culture factor was defined in the Literature review of Chapter 2 as being the way a team or an organisation behaved, based on norms and beliefs. Whilst a number of interview participants expressed examples about how organisational Culture had influenced organisational change, Table 4.9 shows that it was the least referenced factor. Table 4.12 shows that the female participants were more likely to make positive references to Culture than males. The interview references of Culture appeared to include a sense of team, goals, attitude, performances, ethics and openness. Culture appeared to be a way of explaining organisational
behaviour where it appeared to take on an informal description of the organisational persona.

A review of the positive areas in Tables 4.12 indicates that males and females agree that communication is important to enhancing change. The gender demographic also shows Stakeholder Engagement as the second most important RTC factor. The genders differ most in the positive where the Planning and Analysis factor yielded twice as many female references to that of males. The lowest reference score by both males and females was for the Culture factor, perhaps indicating that it matters least to achievement of a change successful. The data in these Tables clearly shows a number of enhancers and barriers rising and falling, in frequency together across a variety of demographic elements, perhaps indicating that the RTC factors created may be interrelated.

The interviews were conducted as the first phase of this research to gather information on RTC forms and interrelationships. The data was not designed to be statistically significant, where the sample size of 25 was insufficient for that purpose. This first research phase was aimed to explore the Literature Review concepts, seeking the most common RTC forms and any suggestions of RTC factor interrelationships. The interview data suggests that there may be interrelationships in multiple RTC forms.

Communication was found to be a key RTC factor in the Literature Review at Chapter 2, where it was also the most referenced and interrelated factor in the qualitative interviews of this research. The Communication factor appeared from the data to be related in the positive and the negative. The relationships formed in the qualitative phase of this research could not inform any cause and effect, yet it was significantly related to a number of other RTC forms identified.

It was considered that the second phase survey should be based on a limited number of RTC factors, where the 9 developed were considered to be too high. The Culture factor shown at Table 4.9 was the least referenced interview factor so was eliminated from the list of factors forming the base for the second research phase of survey.
6.1.5 Change Effect Discussion

The second question for this research was to determine if RTC are related to the change effects of quality, cost and time. During the interviews a significant number of participants reported that did not have specific data on these three effects. The coded group for effect is shown at Table 4.14 where 22 sources out of 25 interviews reported at least one change effect reference. The Cost effect received 15 favourable and 7 unfavourable responses in the interviews. The answers on the Quality effect aligned in magnitude with the cost effect, with twice as many favourable responses to the negative. The effect of Time was the least answered question, with 8 positive references and 9 negatives.

Overall coding for effect in Table 4.14 shows more overall positive than negative responses in relation to time, cost and quality. Table 4.15 shows that all 3 change effects were more related to negative RTC factors than the positive, irrespective of whether the effect was positive or negative. It was surprising that the specific question on effect shown at Appendix 4, Table 8.9 was so unanswered in relation to Time and Cost effect. Many of the participants reported that whilst they had an opinion on change quality, they had little to no visibility on cost and time in change projects. This deficit of information on change effect was despite the participant apparent seniority, experience and responsibility for change.

In an attempt to identify interrelationships, the positive and negative RTC factors were combined at Table 4.16 and compared to the 3 effects of Quality, Time and Cost. In Table 4.16 the highest 4 references in each effect were highlighted in blue colour. The data suggests that communication is the highest factor for each effect, irrespective of whether the effect was positive or negative. Workload was the only other factor that featured in all of the highest 4 effect categories. The Culture factor did not feature in the highest 4 of any effect category. The factors of Stakeholder Engagement and Power/Politics featured less than Communication in Table 4.16 although higher than most of the other factors.
Most interviewees had an opinion on one of the effects of change but lacked full exposure on all three parameters. This lack of information arises when the organisation seeks change, yet fails to share the change metrics in an open way. It was not clear if the failure to share information arose from excessive confidentiality, management, power or oversight. Participants were generally of a management level, where it would have been expected that they would be involved in and knowledgeable of the project metrics. It was not clear how the metrics of time and cost are managed within the project team dynamic as they were not readily expressed in the interviews.

When projects appeared to have met their targets, a number of interview participants indicated that the achievement was due to project scope change. It was common for the participants to recognise the end operational outcomes of the changes rather than specific change measures on Quality, Time and Cost. Specific change programme metrics could have included employee engagement scores, employee retention percentages, solution deliverables or internal usage scores, yet they appeared to be absent.

The internal focus of change projects appeared to focus on completion time, rather than measuring quality or cost. This may indicate that once a project is approved, management pursue the business deliverables rather than using a wide scope of metrics. The focus on deliverables may explain why projects often persist even when confronted with a lack of planning, cost excesses and lack of resource.

The review of the interview data on RTC effects suggests that some RTC factors may be interrelated to effect. The data on effect was less than expected as participants appeared to lack information on the 3 effect metrics reviewed. Despite these limitations the effect questions were included in the subsequent survey research phase.
6.1.6 Qualitative Analysis Summary

6.1.6.1 RTC Interrelationships

The first research question was to determine if multiple RTC factors were interrelated. As outlined in the Methodology Chapter 3, this research previously decided that semi-structured interviews were an appropriate way to explore concepts found in the Literature Review of Chapter 2. The interview data shown at Chapter 4 has been analysed in this Chapter 6, where here the RTC factors appear to suggest interrelationships. This Section 6.1 considered 8 of the RTC factors as being an appropriate base for the second research phase of survey.

Whilst the semi-structured interviews were not statistically significant to answer the research questions, they did show variability with suggestions of interrelationships. The RTC factors developed from the interview data were coded based on the definitions in the Literature Review of Chapter 2 where the factor names are listed below:-

- Management
- Leadership
- Communication
- Workload of participants and change team
- Stakeholder engagement
- Project change analysis and preparation
- Change delivery
- Politics and Power
- Culture

Culture was the least supported code across the various analyses. The above 9 factors were considered too large for an exploratory survey, so the Culture factor was excluded from the second research phase. The second research phase of survey commenced with the remaining 8 factors.

6.1.6.2 RTC Effects

The second research question was to determine if there are effects of RTC in terms of Quality, Time and Cost. The semi-structured interview
data of Chapter 4.6 suggested that RTC factors may be interrelated to the 3 effects, where data also varied from the positive to the negative. The interview participants did not appear to have full knowledge on change effect, indicating that the internal workings of organisations during change may not operate on the metrics expected. The following Section 6.2 analyses the research phase 2 survey data presented at Chapter 5.

### 6.2 Quantitative Analysis – Phase 2

The second phase of this research involved a survey, where the 8 RTC factors developed in the interview research phase were explored. This Section investigates the survey results detailed at Chapter 5 in terms of their relevance to the research questions. The data was reviewed based on the various demographics, the EFA model and the CFA models. The research data analysis of this Chapter is compared and triangulated at Chapter 7. The triangulation occurred between the Literature Review of Chapter 2 and the 2 research phases of interview and survey.

#### 6.2.1 Survey Demographics

The survey included several demographic questions related to age, sex, industry, occupation and experience. The demographic data was included to provide additional information in the data. Whilst the demographic questions had pre-determined category answers there were 2 free form answers. The answers in the free form areas they were infrequently used and provided little additional knowledge.

The survey was analysed on the basis of age shown at Table 5.1, revealing 71.6% of participants were aged 40 or older, with 89% of participants in the age group of 30 to 60, with the largest group being that of 40 to 50 years of age. The survey had been distributed to Linkedin® groups where it was anticipated experienced, interested participants could be encouraged to complete this survey. Experience rather than age was the targeted population for the survey, yet the demographic data shows that a high percentage of participants were older than expected. This age demographic of the participants will be a limitation for this research, the limitation arises if the younger population hold differing views to the older demographic responses included in this survey.
A high number of participants failed to enter past the first 2 criteria questions in the survey as they were required to be answered in the positive. The high number of missing responses is higher than expected as the information sheet included with the survey invitation included the criteria. This may indicate that those outside of the criteria demographics were also interested in the topic and would have participated if allowed. The missing data treatment in the EFA and CFA was described earlier at Chapter 5.8. The following review of survey demographics excludes the 34 participants that failed to answer the first 2 criteria questions.

Despite the skew towards participants over 30 years of age, the experience profile at Table 5.2 shows that more than 50% had less than 15 years of experience. The experience table also shows that 24% of participants indicated that they have less than 5 years of supervising change. This experience contrasts with only one percent of participants being under 30 years of age, although participants with more than 10 years of experience represented 44% of the overall participation.

Survey participants were asked to identify their gender, where the data at Table 5.3 shows the male representation was 64.9%. This data differs to the first interview research phase where female participant quantities were balanced with males, shown at Appendix 4, Table 8.7. This variance has occurred despite both research phases being distributed to the same LinkedIn® groups. Whilst no conclusion can be drawn from this difference between the 2 research phases, there is a possibility that females are not as favourable to survey as they are to the interview form of research.

During the first semi-structured interview phase of this research the participation was dominated by those identifying as change or project managers. The participation of this second phase contrasts with the first interview phase significantly, as the interviews had the most frequent occupations of operations, finance and engineering, as shown in Table 5.5. Those that might have been expected to be leading change in organisations such as change managers, project managers and human resources represent only 11 participants or 14 percent of participants in the survey. Whilst it cannot be confirmed those occupations often are
located in the city or north of Sydney so may have been ineligible for the survey, whereas in the first interview phase their input was accepted.

Participants were asked if they were in roles deemed as a manager, the question was aimed at investigating if there was any perceived difference between managers and non-managers. As can be seen from the Table 5.6 there were 67% of participants that identified as being manager. The EFA analysis shows there were low RTC interrelationships with the demographic of manager and non-managers at Table 5.26.

The interview phase of this research set out to interview those with managerial status as those were perceived as having more experience, insight. Despite not being an aim of the survey, participants identifying as managers have participated in the survey in a ratio of 2:1 versus non-managers. The research data is bias in this regard as the ratio is unlikely to be indicative of the wider workforce demographic. The bias towards manager participation may have evolved from the distribution method of Linkedin® groups, where the groups targeted were professional and may hold higher manager ratios.

In summary the analysis of demographics has found that most of the demographic variables were independent. Survey participation was limited to those of Western Sydney large organisations so may have contributed to the relatively high missing data. The distribution method may have contributed to a higher level of manager status participants than the general population that may have been linked to the distribution method of Linkedin®. Most of the demographic data has been analysed as having little to no interrelationships. The interrelationship between participant age, sex and occupation appeared to exist as discussed at Section 5.1.1.

The remaining Sections of Chapter 6 discuss the information in the EFA and CFA models including understanding that evolved from the testing and analysis presented at Chapter 5. The tested and analysed survey data was reviewed for information relevant to the research questions.
6.2.2 Reliability Tests

At the conclusion of the survey in December 2015 the data was uploaded into Surveymonkey®. Upon review of the data it was apparent that it had been completed by 108 participants, where 34 participants had only answered the first 2 criteria questions related to location and organisational size. This high failure rate may indicate that the survey was also of interest to those beyond the target criteria of location and organisational size.

The 34 respondents that failed to proceed in the survey were made up of 29 participants who did not answer the question in the positive on working in the Greater Western Sydney region, with another 5 participants responded in the negative on working in organisations with greater than one hundred employees. The Linkedin® groups used to advertise and distribute the survey include a broad based overseas membership thereby potentially confusing the survey eligibility criteria.

A number of tests were undertaken so as to understand and validate the data prior to conducting factor analysis. Test and then retest is a technique often used to confirm survey validity (Fink & Litwin 1995) however, time constraints and scope prevented this validation technique from being used in this research. A future retesting of this survey would improve knowledge on this survey effectiveness and associated factor analysis. A re-test also would have potential to increase the participation rate to assist reliability in EFA and CFA analyses.

A cross tab between the 2 factors of Management and Leadership indicated an inter-item relationship, shown at Table 5.17. Whilst the definitions for the 2 factors in Chapter 2 revealed the factors as being separate, there is suggestion that they may be interrelated, where both factor definitions included elements of communication (Marsh 2014).

An internal reliability test was used to assess how good the questions were at identifying the factor constructs. It was recommended for reliability testing that questions be combined into their factor groups rather than using them individually (Gliem & Gliem 2003). The Cronbach’s coefficient alpha was used to assess internal reliability, as
shown at Section 6.2.2, as it is a common way to assess a survey’s reliability (Tavakol & Dennick 2011), considered easier than the test re-test method (Cohen & Swerdlik 2010). The reliability is considered high as the coefficient approaches 1.0 where those ranked at 0.8 (Hof 2012) are considered good, at 0.9 excellent and those less than 0.6 being questionable to poor (Gliem & Gliem 2003).

A Cronbach’s coefficient alpha was calculated for each RTC factor. To assess and improve the internal reliability an iterative process was adopted where lower scored questions were removed. The removal of questions involved the constant assessment of the Cronbach’s coefficient alpha score, where the score was maximised for each factor. The initial Leadership factor shown Table 5.7 was considered good at a score of 0.805. The score was optimised through the removal of the last question shown at Table 5.8 to a score of 0.814, as shown at Table 5.9.

Table 5.10 shows the results of the optimisation process had been conducted over each factor. The results show that most factors were optimised to a level considered as good to very good for internal reliability, as it is desirable that the scores range from 0.7 to 0.9 (Bland & Altman 1997; DeVellis 2016; Nunnally & Berstein 1994). The lowest internal reliability score was for the Management factor followed by Power where both were just above 0.7 so were considered as a good level. The factors with the highest internal reliability were for the Workload and Stakeholder Engagement factors at 0.892 and 0.911.

The survey development process saw Trust as a sub-element of the Stakeholder Engagement factor. The survey data was tested for factor separation in relation to Stakeholder Engagement and Trust, by calculating Cronbach’s alpha coefficient on each. The test results shown at Table 5.11 supported a separation of the Trust and Stakeholder Engagement factors as they both yielded a high internal reliability with Cronbach coefficient alpha scores above 0.8.

The data at Table 5.10 showing high Cronbach coefficient alpha scores supports a conclusion that the survey factors achieved good to very good internal reliability status. Several questions for the factors were removed to achieve these high Cronbach coefficient alpha scores, where the
The following Section analyses the EFA test results that are presented at Chapter 5.9.

6.2.3 Discriminant Tests

Prior to creating an EFA model it was important to understand if there were interrelationships between the factors that had been created in the reliability tests discussed in the above Section. A number of cross tabs were created as a way to measure interrelationships without creating a full EFA model. The data at Table 5.18 suggested that the Management factor was interrelated to most of the other factors, excluding Stakeholder Engagement and Trust. The data was considered appropriate for use in an EFA model, as the data was considered to be internally reliable and distinct.

The following Section discusses the EFA data presented at Table 5.29, seeking to understand the factors in relation to the research questions.

6.2.4 Exploratory Factor Analysis – 1st Research Question

The survey data achieved a very good KMO score of 0.848 in the EFA model, where useful information was considered to have been present in the model. The EFA model of Table 5.29 was created in SPSS®, where it was presented with a Pattern Matrix, Communalities Table and Factor Correlation Matrix, each shown at Chapter 5.9. The Pattern Matrix produced was limited to a score of 0.5, as scores below that may not be that meaningful. The EFA model and data is explored in this Section so as to understand any potential RTC factor interrelationships that may have emerged.

The EFA model shown at Table 5.29 did not load into the discrete factors created in the reliability tests presented in Tables 5.10 and 5.11. The survey questions split and formed into alternate groups. A number of questions aligned to the discrete factors, whilst others split and loaded into alternate or new factors. The data and nature of this dilemma is explored in this Section, where despite the contradiction names were designated for the EFA loaded factors. The designation of names for the
EFA model factors occurred with reference to the factor definitions of the Literature Review at Chapter 2.

Leadership was included as a factor in the survey, where questions were created for type, regularity and understanding of communication, as shown at Appendix 2. The Literature Review of Chapter 2 made it clear that communication was a key component of Leadership. The Leadership survey questions were tested for internal reliability, where a very good internal reliability score of 0.814 was achieved, as shown at Table 5.10. Only one Leadership question was removed in the factor optimisation process, where a question relating to co-ordination was removed as it may be more related to an act of Management.

The first EFA factor loaded included questions from the Politics, Stakeholder Engagement, Trust and Leadership factors. As shown at Table 5.29, inter-item relationships in this first EFA factor occurred in Leadership factor questions relating to communication. This correlation confirmed that communication was an essential component of Leadership. The first EFA factor was named Leadership, as it included a number of the Leadership factor questions placed in the survey. The following explores why questions of other factors may have been included in this first EFA factor.

The optimised Cronbach alpha score at Table 5.11 of the reliability tests was 0.807 for the Stakeholder Engagement factor, being a very good internal reliability. In calculating this score the questions on training and skills were eliminated as they may either be a separate factor. The 3 questions that remained in this factor were regarding about whether participants were being listened to, whether they were involved and if there was a response to the participant feedback.

Communication questions were not the only high inter-item correlation questions in the EFA model first factor at Table 5.29. The additional questions included in the factor indicated that it may be more multifactorial factor than expected. The highest inter-item score in the EFA was sought knowledge about participant involvement, where it was included in the survey as an indicator of Stakeholder Engagement. At Chapter 2 Leadership was defined as being those qualities that involve
inspiration, co-ordination, credibility (Schultz, J 2013) and influence (Skvoretz & Fararo 1996). It may be that participant involvement is an act that requires co-ordination and influence so aligning it to Leadership rather than Stakeholder Engagement or even Management.

The Politics factor achieved an optimised score of 0.845 in Table 5.10. The optimisation process involved the removal of questions regarding conflict and the normality of team operations. The questions remaining in the factor were in relation to the resolution of disputes, correct objectives for the change, the perceived logicality of the change and supervisor support. The highest inter-item relationships within the factor were between the changes being logical and the objectives being correct.

Politics questions were included in the first factor of the EFA shown at Table 5.29, where the questions related to the change being correct, superior support and dispute resolution. The Politics factor did not load into any other factor indicating that it may be an element of Leadership. The Literature Review of Chapter 2 defined Politics as involving position, coercion and positive rewards (French, J, Raven & Cartwright 1959). The Political activities of support and dispute resolution may involve coercion and positive rewards, where each act may have the potential to increase influence and Leadership. The exposure of the Politics factor in Leadership increases the understanding of how Leaders may excerpt influence in the organisation.

A question relating to strategy and organisational change alignment loaded also into the first EFA factor of Table 5.29, included under the survey as a Planning and Analysis indicator, achieving a significant inter-item correlation score of 0.779. The question was included in the survey as successful projects require business outputs to be aligned with strategy (Too & Weaver 2014). At the survey creation time it was thought the alignment between strategy and plans would occur during the Planning and Analysis phase of a project. The inclusion of this question in the first EFA factor may suggest that the Leadership may be responsible for strategy alignment, or they may be responsible for the communication of the strategy alignment.
The factor of Trust yielded a Cronbach’s alpha of 0.866 after removing of the 5 questions for this factor, shown at Table 5.11. The removed question related to a participant’s ability to follow the change, where it may be that change awareness is more one of communication than Trust alone. The remaining 4 questions for this factor involved the ability to trust the change direction, rule consistency and understandability.

Questions related to not hiding change and trusting in the change loaded into the first EFA factor. There appears in the Literature Review of Chapter 2 to be interrelationships in the definitions between RTC factors of Stakeholder Engagement, Leadership and Trust. The Stakeholder Engagement definition suggests interrelationships as it includes communication, training and decision-making tools (Kelleher 2009) to influence an employee’s performance, trust (Sloan & Oliver 2013), skills and communication (Hauck 2014).

It may be that Trust has been included in the first EFA factor as Trust may be required to enable effective communication, a requirement for the Leadership to influence the organisation efficiently. The influence sought by the Leadership may be interwoven with the requirement of the leader to explain the strategy. The strategy explanation may be assisted through the use of Politics to reduce disputation in the organisation. It was initially surprising that the first EFA factor included a number of questions from other factors. The factor definitions of the Literature Review at Chapter 2 appear to support these factors being interrelated to some degree. The review of the first EFA factor and the specific questions included, it was decided to name it Leadership. This first EFA factor included a multitude of Trust, Politics and Stakeholder Engagement questions, where the additional dimensions had the effect of broadening the understanding of the Leadership factor.

Workload after being optimised yielded a Cronbach’s alpha of 0.89 as shown at Table 5.10. The Workload factor included questions relating to resource adequacy, time and budget adequacy after optimisation. Additional questions for Workload related to the perceived effects of happiness, enjoyment and stress levels. The only question removed in the Workload reliability test was a question relating to performance. As
performance is an output of the organisation it may be more related to another factor, where it was removed and not included in additional testing.

The name of Workload was assigned to the second EFA model factor, shown at Table 5.29. The EFA factor has included 5 questions from the optimised Workload factor combined with 1 question from the optimised Management factor. The highest inter-item correlations for Workload in this EFA factor were related to the adequacy of resources and people for the change. The least scored questions were for those regarding time and enjoyment about the change. This may indicate that resources are more important to the factor than the time, or that resources may more directly impact on the participant than time. Unless project time responsibilities have effectively been divested, participants may perceive time as an element of change remaining with Management or elsewhere in the organisation.

The Planning and Analysis factor was optimised through internal reliability testing, achieving a good score of 0.798 at Table 5.10. The score was achieved after the removal of the questions relating to whether the change direction was known. The questions that remained in the optimised Planning and Analysis factor were related to analysis, business cases, risk documentation and project planning.

Management questions optimisation process yielded a Cronbach’s alpha of 0.727 at Table 5.10. The questions optimised factor included questions of control, monitoring, resource allocations, decision making and thought about the changes. The question relating to management support was removed in the optimisation process, where the act of support may not be seen as a controlling act of Management.

The third EFA factor at Table 5.29 had highest inter-item correlation between a question of control and how well the changes were thought through. The 2 additional questions included in the EFA for this factor were from the survey Planning and Analysis optimised factor. These questions were less highly scored in the inter-item correlations and related to an opinion on how well the change was planned and analysed. These questions from Planning and Analysis may be a result of
participants measuring the effectiveness of Management rather than the specific act of planning and analysis. Alternately, Planning and Analysis is an act of Management, possibly explaining their inclusion. As the Literature Review of Chapter 2 defined Management as being in control of co-ordination (Singh, A & Shoura 2006), people (Seilby 2014), plans (Ketter 2014) and control (Griffin & Van Fleet 2013), this third EFA factor was named Management.

The optimised Cronbach’s alpha for the Power factor was 0.757, shown at Table 5.10. The control and ethics questions were removed in the optimisation process, the removal may have been required as they were too general, on reflection these may be aligned to alternate factors of management or perhaps leadership. Power has an element of control and conformity as indicated in the Literature Review of Chapter 2. The questions remaining in the optimised Power factor in Table 5.10 related to standardisation, procedures, formality and documentation.

The fourth EFA model factor shown at Table 5.29 loaded from 3 specific Power factor questions, so was named Power. There were no other Power questions that loaded into the EFA model. The questions included in the EFA model were related to standardisation, procedures and formality. The question on standardisation achieved the highest inter-item correlation score of 0.73, the second highest was about the formality of the change at a score of 0.601. The lowest scored question relating to procedures at 0.502. The questions included in this factor may suggest that the disruption of organisational change may be influenced by the presence of standardisation and formality, exhibiting in at least one form of procedures.

The Workload factor of the reliability tests discussed at Section 5.1.2 included a question regarding the well-being of employees during the change. This question also loaded into the fifth factor of the EFA at Table 5.29 with a score of 0.631, being an isolated question in the EFA factor. Wellness of employees was considered at the time of survey creation to be an indicator of stress, being an indicator of Workload. The Literature Review of Chapter 2 defined Workload as including elevated stress levels where those may result in reduced behaviours (Cole et al. 2012; Maslach
& Leiter 1997; Nel & Spies 2007), or performance and health issues (Cole et al. 2012; Hobfoll & Shirom 2001; Leiter & Maslach 2008; Maslach, Schaufeli & Leiter 2001; Pfeffer 2011). The isolating of wellness question in the EFA may indicate that it is a different factor, or it may merely be a result of the lack of data in the sample size. It was not possible from the data to designate a reason for this anomaly with respect to wellness.

A further fragmentation of the optimised Management factor questions occurred with the sixth factor of the EFA model. This EFA factor included just 2 questions from the survey Management factor, the questions involved the making of decisions and the act of monitoring. It is not clear why the Management factor split into just 2 questions, as a number of other Management questions had been included in the third EFA factor involving control and logic. It may be that Management has a distinct relationship with RTC factors where Act and Monitoring are separate RTC factors from other Management actions of logic and control. This sixth factor has been named Act and Monitor.

The seventh factor in the EFA model included 2 questions from the Planning and Analysis factor that regarded risk documentation at 0.603 and business case preparation at 0.562. This seventh factor has been named Planning and Analysis based on the questions included. These 2 questions separated from the other 2 questions included in the third and sixth EFA factors. This indicates that Management may have distinct elements including the logic and control of the third factor, Act and Monitor of the sixth factor, and Planning and Analysis of the seventh factor. It may be that as the business case development and the risk assessment are precedents to the planning and assessment process, where each may have distinct impacts on RTC and the change process.

An inter-item correlation score of 0.619 was achieved in the eighth factor of the EFA model shown at Table 5.29. The factor included a single question asking about the sufficiency of budget dollars, where the question was included in the survey as an indicator of Workload. At the time of survey preparation it was considered that the budget adequacy was an indicator of stress in the change project. The lack of sample size for the survey made it difficult to explain the reason for this question
separating. As this question loaded separate to the other Workload questions in the EFA second factor It may be that the dollar of budget spend is distinctly separate to other change project elements.

The review of the Factor Correlation Matrix shown at Table 5.33 indicates that all EFA factors loaded were interrelated in varying degrees and directions. To increase understanding of the table where the highest 2 scores for each factor on the horizontal have been coloured, where green designated positive directions and red for the negative. The appearance of more colour in the first 3 factors of Leadership, Management and Workload at Table 5.33 indicated that those were the most related RTC factors. The other 5 factors had inter-item interrelationships where the strength of the relationship was much lower than the first 3.

The Leadership factor shown in the Factor Correlation Matrix shown at Table 5.33 is highly related to the Management factor in a positive direction with a score of 0.678. The factors of Leadership and Workload are the most highly related with a score of 0.675 in the positive direction. Leadership is also related to the seventh factor of Planning and Analysis albeit at a lower level of 0.439. A negative relationship occurred between Leadership and the factors of Budget Adequacy and Act and Monitor. This data also suggests that Leadership may have a positive influence on the change activities including Management control and logic, Workload and Planning and Analysis.

Workload, like Leadership was highly related to Management and Planning and Analysis factors in the positive, shown at Table 5.33. In the negative direction Workload is related to the sixth factor of Act and Monitor together with Budget Adequacy. This may suggest that Workload is reduced or improved if change is implemented with positive Leadership, Planning and Management. Workload or stress may increase if there is a lack of Act and Monitor in the form of poor decision making or lack of change monitoring.

In reference to the third factor of Management the Factor Correlation Matrix shows that it is most related in a positive direction to Leadership and Workload as discussed above. Management also achieved the highest negative relationship in the data with the eighth factor of Budget
Adequacy being negative 0.315. The Budget factor had only one question loaded into it at the score of 0.619, being well above the cut-off for the EFA model at 0.5. Whilst not cause and effect, nor a strong relationship it may indicate that Management success is a mix of planning, organising and control. Management had the most factors interrelated in a negative way indicating that lack of control and logic in decisions may have a negative relationship with Budget Adequacy, Wellbeing and Act and Monitor.

The remaining 5 Factors had relationships with the other factors albeit at lower levels than the first 3. Upon analysis of the remaining 5 Factors, it is apparent that Power is most highly related to Leadership, Wellbeing is most highly related to Budget Adequacy. The highest interrelationship for Act and Monitor is a negative one with Workload, this may indicate that where decisions and monitoring is deficient in change they are related to workplace stress. Planning and Analysis is most related in a positive way to Leadership and Workload, this may suggest that the early phases of change improve the potential for Leadership to be involved and reduce workplace stress.

To gather more information from the survey data a review of the Communalities Tables at 5.30 and 5.31 was undertaken. Whilst the tables do not group questions by factor, they do show how interrelated to each question. The lowest scored question in the Communalities Table was in relation to whether the change brought more formality, where the question was from the Power factor, scoring 0.6. The highest 3 interrelated questions described where the change had adequate resources, being well allocated and trust.

The survey data in the EFA model is considered to have revealed multiple RTC factor interrelationships, qualified by the sample size. The most significant revelation of the EFA model was that the Leadership questions loaded with a number of other factors including Trust, Politics and Stakeholder Engagement. The Workload and Power factors created in the reliability tests loaded into relatively unique factors in the EFA. The majority of the other surveyed factors fragmented and combined with
other factors. The data in the EFA was also considered to have provided insight into RTC factors and how they vary from positive to negative.

### 6.2.5 Exploratory Factor Analysis – 2nd Research Question

The second research question was required investigation of whether RTC effect including the forms of quality, cost and time. The survey data unfortunately contained high levels of missing data on the 3 effect questions that may have been related to those being on the last page of the survey. The following is a review of the data, despite the shortcomings, investigating potential information contained therein.

Despite the data limitations on the effect questions in the survey data the Cost question received 12 responses being 22% as neutral, shown at Table 5.34. The earlier first research phase found that participants reported a lack of knowledge on cost outcomes, where nearly 50% or 30 participants agree that their changes were delivered on time. Only 1 survey participant reported that they strongly agreed with cost being delivered on time, whereas 4 reported strongly disagreeing with the statement.

Table 5.34 shows that the participants that agree in the positive on change effect are 46.9% on time, 53.1% on budget. The data on change quality shows that only 23.4% agree that the change delivered as expected. Answers in the negative in relation to effect, yielded results of 26.6% for time, 28.1% for budget. Quality answers were high in the negative, where 39.1% reported poor quality in the changes. Answers were high in the neutral response for each question, as there was 18.8% in neutral for time, 18.8% for budget and 28.1% for quality.

There appeared to be a low number of participant answers classified as “strongly” for each of the effect questions. The question regarding the cost effect did not receive any response categorised as strongly agree or strongly disagree. Answers in relation to the time effect were 1 in the strongly agree category, with 4 in the strongly disagree. Quality effect questions achieved 1 with strongly agree with 5 in the strongly disagree category.
The high degree of missing data combined with high neutral responses may suggest that participants lacked information or interest in the RTC effect questions. The low number of answers in either strongly agree or strongly disagree categories may suggest a lack of confidence in both directions of support and opposition to the effect questions.

The RTC effect of time received more positive than negative answers, the RTC effect of cost was also twice as positive as negative. The only effect question with more negative than positive answers was the question on quality. The data for the effect questions included answers that were high in neutral responses. It is not clear as to why the participants responded this way to the effect questions and the sample size may have impacted the information in the data. It may be that information is deemed as confidential or held back from change participants restricting their ability to confidently answer the questions on change effect.

The high volume of missing data for the effect questions prevented the data from being used in the subsequent CFA analysis. The answers on RTC effect have been shown to be inconclusive in the survey data of this research. If change managers lack the information on effect suggested in this research then future research may have to gather information in alternate methods. The following Section analyses the survey data in a CFA that was created out of the EFA valid model that was created and discussed in the previous Section.

6.2.6 Confirmatory Factor Analysis

The CFA model was created in Amos® out of the Pattern Matrix data created in SPSS®, shown at Table 5.29. The factors of that model containing only a single question were considered inappropriate and excluded from the subsequent CFA. As the CFA is most indicative of the general population when the data exceeds 300, where this research survey only achieved valid participation by 73 participants. The EFA had been created with limited missing data on all questions except for those relating to effect, being the second question for this research. The CFA models that were created and analysed in this Section should be considered with the limitation of data size in mind. The CFA was created.
and discussed in this Section in search of information that may increase information towards the first research question.

The first valid CFA model in Amos®, shown at Figure 5.4, included 6 of the 8 factors from the EFA model of Table 5.29. The creation of this CFA model had included the removal of questions with low RMSEA scores. The multidimensional aspects of the Leadership factor remained in the first CFA model, where the factor continued to include elements of Politics, Trust and Stakeholder Engagement. The Politics questions that formed part of the Leadership factor included questions on whether the changes were logical, support for involvement, objectives and dispute resolution.

The CFA model was tested for invariance testing and had negatives removed, as shown at Figure 5.5 the resultant model still included 4 Politics questions, Stakeholder Engagement and Trust questions. This data suggests, subject to the qualification on sample size, that it may be important for leaders to become involved in the change process. The model did not confirm any cause and effect, although the data did indicate interrelationships between RTC factors. The data suggests that the Leadership may need to deploy their political skills to reduce conflict in the change.

To be effective the Leadership may need to be considered trustworthy before change communication is able to filter throughout the organisation. The Trust factor questions of the CFA model at Figure 5.4, relate to whether the change was correct or whether it was the right one. This suggests that participants require more than mere involvement and communication. As the Trust questions relate to opinion of the change direction, it may be that the Leadership is required to create understanding rather than supplying mere information about the change. If employees cannot follow the change reasons and directions, to cope they may slow and question the change. The strategic openness required to gather support of the change may be inhibited if the information is withheld for market and confidentiality reasons.

The CFA and the EFA models included a Stakeholder Engagement question in the Leadership factor, being a question about participant
involvement in the change. A similar set of questions relating to Politics also featured in the Leadership factor of both models. The politics questions were related to support for involvement, rather than actual involvement. This may indicate that the Leadership is required to openly support employee inclusion, followed by actual inclusion.

A number of Leadership questions remained in the CFA model after invariance testing and the removal of negatives as shown in Figure 5.6. The questions remaining included those relating to the regularity of communication, changes being explained, changes making sense and communication being delivered in multiple forms. The questions relating to whether the changes are being co-ordinated and understood were removed during the testing.

The Workload factor of the first valid CFA model shown at Figure 5.4, included questions related to sufficiency of time, resource and people combined with enjoyment in the change. This suggests that Workload or stress in the organisation is related to resource allocations represented by time, resource and people. If these resource allocations are RTC forms then it is possible that these decisions are related to employee enjoyment.

The CFA first valid model shown at Figure 5.4 continued to place the other 2 Management questions of Act and Monitor into a separate factor. The development of plans and controls are the activities before the change is implemented, whereas the Act and Monitor factor would occur during the change. This suggests, subject to the sample size, that there may be a distinction between the early steps of Management function of control and change plan development, versus the Act and Monitor function during the change.

The Power factor was the third factor interrelated in the EFA of Table 5.29, where only 2 questions remained after testing at Figure 5.8. The remaining questions for Power related to formality and procedures. This suggests that the control in Power is important to change, where the absence of control will present as RTC as those involved will have more choices without control. If a divergence of choice ensues, there will be potential for choice conflict or delays, each presenting as RTC. Whilst it
may have been considered the addition of training may assist the development of new procedures, it cannot here as training and skills questions were removed during the EFA model development.

The final factor of the CFA model was named Planning and Analysis, where the factor included questions related to business case existence and risk analysis. The business case may be the place where there is a rationale for the change, resources planned and financial justification. The process of building a business case may cause those preparing it to think through the change and create argument that is then reviewed by others. The development of a risk analysis may be important in identifying elements of the changes that may be difficult. Failure to create a business case and risk analysis may deprive the change of information and justification so presenting as a RTC form inhibiting change.

Whilst a valid CFA model was created at Figures 5.4 to 5.8 it was not possible to present a further model that could have developed a formula from the data. The error shown at Table 5.40 was a result of insufficient data in the model so no further models or tests were performed, where the lack of data also reduced the valid information contained in the CFA. The model created at Figure 5.4 continued to support the consideration of RTC factors being interrelated, being the first question for this research. Knowledge of the second research question, related to RTC effect, was not advanced in in this CFA as the questions had been removed due to a high volume of missing data for those specific questions.

6.2.7 Factor Analysis Summary

The survey data related to the 2 questions for this research has been analysed to form EFA and CFA models. Subject to the sample size limitation, both the EFA and CFA models indicate interrelationships of multiple RTC factors. The CFA model created could not be fully tested due to the sample size being lower than what Amos® could validly calculate. The research question on effect was affected by a high volume of missing data. The following Conclusion Chapter 7 compares the understanding gained in the Literature Review of Chapter 2, with the Interview and Survey data analysed in this Chapter 6.
7 Conclusion

The methodology for this research was a mixed method, based on a pragmatic paradigm as outlines earlier at Chapter 3. This Chapter compares the understanding of RTC gained in the Literature Review of Chapter 2 with the research data presented and analysed at Chapters 4 to 6. The triangulation of the literature with the 2 research phases is presented here to provide further understanding of RTC and to answer the research questions.

7.1 Research Comparison

This Section, in a triangulation, will compare knowledge gathered in the Literature Review with the research data of the interviews and survey, where answers to the research questions have emerged.

7.1.1 1st Research Question

The first research question related to multiple forms of RTC and interrelationships. This research began with a review of the literature that identified three bodies of knowledge on the topic, where suggestions of multiple RTC forms were also identified at Chapter 2. The first research phase of interview was based on the knowledge gained from the literature, where the interviews investigated a number of RTC themes that were found in the Literature Review.

Research interviews revealed multiple forms of RTC that appeared to co-exist and be interrelated, albeit not in a statistically significant way. RTC factors formed from the interview data were used in a later survey, where they were analysed with EFA and CFA. The answer to the research questions has been formed in this Chapter after consideration of the Literature and the two research phases. This Section reviews the data in respect of the first research question involving the potential for RTC forms to co-exist and interrelate.

The Literature Review of Chapter 2 commenced with a review of organisational change, where it is apparent that organisational change is increasing in speed, size, volatility (Burnes 2009; Burnes & Jackson
2011), scope, variety and speed of change (Taylor, H & Cooper 1988). Supporting this concept, the majority of the interview participants reported that they had more than 30 organisational changes in the previous three years. These high levels of change did not appear to be limited to a single organisation or industry, where the data was contributed by participants with a wide variety of experience and functional backgrounds. The existence of high levels of change has the potential to increase the complexity of the change, potentially leading to resource conflict, timeline and management issues.

Interview participants reported that most people do not like organisational change, yet most of those participants also reported that they were personally positive to change. The lack of support for change is important as organisational change adaption is dependent upon employee support (Van Dam, Oreg & Schyns 2008) and influenced by the leadership (Bommer, Rich & Rubin 2005; Van Dam, Oreg & Schyns 2008). If individuals are not satisfied with the direction, pace or outcomes of organisational change, diversity of commitment may arise and affect the change (Bennett & Durkin 2000).

It is not clear why the change manager may be more open to change than the general population, where the reasons could involve the additional knowledge gained from the position of the change manager. Alternately the change manager may be more supportive of change as they see change as an element of their role. Change manager support for change may alternately be as a result of access to more information, academic qualifications, enhanced understanding or even personality differences (Oreg 2003). The dichotomy between change manager and the general population differences in attitude toward change is one that may require future research.

Interview participants were asked if RTC is a process or a people issue, where 19 of the 25 responded that it was a people issue, with only 3 reporting it as a process issue. This data contrasts with research indicating that change failure is a result of process deficiencies and its planning (Burnes & Weekes 1989; Dent & Goldberg 1999; Huczynski & Buchanan 2001), or the competence of management (Boddy & Buchanan
1992; Caldwell, R 2003, 2006; Kirkman & Shapiro 1997; Kotter 1996). As the term of people and process were not defined to the participants making it difficult to interpret if the data was referring to participants, employees or managers.

Management emerged as a key theme in the research interviews, where discussions indicated that managers lacked the organisational skills to support change delivery, or where lacked support for the change. The interview data of Table 4.9 shows that there were more negative references for the Management factor than the positive. There was a clear separation between Management and Leadership in the interview data. The Management factor included references related to actions within the overall change programme. The Leadership factor appeared to relate more to Communication and setting the strategy. Communication was the most referenced RTC factor in the positive and the negative in the interview data.

The strongest suggestion in the interview data of Management issues, were the absence or deficiency in skills, combined with management action or inaction. The Literature review of Chapter 2 defined Management as a skill involving decisions (Sadler-Smith 2008), thinking (Khandelwal & Taneja 2010) and the co-ordination of inputs and outputs. Where the co-ordination includes that of efficiency and competitiveness (Singh, A & Shoura 2006), people (Seilby 2014), plans (Ketter 2014) and control (Griffin & Van Fleet 2013). This indicates that the manager role is important to the organisation, requiring a wide variety of skills.

Management emerged as a key factor of the EFA and CFA models, where the EFA factor included questions related to control and the thoughtfulness, as shown at Table 5.29. Other Management elements loaded separately into the EFA model, forming the factors of Act and Monitor as well as Planning and Analysis. The data suggests that Management is important to RTC where these 3 EFA factors indicate that Management is responsible for the planning of change, followed by control and later decision making during change. These 3 Management factors in the EFA could be described as aligning with the initial RTC
research, where the 3 elements of change involved unfreezing, change and re-freezing (Lewin 1945).

The Literature, as shown in Chapter 2, has historically researched RTC with a Management centric, being responsible for change. This research has confirmed Management as an important element of organisational change and RTC. The Management factor of the EFA appeared to support the Literature Review definition, where a number of the questions created out of the definitions loaded into 3 Management RTC factors. This research began without a pre-conception as to the importance of Management in RTC, where the interviews, survey and the Literature indicate that it is an important factor. Change is usually introduced, controlled and monitored by Management so it is not surprising that their ability to function these tasks has influence on the change success and RTC.

Leadership emerged early in the interviews as another RTC form, where it became the highest referenced factor, after being combined with the Communication factor. Interview participants discussed Leadership in terms of Communication levels, type, regularity and language used. A number of participants indicated that change programmes success was linked to the amount and type of Leadership, combined with the leaders level of involvement. At the time of survey creation the Leadership factor was narrowly defined as including type, regularity and form of Communication.

Communication was the most referenced interview factor, being the highest factor in either polarity of RTC factors. Whilst the interviews had placed Communication as a separate factor, the survey creation identified that Communication questions could not be distinguished separately to Leadership. The Communication questions were removed as a separate factor, where they became indicators of Leadership instead. The merging of Communication and Leadership factors occurred after the definition for each had been consulted in the Literature Review of Chapter 2.

Communication in the Literature Review was defined as being clear information (Green-Wilson 2014) in multiple forms (Polanska 2014), where the information delivered influences (Wittek, Morales & Muhlau
or empowers (Bolton, Chatterjee & McGinn 2003) people, affecting performance (Jing, Avery & Bergsteiner 2014). It may be that the last Section of this definition that places Communication into the Leadership factor.

The Literature Review of Chapter 2 defined Leadership as involving inspiration, co-ordination, credibility (Schultz, J 2013) and influence (Skvoretz & Fararo 1996), having the potential to improve or create barriers to organisational change (Stanislavov & Ivanov 2014) by a person with status (Piazza & Castellucco 2014) or social influence (Chemers 2014). The cross-over of Communication influencing organisational performance and the Leaders requirement to inspire and influence that causes the 2 factors to merge. The merging of the 2 factors is also supported in the EFA and CFA models where Communication questions loaded with the Leadership factor.

The EFA and CFA models also merged the Trust factor questions with the Leadership factor. During the interviews Trust had formed into the Stakeholder Engangement factor, where it was separated during factor optimisation in the reliability tests. The Leadership factor had been defined above with reference to the credibility, a dictionary meaning of credible indicated that it as being believable and trustworthy (Dictionary 2016). As credibility is an element of leadership based on the Literature, this may assist in explaining why the survey Trust questions loaded into the Leadership factor of the EFA and CFA.

The Leadership factor of the EFA also loaded with questions related to the Politics factor. The definition of Leadership above included influence as a key component, where influence is related to affecting, impelling or moving (Ammer 2016). Politics was also defined in the Literature Review of Chapter 2 as including activities that may influence the organisation (Kanter 1977; Mintzberg, H. 1984; Russell 1938), either informally or formally (McKendall 1993). To gather effective influence in the organisation the Leader may need Political skills to reduce potential resistance and assist with the other elements of Trust and Communication.
The interview factor of Stakeholder Engagement did not load into a separate factor of the EFA as was expected, where only 2 questions loaded into the EFA model at all, shown at Table 5.29. The Stakeholder Engagement questions loaded with the Leadership factor, related to participant involvement and listening to concerns. Stakeholder Engagement factor definition in the Literature review stated that it includes communication, training and decision-making tools (Kelleher 2009) to influence an employee’s performance, trust (Sloan & Oliver 2013), skills and communication (Hauck 2014) or effectiveness (Cole et al. 2012; Maslach, Jackson & Leiter 1996). This definition clearly assists in the understanding of why the Stakeholder Engagement factor questions loaded with Trust and Communication questions to form the EFA model Leadership factor. This additional information suggests that the Leadership requires Stakeholder Engagement to influence the organisational changes, where the Leadership deploys associated skills of Communication, Trust and Politics to excerpt that influence.

Workload was defined in the Literature Review at Chapter 2 as being a margin between the tasks or as a set of factors that contribute to stress (MacDonald 2003) where management decisions maybe a contributor (Pfeffer 2011). The Workload factor of the EFA and CFA models loaded with questions related to resources, time and enjoyment. This may indicate that deficiencies or restrictions of project resources or time may be linked to employee stress or enjoyment. The research interviews also indicated that time and resource constraints were determiners of stress in the organisation, where some had employed toys, breaks and training to release the level of stress. The Literature Review complimented this information with research indicating that Workload and stress may be reduced when employees are given more control over their roles (Karasek Jr 1979), or reduced when play therapies are included (Nel & Spies 2007).

Power was included with Politics as a single factor in the interview coding, whereas the survey development and pilot indicated that they had to be separated. In the EFA model Power questions formed into a separate factor, the factor included questions related to standardisation, procedures and formality. Complimentary to the Power factor in the EFA
model is the Literature Review definition where Power is increased during change by inducing compliance and norms (McKendall 1993). It may be that Management requires Power through standardisation to maintain control over the change and deliver the expected change results. Power when used legitimately, and in a positive way, may reduce resistance by improving conformity (Cassidy 1997). Other Power elements are possible, including employee reward systems, frontline manager skills (Hales & Rabey 2011) and even computer skills that may reduce informal systems and participant power (Grover, Lederer & Sabherwal 1988; Markus 1983; Pave 1989; Scarborough & Corbett 1992).

The EFA and CFA models included a separate factor named Act and Monitor, where the factor included questions related to decision making and monitoring. Internal reliability tests included these questions in the Management factor during the optimisation, yet they loaded into a distinctly separate factor in the EFA with a significance level above 0.6. The Literature considers that management skills are diverse (Griffin & Van Fleet 2013) with difficult choices (Drucker 1963, 2006) and often managers do not know how to implement change effectively (Rosenberg & Mosca 2011). The EFA data suggests a distinction between the Management functions of planning and control to the later Management function of Act and Monitor. The Act and Monitor may be particularly difficult as there may be expectations to manage unstructured tasks so causing difficulties and require resourcefulness (Kanungo & Misra 1992).

Other Management related questions loaded into another separate factor in the EFA named Planning and Analysis. Questions for Planning and Analysis had emerged out of the interviews where it was perceived that organisational change was often deficient in the tasks of planning and analysis. Interview participants had indicated that a more thorough analysis or detailed plan of the change may have reduced the barriers to change. Questions that loaded into Planning and Analysis factor of the EFA related to risk identification and business case preparation. The Literature Review defined this factor as being those actions prior to project approval relating to planning (Cooke, D & Peterson 1998; Zwikael & Ahn 2011), assessment (Project Management Institute 2004) and analysis (Banuelas et al. 2006; Groner et al. 1979; Padhy & Sahu 2011).
Management are responsible for change plan preparation, analysis and approvals, so whilst this is a separate factor in the EFA, it is likely that this factor of Planning and Analysis is related to the Management factor.

Subject to the sample size and limitations of this research, the above indicates that the interview phase concepts, presented as factors in the EFA and CFA models are interrelated. This interrelationship is supported in the Literature where a number of terms in a factor definition appear in another. The EFA is considered an acceptable model based on its score and participation levels, suggesting that the first 4 factors of Leadership, Management, Workload and Power are the most related. The data also supports the concept that RTC may have a positive and negative influence on change, where the Literature has also called for RTC research to include positive and negative effects, allowing for peoples’ perception of cost and benefit (Giangreco & Peccei 2005).

This research has adopted a mixed method Pragmatic paradigm as a reaction to the calls for a multidimensional research approach. The Literature indicates that most historical research on RTC has been conducted in a Positivist paradigm, where many forms of RTC have been found to exist. It is conceivable that with so many forms of RTC that they may co-exist and be interrelated, where there are calls by researchers to adopt a Multidimensional approach (Dent & Goldberg 1999). Treating one form of RTC in isolation may be too simple an approach by the practitioner if there are multiple forms of RTC co-existing and interrelating.

Whilst Multidimensional research is relatively new, there are examples of research in a multidimensional way including that of personality research (Oreg 2003), personality and context (Oreg 2006) and exploration into RTC forms (Hoag, Ritschard & Cooper 2002). Personality research was assisted with interviews and survey data to show associations between multiple forms of RTC (Oreg 2006). This personality research also confirmed internal reliability, creating a dispositional RTC scale (Oreg 2003) for assessment prior to creating a structural equation model in Amos®.
The current research contrasts with the past multidimensional research on personalities as it was not limited to a single organisation, nor limited to just 2 factors of personality and context (Oreg 2003). The participation rate of this research was considered valid and sufficient for the EFA, yet too low for a CFA yielding formulae. The past multidimensional research on personality contrastingly involved a participation rate of 177, being valid for a structural equation model (Oreg 2006).

Another past study into multiple forms of RTC involved asking HR managers to write down what they perceived as the most common forms of RTC (Hoag, Ritschard & Cooper 2002). The research identified similarly named factors to those of this research, so it was considered useful to perform a comparison between this research to that of the HR manager research. The following is a comparison of the 2 research methods is a way to identify similarities and differences and increase knowledge of RTC.

The current research has identified multiple RTC forms the factors of Management, Leadership, Power, Act and Monitor, Planning and Analysis, Workload. Contrastingly the HR manager research (Hoag, Ritschard & Cooper 2002) was exploratory in nature, without interviews, survey or associated EFA and CFA. This HR manager research created exploratory factors of Cost, Workload, Legislation, Workload, Leadership, Management, Culture and Other (Hoag, Ritschard & Cooper 2002). The factors of Workload, Leadership and Management are the three factors labelled the same in both this research and the HR manager research.

The RTC forms of the HR manager research were classified with a Likert scale, where the classifications were based on research decisions about how closely the HR manager descriptions matched the RTC factor definitions developed from the literature (Hoag, Ritschard & Cooper 2002).

This research defined the Workload broadly from the literature where Workload involved gaps between required tasks and the individual coping capacity, or alternately, as a set of factors that contribute to stress (MacDonald 2003) where management decisions maybe a contributor (Pfeffer 2011). The elevated stress levels may result in reduced
behaviours (Cole et al. 2012; Maslach & Leiter 1997; Nel & Spies 2007) or performance, together with various employee health issues (Cole et al. 2012; Hobfoll & Shirom 2001; Leiter & Maslach 2008; Maslach, Schaufeli & Leiter 2001; Pfeffer 2011). The HR manager research defined the Workload as being purely negative, concerned only with the volume of work (Hoag, Ritschard & Cooper 2002). Whilst the HR manager study definition of Workload is more narrow than that used in this research, it is considered to be the same factor as increased work volume may contribute to stress or a gap in coping capacity.

The HR manager exploratory study defined Leadership as including elements of planning and strategy, setting organisational goals and guidance (Hoag, Ritschard & Cooper 2002). This definition compares favourably to the Literature Review definition at Chapter 2, where Leadership involves inspiration, co-ordination, credibility (Schultz, J 2013) and influence (Skvoretz & Fararo 1996), having the potential to improve or create barriers to organisational change (Stanislavov & Ivanov 2014) by a person with status (Piazza & Castelluccio 2014) or social influence (Chemers 2014). The combination of these 2 definitions together with the EFA model of this research suggests that the Leadership factor is an important RTC factor. Leadership is consequently seen as being responsible for steering the organisations goals and direction, whilst also coercing and involving people and gathering their support for change.

This research defined Management as a skill involving decisions (Sadler-Smith 2008), thinking (Khandelwal & Taneja 2010) and the co-ordination of inputs and outputs. Where the co-ordination includes that of efficiency and competitiveness (Singh, A & Shoura 2006), people (Seilby 2014), plans (Ketter 2014) and control (Griffin & Van Fleet 2013). The HR manager study limited their Management factor as being a senior person within the organisations structures and systems (Hoag, Ritschard & Cooper 2002). Whilst the name of the two factors is Management they are considered to be different as merely having the status of manager does not necessarily mean that they exhibit or are responsible for the tasks listed in the definition of this research. The tasks of control, act, monitor, planning and analysis are elements included in this research but are ignored in the HR manager research definition.
The HR manager study included Cost as a RTC, factor defined as being a restriction on financial resource (Hoag, Ritschard & Cooper 2002). The current study did not identify in the interviews, EFA or CFA a separate Cost RTC factor. The restriction of financial resource aligns with questions of this research including time and resources that loaded into the Workload factor of the EFA. The most common RTC forms found in the Literature and the interviews were the base of the survey data, where it is possible that the Cost factor is a RTC factor that may have been omitted on the basis of quantity. The omission of this Cost factor may also be due to a disparity between the HR manager population and participants of this research.

Legislation was a factor in the HR manager research being defined as laws and mandates (Hoag, Ritschard & Cooper 2002). The concept of Legislation did not feature in this research any of the interviews or the survey of this research. The absence of the Legislation factor from this research was despite HR managers featuring in both the interviews and the survey participation of this research. This may indicate that the HR manager population data was specific and different to those participating in this research.

The factor of Culture was a factor of the interview phase of this research, where it had been removed and excluded from the survey question as it was the least supported factor. The HR manager study defined Culture as a shared emotional climate, surrounding employee feelings for others in the organisation, where they limited the factor to being training issues and development deficits. (Hoag, Ritschard & Cooper 2002). The Literature Review at Chapter 2 defined Culture as those shared assumptions, beliefs and values that are held dearly (Schein 1985) including that of power and structure, performance and risk based on relationships (Koberg & Hood 1991; Wallach 1983). The inclusion of sharing in both research studies indicates that there was a level of synergy between the definitions, although the HR manager study limited it to training. The current research included training as an indicator for Stakeholder Engagement that was removed in the internal reliability testing.
Whilst the two research definitions of Culture were similar, the term of Culture is still not uniformly agreed (Ashforth 1985; Cooke, R & Rousseau 1988; Hoag, Ritschard & Cooper 2002; Wilkins 1983). The Literature Review definition of this research considered Culture to also include power, shared values and structure elements. The current research also included factors not included in the HR manager study being the factors of Act and Monitor factor discussed above, Power and the Planning and Analysis factor. These additional factors may be distinct sub-elements of a wider Management factor, as Management are the people who are responsible for Act and Monitor as well as Planning and Analysis.

The HR manager research argued that their study was reflective of the general population as it was generated at a conference, with open eligibility (Hoag, Ritschard & Cooper 2002). The potential for conference population to be skewed on sex, age or professional qualifications appears to have been ignored in the study. An additional limit to the HR manager study was where the two authors performed the reduction process potentially drawing on their own past experiences and bias. Despite these limits the HR manager study developed a model that achieved a reliability score of 0.81 from a population of 503 participants, where it is considered the study contained useful information (Hoag, Ritschard & Cooper 2002) and relevant for comparison with this research.

The HR manager study concluded that Cost, Legislation and Workload are not the major contributors of RTC, rather RTC is related to deficiencies in Management and Culture (Hoag, Ritschard & Cooper 2002). The HR manager study also concluded that Leaders and Managers are most often the same role in modern organisations (Hoag, Ritschard & Cooper 2002). The conclusion appears to ignore the possibility of leadership occurring in non-managerial roles or others acting as sense givers (Drori & Ellis 2011). Additionally the HR study has taken a narrow view of RTC where it was assumed to be a negative event only, this is despite calls for it to be positive and negative event (Giangreco & Peccei 2005; Lines 2005).

This research and the HR manager research commenced without a positivist view of a set of RTC factors, rather in a pragmatic method
Factors emerged based on commonality of reference. RTC was not assumed to be a purely negative event in this research as had been popular in historical study (Collinson 1994; Georgalis et al. 2015; Iverson 1996; King & Anderson 1995; Kotter & Schlesinger 1979; Merron 1993; Trader-Leigh 2002; Waddell & Sohal 1998; Weber, P & Weber 2001). This research found in the interviews that the RTC factor could be both positive and negative, so the dual poles were allowed to occur in the second research phase of survey. Many of the interviews described positive change events with low levels of RTC, conversely the same factors also featured in negative experiences and high levels of RTC, so supporting the concept of 2 directions for RTC.

The current research has developed a number of factors that have evolved and been reduced during the process. Those factors reduced or eliminated should not be seen as being irrelevant but more that the current research sought to find relationships between factors, without prejudice to the factors developed. The commonality of the factors and the literature Review definitions for those factors were used to establish the RTC factors in the survey phase of the research. This factor reduction process of the survey development combined the Communication factor into Leadership, omitted the Culture factor and separated the Power and Politics factors. The Culture factor was eliminated from the research survey phase based on quantity, where it also has been also described as difficult to define (Ashforth 1985; Cooke, R & Rousseau 1988; Hoag, Ritschard & Cooper 2002; Wilkins 1983), despite it potentially being a part of the RTC phenomenon (Hoag, Ritschard & Cooper 2002).

The highest inter-item scores in the EFA model of this research are Leadership, Workload and Management. As was shown in the Factor Correlation Matrix of the EFA model of Table 5.33, these factors are related in both a positive and a negative way. The remaining 3 factors of Power, Act and Monitor, Planning and Analysis in the EFA were less related. These less related factors may be a subset of Management based as the definition in the Literature Review is more open than for the HR Manager research (Hoag, Ritschard & Cooper 2002). Whilst this research has not combined these, it is possible with a further reduction or research, that the predominant RTC interrelated factors could diminish to
Leadership, Workload and Management. The factor of Culture that was not included in the survey, yet it could be still a RTC factor as it has been found in other research (Hoag, Ritschard & Cooper 2002).

Dispositional research has sought to explain resistance through people and psychology, yet recent research has indicated that the disposition may be affected by other factors, including change context and management (Michel, Todnem & Burnes 2013). The HR manager study had a conclusion that RTC was a function of Culture and Management, where they were intending to perform future research with an additional 13 factors identified in their research (Hoag, Ritschard & Cooper 2002).

In answer to the first question for this research it is clear that there are multiple forms of RTC that co-exist and interrelate. This conclusion is supported by other research in organisational context (Oreg 2006), dispositional research (Oreg 2003) and internal organisational factors (Hoag, Ritschard & Cooper 2002). The first interview phase of this research found many multiple forms of RTC appeared to be referenced in both the positive and negative. A subset of the interview RTC factors have been found to interrelate in the EFA and the CFA of the survey data. Upon review of the factor definitions it is clear that these factors have overlapping themes that may support interrelationships. Whilst the participant levels for the survey were less than required to generalise and validate the model for the CFA, the quantity was sufficient for the EFA to be considered useful. The internal reliability and the discriminant tests support that the questions in this survey tool being valid and useful.

The data, analysis and Literature strongly support Leadership and Management as being interrelated. The other less interrelated items of Act and Monitor, Planning and Analysis and Power are shown in this research to be interrelated with Leadership and Management. The nature of these less related items raises the possibility that they are actually subsets of the Management factor. Whilst these less related factors were separate factors in the EFA, it is conceivable based on the definition in the Literature Review that they are sub-sets of Management. The research supports the Workload factor, or organisational stress, being related to both Management and Leadership. Culture may be a RTC
factor as shown in other studies (Hoag, Ritschard & Cooper 2002), where it featured as a interview RTC factor and was excluded from the survey based on a low reference count.

This research can conclude that there is evidence to support RTC forms as co-existing and being interrelated. The support for this conclusion is derived initially from the definitions of the factors in the Literature Review of Chapter 2 where a number of interrelated terms appear in multiple factor definitions. Similarly at Chapter 2 past research that has found a limited number of RTC factors The current research, despite the low number of participants, has found interrelationships of multiple RTC factors in both the interview and the survey data. The Leadership factor appears to be a more complex factor than merely being Communication, where it includes elements of Stakeholder Engagement, Politics and Trust.

7.1.2 2nd Research Question

The second research question was to enquire if RTC has an effect on change programme time, cost and quality, where past research has found quality to be an effect (Smith, I 2011). As managers of organisational change are responsible for time and cost it was considered that they would have been able to answer question on RTC effect.

Interview participants appeared to lack information on the RTC effects of time and cost. Some interviewees indicated cynicism to questions on effect, where some indicated that project measures on time and scope were often changed, yielding confusion on the outcomes of change. It was not clear why there was a lack of information on RTC effect, this lack of information may be derived from the organisation withholding information, or lack of accountability or lack of interest. It is also possible that Cost effect information may be commercial in confidence, so not widely shared with managers of change.

It is possible to theorise that the lack of information on Cost to the project managers could create confusion in terms project affordability, presenting itself as a RTC factor. Past research has placed cost as a RTC factor rather than an effect (Hoag, Ritschard & Cooper 2002), where it is
conceivable that a lack of clarity on project cost may restrict resource allocations and be a source of RTC. There was no research found indicating that Time is a RTC factor or being an effect. If Time is not clearly monitored and informed during a change it is possible that the project team may wait for information and direction about the project completion, stagnating and being another RTC form.

Interview participants had more information and opinions on Quality as an effect despite lacking information on Cost and Time. Quality was considered to have been less defined and measurable than Cost or Time, yet it was more responded to than the more measurable factors. At the outset of this research it was considered that those responsible for change would have had reliable information on Cost and Time effects, yet that was not the case. There was a high level of missing data on the survey effect questions, possibly indicating an absence of participant information about effect or could have occurred due to the questions appearing on the last survey page.

It is claimed that the failure rate of organisational change is as high as 70% (Burnes & Jackson 2011; Senturia, Flees & Maceda 2008), where the fail rate has been quoted as being 66% in a global survey (Company 2008). The definition on effect has tended to be for quality (Lewin 1945; Smith, I 2011), where other effect elements of Cost and Time are likely, yet have not been detected in this research. The detection of additional RTC effects may require alternate research methods, possibly involving case study where quantifiable information may be sourced from those with knowledge and data about RTC effects.

It was considered at the outset of this study that Cost would be an effect, yet a study has been found that indicates it as a RTC factor rather than an effect (Hoag, Ritschard & Cooper 2002). Despite this confusion on Cost, participants in this research were unclear on how their projects measured against Cost and Time. Project scope changes and a general absence of information on Time and Cost may have contributed to participant inability to confirm or reject Time and Cost as effects of RTC. Quality whilst less defined appears to be an effect of RTC supported by past research and a small amount of interview data in this research.
7.1.3 Research Limitations Discussion

Section 1.5.2 detailed that the participation in this research was limited by the size and organisational location. The defined examples of large organisations was varied starting at either 50 or 200 employees. This research took a relative midpoint of 100 employees as being the definition of large. The location of Greater Western Sydney was defined in this research however it was not tightly defined and people outside of this region could have participated unknowingly.

The research participation, both interview and survey, was gathered from LinkedIn® groups and snowballing, where such method may have biased the sampling. This sampling may also have bias the data, where it may not be unrepresentative of the wider population without additional research. The bias may be derived as the participation was based on self nomination, where those more likely to be interested in the topic may have been more likely to have participated than others in the general population.

Participants were asked various questions about their personality, change background, attribution and opinions about change. These questions did not affect whether a participant was selected for inclusion in either the interviews or the survey. The differences in the answers to these demographic questions suggest that an element of bias was included in the participation of this research. A number of these demographic and differentials in participation were reviewed for differences in SPSS, where the scrutinised data in SPSS did not find significant differences that would suggest alternate models.. The limitation of research sample size may have affected this statistical analytical outcome, where a larger sample size may have revealed differences not apparent in this research data.

The measures of time, quality and cost were included in this research as a way of identifying potential effects of RTC. If any of these effects or others can be associated with RTC there is potential to understand the way RTC influences the organisational outcomes. Where a greater importance on RTC effect may increase research and understanding of RTC in the future. This research failed to identify any significance in the effect research due in part to a lack of completion in the survey to the
questions related. This lack of participation may have been linked to the population sampling using Linkedin®.

7.2 Conclusion

In response to the first question of this research it has been determined that there are interrelationships between RTC factors exist, subject to the participation criteria limitations, sample size limitations and the methodology adopted. The 3 factors defined in the Literature Review of Chapter 2 for Leadership, Workload and Management, are the most interrelated in the EFA, featuring strongly in the interview and survey data. The other 3 factors of Act and Monitor, Planning and Analysis, and Power are distinct factors in the EFA, being less interrelated than the first three. Multiple other factors were identified in the interviews that may also be interrelated. The selection criteria for factor inclusion in the research phase 2 survey was based on reference quantity, so those factors excluded may still form RTC factors and be interrelated.

It is also conceivable that the less related three factors may be elements of a broader Management factor, not confirmed in this research. Also not confirmed in this research is the possibility that RTC is actually the deficiency or strength of Management and Leadership alone, where Workload is a subset of Management activity. Individual Psychology is a significant body of knowledge in RTC research, yet Individual Psychology has not featured prominently in either phase of this research. The lack of reference to Individual Psychology is not determined here, although recent research has positioned Individual Psychology as effect of Management deficiencies rather than being an RTC factor of itself (Michel, Todnem & Burnes 2013).

The second research question sought to extend the elements of RTC effect, this research has failed to establish any additional RTC effects beyond the previous effect of quality (Smith, I 2011). The failure to find the additional effects of Time and Cost may have more to do with the openness and availability of information, where their existence is still possible. Interview participants reported that scope, goal and baseline changes occur regularly during organisational change that may increase the difficulty in detecting RTC effects.
The following Section reviews these conclusions for the research questions above identifying the implications and relevance of this research toward Theory, Knowledge, Practice and Future Research.

7.3 Research Contribution

The questions for this research emerged out of gaps in the Literature Review at Chapter 2, where there had been only limited research into RTC as a multidimensional phenomenon. This research has identified several RTC forms that appear to be interrelated, albeit with qualification, so addressing questions around a multidimensional nature of RTC. The research was not bound to being manager centric or have Individual Psychology constructs that past research had required. This research has identified a number of RTC factors that are interrelated, where their identification emerged from the Literature and participant experiences. Whilst gaps also appeared in the Literature related to RTC effect, this research has found non-statistical evidence that additional RTC effects may be possible, although not transferable to the wider population without further study.

This Section reviews this research in terms of its contribution, concluding with an outline of the direction that future RTC research could take. The direction detailed in this Section is based on the information and gaps contained in this research.

7.3.1 Theory

Previous RTC research has identified many RTC factors identified from positivist research, where previously there was only limited research on RTC as multidimensional. The Literature Review indicated that there is a gap relating to RTC being multidimensional in nature. The research question requiring research into the forms and interrelationships of RTC factors was positioned to broaden knowledge of the Literature gap. This research has extended knowledge of RTC by revealing that a number of RTC forms co-exist and are interrelated, albeit with qualifications.

The Literature Review identified three bodies of knowledge in RTC research, where the later Multidimensional body is the least researched. The Group Dynamics and Individual Psychology body of knowledge have
historically been researched in Positivist paradigm. This past research has generally investigated RTC forms singularly, identifying many RTC forms one at a time, adding valuable knowledge on the topic. Whilst this Positivist approach to research has identified information and multiple forms of RTC, there has been little investigation into co-existence or interrelationships between RTC forms. Research has called for a Multidimensional method to investigate RTC as a way to increase knowledge and understanding of the phenomenon (Dawson 2007; Herold, Fedor & Caldwell 2007; Pettigrew et al. 2003).

There have been some limited studies in Multidimensional frameworks, yielding information and interrelationships on dispositions (Oreg 2003), organisational context (Oreg 2006) and organisational operations (Hoag, Ritschard & Cooper 2002). In response to calls for RTC research to be more open and allow negative and positive elements (Giangreco & Peccei 2005; Lines 2005), this research has responded and detected RTC forms varying from the positive to the negative. This research changes past research discourse on RTC as the past research viewed RTC as a negative, or to be avoided. As RTC can be an enhancer to change, future research effort may seek to identify how RTC factors can be treated and move a change programme to the positive.

This research has shown that with a Multidimensional paradigm new information on RTC is possible, where the Leadership factor has emerged with more elements than first anticipated. Leadership has been extended with the inclusion of Stakeholder Engagement, Politics and Trust as sub-elements. This research has also revealed additional interrelated factors of Power, Act and Monitor, Planning and Analysis. The definitions of these additional factors strongly suggest that they are elements of Management, despite their appearance as separate factors. Workload emerged as a key highly interrelated factor that was unexpected as the commencement of this research, where there has been only limited research in the past.

The co-existence and interrelationships of RTC factors identified in this research is not unique, despite there being only limited Multidimensional research on RTC. The factor quantity of factors and their definitions in
This research are broader than those of other Multidimensional research involving dispositions (Oreg 2003) and organisational operations (Hoag, Ritschard & Cooper 2002). Management has been thought to be a factor in RTC since Lewin’s first research (Lewin 1945), where this research has detected that Management may be interrelated to other factors.

This research should encourage future researchers to adopt a Multidimensional approach in a Pragmatic paradigm, where other RTC forms and interrelationships may emerge. This research has also importantly confirmed that RTC may vary from the negative to the positive.

7.3.2 Knowledge

Whilst some limited research had been conducted in relation to multidimensional RTC factors in the past, it was acknowledged in the Literature Review that this is an emerging field of study. This research was not bound by the manager paradigm nor the individual psychology of past research, forming RTC factors from the practitioner. Whilst this research has identified several RTC factors that are interrelated, other interrelated factors are possible with further research into the topic.

This research has positioned Leadership, Management and Workload as the three highly interrelated RTC factors. The past Group dynamics research included Management as the owner of processes and the change programme, involving elements of freezing and unfreezing (Lewin 1945). This research has identified factors of Act and Monitor, Planning and Analysis, these may align with this freezing and unfreezing process previously understood (Lewin 1945). This may indicate that the manager is expected to plan and analyse the change, extending actions that move the organisation forward through the unfreezing and change.

Leadership has been associated with a number of elements, where Leadership has been defined as having sources being those of position, coercion, positive rewards, and expertise of leaders (French, J, Raven & Cartwright 1959). This concept of a broad Leadership factor has been developed in this research where it has been found to include Politics, Trust, Involvement and Communication. The coercive nature of
Leadership is perhaps why the element of Politics has loaded into the factor in this research, where the smoothing and explanation of topics with Politics may assist in understanding the change.

The concept of Workload in the Literature includes organisational and individual stress that would appear to be determined and controlled by Management. It is for this reason that the Workload factor may be closely related to Management, where it was clear from the interviews that organisational stress can be assisted by games, additional time or resources. Workload is also associated with Leadership in this research indicating that Leadership has a part to play in change, using their Political skills to smooth the gaps between resource limitations and employee acceptance of additional work during change.

This research defined Culture and found that it is a potential RTC factor, where it was omitted from the survey based on reference quantity in the concept rationalisation process. The Culture concept has been defined as being based on power and structure, performance, risk and relationships (Koberg & Hood 1991; Wallach 1983). Culture may be interrelated to other factors as its definition includes power, structure and relationships, where the words also appear in other factor definitions for Power, Management and Leadership. This potential interrelationship of Culture with other factors was not determined in this research that could form the basis of future research.

The gaps in the Literature show that multidimensional research may improve knowledge on the topic of RTC. This research has found interrelationships between RTC factors, where other interrelationships and additional RTC factors may co-exist if additional research occurs. Whilst not conclusive, due to statistical qualifications this research has identified relationships between Management, Leadership and Politics amongst others. These relationships have the potential to move the multidimensional research into understanding more about the reasons why these factors may be interrelated. There is also more information required as to understanding if there is a cause and effect relationship between these identified RTC factors.
7.3.3 Practice

The highly interrelated factors of Management, Leadership and Workload and the less related factors of Act and Monitor, Power, Planning and Analysis of this research presents additional information for those managing organisational change. Prior to the emergence of Multidimensional research change managers were given little knowledge about managing with multiple forms of RTC. In the absence of information a change manager in a multidimensional RTC framework could have been tempted to manage RTC factors one at a time or arbitrarily choose a form from the many possibilities. The new research in a multidimensional framework improves knowledge on RTC, avoiding the prior situation where change managers were left to experiment and manage through experience, rather than gather practical knowledge from research.

The additional information from this research and other multidimensional research improves the potential to manage and influence a variety of RTC factors together. As RTC forms appear to vary from the positive to the negative the change manager may now seek to find strategies to reverse RTC forms towards the positive, rather than eliminating them. Through an appreciation of multiple RTC forms and interrelationships a change manager may in the future be able to adopt more complex strategies and improve change results.

As most organisational change fails (Burnes & Jackson 2011; Senturia, Flees & Maceda 2008) and the fail rate is as high as 66% (Company 2008) there is strong argument for RTC factors to be managed. This research has identified a number of key factors that include Leadership, Workload and Management. These factors are highly interrelated based on this research, where leaving these RTC factors untreated or unassessed may be unsatisfactory. In recognition of RTC multiple forms and interrelationships change and project management plans may need to include specific RTC actions in the work breakdown structure of the change plans.

The senior managers and statutory board members who commit the organisation to large change programmes, with the associated cost
impact and disruption, may in the future require RTC assessments to defend their due diligence. As RTC is fully appreciated to be multidimensional there may also be argument to include an RTC strategy in the risk registers during organisational change. Risk mitigation will likely change in a multidimensional RTC framework, where multiple risks and treatment may evolve.

The survey of this research achieved good internal reliability and discriminant reliability, as well as forming valid EFA and CFA models. There is potential for this survey to be re-used to form another RTC scale as was the case in previous dispositional research (Oreg 2003), where the scale would need a higher participation rate than that achieved in this research. There is potential for change managers to use this survey as a method to interrogate change programmes, investigating RTC factors in their own projects. This survey may be useful in longitudinal research across time in a single organisation or industry or group of organisations, where comparison and data analysis may improve understanding.

As the factors of Management, Leadership and Workload were the most interrelated factors detected in this research, additional change steps to treat each factor may be possible. For instance if the organisation determines that there is a lack of Trust in the organisational change they may find it useful to implement Leadership training. As Leadership is related to Management the organisation may at the same time wish to implement procedures or review the planning. Additional information on RTC interrelationships in the future may also identify appropriate treatments for specific forms and levels of RTC.

Workload and related stress may need to be assessed so as to provide due care for the organisations employees, where Workload was the third most interrelated factor of this research. Regular assessment of Workload in an organisation may be beneficial during a change programme as it may also be an indicator of staff turnover, conflict and stress in the organisation. Stress and related elements have the potential to affect organisational decision making, where poor decisions or delayed decisions may occur more regularly during stress. This research did not
find additional RTC effects, although the potential for RTC have adverse effects remains.

As there is significant failure rates in change programmes it is likely that there will be growing pressure for organisational governors and senior managers to reduce the failure rate. In analysing the failure rates of change there may be a resultant focus on RTC as a source of failure. With an appreciation of historical RTC research and the Multidimensional nature of RTC, organisational leaders may in the future adopt alternate actions. Placing specific formal RTC mitigation steps into an organisation or change programme may be a way that organisations can raise the importance of RTC and improve change success.

7.3.4 Future research

This research was limited on organisational size and location, where the participation level was satisfactory for the development of a valid EFA model, albeit the participation level was less than required for the production of a scale out of the CFA model. The survey produced in this research was found to have had good internal and discriminant reliability. The additional reliability test of test and re-test process was not conducted due to time constraints, where further testing of this model would assist in understanding its performance over different populations and time. There is potential for this survey and the associated EFA and CFA models to be further tested, establishing if the factors are reliable in alternate research. There is potential in future research with this survey to detect RTC in other populations, potentially also forming a scale in structural equation modelling.

The definition of the Management and Leadership has been extended by this research, where additional elements of each have been discerned. There is potential for additional elements of these factors to be distinguished in future research with further multidimensional research on the topic. A greater depth of knowledge on RTC factors may add valuable information to the topic, or increase the depth of understanding about the factor interrelationships. Whilst further Multidimensional research may extend understanding of RTC there remains a need for research in a
Positivist paradigm, as there is potential in positivism to yield additional information on RTC forms. The current research was not a criticism of past positivist research, but rather an extension by seeking understanding on RTC forms and their potential interactions.

The rationalisation process eliminated many potential RTC forms that emerged from the interview data. This reduction and elimination process did not reduce the importance of these additional factors, rather they were eliminated so as to create a survey with a manageable quantity of questions and factors. It is likely that there will be other interrelated important RTC factors in the interview data, where there is potential to add and test additional factors to the survey created in this research.

Culture was a major interview factor that was eliminated prior to the creation of a survey. The definition of Culture may indicate that it is interrelated to other RTC factors, so could in the future form a factor to be researched. There was also some discussion in the interviews indicating that games and sense giving (Drori & Ellis 2011) may be important to organisational change and even be a RTC form. Future research has the potential to identify if these factors are important to change or if they can be considered as additional interrelated RTC factors. Additionally future research should continue to explore the topic with positive and negative influences, rather than the historical negative view.

The interview phase of the research asked a number of demographic and personality questions that appear may be of interest to future research. An interview question regarding a like for change appeared to identify a significant disparity between the change manager and the general population. The gap may be explained by dispositional bias of the change manager toward change, or could be due to other factors including knowledge, position, power or education amongst others. Further research may be able to distinguish and add information as to why there is a divergence between change participants and their like for change.
Appendices

8.1 Appendix 1 – Semi-Structured Interview Questions

Table 8.1: Semi-structured Interview - Open Questions

In this one hour interview we will seek to firstly ask some simple closed questions followed by about a 40 minute discussion of an organisational change that you have witnessed or been part of, that you can easily recall and discuss in detail.

<table>
<thead>
<tr>
<th>Variable #</th>
<th>Variable name</th>
<th>Question/Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Demographic 1</td>
<td>What is your gender? M, F</td>
</tr>
<tr>
<td>2</td>
<td>Demographic 2</td>
<td>What year were you born in? 19__</td>
</tr>
<tr>
<td>3</td>
<td>Demographic 3</td>
<td>What country were you born in?</td>
</tr>
<tr>
<td>4</td>
<td>Demographic 4</td>
<td>What is your highest level of education? Postgraduate degree, University degree, College degree, Technical certificate, Apprenticeship, Higher School Certificate, School Certificate, Other (specify)</td>
</tr>
<tr>
<td>5</td>
<td>Demographic 5</td>
<td>What is the industry that you work in?</td>
</tr>
<tr>
<td>6</td>
<td>Demographic 6</td>
<td>What is your occupation?</td>
</tr>
<tr>
<td>7</td>
<td>Demographic 7</td>
<td>How many years have you been in your occupation?</td>
</tr>
<tr>
<td>8</td>
<td>Demographic 8</td>
<td>Quantity of employees in your current organisation (estimate only)?</td>
</tr>
<tr>
<td>9</td>
<td>Demographic 9</td>
<td>Quantity of employees in your current team (estimate only)?</td>
</tr>
<tr>
<td>10</td>
<td>Demographic 10</td>
<td>How many years have you been in your organisation?</td>
</tr>
<tr>
<td>11</td>
<td>Demographic 11</td>
<td>How many times has your organisation changed in the past 5 years? &lt;5, 5-10, 10-20, 20-50, &gt;50</td>
</tr>
<tr>
<td>12</td>
<td>Demographic 12</td>
<td>Has your role in the organisation changed in the past two years? yes, no</td>
</tr>
<tr>
<td>13</td>
<td>Demographic 13</td>
<td>How much change has your organisation undergone in the past 3 years? extensive, moderate, minor, almost nil, not satisfied, satisfied, very satisfied</td>
</tr>
<tr>
<td>14</td>
<td>Demographic 14</td>
<td>How satisfied have you been with your organisation's changes in the past 3 years? very satisfied, satisfied, slightly satisfied, not satisfied, almost nil, extensive, moderate, minor, almost nil</td>
</tr>
<tr>
<td>15</td>
<td>Demographic 15</td>
<td>In your experience do people hide their feelings about a change process? yes, no</td>
</tr>
<tr>
<td>16</td>
<td>Closed question 1</td>
<td>Do people try and slow down change? yes, no</td>
</tr>
<tr>
<td>17</td>
<td>Closed question 2</td>
<td>Do people try and alter a change programme direction? yes, no</td>
</tr>
<tr>
<td>18</td>
<td>Closed question 3</td>
<td>Do people usually like organisational change? yes, no</td>
</tr>
<tr>
<td>19</td>
<td>Closed question 4</td>
<td>When a change is announced, before you know the detail, are your thoughts very positive, positive, neutral, negative, very negative</td>
</tr>
</tbody>
</table>

Appendix 1 – Semi-Structured Interview Questions

In this one hour interview we will seek to firstly ask some simple closed questions followed by about a 40 minute discussion of an organisational change that you have witnessed or been part of, that you can easily recall and discuss in detail.
<table>
<thead>
<tr>
<th>Open question</th>
<th>Can we now discuss a change in an organisation that you have experienced and that you can recall in detail?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open question 2</td>
<td>What was the organisation like before the change?</td>
</tr>
<tr>
<td>Open question 3</td>
<td>What was the change that was occurring?</td>
</tr>
<tr>
<td>Open question 4</td>
<td>What were the reasons for the change?</td>
</tr>
<tr>
<td>Open question 5</td>
<td>Was the change programme planned and resourced?</td>
</tr>
<tr>
<td>Open question 6</td>
<td>What was your role in the change?</td>
</tr>
<tr>
<td>Open question 7</td>
<td>What observations do you have as an insider of the change?</td>
</tr>
<tr>
<td>Open question 8</td>
<td>What was the structure of your immediate team?</td>
</tr>
<tr>
<td>Open question 9</td>
<td>How did the change affect you and your team?</td>
</tr>
<tr>
<td>Open question 10</td>
<td>Was everyone supportive of the change?</td>
</tr>
<tr>
<td>Open question 11</td>
<td>For anyone not supportive what were their issues?</td>
</tr>
<tr>
<td>Open question 12</td>
<td>Was the lack of support for the change by the individual or as an act of sabotage or constructive criticism?</td>
</tr>
<tr>
<td>Open question 13</td>
<td>Did those who did not support the change discuss the issues with management?</td>
</tr>
<tr>
<td>Open question 14</td>
<td>Did the criticisms of the change discussed by individuals have substance?</td>
</tr>
<tr>
<td>Open question 15</td>
<td>Did your team discuss the changes without management being present, for what reason?</td>
</tr>
<tr>
<td>Open question 16</td>
<td>How would you describe the peoples readiness for change?</td>
</tr>
<tr>
<td>Open question 17</td>
<td>Were the processes changed, how were they changed?</td>
</tr>
<tr>
<td>Open question 18</td>
<td>Did the communication, management and structure of the business change?</td>
</tr>
<tr>
<td>Open question 19</td>
<td>How would you describe the peoples readiness for change?</td>
</tr>
<tr>
<td>Open question 20</td>
<td>What would you have liked to have been changed differently, did you let anyone know about it?</td>
</tr>
<tr>
<td>Open question 21</td>
<td>What were the processes changed, how were they changed?</td>
</tr>
<tr>
<td>Open question 22</td>
<td>Did you notice how the new processes compare to the old processes?</td>
</tr>
<tr>
<td>Open question 23</td>
<td>What would you recommend as needing to be changed differently?</td>
</tr>
<tr>
<td>Open question 24</td>
<td>What would make the change appear to work more smoothly and efficiently?</td>
</tr>
<tr>
<td>Open question 25</td>
<td>Would you tell others or act differently in another organisation change?</td>
</tr>
<tr>
<td>Open question 26</td>
<td>How was your project outcomes in cost, time and quality different to what you expected?</td>
</tr>
<tr>
<td>Open question 27</td>
<td>Were people or processes more important to your project?</td>
</tr>
<tr>
<td>Open question 28</td>
<td>What level of communication processes were in place in your project?</td>
</tr>
<tr>
<td>Open question 29</td>
<td>Did politics or defensive strategies become more apparent during the change programme?</td>
</tr>
<tr>
<td>Open question 30</td>
<td>What would you do differently if you were to change your project again? and would you try to do differently?</td>
</tr>
</tbody>
</table>

**Table 8.2: Semi-structured Interview - Open Questions**
<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Indicators</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder involvement affects the change process</td>
<td>measure the breadth of activities used to involve people</td>
<td>training</td>
<td>I am properly trained for the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>effective involvement</td>
<td>I am involved in the change process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>influence on the decision making</td>
<td>People listen to my concerns about the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>skills</td>
<td>I have the skills to participate in the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>measure to see if the involvement has had an impact</td>
<td>I have input into the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>trust</td>
<td>People respond to my feedback</td>
</tr>
<tr>
<td>Political action or inaction affects the change process</td>
<td>Measure the level of disruption or conflict during a change</td>
<td>dispute resolution</td>
<td>People resolve disputes during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>conflict</td>
<td>There are no conflicts during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dispute over objectives</td>
<td>The objectives of the change are correct</td>
</tr>
<tr>
<td></td>
<td></td>
<td>see if political leaders have explained the logic of the change</td>
<td>The changes are logical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>see if people are questioning the change</td>
<td>My superior supports my involvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>see if social network has changed</td>
<td>My team operates as usual during the change</td>
</tr>
<tr>
<td>Power action or inaction affects the change process</td>
<td>Measure the level of controls indicating power</td>
<td>control</td>
<td>The work is controlled as normal during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ethics</td>
<td>People perform their work ethically during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>standardisation</td>
<td>The change will result in more standardisation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>control</td>
<td>There are procedures for the changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>informal systems</td>
<td>There is more formality from the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>documentation</td>
<td>The change is documented</td>
</tr>
<tr>
<td>Project planning and analysis affects the change process</td>
<td>Measure if there was analysis before the change was started</td>
<td>was the analysis methodical</td>
<td>There was good analysis before the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>business case</td>
<td>A business case is prepared for changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>risk assessment</td>
<td>Risks of the change were documented</td>
</tr>
<tr>
<td></td>
<td></td>
<td>linkages between strategy and action</td>
<td>The change aligns with the strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>planning document</td>
<td>The project was well planned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>requirements analysis</td>
<td>The change team knew what they required</td>
</tr>
</tbody>
</table>
**Table 8.4: Survey Question Development**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Indicators</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management action or inaction affect the change process</td>
<td>measure the control over the organisational change</td>
<td>Management control</td>
<td>There is control in the organisational changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management support</td>
<td>Managers support organisational changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management monitoring</td>
<td>The organisational changes are monitored</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management resource allocations</td>
<td>The resources are allocated well in the organisational changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managers making decisions</td>
<td>Decisions are made on the organisational changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managers considering facts</td>
<td>The organisational changes are thought through</td>
</tr>
<tr>
<td><strong>Leadership action or inaction affect the change process</strong></td>
<td>measure the quality and frequency of communication distributed about the change</td>
<td>communication of the message</td>
<td>The change has been explained to me</td>
</tr>
<tr>
<td></td>
<td></td>
<td>understanding of the change</td>
<td>The organisational changes make sense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>regularity of communication</td>
<td>The communication on change is regular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>communication means understandable</td>
<td>I understand the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>type of communication</td>
<td>The change is explained in a number of ways</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership co-ordination</td>
<td>The changes are co-ordinated</td>
</tr>
<tr>
<td>Workload affects the change process</td>
<td>measure if resources are available for change time</td>
<td>There is sufficient time to perform the changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>budget $</td>
<td>There is sufficient budget to perform the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>people resource</td>
<td>There are enough people to do the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>We have time to make the change</td>
<td></td>
</tr>
<tr>
<td></td>
<td>measure if stress (as an outcome) has resulted from workload</td>
<td>health issues result</td>
<td>People are well during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reduced behaviours</td>
<td>People are happy during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reduced performance</td>
<td>People perform during the change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is little stress during the change</td>
<td>I am enjoying the change</td>
</tr>
<tr>
<td>Age</td>
<td>18-30</td>
<td>30-40</td>
<td>40-50</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Sex</td>
<td>Man</td>
<td>Woman</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>Finance</td>
<td>Industrial</td>
<td>Mining</td>
</tr>
<tr>
<td>Occupation</td>
<td>Finance</td>
<td>Human Resources</td>
<td>Engineer</td>
</tr>
<tr>
<td>Manager</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Experience in leading or supervising an element of organisational change</td>
<td>0-5</td>
<td>6-10</td>
<td>11-15</td>
</tr>
</tbody>
</table>
### 8.3 Appendix 3 – Interview RTC (initial undefined)

#### Table 8.6: RTC forms identified during Interview transcriptions

<table>
<thead>
<tr>
<th>Resistance form identified in transcription</th>
<th>Major Group</th>
<th>Sub Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee fear of measurement</td>
<td>Culture</td>
<td>Measures</td>
</tr>
<tr>
<td>Business environment</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Politics</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Management team cohesion</td>
<td>Culture</td>
<td>Team</td>
</tr>
<tr>
<td>Infrequent change</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Organisational culture coping with change vs not</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Organisational politics</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Separate cultures within the organisation</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Communication between top and bottom of the organisation being weak</td>
<td>Culture</td>
<td>Communication</td>
</tr>
<tr>
<td>Inability of organisation to change quickly</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Trust in the management</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Trust in the success of the change plan</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Lack of understanding/belief in the reasons for the change</td>
<td>Culture</td>
<td>Communication</td>
</tr>
<tr>
<td>Organisational maturity</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Level of Team effort</td>
<td>Culture</td>
<td>Team</td>
</tr>
<tr>
<td>Closed shop organisation</td>
<td>Culture</td>
<td>Environment</td>
</tr>
<tr>
<td>Employees dislike outsiders</td>
<td>Culture</td>
<td>Team</td>
</tr>
<tr>
<td>Complaining when change process makes mistakes, reason to criticise and move back to original position</td>
<td>Culture</td>
<td>Measures</td>
</tr>
<tr>
<td>Power and position linked to amount of resistance</td>
<td>Culture</td>
<td>Team</td>
</tr>
<tr>
<td>Politics to avoid the change direction by executive or employees</td>
<td>Culture</td>
<td>Team</td>
</tr>
<tr>
<td>Rumours and uncertainty</td>
<td>Culture</td>
<td>Communication</td>
</tr>
<tr>
<td>Road blocks and obstacles</td>
<td>Culture</td>
<td>Environment</td>
</tr>
</tbody>
</table>
political lobbying  
Culture  
Team  
sabotage until the change is happening  
Culture  
Environment  
despite the efforts  
Culture  
Environment  
battles between project managers and  
project team  
Culture  
Team  
use language that is relevant to the  
business  
Culture  
Communication  
Groups under threat form their own  
strength group and resist change  
Culture  
Team  
Culture of the organisation being changed  
Culture  
Environment  
Edgar Schein wrote a lot on culture  
Culture  
Environment  
Wilfred Dion, it is worth looking at by the  
way who wrote his theory  
Culture  
Team  
Change is new structure, new reporting  
lines and new ways of doing things  
sometimes too much for staff to handle  
especially if continuous  
Culture  
Environment  
Length of service  
Employee  
Action  
Listening to directives, doing your own  
thing  
Employee  
Action  
Personality traits  
Employee  
Action  
Rate of learning  
Employee  
Action  
Employee issues  
Employee  
Action  
Excuses by users on differences  
Employee  
Action  
Employee interest in the change  
Employee  
Action  
Poor response rates  
Employee  
Action  
Employee frustration  
Employee  
Action  
Employee satisfaction  
Employee  
Action  
Employee fear of retrenchment  
Employee  
Information  
Employee games to stay employed  
Employee  
Action  
Employees slowing change down by  
changing data  
Employee  
Action  
Whether employees ideas are listened to  
Employee  
Action  
Middle management job preservation  
Employee  
Action
<table>
<thead>
<tr>
<th>Employee act of sabotage</th>
<th>Employee</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee having a vested interest in</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>creating work for themselves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee resignation during or before the</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-attendance at meetings during change</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Negative commentary on change initiative/activities</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Vested interests in keeping things the way they are</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Fear of job loss</td>
<td>Employee</td>
<td>Information</td>
</tr>
<tr>
<td>Employees hiding information</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Employees siloed and lacking skillsets</td>
<td>Employee</td>
<td>Information</td>
</tr>
<tr>
<td>Employees holding back information when asked questions</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Loss of income to staff</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Employee trust of project manager</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Employee confusion</td>
<td>Employee</td>
<td>Information</td>
</tr>
<tr>
<td>Employee needs to listen are different operations vs other staff vs management</td>
<td>Employee</td>
<td>Information</td>
</tr>
<tr>
<td>Employees holding back information</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Slow down change if change not in the employees interest</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Fear of job security despite communication to the contrary</td>
<td>Employee</td>
<td>Information</td>
</tr>
<tr>
<td>Position or layer in the organisation</td>
<td>Employee</td>
<td>Position</td>
</tr>
<tr>
<td>Economic level or pay rate in the organisation</td>
<td>Employee</td>
<td>Position</td>
</tr>
<tr>
<td>Education level and knowledge</td>
<td>Employee</td>
<td>Position</td>
</tr>
<tr>
<td>Complaints by employees of the changes/new procedures (real or not real)</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Holding back criticism or comment is a resistance form</td>
<td>Employee</td>
<td>Action</td>
</tr>
<tr>
<td>Refusing to do things in the new way after</td>
<td>Employee</td>
<td>Action</td>
</tr>
</tbody>
</table>
a change

Discussions on issues informal and not carried to management
Communication/education
Resignation is a form of resistance
Employees support change but detail lets them down
Ignoring the change
Passive aggressive
Finding reasonable excuses as to why the change won’t work for them
Emotional and logical issues about the change are tied up together
sense of frustration or feeling of being threatened or loss of control
under mining achievement of project manager
fear of roles changing or not being needed in the future
passively not engaging and watching the project go in wrong direction
employees not fully aware of impacts on their role of the change
Employee refusal to acknowledge change mapping to slow down the change
Staff turnover linked to poor change
People with power resist change
Leadership commitment/involvement
Leadership connection with staff
External vs internal consultant
Employee management
Project manager leadership
Project manager awareness of current situation
Discipline

Mgt team support to project leader

Senior management support to project and project team leader

Management

Staff management experience

Middle management blocking the change

Constraints on scope or process by senior management

Openness and honesty by project manager or project manager

Poor project manager interface/background with regular operational staff

Not sacking a recalcitrant employee that is against the change

Vision of the organisation to see change coming from market changes

Market change surprising or unplanned

Unpredictable events

Power struggle

Push from senior managers to get things done

Change manager fatigue

Project manager knowledge and credibility

Skill of project team to ask the right questions

Project manage implementing regardless of whether the change is working

Change leaders more positive on change – due to information, control or education?

Change manager not sure if change issues are permanent or temporary, do something or nothing
<table>
<thead>
<tr>
<th>Management delay in addressing change issues raised</th>
<th>Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discourse</td>
<td>Leadership</td>
</tr>
<tr>
<td>Level of empathy towards others by the change leader</td>
<td>Leadership</td>
</tr>
<tr>
<td>Management style is important to how much resistance one gets</td>
<td>Leadership</td>
</tr>
<tr>
<td>Management commitment and project success linked ?</td>
<td>Leadership</td>
</tr>
<tr>
<td>Wider business team need to be willing to address issues when they arise</td>
<td>Leadership</td>
</tr>
<tr>
<td>People who like change are in charge of change management being almost part of the problem</td>
<td>Leadership</td>
</tr>
<tr>
<td>senior stakeholders more likely to try to change direction of project if they don’t like it</td>
<td>Leadership</td>
</tr>
<tr>
<td>leaders ignoring the change to hope that it goes away</td>
<td>Leadership</td>
</tr>
<tr>
<td>powerful leadership can reduce resistance</td>
<td>Leadership</td>
</tr>
<tr>
<td>language is supportive but way of saying it not supportive</td>
<td>Leadership</td>
</tr>
<tr>
<td>sponsor extremely important to change success</td>
<td>Leadership</td>
</tr>
<tr>
<td>GM not engaged</td>
<td>Leadership</td>
</tr>
<tr>
<td>Managers seek change for change sake to improve careers resulting in resistance</td>
<td>Leadership</td>
</tr>
<tr>
<td>Implementation method</td>
<td>Process</td>
</tr>
<tr>
<td>Varying user technical requirements or changes</td>
<td>Method</td>
</tr>
<tr>
<td>Employee involvement</td>
<td>Process</td>
</tr>
<tr>
<td>Business processes</td>
<td>Employees</td>
</tr>
<tr>
<td>Change plan design difficulties</td>
<td>Process</td>
</tr>
<tr>
<td>Planning</td>
<td>Method</td>
</tr>
<tr>
<td>Communication method</td>
<td>Process</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>User groups</td>
<td>Process</td>
</tr>
<tr>
<td>Simultaneous multiple changes</td>
<td>Process</td>
</tr>
<tr>
<td>Project manager underestimation – staff</td>
<td>Process</td>
</tr>
<tr>
<td>skills, staff takeup</td>
<td>Process</td>
</tr>
<tr>
<td>Employee training</td>
<td>Process</td>
</tr>
<tr>
<td>Change in structure</td>
<td>Process</td>
</tr>
<tr>
<td>Standard/ disciplined procedures</td>
<td>Process</td>
</tr>
<tr>
<td>Project scope- timing and resources</td>
<td>Process</td>
</tr>
<tr>
<td>Planning</td>
<td>Process</td>
</tr>
<tr>
<td>Suboptimal change plans</td>
<td>Process</td>
</tr>
<tr>
<td>Project change team resources</td>
<td>Process</td>
</tr>
<tr>
<td>Previous change outcome history</td>
<td>Process</td>
</tr>
<tr>
<td>Underestimation of project delivery time</td>
<td>Process</td>
</tr>
<tr>
<td>New system</td>
<td>Process</td>
</tr>
<tr>
<td>Project manager skills</td>
<td>Process</td>
</tr>
<tr>
<td>Wrong materials for employees to use</td>
<td>Process</td>
</tr>
<tr>
<td>Hidden delays</td>
<td>Process</td>
</tr>
<tr>
<td>Honest messages on change hidden</td>
<td>Process</td>
</tr>
<tr>
<td>Overloaded operations during change</td>
<td>Process</td>
</tr>
<tr>
<td>Employees not being listened to</td>
<td>Process</td>
</tr>
<tr>
<td>Employee engagement</td>
<td>Process</td>
</tr>
<tr>
<td>Organisational response to employee</td>
<td>Process</td>
</tr>
<tr>
<td>engagement</td>
<td>Process</td>
</tr>
<tr>
<td>Wrong change methodology</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of customer interface to understand</td>
<td>Process</td>
</tr>
<tr>
<td>requirements/frustrations</td>
<td>Process</td>
</tr>
<tr>
<td>Top down rather than bottom up change process</td>
<td>Process</td>
</tr>
<tr>
<td>Employee consultation</td>
<td>Process</td>
</tr>
<tr>
<td>Employee ideas and knowledge excluded</td>
<td>Process</td>
</tr>
<tr>
<td>from change process</td>
<td>Process</td>
</tr>
<tr>
<td>Not using employee brains</td>
<td>Process</td>
</tr>
<tr>
<td>Problem</td>
<td>Process</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Loss of employee benefits</td>
<td>Process</td>
</tr>
<tr>
<td>Benefits to employees from things not working</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of clarity to the employees about reason for the change</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of clarity to the employees about the implications for the change</td>
<td>Process</td>
</tr>
<tr>
<td>Communication/understanding by project manager of customer/suppliers</td>
<td>Process</td>
</tr>
<tr>
<td>needs/issues</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of understanding why the change is needed</td>
<td>Process</td>
</tr>
<tr>
<td>Knowledge of business processes and integration before a change</td>
<td>Process</td>
</tr>
<tr>
<td>Zero communication and involvement in the change plans by employees</td>
<td>Process</td>
</tr>
<tr>
<td>Withdrawal of resources /support for the change team requirements</td>
<td>Process</td>
</tr>
<tr>
<td>Meetings too formal with management to discuss fears and criticisms of the change plan</td>
<td>Process</td>
</tr>
<tr>
<td>Key operational staff not released to change project due to their importance to operations</td>
<td>Process</td>
</tr>
<tr>
<td>Operational metrics not aligned to the change</td>
<td>Process</td>
</tr>
<tr>
<td>Communication on the change not being cascaded to all levels of the organisation</td>
<td>Process</td>
</tr>
<tr>
<td>Change pushed down towards the people from senior management</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of change assessment at the beginning of the change</td>
<td>Process</td>
</tr>
<tr>
<td>Lack of short term wins in the change process</td>
<td>Process</td>
</tr>
</tbody>
</table>
Lack of change process planning
Lack of Communication on how and when the change is going to happen and what is going to happen after the change.
Lack of openness to employee ideas and scrutiny of the change
Initial discussion on the change with management not clear and open
Change manager unaware of which groups had the power in the change process
Strategic vs implementation vs operational elements have varying skills requirements
Insufficient time allocated by senior management to change project
Senior management deadlines shorter than good project planning requirements
80% target on project process by project managers
Analysis of the business before starting project
Employee help levels required vary
Analysis done incorrectly leads to higher resistance
Flexibility of the plan and project team
Lack of employee understanding of new requirements
Insufficient planning on contingencies if things go wrong
Insufficient mitigation and fall-back if things don’t work
Insufficient or ineffective change measures or change monitoring
Constructive criticism is more common than sabotage
Lower readiness for change leading to higher resistance and complaints or power games?
Incorrect performance measures during the change
Measuring process of change not the change outcomes, not measuring may mean things get missed in terms of identifying the change issues
Assumptions and analysis basis of change not correct, leading to project failure
Insufficient time scoping leads to wrong change programme
Lack of input into the change
Ability to consult with the project team
Smooth and efficient change process does not mean better quality of change outcome
Sudden uncommunicated change reduces resistance
Lack of communication and lack of consultation delivered solution that was not successful
Consequences of change not readily understood at the outset
Teamwork in problem solving assists change process
Control of change important to like of the change process
Working around the change
Introducing distractions
Engage people and be willing to listen involvement of the key change agents in the journey
insufficient time allocated for employees to participate in the change process
allocate time to do normal process whilst change is going through
taking people out of their comfort zone underestimate personal effort required to make the change
make the change clear direction
senior management knowledge can be used as power to hold back on the project org structure change without employee involvement
constructive criticisms still slow things down as questions still have to be answered
insufficient information to the leaders or business
assessment of the organisational change business process impact assessment lacking
budget just not big enough
budget based on political process not the bottom up estimate
inadequate business engagement vs technical delivery
change team more engaged than business users as specific to task
Criticisms base on lack of understanding and lack or planning causing delay
Variances in knowledge about the change from senior management to bottom
Underestimate in budget leads to shortfall in project activities
There is never an end point, ok that change is complete so let’s start the next one, the first change never gets settled. 

<table>
<thead>
<tr>
<th>Process</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hurried change without plans</td>
<td>Planning</td>
</tr>
<tr>
<td>Business need for change</td>
<td>Structure</td>
</tr>
<tr>
<td>Size of business</td>
<td>Structure</td>
</tr>
<tr>
<td>Scale of change</td>
<td>Structure</td>
</tr>
<tr>
<td>Regularity of change</td>
<td>Structure</td>
</tr>
<tr>
<td>Normal workload on top of change activities</td>
<td>Structure</td>
</tr>
<tr>
<td>Work place environment</td>
<td>Structure</td>
</tr>
<tr>
<td>Regional differences</td>
<td>Structure</td>
</tr>
<tr>
<td>Divisional autonomy</td>
<td>Structure</td>
</tr>
<tr>
<td>Standardisation inhibitors</td>
<td>Structure</td>
</tr>
<tr>
<td>Length of service of change manager</td>
<td>Structure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change manager understanding of business</td>
</tr>
<tr>
<td>Structural silos</td>
</tr>
<tr>
<td>Informal flexibility</td>
</tr>
<tr>
<td>Geographic distance</td>
</tr>
<tr>
<td>Technology limitations</td>
</tr>
<tr>
<td>Lack of business funds for change</td>
</tr>
<tr>
<td>Change in market direction</td>
</tr>
<tr>
<td>Employee hierarchy</td>
</tr>
<tr>
<td>Organisational external funding</td>
</tr>
<tr>
<td>Organisational mergers</td>
</tr>
<tr>
<td>Organisational size</td>
</tr>
<tr>
<td>Multiple layers of management</td>
</tr>
<tr>
<td>Lack of change manager to employee interface to explain fears</td>
</tr>
<tr>
<td>Late setup of communication structure</td>
</tr>
<tr>
<td>Various/competing interests of the groups within the organisation</td>
</tr>
<tr>
<td>Project or change manager lacking in skills</td>
</tr>
</tbody>
</table>
Organisational environment acquirer vs acquire in merger
Team composition
Business infrastructure does not work (incl office basics)
Project manager dependent on employee information (as an outsider)
Complex change structure
Employee frustration due to complexity of new system
Too busy on normal job
Scope of project and steering committee direction will affect resistance
Loss of customer flexibility
Change benefits linked to resistance, lower benefits more resistance
Steering committee not fully representative of all stakeholders
Change mgr internal (knowledge of the business) or external (not tied to day to day)
New technology with no knowledge is a form of resistance
Change associated with high management power can reduce resistance
Management involvement and commitment
level in the organisation related to amount of resistance, higher levels create more resistance
too much operational work to do the change work
support reduces resistance and helps implementation
<table>
<thead>
<tr>
<th>Interview attributes</th>
<th>Cost</th>
<th>Education</th>
<th>Gender</th>
<th>Hide feelings</th>
<th>Industry</th>
<th>People or processes</th>
<th>Quality</th>
<th>Time</th>
<th>Years of experience</th>
<th>Business processes</th>
<th>change direction</th>
<th>change qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview # 9 A000017</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>yes</td>
<td>financial services</td>
<td>people</td>
<td>Unassigned</td>
<td>over time</td>
<td>5-10 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 18 A000007</td>
<td>over cost</td>
<td>Bachelor Degree</td>
<td>Female</td>
<td>mixed</td>
<td>serious</td>
<td>people</td>
<td>Unassigned</td>
<td>over time</td>
<td>20+ years</td>
<td>neutral</td>
<td>mixed</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 19 A000008</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>no</td>
<td>financial services</td>
<td>people</td>
<td>below quality</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>no</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 20 A000009</td>
<td>Unassigned</td>
<td>PhD</td>
<td>Female</td>
<td>yes</td>
<td>Health</td>
<td>people</td>
<td>below quality</td>
<td>over time</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 21 A0000012</td>
<td>over cost</td>
<td>Diploma + Degree</td>
<td>Male</td>
<td>yes</td>
<td>mining processes</td>
<td>people</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>5-10 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 22 A0000015</td>
<td>over cost</td>
<td>Diploma + Degree</td>
<td>Male</td>
<td>yes</td>
<td>mining processes</td>
<td>people</td>
<td>Unassigned</td>
<td>over time</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 23 A0000016</td>
<td>over cost</td>
<td>Bachelor Degree</td>
<td>Female</td>
<td>yes</td>
<td>financial services</td>
<td>people</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>5-10 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 24 A0000017</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>no</td>
<td>mining processes</td>
<td>people</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>5-10 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 25 A0000018</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>engineering</td>
<td>Unassigned</td>
<td>below quality</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>Unassigned</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 26 A0000019</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 27 A0000020</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>IT</td>
<td>people</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 28 A0000021</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 29 A0000022</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>manufacturing</td>
<td>both</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 30 A0000023</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>mixed</td>
<td>serious</td>
<td>people</td>
<td>below quality</td>
<td>on or under time</td>
<td>10-20 years</td>
<td>Unassigned</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 31 A0000024</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>10-20 years</td>
<td>Unassigned</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 32 A0000025</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>manufacturing</td>
<td>both</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 33 A0000026</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>engineering</td>
<td>Unassigned</td>
<td>below quality</td>
<td>on or under time</td>
<td>10-20 years</td>
<td>Unassigned</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 34 A0000027</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 35 A0000028</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>IT</td>
<td>people</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 36 A0000029</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 37 A0000030</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 38 A0000031</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>IT</td>
<td>people</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 39 A0000032</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 40 A0000033</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 41 A0000034</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>IT</td>
<td>people</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 42 A0000035</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 43 A0000036</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 44 A0000037</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Female</td>
<td>yes</td>
<td>IT</td>
<td>people</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 45 A0000038</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>serious</td>
<td>Unassigned</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>0-5 years</td>
<td>yes</td>
<td>no</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 46 A0000039</td>
<td>over cost</td>
<td>Masters Degree</td>
<td>Male</td>
<td>Unassigned</td>
<td>consultant</td>
<td>people</td>
<td>below quality</td>
<td>Unassigned</td>
<td>20+ years</td>
<td>yes</td>
<td>yes</td>
<td>Unassigned</td>
</tr>
</tbody>
</table>

**Appendix 4 – Interview Classification Data**

**Legend**

- **Cost**: Over cost, below quality, on or under cost.
- **Education**: Masters Degree, Bachelor Degree, Diploma + Degree, Diploma, no degree.
- **Gender**: Male, Female.
- **Hide feelings**: Yes, no.
- **Industry**: Financial services, manufacturing, engineering, processes, defence.
- **People or processes**: People, processes, people/representatives, project team.
- **Quality**: Neutral, high >50, small <25.
- **Time**: Various.
- **Years of experience**: Various.
- **Business processes**: Change Mgt, IT, health, manufacturing, training support, people/representatives, project team, made up of business support departments, can reduce resistance, structure, externally driven change.

**Thesis**

structures can help organisations create a culture where people are more likely to embrace change and take responsibility for implementing it.
<table>
<thead>
<tr>
<th>Nodes\Interviews\Interview Attributes</th>
<th>country</th>
<th>like change</th>
<th>occupation</th>
<th>organisation size</th>
<th>personal like</th>
<th>satisfaction of change</th>
<th>prior slow change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview # 13, A000000013</td>
<td>United Kingdom</td>
<td>no</td>
<td>change manager</td>
<td>small &lt;100</td>
<td>neutral</td>
<td>neutral</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 18, A000000018</td>
<td>United Kingdom</td>
<td>no</td>
<td>change manager</td>
<td>large &gt;5000</td>
<td>neutral</td>
<td>not satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 19, A000000019</td>
<td>United Kingdom</td>
<td>no</td>
<td>change manager</td>
<td>medium &gt;100</td>
<td>neutral</td>
<td>satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 20, A000000020</td>
<td>United Kingdom</td>
<td>no</td>
<td>Health Services Manager</td>
<td>Unassigned</td>
<td>negative</td>
<td>not satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 22, A000000021-22</td>
<td>Australia</td>
<td>no</td>
<td>General Manager</td>
<td>medium &gt;100</td>
<td>very positive</td>
<td>satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 23, A000000023</td>
<td>Australia</td>
<td>no</td>
<td>change manager</td>
<td>large &gt;5000</td>
<td>positive</td>
<td>very satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 24, A000000024</td>
<td>Australia</td>
<td>no</td>
<td>Engineer</td>
<td>medium &gt;100</td>
<td>negative</td>
<td>very satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 25, A000000025-25</td>
<td>Australia</td>
<td>Unassigned</td>
<td>change manager</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 26, A000000026</td>
<td>Australia</td>
<td>no</td>
<td>consultant</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>neutral</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Interview # 27, A000000027</td>
<td>Australia</td>
<td>yes</td>
<td>change manager</td>
<td>medium &gt;100</td>
<td>positive</td>
<td>slightly satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 28, A000000028-28</td>
<td>United Kingdom</td>
<td>depends</td>
<td>consultant</td>
<td>small &gt;100</td>
<td>Unassigned</td>
<td>very satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 29, A000000029</td>
<td>United Kingdom</td>
<td>yes</td>
<td>Health Services Manager</td>
<td>Unassigned</td>
<td>neutral</td>
<td>neutral</td>
<td>no</td>
</tr>
<tr>
<td>Interview # 30, A000000030-30</td>
<td>Australia</td>
<td>no</td>
<td>Engineer</td>
<td>small &lt;100</td>
<td>neutral</td>
<td>very satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 31, A000000031-31</td>
<td>Australia</td>
<td>Unassigned</td>
<td>change manager</td>
<td>medium &gt;100</td>
<td>neutral</td>
<td>very satisfied</td>
<td>yes</td>
</tr>
<tr>
<td>Interview # 32, A000000032</td>
<td>Australia</td>
<td>no</td>
<td>Bids and Proposals Mgr</td>
<td>medium &gt;100</td>
<td>neutral</td>
<td>slightly satisfied</td>
<td>yes</td>
</tr>
</tbody>
</table>

Table 8.8: Interview Classification Table – Part B
Table 8.9: Interview Classification Table – RTC Effects
<table>
<thead>
<tr>
<th>Interview attributes</th>
<th>Quality</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nodes\Interviews\Interview # 13, A0000002</td>
<td>Unassigned</td>
<td>over time</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 18 A0000007</td>
<td>on quality or above the plan</td>
<td>over time</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 19 A0000008</td>
<td>below quality</td>
<td>on or under time</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 20 A0000009</td>
<td>below quality</td>
<td>over time</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 22 A0000011-12</td>
<td>on quality or above the plan</td>
<td>over time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 23 A0000015</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 24 A0000016</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 25 Handwritten</td>
<td>below quality</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 7 A000015</td>
<td>below quality</td>
<td>Unassigned</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 1, A000009</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 10, A000018</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 11 A000019</td>
<td>below quality</td>
<td>over time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 12 A000020-23</td>
<td>below quality</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 14, A0000003</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 15, A0000004</td>
<td>below quality</td>
<td>on or under time</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 16 A0000005</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 17 A0000007</td>
<td>below quality</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 2 A000010</td>
<td>on quality or above the plan</td>
<td>over time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 21 A0000010</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 3 A000011</td>
<td>below quality</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 4 A000012</td>
<td>Unassigned</td>
<td>on or under time</td>
<td>over cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 5 A000013</td>
<td>Unassigned</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 6 A000014</td>
<td>on quality or above the plan</td>
<td>on or under time</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 8 A000016</td>
<td>below quality</td>
<td>Unassigned</td>
<td>on or under cost</td>
</tr>
<tr>
<td>Nodes\Interviews\Interview # 9 A000017</td>
<td>Unassigned</td>
<td>Unassigned</td>
<td>on or under cost</td>
</tr>
</tbody>
</table>
8.5 Appendix 5 – Survey P-Plots

Figure 8.1: P-Plot - Management
Figure 8.2: P-Plot - Workload

Figure 8.3: P-Plot - Planning and Analysis
Figure 8.4: P-Plot - Politics

Figure 8.5: P-Plot - Politics
Figure 8.6: P-Plot - Trust

Figure 8.7: P-Plot - Stakeholders
Appendix 6 – Survey Histograms

Figure 8.8: Histogram - Workload

Figure 8.9: Histogram - Management
Figure 8.10: Histogram - Stakeholders

Figure 8.11: Histogram - Trust
Figure 8.12 : Histogram - Politics

Figure 8.13 : Histogram - Power
Figure 8.14: Histogram – Planning and Analysis
8.7 Appendix 7 – Factor Independence Tests

Table 8.10: Independence Test – Management vs. Stakeholder

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>193.490^a</td>
<td>165</td>
<td>.064</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>132.952</td>
<td>165</td>
<td>.968</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>22.056</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

N of Valid Cases 70

a. 192 cells (100.0%) have expected count less than 5. The minimum expected count is .01.

Table 8.11: Independence Test – Management vs. Trust

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>284.276^a</td>
<td>255</td>
<td>.100</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>155.901</td>
<td>255</td>
<td>1.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>23.606</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

N of Valid Cases 70

a. 288 cells (100.0%) have expected count less than 5. The minimum expected count is .01.
Table 8.12: Independence Test – Management vs. Workload

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>404.247</td>
<td>315</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>174.456</td>
<td>315</td>
<td>1.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>23.127</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 352 cells (100.0%) have expected count less than 5. The minimum expected count is .01.

Table 8.13: Independence Test – Management vs. Planning/Analysis

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>350.503</td>
<td>225</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>157.485</td>
<td>225</td>
<td>1.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>37.815</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 256 cells (100.0%) have expected count less than 5. The minimum expected count is .01.
Table 8.14: Independence Test – Management vs. Politics

<table>
<thead>
<tr>
<th>Chi-Square Tests</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>248.018</td>
<td>165</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>124.464</td>
<td>165</td>
<td>.992</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>25.328</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 192 cells (100.0%) have expected count less than 5. The minimum expected count is .01.
9 References


Bachmann, D, Elfrink, J & Vazzana, G 1996, 'Tracking the progress of e-mail versus snail-mail', *Marketing Research*, vol. 8, no. 2, pp. 31-5.


Bonilla-Silva, E & Forman, T 2000, "I am not a racist but...": Mapping White college students' racial ideology in the USA.', *Discourse and Society*, vol. 11, no. 1, pp. 50-85.

Boothroyd, R & Best, K 2003, 'Emotional reactions to research participation and the relationship to understanding of informed consent disclosure', *Social Work Research*, vol. 27, no. 4, pp. 242-51.


Brooks, F 1995, *The Mythical Man-Month: Essays on Software Engineering*, Addison Wesley professional Boston • San Francisco • New York • Toronto • MontrealLondon • Munich • Paris • MadridCape Town • Sydney • Tokyo • Singapore • Mexico City.


Byrne, M 2001, 'The concept of informed consent in qualitative research', *AORN Journal*, vol. 74, no. 3, pp. 401-3.


Campbell, D & Friske, D 1959, 'Convergent and discriminant validation by the multitrait-multimethod matrix.', *Psychological Bulletin*, vol. 56, no. 2, pp. 81-105.

Campbell, J & Dunnette, M 1968, 'Effectiveness of T-group experiences in managerial training and development', *Psychological Bulletin*, vol. 70, no. 2, pp. 73-104.


Candido, C & Santos, S 2015, 'Strategy implementation: What is the failure rate ?', Faculdades de Economia, 2.


Cassidy, T 1997, 'Environmental psychology: behaviour and experience in context'.

Chaitin, J 2003, "'I wish he hadn't told me that": Methodological and ethical issues in social trauma and conflict research', Quality Health Research, vol. 13, no. 8, pp. 1145-54.


Charmaz, K 2014, 'Grounded Theory in Global Perspective: Reviews by International Researchers', Qualitative Inquiry, vol. 20, no. 9, pp. 1074-84.


Clark, M & Sharf, B 2007, 'The dark side of truth (s): ethical dilemmas in researching the personal', Qualitative Inquiry, vol. 13, no. 3, pp. 399-416.


Cowburn, M 2005, 'Confidentiality and public protection: Ethical dilemmas in qualitative research with adult male sex offenders', Journal of Sexual Aggression, vol. 11, no. 1, pp. 49-63.


Crotty, M 1998, The foundations of social science research: meaning and perspective in the research process, Sage.

Cummings, T & Worley, C 2001, Essentials of organization development and change, 7th edn, South-Western College Publishing, Mason, OH.


Daymon, C & Holloway, I 2010, Qualitative research methods in public relations and marketing communications, Routledge, London and New York.


Donald, M 2014, 'Project Managers beware: the resistance to change you experience may be due to Senior Leadership rather than just your methods or employees', paper
presented to AIPM National 2014 Conference Proceedings, Brisbane, Australia,  

—— 2016, 'Organisational change factors: more than disgruntled employees or poor process', paper presented to AIPM 2016 Inaugral Regional Conference (Peer Reviewed Paper), Sydney, Australia, 18/10/2016,  


Finch, J 1984, "It's great to have someone to talk to": The ethics and politics of interviewing women', in CBHR (Eds.) (ed.), *Social Researching: Politics, problems, practice*, Routledge and Kegan Paul, London & Boston, pp. 70-87.


—— 2010, 'Stop blaming resistance to change and start using it', *Organizational Dynamics*, vol. 39, no. 1, pp. 24-36.


Galasinski, D & Kozlowska, O 2010, 'Questionnairs and lived experience: Strategies of coping with the quantitative frame', *Qualitative Inquiry*, vol. 16, no. 4, pp. 271-84.


Gillham, B 2000, Developing a questionnaire, Continuum International Publishing Group, London.


Green-Wilson, J 2014, 'How to communicate effectively: verbally and nonverbally', PT in motion, vol. 6, no. 6, p. 49.


Gregory, M & Lodge, J 2015, 'Academic workload: the silent barrier to the implementation of technology-enhanced learning strategies in higher education', Distance Education, vol. 36, no. 2, pp. 210-30.

Griffin, R & Van Fleet, D 2013, Management skills: Assessment and development, Nelson Education.


Hales, S & Rabey, G 2011, 'The frontline manager: fronting up to organisational change', *Industrial and Commercial Training*, vol. 43, no. 6, pp. 368-76.


Hauck, W 2014, 'Fearless feedback boosts trust while replacing traditional performance appraisal at Independent Living, Inc.', *Global Business and Organizational Excellence*, vol. 33, no. 4, pp. 50-62.


Hoch, J 2013, 'Shared leadership and innovation: The role of vertical leadership and employee integrity', *Journal of Business and Psychology*, vol. 28, no. 2, pp. 159-74.


Hola, J & Pikhart, M 2014, '– The implementation of internal communication system as a way to company efficiency', *E+M Ekonomie a Management*, vol. 17, no. 2, pp. 161-9.

Holland, J 1975, *Adaptation in natural and artificial systems. An introductory analysis with application to biology, control, and artificial intelligence*, University of Michigan Press, Ann Arbor, MI.


Jarratt, D 1996, 'A comparison of two alternative interviewing techniques used within an integrated research design: a case study in outshopping using semi-structured and non-directed interviewing techniques', *Marketing Intelligence & Planning*, vol. 14, no. 6, pp. 6-15.


Kazmer, M & Xie, B 2008, 'Qualitative interviewing in internet studies: Playing with the media, playing with the method', *Information, Community & Society*, vol. 11, no. 2, pp. 257-78.


Lewin, K 1945, 'The research center for group dynamics at Massachusetts Institute of Technology', *Sociometry*, vol. 8, no. 2, pp. 126-36.


Markus, ML 1983, 'Power, politics and MIS implementation', *Communications of the ACM*, vol. 26, no. 6, pp. 430-44.


McDonald, RP 1985, *Factor analysis and related methods*, Erlbaum, Hillsdale NJ.


McLellan, E, MacQueen, KM & Neidig, JL 2003, 'Beyond the qualitative interview: Data preparation and transcription', *Field Methods*, vol. 15, no. 1, pp. 63-84.

Meho, LI 2006, 'E-mail interviewing in qualitative research: A methodological discussion', *Journal of the American Society for Information Science and Technology*, vol. 57, no. 10, pp. 1284-95.


Merron, K 1993, 'Let's bury the term 'resistance"', *Organization Development Journal*, vol. 11, no. 11, pp. 77-86.


Meyer, H 1976, 'Personal directors are the new corporate heroes', *Fortune*, vol. 93, no. 8488, p. 140.


Mocho, L 2006, 'Email interviewing in qualitative research: A methodological discussion', *Journal of the Association for Information Science & Technology*, vol. 57, no. 10, pp. 1284-95.

NP Library 2012, *Western Sydney: An Economic Profile*, by Montoya, D.


Noh, G 1998, 'Motivation, design and personal web presence', paper presented to annual meeting of the Association for Education in Journalism and Mass Communication, Baltimore, MD.


Oppenheim, A 1992, Questionnaire design, interviewing and attitude measurement, Pinter, Google Scholar, London.


Parry, O & Mauthner, N 2004, 'Whose data are they anyway? Practical, legal and ethical issues in archiving qualitative research data', *Sociology*, vol. 38, no. 1, pp. 139-52.


Patanakul, P & Shenhar, A 2012, 'What project strategy really is: The fundamental building block in strategic project management', *Project Management Journal*, vol. 43, no. 1, pp. 4-20.


Pettigrew, A 1972, 'Information control as a power source', *Sociology*, vol. 6, no. 2, pp. 187-204.

Pfeffer, J 2011, 'Could we manage not to damage people’s health?', Harvard Business Review, vol. 89, no. 11, pp. 42-.


Powell, M, Fitzgerald, R, Taylor, N & Graham, A 2012, 'International literature review: Ethical issues in undertaking research with children and young people'.


Qu, S & Dumay, J 2011, 'The qualitative research interview', *Qualitative Research in Accounting & Management*, vol. 8, no. 3, pp. 238-64.


Raudonis, B 1992, 'Ethical considerations in qualitative research with hospice patients', *Qualitative Health Research*, vol. 2, no. 2, pp. 238-49.


Richards, H & Schwartz, L 2002, 'Ethics of qualitative research: are there special issues for health services research?', *Family Practice*, vol. 19, no. 2, pp. 135-9.

Riessman, C 1987, 'When gender is not enough: Women interviewing women', *Gender & Society*, vol. 1, no. 2, pp. 172-207.


Stainback, S & Stainback, W 1988, Understanding and conducting qualitative research, Kendall/Hunt Publishing Co., Dubuque, IA.


Tolbert, P & Hall, R 2009, Organizations: Structures, Processes, and Outcomes, Pearson Education Inc.


University, WS 2017, *Greater Western Sydney Region Map*, Western Sydney University.

Vainio, A 2012, 'Beyond research ethics: anonymity as 'ontology', 'analysis' and 'independence"*, *Qualitative Research*, vol. 13, no. 6, pp. 685-98.


Wolcott, H 2002, Sneaky kid and its aftermath: Ethics and intimacy in fieldwork, Altamira Press, Walnut Creek, CA.


Wright, K 2005, 'Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services', Journal of Computer-Mediated Communication, vol. 10, no. 3, pp. 00-.


