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# Successful Organizational Change: Aligning Change Type With Methods

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SUCCESSFUL ORGANIZATIONAL CHANGE: ALIGNING CHANGE
TYPE WITH METHODS

by

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# ABSTRACT

The motivation behind this research is the prevalence of challenges and ambiguity associated with successful organizational change and the numerous available approaches in dealing with these challenges and ambiguity.

Many definitions and methods have been suggested to manage change; however, organizations still report a high failure rate of their change initiatives. These high failure rates highlight the continuing need for research and investigation, and imply a lack of a valid framework for managing successful organizational change.

This dissertation critically reviews the concept of having one change approach as the "silver-bullet". In pursuit of this goal, this research contributes a roadmap to the change management literature and provides definitions for describing change types, change methods and change outcomes. This dissertation also develops a conceptual model that proposes relationships and connections between the change types, change method and change outcomes that is assumed to enable successful change. To validate the research conceptual model, two hypotheses were developed and a self-administered survey was created and administered (paper survey and online). The respondents were professionals involved in change projects in the Central Florida region. The unit of analysis in this research was a completed change project. Respondents were asked to complete the survey for two different projects: a successful project and an unsuccessful

project. Statistical processes were applied to verify the conceptual model and test the research hypotheses.

Based on the data collected, exploratory factor analysis was used to verify the validity and reliability of the conceptual model measures. Results of the hypotheses testing revealed that there are relationships between the complexity of the change type and the use of change methods that significantly relate to successful change. The results also revealed that the alignment of the change type and change methods significantly relates to successful change.

From the viewpoint of change project managers, the results of this dissertation have confirmed that the complexity of the change project type negatively correlates with change success and the increased use of change methods positively correlates with change success. The results also confirmed that the methods that highly correlate to change success address the following: (a) the situation that needs changing, (b) the proper implementation of change, (c) the establishment of suitable plans and controls to sustain change, and (d) the presence of a credible team leader who influences the major decisions during the change project.

This dissertation is dedicated to my husband, Rashad, who always supported me during the challenges of graduate school, and for my son, Daniel, who brought so much joy into my life during the last two years. I am truly thankful for having you both.

This dissertation is also dedicated to my parents, Nasri and Basma, my brother, George and my sister Haneen, and who continually encouraged me and always loved me and believed in me achieving anything I aspire…

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I would also like to thank my entire family who always believed in me and encouraged me and my friends for their sincere and insightful support.

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# CHAPTER ONE: INTRODUCTION

## 1.1    Motivation of this Research

In the rapidly growing global world we are living in today, change has become the norm for organizations to sustain their success and existence. Many researchers and authors have proposed definitions and methods for change, yet the success rate of change initiatives is less than 30% (Balogun & Hope Hailey, 2004; Beer & Nohria, 2000; Grover, 1999). Furthermore, Rouse (2011) notes the fact that this rate is not getting any better, which provides room for more research and investigation. Organizations need an integrated method to drive change. Managers have to recognize that change without prior planning yields negative results and they need to try to minimize any destructive barriers or consequences before initiating change (Kanter, Stein, & Jick, 1992; Kotter, 1996).

## 1.2    The Problem

When an organization starts a change journey, it needs to follow a clear method in order for change to be successful (Haidar, 2006). In the change management literature, there has been a considerable disagreement regarding the most appropriate method to changing organizations (Bamford & Forrester, 2003). Change affects all aspects of an organization, including strategy, internal structure, processes, people's jobs and attitudes and overall culture organizations need to realize that change can be neither quick nor straightforward, but can be more flexible and very well planned (Kanter et al.,

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1992). Dunphy and Stace (1995) argue that "managers and consultants need a model of change that is essentially a 'situational' or 'contingency' model, one that indicates how to vary change strategies to achieve 'optimum fit' with the changing environment" (p. 905). Organizations need a change method that can be modified to achieve the optimum fit within the surrounding environment (Bamford & Forrester, 2003; Dunphy & Stace, 1993).

Different methods have been proposed to manage and implement change; however, organizations still report a high failure rate of their change initiatives and this failure rate debatably implies a lack of a valid framework for managing organizational change (By, 2005). Reasons behind organizational change failure have attracted only limited attention (Buchanan et al., 2005). When reviewing the relevance and validity of available methods so far, the literature shows a considerable disagreement regarding the most appropriate method to changing organizations (Bamford & Forrester, 2003). Burnes and Jackson (2011) argue that even writers who have addressed why change initiatives do not succeed failed to recognize that the reasons go beyond poor planning or lack of commitment to change; "The underlying cause is a conflict of values between the organization and the approach to and type of change it has adopted" (p. 135). This research focused on aligning the organizational change type with the appropriate change method.

## 1.3    Research Questions

In order to address the current need of organizations for more contingent methods in approaching change, this research answered a specific set of questions. The questions emerged from a research perspective (theoretical) and from a managerial perspective (operational).

Research Question 1 (theoretical): How does the relationship between the change and change method relate to successful change?

Research Question 2: (operational): How can managers decide on the methods that relate to successful change?

### 1.3.1 Conceptual Model

This research proposed a framework that will enable organizations to decide on the optimum change method that will likely result in successful change. Figure 1 shows the conceptual model of this research. As shown in the conceptual model, this research was about understanding the potential relationships between change types, change enablers, change methods and change outcomes and how aligning the change method and enablers with the type of change is related to the change outcome as shown in Figure 1.
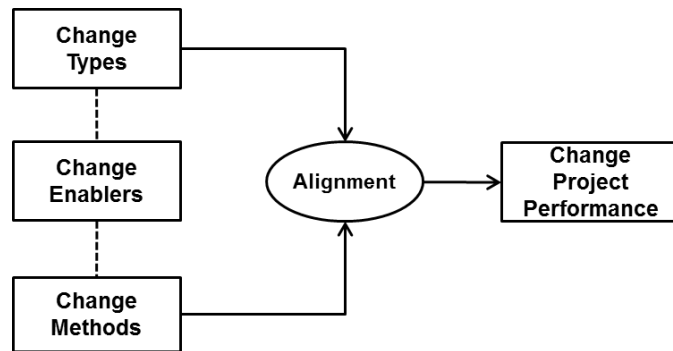
Figure 1: Research Conceptual Model

The conceptual model describes the process of the different types of organizational change and how the change type can be aligned to the change enablers and methods. This model also shows how the proper alignment between the change type and the change method can impact the change outcome.

The model is based on the following overall hypothesis: the better the alignment between the change type, change enablers and the change method, the higher the likelihood that change will succeed.

In answering the main research questions, the following sub-question was proposed; how can managers decide on the methods that relate to successful change?

### 1.3.2  Contribution of the Research

The main contribution of this research to the scholarly literature was to connect the three main knowledge areas of change types, change methods, and change outcomes

as shown in Figure 2. These three areas are stand-alone subjects in several publications in the literature. Some researchers connected the change types and change methods (Burnes, 2004; By, 2005; Goes, Friedman, Seifert, & Buffa, 2000; Meyer, Brooks, & Goes, 1990), while other researchers connected the change methods and change outcomes (Beer & Nohria, 2000; Burnes, 2004; Miller, 1982; Mintzberg, 1979). But connecting the change types, change methods and change outcomes remained a new research territory to explore.



Figure 2: The Contribution of this Research

## 1.4    Definitions of Terms

*Successful change*: A change that results in positive outcomes and the desired performance (Hamel, 2000; Sink, Johnston, & Morris, 1995).

*Change type:* the essential characteristics that describe the complexity, kind and form of change and the qualities that make change what it is (Goes et al., 2000; Meyer et al., 1990; Moore, 2011).

*Change scale:* the degree of change required to reach the desired outcome and is classified under large and small-scale change. **Large-scale change** is a far-reaching and significant change that addresses a big gap in the organization. It is more holistic and engages all stakeholders in the change process (Boga & Ensari, 2009; Boyd, 2009; Brigham, 1996; Margolis et al., 2010; Oldham, 2009). **Small-scale** change is a minor and less significant change that addresses a small gap in the organization, it is easier to initiate and manage when compared to large-scale change (Boga & Ensari, 2009; Stock, 1993)

*Change duration:* the time period over which change takes place and is classified under long-term and short-term change. **Long-term** change is a long-standing change takes place over a relatively long period of time that actively involves all employees throughout the change process and can be challenging to the organization (Harrison, 2011; Rachele, 2012; Schalk, van, de Lange, & van Veldhoven, 2011). **Short-term** change is a temporary change that takes place over a relatively small period and helps in implementing improvement initiatives especially in complex systems (Berwick, 1998). It has been recognized by authors as being more successful when compared to long-term change (Shields, 1999; Ulrich, 1998).

*Change methods:* the actions, procedures and techniques undertaken by organizations to deal with change. This dissertation proposed that change methods are grouped under two categories: systematic change methods and change management methods.

*Systematic change methods:* processes and tools that help the organization in making a series of carefully constructed and sequenced start, stop, and continue decisions to improve performance (Huy & Mintzberg, 2003; Sink et al., 1995; Zook, 2007). Systematic change methods align customers, products/services, processes/tools, structure, and skill mix (Kotnour, Matkovitch, & Ellison, 1999)

*Change management methods:* processes and tools that help the organization in aligning the change initiative with the overall organizational strategy and making change part of the organizational culture (Grover, 1999; Hamel, 2000; Kanter et al., 1992; Kotter, 1996; Luecke, 2003; Walinga, 2008). Change management methods are broader and more conceptual when compared to systematic change methods; they involve people at the group or individual level (Whelan-Berry, Gordon, & Hinings, 2003).

*Change enablers:* factors that need to exist in the organization to increase the probability of the change project's success (Chrusciel & Field, 2006; Kenny, 2006; Miller & Friesen, 1982).

*Alignment:* the extent to which two or more organizational dimensions meet the predefined theoretical standard with mutual agreement (Hatvany, Tushman, & Nadler, 1982; Jarvenpaa & Ives, 1993; Sabherwal, Hirschheim, & Goles, 2001).

*Change project outcome:* the ending result of the change project. A change project is deemed successful if it is completed within the predetermined objectives (i.e., completed within budget, within schedule, conforming to customer requirements and satisfies the main stakeholders) ("A Guide to the Project," 2004; Kendra & Taplin, 2004; Nicholas & Steyn, 2008).

## 1.5    Research Plan and Methodology

The flow of the research process included different phases that explain the steps and reviews the output of each phase. The following list summarizes the research phases:

1. Review literature and build comprehensive knowledge and understanding about change

2. Identify the different types of change

3. Finalize research hypothesis and conceptual change model

4. Understand how to conduct research about change (e.g., conducting research through surveys and interviews)

5. Verify and validate the developed model with surveys and interviews

6. Collect and summarize surveys and interviews outcome

7. Analyze results, revise the model and adapt or refine the theory

8. Provide areas for future research.


Figure 3 shows the flow of the research plan and how the data methodology and analysis verified the conceptual model relationships.
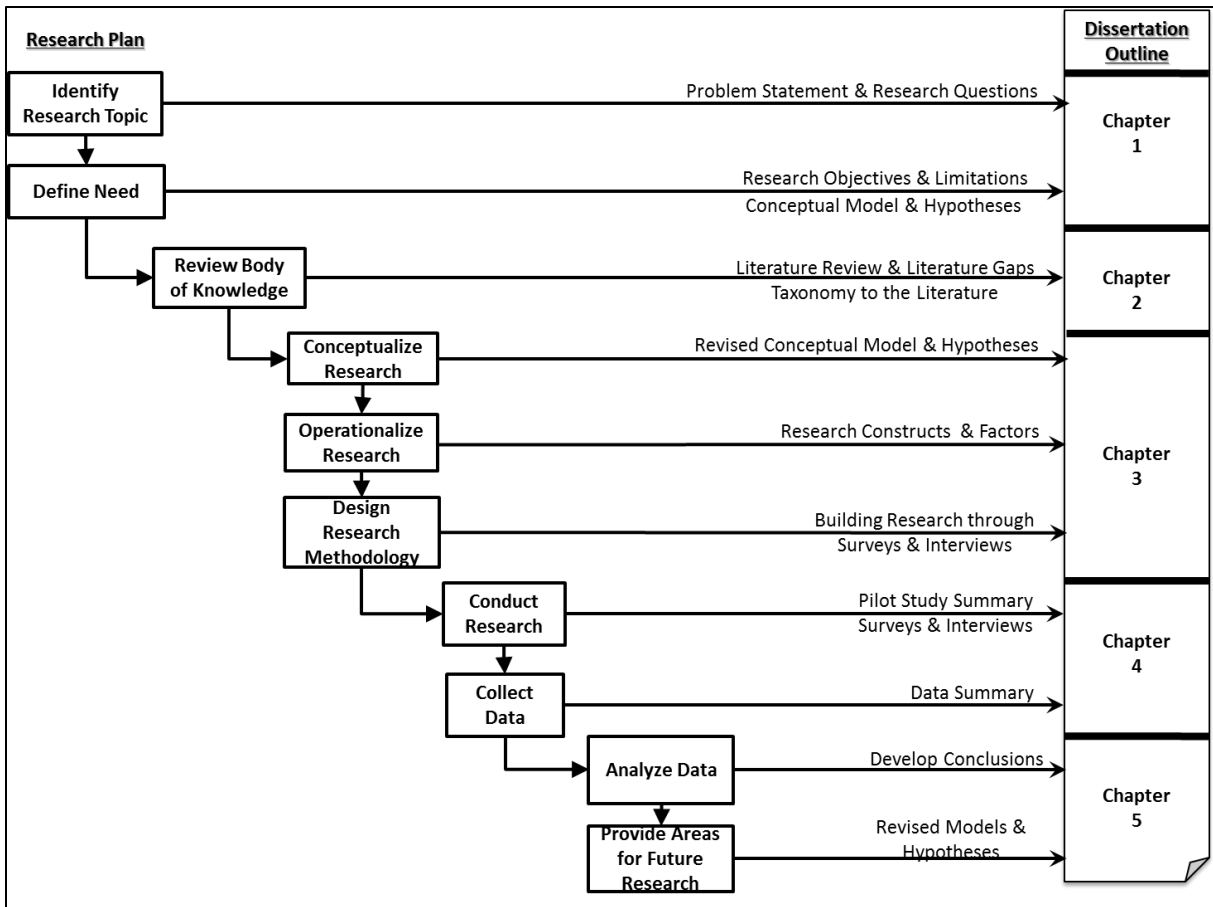
Figure 3: Research Plan

This research methodology used in this dissertation is considered qualitative (Creswell & Miller, 1997). Information gathering and knowledge building was conducted using surveys and interviews. Such research is also known to be subjective and interactive (Creswell & Brown, 1992).

## 1.6    Research Outputs

The output of this research was a framework that will enable managers to decide on the optimum change method that will likely result in successful change. Optimum change in

this dissertation was measured in terms of the change of project performance success and the impact of the change project. As noted in the next section, a set of papers was produced to address the research questions. This research was designed to achieve the following goals:

- Develop a roadmap to the available change literature

- Provide a review and summary of the change definitions and types

- Deliver an analysis and classification of the available change methods

- Develop measures of successful change

- Develop methods for conducting good research on change

- Conduct surveys and interviews on change

- Provide requirements and recommendations for successful change

## 1.7    Dissertation Outline

The dissertation manuscript includes five chapters. The tile, focus and brief content of each chapter are shown in Table 1.

Table 1: Dissertation Manuscript

| Dissertation Chapter | Focus/ Title | Content |
|---|---|---|
| Chapter 1 | Introduction | • Introduction<br>• Research questions and hypothesis<br>• Conceptual Model. |
| Chapter 2 | Understanding the Organizational Change Literature | • An understanding and review of the organizational change literature<br>• A roadmap of the organizational change literature<br>• A summary of the available change methods. |
| Chapter 3 | Research Methodology | • A conceptualized research model<br>• Constructs and factors that need to be measured<br>• Research about change: conducting surveys and interviews. |
| Chapter 4: | Data Collection and Analysis | • A verification of the developed model by conducting surveys and interviews<br>• Testing the validity and reliability of the data collection instruments<br>• Analysis of the collected data. |
| Chapter 5 | Conclusions and Recommendations | • Data results and discussion<br>• Implications of the results<br>• Lessons learned<br>• Conclusions and areas for future research. |

## 1.8   Publication Plan

The dissertation consists of the publication of papers shown in Figure 4. The two quadrants in the first column focus on papers that are more academic and address either other academics or practitioners. The two quadrants in the second column focus on papers that are more practical and address either academics or practitioners.

| From To | Academics | Practitioners |
|---|---|---|
| **Academics** | **Paper: "Understanding the Organizational Change Literature: A Review and Integration"** <br> **Source:** Chapter 2 <br> **Publication Location:** IIE Annual conference 2012 and 2013 | **Paper:** "**Lesson Learned about Change: Recommendations of Surveys Research Analysis**" <br> **Source:** Chapter 5 <br> **Publication:** Journal of Management/ Journal of Organizational Change Management |
| **Practitioners** | **Paper:** "Integrating the Organizational Change Literature: A Model for Successful Change" <br> **Source:** Chapter 2 and 3 <br> **Publication:** Journal of Organizational Change Management <br><br> **Paper**: "A Conceptual Change Model: Preliminary Results. <br> **Source**: Chapter 3 <br> **Publication**: IIE 2014 Applied solutions Conference <br><br> **Paper:** "Implementing a Conceptual Change Model: Results and Conclusions" <br> **Source:** Chapter 4 <br> **Publication:** Journal or Enterprise Transformation | |

Figure 4: Publication Plan

## 1.9   Relevant Research Areas

This research investigated different areas that are hypothesized to affect organizational change. It was proposed that change is an interdisciplinary field, and the areas of Engineering Management (EM)/Industrial Engineering (IE), leadership/management, and sociology/psychology are all interconnected and important to comprehend when studying change. Figure 5 shows the proposed interconnected fields that make change management interdisciplinary.
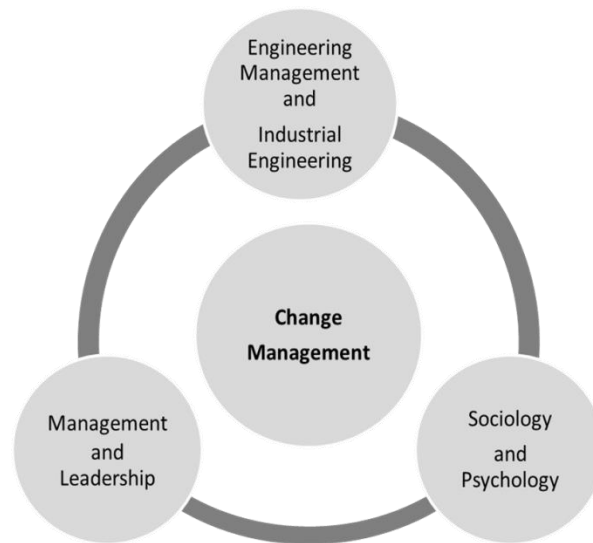
Figure 5: Relevant Areas to Change

### 1.9.1 Engineering Management (EM) and Industrial Engineering (IE)

Research on change in the Engineering Management (EM) and Industrial Engineering (IE) fields goes back to the early work of Frederick Taylor, called the "father of management sciences", in 1911. He introduced the "Piece Rate System" that was concerned with improving the efficiency of the shop floor operations (Babcock & Morse, 2002). When implementing change, the EM and IE values can be critical for change efforts to succeed. Managing change and its associated uncertainties can be is stressful and can lead to serious physical, emotional, and psychological tolls (McCaskey, 1982).

Engineering management is about applying engineering values and skills in coaching people and managing projects (Lannes, 2001). As per the U.S. Department of Education Institute of Education Sciences: Classification of Instructional Programs

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(CIP) Engineering and Industrial Management provides proper experience in financial management, industrial and human resources management, industrial psychology, management information systems, quality control and operations research. Engineering management brings the technical functions such as design and production to the managerial world (Babcock & Morse, 2002; Omurtag, 2009), and the inclusion of the human factor aspect in EM gives it a unique distinction among other engineering disciplines (Baker, 2009). Industrial engineering, as defined by the Institute of Industrial Engineering (IIE), deals with the design, improvement and installation of integrated systems of people, materials, information, equipment and energy. Industrial engineering draws upon specialized knowledge and skills in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems. Engineering management and industrial management are both important to manage change, and including the human factor aspect in EM and IE gives them a unique distinction among other engineering disciplines (Baker, 2009).

### 1.9.2 Leadership and Management

Fayol first introduced management as administration in the early 1900s (Babcock & Morse, 2002). Drucker (1974) defines management as a process of accomplishing tasks with the help of other people and resources. Mcfarland (1979) argues that "management was originally a noun used to indicate the process of managing, training,

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or directing" (p. 5). Mcfarland also defines management as an administrative process and can be seen as a science or an art.

Koontz and Weihrich (1993) define five main functions of management: (a) planning, which includes setting a mission and vision and prepare for future actions, (b) organizing, which involves creating a formal structure of people's roles in the organization, (c) staffing, which means employing people to fill in the positions on the organizational structure, (d) leading, which means having the authority to influence and direct employees to willingly accomplish certain objectives or achieve common goals, and (e) controlling, which involves following up and correcting employees' performance to ensure they conform to the goals and objectives set. Nicholas and Steyn (2008) define management as the execution of all of what is important to accomplish a task or a system of tasks or completing a project on time with the allocated resources.

Leadership can be defined as a process whereby a person influences and directs others to accomplish a certain objective or common goal (Northouse, 2007). Kouzes and Posner (1995) suggest that the five main leadership practices, what they called the "exemplary leadership," are: modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart (p.13). Soderholm (1989) argues that leadership is about the innovation of new ideas and new concepts that generate new and desirable outcomes. The entrepreneurship, creativity and innovation embedded in leadership are very important to successfully manage change. A leader is the person that makes sure that the organization is heading in the right direction

(Winston, 2004). The continually changing business environment needs quick responses; leaders have to make the right decision at the right time in order to align the organization within this changing environment in addition to motivating people to work and implement the changes (Goleman, 2000; Haidar, 2006). In complex and ambiguous situations, managers have to deal with major uncertainties that arise, and those leaders who can successfully deal with this uncertainty are distinguished and become key people in the organization and gain great impact and authority (Thompson, 1967). Mahmood, Basharat, and Bashir (2012) argue that "Management and leadership are two overlapping terms which confuse many people. Leadership and management are complementary for each other and they go hand in hand" (p. 513). Therefore, both areas were studied in this research.


### 1.9.3 Sociology and Psychology

Change research in the fields of psychology and sociology started with studies related to organizational development (OD). Research on OD has its roots in the early work of Lewin in 1946; he was a humanitarian who believed that human conditions can only be improved by resolving social conflicts (Burnes, 2004). Lewin's theories of social science initiated studies in the role of human behavior in organizational dynamics. This research determined that individual as well as group perspectives shape how people react to organizational change ( Burnes, 2004; Burnes, 1996; French & Bell, 1995; Lewin, 1948). Figure 6 shows the different perspectives in organizational development.
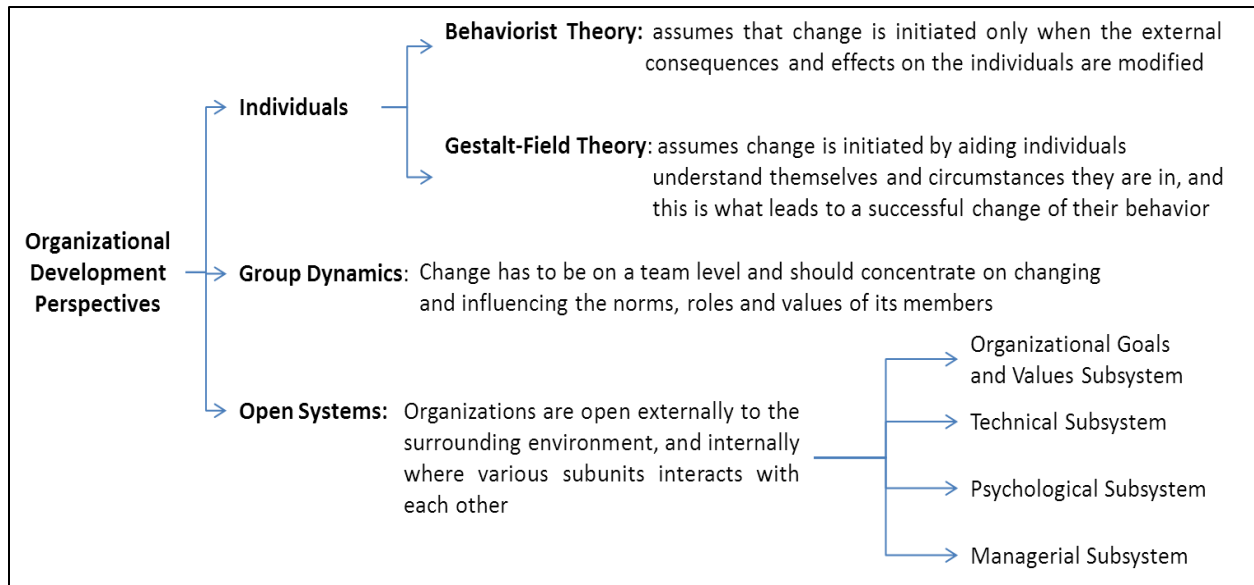
Figure 6: Organizational Development Perspectives

As shown in Figure 6, each individual theory assumes it is possible to translate human actions correctly (Lovell, 1980; Pavlov, 1960; Skinner, 1974). Looking at group dynamics as part of organizational development is probably the oldest perspective (Schein, 1969). Group dynamics were originated by Kurt Lewin in 1948; he believed that since organizational structure is becoming more team-based, then individuals' behavior is a function of the group environment and can only be seen and modified in terms of groups.

As a result of merging both, individual and group perspectives, the open systems perspective for organizational development (OD) emerged, which looks at the organization form a broader perspective. As the name implies, this perspective views an

organization as being open externally to the surrounding environment and internally where various subunits interact with each other (Buckley, 1968; Scott, 1987).

In 2011, Lalonde also discussed the open system perspective of OD. Lalonde argues that the open system requires ongoing change to adapt to the revolutionary environment and this creates a strategy of continuous learning that becomes integrated within the organizational culture. Organizational development impacts the organization by changing the individuals and altering the overall performance; consequently, change is a natural conceptualization of OD (Kezar, 2001).

Organizations undergoing change vary greatly in their structure, systems, strategies and workforce, and it is proposed in this study that the interconnection between the fields of EM/IE, leadership/management, and sociology/psychology is necessary to understand the various types of organizational change and for change to succeed. In order to review the three research areas shown in Figure 5, this research addressed the journals shown in Table 2.

Table 2: Journals Addressing Change

| Field | Journals |
|---|---|
| **Engineering Management and Industrial Engineering** | • Engineering Change Mgmt.<br>• IEEE Transactions on Engineering Management<br>• International Journal of Operations and Production Management<br>• Journal of Enterprise Transformation |
| **Management and Leadership** | • Strategic Direction<br>• Strategy and Leadership<br>• Harvard Business Review<br>• International Journal of Strategic Change Management<br>• Academy of Management Review<br>• British Journal of Management<br>• Harvard Business Review<br>• Journal of Organizational Change Management<br>• Journal of Change Management<br>• Journal of Management<br>• Journal of Management Development<br>• Journal of Management Studies<br>• Management Decision<br>• MIT Sloan Management Review<br>• Journal of Business Strategy |
| **Sociology and Psychology** | • Group and Organization Studies<br>• Human Relations<br>• Personnel Review<br>• Journal of Managerial Psychology<br>• Organization Studies<br>• Journal of Applied Behavioral Science<br>• Organization Science |

Consistent with the fields shown in Table 2, leading change management researchers and authors can be identified. Table 3 summarizes these recognized authors along with their contributions.

Table 3: Key Authors Contribution to the Change Literature

| Field | Author Name | Major Contribution |
|---|---|---|
| **Industrial Engineering and Engineering Management** | Frederick Taylor | Scientific management |
| | Joseph Juran | Cross management functions and resistance to change |
| | Shewhart | Statistical quality control |
| | Russell Lincoln Ackoff | Idealized design |
| | Sink and Morris | The seven management performance measures |
| **Management and Leadership** | Henri Fayol | Management functions |
| | Danny Miller | • The four org. subsystems<br>• The piecemeal change concept |
| | Henry Mintzberg | The incremental change concept |
| | Peter Drucker | The practice of management |
| | Michael McCaskey | Change and ambiguity |
| | Kathleen M Eisenhardt | Building theories from case study research |
| | Rosabeth Moss Kanter | The change masters and the human side of change |
| | R.J Bullock and Donde Batten | Integrative model to deal with change |
| | Dexter Dunphy and Doug Stace | The four different scales for organizational change |
| | John Kotter | Eight steps to lead change |
| | Michael Beer and Nitin Nohria | Theory E and Theory O |
| | Gary Hamel | Insurrection model to deal with change |
| | David Bamford and Paul Forrester | Definitions of planned and emergent change |
| **Sociology and Psychology** | Thomas Cummings and Edgar Huse | Action research model to deal with change |
| | Kurt Lewin | Participatory action research to deal with change |
| | Marvin Ross Weisbord | The concept of future research in organizational development and transformation |
| | Edgar Schein | Action research to deal with change |

## 1.10   General Limitations of the Research

General limitations associated with survey research apply to this study. First, generalization of the results is doubtful since there was no randomization of the respondents participating in this study. More organizations and different change types can be involved additionally to achieve broader research context and increase generalizability of the conclusions. Moreover, the small number of respondents limits the ability to develop general theories about the relationships between change type,

change methods and change outcomes for other samples. Being theory-driven, this research can be repeated with more respondents to further validate this research.

Limitations associated with using exploratory factor analysis (EFA) for data analysis is that EFA-yielded factor structure depends on the mechanics of extraction and rotation procedures and that the researcher has to accurately judge the constructs and their underlying factors critical. In the future, further analysis (e.g., structural equation modelling) can be completed to establish cause-effect relationships. To complete this analysis the baseline survey established in this paper can be used with another organization and increased sample size. In spite of these limitations, this study was able to make useful conclusions and recommendations by connecting the three main knowledge areas of change types, change methods, and change outcomes that are stand-alone subjects in the literature.

# CHAPTER TWO: UNDERSTANDING THE ORGANIZATIONAL CHANGE LITERATURE

## 2.1 <u>Introduction</u>

This chapter reviews and integrates the organizational change literature. The first section introduces the need for change and the gaps this chapter is addressing. The second section reviews and integrates the history of change literature and the main authors that addressed change. The third section proposes and discusses a taxonomy that can be used to understand the change literature and discusses the different change types, enablers, methods and change outcomes. The fourth section discusses the alignment between the change types and methods. The fifth section discusses opportunities for future research and the sixth section summarizes the chapter with an overall conclusion.

We are living today in a constantly growing global business environment, where change has become the norm for organizations to sustain their success and existence. Industrial and governmental organizations are constantly striving to align their operations with a changing environment (Ackoff, 2006; Burnes, 2004; By, 2005; Hailey & Balogun, 2002; Kotter, 1996; Mintzberg, 1979; Moran & Brightman, 2001). Organizations and their leaders are also changing as a natural response to the shift in strategic importance, from effectively managing mass markets and tangible properties to innovation, knowledge management, and human resources (Dess & Picken, 2000). Many approaches and methods have been suggested to manage change, yet

organizations undergoing change vary significantly in their structure, systems, strategies and human resources.

Organizations need an integrated approach to drive systematic, constructive change and minimize the destructive barriers to change, as well as addressing the consequences of making the change. In implementing change, different definitions and methods have been proposed to manage change; however, organizations still report a high failure rate of their change initiatives. The literature provides many cases on organizational change; yet, the success rate of change initiatives is less than 30% (Balogun & Hope Hailey, 2004; Beer & Nohria, 2000; Grover, 1999). And more recent articles note the fact that this rate is not getting any better (Jacobs, van Witteloostuijn, & Christe-Zeyse, 2013; Jansson, 2013; Michel, By, & Burnes, 2013; Rouse, 2011). Those failure rates indicate a sustained need for research and investigation, and debatably imply a lack of a valid framework for organizational change (By, 2005; Rafferty, Jimmieson, & Armenakis, 2013). Reasons behind organizational change failure have attracted only limited attention (Buchanan et al., 2005). Dunphy and Stace (1993) argue, "managers and consultants need a method of change that is essentially a 'situational' or 'contingency' method, one that indicated how to vary change strategies to achieve 'optimum fit' with the changing environment" (p. 905). When reviewing relevance and validity in the available change methods, the literature shows a considerable disagreement regarding the most appropriate method to changing organizations (Bamford & Forrester, 2003).

With the high variation between organizations undergoing change, one change approach or method would not be suitable for all situations (Michel et al., 2013; Nyström, Höög, Garvare, Weinehall, & Ivarsson, 2013). One-size-fits all methods frequently result in failing change (Kotter & Schlesinger, 2008).

Organizations need to clearly understand the forces or drivers of change by employing strategic, systematic actions that lead to the desired outcomes. Organizations have to recognize that change without planning yields negative results; hence, they need to fully understand the possibility of getting positive and negative results of an action before it is initiated in the first place, and try to minimize any destructive barriers or consequences (Kanter et al., 1992; Kotter, 1996). Burnes & Jackson (2011) argue that even writers, who have addressed why change initiatives fail, recognize that reasons go beyond poor planning or lack of commitment to change: "The underlying cause is a clash of values between the organization and the approach to and type of change it has adopted" (p. 135). Conner (1998) believes that organizations have to realize that the drivers of change are all connected and affect each other; any change action has a chain reaction that impacts the whole organization.

Today, successful change management is a major topic for all organizations, and how to successfully achieve organizational change during economic crises is being asked by many organizations (Ashurst & Hodges, 2010). Many writers have suggested methods to implement change; nevertheless, in recent years, it has become more recognized that one or even two methods to change cannot cover the vastly different change situations (Burnes & Jackson, 2011). The growth in theories and methods dealing with

change requires having a framework that integrates and categorizes the various methods (Goes et al., 2000). Change methods need to be continuously evolving to align with the environmental factors.

## 2.2   A Review of the History of Change Literature

This section provides a review of history of change as a discipline and reviews the primary authors that have addressed the different contributing disciplines of change such as: (a) sociology and psychology; (b) management and leadership; and (c) engineering management (EM) and industrial engineering (IE). Figure 7 shows the change literature timeline along with the authors in each area.



Figure 7: Change Management Timeline

As shown in Figure 7, research in change in the areas of psychology and sociology started with the Lewin studies in 1946 in organizational development (OD). Kurt Lewin was a humanitarian who thought that human conditions could only be enhanced by resolving social conflicts (Burnes, 2004). Lewin is considered the intellectual father of the philosophies of organizational development, applied behavioral science, action research and planned change. Working during World War II, Lewin focused on how to change human behavior, spurring an entire generation of research addressing change and implementing it as a process (Schein, 1988). Lewin's theories inspired studies in the role of human behavior in organizational dynamics. Individuals' and groups' perspectives revealed how people react to organizational change. Figure 8 shows the different perspectives in organizational development.
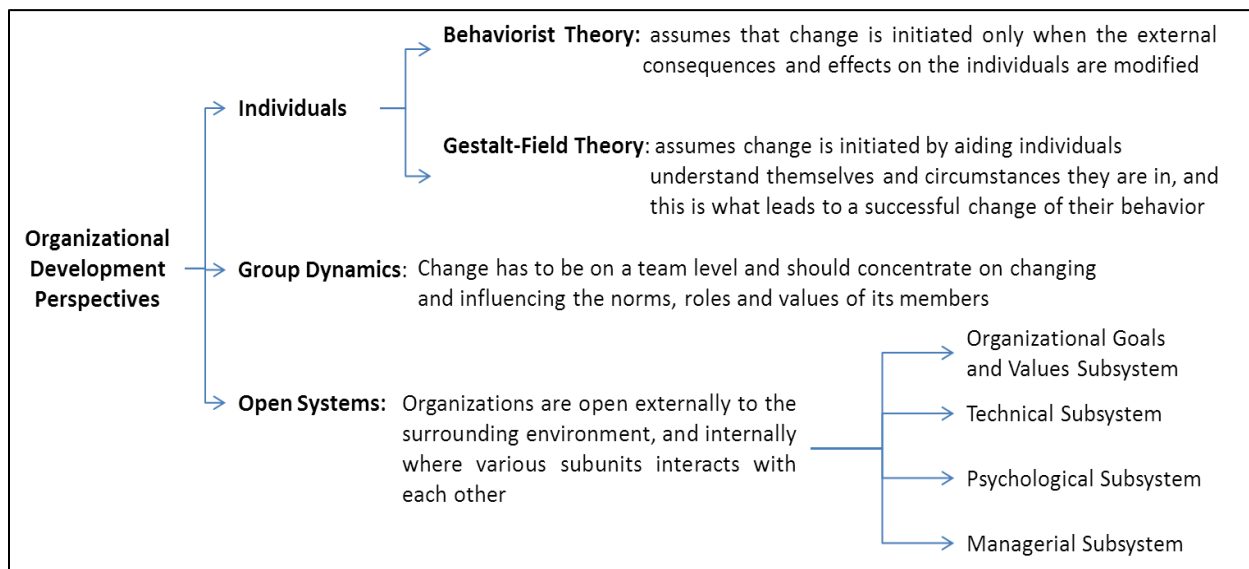


Figure 8: Organizational Development Perspectives

As shown in Figure 8, each of the individual theories assumed it was able to translate the human actions correctly (Lovell, 1980; Pavlov, 1960; Skinner, 1974). Looking at group dynamics as part of organizational development is probably the oldest perspective (Schein, 1969). Group dynamics were identified and defined by Kurt Lewin in 1948; he believed that since organizational structure was becoming more team-based, individuals' behavior must be a function of the group environment and can only be seen and modified in terms of groups.

Supporters of the group dynamics perspective claim that change has to occur on a team level and should concentrate on changing and influencing the norms, roles and values of its members (Cummings & Huse, 1989; French & Bell, 1984). As a result of both perspectives, of individuals and groups, the open systems explanation of organizational development emerged; the open systems school looks at the organization from a broader perspective. As the name implies, this school views an organization as being open externally to the surrounding environment, and internally where various subunits interact with each other (Buckley, 1968; Scott, 1987). Lalonde (2011) argues that the open systems require ongoing change to adapt to the revolutionary environment and this creates a strategy of continuous learning that becomes integrated within the organizational culture. Organizational development affects the organization by changing the individuals and altering the overall performance; consequently, change is a natural conceptualization of OD (Kezar, 2001). Weisbord and Janoff (2010) promote the idea of participation when discussing organization development and change by introducing "future research." They note that when issues involving people are explored, more

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creative energy is released, leading to projects that everyone identifies as significant and no one could accomplish alone. In the social studies area, the change management literature has been associated with OD studies. Moreover, it has been argued that change management is a proper replacement for OD as it includes both business and human needs (Worren, Ruddle, & Moore, 1999).

First introduced in the early 20$^{th}$ century, the discipline of management was introduced by Fayol as a part of general administration and has since emerged as a major focus of research. Fayol is also known for developing the fourteen principles of management. In 1949, Fayol wrote a book titled *General and Industrial Management* in which he discusses what he considered the most important fourteen principles of management and explains how managers should organize and interact with staff (Fayol, 1950). Carter (1986) argues that most management textbooks recognize Fayol as the father of the first theory of administration. Fayol also divided the functions of administration or management into five elements: (a) planning, (b) organizing, (c) commanding, (d) coordinating and (e) controlling (Babcock & Morse, 2002).

In 1974, Drucker defined management as a process of accomplishing tasks with the help of other people and resources. Drucker argues that business has to be managed by balancing the different organizational goals and objectives that became a popular term in management called "management by objectives" (Drucker, 1986). Mcfarland (1979) argues "management was originally a noun used to indicate the process of

managing, training, or directing" (p. 5). Mcfarland also defines management as an administrative process and can be seen as a science or an art.

Koontz and Weihrich (1993) define five main functions of management: (a) planning, which includes setting a mission and vision and prepare for future actions, (b) organizing, which involves creating a formal structure of people's roles in the organization, (c) staffing, which means employing people to fill in the positions on the organizational structure, (d) leading, which means having the authority to influence and direct employees to willingly accomplish certain objectives or achieve common goals, and (e) controlling, which involves following up and correcting employees' performance to ensure they conform to the goals and objectives set.

Nicholas and Steyn (2008) define management as the execution of all of what is important to accomplish a task or a system of tasks, or completing a project on time and with the allocated resources. Ackoff (1972) discusses the importance of systematic thinking in managing human behavior. Ackoff (2006) also stresses on the importance of plans and procedures in providing guidance when managing change.

Authors in management also have proposed methods for managing change at an incremental rate. Mintzberg (1979) and Miller (1982) define incremental change as an approach in which organizations progressively alter a few elements or form new strategies. Miller (1982) argues that sometimes the most economical and cost effective change strategy is to adopt the semi-incremental approach with stable intervals

punctuated occasionally by revolutionary periods of change. Managing change and its associated uncertainties can be is stressful and poses a lot of physical, emotional, and psychological tolls (McCaskey, 1982).

Leadership can be defined as a process whereby a person influences and directs others to accomplish a certain objective or achieve a common goal (Northouse, 2007). Kouzes and Posner (1995) suggest that the five main leadership practices, or what they call the "exemplary leadership," are: "modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart" (p.13). Soderholm (1989) argues that leadership is about the innovation of new ideas and new concepts that brings new desirable outcomes. The entrepreneurship, creativity and innovation embedded in leadership are very important to successfully managing change. In addition, Hamel (2007) believes that mobilizing talent, allocating resources, and formulating strategies are necessary for the organization's profitability and for maintaining the competitive advantage.

A leader is the person who makes sure that the organization is heading in the right direction (Winston, 2004). The continually changing business environment needs quick responses that only a leader can provide. And it is the leaders who have to make the right decisions at the right time to align the organization with the changing environment, and who motivate the people to work and implement the changes (Goleman, 2000; Haidar, 2006). In complex and ambiguous situations, managers have to deal with major uncertainties that arise; those who can successfully deal with this uncertainty distinguish

themselves and become key people within the organization and gain great impact and authority (Thompson, 1967).

As defined by Griffith-Cooper and King (2007), change leadership refers to "a set of principles, techniques, or activities applied to the human aspects of executing change to influence intrinsic acceptance while reducing resistance" (p. 14). Change leaders are people with creative visions, who are able to foresee a new reality and how to get to it. Change leaders have to understand how their employees perceive change and ensure they accept the change and are ready for it. They have to motivate employee to take responsibility and be an active part of the change (Gioia, Patvardhan, Hamilton, & Corley, 2013; van, Demerouti, & Bakker, 2013). Kanter (1984) describes them as the architects or ultimate masters. Kanter (2000) suggests that the classic skills for change leaders are:

1. "Tuning in to the environment
2. Challenging the prevailing organizational wisdom
3. Communicating a compelling aspiration
4. Building coalitions
5. Transferring ownership to a working team
6. Learning to preserve
7. Making everyone a hero" (p. 34).

Beer and Nohria (2000) identify two basic change theories for leading change: Theory E that is based on economic value, and Theory O that is based on organizational capability. Theory E represents the "hard" approach to change; its focus is the shareholder value and usually involves using economic incentives, layoffs and downsizing. On the other hand, Theory O represents the "soft" approach; its focus is

developing the organizational culture and people's capabilities and usually welcomes people's involvement, feedback, and reflections. Acts of leadership enable the organization to respond to the changing environment by creating a vision and making prompt decisions in terms of resources and technologies (Ekvall & Arvonen, 1991; Masood, Dani, Burns, & Backhouse, 2006). Therefore, leaders have to be aware how to deal with the different perceptions and cultures when implementing change (Bayerl et al., 2013). Leaders can be seen as change makers who guide the organizations into the desired future state or performance. Mahmood, Basharat, and Bashir (2012) argue, "Management and leadership are two overlapping terms which confuse many people. Leadership and management are complementary for each other and they go hand in hand" (p. 513).

Research on change in the fields of engineering management (EM) and industrial engineering (IE) began in 1911 with the early work of Frederick Taylor, the "father of management sciences." Taylor introduced the "Piece Rate System" that was concerned with improving the efficiency of shop-floor operations (Babcock & Morse, 2002). When implementing change, the values of EM and IE can be critical for change efforts to succeed.

Engineering management is about applying engineering values and skills in coaching people and managing projects (Lannes, 2001). As per the U.S. Department of Education Institute of Education Sciences: Classification of Instructional Programs (CIP), engineering and industrial management provide proper experience in financial

management, industrial and human resources management, industrial psychology, management information systems, quality control and operations research. Industrial management (IE), as defined by the Institute of Industrial Engineering (IIE), involves the design, improvement and installation of integrated systems of people, materials, information, equipment and energy. Industrial management draws upon specialized knowledge and skills in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems. Engineering management (EM) and IE are both important in order to manage change, and the inclusion of the human factor within them gives EM and IE a unique distinction among other engineering disciplines (Baker, 2009).

In IE, five authors provide insight into change methods: Shewhart, Deming, Juran, Crosby and Sink. Shewhart was the first to improve the traditional production process and introduced the scientific method to describe the process of mass production. Three steps were involved: specification, production and inspection (Shewhart & Deming, 1945). Shewart later revised this idea into a cyclical concept, developing what is now known as the Shewhart cycle. In the 1950s, Deming revived and modified Shewhart's cycle, incorporating additional problem-solving approaches; ultimately Deming developed the plan-do-study-act (PDSA) cycle. The PDSA cycle is one of the most popular problem solving methods and continues to be applied today (Moen & Norman, 2010).

Juran is considered one of the great authors in quality and management; he is well recognized for introducing the human element into quality (Bailey, 2007). Juran founded an institute in 1979 that offers benchmarking, consulting, and training services to implement programs that aim to improve business results. In 1986, Juran published the *The Quality Trilogy* that later was renamed *The Juran Trilogy*. *The Quality Trilogy* defines three management processes required by organizations to improve: (a) quality planning, (b) quality control, and (c) quality improvement (Juran, Gryna, Juran, & Seder, 1962). Juran promoted change and believed it eventually reduces the costs of waste within an organization (Juran, 1986).

Crosby has also been part of the quality management revolution. He popularized the idea that doing things right the first time in an organization, through simple preventive action, adds no cost to an organization and improves overall outcomes. Therefore, Crosby believed that quality is free (Crosby, 1979). In addition, Crosby (1983) emphasized the importance of management in improving the quality in an organization. He argued that it is possible to have zero defects in all types of organizations through serious and active involvement of management in problems solving and initiating solutions (Crosby, 1984).

Sink (1985) focused his efforts on productivity basics and productivity management. He introduced evaluation strategies and techniques that can be used for developing measures in organizations. Sink and Tuttle (1989) introduced the "performance improvement planning process" and offered a roadmap for transforming an organization

into what they called 'the organization of the future' where organizational performance is improved using effective measurement systems. In addition, they recognized seven change performance measures: (a) effectiveness, (b) efficiency, (c) quality, (d) productivity, (e) innovation, (f) quality of work life, and (g) profitability and budgetability. Next, Sink, Johnston and Morris (1995) presented methods and techniques to best implement change theories, including the principles of quality guru Deming. They provided a solid ground for organizations to master the implementation of improvement initiatives.

Since organizations undergoing change vary greatly in their structure, systems, strategies and workforce, this chapter proposes that the interconnection between the fields of: (a) sociology/psychology, (b) leadership/management and (c) EM/IE. This intersection is necessary to understand and apply the various types of organizational change and change methods, and consequently for change to succeed. In summary, sociology/psychology explains why and how people respond to change. Leadership/management provides principles and practices that help in planning, organizing and directing people and resources accomplishing change. And EM/IE provides detailed methods of change, processes and integrated systems by which change happens and values and skills that are needed for change. This understanding is necessary to better comprehend and manage change as well as the people and resources involved in the change process, ultimately leading to desired change outcomes.

## 2.3   Taxonomy of Change Literature

Reviewing the available change literature, this section proposes a taxonomy to classify the change literature. This taxonomy views the literature as covering four main areas: (a) change type, (b) change enablers, (c) change methods, and (d) change outcomes. The proposed taxonomy of change is shown in Figure 9. The first element of the taxonomy is the change type that can be defined as the characteristics that describe the form of change and are grouped under two categories: (a) scale of change, and (b) duration of change. Section 2.3.1 explains change types in further detail. The second element is the change enablers that can be defined as the factors that increase the probability of change success. Section 2.3.2 explains change enablers in further detail. The third element is the change methods that can be defined as the actions taken to deal with change and are grouped into two categories: (a) systematic change methods, and (b) change management methods. Section 2.3.3 explains change methods in further detail. And the fourth element consists of the change outcomes, defined as the results or consequences of change on the organization. Section 2.3.4 explains the change outcomes in further detail.
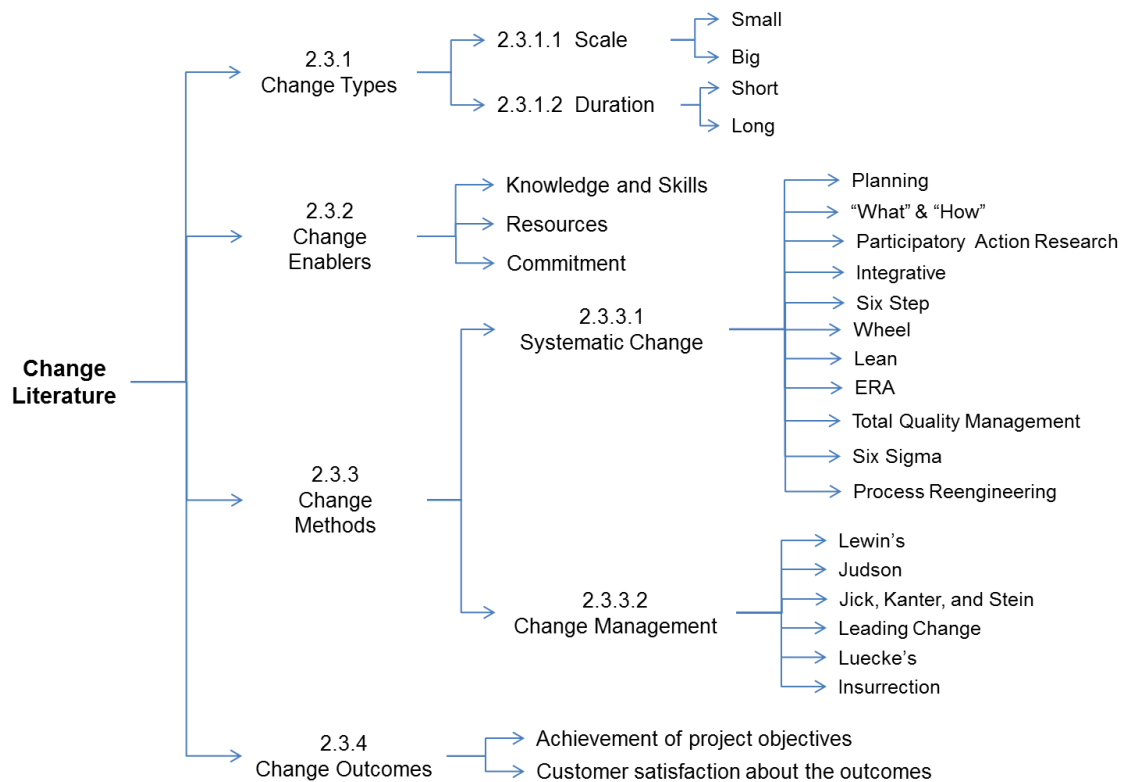
Figure 9: Taxonomy to Change Literature

### 2.3.1   Change Types

Change type can be defined as the essential characteristics that describe the kind and form of change and the qualities that make change what it is. This study proposes that when the change type is clearly identified, then a manager can choose the most appropriate method to promote change.

Moore (2011) notes that "understanding where your organization sits today and what processes it needs to improve, change or transform is the first step toward introducing business process change discipline" (p. 4). Meyer et al. (1990) classifies change types

based on two dimensions. The first dimension is the level at which change is occurring: the organization's level versus the industry level. The second dimension is the type of change taking place: continuous change versus discontinuous change. Goes et al. (2000) classify change based on three dimensions. The first and the second dimensions, as in Meyer et al. method, are the level and type of change. The third identified dimension is the mode of change: deterministic and prescribed versus generative and voluntary in type. Such classifications and other organizational aspects have been considered when developing the change types in the taxonomy shown in Figure 9. Change types are grouped under two categories: (a) scale of change, and (b) duration of change.

## 2.3.1.1    Change Scale: Small versus Large

Change scale can be defined as the degree of change required to reach the desired outcome. Large-scale change can be defined as the "holistic alteration in processes and behaviors across a system that leads to a step change in the outputs from that system" (Oldham, 2009, p. 265). In addition, large-scale change engages all stakeholders in the change process and requires having strong collaboration and visionary leadership in order to succeed (Boga & Ensari, 2009; Boyd, 2009; Brigham, 1996; Margolis et al., 2010; Oldham, 2009). Boyd discusses the effect of large scope change on an organization; he asserts that for such change efforts to take place, the process needs to be customized to align with specific departmental and unit culture (Stock, 1993). Even with the numerous studies and theories tackling large scope change, there are contradicting results about its advantages.

Furthermore, Kotnour et al. (2010) the importance of strategy, clear roles and aligning processes, resources and workforce to accomplish big change within an organization. Bennet and Segerberg (2012) also stress that large-scale change requires high levels of organizational resources.

Small-scale change can be defined as minor, less significant organizational change. Small-scale change is easier to initiate and manage, and does not require the level of leadership needed to enact big scale change (Boga & Ensari, 2009; Stock, 1993). Berwick (1998) and Berwick and Nolan (1998) argue that a steady and small-scale change and improvement in healthcare can be a better approach when compared to large scale change to help pilot, evaluate, modify and implement quality improvement projects.

Starting with Lewin's definition of planned change over 50 years ago that included unfreezing the present level, moving to a new level, and freezing the new level, many authors have come up with other definitions of change. Table 4 summarizes a few of the more common definitions for change.

Table 4: Common Change Definitions

| Author/ Year | Definition | Source |
|---|---|---|
| Lewin, K. (1948) | "A successful change includes three aspects: unfreezing (if necessary) the present level, moving to a new level, and freezing group life on the new level. Since any level is determined by a force field, permanency implies that the new force field is made relatively secure against change" | **Book:** Resolving social conflicts, selected papers on group dynamics, p. 228 |
| French, W. (1969) | "Successful organization development tends to be a total system effort; a process of planned change, not a program with a temporary quality; and aimed at developing the organization's internal resources for effective change in the future" | **Article:** Organization Development, Objectives, Assumptions and Strategies. California Management Review. 12(2), p. 32 |
| Kanter, R. (1983) | "Change involves the crystallization of new action possibilities (new policies, new behaviors, new patterns, new methodologies, new products, or new market ideas) based on reconceptualized patterns in the organization" | **Book:** The Change Masters p. 279 |
| Bullock, R. & Batten, D. (1985) | "The concept of longitudinal change implies that an organization exists as different states at different times and that there is some form of movement from one state to another. In order to understand planned change, we must develop a conception of these consecutive states and how the process of movement occurs" | **Article:** It's Just a Phase We're Going Through *Group & Organization Studies. 10(4),* p. 383 |
| Cumming, T. & Huse E. (1989) | "It is a generic phrase for all systemic efforts to improve the functioning of some human system. It is a change process in which power is usually roughly equal between consultants and clients and in which goals are mutually and deliberately set" | **Book:** Organization Development and Change, p. 539 |
| Zeira, Y. & Avedisian, J. (1989) | "Planned organization change can be a powerful vehicle for formulating competitive strategy and translating this strategy into day-today operating behavior" | **Article:** Organizational Planned Change: Assessing the Chances for Success. *Organizational dynamics*, 17(4), p. 31 |
| Porras, J. & Silvers R. (1991) | "Planned organizational change is a change intervention that alters key organizational target variables that then impact individual organizational members and their on-the-job behaviors resulting in changes in organizational outcomes" | **Article:** Organization development and transformation. *Annual Reviews* 42, p. 52 |
| French, W. & Bell, C. (1995) | "Planned change involves common sense, hard work applied diligently over time, a systematic, goal-oriented approach, and valid knowledge about organizational dynamics and how to change them" | Organization Development, p. 1-2 |
| Ford J. & Ford L. (1995) | Intentional change occurs when a change agent deliberately and consciously sets out to establish conditions and circumstances that are different from what they are now and then accomplishes that through some set or series of actions and interventions either singularly or in collaboration with other people | **Article:** The role of conversations in producing Intentional change in organizations. *Academy of Management Review.*20(3), p. 543 |

| Author/ Year | Definition | Source |
|---|---|---|
| Burnes, B. (1996) | "The planned method is clearly one which is best suited to relatively stable and predictable situations where change can be driven from the top down" | **Article:** No such thing as ... a "one best way" to manage organizational change, *Management Decision*, 34(10), p. 11 |
| Bamford, D. & Forrester, P. (2003) | "Planned change has dominated the theory and practice of change management for the past 50 years and is based principally on the work of Kurt Lewin. This approach views organizational change as a process that moves from one "fixed state" to another through a series of pre-planned steps and can, therefore, be analyzed by a construct such as Lewin's (1951) action research method" | **Article:** Managing planned and emergent change within an operations management environment. *International Journal of Operations & Production Management*, 23 (5), p. 547 |
| Burnes, B. (2004) | "Planned change is an iterative, cyclical process involving diagnosis, action and evaluation, and further action and evaluation. It is an approach that recognizes that once change has taken place, it must be self-sustaining" | Managing change: a strategic approach to organizational approach, p. 279 |

As seen in Table 4, change can be defined as a cycle of processes that affects the organization and its members, and aims to improve organizational performance by altering the current state of the organization. Ackoff (2006) argues that it is hard to say that a certain plan would be successful in an organization as plans and procedures provide more guidance than set rules. Being flexible and being prepared for changing conditions play a major role in implementing plans that succeed.

### 2.3.1.2    Duration: Short versus Long Term

Change duration can be defined as the time period over which change takes place. Long-term change can be challenging to an organization and requires strong leadership that actively involves employees throughout the change process (Harrison, 2011; Rachele, 2012; Schalk et al., 2011). Human behavior needs to be taken into

consideration when dealing with long-term change. Harrison argued that long-term change rarely, if ever, is achieved without powerful leaders (Harrison, 2011). Rachele believes that a method like participative action research can be an effective component of successful long-term change initiatives as it allows people to be involved in the change. People's involvement positively affects their attitude toward change as it values their past experiences which influences change success (Shields, 1999).

Short-term change has been recognized in the literature as being more successful when compared to long-term change (Shields, 1999; Ulrich, 1998). Organizations that predict small changes in conditions, and respond promptly to these changes, gain a competitive edge. Ulrich (1998) argues that the pace of response is what determines success in dealing with change; "winners will be able to adapt, learn and act quickly, losers will spend time trying to control and master change" (Chrusciel & Field, 2006, p. 130). Berwick (1998) suggests that short-term changes that take place in relatively small, ongoing processes can be rich opportunities to implement change and improvement initiatives, especially in complex systems.

### 2.3.2  Change Enablers

Organizational change takes place over time; to increase the probability of success, it is important to plan for change, setting a clear timeframe and addressing the critical factors that affect change success (Chrusciel & Field, 2006; Kenny, 2006; Miller & Friesen, 1982).

Studies in the literature offer a broad range of definitions and examples of change enablers including: a stated vision and goals for the change direction, defined roles of employees involved in change, leadership guidance or commitment in involvement, training employees and having strong human resources to measure and evaluate performance (Ackerman, Anderson, Linda & Anderson, 2001; Bridges & NetLibrary, 2003; Griffith-Cooper & King, 2007; Kenny, 2006; LaMarsh, 1995). Proper planning and analysis help identify the gap between where the organization is now and where it wants to be. The organization needs to identify the environmental conditions required for the change plan to succeed (Hotek & White, 1999; Kotter, 1996). Weber and Weber (2001) argue that people's perception of organizational readiness for change can also affect change success.

Smith (2002) conducted a study to determine the major reasons behind organizational change failure and change success. A questionnaire was used to collect data, and the respondents were 210 managers from different industries and job-functions across North America. The questionnaire results identified the main factors affecting successful change as: "visible and sustained sponsorship, addressing the needs of employees, and having strong resources dedicated for the change" (Smith, 2002, p. 81). Smith (2002) also found that change initiatives should "align with business strategies, and all executive and departmental levels should be aligned in support of the change" (p. 82).

Anderson and Anderson (2001) suggest that the main three aspects of a comprehensive change strategy are content, people and process. Content refers to the

strategy, systems, technologies, and work practices. People refer to humans involved in the change, and their behavior when implementing change. This aspect has also been termed the "personal dimension of change." The deeper the organizational change, the more important it is for people to alter their own values and perspectives to align with the overall organizational perspective (Moran & Brightman, 2001). The third aspect of change is process, representing the actions and procedures carried out to implement change. Therefore, the proper alignment between content, people and process is what leads to successful change.

From reviewing previous studies in the literature, Kotnour (2011) found that a strategic, systematic orientation to change led to organization's retaining the necessary skills to successfully complete their work processes. However, without a systematic approach, results were negative. Typical negative results were losing institutional memory, knowledge, and skill to perform the work resulting in a decrease in quality, improvement/innovation lacking, and an increase in employee burnout. Sink and Morris (1995) offer nine integrated "fronts" for successful change to ensure positive results are achieved. These fronts have been grouped with other research findings to define what the organization needs to have in order to enable successful change and enhanced organizational performance. The three enablers are: knowledge and skills, resources and commitment, as shown in Figure 10.

Figure 10: Change Enablers

### 2.3.3  Change Methods

Change methods can be defined as the actions carried out by managers to deal with change and are grouped under two categories: 1) systematic change methods, and 2) change management methods (Al-Haddad & Kotnour, 2013).

#### 2.3.3.1  Systematic Change Methods

Systematic change methods involve a certain set of processes and tools to help the management team make a series of start, stop, and continue decisions (Zook, 2007). Several systematic change methods have been proposed in the last 20 years; these methods share many processes such as: scouting and diagnosing the current situation, planning and communicating change and finally implementing and instilling the new

changes. Change theories traditionally have promoted incremental process adjustment and infrequent small transitions that are mainly planned and steered by management (Thompson, 1967). More recent change methods have become more systematic, cyclical and integrative, involving higher scales of organizational change (Armenakis & Bedeian, 1999; Bullock & Batten, 1985; Galpin, 1996; Kolb & Frohman, 1970; Lippitt, 1958; Singh & Shoura, 2006). Many authors have developed different systematic change methods; eleven methods have been identified and subsequently divided under three main theories as shown in Figure 11.

### 2.3.3.1.1  The Planning Method

Lippet, Walson and Wesley proposed the planning method in 1958. This method involves a cyclical process that requires continuously improving the change process by exploring the organizational situation after stabilizing the change (Kolb & Frohman, 1970; Lippitt, 1958). This method consists of seven consequential steps and involves exploring and diagnosing the organizational situation, planning for the change actions that need to be taken, applying the change and lastly stabilizing and evaluating the change.


### 2.3.3.1.2  "What" and "How" Method

The "what" and "how" method was proposed by Conner in his 1998 book *Leading at The Edge of Chaos*. Conner argues that change has to be dealt with as a compound system consisting of multiple processes that can involve chaos. His method emphasizes the importance of strong leadership to direct the change by providing the overall vision

and strategy and deciding on individuals' tasks. Conner's method assumes that the future of business will be filled with chaos. Therefore, this method stresses the role of leadership in having conscious competence to successfully implement change (Conner, 1998).

2.3.3.1.3  Participatory Action Research (PAR)

Participatory action research (PAR) gained popularity in the 1960s and involves examining an issue systematically from the perspectives and lived experiences of the people involved and affected by the resulting actions of change (French, 1969; Helmich & Brown, 1972; Schein, 1969; Tichy, 1974). Planned action research can be a very successful method for change as it gathers input from the people undergoing change, making them feel more involved. And when employees feel that change belongs to them, this holds them more responsible to ensure change succeeds. The participative nature of action research was also addressed by Ackoff et al. (2006), who stressed how it can take in and involve people in organizations undergoing change. The involvement of people in processes, products and in problem solving eventually leads to cultural change.

2.3.3.1.4  The Integrative Method

In the 1980s, the integrative method interested many scholars of change research. As the name implies, this method integrates various methods and approaches in the literature into one comprehensive method to systematically deal with change (Bullock &

Batten, 1985). Bullock and Batten (1985) and Beckhard and Harris (1987) suggest that the integrative method of change includes exploring the organization and creating awareness, planning for the change, implementing and evaluating the actions taken and lastly integrating and stabilizing the applied change.

2.3.3.1.5  Six Step

The six-step method was introduced by Beer, Eisenhardt and Spector in 1990. This method promotes the concept of "task alignment," which can be defined as "reorganizing employee roles, responsibilities, and relationships to solve specific business problems" (Beer, Eisenstat, & Spector, 1990, p. 159). According to these authors, the six-step method is best implemented in small departments and units where tasks are easily determined and can be modified to affect the overall corporate performance. As the name implies, the method consists of six steps and includes building commitment for change through actively involving people in identifying the problems, developing shared goals for the change and implementing the actual change. Beer, Eisenstat and Spector argue that this method encourages small changes that allow for individual learning and can reduce the resistance to change.

2.3.3.1.6  Wheel Method

The wheel method was proposed by Galpin in 1996 in his book *The Human Side of Change*. He proposed a method that consists of nine steps that form a wheel to effectively involve people in the technical change process. Galpin argues that most

organizational change methods fail when people are not taken into consideration. The wheel method starts with establishing the need for change, carefully planning for the change process, implementing it and dealing with behavioral change at the organization (Galpin, 1996). Galpin acknowledges the importance of taking account of the organization's culture, policies, customs, norms and reward system when implementing change (Armenakis & Bedeian, 1999).

### 2.3.3.1.7 Lean thinking

Lean thinking became popular in the 1990s after being adopted by Toyota (Holweg, 2007). Lean production focuses on producing what is needed, when it is needed, with the minimum amount of materials, equipment, labor and space. Lean thinking originated with driving out waste so that all work adds value and serves the customer's needs. Womack and Jones (2003) suggest that the lean change method revolves around three fundamental areas: purpose, process and people. The history of lean change has evolved over more than a 100-year period of time, beginning with Frank Gilbreth who based his work on "speed work" in the early 1900s. Gilbreth used to analyze each task performed at his construction firm to eliminate unnecessary motions and he soon became one of the best-known contactors in the world (Babcock & Morse, 2002).

### 2.3.3.1.8 ERA method

The evaluation, re-evaluation, and action (ERA) method was proposed by Chen, Yu, and Chang in 2006. This method is customer-oriented and consists of the three main

phases noted in its name. The authors argue that when compared with other change models, "the ERA model provides a more detailed picture of how the micro-processes of change work in an organization" (Chen, Yu, & Chang, 2006, p. 1301). The first two phases involve analyzing the current organizational situation, values and systems, identifying the customers' needs, then reanalyzing the organizational situation, values and systems. The third phase represents the actual implementation of change that involves developing a change strategy and a comprehensive action plan (Chen, Yu, & Chang, 2006).

2.3.3.1.9  Total Quality Management (TQM)

Total quality management (TQM) gained popularity in the 1950s and later became what is known today as the PDCA cycle (acronym of Plan, Do, Check and Act). Juran was the first quality guru to identify the three main aspects of quality: planning, improvement and control cycle; in 1962, he provided methods and tools to achieve organizational excellence (Juran et al., 1962). Deming, another famous quality guru, also provided a simple yet highly effective technique that serves as a practical tool for problem solving and carrying out continuous improvement in the workplace (Moen & Norman, 2010). The American Society for Quality (ASQ) calls this technique the Deming Cycle (PDCA cycle).

### 2.3.3.1.10  Six Sigma

Six Sigma was first implemented at Motorola in 1987; this method has positively affected their return on investment ever since (Gill, 1990; Mader, 2008). Schroeder et al. (2008) argue that, although Six Sigma has been enthusiastically adopted in the industry, little research can be found about this in the literature. Six Sigma employs highly structured cyclical steps to improve organizational performance and eventually achieve a maximum process incapability rate of 3.4 incidents per million opportunities (ReVelle, 2004). This method uses an approach called the DMAIC cycle that stands for: define, measure, analyze, improve and control. This cycle follows a methodology inspired by Deming's PDCA cycle (Linderman, Schroeder, & Choo, 2006).

### 2.3.3.1.11  Process Reengineering

Process reengineering can be defined as a redesign tool that aims to achieve radical improvements and innovations in organizational processes using certain performance measures such as cost, quality, service and speed (Hammer & Champy, 1993). Reengineering is a "term coined by Michael Hammer in 1990 to describe the process of change that certain organizations were undertaking in order to achieve dramatic process improvements" (Browne & O'Sullivan, 1995, p.132). Business processes involve activities that aim to add value to services or products. These processes include the traditional processes such as sales and production and other internal processes that aim to improve and sustain other organizational functions (Pereira & Aspinwall, 1997).

# Systematic Change Methods

| Planning | "What" & "How" Method | PAR | Integrative | Six Step | Wheel | Lean Thinking | ERA Method | TQM | Six Sigma | Process Reengineering |
|---|---|---|---|---|---|---|---|---|---|---|
| Lippitt, Watson & Westley (1958) | Conner (1998) | French (1969) Schein (1969) Brown (1972) Tichy (1974) | Bullock & Batten (1985) Beckhard & Harris (1987) | Beer, Eisenstat & Spector (1990) | Galpin, (1996) | Womack and Jones (1996) | Chen et al (2006) | Juran (1958) Deming(1986) | Motorola (1987) | Davenport (1993) |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Scout | 1.Recognize when a significant shift impacts key success factors | 1. Identify problems | 1. Explore: Search & create awareness | 1. Jointly diagnosis change | 1. Establish the need to change | 1. Specify the value desired by the customer | 1. **E**valuate total performance | 1. Plan | 1. Define | 1. Identify and select processes for redesign |
| 2. Enter | 2. Identify which factors are in need of adjustment | 2. Consult an external expert | | 2. Develop a shared vision | 2. Develop & spread a vision of a planned change | 2. Identify the value stream for each product that adds value | | | | 2. Identify enablers for new process design |
| 3. Diagnose | 3. Determine what changes are necessary in each factor | 3. Gather data & perform initial diagnosis | | | 3. Diagnose & analyze the current situation | | | | | 3. Define the business strategy and process vision |
| | | 4. Give feedback to management | | 3. Foster consensus for change | 4. Generate recommendations | 3. Make the product flow continuously | 2. **Re-evaluate** system design management & culture | | | 4. Understand the current process's flow & structure |
| 4. Plan | 4. Formalize decision to proceed with changes | 5. Jointly diagnose problems | | | 5. Detail the recommendations | | | 2. Do | 2. Measure | 5. Design the new process |
| 5. Act | | 6. Perform a joint action planning | 2.Plan: Design, make decisions | 4. Spread revitalization to all department | 6. Pilot test the recommen-dations | 4. Introduce pull between all steps from the next upstream activity | | | | 6. Prototype the new process |
| 6. Stabilize &Evaluate | | 7. Act | 3. Act: Implement & evaluate | | 7. Prepare the recommendations for rollout | | 3. **Act**: Develop a change strategy, an action plan & conduct training | 3. Check/ Study | 3. Analyze | 7. Implement the process & associated systems |
| | 5. Execute changes to achieve full intent | 8. Gather data after action | | 5.Institutionalize revitalization through policies | 8. Roll out the recommen-dations | 5. Begin the process again until reaching perfection | | | 4. Improve | 8. Communicate ongoing results of the effort |
| 7. Terminate | | | 4. Integrate: Stabilize & renew | 6. Monitor & adjust strategies | 9. Measure, reinforce, & refine the change | | | 4. Act | 5. Control | 9. Build commitment toward change at each step |

Figure 11: Systematic Change Methods

### 2.3.3.2    Change Management Methods

Change management methods are broader and more conceptual when compared to systematic change methods. Change management methods tackle change on a large scale and include a range of intervention strategies (Worren et al., 1999). These methods help management align the change initiative with the overall mission and the organizational strategy by proper planning and creating a vision that involves people in change (Grover, 1999). Change management processes assist in making change part of the organizational culture. Worren, Ruddle and Moore (1999) note that the underlying theory and framework of change management include "principles and tools from sociology, information technology, and strategic change theories" (p. 180). Many authors have developed different change management methods; six of these are identified in Figure 12.

### 2.3.3.2.1  Lewin's Method

In 1948, Lewin suggested that the change process start with unfreezing the current state of the organization by creating incentives, implementing the desired changes by selecting the right leadership style and ends with refreezing the state when the organizational desired change has been reached. Lewin stressed the need to include dialogue in solving problems, and believed that successful problem solving requires active participation of change agents in understanding the problem, finding a solution and implementing it. A little more than 50 years later, Burnes (2004) notes that change methods stemming from Lewin's method from the 1940s are more focused on revolving groups' conflicts and developing individuals.

## 2.3.3.2.2  Judson method

Judson (1991) proposed a method for implementing change that consists of five phases starting with analyzing the organization, planning for change, communicating it to people and finally reinforcing and institutionalizing it. Judson identifies the expected barriers that might occur in each phase and what actions can be taken to minimize such barriers. He considers the resistance to change as the biggest barrier, which occurs not only to the employees who are directly affected by the change, but also to lower level managers who usually play an essential part in implementing change.

## 2.3.3.2.3  Kanter, Jick, and Stein Method

Kanter, Jick, and Stein (1992) developed a comprehensive method to implement change consisting of ten phases. Their method starts with analyzing the organizational situation, creating a plan and vision, implementing change with the support of strong leader and finally communicating and institutionalizing change. Jick, Kanter, and Stein take into consideration many internal and external forces that might affect change as well as major processes involve, and they stress the importance of having "change agents"; people who are responsible for the formulation and implementation of the change (Ford, Ford, & D'amelio, 2008).

## 2.3.3.2.4  Leading Change

Kotter proposed the leading change method in 1996. He designed a change method consisting of eight steps. Kotter (1996) promoted his method as holistic, noting that

organizations could use his method to avoid failures in implementing change and increase their chances of success. Kotter identified the most common pitfalls that managers make in attempting to implement change and offered his change method to overcome these pitfalls. His method starts with establishing a sense of urgency by relating the for change to real potential crises, building a team trusted to support change, having a vision and strategy, communicating the vision, implementing the change and planning short term win, consolidation gains and constantly institutionalizing change.

### 2.3.3.2.5 Luecke Method

In 1990, Luecke proposed a change method that carries his name. Luecke (2003) stressed the importance of accepting the need and urgency for change. He believed that seeing change as an opportunity and not as a threat allows it to succeed and sink deeply within the organizational culture. Luecke's method stresses the importance of strong leadership in supporting change and motivating employees to accept change. The method also addresses the different reactions of employees to change, which allows managers to help their employees accept change and its consequences. Luecke's method starts with joint identification of existing problems and their solutions, developing a shared vision, identifying leadership, implementing change and finally monitoring and adjusting strategies for any problem in the change process.

## 2.3.3.2.6 Insurrection Model

Hamel proposed the insurrection model in 2000. Hamel argues that radical, nonlinear changes and innovations in an organization, that are different than the changes competitors are doing, are necessary to maintain success and competitive edge and create new wealth opportunities. Hamel (2000) developed eight steps for successful change that starts with having a strong plan, writing policies, creating a support team, implementing change and finally integrating the change and institutionalizing it in the organization. Hamel stresses that change has to be a continual cycle of "imagining, designing, experimenting, assessing, scaling innovative ideas" (Hamel, 2000, p. 299).

# Change Management Methods

| Lewin's Method (1946), (1951) & (1964) | Judson Method Judson (1991) | Jick & Kanter Method Jick & Kanter (1992) | Leading Change Method Kotter (1996) | Luecke's Method Luecke (2003) | Insurrection Method Hamel (2000) |
|---|---|---|---|---|---|
| 1. Unfreeze | 1. Analyze & plan change | 1. Analyze the organization & its need for change | 1. Establish a sense of urgency | 1. Mobilize energy & commitment by jointly identifying problems & solutions | 1. Build a point of View |
| | 2. Communicate the change | 2. Create a vision and a common direction | 2. Form a powerful guiding coalition | 2. Develop a shared vision of how to organize & manage for competitiveness | 2. Write a manifesto |
| | | 3. Separate from the past | 3. Create a vision | 3. Identify the leadership | 3. Create a coalition |
| | 3 Gain acceptance of new behaviors | 4. Create a sense of urgency | 4. Communicate the vision | 4. Focus on results, not on activities | 4. Pick your targets and pick your moments |
| | | 5. Support a strong leader role | 5. Empower others to act on the vision | 5. Start change at peripheries & let it spread without pushing from top | 5. Co-opt and neutralize |
| | | 6. Line up political sponsorship | | | |
| 2. Act & move | 4. Change from status quo to a desired state | 7. Craft an implementation plan | 6. Plan for and create short term wins | 6. Instill success through policies, procedures & systems | 6. Find a translator |
| | | 8. Develop enabling structures | | | 7. Win small, win early, win often |
| | | 9. Communicate, involve people & be honest | 7. Consolidate improvements & produce more change | | |
| 3. Refreeze | 5. Consolidate & institutionalize the new state | 10. Reinforce & institutionalize change | 8. Institutionalize more changes | 7. Review & adjust strategies in response to arising problems | 8. Isolate, infiltrate, integrate |

Figure 12: Change Management Methods

## 2.3.4   Change Outcomes

Change outcomes can be defined as the consequences of change on the organization. Measuring outcomes can contribute to organizational development and success if the measurement systems are properly developed and employed (Sink & Tuttle, 1989). Sink and Tuttle (1989) claim that the best measurement systems are "a blend of the objective with the subjective, quantitative with quantitative, intuitive with explicit, hard with soft, and judgment with decision rules or even artificial intelligence" (p. 1). Measures provide management with new insights into why the system performs the way it does, where it can be improved and where the system is in control or out of control. Defining and setting the goals of performance measures are one of the most important decisions facing organizations as they are a function of the organizational strategy, and can only be achieved when the strategic objectives are clearly defined; performance measures help organizations evaluate the execution of objectives and management of operations by providing the needed information for making decisions (Gunasekaran & Kobu, 2007; Ittner & Larcker, 1998; Wouters & Sportel, 2005). Therefore, for measuring change, on must be clear on the change objectives.

Sink and Tuttle (1989) and Sink and Morris (1995) identified seven performance measures: (a) effectiveness, which indicates the accomplishment and outcome; (b) efficiency, which indicates the outcomes relative to the resources used; (c) quality, which indicates the process capability and value; (d) productivity, which indicates the output compared to input; (e) innovation, which indicates the creativity and the ideas put into action; (f) quality of work life, which indicates the workers' conditions; and (g)

profitability and "budgetability," indicating the revenue (what was earned compared to what was promised) and the budget versus the actual cost.

Grover (1999) also reports change outcomes in the results of two studies. These outcomes are: (a) improved customer service, (b) improved cycle time, (c) reduced cost, (d) improved quality of product/ services, (e) improved organizational responsiveness, (f) improved employee morale, (g) employees layoffs, and (h) changed organizational structure. Armenakis and Bedeian (1999) argue that typical change outcomes are quality, service, productivity, and risk taking. Neves and Caetano (2009) claim that change outcomes consist of organizational citizenship behaviors, perceived performance, and turnover intentions.

Kaplan and Norton (2001) define the balanced scorecard (BSC) as a tool that supports the alignment between organizational strategy and the operations. The BSC is considered a performance measurement process, which includes the traditional financial measures in addition to qualitative measures such as the organizational mission and the employees and customer's satisfaction. The BSC links intangible and tangible assets by using strategy maps of cause and effect diagrams, and focuses on four main areas: (a) learning and growth, (b) internal, (c) customer, and (d) financial. The BSC expands performance management initiatives to include financial and non-financial measures and builds relationships between different measures from different perspectives, ultimately linking performance drivers and outcomes to strategy development (Ittner & Larcker, 1998; Wouters & Sportel, 2005).

Hatvany et al. (1982) suggests that there are three aspects of organizations that need to be taken into consideration when measuring performance: "(a) goal attainment, or how well the organization meets its objectives, (b) resource utilization, or how well the organization makes use of available resources, and (c) adaptability, or whether the organization continues to position itself in favorable position vis-4-vis its environment" (p. 40). Wouters and Sportel (2005) argue that a performance measurement system "aims to support the implementation and monitoring of strategic initiatives" (p. 1063).

Individuals' behavior, positive reaction and emotional state affect their readiness and contribution to organizational change and effective outcome (Hatvany et al., 1982; Herscovitch & Mever, 2002; Huy, 2002). Kanter (1997) describes an organization that is ready to change as one that "anticipates, creates, [and] responds effectively to change" (p. 3). Kanter asserts that such organizations create opportunities for continuous improvement, and perceive and accept change as an opportunity before it becomes an externally driven threat.

This study categorizes change outcomes in terms of: (a) organizational performance after implementing the change, and (b) the change project performance. Table 5 displays the proposed change outcomes categories organized by measurement model.

Table 5: Change Outcomes

| Measurement Model | Measurement | Definition |
|---|---|---|
| **Organizational Performance** | **Effectiveness** | The accomplishment of desired goals and objectives |
| | **Efficiency** | The outcomes of the organization relative to the resources used |
| | **Quality** | The organizational performance and service/product quality specifications and the creation of new products and services |
| | **Productivity** | The output (quality and quantity of productions/service) to the labor per unit of time |
| | **Innovation** | The creativity and the ideas put into action |
| | **Quality of work life** | The worker's conditions and environmental, health and safety precautions |
| | **Profitability** | The revenue and earnings compared to what was promised (budget versus actual cost) |
| | **Learning and Growth** | The improvement in skills, core competencies, motivation and learning |
| | **Customer** | The ability to attract, satisfy, retain and deepen the relationship with customers |
| **Change Project Performance** | **Cost** | The expenditures in terms of resources versus the set budget for the change project |
| | **Schedule** | The duration or time required to achieve the change project deliverables versus the target duration |
| | **Performance** | The ability to meet scope and requirements and achieve the end result |
| | **Customer Satisfaction** | The ability of the project deliverable to meet or exceed customers' expectations (customers refers to change team, organizational employees and change project sponsors) |

## 2.4 Alignment

Since change affects all organizational aspects, including strategy, internal structure, processes, people's jobs and attitudes and overall culture, organizations need to realize that change can be neither quick or straightforward, but can be more flexible and very well planned (Kanter et al., 1992). To properly plan for change, this research proposes aligning the change type and change method to achieve the desired change outcomes.

Miller (1992) and Sabherwal et al. (2001) recognize the importance of alignment in effectively measuring outcomes and enhancing organizational performance. Alignment can be defined as the extent to which two or more organizational dimensions meet the predefined theoretical standard with mutual agreement (Hatvany et al., 1982; Jarvenpaa & Ives, 1993; Sabherwal et al., 2001). Kotnour et al. (1998) define organizational alignment as "organizations doing the right thing, the right way with the right people at the right time" (p. 19). Kotnour et al. also suggest two classifications of organizational alignment: (a) external, and (b) internal. External alignment can be defined as matching the organization's products and services to the market and customer needs. External alignment shapes the internal alignment by defining the goals and core values and processes.

Venkatraman (1989) identifies different perspectives of organizational alignment or fit and notes the key characteristics of each, including underlying conceptualization, number of variables, measure of the fit or alignment, and the analytical schemes to measure the alignment. In order to align two independent dimensions or variables with a high degree of specificity, Venkatraman suggests three perspectives: (a) moderation, (b) mediation, and (c) matching.

Moderation: Alignment in moderation can be defined as finding a connection or link between two variables (dependent and independent variable) when a third predicting factor is involved. Venkatraman (1989) notes that, in the moderation perspective, the effect that an independent variable has on a dependent variable is reliant on the level of

a third variable, termed here as the moderator. Venkatraman (1989) concludes that the fit or interaction between the predictor (independent) and the moderator is what affects the criterion variable (dependent). The moderation perspective can be investigated using multiple regression analysis.

Mediation: Alignment in mediation can be defined as finding a connection or link between two variables (dependent and independent variable) when a third intervening factor is involved. Venkatraman (1989) notes that in the mediation perspective the effect that an independent variable has on a dependent variable is indirectly affected by a third variable, termed here the mediator. Venkatraman (1989) concludes that, like moderation, the fit or interaction between the predictor (independent) and the mediator is what affects the criterion variable (dependent). The mediation fit can be considered ancillary and less specific when compared to the moderation fit. The mediation perspective can be investigated using path-analysis.

Matching: Alignment in matching can be defined as finding a connection or link between two independent variables. Venkatraman (1989) notes that the effects of matching on dependent variable(s) are tested to highlight the connection and matching levels between the independent variables. Venkatraman (1989) concludes that the fit or interaction between two variables is developed without any interaction between them. The matching perspective can be investigated using deviation score analysis or analysis of variance.

This research attempted to align a predicting variable, "the change methods," with a criterion variable, "change outcomes," which depends on the level of the moderator "change type." Therefore, this study used the "moderation" perspective to analyze the alignment (Venkatraman, 1989). This study proposed aligning the change types with the change method to achieve the desired change outcomes as shown in Figure 13.
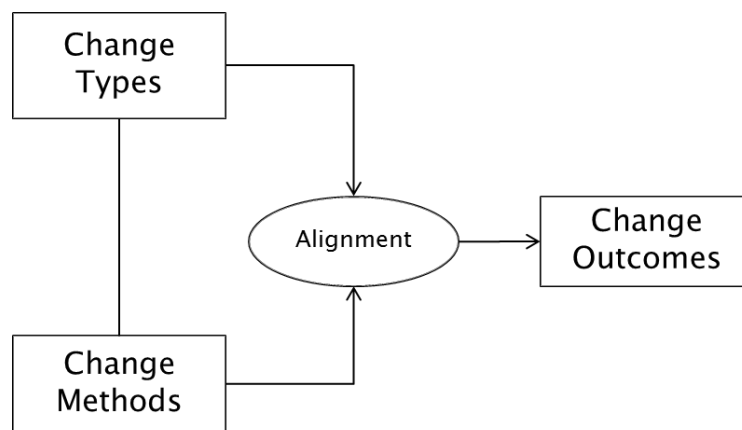


Figure 13: Alignment Model

Dunphy and Stace (1988) developed a situational model that aligns two dimensions: the scale of change and the style of leadership required to implement change. However, other change classifications need to be taken into consideration. Besides, whilst leadership is critical to implementing change, not following an appropriate method to implement change will mean the desired outcomes will not be achieved. Change enablers discussed in section 3.2 are used to align change types with change methods. Each change type needs certain factors to succeed and these factors are mapped against the systematic change and change management methods to select the methods

most likely to generate the desired outcome. The alignment was tested through measuring the significance of the interaction between the type and method in a statistical regression model as explained further in Chapter 3.

## 2.5  Conclusion

This chapter reviewed the change literature and integrated the available methods for managing change. Organizations and their leaders are continuously changing as a response to the growing global business environment; however, the success rate of change initiatives is less than 30%. This chapter critically reviewed the concept of having one change approach as the "silver-bullet." The numerous studies and opinions identified in the scholarly literature can be overwhelming and applying a method that is contingent and incorporates proven successful approaches is a step in the right direction. However, the probability of success varies from one organization to another as organizations undergoing change vary vastly in their structure, systems, strategies and human resources. Organizational change takes place over a period of time, and to increase the probability of success, it is important to plan for change, and address the critical factors that lead to successful. Moreover, it is important to adopt a structured methodological process to achieve the desired outcome. The methods reviewed in this chapter addressed several systematic change and change management methods, and regardless of the change method managers choose to adopt, the method has to be well aligned with the organizational change type.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 <u>Introduction</u>

This chapter presents the details of the research methodology applied in this dissertation. The first section reviews the need for conducting useful research on change and the different research paradigms and processes. The second section describes the research design and approach, and the refined conceptual model and constructs definitions. The third section discusses the data collection instruments and the processes undertaken to test the validity and the reliability of the data collection instruments. The fourth section describes the statistical processes that will be followed to verify the conceptual model and test the research hypotheses. The fifth section discusses a few notes in the research methodology. And the sixth section summarizes the chapter and contains an overall conclusion.

### 3.1.1 The Need to Conduct Useful Research on Change

Research has been defined as a process that involves discovering new facts, solving problems, and exploring, developing, improving and expanding knowledge though a systematic and scientific process (Burns & Grove, 2005; Clark & Hockey, 1989; Clifford & Gough, 1990; Polit & Beck, 2007). Justham (2006) argued that in the classical view of research, the research process starts with a question that leads to searching for knowledge. Lawler (1999) believed that a proper question has to meet two criteria: "First, the question is theoretically interesting; that is, there is a gap in theory or a weak theory and a scholarly audience that will appreciate the contribution to theory. Second,

the question is practically interesting; that is, there is an undefined area of practice or an ill-defined set or practices and a practitioner audience" (p. 192).

Lawler (1999) argued that the practice of research can be different than how research is usually perceived and taught. Lawler believed that research is not a straightforward process and can be seen as a social practice that involves people. Useful research involves participation of stakeholders involved in the research study. While traditional research tends to involve limited participants, more useful research should involve multiple stakeholders in generating research issues, designing the research, and carrying it out (Cummings, Mohrman, Mohrman, & Ledford, 1999). On the other hand, Lawler (1999) argued that, although this type of joint research helps in generating knowledge through mutually beneficial partnerships in which the organization's members and the researchers cooperate to generate knowledge that may not be accessible in other ways, this research can be difficult and sometimes frustrating.

Studying and researching change and organizational development is an important subject in social sciences (Pettigrew, Woodman, & Cameron, 2001). Different definitions and methods have been proposed to manage change; however, organizations still report a high failure rate of their change initiatives. The literature provides many cases on organizational change; yet, the success rate of change initiatives is less than 30% (Balogun & Hope Hailey, 2004; Beer & Nohria, 2000; Grover, 1999). More troubling still, Rouse (2011) notes that this rate of success is not improving. This high rate of failure confirms the need for additional research and investigation, and implies a lack of a valid

framework for organizational change (By, 2005). Reasons behind the failure of organizational change have attracted only limited attention (Buchanan et al., 2005). Dunphy and Stace (1993) argue, "managers and consultants need a method of change that is essentially a 'situational' or 'contingency' method, one that indicated how to vary change strategies to achieve 'optimum fit' with the changing environment" (p. 905). When reviewing the relevance and validity in available methods, the literature shows a considerable disagreement regarding the most appropriate method to changing organizations (Bamford & Forrester, 2003).

Although there is a clear progress in the change themes studied, more of the same is being published that is not aligned with the advanced change knowledge. More evolutionary change research outcomes are needed (Maanen, 1995; Schwarz, 2011). Lawler (1999) argues that traditional organizational studies research has never focused on the research usefulness. Assessing organizational change is not easy and usually requires extensive long-term involvement with the organization undergoing change to build a close and strong relationship with the organization.

### 3.1.2  Research Paradigms

Bassey (1999) defines research paradigm as "a network of coherent ideas about the nature of the world and the functions of researchers which, adhered to by a group of researchers, conditions, their thinking and underpins their research actions" (p. 142). Van Strie (1978) argues that a practical paradigm must contain three elements: (a) a

scientific theory in behavioral science, (b) norms and goals, and (c) a coherent set of interventions that addresses the research problems within the direction of the set norms and goals (van Strie, 1978). The literature provides different types of paradigms; the most common three paradigms are: (a) the positivism research paradigm, (b) the interpretative research paradigm, and (c) the action research paradigm.

### 3.1.2.1    The Positivism Research Paradigm

The term positivism was originally called "positive philosophy" by French philosopher August Comte (1798–1857). The broader and main definition of the term as explained by Acton (1989) is "genuine knowledge is based on sense experience and can only be advanced by means of observation and experiment" (p. 253).

The positivism research paradigm views the world in terms of facts and logic and knowledge usually results using an experimental analysis (Orlikowski & Baroudi, 1991). The positivist researchers' world is rational; they observe and explain reality as they experience it. Bassey (1990) argues that a positivist researcher is "one who tries to describe, interpret and explain events while evaluative researchers describe, interpret and explain events so that they or others can make evaluative judgments about them" (p. 12). Positivist researchers believe in finding the truth and generalizing their findings. They usually express their findings in factual statements, numerically and statistically, which helps in explaining how events occur and predict outcomes of future events. Therefore, this research paradigm is usually associated with the quantitative research methodology (Bassey, 1990; Halcomb & Andrew, 2005; Pollard, 1998; Weaver & Olson,

2006). The positivism research paradigm is objective, describes the world and shares the knowledge with others, arguing there is one objective reality. Consequently this paradigm believes valid research is demonstrated by the strength of the proof (Eisner, 1993b; Hope & Waterman, 2003; Nagel, 1986).

### 3.1.2.2    The Interpretative Research Paradigm

The interpretative research paradigm views the world in terms of human interaction and social behavior. This paradigm has its roots in the social sciences and looks at research problems in a holistic way rather than trying to reach a cause-and-effect relationship. This paradigm tries to reveal and find hidden truths and knowledge (Pollard, 1998; Srivastava & Teo, 2006).

Interpretative researchers look for verbal data, fieldwork, notes, conversations transcripts and other sources that are derived from the everyday social world; it usually does not rely on statistical data. Interpretative researchers are viewed as being the research instrument and potential variables that may change the situation they are researching; they are interpretive in character and use their analytical capabilities to interpret the world (Eisner, 1993a; Orlikowski & Baroudi, 1991; Pollard, 1998). Interpretative researchers believe that there is no absolute reality and the reality they are seeking is a combination of processes and social actions between many factors that change from one situation to another (Berger & Luckmann, 1966).

Bassey (1999) states that interpretative researchers "seek systematically, critically and self critically to describe and interpret phenomena" (p. 16). Therefore, this research paradigm is usually associated with the qualitative research methodology (Pollard, 1998).

### 3.1.2.3    The Action Research Paradigm

Action research itself began with an idea attributed to the social psychologist Kurt Lewin who employed it in research related to community action programs in the United States during the 1940s (Savin-Baden & Wimpenny, 2007). Lewin believed in the importance of people getting involved in studies that affect their own life. He tried to encourage people to collaborate and look at themselves to identify problems and try to solve them. Lewin (1946) identified a four-step framework for action research that includes: (a) planning, (b) acting, (c) observing, and (d) reflecting. These steps can be seen as a foundation for many of the more modern models of action research (Elliott, 1991; Kemmis & McTaggart, 1982; McNiff, 1988).

The purpose of action research is to generate knowledge to inform action. The research methodology is conducted with the help of people in contrast to being on people. This approach challenges the notion that legitimate knowledge lies only with the privileged experts and their dominant knowledge. Instead, action research asserts that knowledge should be developed in collaboration with local expert knowledge and the voices of process owners themselves. Knowing is a product of people coming together to share

experiences (Gaventa & Cornwall, 2001). Action research involves examining an issue systematically from the perspectives and lived experiences of the people involved and affected by certain actions or studies (French, 1969; Helmich & Brown, 1972; Schein, 1969; Tichy, 1974). Pollard (1998) argues that "the positivist paradigm and the interpretive paradigm both involve the idea of observers trying to describe the phenomena of their surroundings; the action research paradigm is about actors trying to improve the phenomena of their surroundings" (p. 38).

### 3.1.3  Research Process

When planning for research, researchers have to clearly define the research question they are trying to answer and gather data to answer that question accordingly. Research data can be measured variables that are interpreted into numerical values, (i.e., quantitative), or it can deal with observations and occurrences that usually deal with people's point of view, (i.e., qualitative). Generally, all research approaches follow the same format regardless of its status of qualitative or quantitative. Pettigrew (1990) describes a detailed approach to doing organizational research that involves: (a) analyzing multiple levels of processes within an organization, (b) developing a clear description of the analyzed processes, and (c) specifying a theory for the processes description. Wheeler (2009) described a more detailed approach to manage change that involves: (a) establishing context, (b) selecting the research method, (c) conducting the research, (d) analyzing and verifying results, (e) creating outputs, and f) reviewing

and evaluating outcome. Yin (1989) viewed the research process consisting of four main steps as shown in Figure 14.

What Qs to study? ⟶ What data are relevant? ⟶ What data to collect? ⟶ How to analyze results?
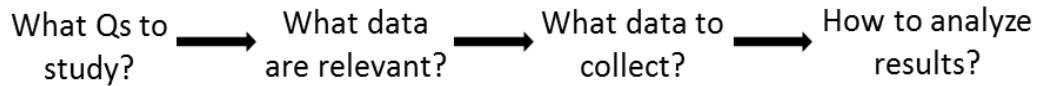
Figure 14: Research Process (Yin, 1989)

Many researchers tend to categorize research studies into two broad categories: quantitative research and qualitative research (Leedy & Ormrod, 2001). Many research disciplines such as mathematics, physics and chemistry rely heavily on statistical quantification to explain the world. When studying change phenomena, a more qualitative approach is needed in analyzing the situation, as it is difficult to quantify change (De Feo, 2004). Managerial and employee perceptions of change outcomes and performance are most valid when captured qualitatively (Eisenhardt, 1989). Common definitions of qualitative research are shown Table 6.

## Table 6: Common Definitions of Qualitative Research

| Author/ Year | Definition | Source |
|---|---|---|
| Holloway (1997) | "Qualitative research is a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live. A number of different approaches exist within the wider framework of this type of research, but most of these have the same aim: to understand the social reality of individuals, groups and cultures. Researchers use qualitative approaches to explore the behavior, perspectives and experiences of the people they study. The basis of qualitative research lies in the interpretive approach to social reality" | Book: Basic concepts for qualitative research, p. 2 |
| Malterud (2001) | "Qualitative research, also called naturalistic inquiry, developed within the social and human sciences, and refers to theories on interpretation (hermeneutics) and human experience (phenomenology). They include various strategies for systematic collection, organization and interpretation of textual material obtained while talking with people or through observation. The aim of such research is to investigate the meaning of social phenomena as experienced by the people themselves" | Article: The art and science of clinical knowledge: evidence beyond measures and numbers. The Lancet 358 (9279), p. 398 |
| Denzin & Lincoln (2005) | "Qualitative research is an interdisciplinary, trans disciplinary and sometimes counter disciplinary field. It crosscuts the humanities and the social and physical sciences. Qualitative research is many things at the same time. It is multi paradigmatic in focus." | Book: Handbook of qualitative research, p. 7 |
| Radovan (2010) | "Qualitative research methods are increasingly used to gain a better understanding of people's experiences and the meaning of these experiences to them, and the dynamic interplay between individuals and contexts." | Article: New Paradigms in Motivational Research. Periodical International Journal of Academic Research. 2 (2), p. 9 |
| Strauss (1987) | Qualitative analysis may utilize a variety of specialized nonmathematical techniques, as noted below or as commonly practiced may use procedures not appreciably different from the pragmatic analytic operations used by everybody in thinking about everyday problems. Qualitative researchers, however, when addressing scientific rather than practical or personal problems, are more self-conscious and more "scientifically rigorous" I their use of these common modes of thinking. | Book: Qualitative analysis for social scientists, p. 3 |
| Gummesson (1991) | Qualitative research normally predominates in the study of processes where data collection, analysis, and action often take place concurrently. | Book: Qualitative methods in management research, p.2 |
| Strauss & Corbin (1990) | Qualitative research is any kind of research that produces finding not arrived by means of statistical procedures or other means of quantification. It can refer to research about persons' lives, stories, behavior, but also about organizational functioning, social movements, or interactional relationships | Book: Basics of qualitative research: grounded theory procedures and techniques p. 17 |
| Cohen (1999) | Qualitative research can be more systematic, psychological, and innovative and can be a profession | Article: What Qualitative Research Can Be? Periodical Psychology & Marketing, 16 (4), 351 - 368 |

In comparing quantitative to qualitative research, Leedy and Ormrod (2001) summarized the differences between quantitative and qualitative research as shown in Table 7.

Table 7: Comparing Quantitative and Qualitative Research (Leedy and Ormond, 2001)

| Characteristic | Quantitative | Qualitative |
|---|---|---|
| Purpose | • Explaining and predicting certain phenomena<br>• Establishing and confirming relationships | • Understanding and describing complex situations<br>• Building theory from explanatory and interpretative situations |
| Process | • Defined variables<br>• Objective and detached view<br>• Fixed design | • Interpretative data<br>• Subjective and personal view<br>• Flexible design |
| Data collection | • Large representative sample<br>• Standard instruments that converts data to numerical values | • Small informative sample<br>• Observation and interviews |
| Data analysis | Empirical and rational | Inductive and explanatory |
| Results reporting | Formal and scientific<br>Numbers and statistical values | Informal and literary style<br>Words and narrative information |

Quantitative and qualitative research processes follow a similar basic format. Regardless of what area the research is conducted in, the general research procedure is fundamentally the same (Jick, 1979; Leedy & Ormrod, 2001). When properly used, qualitative methods can be as good as quantitative methods (Avison, Lau, Myers, & Nielsen, 1999). Jick (1979) argues that "qualitative and quantitative methods should be viewed as complementary rather than as rival camps" (p. 602).

Based on this description of research, for my research dissertation, I propose to develop a research approach that is a combination of both research approaches, qualitative and quantitative, with the following characteristics:

- Purpose: establishing and confirming relationships between constructs and building theory from interpreting situations.

- Process: define variables with subjective and personal view from respondents.

- Data collection: survey questions with standard response scale and SPSS statistical software to convert data to numerical values, alongside personal written interviews.

- Data analysis: rational based on survey results and also explanatory in using judgment and consulting subject-matter experts in analyzing the interviews' open ended questions.

- Results reporting: numbers and statistical outcomes alongside narrative conclusions and recommendations.

## 3.2   Conceptualization of the Research Model

This section presents the refined conceptual model, where the constructs and their underlying factors are defined. It discusses the hypotheses that explain the relationships between the constructs.

### 3.2.1   The Refined Conceptual Model

As presented in Chapter 1, this research intended to align the change types with the most appropriate change method and measure the effect of the alignment on the

success of change. It intended to analyze the relationship between change types, change methods and change outcomes as shown in Figure 15.
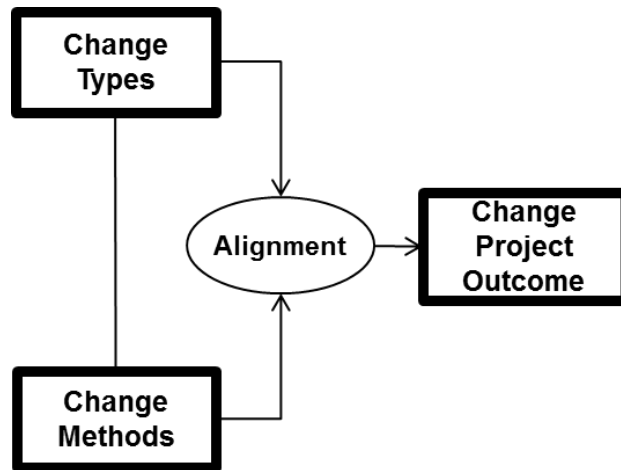


Figure 15: Research Conceptual Model

Furthermore, as introduced in Chapter 1, this research intended to answer two research questions involving the identification of change types and change methods and understanding the impact of alignment between the change type and method on change outcomes.

The core hypothesis of this research stipulates that the better the alignment between the change types and the change method, the higher the likelihood that the change project will succeed. Further discussion of these constructs is explained in the following section.

### 3.2.2 Constructs and Factors Definitions

As shown in the refined conceptual model, this research focused on four constructs based on the literature review in Chapter 2: change types, change methods, alignment and change project outcomes. Figure 16 illustrates this research's constructs and suggested underlying factors. The following sections describe the constructs and the suggested underlying factors.
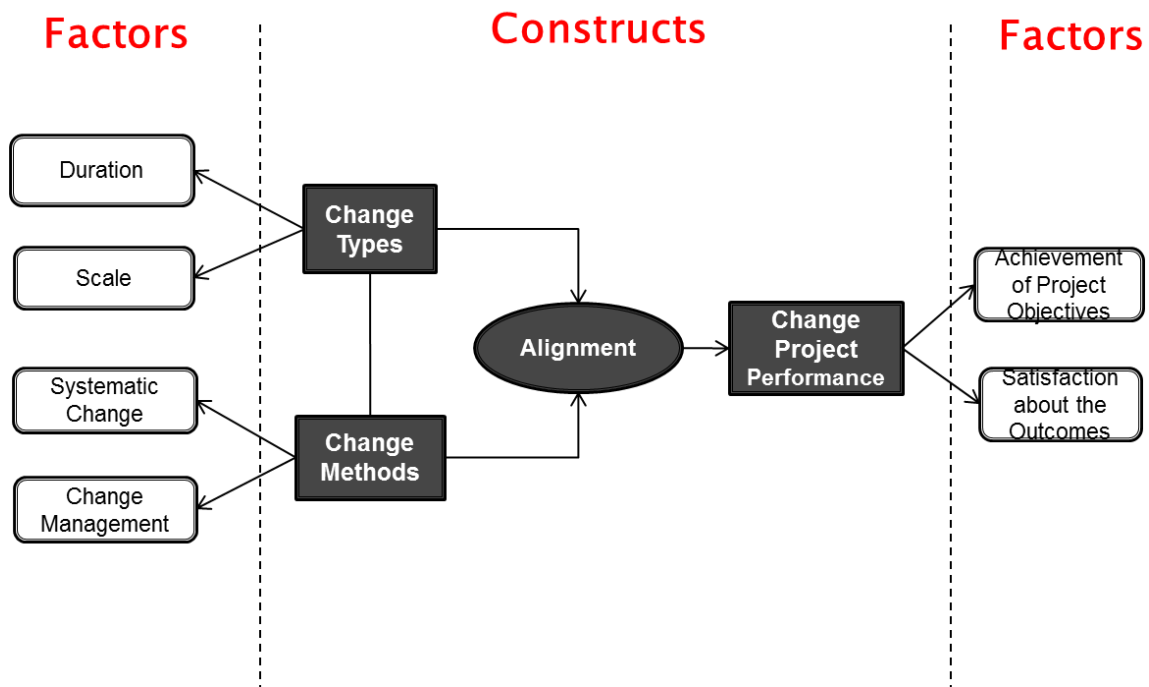


Figure 16: The Analyzed Constructs and Factors

### 3.2.2.1   Change Type

Based on the conceptual model discussed in chapter one, a major step in approaching change and ensuring its success is identifying the type of change that the organization

is experiencing (Burnes & Jackson, 2011; Moore, 2011). This construct represents the essential characteristics that describe the kind and form of change.

Through reviewing the literature and the various empirical studies conducted on change types, this study suggests that two major factors constitute the "change type" construct:

- Change scale: the degree of change required to reach the desired outcome. As discussed in chapter 2, change scale is classified under small, medium and large.

- Change duration**:** the time period over which change takes place. As discussed in chapter 2, change duration is classified by the following terms: short, medium and long.

### 3.2.2.2   Change Methods

This construct represents the actions carried out by managers to deal with change. Based on the literature review, this study suggests that two major factors constitute the "change methods" construct:

- Systematic Change Methods: processes and tools that help the organization in making a series of carefully constructed and sequenced start, stop, and continue decisions to improve performance (Armenakis & Bedeian, 1999; Bullock & Batten, 1985; Galpin, 1996; Kolb & Frohman, 1970; Kotnour, 2011; Lippitt, 1958; Singh & Shoura, 2006; Zook, 2007). They align customers, products/services, processes/tools, structure, and skill mix (Kotnour et al., 1999).

- Change Management Method**:** processes and tools that help the organization in aligning the change initiative with the overall organizational strategy and making

change part of the organizational culture (Grover, 1999; Hamel, 2000; Kanter et al., 1992; Kotter, 1996; Luecke, 2003; Walinga, 2008). Change management methods are broader and more conceptual when compared to systematic change methods; they involve people at the group or individual level (Whelan-Berry et al., 2003).

3.2.2.3    Alignment

The alignment construct in this research is considered "moderation" as it checks the fit or interaction between the change type and change method values that are collected by the survey questions and how this interaction affects the change outcome. A schematic and mathematical representation of the alignment as moderations is illustrated in Figure 17.
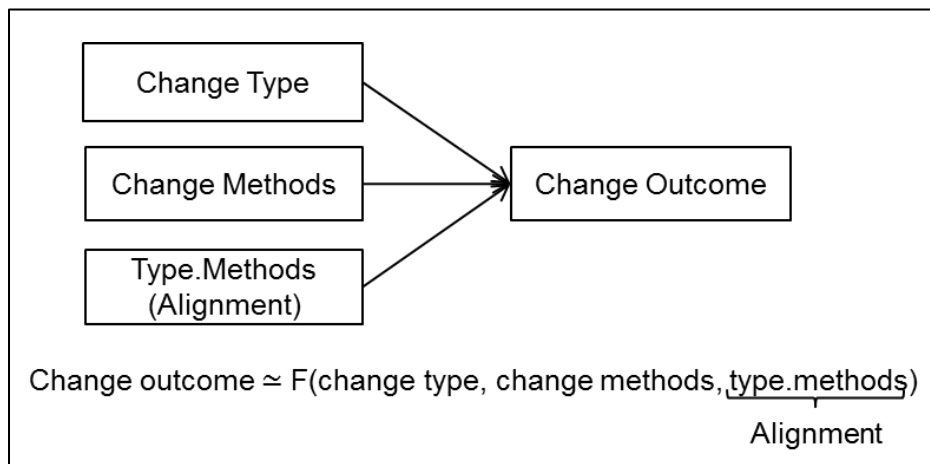


Figure 17: A Schematic and Mathematical Representation of Alignment

### 3.2.2.4  Change Outcomes

This construct represents the ending result of the change project. A change project is deemed successful if it is completed within the predetermined objectives (i.e., completed within budget, within schedule, conforming to customer requirements and satisfies the main stakeholders) ("A Guide to the Project," 2004; Kendra & Taplin, 2004; Nicholas & Steyn, 2008). This construct consists of two factors:

- Achievement of Project Objectives:

The ability of the change project to be completed within (a) the allocated cost, meaning the expenditures in terms of resources versus the set budget for the change project; (b) schedule, meaning the duration or time required to achieve the change project deliverables versus the target duration; and (c) technical performance, meaning the ability to meet scope and requirements and achieve the end result.

- Customer Satisfaction about the Outcomes:

The ability of the project outcomes to meet or exceed customers' expectations (customers refers to change team, organizational employees and change project sponsors).

The next section presents the operationalization of this research.


## 3.3  Operationalization of the Research Model

After having clearly defined the conceptual meanings of this research's constructs and factors, the operationalization of the research is addressed. This section describes the practical steps that this researcher proposes to follow to answer the research questions

and test the hypotheses. In this section, the theoretical concepts defined earlier are converted into measurable elements.

The next sections present the overall research approach, data collection method and instruments, and the statistical tools that this researcher used.

### 3.3.1 The Overall Research Approach

The overall goal of this research study was to examine organizational change in order to:

- Provide a review and summary of the change definitions and types

- Deliver an analysis and classification of the available change methods

- Develop measures of successful change

- Verify the underlying factor in the change enablers, methods and outcomes

- Establish and verify if there are relationships between:

  o Change (independent variable), and change outcomes (dependent variable)

  o Change type; scale and duration (independent variables), and change enablers (dependent variable)

  o Alignment between change type and method (interaction between the independent variables), and change outcomes (dependent variable).

Therefore, this research design used a combination of qualitative and quantitative methods to collect data by conducting surveys and personal interviews as shown in

Figure 18, and subsequently analyzed and evaluated the data collection methods by verifying the validity and reliability of these methods. Factor analysis (FA) was performed to analyze the validity of the collected data which includes five general steps: assessing applicability, determining the number of factors through factor extraction, grouping the variables into factors according to factor loading, producing weighted factor scores, and assessing factor reliability (Carr, 1992; Decoster, 1998). Factor analysis helps in refining and exploring the appropriate variables associated with each of the independent and dependent variables. Reliability analysis was performed using Cronbach's alpha to help verify the extent to which repetition of this research would result in the same data and conclusions. Detailed processes of FA and reliability analysis are discussed in section 3.3.4.
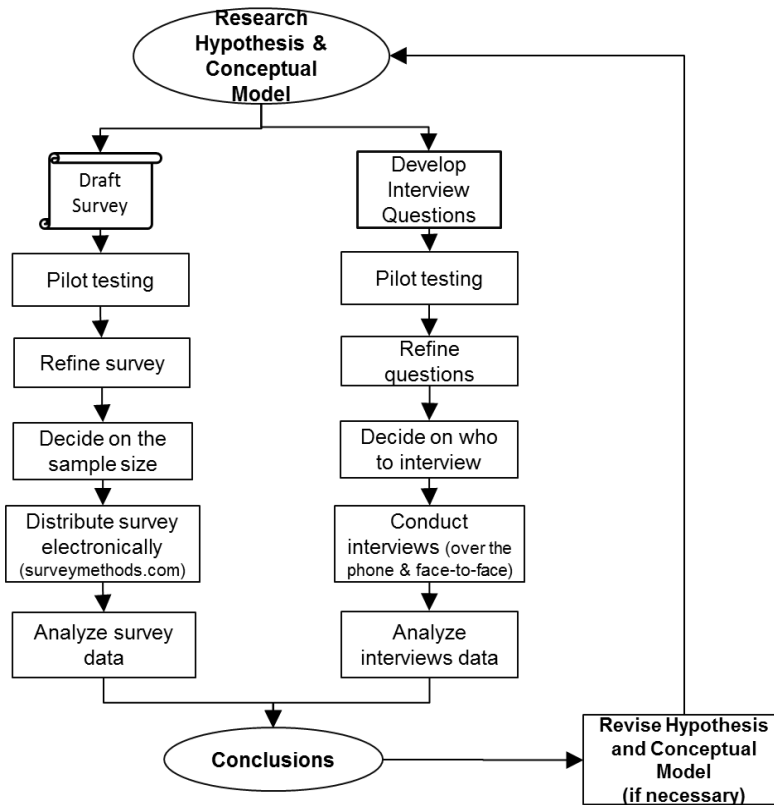
Figure 18: Data Collection Approach

The following section describes the detailed data collection approach that this study followed.

### 3.3.2 Data Collection Approach

The researcher collected two data from two different sources: (a) surveys, and (b) interviews with open-ended questions. The selection of these approaches was made based on the following analysis:

a) Survey research is one of the oldest research methods and probably the most widely used in social sciences (Hackett, 1981). Surveys can be considered an investigation of certain aspects of a population by studying a sample of that population using well-

organized statistical tools (United Nations Economic Commission, 2000), and can help in collecting data that are not otherwise available, or implicit data that reflects what or how research subjects feel or perceive a certain problem (Girden & Kabacoff, 2011). This research views the details about the success or failure of organizational change projects as being implicit data and can be related to how managers perceive change and success.

b) Interviews represent one of the commonly used methods to collect data in qualitative research as they allow the researcher to ask further questions to collect more meaningful data (Frels & Onwuegbuzie, 2013). Interviews are particularly successful in revealing the story behind the respondents' experiences that cannot be fully discussed and explicated otherwise (Doody & Noonan, 2013). In addition, data collected from interviews result in a more comprehensive view on change projects and provides further detail about the change type, methods and outcomes.

c) By using interviews in this research alongside surveys, internal validity issues are addressed by triangulation, where multiple sources of data are needed to validate the research hypotheses ( Leedy & Ormrod, 2001).

The next section discusses the data collection instruments in further detail.


### 3.3.3   Data Collection Instrument Description

As mentioned in the above paragraph, this researcher used two techniques to gather data: surveys and interviews.

### 3.3.3.1 Survey

A survey was developed to quantitatively measure all four constructs identified in the research questions. Kraut (1996) viewed the survey process as a problem solving process that captures data by mainly using closed-ended questions although sometimes open-ended questions can be used as well. Data captured are later properly processed and analyzed so that conclusions can be made. The process of survey research involves seven main steps (Hackett, 1981):

1. Definition of problem:

   The first step in starting survey research is to clearly define the problem and have a clear objective before choosing the survey design (Hackett, 1981).

2. Survey design:

   A survey can be designed to be either cross-sectional or longitudinal (McGaw & Watson, 1976; Weisberg & Bowen, 1977). Cross-sectional surveys are usually used when the desired data is about a population at a certain point in time, while longitudinal surveys include data collection at two or more points in time which allows assessing progress or variation over time which is not possible using cross-sectional surveys.

3. Sample selection; there are four types of sample selection:

   - Simple random sampling: the basic and most commonly used sample selection method (Babbie, 1990; Kish, 1965; Selltiz, Wrightsman, & Cook, 1976). Choosing a simple random sample requires identifying the entire population and randomly choosing the sample.

- Systematic sampling: a deviation of simple random sampling that requires identifying the entire population, but in systematic sampling a sampling interval is randomly selected, and every $K^{th}$ subject/person of the population is selected in turn (Babbie, 1990; Hackett, 1981).

- Stratified sampling: a way to select a representative group by making sure that all subgroups of the population are part of the survey sample (Babbie, 1990; Kish, 1965).

- Cluster sampling: particularly useful when a list of the entire population is unavailable. Large groups from the population are selected randomly, and then another sample from within each group is selected, resulting in a two-stage sampling process (Babbie, 1990; Kish, 1965).

4. Questionnaire development: the formulating the questions by deciding what kind of information needs to be collected. Researchers have to be cautious in the questionnaire phase as it reflects on how useful the collected data is (Babbie, 1973; Kahn & Cannell, 1957; McGaw & Watson, 1976; Moser & Kalton, 1972). The survey method with five-or seven-point scale items (e.g., strongly disagree to strongly agree) is the principal logic used in Ph.D. dissertations (Woodside, 2010). Writing good survey questions requires using simple words, explicit and familiar language, and making survey items concise (Babbie, 2010; Rea & Parker, 2005). The first page of the survey must have a short description on how to respond to questions and may also include detailed instructions (Kraut, 1996).

5. Questionnaire pre-testing and pilot testing: testing the questions on a sample similar to the survey sample setting to make sure that questions are appropriate and

consistently understood. This step is usually performed after any change is made in the questionnaire, and is important to reveal any problems that might cause incorrect or inexact responses (Bryson, Turgeon, & Choi, 2012).

6. Data collection: the activity of recording data from respondents for future processing (UNEC, 2000), and can be done in multiple methods that depend on the research objectives and study design. The major methods to collect survey responses used to be personal interviews, email/mail questionnaires, phone interviews, online surveys and combinations of the methods (Dillman, Smyth, & Christian, 2009; Hand, Mellenbergh, & Ader, 2008; Moser & Kalton, 1972). Dillman (2009) discusses the advantages and disadvantages of three methods for conducting surveys: 1) by mail/e-mail/internet, 2) telephone interviews and 3) face-to-face interviews, as shown in Table 8.

Table 8: Advantage and Disadvantage of Survey Methods (Dillman, 2009)

| | Advantages | Disadvantages |
|---|---|---|
| Mail, e-mail or the Internet | a. Cost-effective<br>b. Can be anonymous<br>c. Easy to score most questions<br>d. Standardized process and procedures | a. Response rate may be small<br>b. Cannot review or explain items to respondents<br>c. Only used by people who can read/ use computers |
| Telephones Interviews | a. High response rate<br>b. Quick data collection<br>c. Can reach a wide range of locales and respondents | a. Requires phone numbers<br>b. Difficult to get in-depth data<br>c. Requires training |
| Face-to-face interviews | a. Can review and explain items to respondents<br>b. Usually high return rate<br>c. Can be recorded for later analysis | a. Time-consuming<br>b. No anonymity of respondents<br>c. Potential bias of the researcher (interviewer)<br>d. Complex scoring of unstructured items |

7. Data analysis and interpretation

   The data analysis can be as simple as descriptive tallies and frequency counts of survey data or as complex as path analysis or various multivariate approaches, depending on the research question to be answered and the nature of the collected data. The data analysis approach can also be qualitative or quantitative (McGaw & Watson, 1976; Weisberg & Bowen, 1977). This research followed a quantitative approach in analyzing data. Descriptive statistics and correlation and regression analyses were conducted to test the research hypotheses.

Table 9 summarizes the steps of this research survey process.

Table 9: Steps of This Research Survey Process

| Step | This Research |
|---|---|
| 1. Problem definition | Establishing and verifying the underlying factors and relationships between change type, enablers and change outcomes |
| 2. Choice of survey design | Cross-sectional surveys as it will collect data from samples at a certain point in time. |
| 3. Sample selection | Simple random sampling as it maintains high external validity and reliability as discussed further in section 3.3.4. For studies that involve regression analysis, Tabachnick and Fidell (2007) provide a rule of thumb for sample size, which requires at least 50 + 8m (m is the number of independent variables) for testing multiple relationships (p. 123). Thus, according to Tabachnick and Fidell (2007), this dissertation with 3 independent variables, should have at least (50 +8*3) 74 respondents. |
| 4. Questionnaire development | Survey questions will ask respondents to describe, using a 5 point scale the degree to which they agree or disagree with questions related to actions that took place during the change project they were/are involved in. |
| 5. Questionnaire pre-testing | Survey was distributed on 25 PhD students as part of a research class. Extracted factors per construct were consistent with conceptual model |
| 6. Data collection | Data will be collected using: <br> a) Internet as it is cost-effective and follows a standardized process. <br> b) Interviews as they allow revealing the story behind the respondents' experiences that cannot be fully discussed and explicated otherwise |
| 7. Data analysis and interpretation | This research will follow a quantitative approach in analyzing data. Descriptive statistics and correlation and regression analyses will be conducted to test the research hypotheses |

The survey contains 40 questions and divided into three parts:

(a) Successful Change Projects

(b) Unsuccessful Change Projects

(c) Questions Pertaining to Demographics and Open-ended Questions

Figure 19 illustrates how the questions relate to the factors and constructs.
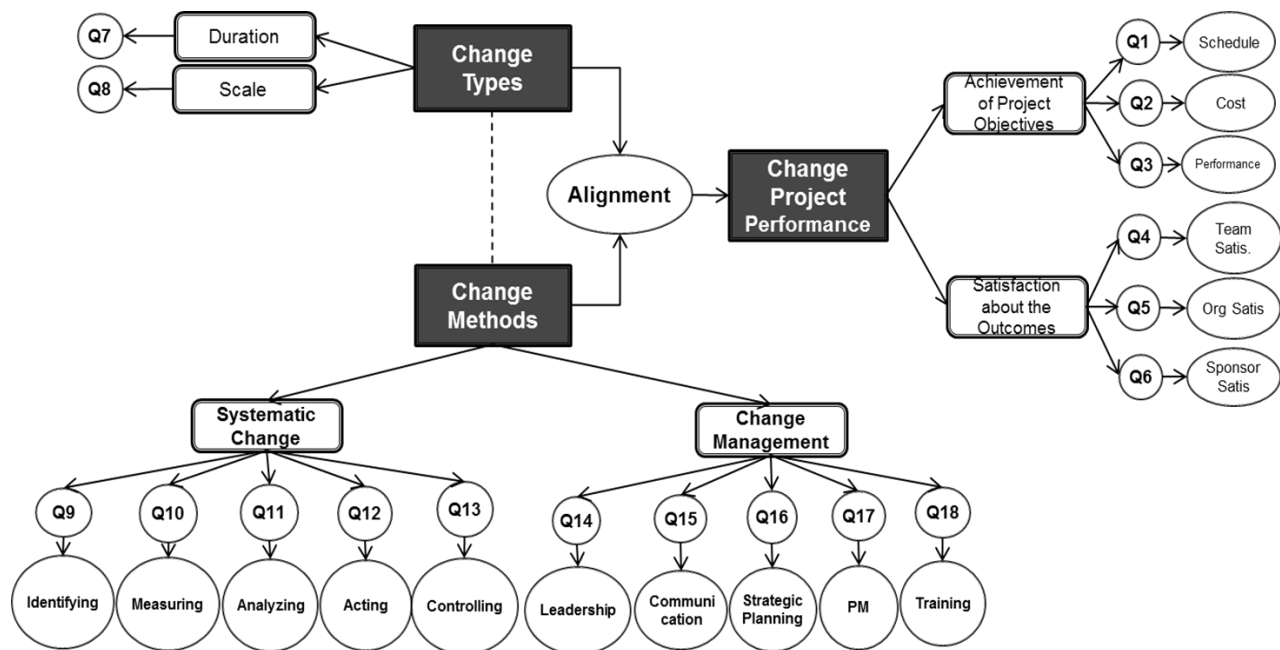


Figure 19: Survey Questions per Construct

The main goal of asking respondents to complete the survey for two different projects (successful and unsuccessful) was to increase (double) the size of the sample. The survey questions asked respondents to answer on a five-point Likert scale how much they agree or disagree with certain statements. The Likert scale was developed in 1932 by Rensis Likert (1932) and has become an accepted scale for data (Norman, 2010).

The five options that will be used in answering the survey question are ranked in an ascending order as follows:

1. Strongly disagree: corresponds to level one, the lowest level of agreeing with the statement action taking place, and indicates that the action almost never takes place in relation to the change project.

2. Disagree: corresponds to level 2 of agreeing with the statement action and indicates that the action seldom takes place in relation to the change project.

3. Neither agree nor disagree: corresponds to level 3 and indicates that the respondent is fairly neutral with the statement action-taking place in relation to the change project.

4. Agree: corresponds to level 4 of agreeing with the statement action and indicates that the action takes place the majority of the time in relation to the change project.

5. Strongly agree: corresponds to level 5, the strongest level of agreeing with the statement action taking place, and indicates that the action happens almost always in relation to the change project.

A copy of the survey that was sent out to respondents is available in Appendix A.


3.3.3.2   <u>Interviews</u>

Written interviews were conducted in this research to gather further information about organizational change at different organizations. There are different types of interviews: unstructured, semi-structured and structured (focus groups) (Leedy & Ormrod, 2001). Interview data was gathered using semi-structured interviews, which are the most

commonly used type of interviews in qualitative research (Holloway & Wheeler, 2009). Semi-structured interviews involve using preset questions that allow the researcher to seek further elucidation when needed (Doody & Noonan, 2013). Asking open-ended questions in the interviews should encourage respondents to share additional information that cannot be obtained by a survey. Table 10 provides a list of the proposed interview questions.

Table 10: Interview Questions

| Question Topic | Question |
|---|---|
| Reflections on the change type | • On a scale from one to three, describe how big the impact of project was?<br>• Was it a temporary change or a long term one? And how long did it take? |
| Reflections on the change method | • Describe in details the steps that were taken and followed to manage the project? |
| Reflections on the change outcome | • How successful was the change? On a scale from one to five, how successful was the change project in: meeting budget, completed within schedule, achieving goals and performance, satisfactory to stakeholders? |

Interview questions in this research were pilot-tested, to ensure clearness, meticulousness, and minimal bias (Leedy & Ormrod, 2001). Olson (2011) suggests that successful interviews require proper preparation and consist of taking notes during the interview, pacing the interview, and dealing carefully with sensitive topics.

### 3.3.4  Validity and Reliability of the Survey

Some issues need to be addressed when surveys are used in collecting data such as reliability and construct validity. The reliability and construct validity of the research influence the extent to which we learn something about the area we are studying, the

probability of obtaining statistical significance in the data analysis, and the extent to which we can draw meaningful conclusions from the data (Leedy & Ormrod, 2001).

Construct validity refers to the extent to which the survey is able to have correct operational measures for the concepts being studied in the conceptual model (Yin, 1989). Common definitions of validity found in the literature are provided in Table 11. Reliability refers to the ability of the research processes such as survey procedures to be repeated, with the same results and conclusion (Goode, Hatt, & Hatt, 1952; Yin, 1989). Common definitions of reliability in the literature are provided in Table 12.

Reliability and validity are closely related evaluation measures; an instrument can be reliable without being valid but it cannot be valid without being reliable (Monette et al., 2002).

Table 11: Common Definitions of Validity

| Author/ Year | Definition | Source |
|---|---|---|
| Robson (2002) | "Validity is concerned with whether the findings are 'really' about what they appear to be about" | Book: Real World Research: A Resource for Social Scientists and Practitioner-Researchers, p.93 |
| Pennypacker & Johnston (1980) | "Degree of approximation of 'reality'" | Book: Strategies and tactics of human behavioral research, p. 190 |
| Hammersley (1987) | "An account is valid or true if it represents accurately those features of the phenomena, that it is intended to describe, explain or theories" | Article: Some Notes on the Terms "Validity" and "Reliability". Periodical British Educational Research 13(1), p. 69 |
| Campbell (1988) | "Validity is represented in the agreement between two attempts to measure the same trait through maximally different methods | Book: Methodology and Epistemology for Social Science: Selected Papers, p. 39 |
| McKinnon (1988) | Validity is concerned with the question of whether the researcher is studying the phenomenon she or he purports to be studying. | Article: Reliability and Validity in Field Research: Some Strategies and Tactics Periodical Accounting, Auditing & Accountability Journal, 1 (1), p. 36 |

Table 12: Common Definitions of Reliability

| Author/ Year | Definition | Source |
|---|---|---|
| Goode & Hatt (1952) (1952) | "The extent to which repetition of the study would result in the same data and conclusions" | Book: Methods in social research, p. 153 |
| Campbell (1988) | "The agreement between two efforts to measure the same trait through maximally similar methods." | Book: Methodology and Epistemology for Social Science: Selected Papers, p. 39 |
| Leedy & Ormond (2005) | "The consistency of the research results when the entity being measured has not changed" | Practical Research: Planning and Design, p 31 |

The overall process of validity and reliability analyses is shown in Figure 20.
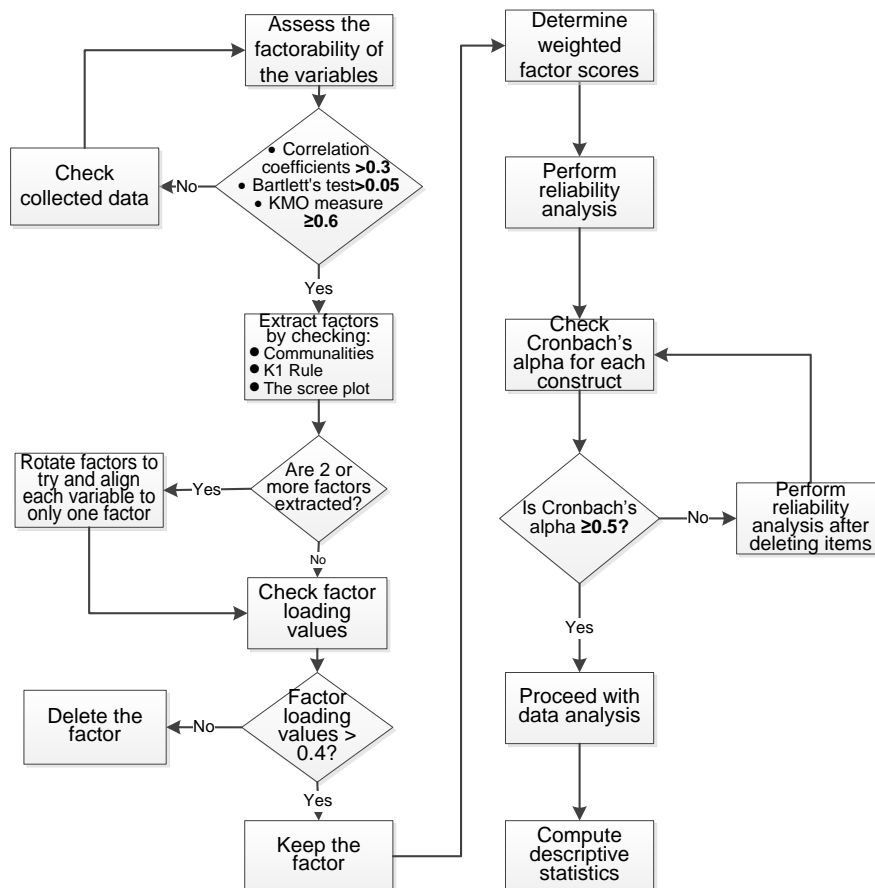


Figure 20: Validity and Reliability Analyses Flow

### 3.3.4.1 Construct Validity

Construct validity refers to the degree to which the right data sources are used, and the variables used are actually measuring the constructs they are supposed to measure. Construct validity is demonstrated when the variables within a construct are correlated and explain one construct (Ahire & Devaraj, 2001).

Factor analysis (FA) was applied to the survey collection method to verify the construct validity by refining and exploring the appropriate variables that need to be associated with each construct. Factor analysis is a collection of methods used to study the relationships between variables (Carr, 1992; Decoster, 1998). Factor analysis can be used to simplify complex data (Kline, 2002) and to explore the primary factor structure of the constructs being studied (Hurley et al., 1997; Kim, Mueller, & Mueller, 1978). Factor analysis helps in identifying variables that explain most of the variance observed in a construct (Dillman et al., 2009). An important rule for factor analysis is that at least three variables are needed to compose a construct; each variable within each construct must have at least three questions to measure it. Constructs that do not comply with this rule are treated like a single variable (Landaeta Feo, 2003).

There are two types of factor analyses: exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). Exploratory factor analysis appears more frequently in the literature (Bryman & Cramer, 1996), yet the use of one approach over the other is frequently debated in the literature (Hurley et al., 1997). Further comparison between EFA and CFA, and the criteria used for such decision in this research are described in

Table 13 based on literature review from Hurley, et al. (1997), Bryant (1995), Portney and Watkins (2000), Swisher et al. (2004) and Dillman et al. (2009).

Table 13: Comparing Exploratory Factor Analysis with Confirmatory Factor Analysis

|  | EFA | CFA | Application to This dissertation Research |
|---|---|---|---|
| Purpose and proper uses | • To build new theories<br>• To simplify data by summarizing and reducing it to be easily understandable<br>• To identify and explore underlying factor structure in a set of observed variables. | • To test existing theories<br>• To confirm an existing, theoretical, or hypothesized underlying relationships between variables<br>• To test several model structures to determine which the best fit is for certain data. | • Since this research hypothesizes the underlying factors of the 3 constructs (change type, methods and outcomes) using a newly conceptualized model, EFA is more suitable to be used<br>• CFA could be used in the future to confirm the conceptual model and the hypothesized factor structure. |
| Suitable uses | In early stages of research when new concepts are being built on a topic | Serves as a bridge between a theory and instrument development | Since the dissertation research is studying the early stages of the conceptual model development, EFA is more suitable to be used |
| Advantages | • Analysis can be conducted without theoretical constraints imposed upon the solution<br>• Useful in surveys where researchers have little control over designing and/or administering the survey. | Suitable for surveys where researchers have control over development and administration of the survey instruments. | Since the dissertation research has no theoretical constraints imposed upon the solution, and the researcher will have little control over administering the survey, EFA is more suitable to be used |
| Limitation | • Requires accurate judgment of the researcher in identifying the constructs and their underlying factors.<br>• May result in different factors when different statistical approaches are used<br>• Requires relatively large sample size | • Requires the researcher to possess a large amount of knowledge on the research subject and specific statistical procedures<br>• Requires relatively large sample size<br>• Assumes normal distribution of variables | • This dissertation research will follow generally accepted EFA approach. |

After studying the uses, advantages and disadvantages of both EFA and CFA methods, this dissertation research used EFA for each construct in the conceptual model to study the various variables of the constructs; EFA is specifically useful when there are no previous explorations of the measure and no clear subscales explanation (Smith, Wolford-Clevenger, Mandracchia, & Jahn, 2013). Figure 21 illustrates the detailed process flow of EFA.
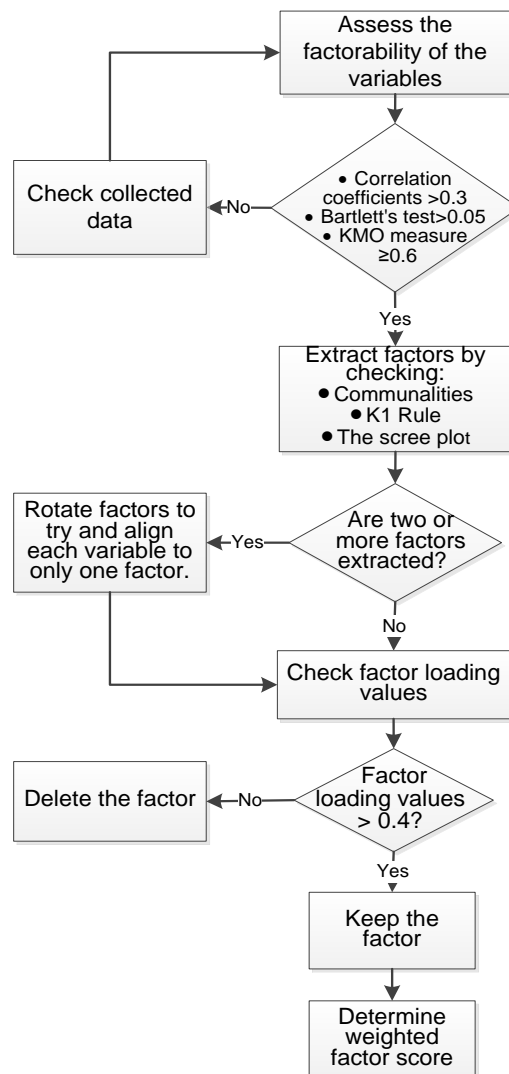


Figure 21: EFA Procedure

The following steps explain the process of conducting EFA (Kim, et al., 1978; Friel, 2005):

1) Assessing the factorability of the questions (variables):

   a. High values of correlation coefficients. In order to proceed with EFA as a suitable method for data analysis, a considerable number of correlation coefficients should be greater than 0.3.

   b. A p-value for Bartlett's test of sphericity of less than 0.05. In order to make sure that variables correlate only with themselves, this test (chi-square) is designed to verify that the correlation matrix for the variables is an "identity matrix".

   c. A Kaiser-Meyer-Olkin (KMO) measure that is greater or equal 0.6. This test checks the sampling adequacy for EFA by measuring the percentage of common variance among the items for every construct.

2) Deciding how many factors underlie the variables, i.e., extracting factors.

   Using the statistical software SPSS, factors were extracted using the Principal Component Analysis (PCA). The initial set of extracted factors tries to explain as much as possible of the overall variance with the least number of variables. In order to proceed with factors extraction, three steps need to be considered:

   a. Communalities: these account for the percentage (%) of variance in each given variable that is explained by the factor. The goal is to get high communality values the more communalities that are higher than 0.5, the more explained that variable by the factor.

   b. K1 or Kaiser Rule: this test identifies the number of factors that can be extracted. Only factors with eigenvalues of greater than one are considered, as the

eigenvalue represents the proportion of variance that the factor accounts for relative to the total variance of all the variables.

c. The scree plot: this is a graphical representation that can determine the number of extracted factors. The number of factors for the construct can be chosen at the point where the plot starts to level off to become more linear. The scree plot confirms the results and accuracy of the K1 or Kaiser Rule Kaiser.

3) Rotating factors: if two or more factors are extracted, rotation is necessary to try to align each variable to only one factor. Varimax method was followed on SPSS to obtain an orthogonal rotation as it assumes that factors are not correlated. The outcome of rotation is a simpler factor structure.

4) Obtaining factor-loading values: this step verified that each factor loading is significant so that the factor's variable is considered in the analysis. Factor loadings represent the degree of correlation between the variables and the factors and are found in the component matrix of SPSS output. Factor loadings are significant if they are greater than 0.4 for a sample size of less than 100, or greater than 0.3 for sample size greater than 100.

5) Computing weighted factor scores: this step determines the value of each factor for all respondents by calculating the average of the score for each question in the factor. These scores were used in the hypotheses testing to assess the correlation of factors.

### 3.3.4.2    Internal and External Validity

Internal validity seeks to institute an underlying relationship, where certain circumstances are assumed to lead to other circumstances (Yin, 1989). Cook and Campbell (1979) defined internal validity as "the approximate validity with which we can infer that a relationship is causal" (p. 37). Internal validity in research is established through: (a) a controlled laboratory study, where the study is made under predetermined conditions; (b) a double-blind experiment, where both the participants and research administrators do not know what the research hypothesis is about; (c) an unobtrusive measure, where people participating in the research are not aware that their actions are being recorded; and (d) triangulation, where multiple sources of data are used (Leedy & Ormrod, 2001). This research will use triangulation to internally validate the data by using interviews and a qualitative survey question alongside the surveys quantitative question.

External validity defines the domain to which the research results can be generalized and the extent to which the findings can be assumed to apply in other places and at other time (Maddux & Johnson, 2012; Yin, 1989). External validity in research is established through: (a) a real-life setting, where there are no artificial settings and the research yields in results with broader applicability to other real-world context; (b) a representative sample, where the findings about that studied sample can be generalized to a wider population; and (c) replication in a different context, where the same conclusion can be reached when the same study is conducted under other circumstances (Leedy & Ormrod, 2001). This research used a real-life setting and a

representative sample where the findings about that studied sample can be generalized to make sure the hypotheses are externally valid.

### 3.3.4.3    Reliability Analysis

Reliability is established in survey research by demonstrating that the survey procedures can be repeated, with the same results and conclusion (Goode et al., 1952; Yin, 1989). Yin (1989) argues that the objective of reliability is "to minimize the errors and biases in a study" (p. 45).

With regard to this survey used in this study, Cronbach's alpha was calculated to study the internal consistency of the survey or its reliability, i.e., the ability of the survey to yield consistent results every time it is used under the same settings. This is done through examining the reliability of each factor within each construct and make sure it reflects the actual structure of its construct. Cronbach's alpha is calculated for survey items measuring the same factors, and is most appropriate when the items are measuring different variables within one construct (Girden & Kabacoff, 2011). Cronbach's alpha range from 0 to 1; the higher the value, the more reliable the scale, or survey data collection method. 0.7 is usually considered an acceptable reliability coefficient, however, a lower value of 0.5, is sometimes acceptable if it is for newly established concepts (Nunnally, 1978). After conducting factor analyses, SPSS was used to measure Cronbach's alpha for each factor found in the factor analyses within each construct.

## 3.4   Data Analysis

Upon verifying the construct validity and reliability of the data collection methods, this section analyzed the data collected statistically and tested the research hypotheses.

### 3.4.1   Descriptive Statistics

This section summarizes the statistical and numerical measures of the collected data. The following statistics were computed for each question and construct:

- Central tendency: the average or mean calculated to represent participants' responses for analyses purposes.

- Summation: the totals calculated to represent participants' responses for analyses purposes

- Variation: the standard deviation (the average difference between the responses' values and the mean) calculated to represent the relative variation of responses from the mean.

- Range: the spread or the scope of the responses values calculated by the minimum and maximum values of the responses for analyses purposes.

### 3.4.2   Hypothesis Testing

After computing the descriptive measures of the collected data, hypotheses' testing was conducted. Standard multiple linear regressions were used to test the hypotheses and investigate relationships between the variables. Regression analyses are based on correlations (Pallant, 2010), but they are often used to explore the detailed interrelationships between the variables (Tabachnick & Fidell, 2007). Regression

analyses was used to test the relationships between the dependent variable (change outcome) and the independent variables of change type and the use of change methods (systematic and management), and determine if there are relationships between them and the strength and direction of these relationships. The research hypotheses explored and tested the following:

- Relationship between the change type, the use of change methods and change outcome (H1)

- Alignment between change type and systematic change methods and change outcomes (H2a)

- Alignment between change type and change management methods and change outcomes (H2b)

### 3.4.2.1 Hypothesis 1

This hypothesis seeks a positive correlation between "the change type" and the use of "systematic change and change management methods" that relates to change success. The null hypothesis in this case is:

$H1_0$: There is no correlation between change type, the use of systematic change and change management methods and change outcomes.

$H1_0$: $R^2 = 0$ (no correlation)

$H1_a$ (alternative hypothesis): There is a correlation between change type, the use of systematic change and change management methods and change outcomes

$H1_a$: $R^2 > 0.0$ (correlation is present).

### 3.4.2.2 Hypothesis 2

This hypothesis seeks a positive correlation between the "alignment between the change type and change methods" and "change outcomes", and is tested by two sub-hypotheses:

### 3.4.2.2.1 Hypothesis 2a

H2a: "alignment between change type and systematic change methods" and "change outcomes". The null hypothesis in this case is:

H2a$_0$: there is no correlation between alignment between change type and systematic change methods and change outcomes.

H2$_0$: $\beta = 0$ (no correlation)

H2a$_a$ (alternative hypothesis): there is a positive correlation between alignment between change type and systematic change methods and change outcomes.

H2$_a$: $\beta > 0$ (correlation is present)


### 3.4.2.2.2 Hypothesis 2b

H2b: "alignment between change type and change management methods" and "change outcomes". The null hypothesis in this case is:

H2b$_0$: there is no correlation between alignment between change type and change management methods and change outcomes.

H2$_0$: $\beta = 0$ (no correlation)

H2b$_a$ (alternative hypothesis): there is a positive correlation between alignment between change type and change management methods and change outcomes.

H2b: $\beta > 0$ (correlation is present).

## 3.5   <u>Notes on the Research Methodology</u>

This dissertation research proposed connecting three main knowledge areas: change types, change methods, and change outcomes. These three areas are stand-alone subjects in several publications in the literature. Some of the published research connects the change types and change methods (Burnes, 2004; By, 2005; Goes et al., 2000; Meyer et al., 1990), while other researcher connects the change methods and change outcomes (Beer & Nohria, 2000; Burnes, 2004; Miller, 1982; Mintzberg, 1979). But connecting the change types, change methods and change outcomes is new research territory; this research explored the question of whether there is a statistically significant positive correlation between change type and change method and between change methods and change project outcome. The selected research methodology also focused on the question of alignment or interaction between the complexity of the change type and the use of change methods and how it is related to change project outcomes. If the collected data was not enough to reject the null hypotheses (thus showing that there is no specific relationships between the constructs), then additional revisions should be made in the data collection instruments to check if it can modified or changed. It is important to clarify that finding no significant relationship between the constructs could indicate that a larger and more randomized sample could be needed.

## 3.6   <u>Conclusion</u>

This chapter discussed the need to conduct more useful research on change, research paradigms and research process. It presented the conceptualization of the research model by stating the research questions and defining the constructs and relationships

between them. This chapter also described the operationalization of the research by explaining the methodology that was used to verify the conceptual model and test hypothesized relationships. Finally, it presented the steps that were followed to analyze the collected data. The next chapter will explain the implementation of the data collection instruments and the analysis and interpretation of the results.

# CHAPTER FOUR: DATA COLLECTION AND ANALYSIS

## 4.1 Introduction

This chapter presents the details of the data collection and analysis that were performed in order to test the research hypotheses and understand the conceptual model. The first section introduces the chapter. The second section describes the proposed hypotheses to be tested. The third section presents the survey data collection method and pilot study. The fourth section presents the respondents' demographics. The fifth section presents practical reflections of the survey data. The sixth discusses the results of verifying the validity and reliability of the survey. The seventh section presents the descriptive statistics of the collected data. The eighth section discusses the details of hypotheses testing and multiple linear regression analysis to answer the research questions. The ninth section discusses the outcomes of the qualitative survey data and interviews. Finally, the tenth section summarizes the chapter with an overall conclusion.

## 4.2 Proposed Hypotheses to be tested

The purpose of the data collection was to establish numerical values for three constructs: (a) change types, (b) change methods, and (c) change project outcomes. In addition, this research tested the hypotheses that explain the relationships between these constructs. The two research hypotheses are shown in Figure 22.
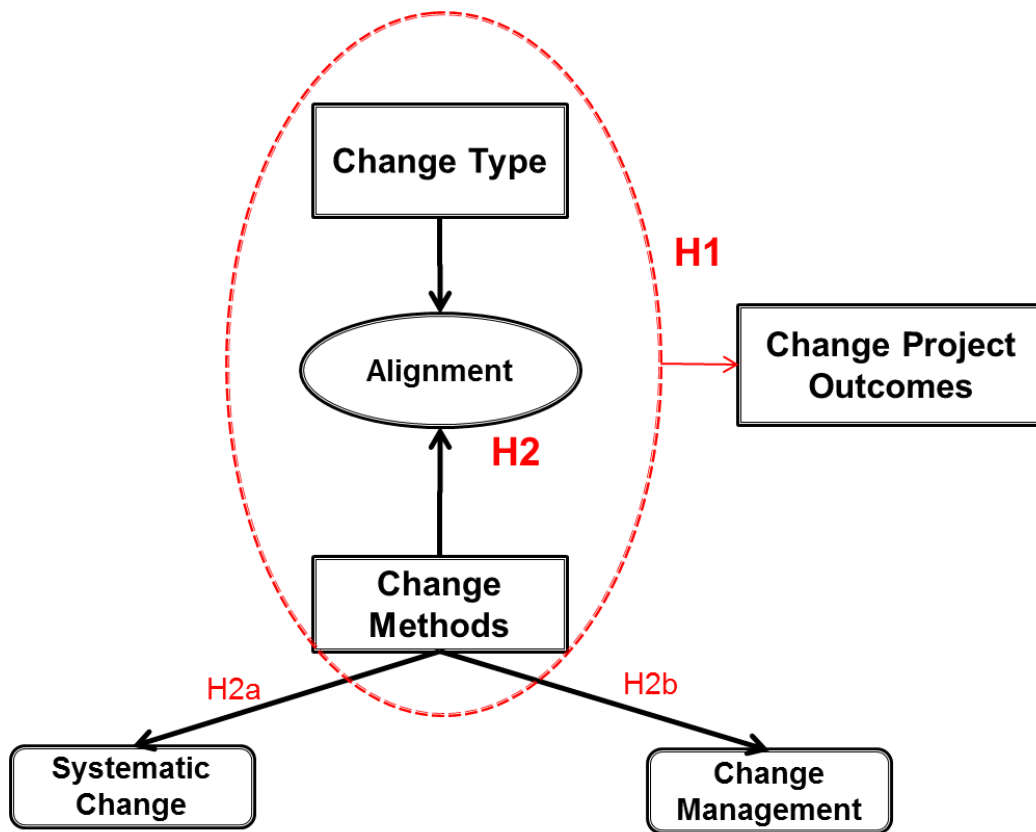
Figure 22: Research Hypotheses

### 4.2.1   Hypothesis 1

**H1:** "change type", "systematic change methods" and "change management methods" relate significantly to the "change outcomes".

- $H1_0$ (null hypothesis): there is no correlation between "the change type", "the use of systematic and change management methods" and "change outcomes"

- $H1_a$ (alternative hypothesis): there is a correlation between "the change type", "the use of systematic and change management methods" and "change outcomes".

## 4.2.2 Hypothesis 2

**H2:** The alignment between change type and change methods relates significantly to successful change.

H2a: the higher the "alignment between change type and systematic change methods", the higher "change outcomes".

- $H2a_0$ (null hypothesis): there is no correlation between alignment between change type and systematic change methods and change outcomes.

- $H2a_a$ (alternative hypothesis): there is a positive correlation between alignment between change type and systematic change methods and change outcomes.

H2b: the higher the "alignment between change type and change management methods", the higher "change outcomes".

- $H2b_0$: (null hypothesis): there is no correlation between alignment between change type and change management methods and change outcomes.

- $H2b_a$: (alternative hypothesis): there is a positive correlation between alignment between change type and change management methods and change outcomes.

## 4.3  The Survey Data Collection Method

To test the research hypothesis and verify the conceptual model, a survey questionnaire consisting of 40 questions was developed. A copy of the survey that was given to respondents is provided in Appendix A. Figure 23 shows the survey structure and questions. Prior to conducting the survey, a pilot survey was administered to a small number of people who are knowledgeable in survey methods as described in the following section.
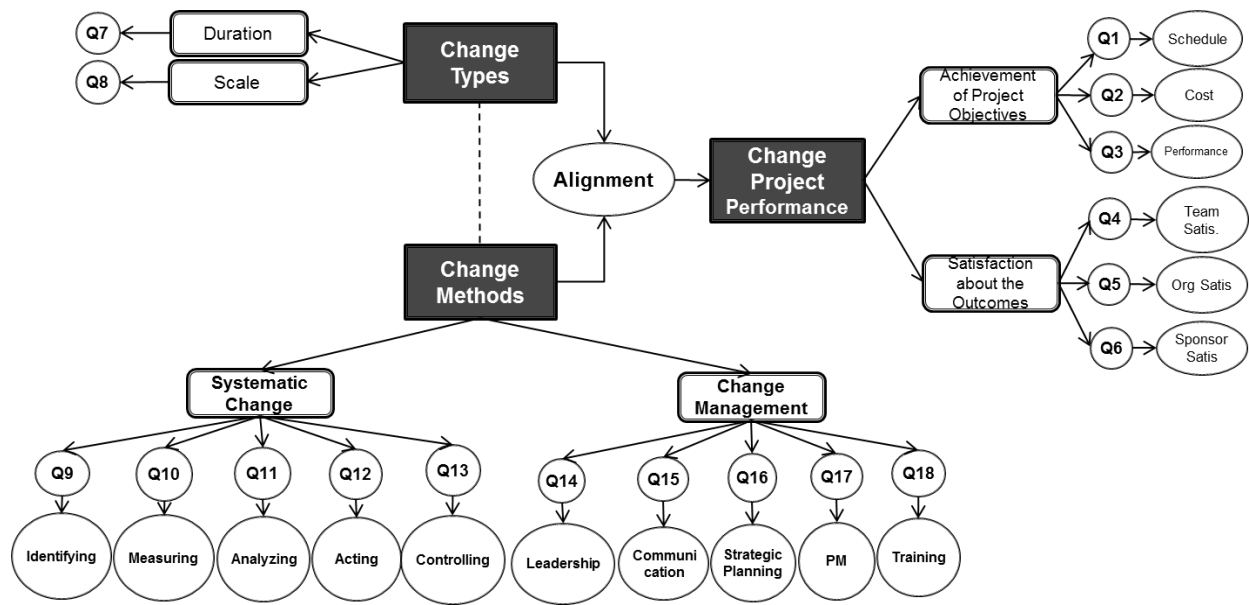
Figure 23: Survey Structure and Questions

### 4.3.1  Pilot Study

After drafting the survey, a pilot test was conducted to check and ultimately improve the survey based on respondents' input and to ensure that it is possible to provide and analyze the appropriate data for this research. The pilot survey was completed with a group of 20 respondents who were part of a survey research class at the University of Central Florida and had been briefed on what the survey is about. The respondents were asked to answer the survey questions and to evaluate and identify unclear questions as well as offer suggestions for possible modifications to the survey. Using the input obtained through the pilot test, the following modifications were made on the survey:

- Replaced "We established a sequential set of steps to implement change" by "We accurately measured the performance of situation that needed to be changed" and "We analyzed the situation to specify what needs to be changed".

- Added a question about continuous training.

- Moved questions related to communication and leadership from "Systematic Change" to the "Change Management" construct.

### 4.3.2  Survey Overall Structure

This dissertation proposed measuring the strength of the relationships between three constructs: change type, change methods and change outcomes. Moreover, it intended to quantify the type of change projects and the applied change methods for each type. It also proposed quantifying the change projects outcomes. In order to quantify the change outcomes and methods constructs, the researcher developed a five-point-Likert scale survey; to quantify the type of the change project, multiple choice questions related to scale and duration were developed. The survey contained 40 questions and was divided into three parts: (a) Successful Change Projects, (b) Unsuccessful Change Projects, and (c) Questions Pertaining to Demographics and Open-Ended Questions.

Questions in parts A and B were developed to determine the project outcomes, change type and the applied methods. Questions related to change outcomes and methods asked respondents, using a five-point Likert scale, how much they agree or disagree with certain activities related to a successful change project in part A and unsuccessful

projects in part B. An example of the survey questions, along with the possible answers, appears in Figure 24.

| We completed the change project within the predetermined schedule | | | | |
|---|---|---|---|---|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| ○ | ○ | ○ | ○ | ○ |

Figure 24: A Survey Question Related Change Project Outcomes

Questions pertaining to the change project type asked respondents to choose one of three options to identify the scale and duration of the change project that they were involve in as shown in Figure 25.

**The scale of the change project that I was involved in was:**
○ **Small**: minor and less significant change that addressed a small gap/minor processes
○ **Medium**: a significant change that addressed a medium gap/many processes or departments
○ **Large**: a far-reaching change that addressed a big gap/major processes and/or the entire organization

**The duration of the change project that I was involved in was:**
○ **Short**: less than 3 months
○ **Medium**: between 3 months and 1 year
○ **Long**: more than 1 year

Figure 25: Questions Related to Change Scale and Duration

### 4.3.3  Survey Administration

The survey was conducted using a paper survey, face-to-face interviews, and an online survey site (surveymethods.com) that involved inviting respondents by email. The unit of analysis in this research design was a completed change project. Respondents were

asked to complete the survey for two different projects: a successful project and an unsuccessful project. The main goal of asking respondents to complete the survey for two different projects is to increase (double) the size of the sample and to give a broader range and of cases.

The total number of respondents was 70; 37 participants responded to the paper survey and 33 participants responded to the online survey. Respondents were asked to answer the survey for two different projects, 5 respondents to the paper survey and 2 respondents to the online survey answered the questions on successful projects only, while 1 respondent to the paper survey answered the questions on an unsuccessful project only.

Eight completed surveys on successful projects and another eight completed surveys on unsuccessful projects were eliminated due to incomplete responses or being extremely distant from other responses (outliers). Thus, in the sample, there were 61 surveys completed for successful projects and 55 completed for unsuccessful projects with a total of 116 completed surveys for both types of projects. This sample size satisfied the rule of thumb suggested by Green (1991) and by Tabachnick (2007) that a sample size needs to be at least 50 + 8m (m is the number of independent variables which is 3 in this research) in order to test multiple correlations between variables. This corresponds to 74 change projects for this dissertation. Thus, the number of projects (116 > 74) satisfied the rule. Table 14 displays the numbers of survey responses used in this research per data source.

Table 14: Number of Survey Responses per Source

| Source | Respondent | Successful Projects | Unsuccessful Projects | All projects |
|---|---|---|---|---|
| Paper survey | 31 | 27 | 20 | 47 |
| Face-to-face Interviews | 6 | 5 | 5 | 10 |
| Online | 33 | 29 | 30 | 59 |
| **Total** | **70** | **61** | **55** | **116** |

## 4.4   Demographics

The survey used in this study had three questions that addressed the respondents'
demographics. Question 37 of the survey asked respondents to provide their fields of
work. Sixty-nine out of the 70 respondents gave an answer to the question as shown in
Table 15. There are two major types of organizations; government and
IT/Telecommunication represented more than two thirds of the respondents (71%).

Table 15: Type of Respondents' Organizations

| Type of Organization | Number of Respondents | Percentage |
|---|---|---|
| Government | 43 | 61.4% |
| IT/Telecommunications | 7 | 10.0% |
| Consulting/Business Services | 1 | 1.4% |
| Entertainment/Hospitality/Recreation | 2 | 2.9% |
| Higher Education | 6 | 8.6% |
| Manufacturing | 2 | 2.9% |
| Transportation (Automotive, Aerospace and Rail) | 3 | 4.3% |
| Other | 5 | 8.6% |
| Not Answered | 1 | 1.4% |
| **All** | **70** | **100%** |

Question 38 of the survey asked respondents to provide the number of employees in
their current organization. Sixty-nine out of the 70 respondents gave an answer to the

question as shown in Table 16. Around 80% of the respondents had more than 100 employees, more than 30% had more than 1000 employee and only 14% of the respondents' organizations had less than 100 employees.

Table 16: Number of Employees in Respondents' Organizations

| Number of employees in the organization | Number of Respondents | Percentage |
|---|---|---|
| Less than 100 | 10 | 14.2% |
| 100-999 | 37 | 52.3% |
| 1,000-4,999 | 9 | 12.8% |
| 5,000-9,999 | 3 | 4.3% |
| 10,000 or more | 10 | 14.2% |
| Not Answered | 1 | 1.4% |
| **All** | **70** | **100%** |

Question 39 asked respondents to provide the numbers of years of experience in projects related to organizational change. Sixty-nine out of the 70 respondents gave an answer to the question as shown in Table 17. Around 84% of the respondents had more 2 years of experience, more than 60% of the respondents had more than 5 years of experience and only 14% of the respondents had less than 2 years of experience.

Table 17: Respondents' Experience in Projects Related to Change

| Years of experience in projects related to change | Number of Respondents | Percentage |
|---|---|---|
| Less than 1 year | 6 | 8.6% |
| 1-2 years | 4 | 5.7% |
| 2-5 years | 16 | 22.8% |
| 5-10 years | 14 | 20% |
| 10-15 years | 17 | 24.3% |
| More than 15 years | 12 | 17.1% |
| Not Answered | 1 | 1.4% |
| **All** | **70** | **100%** |

## 4.5   Practical Reflections of the Survey Data

This section discusses the practical reflections of the collected data statistics and makes interpretations about the two different samples of projects that were collected: successful projects and unsuccessful projects. To test if the change outcomes were actually higher in successful versus unsuccessful projects in the survey sample data, an independent t-test was conducted to test if there was a significant statistical difference between the averages of the successful change projects outcomes versus the unsuccessful projects outcomes. As shown in Table 18 and Table 19, the average of successful projects outcomes was 4.13 versus 2.57 in unsuccessful projects and the difference is significant at 0.05 level of significance (0.00<0.05).

Table 18: Difference in Change Outcomes

| Status | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Successful | 61 | 4.134 | .563 | .072 |
| Unsuccessful | 55 | 2.588 | .776 | .105 |

Table 19: t-test for Equality of Means of Change Outcomes

| t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|
| t | df | Sig. | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| 12.168 | 97.695 | .000 | 1.546 | .127 | 1.294 | 1.798 |

The responses to successful projects versus unsuccessful projects had interesting implications:

- There were no clear-cut differences between successful and unsuccessful projects. The range of the outcomes of unsuccessful projects was 1 to 3.67 while the range of the outcomes of successful projects was 2 to 5. Therefore, this research suggests that change success can be subjective and depends on several factors including personal judgment and experience, acceptance of and readiness for change and perspectives of what success means

- Twenty six percent of unsuccessful projects had relatively high average of outcomes (3.33 to 4 on a five-point Likert scale), yet were considered unsuccessful by respondents. Reasons behind these projects being considered unsuccessful were mainly not achieving the objectives of the projects and dissatisfaction with the change project sponsor.

- Twenty percent of successful projects had relatively low average of outcomes (less than 3.67 on the five-point Likert scale), yet were considered successful by respondents. Reasons behind these projects being considered successful were mainly the satisfaction of the change project sponsor and the change project team.

- Change projects with the most complex type (highest scale and longest duration) got the lowest outcome score in being completed within the predetermined schedule irrespective it they were successful or unsuccessful.

- Change projects with the least complex type (lowest scale and shortest duration) got the highest outcome score in being completed within the allocated budget.

## 4.6   Construct Validity and Reliability of the Survey

Construct validity refers to the extent to which the survey was able to have correct operational measures for the concepts being studied in the conceptual model (Yin, 1989). In order to determine the construct validity of the research survey, the accuracy of the factors measuring each construct and the proper structure of the questions (variables) in measuring each factor, an exploratory factor analysis (EFA) was performed as shown Figure 26.
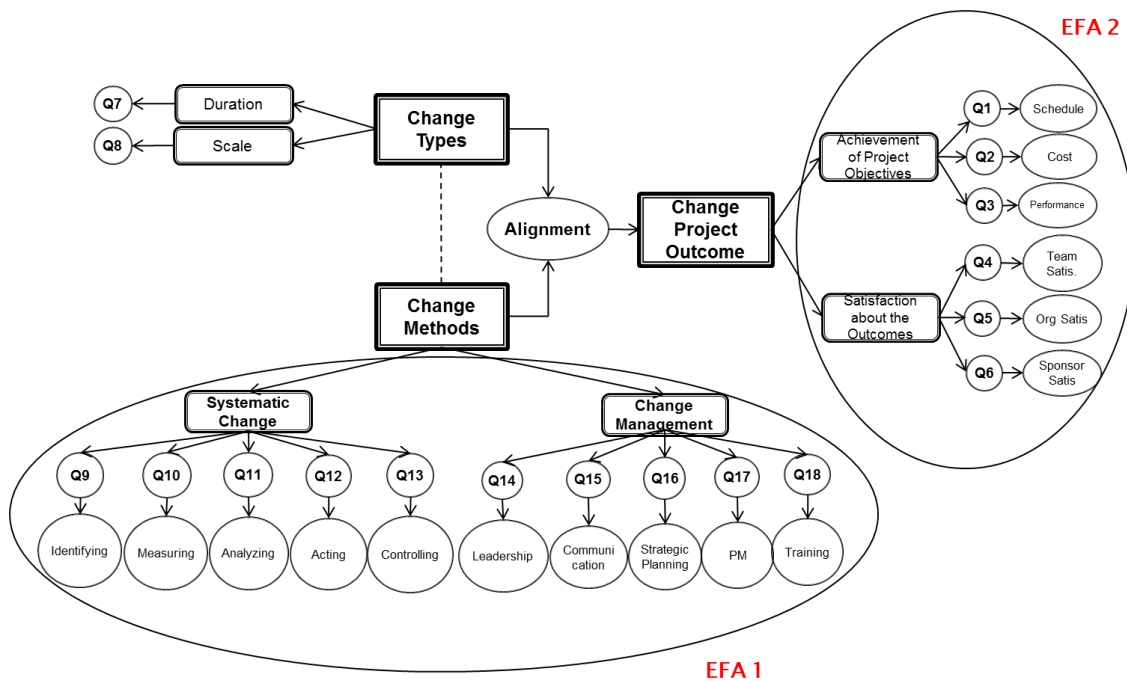


Figure 26: EFA performed on the Constructs of the Conceptual Model

After determining the factor structure for both constructs; change methods and change outcomes, using EFA, the reliability of each factor in the construct was verified using Cronbach's alpha values. Cronbach's alpha is calculated for survey items measuring

the same factors, and is most appropriate when the items are measuring different variables within one construct (Girden & Kabacoff, 2011). Cronbach's alpha ranges from 0 to 1; the higher the value, the more reliable the scale, or survey data collection method. In addition, 0.7 is usually considered an acceptable reliability coefficient; however, a lower value of 0.5 is sometimes acceptable if it is for newly established concepts (Nunnally, 1978).

A summary of the steps used to analyze each construct and the associated results is shown Table 20, and the final constructs and factors structure is shown in Figure 27. The next sections describe these results in detail.

Table 20: Summary of Results of Constructs Validity and Reliability

| Construct | Theoretical Model Structure | | Analysis Step | Results and Final Structure | |
| | Factors | Questions | | Factors | Questions |
|---|---|---|---|---|---|
| Change Outcomes | 1) Achievement of Objectives<br>2) Satisfaction about the Outcomes | Q1,Q2,Q3<br><br>Q4,Q5,Q6 | • Exploratory Factor Analysis<br>• Reliability Analysis<br>• Descriptive Statistics. | Project Outcomes | Q1,Q2,Q3, Q4,Q5,Q6 |
| Change Methods | 1) Systematic Change Methods<br><br>2) Change Management Methods | Q9,Q10,Q11, Q12,Q13<br><br>Q14,Q15, Q16,Q17, Q18 | • Exploratory Factor Analysis<br>• Reliability Analysis<br>• Descriptive Statistics | 1) Systematic Change Methods<br><br>2) Change Management Methods | Q10,Q12, Q13,Q17, Q18<br><br>Q9,Q11, Q14,Q15, Q16 |
| Change Type | 1) Change Scale<br>2) Change Duration | Q7<br>Q8 | • Descriptive Statistics | Unchanged | Unchanged |
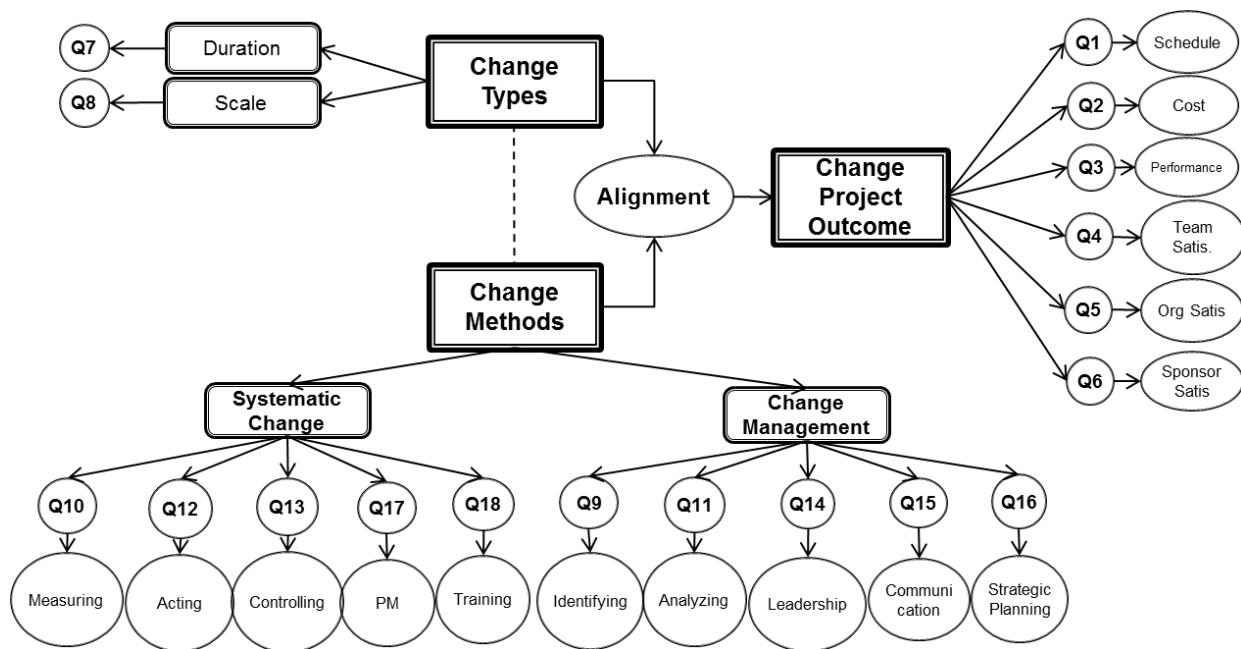
Figure 27: Final Constructs and Factors Structure

### 4.6.1 EFA 1 and Reliability Analysis for Change Project Outcomes

An EFA was conducted using the statistical software SPSS to determine the validity of the questions measuring the change outcomes construct as per the following steps:

1) Assessing the factorability of the questions (variables):

   a. High values of correlation coefficients. In order to proceed with EFA as a suitable method for data analysis, a considerable number of correlation coefficients should be greater than 0.3. As shown in Table 21, all correlation coefficients are greater than 0.3, therefore all questions 1 to 6 are considered factorable and can represent the change project outcomes construct.

Table 21: Correlation Coefficients of Change Outcomes Questions

| | | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 |
|---|---|---|---|---|---|---|---|
| Correlation | Q1 | 1.000 | .665 | .545 | .496 | .610 | .576 |
| | Q2 | .665 | 1.000 | .505 | .507 | .559 | .557 |
| | Q3 | .545 | .505 | 1.000 | .735 | .784 | .751 |
| | Q4 | .496 | .507 | .735 | 1.000 | .801 | .737 |
| | Q5 | .610 | .559 | .784 | .801 | 1.000 | .794 |
| | Q6 | .576 | .557 | .751 | .737 | .794 | 1.000 |

b. A significant p-value for Bartlett's test of sphericity (less than 0.05) to make sure that questions correlate only with themselves. As shown in Table 22, the p-value of Bartlett's test (0.000) is less than 0.05 and is considered significant.

c. A Kaiser-Meyer-Olkin (KMO) measure that is greater or equal to 0.6 for the questions to be considered appropriate for factor analysis. As shown in Table 22, the KMO value of this construct (0.887) is greater than 0.6.

Table 22: Bartlett's Test and KMO Measure for Change Outcomes Questions

| | | |
|---|---|---|
| **Bartlett's Test of Sphericity** | Approx. Chi-Square | 495.732 |
| | df | 15 |
| | Sig. | .000 |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** | | .887 |

2) Deciding how many factors underlie the questions, i.e., extracting factors.

Using the statistical software SPSS, factors were extracted using the principal component analysis (PCA) estimation method. Three components were considered:

a. Communalities: these are the percentage (%) of variance in each given question that is explained by the factor. The goal is to get high communality values. The

more communalities that are higher than 0.5, the more explained that question by

the factor. As shown in Table 23, all communalities were higher than 0.5.

Table 23: Communalities of Change Outcomes Questions

|  | Initial | Extraction |
|---|---|---|
| Q1 | 1.000 | .579 |
| Q2 | 1.000 | .545 |
| Q3 | 1.000 | .751 |
| Q4 | 1.000 | .737 |
| Q5 | 1.000 | .833 |
| Q6 | 1.000 | .783 |

b. Kaiser Rule or K1: this test identifies the number of factors that can be extracted.

Only factors with eigenvalues of greater than one are considered, as the

eigenvalue represents the proportion of variance that the factor accounts for

relative to the total variance of all the questions. As shown in Table 24, the

results indicate that one component has an eigenvalue that is greater than 1,

meaning that this construct has one factor that explains 70.5% of total variances.

Table 24: Eigenvalues of Change Outcomes Questions

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
|  | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.228 | 70.465 | 70.465 | 4.228 | 70.465 | 70.465 |
| 2 | .748 | 12.462 | 82.926 |  |  |  |
| 3 | .345 | 5.747 | 88.674 |  |  |  |
| 4 | .263 | 4.384 | 93.058 |  |  |  |
| 5 | .246 | 4.092 | 97.150 |  |  |  |
| 6 | .171 | 2.850 | 100.000 |  |  |  |

c. The scree plot: this is a graphical representation that can determine the number of extracted factors. The number of factors for the construct can be chosen at the point where the plot starts to level off to become more linear. The scree plot confirms the results and accuracy of the K1 or Kaiser Rule Kaiser. As shown in Figure 28, the scree plot confirmed that the change outcomes construct is a single-factor construct instead of the originally assumed 2-factor structure.



Figure 28: Scree Plot for the Change Outcomes Questions

3) Rotating factors: if two or more factors are extracted, rotation is necessary to try to align each question to only one factor. Since only one factor was extracted, rotation was not necessary.

4) Obtaining factor loading values: this step will verify that each factor loading is significant so that the factor's questions are considered in the analysis. Factor loadings represent the degree of correlation between the questions and the factors and are found in the component matrix of the SPSS output. Factor loadings are significant if they are greater than 0.4 for a sample size of less than 100, or greater than 0.3 for sample size greater than 100. As shown in Table 25, all factor loading values are greater than 0.3, therefore are significant enough to be included in the analysis.

Table 25: Component Matrix for Change Outcomes Questions

|  | Component |
| --- | --- |
|  | 1 |
| Q1 | .761 |
| Q2 | .738 |
| Q3 | .867 |
| Q4 | .859 |
| Q5 | .913 |
| Q6 | .885 |

5) Computing weighted factor scores: this step determines the value of each factor for all respondents by calculating the average of the score for each question in the factor. Weighted factor scores are shown in Table 26.

Table 26: Weighted Factor Scores for Change Outcomes

| Question | Question Mean | Factor Mean |
|----------|---------------|-------------|
| Q1 | 3.31 | |
| Q2 | 3.44 | |
| Q3 | 3.29 | **3.39** |
| Q4 | 3.32 | |
| Q5 | 3.44 | |
| Q6 | 3.53 | |

As a conclusion, EFA conducted on change project outcomes revealed that this construct is single-factor construct in contrast to the hypothesized two-factor structure. The following step is verifying the construct reliability by measuring the Cronbach's alpha value for this construct.

As discussed in section 3.3.4.3, Cronbach's alpha ranges from 0 to 1; the higher the value, the more reliable the scale, or survey data collection method. Usually, 0.7 is considered an acceptable reliability coefficient. Table 27 provides Cronbach's alpha for the change outcomes construct. Since 0.914 is greater than 0.7, this construct is considered reliable. And Table 28 confirms that deleting any of the questions from the construct will not increase the value of Cronbach's alpha.

Table 27: Cronbach's alpha for the Change Outcomes Construct

| Construct | Cronbach's Alpha | N of Items |
|-----------|------------------|------------|
| Change Outcomes | .914 | 6 |

Table 28: Cronbach's alpha if Questions were deleted in Outcomes Construct

|  | Cronbach's Alpha if Item Deleted |
|---|---|
| Q1 | .911 |
| Q2 | .913 |
| Q3 | .894 |
| Q4 | .896 |
| Q5 | .884 |
| Q6 | .891 |

### 4.6.2 EFA 2 and Reliability Analysis for Change Methods

An EFA was conducted using the statistical software SPSS to determine the validity of survey questions measuring the change methods construct as per the following steps:

1) Assessing the factorability of the questions (variables):

a. High values of correlation coefficients. In order to proceed with an EFA as a suitable method for data analysis, a considerable number of correlation coefficients should be greater than 0.3. As shown in Table 29, 44 of the 45 correlation coefficients (99.9%) are greater than 0.3, therefore questions 9 to 18 were considered factorable and can represent the change methods construct.

Table 29: Correlation coefficients of Change Methods Questions

|  |  | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Correlation | Q9 | 1.000 | .518 | .578 | .363 | .372 | .461 | .456 | .526 | .363 | .243 |
|  | Q10 | .518 | 1.000 | .516 | .580 | .626 | .515 | .350 | .469 | .527 | .432 |
|  | Q11 | .578 | .516 | 1.000 | .510 | .552 | .660 | .577 | .606 | .460 | .415 |
|  | Q12 | .363 | .580 | .510 | 1.000 | .732 | .570 | .403 | .505 | .651 | .572 |
|  | Q13 | .372 | .626 | .552 | .732 | 1.000 | .716 | .540 | .582 | .667 | .640 |
|  | Q14 | .461 | .515 | .660 | .570 | .716 | 1.000 | .498 | .613 | .549 | .383 |
|  | Q15 | .456 | .350 | .577 | .403 | .540 | .498 | 1.000 | .600 | .506 | .527 |
|  | Q16 | .526 | .469 | .606 | .505 | .582 | .613 | .600 | 1.000 | .621 | .454 |
|  | Q17 | .363 | .527 | .460 | .651 | .667 | .549 | .506 | .621 | 1.000 | .622 |
|  | Q18 | .243 | .432 | .415 | .572 | .640 | .383 | .527 | .454 | .622 | 1.000 |

b. A significant p-value for Bartlett's test of sphericity (less than 0.05) ensures that questions (variables) correlate only with themselves. As shown in Table 30, the p-value of Bartlett's test (0.000) is less than 0.05 and considered significant.

c. A Kaiser-Meyer-Olkin (KMO) measure that is greater or equal to 0.6 for the questions to be considered appropriate for factor analysis. As shown in Table 30, the KMO value of this construct (0.896) is greater than 0.6.

Table 30: Bartlett's Test and KMO Measure for Change Methods Questions

| | Approx. Chi-Square | 696.931 |
|---|---|---|
| **Bartlett's Test of Sphericity** | df | 45 |
| | Sig. | .000 |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | .896. |

2) Deciding how many factors underlie the questions, i.e., extracting factors.

Using the statistical software SPSS, factors were extracted using the principal component analysis (PCA) estimation method. Three components were considered:

a. Communalities: these are the percentage (%) of variance in each given question that is explained by the factor. The more communalities that are higher than 50% or (0.5), the more explained that question by the factor. As shown in Table 31, all communalities are higher than 0.5.

Table 31: Communalities of Change Methods Questions

|       | Initial | Extraction |
|-------|---------|------------|
| Q9    | 1.000   | .748       |
| Q10   | 1.000   | .531       |
| Q11   | 1.000   | .728       |
| Q12   | 1.000   | .710       |
| Q13   | 1.000   | .803       |
| Q14   | 1.000   | .650       |
| Q15   | 1.000   | .534       |
| Q16   | 1.000   | .660       |
| Q17   | 1.000   | .718       |
| Q18   | 1.000   | .704       |

b. Kaiser Rule or K1: this test identifies the number of factors that can be extracted. Only factors with eigenvalues of greater than one are considered, as the eigenvalue represents the proportion of variance that the factor accounts for relative to the total variance of all the questions. As shown in Table 32 the results indicate that two components had eigenvalue that are greater than 1, meaning that this construct has two factors that explains 67.9% of total variances.

Table 32: Eigenvalues of Change Methods Questions

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|-------|---------------|--------------|-------|---------------|--------------|
|           | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1  | 5.759 | 57.590 | 57.590  | 5.759 | 57.590 | 57.590 |
| 2  | 1.026 | 10.261 | 67.852  | 1.026 | 10.261 | 67.852 |
| 3  | .763  | 7.628  | 75.480  |       |        |        |
| 4  | .573  | 5.731  | 81.211  |       |        |        |
| 5  | .464  | 4.640  | 85.851  |       |        |        |
| 6  | .356  | 3.561  | 89.411  |       |        |        |
| 7  | .324  | 3.245  | 92.656  |       |        |        |
| 8  | .291  | 2.915  | 95.571  |       |        |        |
| 9  | .276  | 2.763  | 98.334  |       |        |        |
| 10 | .167  | 1.666  | 100.000 |       |        |        |

c. The scree plot: this is a graphical representation that can determine the number of extracted factors. The number of factors for the construct can be chosen at the point where the plot starts to level off to become more linear. The scree plot confirms the results and accuracy of the K1 or Kaiser Rule Kaiser. As shown in Figure 29, the scree plot confirms that the change outcomes construct has two constructs and also confirms the originally assumed 2-factor structure.
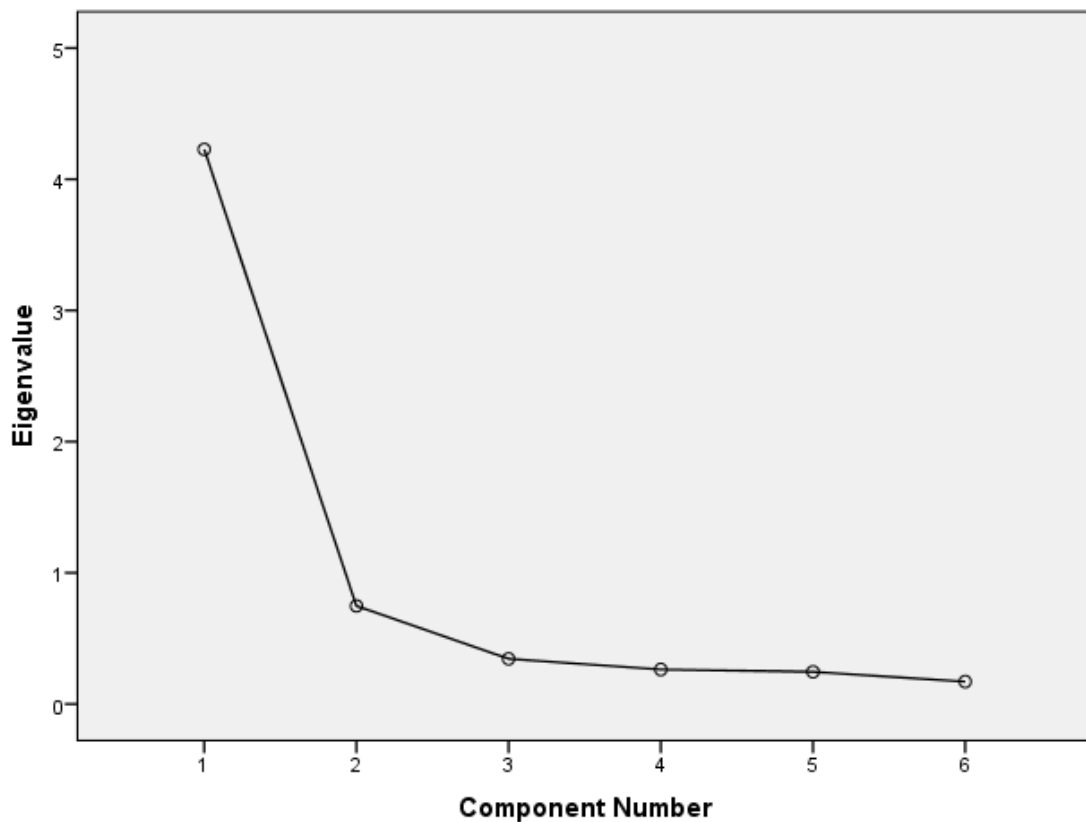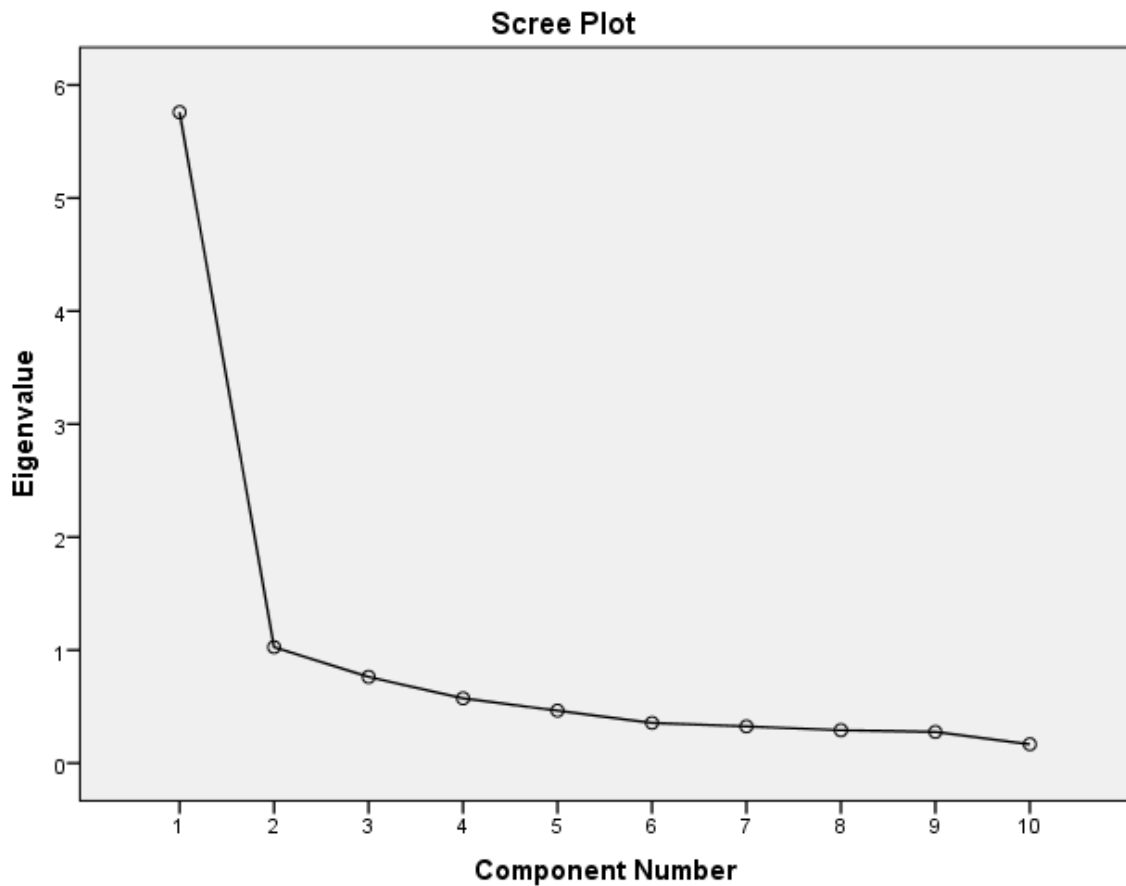


Figure 29: Scree Plot for the Change Methods Questions

3) Rotating factors: if two or more factors are extracted, rotation is necessary to try to align each question to only one factor. As shown in Table 33, two factors were extracted. The rotation showed that Q10, 12, 13, 17, 18 (shaded in grey in Table 33) loaded on one factor while Q9, 11, 14, 15 and 16 loaded on another factor.

Table 33: Rotated Component Matrix for Change Methods Questions

|     | Component | |
| --- | --- | --- |
|     | 1 | 2 |
| Q9  |      | .863 |
| Q10 | .519 |      |
| Q11 |      | .790 |
| Q12 | .785 |      |
| Q13 | .805 |      |
| Q14 |      | .641 |
| Q15 |      | .594 |
| Q16 |      | .676 |
| Q17 | .784 |      |
| Q18 | .829 |      |

This new grouping can be explained by investigating and explaining the logic of the questions that formed groups as shown in Table 34.

Table 34: The Logic of the Change Methods Construct Grouping

| New Questions Groups | Factor Name | Logic |
|---|---|---|
| Q10. We accurately measured the performance of situation that needed to be changed. Q12. We properly implemented the changes by addressing the situation. Q13. We established suitable plans and controls to ensure that the changes are sustained. Q17. We strongly integrated the change project actions with our everyday activities. Q18. We continually trained employees to overcome any gaps in the skills and knowledge. | Systematic Change Methods | These questions address processes that involve series of constructed and sequenced start, stop, and continue decisions to improve performance that help align customers, products/services, processes/tools, structure, and skill mix (Huy & Mintzberg, 2003; Kotnour et al., 1999; Sink et al., 1995; Zook, 2007). Questions 17 and 18 were originally placed with change management methods but when put together with measuring, implementing and controlling change; they helped in achieving change in a more methodical and procedural way that involves everyday activities and training people to deal with change making them more systematic than management. |
| Q9. We clearly identified the change opportunity/situation that needed to be addressed. Q11. We analyzed the situation to what needs to be changed. Q14. A credible team leader influenced the major decisions during the change project. Q15. We openly shared and communicated the change project goals with our employees. Q16. We clearly aligned the change project with our overall mission. | Change management methods | These questions address processes that help the organization in aligning the change initiative with the overall organizational strategy and making change part of the organizational culture (Grover, 1999; Hamel, 2000; Kanter et al., 1992; Kotter, 1996; Luecke, 2003; Walinga, 2008). Questions 9 and 11 were originally placed with systematic change methods but when put together with leadership, communication and strategic planning; they helped in managing change in a broader way that involve understanding the organizational situation that needs change and making change part of the strategy and culture. |

4) Obtaining factor loadings: this step verifies that each factor loading is significant so that the factor's questions are considered in the analysis. The factor scores for the two factors' questions were computed using SPSS as shown in Table 35.

Table 35: Component Score Coefficient Matrix for Change Methods Questions

|  | Component | |
|---|---|---|
|  | 1 | 2 |
| Q9 | -.314 | .498 |
| Q10 | .079 | .101 |
| Q11 | -.139 | .347 |
| Q12 | .306 | -.129 |
| Q13 | .281 | -.084 |
| Q14 | .010 | .192 |
| Q15 | -.005 | .188 |
| Q16 | -.025 | .228 |
| Q17 | .299 | -.119 |
| Q18 | .398 | -.250 |

5) Computing weighted factor scores: this step determines the value of each factor for all respondents by calculating the average of the score for each question in the factor. These values are displayed in Table 36.

Table 36: Weighted Factor Scores for Change Methods

| Factor | Question | Question Mean | Factor Mean |
|---|---|---|---|
| Systematic Change X1 | Q10 | 3.38 | |
| | Q12 | 3.48 | |
| | Q13 | 3.27 | **3.36** |
| | Q17 | 3.49 | |
| | Q18 | 3.18 | |
| Change Management X2 | Q9 | 3.92 | |
| | Q11 | 3.83 | |
| | Q14 | 3.59 | **3.81** |
| | Q15 | 3.75 | |
| | Q16 | 3.95 | |

In conclusion, an EFA conducted on change methods revealed that this construct is a two-factor construct, confirming the initially assumed two-factor structure for the change methods. However, the questions that loaded on each factor were slightly different as explained in Table 34.

The following step is verifying the construct reliability by measuring the Cronbach's alpha value for this construct. As discussed in section 3.3.4.3, Cronbach's alpha ranges from 0 to 1; the higher the value, the more reliable the scale, or survey data collection method. Usually, 0.7 is considered an acceptable reliability coefficient. Table 37 provides Cronbach's alpha values for the systematic change methods (X1) and change management methods (X2). Since 0.885 and 0.857 are both greater than 0.7, the two factors are considered reliable.

Table 38 and Table 39 confirm that deleting any of the questions in any of the factors from the construct will not increase the value of Cronbach's alpha.

Table 37: Cronbach's alpha for the Change Outcomes Construct

| Construct | Factor | Cronbach's Alpha | N of Items |
|---|---|---|---|
| Change Methods | Systematic Change | .885 | 5 |
| | Change Management | .857 | 5 |

Table 38: Cronbach's alpha if Questions were deleted in Systematic Methods

|      | Cronbach's Alpha if Item Deleted |
|------|----------------------------------|
| Q10  | .880 |
| Q12  | .851 |
| Q13  | .839 |
| Q17  | .857 |
| Q18  | .873 |

Table 39: Cronbach's alpha if Questions were deleted in Management Methods

|      | Cronbach's Alpha if Item Deleted |
|------|----------------------------------|
| Q9   | .845 |
| Q11  | .807 |
| Q14  | .833 |
| Q15  | .836 |
| Q16  | .817 |

### 4.6.3  Reliability Analysis for the Change Type

Since change type was used as an identifying and classifying construct for the change project complexity, factor analysis was not performed. Factor analysis is usually performed to explore the underlying structure in a large set of observed variables and for data reduction purposes (Bryant & Yarnold, 1995; Dillman et al., 2009; Hurley et al., 1997; Portney & Watkins, 2000; Swisher et al., 2004). Since the scale and duration of the change project were used to measure and identify the complexity of the change type based on preexisting theories of the type of change projects, factor analysis was not performed for this construct. However, to verify that the questions related to this construct were reliable, reliability analysis on SPSS were performed and the resulting Cronbach's alpha value was assessed. Cronbach's alpha ranges from 0 to 1; the higher

the value, the more reliable the scale, or survey data collection method. Usually, 0.7 is considered an acceptable reliability coefficient; however, a lower value of 0.5, is sometimes acceptable if it is for newly established concepts (Nunnally, 1978). Table 40 provides Cronbach's alpha values for the change type construct. Since 0.695 is greater than 0.5 and this is a newly established concept, this construct is considered reliable.

Table 40: Cronbach's alpha for the Change Type Construct

| Cronbach's Alpha | N of Items |
| --- | --- |
| .695 | 2 |

## 4.7  Descriptive Statistics

This section summarizes the statistical and numerical measures of the collected data from the research survey. The following statistics will be computed for each variable:

- Sample Size: the number of completed surveys was calculated for all projects, successful projects and unsuccessful ones

- Central tendency: the average or mean was calculated for each question and factor of the conceptual model

- Variation: the standard deviation (the average difference between the responses' values and the mean) was calculated to represent the relative variation of responses from the mean for all questions, factor and constructs

- Range: the spread or the scope of the response values and is calculated by the minimum and maximum values of the responses for analytic purposes.

Table 41 shows the overall sample distribution per project type and the average of change methods and outcomes for each change type. Table 42, Table 43 and Table 44 show the detailed descriptive statistics for the change outcomes, change types and change methods constructs respectively.

Table 41: Summary of Descriptive Statistics per Project Type

| | | | # | % | Sys | Mngt | Outcome | # | % | Sys | Mngt | Outcome | # | % | Sys | Mngt | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Duration** | Long | S | 1 | 0.9 | 5.00 | 4.60 | 4.67 | 8 | 6.9 | 4.13 | 4.43 | 4.23 | 14 | 12.1 | 4.04 | 4.49 | 4.10 |
| | | U | 4 | 3.4 | 3.25 | 3.90 | 2.58 | 4 | 3.4 | 2.50 | 3.75 | 2.58 | 10 | 8.6 | 2.68 | 3.24 | 2.13 |
| | | **All** | **5** | **4.3** | **3.60** | **4.04** | **3.00** | **12** | **10.3** | **3.58** | **4.20** | **3.68** | **24** | **20.7** | **3.48** | **3.97** | **3.28** |
| | Medium | S | 5 | 4.3 | 4.00 | 3.72 | 3.93 | 16 | 13.8 | 3.89 | 4.24 | 4.23 | 5 | 4.3 | 4.28 | 4.60 | 4.43 |
| | | U | 8 | 6.9 | 2.55 | 2.85 | 2.69 | 15 | 12.9 | 2.75 | 3.32 | 2.78 | 3 | 2.6 | 2.47 | 3.87 | 3.06 |
| | | **All** | **13** | **11.2** | **3.11** | **3.18** | **3.17** | **31** | **26.7** | **3.34** | **3.79** | **3.53** | **8** | **6.9** | **3.60** | **4.33** | **3.92** |
| | Short | S | 7 | 6.0 | 3.97 | 4.00 | 3.81 | 3 | 2.6 | 4.20 | 4.33 | 4.33 | 1 | 0.9 | 3.40 | 3.60 | 3.17 |
| | | U | 9 | 7.8 | 2.40 | 2.78 | 2.56 | 3 | 2.6 | 2.47 | 4.20 | 3.00 | | | | | |
| | | **All** | **16** | **13.8** | **3.09** | **3.31** | **3.10** | **6** | **5.2** | **3.33** | **4.27** | **3.67** | **1** | **0.9** | **3.40** | **3.60** | **3.17** |
| | | | | | Small | | | | | Medium | | | | | Large | | |
| | | | | | | | | | | **Scale** | | | | | | | |

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Table 42: Descriptive Statistics for Change Outcomes Construct

| Question | Statistic | Successful | Unsuccessful | All |
|---|---|---|---|---|
| Q1. We completed the change project within the predetermined schedule | N | 61 | 55 | 116 |
| | Mean | 3.92 | 2.64 | 3.31 |
| | Std. Deviation | 0.95 | 1.27 | 1.28 |
| | Min | 1.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| Q2. We completed the change project within the allocated budget | N | 61 | 55 | 116 |
| | Mean | 3.97 | 2.84 | 3.43 |
| | Std. Deviation | 0.86 | 1.23 | 1.19 |
| | Min | 1.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| Q3. We accomplished all desired goals and objectives of the change project | N | 61 | 55 | 116 |
| | Mean | 4.16 | 2.38 | 3.32 |
| | Std. Deviation | 0.78 | 1.05 | 1.28 |
| | Min | 2.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| Q4. Our organization's employees were sincerely satisfied with the change project results | N | 61 | 55 | 116 |
| | Mean | 4.15 | 2.44 | 3.34 |
| | Std. Deviation | 0.79 | 1.05 | 1.26 |
| | Min | 2.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| Q5. The change project team was satisfied with its results | N | 61 | 55 | 116 |
| | Mean | 4.30 | 2.53 | 3.46 |
| | Std. Deviation | 0.61 | 1.03 | 1.22 |
| | Min | 3.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| Q6. The change project sponsors were satisfied with its results | N | 61 | 55 | 116 |
| | Mean | 4.31 | 2.71 | 3.55 |
| | Std. Deviation | 0.56 | 0.98 | 1.12 |
| | Min | 3.00 | 1.00 | 1.00 |
| | Max | 5.00 | 5.00 | 5.00 |
| **Overall** | **N** | **61** | **55** | **116** |
| | **Mean** | **4.14** | **2.59** | **3.40** |
| | **Std. Deviation** | **0.56** | **0.78** | **1.02** |
| | **Min** | **2.67** | **1** | **1** |
| | **Max** | **5** | **3.67** | **5** |

Table 43: Descriptive Statistics for Change Type Construct

| Question | | Statistic | Successful | Unsuccessful | All |
|---|---|---|---|---|---|
| Q7. The scale of the change project that I was involved in. | All | N | 61 | 55 | 116 |
| | | Mean | 2.12 | 1.86 | 1.99 |
| | | Std. Deviation | 0.73 | 0.78 | 0.763 |
| | | Min | 1 | 1 | 1 |
| | | Max | 3 | 3 | 3 |
| | 1 | N | 13 | 21 | 34 |
| | 2 | N | 28 | 21 | 49 |
| | 3 | N | 20 | 13 | 33 |
| Q8. The duration of the change project that I was involved. | All | N | 2.16 | 0.73 | 116 |
| | | Mean | 2.2 | 0.73 | 61 |
| | | Std. Deviation | 2.11 | 0.74 | 55 |
| | | Min | 1 | 1 | 1 |
| | | Max | 3 | 3 | 3 |
| | 1 | N | 20 | 28 | 13 |
| | 2 | N | 13 | 21 | 21 |
| | 3 | N | 33 | 49 | 34 |
| **Overall** | All | **N** | **61** | **55** | **116** |
| | | **Mean** | **4.3** | **3.96** | **4.15** |
| | | **Std. Deviation** | **1.26** | **1.32** | **1.31** |
| | | **Min** | **2** | **2** | **2** |
| | | **Max** | **6** | **6** | **6** |
| | | **2** | **7** | **9** | **16** |
| | | **3** | **8** | **11** | **19** |
| | | **4** | **19** | **18** | **37** |
| | | **5** | **13** | **7** | **20** |
| | | **6** | **14** | **10** | **24** |

Table 44: Descriptive Statistics for Change Methods Construct – Systematic

| Factor | Question | Statistic | Successful | Unsuccessful | All |
|---|---|---|---|---|---|
| Systematic Change Methods | Q10. We accurately measured the performance of situation that needed to be changed. | N | 61 | 55 | 116 |
| | | Mean | 3.97 | 2.73 | 3.38 |
| | | Std. Deviation | 0.77 | 1.03 | 1.09 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q12. We properly implemented the changes by addressing the situation. | N | 61 | 55 | 116 |
| | | Mean | 4.21 | 2.67 | 3.48 |
| | | Std. Deviation | 0.71 | 1.06 | 1.18 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q13. We established suitable plans and controls to ensure that the changes are sustained. | N | 61 | 55 | 116 |
| | | Mean | 4.11 | 2.33 | 3.27 |
| | | Std. Deviation | 0.71 | 1.09 | 1.27 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q17. We strongly integrated the change project actions with our everyday activities. | N | 61 | 55 | 116 |
| | | Mean | 4.13 | 2.78 | 3.49 |
| | | Std. Deviation | 0.78 | 1.08 | 1.15 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q18. We continually trained employees to overcome any gaps in the skills and knowledge. | N | 61 | 55 | 116 |
| | | Mean | 3.72 | 2.58 | 3.18 |
| | | Std. Deviation | 0.88 | 1.07 | 1.12 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | **Overall** | **N** | **61** | **55** | **116** |
| | | **Mean** | **4.03** | **2.62** | **3.36** |
| | | **Std. Deviation** | **0.58** | **0.74** | **0.97** |
| | | **Min** | **2.40** | **1.20** | **1.20** |
| | | **Max** | **5.00** | **4.40** | **5.00** |

Table 45: Descriptive Statistics for Change Methods Construct – Management

| Factor | Question | Statistic | Successful | Unsuccessful | All |
|---|---|---|---|---|---|
| Change Management Methods | Q9. We clearly identified the change opportunity/situation that needed to be addressed. | N | 61 | 55 | 116 |
| | | Mean | 4.33 | 3.47 | 3.92 |
| | | Std. Deviation | 0.63 | 1.03 | 0.94 |
| | | Min | 3.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q11. We analyzed the situation to what needs to be changed. | N | 61 | 55 | 116 |
| | | Mean | 4.25 | 3.36 | 3.83 |
| | | Std. Deviation | 0.67 | 1.06 | 0.98 |
| | | Min | 2.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q14. A credible team leader influenced the major decisions during the change project. | N | 61 | 55 | 116 |
| | | Mean | 4.3 | 2.8 | 3.59 |
| | | Std. Deviation | 0.84 | 1.24 | 1.29 |
| | | Min | 1.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | Q15. We openly shared and communicated the change project goals with our employees. | N | 61 | 55 | 116 |
| | | Mean | 4.15 | 3.31 | 3.75 |
| | | Std. Deviation | 0.77 | 1.14 | 1.05 |
| | | Min | 5.00 | 5.00 | 5.00 |
| | | Max | 2.00 | 1.00 | 1.00 |
| | Q16. We clearly aligned the change project with our overall mission. | N | 61 | 55 | 116 |
| | | Mean | 4.36 | 3.49 | 3.95 |
| | | Std. Deviation | 0.61 | 1 | 0.92 |
| | | Min | 3.00 | 1.00 | 1.00 |
| | | Max | 5.00 | 5.00 | 5.00 |
| | **Overall** | **N** | **61** | **55** | **116** |
| | | **Mean** | **4.28** | **3.29** | **3.81** |
| | | **Std. Deviation** | **0.54** | **0.79** | **0.83** |
| | | Min | 2.60 | 1.40 | 1.40 |
| | | Max | 5.00 | 5.00 | 5.00 |

## 4.8   Research Questions

After verifying the construct validity and reliability of the research survey, and computing

the descriptive measures of the collected data, research questions are addressed in the

following section by; statistical analysis and hypotheses testing using standard multiple

regression was utilized. This section shows the results of the statistical procedures

while the interpretation of the results will be discussed in Chapter 5

### 4.8.1 Research Main Question

The main research question in this dissertation is: what enables successful change? To answer this question, two hypotheses were proposed and tested. The main method used to test the hypotheses and investigate the relationships between the research constructs was standard multiple linear regression. The analytical approach highlighting how the research hypotheses relate to the research questions is shown in Figure 30.

**Research Model Question**      **Research Hypotheses**      **Data Analysis**

What enables successful change?

**H1**: The level of the change project type and the use of systematic and management methods relate to successful change.

**H2:** The alignment between change type and change methods relates to successful change.

**H2a**: The higher the "alignment between change type and systematic change methods", the higher the change success.

**H2b**: The higher the "alignment between change type and change management methods", the higher the change success.

Standard Multiple Linear Regression

Figure 30: Relations between the Research Question, Hypotheses and Analysis

Standard multiple regression analysis was performed on SPSS to test the following hypotheses:

H1: The complexity of the change project type and the use of systematic and management methods relate significantly to successful change.

H2: the alignment between change type and change methods relates significantly to successful change.

H2a: the alignment between "change type and systematic change methods" relates significantly to successful change.

H2b: the alignment between "change type and change management methods" relates to successful change.

The results of the hypotheses testing using standard multiple regression are shown in Table 46.

Table 46: Summary of Results of Hypotheses Testing at α = 0.05

| Hypothesis | | Relation Strength | Significant Relationship | Significance Level | Significant Contribution |
|---|---|---|---|---|---|
| Hypothesis 1 | | $R^2 = 0.657$ | Yes | 0.00 < 0.05 | • Type<br>• Systematic change methods<br>• Change management methods |
| Hypothesis 2 | 2a | β = -0.056 | No | 0.70 > 0.05 | • Type-change management methods alignment |
| | 2b | β = 0.141 | Yes | 0.04 < 0.05 | |

### 4.8.1.1   Hypothesis 1

The level of the change project type and the use of systematic and change management methods relate to change success.

Standard multiple regression was performed to determine how change type, systematic change methods, change management methods relate to change success (change outcomes) as outlined in Table 47 and Table 48.

Table 47: The Results of the Standard Multiple Regression for Type and Methods

| R | R Square | Adjusted R Square | F | Sig |
|---|---|---|---|---|
| .820 | .672 | .657 | 44.989 | .000 |

Table 48: Standard Multiple Regression Coefficients for Type and Methods

| Model | Standardized Coefficients "Beta" | t | Sig. | VIF |
|---|---|---|---|---|
| (Constant) | .321 | 1.132 | .260 | |
| Type | -.150 | -2.372 | .019 | 1.352 |
| Systematic | .563 | 6.867 | .000 | 2.272 |
| Management | .260 | 3.119 | .002 | 2.341 |
| Type-systematic | -.056 | -.382 | .703 | 4.147 |
| Type-management | .141 | 2.075 | .040 | 1.559 |

The results in Table 47 and Table 48 show that this research conceptual model that includes change type, systematic change methods and change management methods explains almost 66% of the variance in the change outcomes with statistical significance (0.00). In order to find the significant unique contribution of individual variables on the dependent variable, the beta values were compared. The four variables that significantly relate to the dependent variable (change outcome) are change type, systematic change methods, change management methods and alignment between change type and change management methods. Alignment between change type and systematic change methods does not significantly relate to change outcomes. Among the four, systematic change methods have the greatest positive contribution (.563), followed by change management methods (.260) and alignment between change type and change management methods (0.141). Change type negatively relates to change outcomes (-0.150). The last column with the variance inflation factors (VIFs) shows that the factors are not multi-collinear (since they are less than 5) and that multiple regression analysis can be performed. Therefore, it can be concluded that complexity of the change project

type and the use of systematic and change management methods relate significantly to successful change.

### 4.8.1.2 Hypothesis 2

The alignment between "change type and systematic change methods" and "change type and change management methods" relate to successful change.

In order to test this hypothesis, the standardized coefficients' "Beta" values associated with each alignment were computed in the multiple regression model shown in Table 48 to assess how the interaction between the type and methods relates to change success.

The "Beta" values show that the alignment between change type and systematic change methods (type-systematic interaction) negatively relates to change outcomes (-0.056) but the alignment is not significant at $\alpha$ = 0.05 level of significance. The "Beta" values show that the alignment between change type and change management methods (type-management interaction) positively relate to change outcomes (0.141) and the alignment is significant at $\alpha$ = 0.05 level of significance. Therefore, one can conclude that the alignment between the change type and change management methods significantly relates to successful change.

After testing hypotheses one and two using a regression model, the main research question can be answered. Equation 1 illustrates how the change type and methods significantly relate to successful change:

$$Change\ Success \cong 0.563\ (Sys\ Change\ Methods) + 0.26(Change\ Mngt\ Methods) -$$

$$0.15\ (Change\ Type) +$$

$$0.141(Alignment\ between\ Change\ Type\ and\ Change\ Mngt\ Methods) \qquad (1)$$

### 4.8.2   Research Sub-question

Standard multiple regression analysis was performed to determine which systematic change methods and change management methods relate to change success. To account for the alignment between the change type and methods, the interaction between the type and each method was computed and tested for significance iteratively in the regression model in a stepwise mode (one interaction at a time). Only significant interactions were retained in the model as outlined in Table 49 and Table 50.

Table 49: Regression Results for Systematic and Management Methods

| R | R Square | Adjusted R Square | F | Sig |
|---|---|---|---|---|
| .866a | .750 | .721 | 25.744 | .000[b] |

Table 50: Standard Multiple Regression Coefficients for Change Methods

| | Model | Standardized Coefficients "Beta" | t | Sig. | VIF |
|---|---|---|---|---|---|
| | (Constant) | .402 | 1.430 | .156 | |
| Systematic change methods | We accurately measured the performance of situation that needed to be changed | .107 | 1.485 | .141 | 2.146 |
| | We properly implemented the changes by addressing the situation | .288 | 3.579 | .001 | 2.669 |
| | We established suitable plans and controls to ensure that the changes are sustained | .258 | 2.566 | .012 | 4.179 |
| | We strongly integrated the change project actions with our everyday activities | .068 | .841 | .402 | 2.652 |
| | We continually trained employees to overcome any gaps in the skills and knowledge | -.009 | -.119 | .906 | 2.222 |
| Change management methods | We clearly identified the change opportunity/situation that needed to be addressed | .254 | 3.691 | .000 | 1.949 |
| | We analyzed the situation to what needs to be changed | -.136 | -1.723 | .088 | 2.567 |
| | A credible team leader influenced the major decisions during the change project | .187 | 2.209 | .029 | 2.935 |
| | We openly shared and communicated the change project goals with our employees | .045 | .616 | .539 | 2.242 |
| | We clearly aligned the change project with our overall mission | -.058 | -.703 | .484 | 2.781 |
| Change Type | | -.127 | -2.052 | .043 | 1.566 |
| Type-Q9: alignment between the change type and identifying the situation that needed change | | .143 | 2.245 | .027 | 1.675 |

The results in Table 49 and Table 50 show that the research conceptual model which includes the detailed systematic change methods and change management methods explain 72% of the variance in the change outcomes with statistical significance (0.00). In order to find the significant unique contribution of individual variables (systematic and management methods) on the dependent variable (change outcome), the beta values were compared. The six variables that significantly relate to the change outcome (shaded in Table 50) are (a) Q9 (identifying the situation that needed change), (b) Q12 (properly implementing change), (c) Q13 (establishing suitable controls to sustain

change), and (d) Q14 (having a credible team leader during the change project), (e) the change type, and (f) the alignment between the change type and identifying the situation that needed change.

Question 10 (measuring the situation that needed change), Q11 (analyzing the situation that needed change), Q15 (sharing and communicating the change project goals with employees) and Q16 (clearly aligning the change project with the mission), Q17 (integrating the change actions with everyday activities) and Q18 (training employees to overcome gaps in skills and knowledge) do not significantly relate to change outcomes.

Among the variables that significantly correlated with change success, Q12 (properly implementing change) had the greatest positive contribution of 0.288, followed by Q13 (establishing suitable controls to sustain change) with 0.258 contribution, Q9 (identifying the situation that needed change) with 0.254 contribution, Q14 (having a credible team leader during the change project) with 0.187 contribution and finally the alignment between the change type and identifying the situation that needed change with a contribution of 0.143. The change type negatively relates to change success with a contribution of -0.127. The last column with the variance inflation factors (VIF) shows that the factors were not multicollinear (since they are less than 5) and that multiple regression analysis can be performed.

As a result of the regression model, the research sub-question "how do change methods correlate with change outcomes?" can be answered. Equation 2 illustrates what change methods significantly correlate with successful change:

$$Change\ Success \cong 0.254\ (Identify) +\ 0.288\ (Implement) +\ 0.257(Control) +$$

$$0.187\ (Lead) - 0.127\ (Change\ Type) +$$

$$0.123\ (Alignment\ between\ Change\ Type\ and\ Identifying\ the\ Situation) \qquad (2)$$

## 4.9    Qualitative Data Analysis

In order to establish the internal validity in this research, triangulation was implemented by collecting data using different sources. In addition to the survey's quantitative questions, a single qualitative question was included in the survey and face-to-face interviews were conducted. This section discusses and summarizes the qualitative data collected.

### 4.9.1    Survey Open Ended Question

The survey included one open-ended question that asked the respondents for their opinions on the most important factors that make the change project successful. Out of the 70 respondents, 65 respondents provided answers to this question (the five missing responses were from the online surveys). Responses were categorized under seven themes as shown in Table 51. These responses provided the researcher with further insight on the factors that relate to change success and confirmed the results of the surveys analysis. Detailed responses to the question are provided in Appendix C.

Table 51: Responses to the Survey Open Ended Question

| Theme | Definition | Example |
|-------|-----------|---------|
| Leadership Support | A process whereby a person influences and directs others to accomplish certain objectives | • Leadership/executive support<br>• Support of leadership / sponsor / champion<br>• A team leader who is committed to the team |
| Communication | Having feedback channels between management and employees where the vision is comprehensively shared | • Communicating the reason, justification for change<br>• Clearly communicating strategies, objectives and actions<br>• Constant communication |
| Visioning and Planning | Setting a clear mission and measurable goals and organizing the tasks accordingly | • Develop a credible roadmap to arrive at change<br>• Well defined change strategy<br>• Realistic goals and expectations |
| Change Team | A group of people working together to achieve a common goal | • Good relationships and trust<br>• Well rounded team members<br>• Picking the right people/team |
| Ongoing Assessment | Strategies and techniques used to measure and evaluate performance | • Having a measurement system in place<br>• Continual assessment of goals and validating outputs with stakeholder as you go<br>• Performance was continually assessed based on clear metrics |
| Resources | Means and asses needed to achieve the project which includes money and people | • Technical supplies/tools<br>• Funded<br>• Resources: people, time and dollar |
| Acceptance (Buy-in) | Supporting the project and approving the accomplishment of the project goals | • Gain buy-in as you go<br>• Agreement on the change<br>• Having management and employees buy in to what is trying to be accomplished |

## 4.9.2  Face-to-Face Interviews

Six participants, professionals involved in change projects from an educational institute in Central Florida, agreed to and participated in face-to-face interviews. Table 52 shows the interview questions.

Table 52: Face-to-Face Interviews Questions

| Reflections on the change type | • On a scale from one to three, describe how big the impact of project was on you? <br> • Was it a temporary change or a long term one? And how long did it take? |
|---|---|
| Reflections on the change method | • Describe in detail the steps that were taken and followed to manage the project? |
| Reflections on the change outcome | • How successful was the change? On a scale from one to five, how successful was the change project in: meeting budget, completed within schedule, achieving goals and performance, satisfactory to stakeholders? |

In addition to answering the interview question, the six interviewees were asked to the answer the survey questions. Their responses were categorized into seven themes as shown in Table 53. Detailed interviews transcripts are provided in Appendix D.

Table 53: Summary of Interviewees Responses

| Theme | Definition | Example |
|---|---|---|
| Change Project Type | The essential characteristics that describe the complexity of the change project level and the qualities that make change what it is. | • Projects scales were mostly large-scale projects that were far-reaching and made significant change in the organization. <br> • Projects duration were mostly long term projects (one year or more). |
| Planning | Setting a clear mission and measurable goals and organizing the tasks accordingly. | • We properly planned by evaluating the situation that needed change, setting timely goals and adjusting plans as needed. |
| Leadership Support | A process whereby a person influences and directs others to accomplish certain objectives. | • We had a strong leader that inspired the team to work toward achieving the goals. |
| Communication | Having feedback channels between management and employees where the vision is comprehensively shared. | • Our projects involved continuous communication and streamlining. |
| Ongoing Assessment | Strategies and techniques used to measure and evaluate performance. | • We gathered feedback, took measures and assessed the impact of the change. |
| Customer Satisfaction | The ability of the project outcomes to meet or exceed customers' expectations. | • Customers (students) and sponsor (the organization) were highly satisfied with the outcome <br> • The outcome made high positive impact. |
| Achieving Objectives | The ability of the project to be completed within 1) the allocated cost, 2) schedule and 3) technical performance. | • Projects were completed within budget and achieved the desired goals. |

The interviewees' responses provided additional insight on the relationships between the change types, methods and outcomes, which helped confirm the results of the surveys.

## 4.10 Conclusion

This chapter discussed the details of data collection and analysis. First, it detailed the data collection process, the steps followed to verify the construct validity and reliability of the survey alongside the descriptive statistics and practical implications related to the two different projects: successful projects and unsuccessful projects. In addition, this chapter presented the results of multiple regression analyses and hypotheses testing that ultimately answered the research questions. This chapter also summarized the responses to the open-ended question in the survey and the face-to-face interviews' questions.

# CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The final chapter of this research discusses the outcomes of the research. The first section introduces the chapter. The second section reviews the major results and conclusions and how they relate to the research questions and hypotheses. The third section discusses the theoretical and managerial implications of the results. The fourth section presents the lessons learned during the dissertation research process. And the fifth section presents an overall conclusion as well as areas for future research.

## 5.2 Major Results and Conclusions

This section summarizes the major results of this dissertation research and how the research methodology, data collection and data analysis were able to answer the research model questions. In addition, this section provides a number of conclusions based on the results. Figure 31 illustrates the flow of this dissertation research.

| | | |
|---|---|---|
| **Research Model Question** | **Research Hypotheses** | **Data Analysis** |
| What enables successful change? | **H1**: The level of the change project type and the use of systematic and management methods relate to successful change.<br><br>**H2**: The alignment between change type and change methods relates to successful change.<br><br>**H2a**: The higher the "alignment between change type and systematic change methods", the higher the change success.<br><br>**H2b**: The higher the "alignment between change type and change management methods", the higher the change success. | Standard Multiple Linear Regression |

Figure 31: Research Dissertation Flow

The data analysis performed in Chapter 4 lead to eight conclusions as shown in Table 54. These conclusions were based on the regression analysis and hypotheses testing of the survey data and the responses to the survey open-ended question and interview questions. Answers to the research questions appear in

Table 55.

Table 54: Research Conclusions

| | |
|---|---|
| Conclusion #1 | The increase in using systematic change methods and change management methods relates to more successful change. |
| Conclusion #2 | The increase in the complexity of the change type relates to less successful change. |
| Conclusion #3 | The increase in alignment between the change project type and change management methods relates to more successful change. |
| Conclusion #4 | The increase in alignment between the change project type and systematic change methods does not necessarily relate to successful change. |
| Conclusion #5 | The increase in using systematic change methods relates more to successful change when compared to the increase in using change management methods. |
| Conclusion #6 | Having the required resources and the acceptance of change relate to more successful change projects. |
| Conclusion #7 | The increase in 1) identifying the situation that needs change, 2) properly implementing change, 3) establishing controls to sustain change and 4) having a credible team leader during the change project relates to more successful change. |
| Conclusion #8 | The increase in alignment between the change project type and identifying the situation that needs change relates to more successful change. |

Table 55: Summary of Research Conclusions

| Methods | | | What enables successful change? | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Conclusions | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Survey Question | Regression Model 1 | H1 | X | X | | | X | | | |
| | | H2a | | | X | | | | | X |
| | | H2b | | | | X | | | | |
| | Regression Model 2 | | X | X | X | X | X | | X | X |
| Survey Open Ended Question | Leadership Support | | X | | | | | | X | |
| | Communication | | X | | | | | | | |
| | Visioning and Planning | | X | | | | | | X | |
| | Change Team | | X | | | | | | | |
| | Ongoing Assessment | | X | | | | X | | | |
| | Resources | | | | | | | X | | |
| | Acceptance (Buy-in) | | | | | | | X | | |
| Interview Questions | Change Project Type | | | X | | | | | | |
| | Planning | | X | | | | | | | |
| | Leadership Support | | X | | | | | | X | |
| | Communication | | X | | | | | | | |
| | Assessment | | X | | | | X | | | |
| | Customer Satisfaction | | X | | | | | | | |
| | Achieving Objectives | | X | | | | | | | |

## 5.2.1 Research Main Question

The research main question was the following: what enables successful change? The regression model shown in Equation 1 intended to answer this question. Equation 1 demonstrates the interrelationship between the research variables of change project type, systematic change and change management methods, and change outcomes.

$$Change\ Success \cong 0.563\ (Sys\ Change\ Methods) + 0.26(Change\ Mngt\ Methods) -$$

$$0.15\ (Change\ Type) +$$

$$0.141(Alignment\ between\ Change\ Type\ and\ Change\ Mngt\ Methods) \qquad (1)$$

Two hypotheses were tested using Equation 1 to assess the interrelationship between the research variables:

H1: The complexity of the change project type and the use of systematic change and change management methods relate significantly to successful change

H2: the alignment between change type and change methods relates significantly to successful change.

The regression model in Equation 1 illustrates that the change type, the use of systematic change and change management methods and the alignment between the type and change management methods are able to explain around 66% of the variance in the change outcomes. The contribution of these variables according to the outcomes are: (a) systematic change methods (.563), (b) change type (-0.150), (c) change management methods (0.260), and (c) alignment between change type and change management methods (0.141). The positive contributions of systematic change methods, change management methods and alignment between change type and change management methods demonstrate that the increase in these three variables positively correlates with an increase in change success. The negative contribution of change type, however, demonstrates that the increase in the complexity of the change type negatively correlates with change success.

The responses to the survey's open-ended question (see Appendix C) were also able to answer the research main question. Respondents stressed the importance of systematic change and change management methods in enabling successful change.

Systematic change methods mentioned by respondents were: ongoing assessment and the focusing on the change team knowledge and abilities. The change management methods included leadership, communication and planning for change. These methods confirm the results of the regression models.

Participants in the interview also stressed the importance of systematic change and change management methods in enabling successful change. The systematic change methods mentioned by respondents were assessing change, gathering feedback, taking measures and assessing the impact of the change. The change management methods included strong leadership, communication and properly planning for the change project. . These methods confirm the results of the regression models.

Alongside the change methods, respondents to the survey's open-ended question mentioned two major enablers to successful change projects: (a) having the required resources that include budget, schedule, technical supplies and tools, sponsorship and change team, and (b) cultivating the acceptance of change that includes executives, stakeholders and employees as well as the political will, the cultural will, and open mindedness.

These empirical results support the following six conclusions:

1. The increase in using systematic change methods and change management methods positively correlates with change success.

2. The increase in the complexity of the change type negatively correlates with change success.

3. The increase in alignment between the change project type and change management methods positively correlates with change success.

4. The increase in alignment between the change project type and systematic change methods does not necessarily correlate with change success.

5. The increase in using systematic change methods correlate more with change success when compared to the increase in using change management methods.

6. Having the required resources and the acceptance of change positively correlate with change success relate to more successful change.

### 5.2.2 Research Sub-question

The second research sub-question was the following: what systematic change and change management methods relate to the successful change? The regression model shown in Equation 2 intended to answer this question, i.e., to understand the detailed contribution of using specific systematic change and change management methods to the change outcomes. Equation 2 demonstrates the interrelationship between the variables of change project type, detailed systematic change methods, detailed change management methods and change outcomes.

$$Change\ Success \cong 0.254\ (Identify) +\ 0.288\ (Implement) +\ 0.257(Control) +$$

$$0.187\ (Lead) - 0.127\ (Change\ Type) +$$

$$0.123\ (Alignment\ between\ Change\ Type\ and\ Identifying\ the\ Situation) \qquad (2)$$

The regression model shown in Equation 2 reveals that using detailed systematic change methods and change management methods, along with aligning the methods with the type, was able to explain 72% of the variance in the change outcomes. The six variables that significantly relate to the change outcome are (a) identifying the situation that needs change (0.254), (b) properly implementing change (.288), (c) establishing controls to sustain change (0.258), (d) having a credible team leader during the change project (0.187), (e) the change type (-.127), and (f) the alignment between the change type and identifying the situation that needs change (0.143). The positive contributions of "identifying the situation that needs change", "properly implementing change", "establishing controls to sustain change", "having a credible team leader during the change project" and the "alignment between the change type and identifying the situation that needs change" demonstrate that the increase in these variables relates to an increase in change success. The negative contribution of the change type, however, demonstrates that the increase in the complexity of the change type relates to a decrease in the change success.

The responses to the survey open-ended question and interview questions stressed the importance of proper implementation of change and the importance of leadership in enabling change which also supports the findings of Equation 2.

These empirical results support Conclusions 1 through 4 as well as the following two conclusions:

7. The successful identification of the situation that needs change, properly implementing change, establishing controls to sustain change, having a credible team leader during the change project positively correlate with change success.

8. The increase in alignment between the change project type and successful identification of the situation that needs change positively correlate with change success.

### 5.3 Implications of the Results

This section discusses the theoretical and managerial implications of this research on the discipline of organizational change management. These theoretical implications have significance for future academic research; these implications can be used by managers and professionals in the organizational change management discipline.

### 5.3.1 Theoretical Implications

This research focused on the outcomes of change projects and the relationships between the change project type and the change methods. The first theoretical implication of this research is the connection of the three main knowledge areas of change types, change methods and change outcome as shown in Figure 2 in Chapter 1. This research contributes to the academic change management field a detailed discussion of the strength and direction of relationships between the change project type, change methods and change outcomes. These three areas are stand-alone

subjects in several publications in the literature. Some researches connect the change types and change methods (Burnes, 2004; By, 2005; Goes et al., 2000; Meyer et al., 1990), while other researchers connect the change methods and change outcomes (Beer & Nohria, 2000; Burnes, 2004; Miller, 1982; Mintzberg, 1979). This study is an extension of this substantial body of literature; connecting the change types, change methods and change outcomes represents a new research territory that this research was able to explore.

The second theoretical implication of this research is the quantification of the relationships between the change type, methods and outcomes, expressed in the linear regression equations that reveal:

- A positive correlation between the change methods and change outcomes, i.e., an increase in using systematic change and change management methods positively correlates with change success

- A positive correlation between the change type and change management methods alignment and change outcomes, i.e., an increase in using systematic change and change management methods positively correlates with change success

- A negative correlation between the change type and change outcomes, i.e., an increase in the complexity of the change project type negatively correlates with change success

The third theoretical implication of this research is a roadmap to the available change literature as discussed in Chapter 2. This roadmap includes detailed definitions of, and

approaches to, organizational change and classifies the change type by scale and duration and change methods by systematic change and change management methods (Al-Haddad & Kotnour, 2013).

### 5.3.2   Managerial Implications

One of the most important contributions of this research to managers and professionals in the field of organizational change management is the identification of the major enablers of successful change and the explanation of why change projects might succeed or fail. Although there were some limitations due to the sample size and sample selection, this research demonstrates significant relationships between the change type, methods and outcomes.

The first managerial implication of this research is the relationship between successful change, the knowledge of the complexity of the change project type, and the use of systematic change and change management methods. This research found that the increase in the complexity of the change project type negatively correlates with change success, whereas the increase in using applying systematic change methods and change management methods positively correlates with change success. This research also found that the alignment and fit between the change project complexity and change management methods positively correlates with change success.

The second managerial implication of this research is the clarification of quantitative criteria that measures the outcome of change projects. This research breaks down the

outcomes of change projects in terms of the schedule, budget and achieving the objectives of the change project alongside the satisfaction of the customer, change project team and the change project sponsor. Ultimately, satisfaction with the project sponsor plays a significant role in perceiving whether a change project is successful or unsuccessful.

The third managerial implication of this research is the identification of four change methods that strongly correlate with successful change: (a) the accurate identification of the change opportunity/situation, (b) the proper implementation of the change, (c) the establishment of suitable plans and controls to sustain the change, and (d) the selection of a credible team leader who influences the major decisions during change.

The fourth managerial implication of this research is the development of a model that can guide managers on what detailed methods to use based on the change project type to maximize the success of change.

## 5.4 <u>Lessons Learned</u>

The two main lessons learned during this dissertation research are: (a) organizational change research is an unbounded and continuously changing disciple, and (b) researchers should always try to find and review available lessons learned in the literature before starting their research. More specific lessons learned during this

dissertation process fall into four main categories and are discussed in the following section.

### 5.4.1 Research Topic

Choosing a specific research topic was a pivotal phase in this research that guided all the subsequent phases. Although the overall research discipline was determined (successful organizational change), finding a new precise research theory and building the conceptual model were difficult tasks. Based on the literature review conclusions and the applicability of research methodology, the research theory and the developed conceptual model were refined several times (such as redefining the terminologies, altering the research variables and rearranging the variables and relationships between them). Having a knowledgeable advisor that encouraged critical thinking and continuous research made this phase enjoyably challenging and productive.

### 5.4.2 Literature Review

Reviewing the organizational change literature was probably the most time consuming phase in this research as the organizational change discipline is really broad and has been extensively addressed in the literature. The first important step in this phase was identifying the available sources of literature for the research topic. The advancement in information technology enabled the access to numerous electronic databases and academic web pages. The university library and the different services it provides greatly facilitated the access to all needed books. Having an organized system for resources management that kept track of the read articles and books was important to be able to

easily retrieve any needed information. Using reliable citation management software like "refworks" simplified managing the citation of references.

### 5.4.3  Research Methodology

Understanding and developing a research methodology for this dissertation required reviewing the research process, paradigms and techniques in the organizational change discipline literature and other disciplines' literature as well. Since the organizational change discipline can be both, objective and subjective at the same time, a combination of qualitative and quantitative methods was used to collect data.

Selecting surveys and personal interviews as the research techniques for this dissertation was based on comprehensive analysis of the pros and cons of the available and applicable research techniques. Although developing the research survey questions can be viewed as simple and procedural, but puzzlingly, it was one of the hardest and most stimulating phases in this research that required more than fourteen iterations and revisions. I believe that researchers who peruse research surveys need to allocate sufficient time and effort for developing the survey questions and seek advice from subject matter experts. Having an experienced advisor that encouraged conversation and independent decision making made this phase exciting and rewarding.

### 5.4.4 Data Collection and Analysis

I was told many times that this phase is actually the "fun phase" of the dissertation process. And I truly believe it was. Collecting survey data can be a stressful phase as the response rate is unpredictable and the collected data can be unhelpful and useless. Researches should well plan for this phase, identify plenty of data resources and seek help from their advisors, industry contacts and even fellow researchers to get access to large samples.

Although the data analysis phase was pleasant and gratifying, it was also challenging. Testing the hypotheses and performing statistical procedures was relatively uncomplicated but presenting the analysis and summarizing the conclusions in a scholarly way was not straightforward and required many considerations and revisions. It is important for researcher to realize that they should not rely completely on computer software when analyzing data and they should use their personal experience and common sense when making inferences about the data.

### 5.5 Conclusion

This research focused on successful organizational change and how the relationships between the change project type, change methods and change outcomes can increase the rates of change success. These three areas are stand-alone subjects in several publications in the literature, and this research was successfully analyzed the relationships between them. The organizational change literature still shows a high failure rate of their change initiatives. These failure rates prompted this research, and

debatably implied a lack of a valid framework for managing successful organizational change.

This research contributed a roadmap to the organizational change literature and provided definitions for describing change types and change methods. This research also developed a conceptual model that was assumed to relate to a more successful change. Two hypotheses were outlined and tested based on the conceptual model to theorize the research assumptions, and data collection methodologies were developed and to verify the assumptions. This research found that the increase in the complexity of the change type negatively correlates with change success whereas the increase in using change methods positively correlates with change success. Analyzing the data collected in this research, it is proposed that deciding if change is successful can be subjective and depends on several factors, including the personal judgment and experience, acceptance of and readiness for change and perspectives of what success means.

## 5.6  Future Research

Larger and more randomized samples can be used to test the developed conceptual model in this dissertation and investigate the relationship in more detail. The context and validation of the research and the generalization of the results can be improved by increasing the respondents participating in this research. More organizations and different change types can further be involved.

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Future research can also investigate further the outcomes of change and may require focusing on the change project effects on the organization and on the performance of the change project itself by involving experts in measuring the outcomes.

Understanding the human side of change can also be studied and incorporated in future models analyzing change success. Other factors affecting change can be investigated including the organizational readiness for the change and the availability of required resources.

Further statistical analysis (e.g., confirmatory factor analysis and structural equation modeling) can be conducted to establish cause and effect relationships and achieve a deeper understanding of the relationships between the change project type, change methods and change outcomes.

# APPENDIX A: RESEARCH SURVEY

## Organizational Change Management Survey

Dear respondent,

You are kindly invited to take part in a research study on the success of change projects in organizations.

This study is conducted by Serina Haddad, an Industrial Engineering Ph.D. student at the University of Central Florida as part of her doctoral dissertation. The Supervising faculty professor for this study is Dr. Timothy Kotnour.

This survey is divided into three parts and contains 40 questions:
A) A Successful Change Projects
B) An Unsuccessful Change Projects
C) Questions Pertaining to Demographics and Open-ended Questions.

There are no anticipated risks associated with your participation. All responses will remain confidential and will appear only in summary form in a PhD dissertation and any succeeding research article. Confidentiality of all answers will be maintained by assigning a code to each response and not recording any personal or identification information.   If you cannot accurately provide an answer or do not feel confident about a question, please leave that question blank rather than providing incorrect answer. You do not have to answer any question you do not wish to answer. You must be 18 years of age or older to participate.

If you have any additional questions or comment, please feel free to contact me at serina@knights.ucf.edu or my faculty advisor, Dr. Timothy Kotnour at timothy.kotnour@ucf.edu

Thank you for your valued participation,

Serina Haddad

**Considering a successful change project you were involved in, please indicate how much you agree or disagree with the following sentences:**

1. **We completed the change project within the predetermined schedule**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

2. **We completed the change project within the allocated budget**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

3. **We accomplished all desired goals and objectives of the change project**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

4. **Our organization's employees were sincerely satisfied with the change project results**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

5. **The change project team was satisfied with its results**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

6. **The change project sponsors were satisfied with its resutls**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

7. **The scale of the change project that I was involved in was:**
   O **Small**: minor and less significant change that addressed a small gap/minor processes
   O **Medium**: a significant change that addressed a medium gap/many processes or departments
   O **Large**: a far-reaching change that addressed a big gap/major processes and/or the entire organization

8. **The duration of the change project that I was involved in was:**
   O **Short**: less than 3 months
   O **Medium**: between 3 months and 1 year
   O **Long**: more than 1 year

9. **We clearly identified the change opportunity/situation that needed to be addressed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

10. **We accurately measured the performance of situation that needed to be changed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

11. **We analyzed the situation to what needs to be changed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

12. **We properly implemented the changes by addressing the situation**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

13. **We established suitable plans and controls to ensure that the changes are sustained**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

14. **A credible team leader influenced the major decisions during the change project**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

15. **We openly shared and communicated the change project goals with our employees**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

16. **We clearly aligned the change project with our overall mission**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

17. **We strongly integrated the change project actions with our everyday activities**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

18. **We continually trained employees to overcome any gaps in the skills and knowledge needed to successfully implement the change**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

**Considering an unsuccessful change project you were involved in, please indicate how much you agree or disagree with the following sentences:**

19. **We completed the change project within the predetermined schedule**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

20. **We completed the change project within the allocated budget**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

21. **We accomplished all desired goals and objectives of the change project**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

22. **Our organization's employees were sincerely satisfied with the change project results**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

23. **The change project team was satisfied with its results**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

24. **The change project sponsors were satisfied with its resutls**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

25. **The scale of the change project that I was involved in was:**

   O **Small**: minor and less significant change that addressed a small gap/minor processes
   O **Medium**: a significant change that addressed a medium gap/many processes or departments
   O **Large**: a far-reaching change that addressed a big gap/major processes and/or the entire organization

26. **The duration of the change project that I was involved in was:**

   O **Short**: less than 3 months
   O **Medium**: between 3 months and 1 year
   O **Long**: more than 1 year

27. **We clearly identified the change opportunity/situation that needed to be addressed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

28. **We accurately measured the performance of situation that needed to be changed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

29. **We analyzed the situation to what needs to be changed**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

30. **We properly implemented the changes by addressing the situation**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

31. **We established suitable plans and controls to ensure that the changes are sustained**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

32. **A credible team leader influenced the major decisions during the change project**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

33. **We openly shared and communicated the change project goals with our employees**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

34. **We clearly aligned the change project with our overall mission**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

35. **We strongly integrated the change project actions with our everyday activities**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

36. **We continually trained employees to overcome any gaps in the skills and knowledge needed to successfully implement the change**

| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|:---:|:---:|:---:|:---:|:---:|
| O | O | O | O | O |

37. **What is the type of your organizations?**

    O Government
    O Financial/Insurance
    O IT/Telecommunications
    O Consulting/Business Services
    O Entertainment/Hospitality/Recreation
    O Higher Education
    O Manufacturing
    O Transportation (Automotive, Aerospace and Rail)
    O Wholesale/Retail
    O Healthcare
    O Transportation/Logistics Services
    O Other _____

38. **What is the number of employees in your organization?**

    O Less than 100
    O 100-999
    O 1,000-4,999
    O 5,000-9,999
    O 10,000 or more

39. **How long have you been/were you involved in projects related to organizational change?**

    O Less than 1 year
    O 1-2 years
    O 2-5 years
    O 5-10 years
    O 10-15 years
    O More than 15 years

40. **In your opinion, what are the most important factors that make the change project successful?**

_____

_____

_____

_____

# APPENDIX B: UCF IRB LETTER

## Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
**FWA00000351, IRB00001138**

To: **Serina Al-Haddad**

Date: **October 25, 2013**

Dear Researcher:

On 10/25/2013, the IRB approved the following activity as human participant research that is exempt from regulation:

|  |  |
|---|---|
| Type of Review: | Exempt Determination |
| Project Title: | Aligning Change Methods with the Organizational Change Situation |
| Investigator: | Serina Al-Haddad |
| IRB Number: | SBE-13-09624 |
| Funding Agency: | |
| Grant Title: | |
| Research ID: | N/A |

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 10/25/2013 08:14:20 AM EDT

IRB Coordinator

# APPENDIX C: RESPONSES TO SURVEY OPEN-ENDED QUESTION

Table 56: Responses to Survey Open-Ended Question per Theme

| Theme | Response |
|---|---|
| **Leadership** | <ul><li>Support of leadership / sponsor / champion</li><li>Strong leaders</li><li>A team leader that have decision making capabilities</li><li>Strong credible leader with vision</li><li>Strong project leadership\ Strong Executive and Leadership Support</li><li>Strong top leadership sponsorship</li><li>Leadership/Executive Support</li><li>The political factor - when a manager in the changing process will look bad for making a poor decision a great deal of resistance will be encountered</li><li>Competent leadership with clear vision</li><li>Strong Project manager (PM) that had a clear plan</li><li>Sound leadership</li><li>Leadership strongly supports 1 to 4 above. If leadership doesn't buy-in, then stop. Leadership means the key stakeholder(s) of the particular organization needing the change and funding the change</li><li>Having a strong leader who pushes the implementation of recommended improvement opportunities/changes.</li><li>Leader that champions and drives out the issues and or personalities that want to obstruct the change while obviously maintaining a balance to realize if the change is a bad idea. There are always folks against it, but if overall the leader wants to do it and see the necessity, they have to enable which may mean getting road blocks cleared</li><li>Having a champion supporting the change</li><li>Selecting a credible leader</li><li>A team leader who is committed to the team</li><li>A leader with a clear vision of the change</li></ul> |

| Theme | Response |
|---|---|
| Communication | <ul><li>Communication</li><li>**C**ommunicating the reason, justification for change</li><li>Strong communication</li><li>Clearly defined and communicated project plan</li><li>Well defined problem statement, solution, and plan</li><li>Define and communicate clearly the vision of the desired state</li><li>Issues were visible</li><li>Project status was clearly shared with the team and stakeholders</li><li>Communication</li><li>Clearly communicating strategies, objectives and actions</li><li>Daily communications with all of the project stakeholders</li><li>Communication</li><li>Communication</li><li>Communication</li><li>Communication at/across all levels</li><li>Communication</li><li>Constant communication</li><li>Over communication</li><li>Communication</li></ul> |
| Visioning and Planning | <ul><li>Aligning everyone to the same objective</li><li>Develop a credible roadmap to arrive at change. Divide and conquer, changes do not happen overnight. Be realistic on expectations. Make sure alignment is maintained with organizational goals</li><li>Clear goals and expectations. Focus on the problem and not the symptoms</li><li>Right solution (or system) is chosen to fill the gap</li><li>Clearly defined and communicated goals, objectives, and alignment to mission. Do not play the blame game</li><li>Accurately identifying the problem that needs solved</li><li>Clear documented change vision, clear documented and tracked plan for change. Build on successes on step at a time. Clear all roadblocks that arise quickly.</li><li>Organizational alignment to change</li><li>Well defined change strategy</li><li>Alignment with business objectives</li><li>Clear scope and project objectives / deliverables</li><li>Identifying what specifically needs to be changed and why (the benefits of the change)</li><li>Making sure clear definition of gaps or goals aligned to the change objectives</li></ul> |

| Theme | Response |
|---|---|
| **Visioning and Planning** | <ul><li>Realistic Goals and Expectations</li><li>Planning</li><li>Requirements change plan</li><li>Ask the questions up front. "Why are we changing? Do we need to change? What does the change buy me?"</li><li>Clearly identity the project requirements</li><li>Clarity of desires, cooperation, positivity</li><li>Clear and defined objective</li><li>Setting goals that are realistically attainable within the allotted schedule and budget set forth by the customer</li><li>Solid research and planning</li><li>Clear objectives. Preparation</li><li>Clarifying details and thinking outside the box</li><li>Do it – have good actions</li><li>Clear goal and vision</li><li>Strategy on what you are trying to do – what and how. What the gap is and how to close the gap. Discipline process to manage</li><li>First identify what it is that you want to change. What is the issue? Develop activities and programs with measurable objectives to make the change and have a very defined timeline</li><li>Priorities have to be set for people to start working on. How is that an issue for the organization?</li><li>Defining strategy and integrating a common purpose into each project</li><li>Clear planning</li><li>Organization measures and shows results from the change</li><li>Requirements definition and V&V</li><li>Clear goals and guidance</li><li>Reason for change</li><li>Clear direction</li><li>Understanding the need or driver. It is very important in the very beginning to clearly define the scope of project</li><li>Begin with the end in mind. Don't change things based on personalities rather on functionality</li><li>Having clear goals</li><li>A clear readily understood reason to change</li><li>Clearly defined objectives, clearly defined requirements</li><li>Reason for change</li><li>Clear goals for change and clear alignment of new organization with those goals</li><li>Well defined goals that are achievable and making it a priority</li></ul> |

| Theme | Response |
|---|---|
| **Team Effort** | • Right team, appropriate work team structure/integration<br>• Establishing a team<br>• Act as a unit. Have a good definition of roles and responsibilities. Make everyone accountable for the outcome<br>• Capable project team<br>• Good Project Manager<br>• Holding the team accountable<br>• Good relationships and trust<br>• Well rounded team members<br>• A good team of highly qualified people to see the project through<br>• Getting people that believe in changing the organization on the team, all too often we place the wrong people in position to issue change. For example we constantly invite only high ranking management to cost savings events to change processes, when those managers have been removed from the process for many years<br>• Define clear ownership of the process being changed<br>• Teamwork<br>• Obtaining the "right" team members<br>• Accountability and responsibility<br>• Teamwork<br>• Clear ownership<br>• Picking the right people/team<br>• Team work |
| **Ongoing Assessment** | • Assess the project incrementally to determine effectiveness<br>• Performance was continually assessed based on clear metrics<br>• Measurement system in place to verify objectives being achieved<br>• Continual assessment of goals and validating outputs with stakeholder as you go<br>• Determining what measures you will use to determine how successful you are and tracking them<br>• Regular assessments to review work products associated with project<br>• Make mid-course corrections based on reviews<br>• Review the project EVM on a predetermined schedule and maintain an issues/concerns database<br>• Having a measurement system in place for KPIs<br>• Taking reasonable steps (control scope)<br>• Follow-up<br>• Assess - Plan Do Check Act<br>• Having reviews<br>• Periodically review what the problem is, the function, the assessment |

| Theme | Response |
|---|---|
| **Resources** | <ul><li>Appropriate resources and tools were provided</li><li>Adequate resources</li><li>Holding task leads accountable to tasks (Budget and Schedule)</li><li>When there were issues that looked like they would divert the schedule the PM insisted on a plan to get back on schedule</li><li>Maintain a risk management plan</li><li>Technical supplies/tools</li><li>Advance risk mitigation</li><li>Managing customer expectations and preventing scope creep from customer</li><li>Keeping customer informed of progress throughout life of project</li><li>Funded</li><li>Maintaining flexibility while staying within budget and deadline restriction to efficiently effectuate positive change</li><li>Management</li><li>Sponsorship</li><li>Good project management</li><li>Resources: people, time and dollar</li></ul> |

| | |
|---|---|
| **Acceptance (Buy-in)** | <ul><li>Support from management and customers</li><li>Executive buy-in. Willingness to be honest about our faults. Willingness to be open and try new things.</li><li>Active stakeholder and management support</li><li>Flexibility</li><li>Gain buy-in as you go</li><li>Corporate/Agency commitment (strategic and budgetary)</li><li>Getting teams to agree on the solution</li><li>Buy-in from all of the stakeholders</li><li>Early buy in by stakeholders and end users.</li><li>Getting buy-in from the team</li><li>1)Organization wants to change 2)Organization is ready to change 3)Organization follows through and drives the change</li><li>Integrity</li><li>Impacting the minds and hearts of people needing to make change occurs</li><li>Training</li><li>Agreement on the change</li><li>Enjoying your job</li><li>Customer Buy-in</li><li>Management Buy in</li><li>Encouragement</li><li>Having Management and employees buy in to what is trying to be accomplished</li><li>An employee base that is open to change</li><li>Make sure one includes all the important stakeholders and/or customers. Have the "power" to make the change</li><li>Open mindedness</li><li>Headquarters direction and influence</li><li>Everyone should understand why "the change" and how each individual fits within the new organizational team</li><li>Commitment and reasonable expectations</li><li>Recognition/ commitment that change is needed and beneficial. "Do not harm" sounds good at first, but later is generally considered an apology that the change was unnecessary</li><li>Motivation at those employees directly carrying out the project</li><li>Political/ cultural will</li><li>Compelling reason to do it – people have to want to go and do it – excitement</li><li>Everybody has to know what we are doing and how were are measuring and then go from there</li><li>Flexibility</li><li>Willingness to change plans (adaptive), accepting change no matter how much you plan.</li></ul> |

# APPENDIX D: FACE-TO-FACE INTERVIEWS TRANSCRIPTS

Table 57: Face-to-face Interviews Transcripts

| Interviewee | Interview Transcripts |
|---|---|
| 1 | • We dealt with a high scale project that expanded over a year. We planned for the project really well and always communicated the steps and needed actions<br>• The project was extremely successful. We achieved the desired objective and stayed within the allocated budget and the predefined timeline. We were able to satisfy the students and sponsors<br>• We are hoping that the change we made will be sustained with suitable controls. |
| 2 | • Our project was extremely successful. The scale and impact of change was really large we got national recognition on the project outcomes. The outcomes highly affected companies and students<br>• During the change process, we clearly defined the idea, implemented the project, figured out what was right and wrong and we established a strong plan of action. We made sure to gather industry and college feedback<br>• We got the project running and partnered with industry and got their feedback. We learned and adjusted as we went and at the end we took measures and assessed impact<br>• We had strong leadership support from industry. Our faculty loved being involved in it<br>• We believe it is the coolest thing we have ever done. |
| 3 | • It took us five years to get the project started and it had extremely high impact<br>• It is still early to judge that it fully successful because it is still in the early implementation phase but we already started feeling the good impact<br>• Continually engaged people and communicated the vision<br>• We had strong leadership support and other departments were accepting it. |
| 4 | • Our project was a huge success especially on students.<br>• Based on the feedback we got from the students, we felt we made a high positive impact.<br>• We planned for the project really well and had multiple meetings to decide on the implementation process<br>• We found a way to do things in a very restrictive university environment.<br>• People shared vision and stayed in touch and we made it work as a team effort<br>• We feel our project had tangible benefits and the most rewarding part is the feedback and comments from students about how we affected their careers. |
| 5 | • Our project had high impact and was effectively able to affect a significant number of people. It made a ripple effect that goes into cultural change and how students go into their professional careers and how they advance in their careers<br>• Our project effect is a long term thing in every perspective specially students<br>• Testimonials of students' made us realize how successful it was<br>• We needed to look at existing projects and the bigger picture to be able to have a broad plan<br>• We introduced a different way of thinking and real change<br>• We showed our sponsors that we willing to listen and be proactive to meet their needs<br>• We regularly held meeting and communicated effectively. Streamlining really helped<br>• We had strong leadership support and the thought process really drove the project. |
| 6 | • Our project was on a medium scale and of a medium duration.<br>• The project was planned right, and we are still researching and trying to improve<br>• Preparation and leadership made the project possible<br>• Our project's outcome is measured in terms of satisfaction. Satisfaction comes first<br>• Schedule, goals, budget were important and students, and sponsors were satisfied. |

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