



**MANAGING LEADERSHIP IN THE PROCESS OF CHANGE RELATED TO
THE INTRODUCTION OF A PERFORMANCE ENHANCING
NEW TECHNOLOGY: THE CASE OF AIR TRAFFIC
MANAGEMENT (ATM) SYSTEMS**

By

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ABSTRACT

This study describes the major elements of an exploratory research study in the field of Change Management and Transformational Leadership in Air Traffic Management primarily in Thailand but also internationally. Attention is devoted to change processes related to the introduction of a demanding new technology. This is an empirical study which serves to illustrate the numerous traps and centres of resistance to change that are a core area of this research.

The study involved is one based on Grounded Theory and uses both qualitative and quantitative approaches. The study isolates the key factors which discuss the prerequisites for successful change management and transformational leadership. It concentrates on identifying the fundamental role of leadership during the process of change.

The research findings identify the phases in the process of successful change and, particularly, the role of transformational leadership and the politics of resistance which occur at various levels and are required to drive this change. The external context is that the International Civil Aviation Organization (ICAO) dictates the need for change to all Air Navigation Service Providers (ANSPs) of every country. The activities and steps in the process of change are identified. The dimension of transformational leadership needs a strong link to the change process to manage the

change. To identify the key concepts and factors of change focusing on the fundamental role of leadership, managing a clear entrepreneurial and leading attitude is necessary during the process of change. The key concepts for successful change are a construction that can be described as “IDEAS” composed of: I – Integrating motivation and influence; D – Directly involving communication; E – Engaging strongly and visibly; A – Accessing and understanding; S – Supporting involvement. The importance of the leader’s role in facilitating the process of change in each specific phase of the change process and the impact he/she can have within the process is presented. The aspects of transformational leadership which are perceived as the most relevant are inspirational motivation, inspirational influence, intellectual stimulation and individualised consideration respectively.

Based on the change process model used in this study, the implications of findings contribute knowledge to improving the performance and capacities of the ANSPs both in Thailand and internationally. In particular, the desirability of Transformational Leadership is emphasized as an important factor for successful change management.



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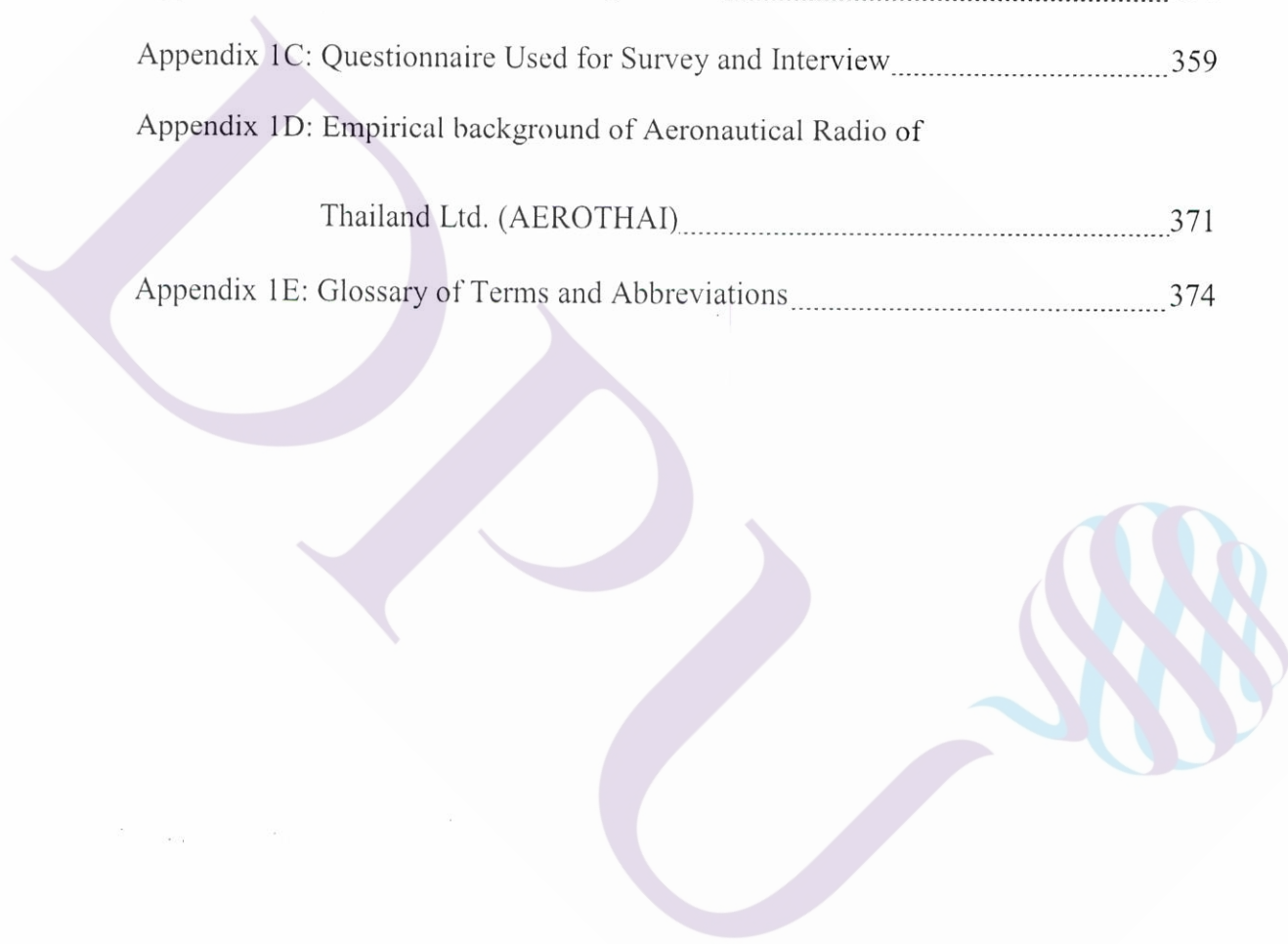
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CHAPTER 1

INTRODUCTION

1.1 Research Area

All kinds of organizations, private, public and voluntary, face the challenges of constant and ever faster change, something which has become a defining feature in contemporary organizations. Managing change is a contentious issue among management academics and authors. They state that although organizational change is a fact of life, it is often an awkward one (Linstead and Pullen, 2009). Worall and Cooper (1997) indicate that cost reduction, redundancies, cultural change and performance improvement are the most common models of change found throughout industry.

The term “Organizational Change” normally refers to alterations in an organization’s structure, goals, technology and work functions. It now also includes changes in attitudes and cultural values. Working conditions, structural feature, roles, jobs and behaviours are affected by organizational change, which can be introduced intentionally and in a planned way, either internally or externally. Linstead and Pullen (2009) indicate an externally driven view of change: “the external climate is determined by economic conditions, government interventions, changes in technology, political pressures and global competition” (p. 619).

To survive, organizations must be able to respond to change and foster attitudes of flexibility and dynamism to manage it. Most managers find themselves being affected by pressures emanating forces outside of their control (Linstead and Pullen, 2009). Furthermore, the drivers of change have the potential for affecting all

sorts of organizations in terms of the cost of the organization. For example, cost effectiveness may be driving the organization to produce new technology products and services (ICAO, 1995). In challenging economic times, organizations face the need to navigate and manage change, more often than not, with their leaders at the helm. These challenges and related issues are obviously the everyday reality of most organizations; struggling in order to lead and manage the change as successfully as possible is therefore everybody's responsibility.

1.1.1 Why should managing the process of change be studied?

In the past few decades, a number of articles, books and reviews have been written about the complex process that is constituted by change and the types of changes that have been revised through the years due to factors such as technology, legislation and environment concerns.

In today's global marketplace, the situation is dramatically different. Organizations have to adapt and realign themselves constantly to the fluctuating environment, and have to seek opportunities and economies of scale for increasing profits and for growth purposes. This is not only in response to competitive and technological pressures, but also in anticipation of managing change (Kerber and Buono, 2005). Organizations depend critically on the capital markets and the pressure for effectiveness which characterizes the corporate world today. "Change" has become a key issue on its own. An organization which handles and adapts itself successfully to change stands a greater chance of reaping the rewards; that is the reason why leading change has become critical.

Despite the fact that there are many publications written about change management and the process of change and leading change, this literature is often not

taken into account by organizational leaders – perhaps because it is too complex (For a review, see e.g Kotter, 1996). Ropo (1989) stated that Hunt (1991) and Osborn's model (1982) is very complex with a large number of variables. The result may be that a number of large-scale change projects still fail. According to Beer and Nohria (2002), 70 percent of change undertakings are unsuccessful. Change management proponents have also been criticized for failing to conduct appropriate evaluations of change process. It is necessary to document and clarify the results of change management initiatives, examine their cost effectiveness, and acknowledge the difficulties, costs, and complexity of managing organization-wide change (MacDonald 1998; Kotter, 1998; Abrahamson, 2000). This has been addressed to a large extent in many recent studies. Smith (2006) states that organization change is a complex and long term task. Kotter (1996) also claims that successful changes are chaotic and full of abnormality. In addition, Hiatt (2006) indicates that successful change only happens when the business and the people dimension of change occur simultaneously.

As Beer and Nohria (2002) indicate in their paper "Cracking the Code of Change", "This proliferation of recommendations often leads to a muddle when change is attempted. The result is that most change efforts exert a heavy toll, both human and economic" (p.133). Another reason for organizational failure in implementing change is weak or inadequate leadership. Change can also arise from within an organization, primarily because organizations go through a process of ageing (including buildings, machinery, workforce), and strategies for renewal and development are therefore necessary at every level, from the individual to the complete physical relocation of the organization. Thus, change in an organization

can refer to any alteration in activities or tasks.

1.1.2 Why should leadership in the process of change be studied?

The term leadership can be interpreted differently by various people, leading to a certain degree of confusion which is created by attempting to derive the meaning in a variety of contexts (Northouse, 2004). To understand the meaning of leadership, the confusion arising from contextualising the word must be addressed. For example, when one talks about leading a meeting, the meaning of leadership is portrayed from the perspective of the chairperson or somebody who facilitates it. With respect to leading a tour, a closer consideration is given to the tour guide. However, leading a market may employ a leader in a very real sense as the top player, unlike the two previous examples. This shows that leaders should have qualities which may not be easily possessed by other players or leaders (Daudi, 2009).

Most researchers and authors, working on leadership (Bennis and Nanus, 1985; Beer and Nohria, 2000) concentrate on what it means to be a leader in terms of being at the top of a group hierarchy, such as the CEO, President, Chief, King, Team Leader, Managing Director, etc. Consequently, there is a tendency for individuals to overlook the use of the term. Whatever is said about a leader, every usage focuses on one person as a central figure. Therefore, that particular person pushes us to do things which we would not otherwise do. In view of this, the biggest question imposed upon us is whether we can define leadership or leaders as those who move or influence individuals (Northouse, 2004). In general, such a definition is too all-inclusive. This can be explained by the fact that Northouse considers that individuals may not wish to regard teachers, sales staff or our uncles and aunts as leaders simply because they succeed in persuading us to do our homework, buy items or watch certain educative

programmes on television, respectively. The reason is that leadership is a group function, involving a player who is successful in bringing people together for a common purpose (Northouse, 2004).

“And you know my friends, there comes a time when people get tired of being trampled over by the iron feet of oppression, there comes a time when people get tired of being pushed out of the glittering sunlight of life’s July, and left standing amidst the chill of an Alpine November. We are here because we are tired now.”
Dr. Martin Luther King (Gardner, 1995p. 206).

The quotation shown above indicates that a leader such as Martin Luther King fits the bill because he employed the essential rhetoric to appeal to all the people to realise an urgent need. Similarly, Mahatma Ghandi was highly competent in calmly convincing his followers to protest peacefully and refrain from fighting and using violence against his adversaries (Gardner, 1995).

The need for innovation and organizational development is increasing. In addition, the number of changes in the ownership structure, for example because of mergers and acquisitions, is also increasing the need for change. Therefore, the role of leaders is to create a structure which is able to respond and adapt to change. In these situations, transformational leadership is seen as a successful leadership style since it aims at reaching significant changes in the organization. To support this concept, Ropo (1989) states that transformational activities are required mainly to change things in the organization.

1.1.3 How is organizational identity essential in the process of change?

In addition to the issues discussed above, the issue of organizational identity is debated through the role of leaders in moving the image and the culture of their organizations. In the context of a fast changing world and increasing pressures from the environment, a solid but flexible organizational identity is an important factor for the success of an organization. Maintaining an effective organizational identity is becoming one of the major challenges leaders have to face. “Opinions and impressions, feelings and fantasies, hopes and expectations expressed by employees, suppliers, customers, shareholders, governments, and their regulatory agents as well as community members, the general public, the media, and political activists, whether positive or negative, all contribute to defining the identity of an organization...” (Hatch and Schultz, 2004, p.1). Additionally, the media is playing an important role and indicates differences between corporate images and organizational actions. Through new technologies, such as just-in-time inventory, other stakeholders are more closely involved in the organization. This creates stronger dependencies between the organization and those stakeholders. These two aspects lead to a higher openness to external parts of the organization and its identity (Hatch and Schultz, 2004). Furthermore, Dutton and Dukerich (2004) indicate that organizational identity is related to personal motivation. According to Stewart (1991), identity is one aspect which is related to the successful outcome of an organization. It is seen as a key factor to be successful in a situation of organizational change. Understanding, responding to and managing change are primary skills increasingly required of managers.

However, change is reciprocal: changes that managers make to their organizations can also affect the nature of managerial work. Stewart (1991) describes how changes in organizations affect the kinds of jobs that managers have to do amid the shifting nature of their lives and careers. These include: wider networking, flatter hierarchies of authority, reduced middle management cohorts with more responsible roles, less predictable career paths and greater choices in their work and careers.

1.1.4 Organization Identity

Identity is related to human behaviour; it is a research field arising from the sociological and psychological domains. Thus, it requires leaders to have specific skills concerning social relationships in order to understand and deal with actions and reactions of people. In that sense, Chemers (1997) referred to Hour and Shamir (1993), who found transformational leaders transform “the values, preferences, and aspirations of followers from self-interest to collective interests” (p.89). As the organizational identity is based, influenced and transformed by members of the organization, it would be interesting to investigate this in a context of leadership and show how a leader can influence it. To adopt a transformational leadership style is indicated to be important and successful in situations of change; it is therefore interesting to study how the different characteristics of transformational leadership can influence, adapt or transform an organizational identity. Moreover, several recommendations for leaders are available on the way to implement change effectively in organizations. Therefore, this study concentrates on gathering the key concepts of change and focusing on the fundamental role of leadership and transformational leadership during the process of change.

1.1.5 Technology Changes on Air Transport: An Empirical Case

This thesis concentrates on the air transport industry, which is one of the fastest growing sectors of the world economy (International Civil Aviation Organization (ICAO), 2005). The continuing growth of aviation places increasing demands on airspace capacity and emphasizes the need for the best use of the available airspace. The International Air Transport Association (IATA) reports that volumes of air traffic will increase in all regions after the economic crisis of 2010 (IATA, 2010). IATA also anticipates that air journeys will expand and about 10,000 new commercial aircraft will enter service over the next 10 years, adding a still larger burden on an already strained airspace system. It could potentially result in more and longer delays of flights. To prevent these burdens resulting from a traffic growth rate, the U.S. Federal Aviation Administration (FAA) and EUROCONTROL have been working to establish a new satellite-based airspace system guaranteed to make flying more efficient while maintaining safety.

An important process of ensuring aircraft safety and efficiency is to optimize the flow of traffic and the cost effectiveness of flight operations, and to reduce conflicts of air traffic management. The ICAO (1995) described the shortcomings of communications, navigation and surveillance systems (CNS) around the world as amounting to essentially the three following factors:

- The propagation limitation of the current line of sight system;
- The difficulty, caused by a variety of reasons, to implement the current CNS system and operate it in a consistent manner in large parts of the world (Galotti, 1999; ICAO, 2005);

- The limitations of voice communication and the lack of digital air to ground data interchange systems to support automated systems in the air and on the ground (ICAO, 1995).

Therefore, the particular empirical case being scrutinized in this thesis is the Air Navigation Service Providers (ANSPs) which will be affected by the introduction of a new technology of Air Traffic Management (ATM) Systems now and in the future: “The ATM environment, like so many other environments today, is driven by safety and increasingly by commercial or personal outcome expectations” (ICAO, 2005). In 1991, the ICAO Council endorsed future air navigation systems surveillance/air traffic management (the CNS/ATM) systems). These systems, employing digital technologies, including satellite systems together with various levels of automation, are applied in support of a seamless global air traffic management system (ICAO, 2005). ICAO’s desire is to develop a seamless, globally coordinated system of air navigation services that will: cope with worldwide growth in air traffic demand while improving upon the present levels of safety and regularity; improve the overall efficiency and capacity of airspace and airports; improve operations allowing for capacity increase while minimizing fuel consumption and aircraft engine emissions; increase the availability of user-preferred flight schedules and profiles; and minimize differing equipment carriage requirements between regions.

The particular empirical cases for this research are the Air Traffic Management (ATM) Systems for Air Navigation Service Providers (ANSPs) in developing countries, such as Thailand (main data), Laos, Burma, Cambodia, Nepal, Indonesia, The Philippines, and Mongolia. These countries are affected by the

introduction of the new technology for Air Traffic Management (ATM) Systems. This research also received some insight involving ATM systems from Swedavia, Swedish consultants that have been concerned with implementing the new system in Sweden and Norway. In addition, the International Civil Aviation Organization (ICAO) is the primary organization driving all countries all over the globe to change to their new technology.

1.2 Research Background and Research Issue

1.2.1 Specifying the Research Problem

The research problem addresses the particular question of implementing a revolutionary change in organizations, related to change management and transformational leadership issues.

This thesis is a study about the process of change related to the introduction of a performance enhancing new technology. It will use the case of Air Traffic Management (ATM) Systems for Air Navigation Service Providers (ANSPs).

1.2.2 Research Questions

This proposed study is composed of the fields of Change Management (CM) and Transformational Leadership (TL).

The use of Change Management (CM) in this study is to present an understanding of the process of change which explicitly includes the leadership perspective. The study concentrates on gathering the key concepts of change and focusing on the fundamental role of leadership during the process of change. Two main research questions are:

1. Which phases and plans in the process of change can be identified? The phases are depicted in both the empirical results and a theoretical review to describe the various phases and plans which can be identified in the process of change.

2. What role and impact does the leader play in the process of change?

To study the role and impact the leader plays in the process of change, it will be essential to search the following parts, namely: (1) substance, (2) politics, and (3) context of change, which affect the organization. The details of these considerations are shown below:

2.1 Considering the substance of change; that is, the type and scale of organizational change that is taking place, such as the effect of the introduction of a new technology and/or a new management technique.

2.2 Considering the politics of change; that is, the political activity of consultation, negotiation, conflict and resistance that occurs at various levels within and outside an organization during the process of managing change.

2.3 Considering the context of change; that is, the past and the present external and internal operation environments as well as the influence of future projections and expectations.

The field of transformation leadership (TL) is developed from the question above. It would be of interest to investigate this in the context of leadership, i.e., how a leader can influence this. Adopting a transformational leadership style is considered important and successful in a situation of change. Therefore, it is important to ascertain how the different characteristics of transformational leadership can influence, adapt or transform an organizational identity. Two main research questions of this second part are:

3. Which transformational leadership aspects are expressed in practice?

4. Which transformational components are perceived as the most relevant for leaders and followers in the process of influencing changes in an organization and, ultimately, changing the identity of the organization?

1.2.3 Specific Objectives Addressed

Specific objectives addressed in the research are to:

1.2.3.1 Understand and describe the process of change in organizations, which explicitly includes the leadership and followers' perspectives.

1.2.3.2 Contribute knowledge to the scientific community as well as to improve the performance of the Air Navigation Service Providers (ANSPs).

1.2.3.3 Specifically assess key factors in the ANSPs in relation to the implemented change, provide suggestions for policy makers and develop programmes to overcome resistance to change.

1.2.4 Expectations and Outcomes of the Research

Expectations and outcomes of the research are:

1.2.4.1 The result of key factors and processes of change at an empirical level is a valuable tool for assessing and improving air navigation services for successful change. This service involves safety, quality of service, productivity and cost-effectiveness.

1.2.4.2 The study of managing the process of change related to the introduction of a performance enhancing new technology can help leaders to succeed in the change management process for renewing the organization.

1.2.4.3 This is an in-depth study of the elements of air traffic management systems. It provides a model for implementing the ATM system for air

aviation, and visions related to the theoretical and practical implications of this study can be used to develop the process of change when a performance enhancing new technology is introduced.

1.2.4.4 The study should help CEOs or other agents of change in the future who are involved in implementing change. The result of this study will enable policy makers to make recommendations for appropriate training and development programs concerned with the implementation of change.

1.2.5 Scope of the Research and Limitations

Scope of the research and limitations are:

1.2.5.1 This research addresses the process of change and related managerial issues with particular emphasis on revolutionary change with profound implications for the concerned organization and its stakeholders.

1.2.5.2 Attention is devoted to the moment of transition where a new challenging change process is introduced.

1.2.5.3 There are many organizations involved in managing the process of change. At the empirical level, this research is conducted in the form of a case study of a large organization involved in introducing substantial change. The ANSP in Thailand is the major organization involved. The ANSP organizations of other developing and undeveloped countries are also investigated, but only the group of the CNS/ATM leaders is involved.

1.2.5.4 The main part of this research uses “Grounded Theory” as described by Strauss and Corbin (1990). The theory generated does not require many cases. One case is sufficient to be employed to generate conceptual categories

and a few other cases can then be used to confirm the indication. Grounded Theory investigates the realities and analyses the data with no predetermined hypotheses.

1.2.5.5 Limitations and boundaries of this research: the selected sample of leaders to be interviewed has been limited to executive personnel and project leaders only. They may not always be regarded as having good transformational leadership.

1.3 Importance of the Research

This research seeks to show the importance within the scientific community, and show the empirical legitimacy with which organizations need to improve their performance and capability based on their ethics or morals. An example: Recently, emphasis has been placed on the continuing process of change in all kinds of organizations. Change is or should be treated as a norm rather than a series of one-off exercises (Peters, 1987). Other writers, such as Waterman (1988) emphasize reviewing and renewing organizational structures and processes, and focusing on creativity, innovation and leadership for managing change constantly. Prosci (2010) gives a new definition of change management as “the set of processes, tools and techniques to manage the people side of a change to achieve the desired business outcomes”. Rothwell (2010) referred to Chinese made symbols to describe “change” relating to both danger and opportunity (p.12.). The symbols are shown as:

变化.

It is of paramount importance to recognize that the processes of change affect all kinds of organizations, and that more often than not these changes are legitimised within the framework of strategic and organizational efforts of renewal.

These processes are not easy to implement, which increases organizational resistance to change and related problems.

In this particular case, the empirical study addresses the specific introduction of a new standard governing safety and efficiency in the everyday work of the Air Navigation Service Provider. The degree of performance and compliance to standards that organizations such as the ANSP can attain is vital not only to them but also to the general public.

Thus, this research is important for the scientific community and academics of organizations. The significant actor in question is the participants involved in ANSPs. The empirical objects involved are leaders who are relevant persons in managing a process of change related to new technology. Air Traffic Controllers and Air Traffic Service Officers are the main participants. This study concentrates on personnel in the ANSP organization in Thailand. For increasing validity at the empirical level, this study also involves actors in ANSPs of other developing countries moving towards introducing this new technology. Furthermore, this study received some insight and information involving ATM systems from Swedavia, Swedish consultants with experience in implementing the new system in Sweden and Norway. Finally, this study has obtained knowledge, advice and information from ICAO experts involved in the drive to implement new communications, navigations and surveillances, including air traffic management systems. Both the Swedish consultants and ICAO experts have identified the reliability of data and current situation for this research.

Today, changing in the organizational environment is unavoidable and 'effective change management' is likely to become a critical 'organizational

performance and capability'. Therefore, the results of this study will have real implications in managing the process of change for leaders and policy makers.

1.4 Structure of the Thesis

The major concern of this study is the understanding, description and analysis of the process of change related to the introduction of a performance enhancing new technology within organizations. The study attempts to develop schemes of interpretation of these complicated processes of change. The specific contents are structured and illustrated as follows:

Chapter one introduces the research area, the research issue, the importance of the research being undertaken, the research questions, the objectives and expectations, and the prospective outcome, as well as the scope of the study and its limitations. The structure and conceptual outline of the thesis are also presented in this Chapter.

Chapter two is primarily concerned with the theoretical framework, and the review focuses on the relevant literature examining Change Management.

Chapter three is also mainly concerned with the theoretical framework; the review focuses on the relevant literature examining Change Process Models, Leadership and Leadership Change Models.

Chapter four, again mainly concerned with the theoretical framework, reviews the relevant literature examining the area of Transformational Leadership. Summaries and conclusions are derived from this review, and a conceptual model is presented.

Chapter five essentially presents the research methodology, including the data collection procedures and scheme of interpretation. It addresses and argues the compatibility of the method used and the type of problem at the heart of the research. In this Chapter, a discussion of qualitative and quantitative approaches is conducted.

Chapter six presents the empirical investigation and the organization of this case study. Significant actors are involved with the change in relation to the introduction of a demanding new technology. In this Chapter, the key indicators relating to safety, quality, productivity and cost-effectiveness are identified and described. This Chapter also includes the empirical description of the necessary change processes of Air Navigation Service Providers (ANSPs) in order for them to reach a level of significant performance.

Chapter seven presents the results of the study. In this Chapter, explanatory elements of change management and transformational leadership related to change processes are presented and discussed. Furthermore, the significance of the key empirical indicators is presented and analyzed against the background of the theoretical framework.

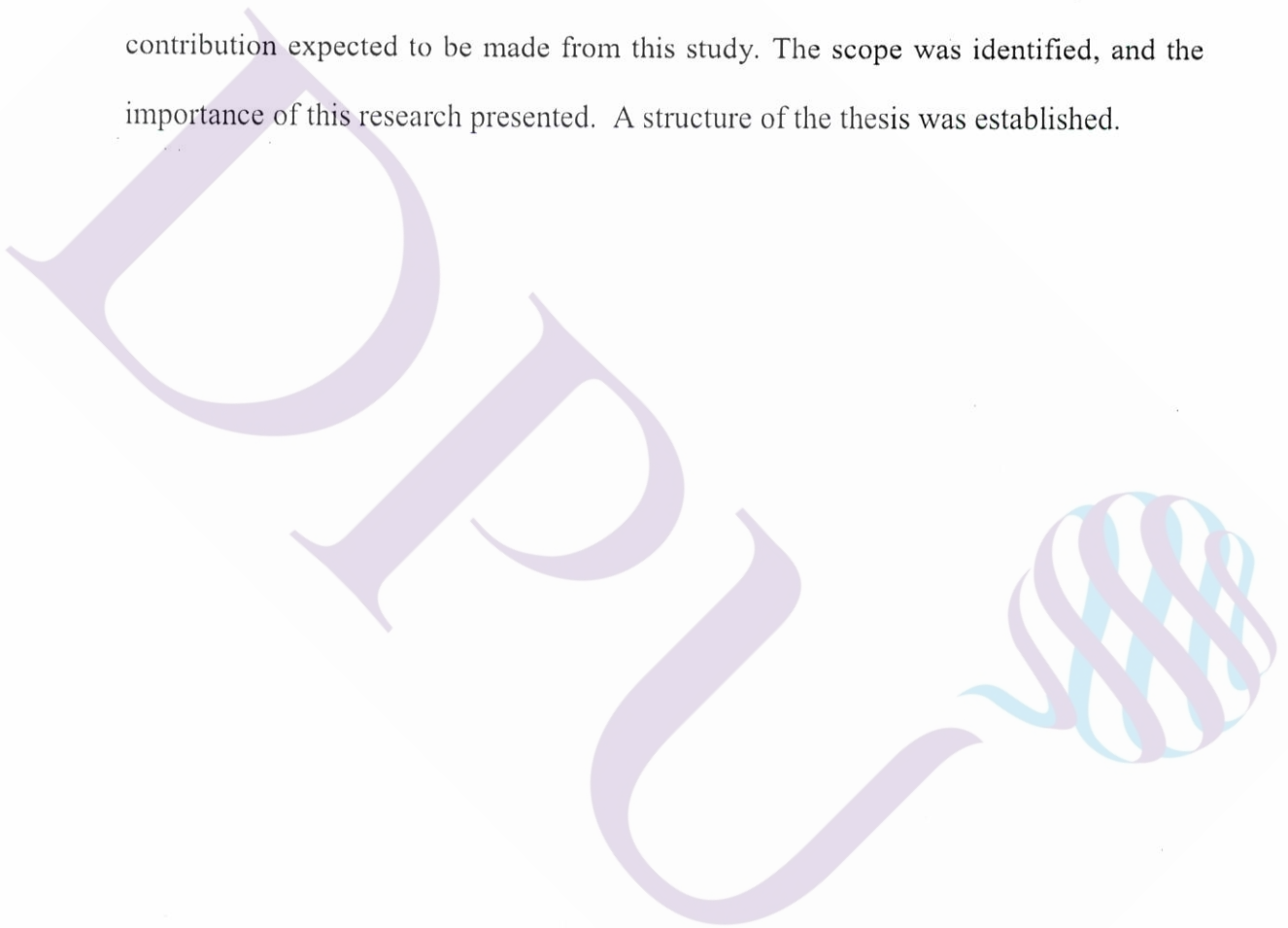
Chapter eight summarizes essential dimensions extracted from the whole thesis focusing on the most significant aspects and drawing adequate conclusions; conclusions from the results of the analysis from Chapter seven are also drawn and finalized. Subsequently, the implications of these results are presented, and recommendations are for future research also identified.

The appendices present the new technologies which will be employed in future. Questions used for the interview and survey are shown. The case of empirical

background of AEROTHAI (ANSP) is described. A glossary of terms and abbreviations indicated throughout this thesis are presented in the appendices.

1.5 Conclusion

This chapter has introduced the foundation for this research. It has provided the research area, research background and research issues along with the contribution expected to be made from this study. The scope was identified, and the importance of this research presented. A structure of the thesis was established.



CHAPTER 2

LITERATURE REVIEW: Change Management

2.1 Introduction

Chapter two is mainly concerned with the theoretical framework and the key concept and models. The review focuses on the relevant literature examining the process of change.

The aim of the literature review is to develop a conceptual model of managing the process of change related to the introduction of a performance enhancing new technology. The conceptual model developed is based on change management and transformational leadership literature. The main part of this research focuses on the theoretical framework of the process of change, specifically including the leadership perspective. This study proposes to indicate that the influence of transformational leadership and the leader's actions is relevant and necessary to the implementation of successful change. This research issue treats the impact, influence and role of transformational leadership in the process of change for Air Navigation Service Provider (ANSPs) organizations.

The part of the study is divided into three Chapters, each focusing on one 'piece of subject' in order to define the extent of literature, namely; change management (Chapter 2), change process model and leading change model (Chapter 3) and transformational leadership model (Chapter 4).

2.2 Theoretical Framework of Change Management

2.2.1 Understanding of Change - Change within Organizational and Business Systems

This study proposes that in the modern economic world, the process of change is a critical issue for organizations and for private companies in particular. Since the industrial revolution, the stakes of handling change have never been so high.

In our actual economic climate, most traditional and successful organizations have accepted the fact that they must constantly evolve or be doomed to disappear; they have to change or die (Beer and Nohria, 2002). Due to internal and/or external causes, a process of change has to be implemented within each organization at some stage of its existence. It can also be initiated to meet certain market growth expectations, or to foresee and adapt to eventual problems. Adapting to and changing these factors is the key to survival for organizations; it is especially true for private companies. Elrod and Tippert (2002) have claimed that change is “pervasive - it is a constant and common element that impacts humankind individually and organizationally, day in and day out” (p.273).

As De Wit and Meyer (2004) argued in their book “Strategy: Process, Content, Context: an International Perspective”, “It is not a question of whether firms should change, but of where, how and in what direction they must change. Firms must constantly be aligned with their environments, either by reacting to external events, or by proactively shaping the businesses in which they operate” (p.164). Therefore, a distinction can be made between planned and unplanned change. Planned change is a deliberate and conscious decision to improve the whole organization in a way, or maybe to change the system in a more deep and fundamental

way. An unplanned change happens when the organization has to react to some unanticipated external change. (The appearance of a new technology for each country that provides an Air Navigation Service, for instance). In unplanned change, the response is adaptive and often spontaneous.

Organizations and firms in particular are complex, different and more complicated than ever before. In order to have a clearer glimpse at and insight into the deep implications of change for these firms, a clear distinction has to be made in an organization which conducts its own business, handles and manages its limited resources, and organizes the production of services, and products, and how it is able to give value to customers. The organizational structure refers to the division of tasks and people into smaller clusters. According to De Wit and Meyer (2004), all organizations need at least some division of labour in order to function efficiently and effectively, requiring them to structure the organization in smaller parts". They also argue that the organizational system would consider "how the individuals populating a firm (organization) have been configured, and relate to one another, with the intention of facilitating the business system" (De Wit and Meyer, 2004, p.165).

The structural change concerns the parts and configuration of the organization. When the structure is to be changed, some functions and/or departments have to realign themselves to the new structure. Some parts can be decommissioned or transferred due to inefficiency or inaccuracy, etc. Many techniques can be used by the leader to change the structure of the organization, and the following techniques are the ones which are the most used in the corporate world for restructuring (Robbins and Cenzo, 2005).

The first method which can be used is *downsizing*. This involves focusing all the efforts of the organization on the most beneficial activities and abandoning the other ones which are not profitable or not profitable enough. It means concentrating on the core business of the organization, cutting costs and earning maximum profits. The second method is *delaying*. This implies focusing all the efforts on the most profitable activities and transferring the other ones to other parties (concurrent, suppliers or subsidiaries). The third technique is *divesting*. It means the selling of all unneeded equipment. A deep physical shift also happens when the organization grows and especially when mergers occur. Then, not only has the change had an impact on the structure but on the corporate culture as well. When a change occurs in an organization on a structural level, the authority relationships within the hierarchy are temporarily or definitely modified. These shifts break the status quo and people have to adapt to a new emergent order and hierarchy. The responsibility might be held by different people and at different levels. After a change has occurred, the process of control can be either made at the top or at the bottom of the organization. In the modern economic world, control is more than often done at lower levels for large organizations and at higher level for smaller ones.

It would be fairer to make a brief comparison of the modern Western management model and other management models that exist, e.g. the Japanese model and the Swedish model, since there are different systems existing in the modern economic world. According to Masaaki Imai in the book "Strategy process, content, context" (De Wit and Meyer, 2004), a Japanese management style, continued improvement or an on-going improvement that embodies the working, social and or home life. Job functions from the Japanese perception include every segment of the

organization and entail improvement and maintenance. "Consensus, the hidden code of Swedish leadership" is a book written to highlight the enigma of the Swedish leadership style of getting everyone to agree at all levels of decision making (Alexander, 2008). This includes emphasis on team-work, coaching, and a non-confrontational style of communication. All these could be described as a Swedish model of management styles. However, the western management system is seen as individualistic and vertical, and is often standardized with not much room for flexibility.

When change in an organization happens, it is of the utmost importance to take into account the peoples' perspectives. The difference between failure and success in implementing change in an organization depends highly on the people themselves. The agent of change has to focus on their attitudes, expectations, perceptions and behaviour while implementing change. Therefore, changes at the individual level are designed and implemented to facilitate the organization to move in a new direction. In their article "The tools of cooperation change", Christensen, Marx and Stevenson (2006) argue that "managers can use a variety of carrots and sticks to encourage people to work together and accomplish change. Their ability to get results depends on selecting tools that match the circumstances they face" (p.73). They also assessed that the primary key of management is to make people work together in a systematic way. The authors give us the example of Durk Jager, the former CEO of Procter and Gamble (P and G). He unfortunately failed in implementing a restructuring program which had the aim of changing P and G's culture. The main reason of that failure is that Jager did not include the employees in the process of change, which is, according to the authors, "a vital requirement of all

change campaigns” (Christensen et al., 2006, p.73).

According to Christensen, Marx and Stevenson (2006), before starting any change initiative in any organization, the level of agreement must be assessed along two critical dimensions. The first is “the extent to which people agree on what they want: the results they seek from their participation in the enterprise; their values and priorities; and which trade-offs they are willing to make in order to achieve those results (Christensen et al., 2006, p.74). The second dimension is “the extent to which people agree on cause and effect, which actions will lead to the desired outcome. When people have a shared understanding of cause and effect, they will probably agree about which processes to adopt” (Christensen et al., 2006, p.73). Their “Agreement Matrix” shows those dimensions. The vertical axis shows agreement by an organization’s members on what they want; the horizontal axis shows their agreement on cause and effect. The employees on the upper-left quadrant (A), for example, share expectations for what they will gain from being part of the organization, even though each might have a different vision of what actions will be needed to fulfil these hopes. In the upper-right quadrant (B) are located companies whose employees agree on what they want and on how to get there. A clear consensus on the two dimensions makes the organization’s culture considerably hard to change because “the people are generally satisfied with what they get out of working in the organization and agree strongly about how to maintain that status quo” (Christensen et al., 2006, p.73). Many organizations on the lower-right part of the matrix (C) are the ones which use many contractors. There is little passion for the goal of the company, but the procedures will be followed if the latter feel that the actions will produce the desired results. Finally, the lower-left quadrant (D) is the

locus where participants do not agree on what they want and on how the world works. There is no best position in the matrix and the relevance of this tool is to pinpoint where the organization is and to know (for the leader) the exact degree of the people's acceptance for change (Figure 2.1).

Another aspect of change from an individual perspective is better recruitment, selection and replacement (Burke, 2002). Here, the purpose is to recruit, place and keep the right people in the right functions and jobs in order to facilitate the larger change effort. The objective of the selection process is also to find people who are compatible with a participative and positive approach within the organization. The replacement approach is to recruit a new leader from inside the organization. However, in many cases, he/she is hired from the outside. This move brings new input, approaches and leadership style to the organization.

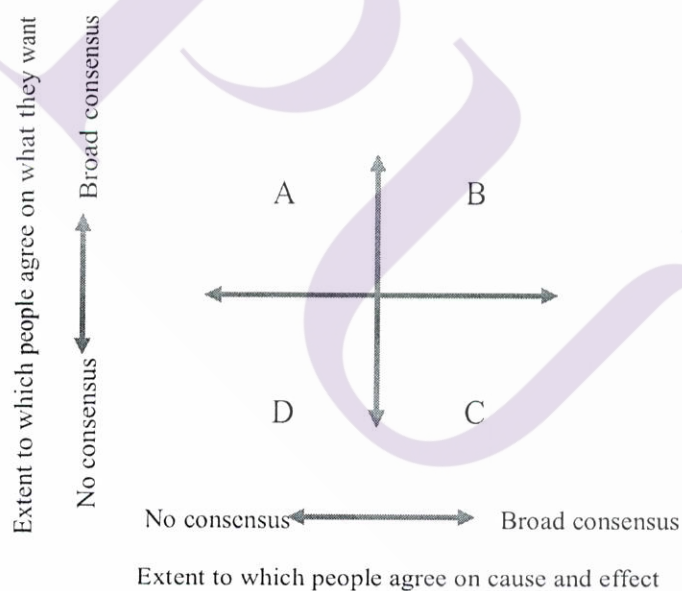


Figure 2.1 The Agreement Matrix

Source: Author's Figure based on "The tools of cooperation and change", Christensen, Clayton M., Marx, Matt and Stevenson Howard H., (2006).

The change in technology therefore also has an impact on the activity of the organization. New methods and new processes of work, when implemented, have to be taken into account as well. The implementation of new software, for instance, will lead to some adaptations from the people in an organization. New techniques of work can also be implemented. Again, usual ways of carrying out tasks are deeply modified, hence triggering an uneasy re-adaptation. Due to external shifts in the environment, the organization has to be cautious of the perspectives and opportunities. The organization might change its technology in order to stay competitive in the market or to become a first-mover. However, it is not that simple. Organizations which have committed a large amount of resources and capital to some technology will be less flexible for change. "Any gradual movement away from the past investment will increase the risk of not earning the big amount of sunk cost" (De Wit and Meyer, 2004, p.172). Besides, organizations can also be locked into an "open standard (e.g. sizes in inches) or proprietary system (e.g. Windows operating system)" (De Wit and Meyer, 2004, p.172). Once an organization has implemented a system, switching to another system cannot be introduced with low-cost and can only be achieved with a revolutionary change.

In addition, change can be observed at a business system level. Organizations, and private companies in particular, have their own way for taking inputs, adding some value to them in some way and selling these kinds of new products/services as outputs. The business system of a company is typical and specific to the type of business it is in. The organizational and the business systems are closely intertwined. Consequently, if a change is implemented in the business system, it will have an impact on the organizational system and vice versa. Therefore,

a “business system is successful only if it creates superior value for the buyers” (De Wit and Meyer, 2004, p.164). Its characteristics are threefold, and change can be focused on these three aspects of the business system (De Wit and Meyer, 2004).

Firstly, the value propositions: “In order to attract more customers and to fit more closely their needs, an organization should be able to supply a particular product or service. To be attractive, these outputs must target a particular segment of the market and have superior attributes compared with other ones (e.g. the price, the image...)” (De Wit and Meyer, 2004, p.231). A change is required if the products or services proposed do not match the customers’ expectations for any reason. Secondly, a successful organization must also have the ability to develop and supply these superior products or services and make the value-adding activities in an efficient way (R and D, logistics...). At this point, the technological aspect is important. When machines, materials and tools become obsolete, they should be changed in favour of more recent ones. Thirdly, the element of a business system consists of the base of the resource needed to perform the value-adding activities (know-how, relationships). These elements can serve as a basis for a superior product/service offering. In order to create a competitive advantage, an “alignment must be achieved between all three elements of a business system”. A change in any of these three aspects can be needed at some point in the organization’s existence (De Wit and Meyer, 2004, p.232).

2.2.2 Discontinuous and Continuous Change

There is no disagreement/agreement that the opposition between discontinuous and continuous change is the angular point of the modern change process approach. These aspects have been discussed thoroughly during the past

decades and are still debated and discussed. Authors of the field agree to say that change can be continuous (evolutionary approach) or discontinuous (revolutionary approach). De Wit and Meyer qualify these two elements as “the dichotomy between discontinuous renewal perspective and the continuous renewal perspective” (De Wit and Meyer, 2004, p.182). In certain situations, an abrupt change would be more suitable than a continuous one. The characteristics of the discontinuous renewal perspective are revolution over evolution, disruptive innovation, creative destruction, radical pace of change, sudden break of the status quo, a stable and unstable alternation of states and a punctuated equilibrium (De Wit and Meyer, 2004, p.182). This approach is more common to Western world companies. An example of a discontinuous renewal perspective is the Splitting of British gas in 1997; De Wit and Meyer (2004) consider an international perspective. The radical move was a response planned of the liberalization of residential market consumption. The retailing arm of the British gas company reacted by radically defining its business from gas provision to essential household services in order to sustain its existence. This company built for itself a competitive edge and transformed the entire organization towards a client centred service provider. Within 3 years, the company expanded its product to include everything needed. By 2001 it had a 90% customer relationship with all British households.

However, a continuous change, in other words the continuous renewal approach, would work better than a violent upheaval in some cases. The main characteristics of this approach are: Evolution over revolution, uninterrupted improvement, organic adaptation, moderate and undramatic change, gradual and steady pace of change, continuous adjustment, and a persistent transient state and

gradual development (De Wit and Meyer, 2004). This approach is common to the style of change which is preferred in Japan.

Revolutionary change is a process whereby an abrupt and radical change takes place within a short span of time. This kind of change does not aim to ameliorate or enhance the status quo: its purpose is to get rid of it and to replace it with a new order. Revolutionary change makes a clear break, a clear fracture with the past and its usual ways of thinking and doing. Generally, this happens when the organization is so deeply rooted in its routines, habits and procedures that no smaller changes can be effective anymore. In that case, revolutionary change is then the only way to avoid paralysis and rigidities in the business and organizational systems. The most important factors which will trigger a revolutionary change are competitive pressure, regulatory pressure and first-mover advantage (De Wit and Meyer, 2004). In this post-modern era, organizations have to deal with as much chaos as order and change is constantly dynamic (Kavanagh and Ashkanasy, 2006).

This study found that several examples in economic life indicate how important the organizational identity is for success. A number of theoretical and conceptual models and theories to be used and developed as analytical tools of the process of change are shown below:

1. Evolution and Revolution: Dealing with the paradox are presented in

Figure 2.2

Evolution and Revolution:

Dealing with the paradox

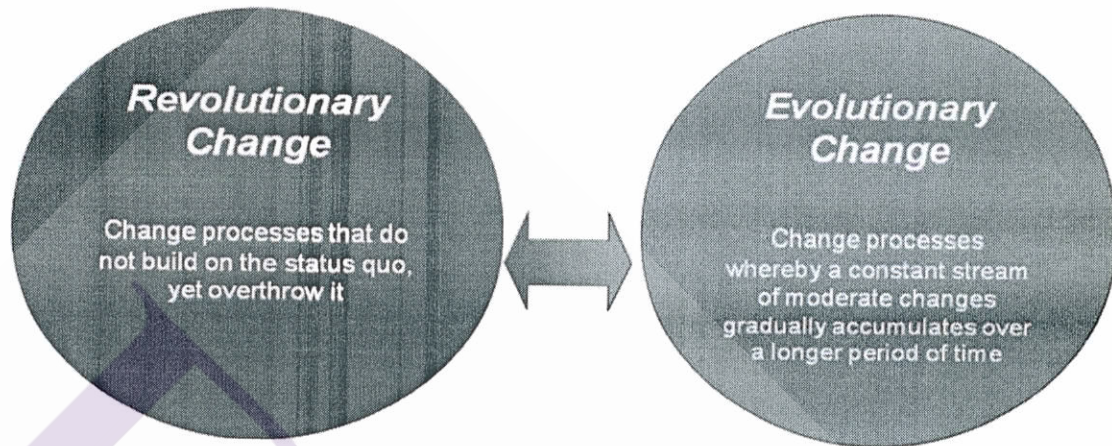


Figure 2.2 Evolution and Revolution: Dealing with the Paradox

Source: Synthesis from De Wit and Mayer (2004).

2. Reengineering work is presented by Hammer (1993). He shows that it is a fundamental rethinking and drastic redesign of business processes to accomplish dramatic improvements in critical, contemporary measures of performance: in cost, quality, service and speed, for example (Hammer, 1993). Figure 2.3 presents reengineering work by Hammer (1990).

Reengineering work

The Essence

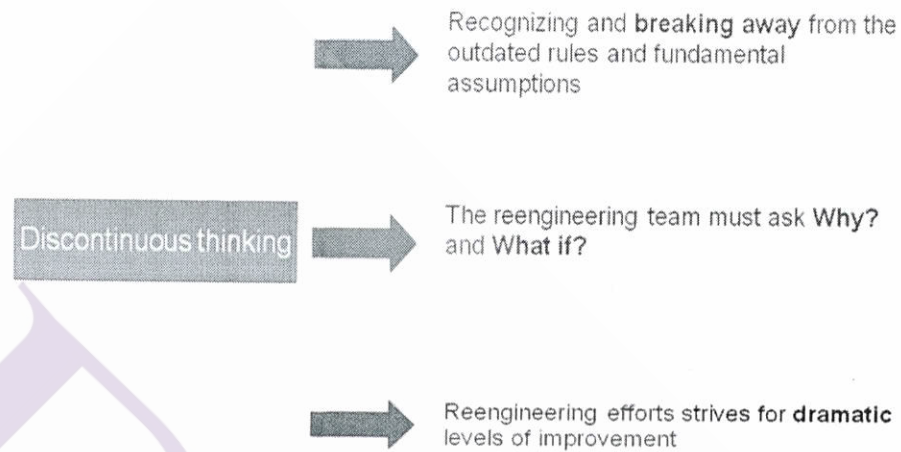


Figure 2.3 Reengineering work

Source: Synthesis from Hammer (1990), as cited in De Wit and Mayer (2004)

3. Convergence and Upheaval is presented by Tushman and Romanelli (1985), who stated the scope of Frame-Breaking Change in the model shown below:

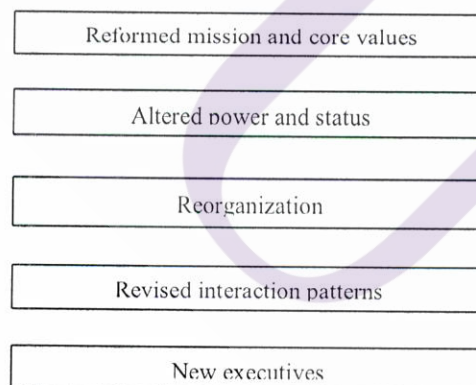


Figure 2.4 Scope of Frame-Breaking Change

Source: Synthesis from Tushman and Romanelli (1985)

2.2.3 Typical Organizational Rigidities to Change

“I'm not interested in preserving the status quo; I want to overthrow it.”

Niccolo Machiavelli (Brainy, 2010).

In 1948, one year after Lewin's death, Coch and French (1949) published their pioneering paper entitled “Overcoming Resistance to Change”. Their research, which bred a large number of studies, was conducted at the Harwood Manufacturing Company, a pyjama factory located in Virginia USA (Coch and French, 1949). The study focused on two main questions: Why do people resist change so strongly? And what can be done to overcome this resistance? In their work, both authors have identified many ways in which the resistance to change is apparent in the workplace: The signs of this resistance ranged from “grievances, high turnover rates, low efficiency levels and restriction of output” (Elrod and Tippett, 2002, p. 273). Their paper was the first attempt to address the exact role of participatory management in reducing the resistance to change. They assert that in order to implement change in organizations without active resistance, the employees themselves have to be included in that process. Without implicating the people into issues which concern their work directly, the companies risk ruining the potential of a change, or even amplifying a problem. According to Coch and French (1949), “because individual and group behaviour in an organization are largely determined by group norms (fundamental to the organization's culture), the changing of certain of these norms and their accompanying values that are integral to culture needs to be a major focus on an organization change effort” (Burke, 2002, p.52). Additionally, many resist change because of the uncertainty and ambiguity which accompanies any shift in the old way of doing business (Burke, 2002,). The more people become accustomed to

organizational routines and habits, the more their ability to learn constantly decreases. New business methods and new ideas are not seen as good opportunities to learn but as unwelcome annoyance in the existing system. Elrod and Tippett (2002) refer to Deal and Kennedy, 1982: “the significant barriers are raised whenever change is not recognized as loss, as the death of the old” (p. 273). In reality, the people who do not recognize the loss shall be doomed to stay in the “denial state” which is a common occurrence in most models of change. Making these people perceive, understand and accept the change is an important part of the change which is to be implemented. To develop, they acquire a more global point of view, which increases understanding that change is a natural progression. They begin to accept change, “if not, actually welcome it” (As cited in Elrod and Tippett, 2002, p. 273).

Moreover, De Wit and Meyer (2004) argued that the stronger the organizational culture is, the more efficient in terms of performance it is. However, the drawback is that a stronger organizational culture makes it more difficult and rigid to change. If, for example, the environment necessitates the organization to change dramatically, a strong culture can struggle against or even prevent the efforts for change. Therefore, in short, organizational culture is a double-edged sword. People can also become immune or reluctant to change. It can be even harder to implement change if everyone thinks the same way. If everyone has wrong assumptions about the markets and the opportunities to embrace change, changing these mentalities is not an easy task. The organizational belief system has to be reshaped to implement smooth change within the whole organization. Nadler suggested that “for effective change to occur, and in particular cultural change, there is no substitute for the active engagement of the CEO and executive team. Top leaders must assume the role of

chief architect of the change process” (Kavanagh and Ashkanasy, 2006, p. 83). Here, they put the emphasis on the leader and his or her significant actions. Apart from this, in order to remove cultural resistance to change, the involvement of the people (employees, workers, etc) is an important factor to take into account. According to Cartwright and Cooper (1993), “one of the most common difficulties stems from what might be called ‘cultural differences’” (As cited in Kavanagh and Ashkanasy, 2006, p.83). The key in choosing the best approach to culture change is to keep in mind the way the organization works. As social systems which include people, work, and systems (formal and informal), organizations are, by essence, resistant to change and designed to neutralize the impacts of the implementation of change, the organizational cultures are neither uniform nor static. They evolve constantly over time. Weick (1995) claimed that every cultural system will cover continuous, incremental changes punctuated on occasion by more episodic, radical change. Finally, Kavanagh and Ashkanasy (2006) agreed that “culture change consists of changing people’s minds as well as their behaviour” (p.84).

The degree of cultural resistance, in the case of a merger for example, depends on the cultures of both blended entities. Cartwright and Cooper (1993) have suggested that “the degree of constraint placed on individuals when a change from one culture type to another is in progress, will depend on the types of cultures being merged” (Kavanagh and Ashkanasy, 2006, p.84). They relate this approach to the four culture types which are: power; role; task achievement; person/support. Blending an organization which is “power culture oriented” with another one which is “person/support oriented” is not likely to work unless huge efforts are made to adapt one culture to the other (Figure 2.5).

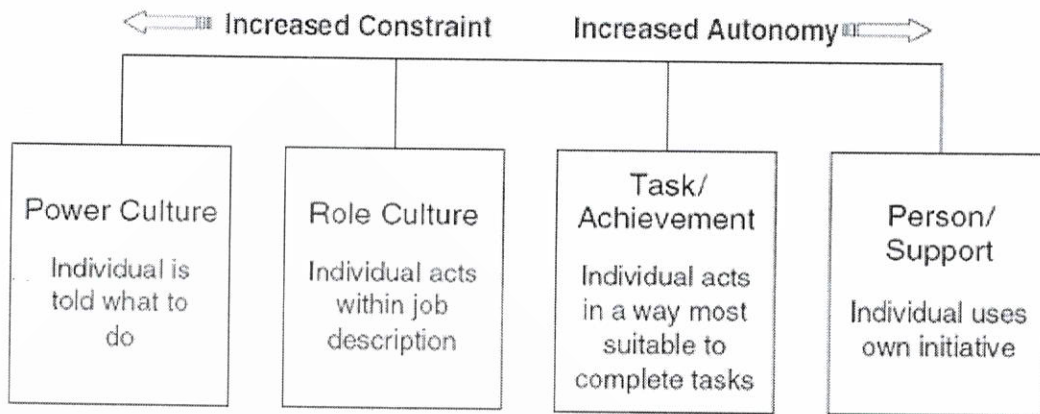


Figure 2.5 The Relationship between Culture Types and Individual Consequences

Source: Kavanagh, Marie H. and Ashkanasy, Neal M., (2006). *The Impact of Leadership and Change Management Strategy on Organizational Culture and Individual Acceptance of Change during a Merger*, British.

Moreover, in all change processes, there are winners and losers. The winners are people who had nothing to lose but everything to win in the aftermath of the change. These were probably motivated, active and creative people towards change. On the other hand, the losers are the ones who put a large amount of time and effort into keeping the current situation and who want to preserve all the benefits, advantages and power they have earned. They are the fierce defenders of the status quo and will strongly resist the implementation of change. When this kind of resistance is spotted, one needs to counter it either with negotiation or by trading something of value for something else of value.

Furthermore, this study found that several other researchers discovered why the change is resisted by certain organizations. Metzger (1981) concluded that resisting the change is part of every project. Change is also problematic in any

development project, and a variety of problems come up when people resist change. People require a sense of security and this is achieved through stability; resistance to change can lead to a lack of commitment to change. Lewin (1951) identified that increased worker knowledge; empathy and involvement are all methods that reduce the resistance to change. These methods also allow the change effort to overcome that resistance.

2.2.3.1 Resistant of Management Change and Transition

According to The Harvard Business Essentials - HBE (2003), an organization does not have to wait for a crisis before change is possible. Although several successful change programs grow out of crisis (such as with Ford's "change-or-die" story repeated at Continental Airlines), HBE (2003) also pointed out that various approaches can be accomplished. They believe that the change leader is important, as he can raise concern regarding a current, problematic situation, and urge management to challenge the complacency without resorting to "crisis mode" tactics. A list of challenging complacency approaches for accomplishing change management suggested by Beer and Nohria (2002) is shown below:

1. Use information concerning the organization's competitive situation to generate discussion with employees about current and future problems.
2. Communicate and participate with employees in order to create opportunities for employees to inform their dissatisfaction and problems.
3. Create dialogue on the data with employers to aim for a joint understanding of company problems.
4. Set high standards and expect people to meet them.

The Harvard Business Essentials (2003) indicated that any time when people expect resistance, they perceive themselves as losers in a change. Resistance may be passive, in the form of non-commitment to the aims and the process for reaching them, or active in the form of direct resistance and subversion. The Harvard Business Essentials (2003) also recommends the method to deal with the resistance by identifying potential resisters and trying to redirect them. Samples are shown below:

- Start to answer the questions, “Where and how will change create pain or loss in the organization?”
- Identify people who have something to lose, and attempt to predict how they will react.
- Communicate with resisters to help them understand the reasons why it is necessary to change. Explain the urgency of changing away from established routines or arrangements.
- Emphasize the benefits of change to potential resisters, such as the possibility of greater future job security, higher pay, etc.
- Help resisters find new tasks in the change project. These new roles will represent their participation in the change management. Resisters losses will be mitigated.
- Many people resist change because it represents a loss of control of their routines. Therefore, a leader can return some of that control by making them active partners in the change program.

If these intensions fail, move resisters out of your unit to positions where their skill can be better used.

In summary, this study attempts to understand the opponents to change and why they have to resist. Several examples of theoretical and conceptual models and theories are used as analytical tools of the process of change during implementation:

1. In particular change management, it may be advantageous to combine evolution and revolution in a countercurrent process as shown in Figure 2.6.

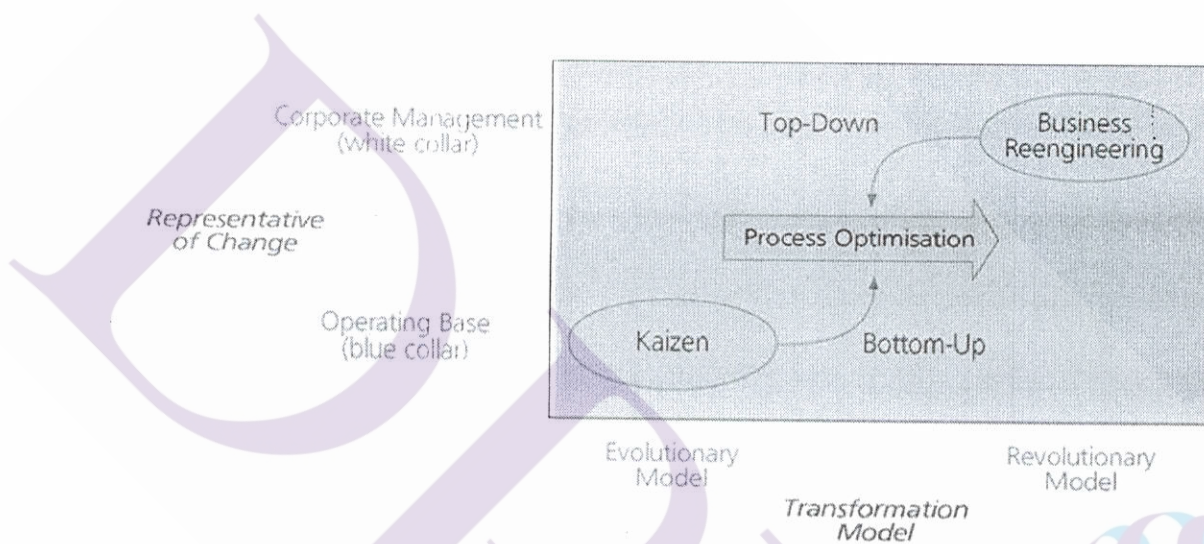


Figure 2.6 Corporate transformations as a Countercurrent process

Source: Kruger (1996), corporate transformation as a countercurrent (as cited in De Wit and Meyer, 2004)

2. De Wit and Meyer (2004) argued that the stronger the corporate culture, the more effective it is, and it is more difficult for changing, as described in Figure 2.7.

Corporate culture is:	Up to date	Not up to date
Strong	'Accelerator'	'Fossilisation'
Weak	'Mild Breeze'	'Flat Tyre'

Figure 2.7 Effects of Individual Corporate Cultures

Source: Kruger (1996)

3. Sathe and Davison (n.d.) agree that “culture change consists of changing people’s minds as well as their behaviour” (Kavanagh and Ashkanasy 2006, p. 84). Attitude is related to the thinking about actions and so forth. Behaviour is relative to the actions that are performed by people. Kruger presented the actor of change as shown in Figure 2.8.

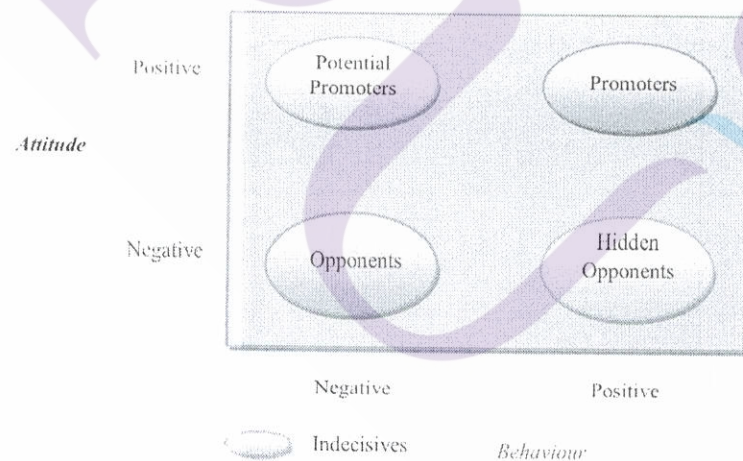


Figure 2.8 Actors of Change and Their Behaviour

Source: Kruger (1996)

2.2.4 Factors Important to Successful Change Management

Branch (2002) indicated that success in change management requires skilled management, effective leadership and employee engagement and participation. Success is unlikely if the following basic considerations are not addressed effectively:

2.2.4.1 Providing Structure for Change

The strategy for success is not easy to define because there are uncertainties from changing of the external environment (Christensen, 1997). Processes are not as flexible as resources and values because they need new capabilities. Therefore, new organization space is needed to develop those capabilities. There are many ways to develop:

1. Creating new organization structures within boundaries so that the new process can be developed;
2. Creating an independent organization from the present one;
3. Acquiring a different organization that matches the requirement of the new task.

2.2.4.2 Leadership

Senior leaders' sponsorship and participation are important for the success of change initiatives (Kanter et al., 1992; Goodstein and Burke, 1995). Change leadership must be spread throughout the organization, and an effective leadership network must be established to overcome resistance and inertia within it. Leaders are needed to provide vision, meaning, inspiration, and conviction, demonstrate integrity, generate trust and communicate values. Different leadership styles have different effects on aspects of organization climate (Young and Dulewicz, 2006). Moreover, numerous studies have identified leadership and participation by

top management as the single greatest contributor to success in change management (Branch, 2002).

2.2.4.3 In-depth understanding of the existing organization

An organizational assessment needs to be done in order to find out where the organization is in the growth or lifecycle, so that the change process can work 'with the flow of the tide rather than against it' (Branch, 2002).

2.2.4.4 Balance and organization learning to make strategic and effective use of change mechanisms

It is still useful for organizational leaders to analyze available information to identify what needs to be changed in order to prepare the organization to be successful in its current and future environment.

2.2.5 Failure in Change Efforts

According to the statistics from Harvard Business Essentials (2003), only about 30% of organizations produce an improvement in bottom-line results that exceeded the cost of the capita. Beer and Nohria (2000) state that 70% of change initiatives fail. Some studies indicated that most change management fails while exerting a heavy economic and human burden in the organization.

Reasons for failure:

- To achieve and sustain change, the way of thinking in the organization must not be changed.
- Change management goals and methods are not transparent enough to make employees willing to take risks.

- Change is implemented in the short term with close attention to interruptive aspects. Organizations need to plan for the long term, not skipping any steps.

- It may be more difficult to create the necessary conditions in new firms than in existing ones.

Comparatively, Prosci (2008) in addition indicates that change management fails because of:

- No active and visible participation throughout the project;
- No effective communication with employees;
- No coalition of sponsorship with peers and managers.

2.2.6 The Application of Change Management to the Public

Understanding the process of change and ability to manage changes in basic research are essential tools for the science manager.

Young and Dulewicz (2006) studied leadership styles, “Change Context and Leader Performance in the Royal Navy.” They considered the competencies forecasting superior performance in the Royal Navy. Attention was paid to measures of leadership style and degree of change experienced by the organization. Employing the leadership Dimensions Questionnaire (LDQ) model, it was suggested that one of three leadership styles would be suitable for a particular degree of change in an organization.

It was shown that individuals whose leadership was likely to be suited to the organization context of change rated a significantly higher performance than those obviously not suited. The organization performed to have goal orientated leadership among officers. The LDQ measure of self-rated performance indicated

that those individuals with more accurate self awareness of their own performance were more likely to adopt a more appropriate leadership style for the organizational context of change.

Robertson and Seneviratne (1995) include changes in technology and physical setting to manage change, which can be achieved by grouping them with organization arrangements and social factors into a category they label organizational work setting. Their model of the organizational change process is composed of three phases: (a) Organization work setting is made up of: Organization Arrangements, Social Factors, Technology and Physical Setting; (b) Individuals change their behaviour; (c) Individual behavioural changes affect organizational performance and individual development, which are the key organization outcomes.

In summary, leaders' understanding and ability are required to manage change. Individual behavioural changes affect individual development and lead to organizational performance.

Organizations face a high rate of failure when introducing technological change according to Collette, Pallegris and Manghi (2006). Their article presents the results of a study conducted on the end-users of a successful technological change in a police service. It describes the method used to manage the transition, and pinpoints a number of factors related to the success. This change was introduced without undesirable side effects. It seems that the guidance provided to the end-users played a determinant role.

In this current study, it was found that a Theoretical Framework used to introduce a change was a complex process, with various stages. In the case of the research above, they focused mainly on the transition period (Bridges, 2003), and

relied largely on the model proposed by Collerette et al. (2006). Based on this model, the critical issues of the transition period can be formulated as follows:

- A technological change simultaneously involves human, social and organizational dynamics.
- The impacted people want to understand the reasons justifying a change that will interfere with their usual way of working
- The impacted people become defensive when they feel neglected, left to themselves or disrespected.
- Since the transition period is critical for technical, social and human dimensions, it brings a high level of unpredictability at all levels.
- During a transition, impacted people are prone to increased tiredness, a sense of personal failure, and confusion in work execution.
- The transition implies an individual and collective learning process, which does not take place by itself; it needs to be led and facilitated.
- During transition, because of the pressure they undergo, impacted people may be more irritable than usual.
- Productivity, quality of work and effectiveness of impacted people (and work units) are likely to decrease during the transition period.
- People will be very sensitive to opinion leaders and will easily be influenced by them, especially if management shows little involvement in the change process.
- People will be very sensitive to management behaviours. They will calibrate their own involvement in the change process based on the level of interest they perceive from management.

- The transition period brings on a work overload to end-users. Indeed, appropriation of the new procedures demands energy in addition to usual operations, which are usually maintained at their regular level, while new behaviours have not yet been integrated.
- There is a risk of conflicting priorities during transition, which can make end-users confused about the real expectations from management.

2.3 The Concept of Change Management for the Theoretical Framework

One of the fastest growing sectors of the world economy which plays a major role in global economic activity is the air transport industry. One of the key functions is to maintain safety and efficiency. The implementation of ATM systems allows optimum use to be made of enhanced capabilities provided by technical advances (ICAO, 2007). ICAO attempted to address the needs to all countries for implementing the new CNS/ATM systems. From this point, ICAO (2007a) states that a number of states and “all ICAO regions embarked on an implementation programme intended to improve aviation operations by making use of the CNS/ATM technologies” (p.iii). Therefore, the purpose of this thesis is that it can be used as a guide for all leaders to drive the change to the new CNS/ATM technologies from the real implication of the empirical study.

The study found that change management is significant for all private and public organizations nowadays. From the literature, this study can identify that the process of change is a crucial issue. The implication of the following concepts to meet the purpose of this study have involved the literature review as shown in Table 2.1.

Table 2.1: Managing Change Concepts of the Framework are different from the Literature.

	Concept	Representatives Author/Year	Differences between the framework of this study and literature review
1	Managing change is a "Process"	Bridges and Bridges (2003) ; De Wit and Meyer (2004)	Managing change is a process which is different from the literature. This study has provided techniques for breaking into 4 practical phases which are as shown in the conceptual framework in Figure 4.7.
	Concept	Representatives Author/Year	Differences between the framework of this study and literature review
2	Managing Process of change		The framework is also composed of the substance, politics and the context of change in the process as shown in Figure 4.7.

Source: Developed for this research based on a literature review

Table 2.2: Managing Change's Concepts of Framework are similar to the Literature

	Concept	Representatives Author/Year	The framework of this study is similar to the literature
1	Understanding of change	Beer and Nobria (2002); Elrod and Tippert (2002); De Wit and Mayer (2004);	Successful organizations have to accept change. Change is a constant and common element that impacts humans and organizations. Planned change and unplanned change need to be identified. The appearances of the CNS/ATM technologies are used by all countries.

Table 2.2: Managing Change's Concepts of Framework are similar to Literature
(continued).

	Concept	Representatives Author/Year	The framework of this study is similar as Literature review
2	Level, Type and degree of Change	De Wit and Mayer (2004); Hiatt and Creasay (2003); Hammer (1990); Christensen et al., (2006)	The concept of 'Discontinuous and Continuous Change' is used to find out the direction and substance of change to new technologies. The level agreement must be assessed as shown in Figure 2.1. These concepts have to be considered in the process.
3	Resistance to change	De Wit and Mayer (2004); Coch and French (1949); Burke (2002)	The resistance is in relation to organization culture. Therefore resistance to change needs to be identified in the process of change.

Source: Developed for this research

2.4 Conclusion

Change management is a very complex phenomenon. From the various concepts of change, a number of change efforts fail. The reason people claim to be most unfavourable is resistance to change. To overcome resistance, leaders have to understand change, both discontinuous and continuous, the context of change and important factors for successful change. The agreement matrix method is used to

present a relationship between the extent to which people agree on what they want and the extent to which people agree on cause and effect. This study adapted those concepts to present a relationship between change management and leadership.

To gain more information, literature is related to the change process models and leading change model. Chapter 3 supports the conceptual framework of this study.



CHAPTER 3

LITERATURE REVIEW: Change Process and Leadership Change Models

3.1 Introduction

Chapter three is primarily concerned with the theoretical framework, and the review focuses on the relevant literature examining Change Process Models, Leadership and Leadership Change Models.

3.2 Change Process Models

3.2.1 Kurt Lewin's Three-Step-Model

This study starts by presenting key research of Lewin (1947), one of the fathers of modern psychology, known particularly as the most influential writer about change. Lewin presented two key concepts about change and transition. The first concept was his theory about “quasi-stationary equilibria” (Lewin, 1947, p.207). He stated that “an organization's equilibrium is the balance between the uneven and wavering situations in a company, namely the ups and downs in the organization's life” (Burke, 2002, p.37). It describes how a balanced or unbalanced “forcefield” determines whether social systems maintain equilibrium or change to new states. In order to neutralize entropy, a company has to expand and try to control progressively their surrounded environment. This neutralization or counterbalancing requires change.

According to Lewin, “an issue is held in balance by the interaction of two opposing sets of forces” (Value Based Management.net, 2nd August 2009). On the one hand, the research is the one study which is seeking to promote change (the driving forces or forces for change) and on the other hand, others are attempting to maintain the status quo (restraining forces or forces against change). Lewin (1890-1947) saw organizations as systems where the current situation was not a static state but a dynamic one (called “equilibrium”). In order to make change work, the driving forces must overcome the restraining forces, thus shifting the equilibrium in the process. Lewin’s forcefield analysis was used for many years to monitor the balance of power in a given situation and identify the major stakeholders and groups, opponents and allies and the way to influence each group. Recent works suggest that “Lewin’s forcefield analysis applies within a limited domain and that there are situations beyond the boundaries of that domain in which Lewin’s views are less applicable” (Miner, 2005, p.82). However, “his theoretical model has moved application a long way”, according to Burke (As cited in Miner, 2005, p.82).

Lewin’s second major contribution was his decomposition of change into a simplistic but important three-step-model (unfreezing, transition and freezing), in 1946. These steps about change, which are one of the earliest models ever published and still used as a basis for new approaches, point out that each step has its own issues and problems. The word “step” is often used in literature to describe Lewin’s model, but according to Burke, the use of the word “phase” is better since all the three phases are overlapping (Burke, 2002, p.106). Lewin called the first step or phase “unfreezing”. This means tearing up the existing situation or status quo. The unfreezing phase can take a variety of forms: “creating a sense of urgency about the

need for change, educating managers to behave differently, merging with other organization, and so on” (Burke, 2002, p.106). The main idea is that “the system must be “shaken up”, must be confronted with a compelling need to do business differently and must be “thawed” from its present way of doing things so that in a new, more malleable, perhaps even vulnerable state or condition, the system is accessible and amenable to change interventions” (Burke, 2002, p.107). It is of the utmost importance to adapt the tools used to unfreeze the situation to the specific circumstances.

During the “transition” phase, the change occurs. Uncertainty and confusion overwhelm the organization at all levels. People understand that the old order is being modified but do not have a clear picture of the new one. Lewin’s point was that the system will not move or change in a relevant way unless an unfrozen condition has been achieved. The organization is changing.

Once change is in progress, the third stage, “refreezing” must be initiated. The implemented change cannot be allowed to drive or fade away. The new order and situation has to be fixed and reinforced with new structures, processes and infrastructure to support the new system. Tension among the group will decrease and their comfort levels return to previous levels (Wikipedia website “Change management, theories of change”). A permanent stable equilibrium that resists further change is established. According to Burke, the reinforcement of the new situation is as important as the change itself: “As the new state is “frozen” in the early stages of change, it is delicate, somewhat vulnerable, and until jelled, is subject to further changes that may not be desired” (Burke, 2002, p.106).

3.2.2 Edgar Schein's Change Process Model

Schein took Lewin's model and refined it in some ways. He asserts that the steps actually overlap and that the process of change in itself is more sophisticated and complex than a three-step model. He kept Lewin's number of steps, but for each, he developed the concepts further.

The first stage, unfreezing, creates "motivation and readiness to change" (Burke, 2002, p.151). According to Schein, there are three ways of unfreezing an organization. The first way is "disconfirmation or lack of confirmation"; in other words, "to show a need for change by providing information about radical change in the organization's external environment that threatens the survival of the organization" (Burke, 2002, p.152). The second way is "the induction of guilt or anxiety" (Burke, 2002, p.152). When the members of the organization are confronted with data that show a gap between the current situation and a better one, they will be motivated by feelings of guilt and anxiety to diminish that gap and to take concrete measures towards goals that would ameliorate the situation. The third way is the "creation of psychological safety" (Burke, 2002, p.152). Schein asserts that in order for people to move to the second step and actually change, they have to be sure that the process will not trigger feelings of embarrassment, humiliation or loss of face and self-esteem. The members of the organization have to feel secure psychologically; in other words, they must have no fear of punishment or retribution by embracing the change.

The second stage, *Changing*, implies what Schein calls "cognitive restructuring" (Burke, 2002, p.152). He means that persons within the organization have to see things differently than the old situation and, consequently, must act

differently. Two processes are compulsory to complete this stage.

Firstly, it is necessary to identify a new model, leader, mentor or consultant and see the process of change through someone else's eyes. "If I see another point of view operating in a person to whom I pay attention and respect, I can begin to imagine that point of view as something to consider for ourselves" (Burke, 2002, p.152). Secondly, scan the environment for new, relevant information (Burke, 2002, p.152). This part is about checking whether this kind of change worked or not in other organizations. The emphasis here is set on learning from others' experiences by inviting experienced outsiders or inviting some relevant organizational members to a conference in order to gain new information about change. Similarly, it could be sending a top manager to other countries in order for him or her to get other insights and views.

The third stage, *Refreezing*, implies the integration of change for all the members of the organization. According to Schein, this stage is twofold. The first part embraces "the personal and individual" (Burke, 2002, p.151). It implies that the organizational member feels comfortable with the new comportment which is needed to make the change accepted and successful. To Schein, "it is to link the new behaviour with one's self-concept" (Burke, 2002, p.151). In other words, refreezing is linking the new behaviour, the new way of thinking to the organizational members' frame of reference. The second part includes "the interpersonal" (Burke, 2002, p.151). It means that "the new behaviour fits well with others who are significant in the organization and that these other significant individuals (the people one works with closely) are comfortable with the new behaviour from the "changed" person" (Burke, 2002, p.153).

Lewin's and Schein's approaches are helpful for planning and managing a change effort. This simple linear sequential planning can be useful: If A is done, B is likely to follow. This view helps us to make sense of the complex and messy organizational behaviour. However, taking this way of thinking too literally will often lead to errors in judgment. In reality, when a change occurs in an organization, it is most often not sequential and is far more ambiguous and messier than the idea the models show. Burke (2002) concluded that "the point was made that the implementation of organizational change is non-linear and often unpredictable." (p.155). This is the main reason why Lewin's contribution and Schein's, to a lesser extent, are slightly outdated these days; but they do have their merits in giving us a systematic and interesting sequential approach to the process of change.

3.2.3 John P. Kotter's Eight Step Model

Kotter (1996) tries to answer the question about why on the one hand numerous change processes are not successful and also why it is difficult to achieve lasting and meaningful change on the other hand. He claims that even successful transformations are chaotic and full of irregularity and surprises. Kotter (1996) has developed two general views regarding leading change. Firstly, the change process takes a long time and must go through a series of phases. Skipping steps only creates an illusion of speed, never lasting results. Secondly, critical mistakes in any of the phases can have devastating effects afterwards. After deep research in over one hundred organizations, he identified eight major steps required to achieve lasting change (Kotter, 1996):

1. Establish a Great Enough Sense of Urgency

Over 50 percent of the companies he has studied failed in step one either because leaders often underrated how difficult and demanding it is to get the people out of the used environment, or because, they overvalued their efforts so far. In order to create this sense of urgency it is necessary “to study and analyze” the market and competitive state of affairs, to make out and examine crises, threats or opportunities (Kotter, 1996, p.61). Employees need to understand and feel the reason for change. For Kotter, it does not matter who is creating this sense of urgency: it can be either at the top of an organization or in a group at the lower level of an organization. The urgency rate is high enough when about three quarters of the management is honestly convinced that there is a need for transformation. But it is important that they convince most of the people around them about the need for transformation. The chance that the sense of urgency is recognized by most of the relevant people is higher if the change leaders use incentives which are visible, tangible and noticeable. According to the see-feel-approach Kotter (1996) is referring to, when people experience the need for change face to face it is easier to change their behaviour.

2. Create a Powerful Guiding Coalition

To start a change process, support from the head of the organization alone is not sufficient. It also requires another five or fifteen to fifty people, who are active devotees, depending on the project and the size of the organization (Kotter, 1996). These people would make up a team and create common commitment throughout the whole change process. From Kotter’s research, this group should consist of influential people with titles, relationships, intelligence and

knowledge to guarantee great power. This team will guide the change process. But the problem in this phase is often that people coming from high positions are not used to working in teams (Kotter, 2002). The team building process is therefore very important and should be organized well. It can be useful to arrange training sessions, workshops or meetings in order to get the guiding coalition working.

3. Create a Vision

In this third step, it is the team's task to create a vision, which means to create a desire for a future state. This should be explainable in an easy and fast way, namely three to five minutes, to ensure the stakeholders are energized (Kotter, 1996). The guiding team often needs at least three months to develop these images. Moreover, it is necessary to develop strategies on how to reach the goal which will serve as a guideline for the change to come. It is of the utmost importance that the guiding team understands that people are not just convinced or mobilized by analysis, figures and budgets. It is more successful to explain the wanted future in a picture or object which helps the people to have a clearer view.

4. Over-communicate the Vision

In this phase, it is crucial to use every single opportunity to communicate the created vision. Therefore, the guiding team has to live this vision as an example and embody their message to change the behaviour of the people as well (Kotter, 1996). Additionally, to make the people understand it, it is essential to communicate in a simple and easy way, instead of a difficult and technocratic one. It is also advantageous to address peoples' fear, confusion and anger (Kotter, 2002).

5. Empower Others to Act on the Vision

During the fifth phase, when more and more people are getting involved in the change process, it is important to fight against resistance and barriers. To a certain extent, the guiding team should empower other people to support the change process by communicating the new vision. They have to encourage people to take risk, and promote untraditional ideas and actions (Kotter, 1996). Barriers are not only people who might take an opposite approach; there are also structures, processes and institutions within the company which could hinder the successful implementation of change. In this phase it is therefore important to get rid of these factors and replace them.

6. Plan for and Create Short-Term Wins

Due to the fact that change processes take quite a long time, people need some milestones. In this phase it is necessary to plan observable performance improvements. It is helpful to set short-term targets in order to keep motivation and commitment at a high level. These short-term successes should be visible for as many people as possible: employees, managers, opponents, stakeholders and so forth. There might be, furthermore, an incentive system, which rewards people for achieving the goal (Kotter, 1996).

7. Consolidate Improvements and Produce More Change

During the seventh phase, the guiding team is required to use its credibility to modify and transform systems, structures and organizational policies which do not fit with the desired future state. The change leader must understand they have to carry on with the implementation, going further until the vision becomes a reality. To reach this point, it could be necessary to employ, develop, train and

promote employees who can put the vision of the guiding team into operation. It furthermore might be useful to strengthen the change process with new projects and change agents (Kotter, 1996). The tasks the guiding team has fulfilled so far can be passed and delegated to others.

8. Institutionalize New Approaches

In the last stage, in order to institutionalize change in the organizational culture, it is important to communicate the relationship between the new behaviour and the result of the change process. The change agents have to make sure that employees' behaviour is really changed and that it will last. Moreover, it is essential to ensure that the next generation of managers deeply represent and embody the new approach (Kotter, 1996). Kotter (1996) claims that it is often the case that after a successful implementation of change, the old change agents retire but the new ones do not live the new approach as they should. The goal for every process of change should be the implementation of long-lasting and deep transformation.

3.2.4 Jeff Hiatt's ADKAR-Model

Hiatt's model of change implementation is based on a two-dimensional approach: the business and the people dimensions of change. According to this model, successful change only happens when both dimensions occur simultaneously. The first aspect comprises five important points to be followed and is the standard element of a business change for managers (Hiatt, 2006).

1. Business Need or Opportunity Identification

According to the organization's perspectives, needs and opportunities, the management team is considering proactively. The implementation of some kind of change is beginning to be considered.

2. Project Definition

The project of the management team is defined. The needs, perspectives and opportunities are clear and no misunderstanding about these concepts can exist.

3. Design of Business Solution

This step is all about the elaboration of the change process. The management team is elaborating a plan for change.

4. Development of New Processes and Systems

New solutions in the form of processes and systems will be elaborated in order to implement change. These will be useful tools to implement the change in a good way.

5. Implementation of Solution within the Organization

Implementation, with the help of the above mentioned tools, is under way. Change takes place concretely.

The dimension of change regarding people should never be underestimated. Research shows that problems with the people's dimension of change are the most commonly cited reasons for project failures ("Change management process", 12th March, 2007). In order to implement change successfully in any organization, the collaboration of people is highly necessary. The management team which implements change or the champion of change must be supported by some people within the company to reduce resistance to change. It should also ensure that the people are involved in the process of change. Commitment is one of the best ways to create an atmosphere of cooperation and to increase the chances of acceptance of change within the organization.

According to Hiatt (2006), effective management of the people dimension of change requires managing five key goals that form the basis of the ADKAR model:

1. Awareness of the Need to Change

The people must understand that the change will be beneficial for the organization as a whole despite the difficulty they could encounter.

2. Desire to Participate and Support the Change

As stated above, the people's involvement for change is necessary. If they are helping and listening, their contribution can only be positive. People's support is a key aspect in the process of change.

3. Knowledge of How to Change (and what the change looks like)

The stakeholders must be told how the changes will have an impact on the organization's activities.

4. Ability to Implement the Change on a Day-to-Day Basis

The change has to be monitored closely on a day-to-day basis in order to retain control.

5. Reinforcement to Keep the Change in Place

This step is similar to Lewin's "freezing" step. It consists of acknowledging all the consequences of the new implemented change in order to avoid a negative return to the old status quo.

3.2.5 Dean Anderson's Nine-Phase-Change-Model

Anderson's model of 'fullstream transformation' is basically subdivided into three parts: the upstream change (which sets the basis for future successful change), midstream change (which is about the elaboration of the type of change) and downstream change (the implementation of change) (Anderson, 2001, p.165). This

model is thus composed of the three abovementioned steps. But this is not all; each step comprises three sub-steps. As all the steps are intertwined and overlapping, a failure in one point will result in the failure of the whole process of change.

3.2.5.1 Upstream Change

1. The Preparation to Lead the Change

This step is mainly focused on orienting the planning, and setting a solid base for later success. Within this stage, the change leaders weigh their organization's ability and capacity to succeed in implementing change. The leaders decide the person (s) who should lead the effort, develop the strategy of change and "identify conditions and infrastructures needed to support the successful achievement of the desired outcome" (Anderson, 2001, p.166). Communication, participation plans and other key support functions are being developed. This step is needed because it gives the leader the opportunity to gain the support from organizational members before the implementation of any change.

2. The Creation of Organizational Vision, Commitment and Capacity

The vision of a desired state and its communication to others is a key feature in the process of change. Commitment of all the people is also required. Without any unity or commitment, the change, and consequently the leadership, will be seen as disorganized and incompetent from the employees' perspective. According to Anderson (2001), "building leadership alignment up-front sets the ideal conditions for positive employee involvement throughout the change" (p.166). The workforce is entirely engaged and focused on the transformation which will take place. Employees are informed about the change and actually help dramatically in the implementation

and success of change. Besides, this early commitment also allows minimal resistance throughout the organization.

3. The Assessment of the Situation to determine some Design Requirements.

The upstream stage is the point where “the climate and runway for change are established” (Anderson, 2001, p.166). Starting the process of change in a positive and a well-received way is a key feature of the upstream step. All of these sub-parts “precedes” the design of the desired and expected future state of the change.

3.2.5.2 Midstream Change

1. The Design of the Desired State

The midstream change is “when the actual design of the desired state occurs” (Anderson, 2001, p.166). This is the time when the design of the change is developed, clarified and refined. The danger in this sub-step is to over focus the resources and efforts on the design and not on the implementation itself. Actually, many organizations experience a lot of difficulty during this step because they spend too much of these solely on the design.

2. The Analysis of the Impact of Change

The impact and consequences of change are studied carefully, and precise plans are drawn in order to pace and coordinate the implementation in an accurate manner.

3. Planning and Organizing for the Implementation

The “conditions, structures, systems, and policies decided in the upstream stage are tailored and established to help prepare and support the

organization for implementation” (Anderson, 2001, p.167). The capacity of the organization to succeed in the change is further developed through the help of higher participation. This step prepares the organization to fully support the implementation of change.

3.2.5.3 Downstream Change

1. Implementation of Change

The main danger for leaders is to rush into implementation without proper design. “With no preliminary foundations that assist the organization to receive or participate in the change, and with what is likely an inadequate design of their desired state because of their rush to implement, leaders’ hopes that change management or organization development will salvage a shaky or resisted implementation are unrealistic” (Anderson, 2001, p.174). Implementation is just the required concrete application of the planned design.

2. Celebration and Integration of the New State

The purpose of this sub step is to support and strengthen the implementation of the change. The transformation is officially acknowledged and celebrated by the leader(s). The major thing to understand is that the seeds of success are sown during upstream and midstream phases.

3. Learning and Course Effect

This step should trigger the creation of a system which refines and improves continuously the new state. Learning from the change process and establishing the best practices for change have to be taken into consideration.

The current author insists on the fact that there are no miracle recipes for change and that this model is just a tool or guide for consultants and

specialists of change. Its aim is to be as complete and comprehensive as possible and it gathers all the critical concepts discovered in the field of change so far. As Dean Anderson (2001) pointed out: “the thoroughness is both a strength and a potential weakness in the model” (p.168). According to situations and circumstances, some steps might or should be skipped and in some cases, some parts can be “fused” in order to make the process go smoothly.

3.2.6 William Bridges and Susan Mitchell Bridges’s Three-Phase-Process

Bridges (2003) identifies that people have to go through three stages when they are confronted with change. The two researchers make a distinction between transition and change. Change is external and situational because it is just the shift into a new position or site. Transition in turn is psychological and internal. A change leader has to make this differentiation because transition does not happen automatically just because a change has happened. The transition process consists of 3 phases as follows;

1. Ending, Losing, Letting Go

This means that people have to release the old habits and the way things used to be. Every transition begins with an end, Bridges (2003) claims that when the leader is asking his followers to give up old behaviours and they are shifting into a new area, it is more complicated than it might seem. Leaders have to realize that, and have to be aware that this phase is important in the whole process of change. It is mainly a leader’s task to help people to overcome their losses.

2. The Neutral Zone

After the “Goodbye-phase”, people come into the neutral phase, which means that they enter an uncertain, in-between state, also called “no-man’s-land”

(Bridges, 2003, p.39-40). For a successful transition, it is necessary to remain some time in this phase. People have to get used to the change and have to identify themselves with the new situation; they should use this phase to be creative, in order to renew themselves and develop a new identity. The time in the neutral zone is not useless because it is the time where the real transformation takes place. It is probable and reasonable to calculate a time span of approximately six months for this zone.

3. The New Beginning

After going through the first two phases, it is important that people also begin to behave in conformity with the new way. It can be stressful for people because the sense of competence and the value of the stakeholders are put at risk. Employees need to live this fresh identity, feel the new energy and realize the new intention. Often, people are not able to go through this phase. Most are better at waiting and observing who among the others are handling the new start.

From research and experience, Bridges (2003) claims that most of the change leaders skip the first two phases and go to the third phase. Hence, a number of processes of change fail.

3.3 Leadership — The Difference between a Leader and a Manager

3.3.1 Leadership

Executive sponsorship and participation are important for the success of change initiatives (Kanter, 1983; Kanter et al., 1992; Goodstein and Burke, 1995). Change leadership must be spread throughout the organization. An effective leadership network must be established to overcome resistance and inertia in the organization. Leaders are needed to provide vision, meaning, inspiration, and

conviction, demonstrate integrity, generate trust and communicate values. Different leadership styles have different effects on aspects of the organization climate (Young and Dulewicz 2006). Moreover, numerous studies have identified leadership and participation by top management as the single greatest contributor to success in change management (Branch, 2002).

The literature about the terms leader and leadership is very disparate and there are as many definitions of leadership as people who have tried to define it (Stogdill, 1974).

This thesis was developed from an understanding of leadership in order to analyze the process of change; it is therefore, necessary to explain the descriptions of leadership. Due to the time limitation, this study will not discuss every theory about leadership; however, it is imperative to distinguish between a leader and a manager. This study should therefore clarify from the beginning what a leader is in order to better analyze the leaders' role within the process of change.

Despite all the different approaches towards leadership, some common elements can be found when comparing them. The literature agrees on the fact that leadership is a group phenomenon because a leader cannot lead, influence and persuade without followers. Furthermore, it is widely accepted that leaders use their power to direct others through a definite course of action or toward the accomplishment of a goal. Thirdly, the identification of a leader postulates some kind of hierarchy, either formal and defined or informal and flexible. Both kinds of leaders are important for the change process, because they have different impacts on the stages (Afsaneh, 2003).

Therefore, first and foremost, this study discusses the difference between being a leader and being a manager. This distinction is noteworthy because of the difference between leading change and managing change. Kotter (2002) emphasized that management is related to the process of planning, controlling and organizing, whereas leading refers to the process of motivating others for action. Leaders focus their action on the future, use personal power and try to establish an emotional link with their followers. Thus, they are responsible for creating change and a culture which is based on shared values. Managers, on the other side, focus on the present and use position power for their action. They try to sustain stability and the status quo. It is their task to implement policies and procedures (Afsaneh, 2003). If one connects this theory with the change process, it can be said that it is the manager's task to plan, control and organize the process, while it is one of the leader's tasks to mobilize the people for acceptance and action.

For Kotter (2002), leadership is a concept which exists within living memory, whereas management is a term that has been elaborated over the past 100 years (Kotter, 1990, p.3). He claims that leaders are the main drivers for movement and change, whereas managers are responsible for order and steadiness. He describes the differences in Table 3.1.

Table 3.1: The Differences between Management and Leadership

	Management	Leadership
Creating an Agenda	Planning/Budgeting Establish steps Set timetables Allocate resources	Establishing Direction Create a vision Set strategies
Developing a Human Network for Achieving the Agenda	Organizing/Staffing Establish structure Staff structure with people Establish policies, rules and procedures	Aligning People Communicate the direction Build teams and coalitions
Execution	Controlling/Problem Solving Monitor results and plan Identify differences Generate solutions Take corrective action	Motivating and Inspiring Inspire and energize people to overcome major barriers Satisfy unmet needs
Outcomes	Certainty Order Consistent key results	Change of a dramatic degree Extremely useful change

Source: Kotter (1990, p.6). A force for change: How leadership differs from management, (New-York: the Free Press)

Both roles are important in an organization and one cannot be without the other. An organization is dependent on both aspects and can therefore not exist and act successfully without an effective leader and efficient manager. Even though there are a number of differences between managers and leaders, a large amount of overlapping actions can be found in both. Therefore, sometimes leaders are involved in management and vice versa. A leader and a manager can be the same individual, accomplishing both managerial and leadership tasks. Despite all this, problems can occur if a company is ruled by either a strong management or a strong leader. "Strong management without much leadership can turn bureaucratic and stifling, producing order for order's sake. Strong leadership without much management can become messianic and cult-like, producing change for change's sake – even if movement is in totally insane direction" (Kotter, 1990, p.7-8).

The most important message from Kotter (1990) is that leaders have the great ability to produce change. Therefore a leader has great influence within the process of change.

Like Kotter, Bennis and Nanus (2003) argued that there is a major difference between management and leadership. The major difference can be summed up with the following sentence: "Managers are people who do things right and leaders are people who do the right things" (Bennis and Nanus, 2003, p.20). In as much as the author did not want to go deeply into the leadership theory, citing examples to differentiate between leaders and managers would give a better picture of the idea of leaders and managers in the change process. Bennis and Nanus (2003), in their book, gave several examples illustrating leadership qualities and roles and also examples of management qualities and roles and cases where the two overlap.

Examples of leaders included William Kieshnick, CEO of ARCO, Ray Kroc of the McDonald's fame; J.H Johnson, publisher of Ebony; Neil Armstrong, the first man on the moon. All are men who exhibited exceptional leadership attributes and inspired people as a result of their lifestyle, belief and approach in leading and managing an organization. They also claim that most companies are managed not led. For them management, characteristically, "consists of a set of contractual exchanges" (Bennis and Nanus 2003, p.203). The result of this is different from the result of leadership. The product of exchanging work, security and salary, is at best, compliance, while the outcome of leadership is empowerment. This means creating a corporate culture that provides support for employees to give a meaning to their task in the company and to encourage them to higher personal accomplishments in their work (Bennis and Nanus, 2003). For Bennis and Nanus (2003), leaders play a crucial role in an organization because a leader has firstly the ability to give a vision to the organization and secondly, to transform the image into reality.

Moreover, Watson, Tito and Kondo (2003) identified that "Leadership requires vision and judgement, while management requires discipline and execution", as shown in Table 3.2 (p.59-60).

Table 3.2: Differences between Managers and Leaders

Manager	Leader
Exercises “Know-how”	Exercises “Know-why”
Administers a process	Innovates a solution
Accomplishes transactions that define tasks	Influences transformation of an organization
Maintains performance	Develops competence and capability
Focuses on system and structure	Focuses on people
Relies on command and control	Communicates direction and inspires trust
Asks what and when	Asks why and how
Takes a short-range view	Takes a long-range view
Delivers the bottom line	Achieves a vision of the future
Imitates prior successful managers	Originates new definitions of success
Accepts status quo	Changes the status quo
Acts like a good soldier	Acts as their own person
Does things right	Does the right thing

Source: Watson, Tito and Kondo (2003), Quality into 21st century: perspective on quality and competitiveness (p. 60)

3.4 Leading Change Models

3.4.1 The Concept of Transformational Leadership

“Leaders establish the vision for the future and set the strategy for getting there.” (Kotter, 1947-, <http://thinkexist.com>)

The literature differentiates transactional and transformational leadership. According to Bass (1998) transactional leadership behaviour is related to leading in a stable environment, whereas transformational behaviour is associated with drive and dynamism. A transformational leader has charisma, shows a vision and gets awe, trust and respect from others. He has the ability to inspire people, but he is also setting high expectations. Furthermore, he draws on symbols and relies on creative problem solving. In the literature, an optimal change leader is highly affected by a transformational leadership style, but furthermore, it is necessary that the leader has a transactional approach (Northouse, 2004).

Bennis and Nanus (2003) mentioned transformative leadership as the new approach in the leadership theory. For them, a transformative leader is able to form and raise the motives and goals of his followers. With this leadership style, it is possible to achieve remarkable change that indicates the convergence of interest of the leaders and the followers, and to amalgamate the united energies in the finding of a common target. They identified that transformational leadership is collective, causative, morally purposeful and elevating (Bennis and Nanus, 2003). Collective means that there is something like a symbiosis between leader and follower because the leader can identify and understand the follower's wants and needs. Causative implies that a leader can design and create institutions that empower people to please their needs. Transformational leaders lead through creating a social architecture with

purpose and visions which are rooted in the key values of the employee.

In general, “transformational leadership is a process that changes and transforms individuals” (Northhouse, 2004, p.169). It is related to terms like emotion, value, ethics, standards, and durable goals, and includes evaluating and satisfying the needs of the employees. Transformational leadership is associated with motivating people to achieve more than what is normally asked from them. This process is also often linked with charismatic and visionary leadership. The transformational leadership approach also illustrates how leaders can initiate, develop and accomplish significant change in organizations. This approach gives some important hints for the change process because transformative leaders become a strong role model for their followers. To lead people through this process of change, these leaders should have a highly developed set of ethical principles, a self-determined sense of individuality and confidence. Furthermore, they should have the ability to express and communicate strong ideals, to be good listeners and to be open for opposition. With these characteristics, it is obvious that an appropriate change leader has a lot in common with a transformational leader.

Bass and Avolio (n.d.) recommended that transformational leaders are not only necessary at the top of the hierarchy. These types of people are necessary at every level in an organization and if they are developed at all stages, they will have a positive effect on the global organizational performance. If one assumes this, transformational leaders can be found at every hierarchical rank and therefore, change leaders are not only CEOs or Managing Directors (Northhouse, 2004, p.188).

The theory of transformational leadership often lacks conceptual precision because it covers such a wide range of parameters, making it difficult to identify them

exactly. In this respect, this concept overlaps with a lot of other concepts, such as charismatic and visionary leadership.

Lester (2007) presents the essential points for a transformational model. He states that a transformative leadership model (Figure 3.1) is derived from a basic model developed by others, but with important changes.

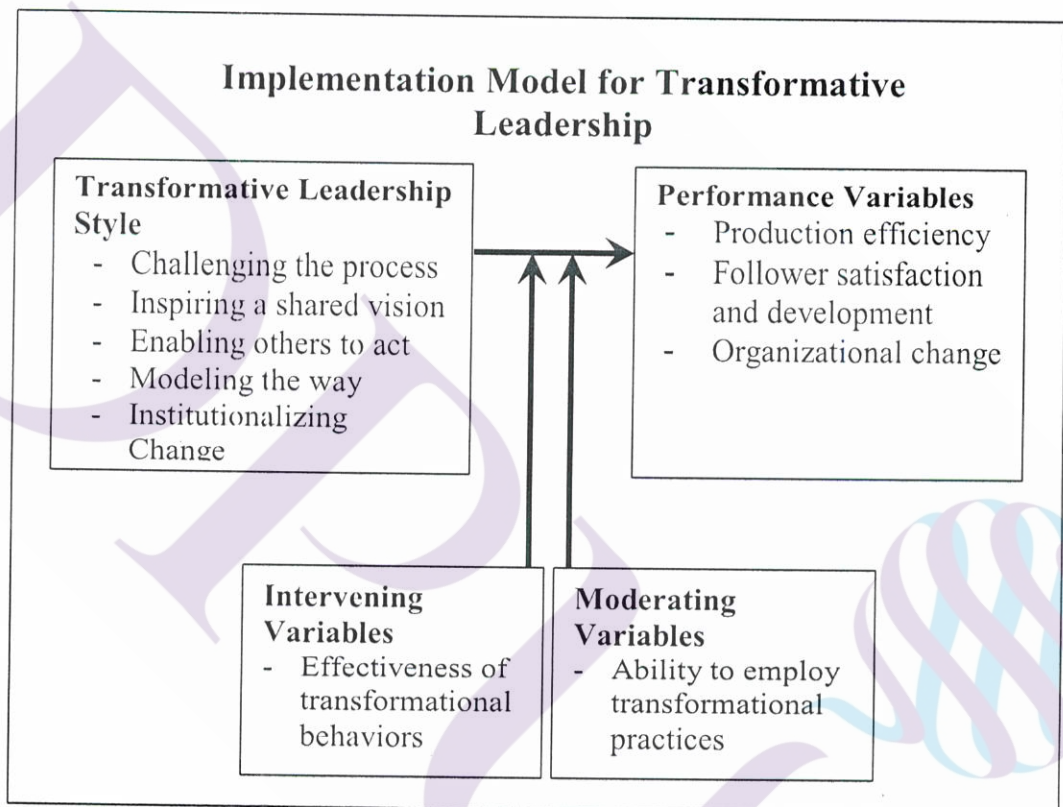


Figure 3.1 Implementation Model for Transformative Leadership

Source: Lester (2007)

3.4.2 John P. Kotter's Heart of Change

According to Kotter (2002), the fundamental challenge for a leader is to change the people's behaviour. To accomplish this goal, it is important to change the

people's feelings. This cannot be done by feeding people with analysis but more by supporting them to find the truth to inspire and affect their feelings. Although both thinking and feeling are crucial for the success of a company, the see-feel-change approach is more deep-lasting and commanding than the analysis-think-change approach. The see-feel-change-approach is unique for Kotter (2002). He claims that people will change their behaviour if they can see, touch, and feel the cause behind the change; this creates a feeling inside, and then these feelings will change the people's behaviour. This theory is associated with the regular mechanism in the brain. An individual sees, feels, touches, hears or smells something. Due to the fact that our senses are related to our emotions, there is a direct link. This connection leads in turn to an action. Therefore, a change leader should make the problem or the solution of the problem visible through tools such as live presentations, pictures, videos, story, places, events, performance and so forth. The main goal is to create a feeling within the employees: this could be shock, passion, pride, urgency and so on. These feelings then change the behaviour of the people (Kotter, 2002). If people change their behaviour, the process of change will be successful. The central conclusion of his work is that "the heart of change is in the emotions" (Kotter, 2002, p.2).

Kotter (2002) further claimed that in times of increasing change processes in organizations it is not possible that only a few people at the top can be the change agents. It is more and more important that other people in the company become "change-sophisticated people" (p.183). He stated therefore that people at every level and in every department can support the change leadership, although it does not mean leadership in the traditional sense. One might see in a company a few great leaders,

more good leaders and even a lot of employees who carry out leadership tasks (Kotter, 2002, p.185).

3.4.3 Rosabeth Moss Kanter's Enduring Change Leader's skills

Kanter (1999) claimed that the change agents have to make deep transformations in the culture, structure and strategy of the companies to build long-term capabilities for an organization, and that it necessitates people to change their actions and attitudes. The latter one is the most difficult task for leaders because it is often out of their direct influence, but real change requires people to adjust their behaviour.

According to Kanter (1999, p.3), the crucial features a change leader should have are "passion, conviction and confidence in others", which means "offering a dream, stretching their horizons, and encouraging people to do the same". This has a lot to do with sense-making and sense-giving. Kanter (1999, p.3-6) proposes the following recommendations for change leaders:

1. "Tuning in to the Environment". A leader should try to get as much information as possible about the inside and outside of the organization, by actively collecting information.
2. "Challenging the Prevailing Organizational Wisdom." Change leaders should use "kaleidoscope thinking", which means constructing data and information in new ways, to question their decisions and strategies from time to time.
3. "Communicating a Compelling Aspiration". To convince the followers of the change, the leader can use several tools.
4. "Building Coalitions." A leader should also use the help of "opinion shapers", meaning that he/she will involve people who have resources, knowledge

and so forth.

5. “Transferring Ownership to a Working Team.” It is also important to involve others in the implementation phase.

6. “Learning to Persevere”. After implementing the change, a leader has to support and motivate the employees through to the end of the project.

7. “Making Everyone a Hero.” Recognizing, rewarding and celebrating milestones or accomplishments are crucial for the success of implementing change.

3.4.4 David A. Nadler’s Heroic Leader

In times of discontinuous change in a company, it is important to have a leader who is able to mobilize and keep action going amongst the employees (Nadler, Shaw and Walton, 1995). These tasks demand special characteristics and go beyond the concept of charismatic leadership; Nadler uses the term “heroic leader” to describe this special person. Nevertheless, Nadler also claims that a heroic leader is not enough to fulfil the difficult task of leading through a process of change; effective change agents are more than heroic.

Heroic leadership is associated with three components: envisioning, energizing and enabling (Nadler et al., 1995). Envisioning means that the leader should be able to create and communicate a vision, a desired future state. Meaningful, challenging, worthy of pursuit, reachable and credible are the characteristics of the ideal vision. Furthermore, it is important that the leader in his actions and behaviour embodies the vision. The second feature, energizing, is deeply related to motivating the employees to act. Firstly, this can be accomplished by showing personal commitment and excitement. It might also be achieved by demonstrating this energy through direct contact with the employees in the

organization. If the change leaders exemplify their ability to be successful, they can communicate confidence. The third enabling component goes along with the employees' emotional support when performing their task. It is the leader's charge to show empathy; this can be accomplished by demonstrating an open ear for everyone, showing willingness to understand their feelings and expressing confidence and trust in the people's performance.

Some risks can occur if there is solely a reliance on heroic leaders, and Nadler et al. (1995) claimed that change agents should also have an instrumental leadership style. This approach calls for leaders who are able to manage structures to develop personal instrumentalities, namely to create an environment that motivates people's behaviour. This concept includes three factors: structuring, monitoring and rewarding. Firstly, the leader develops a constitution which defines and describes the desired behaviour, goals, standards, roles and processes. Secondly, he/she needs a kind of control-mechanism to monitor and measure the employees' activities and results. And last but not least, the leader has to establish a reward-system with rewards and punishments.

Nadler et al. (1995) argue that neither heroic nor instrumental leadership alone is the way to lead effective change; it is more a combination of both aspects because they are complementary. But, as the problem is that it is hard to find people who embody both approaches, it could therefore be helpful to engage others in the leadership role. To extend the change agent from one leader to something more requires another concept called institutional leadership. The change leader can search within the company for an individual who complements his/her characteristics. There are three possibilities: the senior team, the senior Management or the development of

leadership in the whole organization, which means training and creating leaders who will be future change leaders (Nadler et al., 1995).

3.4.5 Michael Fullan's Change Leader

Fullan's (2003) analysis of "The Change Leader" deals with the characteristics and capabilities of leaders in educational institutions. Although Fullan's research was about principals in schools and the way in which they can become effective leaders, some characteristics are common for all leaders because they try to accomplish long lasting, sustainable change (Fullan, 2003, p.17). Fullan (2003) believed that "like the business leader, the Principal of the future – the Cultural Change Principal – must be attuned to the big picture, a sophisticated conceptual thinker who transforms the organization through people and teams" (p.17). He claims that leaders should engender five characteristics in the knowledge society.

1. Moral Purpose

Acting with a moral purpose implies taking social responsibility and giving a positive difference to others like employees, clients, and the environment. Leaders should therefore treat others fairly and correctly. The most valuable characteristics of an effective leader are consequently integrity, reliability, and a firm conviction (Fullan, 2003, p.12-13).

2. Understanding Change

If change leaders understand change, they can adapt some important implications for their actions. More precisely, they should realize that there is a difference between having an innovative idea and a change process, and that having the most excellent idea is not sufficient. Leaders should also know that within the implementation phase, the change process will be uneven and difficult. Furthermore,

leaders have to face resistance. Fullan recommends redefining opposition and using their doubts to gain important input for the change process. Moreover, it is important not to see change simply as superficial and structural: it has to be seen as something deeper. Therefore, it is crucial to change the corporate culture as well. In addition, change is always complex, and there is no shortcut for transformation (Fullan, 2003, p.4).

3. Building Relationships

Thirdly, they should improve and build relationships with people who think differently. Fullan claims that if relationships develop, processes and results are improving. Effective leaders are aware of the fact that people can be mobilized and motivated only if one treats them with respect and cares about them. They know that the relationships and interaction among the people rather than simply the people themselves are crucial for the success of an organization (Fullan, 2003, p.80).

4. Creating and Sharing Knowledge

At the same time, it is important to create and share knowledge. This feature is deeply related to the previous three abilities and relies on these. In order to sustain long lasting change, employees have to be encouraged to share their intelligence with the organization and to create new knowledge. For a change leader, it is important to understand that this is more expectation of employees to change through a process of see-feel-change than through that of an analyze-think change. It is the task of the leader to help the people to see new opportunities that engage their feelings and consequently, change their action and attitude (Fullan, 2003, p.121).

5. Making Coherence

Creativity is important for the change process. Leading is not easy in the

complex world, and directing a living system is seldom a linear process (Fullan, 2003, p.160). Therefore, effective change leaders have the ability to tolerate uncertainty in order to keep the creativity flowing, but they are also able to generate overload and fragmentation in a complex society. This is shown in Figure 3.2.

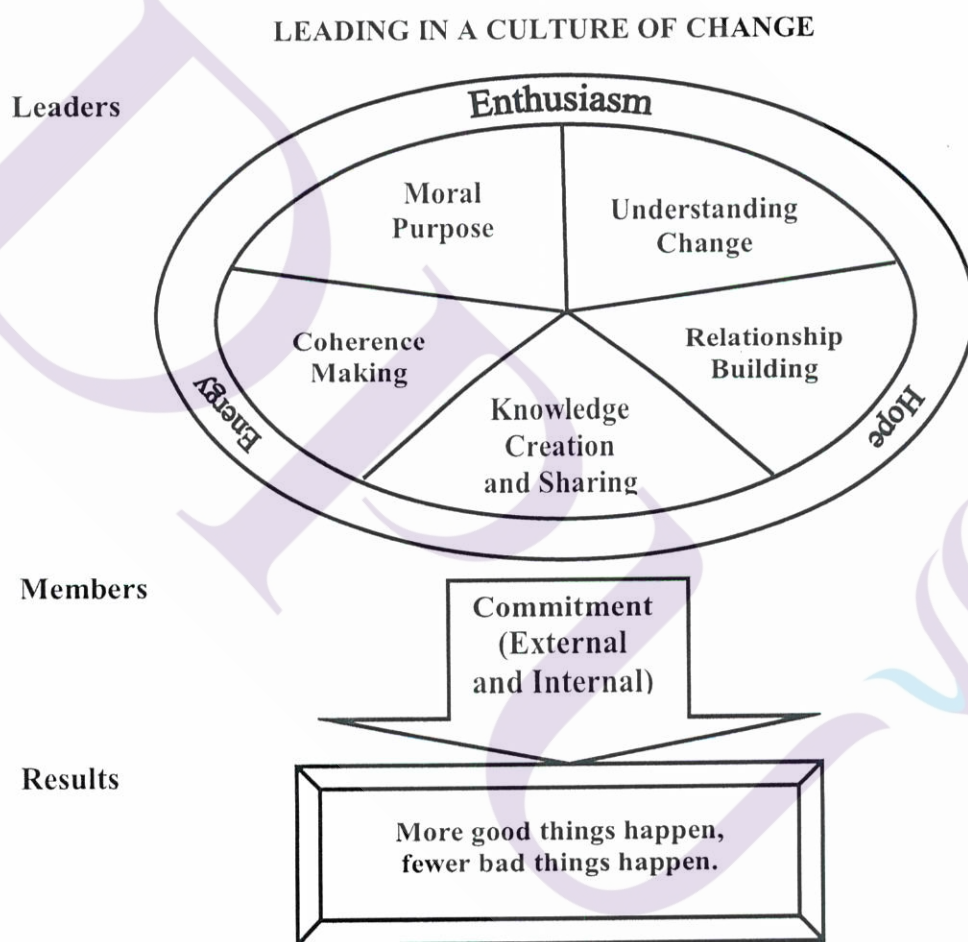


Figure 3.2 A Framework for Leadership

Source: Fullan, M. (2003, p3), leading in a culture of change, Personal action guide and workbook, San Francisco: Jossey-Bass.

3.4.6 William Bridges' Transition Leader

As explained above, Bridges W. and Bridges S. (2003) identified a three-phase process within the transition phase. Bridges W. and Bridges S. (2003) classified five categories from "Very important. Do this at once." to "No! Don't do this." describing how change leaders can help people to go through a process of change. (Bridges, 2003, p.13). The first category is of special interest for the current study because it describes the points a change leader should observe in the transition phase.

Within the first phase "Ending, Losing, Letting go" it is important that the change leader tries to figure out how people's behaviour has to change in order to make the change work, and to describe the change in a detailed and specified way. Furthermore, the people who will lose something important after the change have to be identified. The subjective losses of people are more important than the objective loss of the company. It is important to listen to the people's worries and doubts because every employee will experience the change in a different way (Bridges, 2003, p.15-16). It is, moreover, advisable not to feel offended by people who show signs of grieving, such as anger, sadness, anxiety and so forth. It is just a common reaction in this phase, and therefore the people have to be addressed seriously (Bridges, 2003, p.28-29). Additionally, it could be helpful to give the people something in return for the losses they face (Bridges, 2003, p.31).

Another important point within the letting-go phase is communication and helping people understand the problem or the cause that lies behind the change. In order to amplify this aspect, the change leader can arrange a face-to-face situation with the problem and celebrate the ending with an event that is a symbolic of the new direction. It is recommended to clearly define what is over and what is not (Bridges,

2003). Talking to people and asking for opposite opinions helps the leader gain insights, and can allow for understanding of the people's resistance. Equally, these conversations will inform how to tackle the problem in a more conducive manner. Being open for questions and requesting them from the employees will help to understand and better let go. It can also be helpful to organize regular meetings or workshops to make it easier to adapt to the new situation.

Within the neutral zone, the change leader has to focus on the fact that it will take some time, and that this period is no less difficult than the first one. The main problems leaders have to face are the increase in people's stress and a decline in motivation because they feel confused and have doubts. They experience information overload and get mixed signals, both aspects which will lead to frustration, uncertainty and lack of confidence in the organization. Consequently, productivity decreases and absenteeism rises. On top of this, due to the loss of motivation, the problem which caused the change becomes even worse. As a result, the organization can become weaker during this phase, making it more vulnerable to external threats (Bridges, 2003, p.40-42).

However, when describing the neutral zone as chaos, it is also possible to find space for creativity. If people doubt and question things, then there is also a good opportunity for generating new ideas. Generally, the change agent has to lead people through this phase step by step, and has to take advantage of the disorder by encouraging the employees to be creative and innovative. Leaders and employees have to understand that this phase is not a waste of time; it is more a time of redefinition and reorientation which is necessary to move successfully from the saying-good-bye phase to the new-beginning phase. The change leader has to

structure and strengthen the organization at this time. The leader can, for example, reassess policies and processes and set new rules adequate to the change. Furthermore, it could be necessary to reconsider roles, relationships and hierarchy during this phase. It is often the case that in times of the neutral phase, the hierarchy breaks down and teams from different levels of the company are grouped together to go through this stage. Employees often feel that there is no movement in this phase. It can therefore be helpful to set short milestones, which are easier to reach than the end-goal, in order to encourage people and to make progress visible (Bridges, 2003).

Due to the uncertainty and chaos in the neutral zone, the employees can feel lonely, and it is helpful to develop or create a sense of identification within the company. It can be useful to organize meetings, workshops or events where the employees are gathered together and discussing. It is the change leader's task to keep the communication flowing, to provide employees with information and to be open for conversation as well (Bridges, 2003). Additionally, in this phase, it can be helpful for the communication flow to be created by a team which is monitoring the transition phase and providing the company with information. This TMT (Transition Monitoring Team) consists of a group of employees chosen from different levels of the organization without any power. It is created solely to support the information flow (Bridges, 2003, p.49).

In the third phase, the "new beginning", Bridges (2003) differentiates between a new beginning and a start. In most cases, employees start working under the new course but this does not completely constitute a new beginning. A new beginning, in other words, means giving full emotional commitment to the change with a new understanding of the situation, new attitudes towards work and a

developed identity. Therefore, it is hard to determine the starting point for this phase because it has no fixed schedule and differs from employee to employee. In this phase, it is the leader's task to help people make this new beginning by supporting and encouraging them. Bridges (2003) referred to this as the "Four P's": a purpose, a picture, a plan and a part to play (p.60).

Firstly, the leader can try to describe the main purpose behind the desired result in order to give meaning to the tasks. Normally, this should have been done during the first phase, but if it has not – or has not been done clearly enough – change leaders should ensure it is done now. This element is critical to destroying any remaining resistance within the workforce. Speaking about the reasons for the change, the present situation of the company and the vision for the future is helpful in making people understand why this transition has to happen. It is also advisable to adapt to the audience when explaining the purpose in order to catch their attention and make them understand. The change leader should avoid sentences and "clichés" like "We're going for excellence" which have little meaning for employees (Bridges, 2003, p.63).

Secondly, the leader should try to make the effect and product visible for the employees. This could be something like a picture of the new product, or a video, for instance. Anything is possible if it makes it easier for the people to understand through seeing and perhaps touching the desired future state (Bridges, 2003, p.63). It can also be helpful to give the employees a step-by-step plan to structure their performance, as some people need a detailed plan which structures the transition phase. This plan will provide a guideline for their work, and would include dates when they will have meetings, receive information, have workshops and so forth. It is

a plan which addresses the people individually, and is not a plan for the company as a whole (Bridges, 2003). Additionally, if employees are eager to participate, it could be useful to let them play a part in the plan as well as the result. Ultimately, if people do not know where they stand or which role they play in the game, they cannot contribute as they wish to or as you wish them to. Therefore, it is important to show the people their place in the world (Bridges, 2003, p.68).

Generally, the leader has to follow some rules in the process of the “New Beginning” in order to make it work. Firstly, he or she must “Be Consistent” (Bridges, 2003, p.69), which means that the content of the message should be uniform from the beginning until the end in order for it to be deemed reliable. The leader has, furthermore, to be consistent in both what he or she is saying and what he or she is doing. Secondly, employees will be more motivated if they can see small successes, and that is why it is necessary to have easy goals to reach in order to encourage them to go further. Thirdly, the leader should “Symbolize the New Identity” by using symbols which are easily recognizable to mark the change; people are motivated and supported by feelings as well as logical explanations. Furthermore, it is necessary and indispensable to “Celebrate the Success” (Bridges, 2003, p.72); this means that if the change leaders feel that most of the people are living the change, it should be celebrated with an event which shows that the transition phase is over.

Furthermore, Bridges W. and Bridges S. (2003) claim that leaders might need some help in steering an organization through transition. This is because they often forget that it takes time to see the necessity for change, or misinterpret resistance towards change with ignorance and rigidity, not seeing that it is *transition* that makes the employees hesitate, not the change itself. A coach can facilitate the

leader in discovering his/her own methods and styles.

3.4.7 David Buchanan and David Boddy's Expertise of the Change Agent

Buchanan and Boddy (1992) proposed fifteen competencies that change agents must have, classifying these into five groups. The identified competencies are founded on first-hand practical experience, with their research based on audio diaries and a national survey conducted among 114 people. For the audio diaries, they asked eight agents of change to tell the story of a change process they were deeply involved with. In order to gather general data, these eight people came from companies with different sizes and industries. The competencies identified cannot be seen separately, and Buchanan and Boddy (1992) do not try to give a step model which is appropriate for every situation. As the research is conducted in a general way, it is therefore the leader's role to apply these capabilities according to the context. Moreover, successful applications show their expertise. Their competence-based view on change management implies that once the competencies are identified, training to develop these can be established, as shown below.

The fifteen competences identified are (Buchanan and Boddy, 1992, p. 92-208):

Objectives

1. Sensitivity

Sensitivity is the ability to see and feel stimuli or cues that may have an influence on the future change process. If the change leader is not able to take them into account while organizing the change, it can lead to unintended effects. Thus, it is necessary that the change agent is sensitive "to changes in key personnel, top management perceptions and market conditions" (Buchanan and Boddy, 1992, p.93).

2. Clarity

It is of the utmost importance to have clear, defined goals which are possible to reach, because the intention of the change must be precise. They should serve as a guideline and motivation tool throughout the change process. If there are any changes to the intention of the change, it must be communicated and expressed clearly and with determination.

3. Flexibility

Due to the fact that large-scale change processes seldom work out as intended and that there are always things happening which were not considered, the change agent needs to be flexible. Caused by unpredictable reality, change agents also have to face risk uncertainty. This means there is often more than one possible choice or option. Adapting to the different alternatives also requires flexibility.

Roles

4. Team-building

Change projects cannot be run by one person. To be successful, it needs the capabilities of the main stakeholders. These stakeholders should be organized in teams and support the change agent. To form and develop these teams, the talent of the change agent is needed. He or she has to describe tasks, and name and pass on responsibilities in order to involve them in the change process.

5. Networking

Internal or external contacts can be helpful within the whole process of change. Firstly, the change leader can use his or her contacts to get ideas or improve the change process. Furthermore, it is important to have good connections within the

company to be stronger against resistance and opponents. The more people the change agent has on his or her side, the easier it is to lead the change process.

6. Tolerance of Ambiguity

As stated earlier, an organization always has to deal and cope with risk and uncertainty; it is often hard to influence all participants in the change process. Therefore, a change leader is required to preserve and bear this uncertain environment. It is necessary to be patient and deal with the ambiguity in an effective way.

Communication

7. Communication Skills

Almost all audio diaries claim that effective communication is a competence which is indispensable for the change process. Communication goes along with information sharing and distribution, involvement of all the employees, the ability to listen to people and so forth. It can include every appropriate communication tool according to the situation.

8. Interpersonal Skills

In the same way as communications skills, interpersonal skills are of paramount importance. This is, for example, the ability to influence, motivate, persuade, select, listen and stimulate personal involvement.

9. Personal Enthusiasm

For the success of the change project, it is important to show commitment, enthusiasm, and motivation, and to embody the things the change leader expects from the followers.

10. Stimulating Motivation and Commitment

It is important to be aware of the fact that commitment and motivation can fade over time. A change agent consequently has to take care of those who feel demotivated, show resistance or lower involvement and try to re-stimulate them.

Negotiation

11. Selling Plans and Ideas

Throughout the whole process of change, the leader should never give up communicating his vision in order to keep pace until the end. It is also important to differentiate the public operations from the activities behind the scenes. Therefore, one has to consider what kind of information is being given and how he/she is telling the stakeholders, for instance.

12. Negotiating with Key Players

Negotiating talents are important to guarantee and secure the needed resources for the change process. Furthermore, negotiating skills are also essential to run the process without any difficulties. As said above, in a world of uncertainty, the change agent needs more resources to keep the process working.

Managing up

13. Political Awareness

The change agent needs to be able to identify resistance and opponents within the company. In an organization, not everyone will be happy with the new ideas and the change which they bring. But in order to run the project successfully, the change agent has to consider, evaluate and maintain equilibrium between the different approaches, perceptions and goals.

14. Influencing Skills

If the change leader is dependent on positions within the companies which are over or out of his/her area of influence, it is crucial to secure their commitment for the change process. They should search for cooperation partners, and get support and ideas from them.

15. Helicopter Perspectives

In some cases, the perspective towards the change project should be broad and wide. At some point of the change process, the change agent, due the fact that he or she is deeply involved, is narrowed in his or her perspective and way of thinking. In order to correct this, it is helpful to step back from the project and get away from the daily schedule to gain new insights and views.

3.5 Conclusion

This Chapter has presented the main literature review of change models and leading change models. From reviewing these models, it was found that gaps between change management and leadership need to be related in the process of change. The following justifications were found from the review:

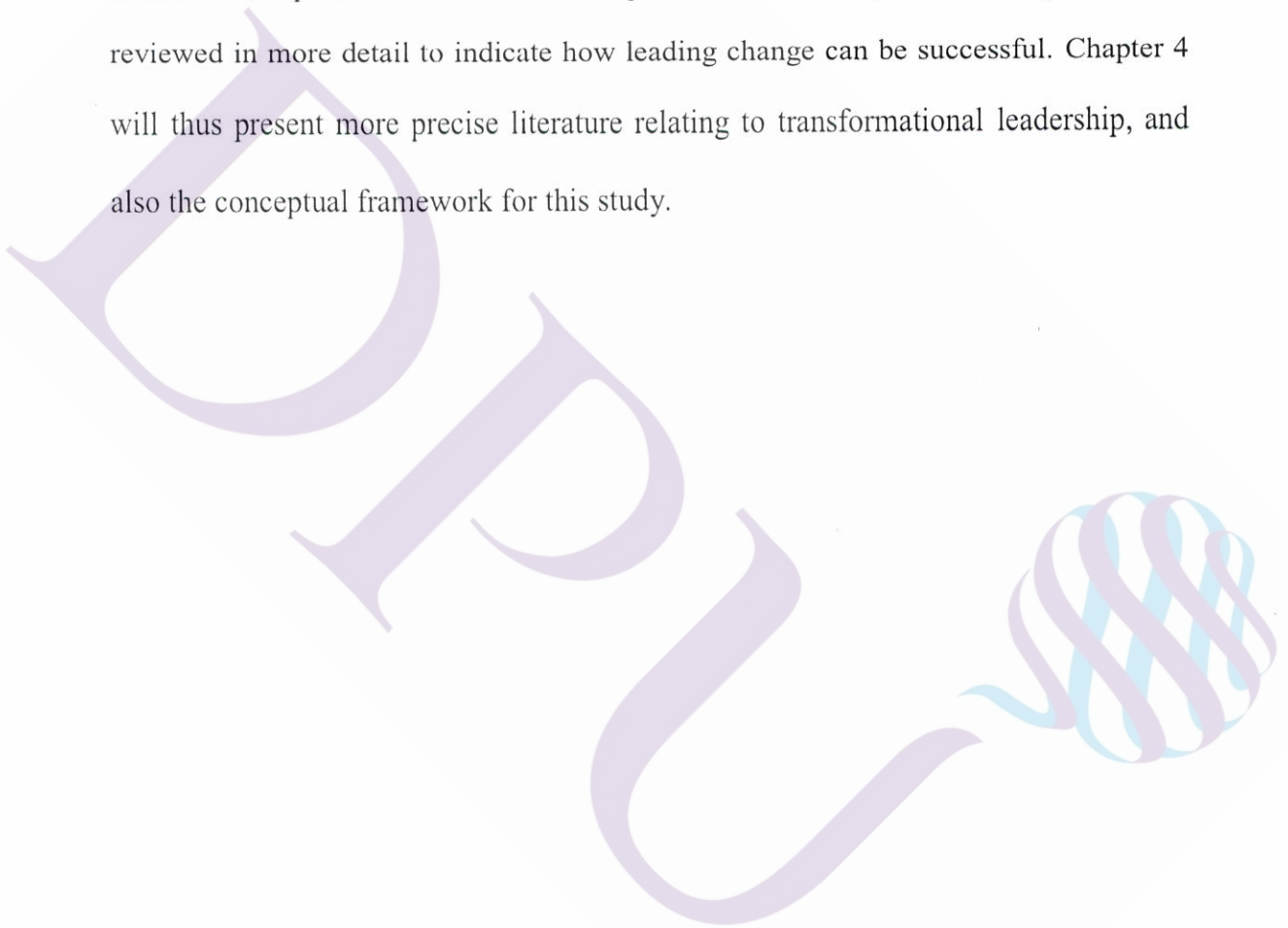
The first justification is that only a few academic researchers deal with identifying the managing of the process of change which has a strong link with the role of leadership. From a practical point of view, there is a lack of criteria which should be addressed 'step by step' for transitional change.

The second justification is the lack of a model of process of change and leading change when enhancing the new CNS/ATM technologies in Air Navigation Service to a transition to new Performance based Navigation (PBN). This system will

begin in practice in 2012, as assigned by ICAO.

The third justification is helpful for theory and practice. The change process model should have implications, providing an up-to-date empirical case study of the real situation in the field of study (ANSPs).

A demonstration of justification is described; the study would prove useful in both practical and academic respects. Nonetheless, the leader styles will be reviewed in more detail to indicate how leading change can be successful. Chapter 4 will thus present more precise literature relating to transformational leadership, and also the conceptual framework for this study.



CHAPTER 4

LITERATURE REVIEW: Transformational Leadership

4.1. Introduction

This Chapter is concerned with the theoretical framework, and the review focuses on the relevant literature dealing with the notion of transformational leadership. The Chapter comprises summaries and contains conclusions derived from the review of the change process models, leaders' change models and transformational leaderships. The conceptual framework and models are presented.

4.2. Theoretical Framework of Transformational leadership

The field of transformational leadership has already been studied extensively. Numerous literature references exist which are related to different aspects and perspectives. As far as organizational identity is concerned, the literature has mostly dealt with interactions within the organizational environment and their impact on organizational identity.

Since the 1970s, the field of leadership research has been developed from a supervisory leadership perspective to a strategic leadership perspective. Supervisory leadership focuses on task-and person-oriented behaviour as leaders attempt to provide support, guidance and feedback to the followers. In contrast, strategic

leadership concentrates on the creation of meaning and purpose for the organization (Boal and Hooijberg, 2000).

Strategic leadership is composed of three fields of research: the charismatic theory of leadership, transformational leadership and visionary theories of leadership (Boal and Hooijberg, 2000). In the literature, these fields of research are generally named “the new leadership theories”. They bring a new vision of leadership and emphasize the interpersonal process between followers and leaders.

Bass (1985) argues that superior performance is possible only through transforming followers’ values, attitudes and motives from a lower to a higher plane of arousal and maturity. Bass is considered the pioneer with respect to the development of the transformational leadership theory.

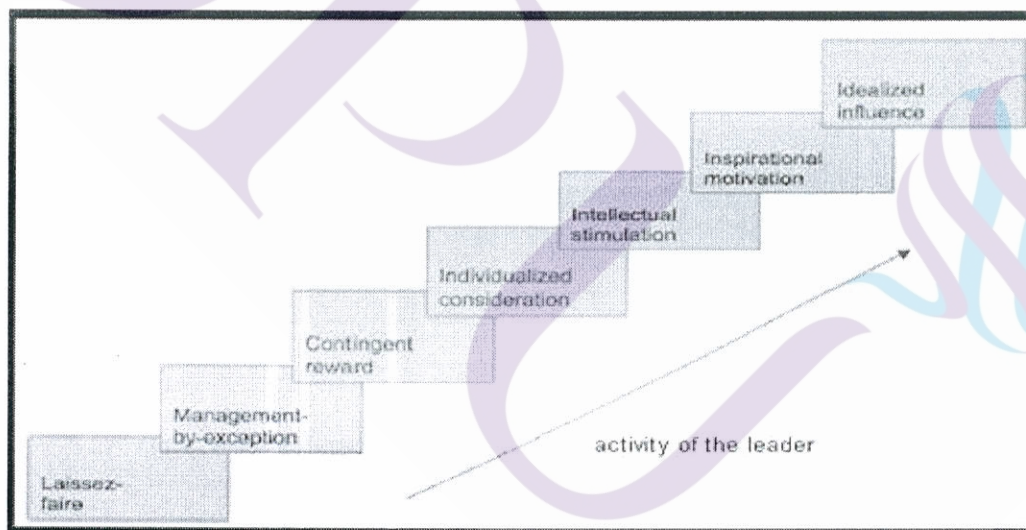


Figure 4.1 Full Range Leadership Model modified from Kirkbride (2006, p.24)

To integrate transformational leadership into the field of leadership, this study can use the full range leadership model, called the “nine-factor leadership

model; this model was developed by Avolio and Bass (1995), and is presented above in Figure 4.1.

The first three steps (Laissez-faire, Management-by-exception and Contingent reward) define the transactional leadership style, which can be used mainly in situations of stability. The next components (Individualized Consideration, Intellectual Stimulation, Inspirational Motivation and Idealized Influence) are part of transformational leadership and effective in a situation of change, therefore characterizing a transformational leader. Antonakis, Avolio and Sivasubramaniam (2003) see two perspectives of individualized influence: individualized influence attributes and behaviour. They also divide the Management- by- exception leadership into active and passive styles.

The order of the steps is also important, with a development from a more passive leadership style, particularly the laissez-faire style, to the more active leader role exemplified in the idealized influence style. To achieve the last step, a leader has to pass through the previous complementary steps; it is a continual process requiring multiple abilities and important personal development. It is important to note, however, that the laissez-faire leadership style is regarded as an inactive style of leadership where responsibilities are ignored and actions are not fulfilled. It is seen as the most inactive and ineffective leadership style (Bass, 1998, p.7), and belongs to neither transactional nor transformational leadership (Antonakis et al., 2003).

Bass (1985) makes a further distinction between transformational leadership and transactional leadership. In transactional leadership, leaders and followers rationally pursue their own self-interests; a free contract is the model of transaction. In contrast, transformational leadership is more related to a self who is

connected to other individuals, meaning that morale is more broadly grounded. Avolio and Bass (1995) distinguish these two notions as being that transformational leadership is self-defining whereas transactional leadership is driven by external contingencies. In other words, transformational leaders are internally directed whereas transactional leaders are externally directed; their interaction finally is based on their own vision to achieve a better future instead of interacting according to external rules.

Leaders whose leadership style is characterized as management by-exception can be oriented to a more active or a more passive behaviour. In a passive management by-exception leadership, the leader reacts to previously made mistakes or errors and tries to correct them. In an active management by-exception leadership, they are proactive, acting in advance and taking measures to avoid errors and mistakes. A management-by-exception leadership style tends to be ineffective but can be required in some situations if the leader uses it in combination with other leadership tools.

Of all the transactional leadership styles, contingent reward is seen as the most effective style in terms of motivating others to achieve better development and performance. In this style, leaders give tasks and reward people if the assignment is realized as planned at the offset.

The other four remaining steps belong to transformational leadership. They are examined in the following section.

4.2.1 Transformational leadership

“Transformational leaders motivate others to do more than they originally intended and often even more than they thought possible. Such leaders set more

challenging expectations and typically achieve higher performances” (Avolio and Bass, 2002, p. 1).

Transformational leadership emerged during the late 1980s with Bass (1985), but also with other authors including Bennis and Nanus (1985), and Tichy and Devana (1986). Their theories about transformational leadership emphasize the interpersonal process between leaders and followers based on emotions and values. Transformational leaders achieve higher performance because they do not act on their personal concerns. Rather, they put the interest of their organization first, make decisions according to moral principles and believe in social responsibility.

Practical studies show how transformational leaders influence their followers. An analysis of Coleman, Patterson, Fuller, Hester, and Stringer (1995) summarizes the outcome of 27 different studies related to the following question: *Which leadership style is perceived as better?* The results show that subordinates see transformational leaders as the best leaders. Empirical researches also point out several factors influenced by transformational leaders. First is the positive effect leader have on their subordinates’ satisfaction (Hater and Bass, 1988; Koh, Steers and Terborg, 1995); secondly, subordinates’ commitment increases (Bycio, Hackett and Allen, 1995; Koh et al. 1995); thirdly, transformational leaders are able to motivate the organizational members (Charbonneau, D., Barling, J., and Kelloway, E. K., 2001); last, it has been observed that individuals have better performance in a transformational leadership context. In addition to the above factors, transformational leaders encourage the formation of cross-functional and cross-cultural teams; this leads to an enhancement of organizational performance (Bass, 1985; Howell and Avolio, 1993; Barling et al. 1996).

Other studies demonstrate that authentic or truly transformational leaders tend to be altruistic individuals, being open to discussion and basing their leadership on relationships, not only with their followers but also with other leaders, superiors and partners. They are concerned about the personal development of their followers, giving them individual advice and training to convert them into leaders. For this reason, transformational leaders emphasize communication, motivation, commitment, self-accomplishment, trust and individuality. Details of this are shown in the following section about components of transformational leadership.

4.2.2 The four Components of Transformational Leadership

In order to characterize a transformational leader, Bass (1985) proposed four factors: *charismatic leadership or idealized influence, inspirational leadership or motivation, intellectual stimulation, and individualized consideration*. Bass and Steidlmeier (1999) subsequently rethought these four factors and provided further explanations. These four factors became the four components of transformational leadership and were renamed: *Inspirational Influence, Inspirational Motivation, Intellectual Stimulation and Individualized Consideration*. Firstly, leadership is idealized; secondly leadership inspires the followers; thirdly, transformational leaders are able to stimulate their followers intellectually; and fourthly, leaders consider followers as individuals.

A large majority of authors studying transformational leadership base their analysis on these four pillars (Avolio et al, 1999). This study focuses on these components and appreciates their impact in a transformational leadership context. Even if a consensus has been found to specify these components, this study will show whether different interpretations can be taken into account for each of them.

1. Inspirational influence

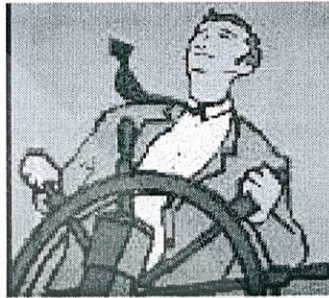


Figure 4.2 Transformational Leaders

Source: Inspirational influence for this thesis

Leaders who have inspirational influence are seen as guides or as a “role-model” by their followers as shown in Figure 4.2.

As the followers respect and trust their leader, they have faith in his/her leadership. Influential leaders are also perceived by their followers as transformational leaders, possessing exceptional talents or capabilities. They see the leader as a guide (Wright, 2007) and are grateful to have the opportunity to learn from this leader.

In return, for the recognition by their followers, leaders are loyal towards them and are engaged in ethical and moral conduct. This engagement is continuous, and leaders show considerable persistence and determination, assuming risks, taking objective and calculated decisions, and dealing directly with crises. Idealized leaders also have a vision that they spread through all levels of the organization. They translate their plan into actions and convince people to become involved, creating a sense of joint mission and building a team-work spirit. Consequently, to be influential, transformational leaders do not need to use their formal power but need

not be afraid to be powerful should the situation require it.

Kanter (2003) explained that transformational leaders are able to turn their structure into a “change adept organization”. She points out three elements: the *imagination to innovate*, the *professionalism to perform* and the *openness to collaborate*. This study can relate inspirational influence to the second item, the professional behaviour of the leader. Idealized influence is a process of added value, spreading best practices and learning from new experiences. The role of leaders is to introduce a professional model based on trust and initiatives, they “transform raw talent into professionals” (Kanter, 2003, p.13). Kanter explains that leaders do not need to cover their actions by formal rules and controls; on the contrary, an authentic leader is respected, introducing a natural discipline and guiding followers’ autonomous decisions. The secret of leaders with an idealized influence is to find a balance between natural discipline and empowerment.

Implementing a professional framework implies that transformational leaders are aware of individual competences, and help followers to improve their abilities. It makes people believe in the mission, propose career progress, respect peers and exchange knowledge. Idealized leaders are perceived as empathic, having high concern for the human resources development and human contacts. As a result, a professional model elevates the performance of the organization, in achieving work excellence. It also develops a continual learning process at the individual and organizational levels, and also a repeated effort to share it.

In addition, Schmidt and Kipnis (1984) argued that individuals use different influence strategies depending on whether their goals are personal or organizational, and depending on the organizational climate. They investigate six

categories of influence: assertiveness, bargaining, coalition, friendliness, higher authority, and reasoning. These categories are still used to measure the inspirational influence of leaders on their followers. Mannarelli (2006) developed this perspective, indicating that there is no special recipe which guarantees charisma and thus influence as charisma is perceived according to the context and the environment. Consequently, it is more important to highlight one's own positive traits than copy others'. However, charisma can be reinforced by reflection and self-awareness, which can be achieved through feedback and self-reflection (Mannarelli, 2006).

A stronger understanding of inspirational influence is important. Through influencing, the leader can use the strengths of others. Based on the art of influencing, Mannarelli (2006) made a distinction between the boss concept which deals with power and control, and which does not use effective two-way communication and the leader concept, which can be seen as transformational leadership. Scarnati (1997) explains how to gain influence through technical expertise, knowledge, experience, access to information and position. Conversely, limiting factors concerning influence exist, including dependency, the degree of uncertainty, personality, intelligence, age, and culture. The capacity of leaders lies in treating people with respect, as they will be more willing to apply their strengths and talents toward accomplishing a task.

2. Inspirational motivation

The second component, inspirational motivation, stimulates the need for growth and offers the direction through a vision of goals for a better future state. Transformational leaders behave in a way that motivates and inspires organizational members. Leaders provide meaning and challenge to their followers' work, displaying enthusiasm, optimism and building a team spirit (Bass, 1998). To make

people enjoy their work, to increase their commitment, and to involve them in terms of objectives is not an easy task. Transformational leaders understand that to inspire people they have to show they are motivated themselves, something which can be achieved through being enthusiastic, giving an optimistic view about the future or using emotional language, for instance. Individual motivation is also easier to increase when people work and interact with others, so leaders emphasize projects and teams. Transformational leaders have a clear mind and a sense of priorities, and can translate their objectives using precise and concrete expectations, all of which can help followers find more motivation to reach their goals and attain superior performance; they motivate the followers to superior performance by articulating a future vision that followers are able to accept. This component makes individuals capable of fulfilling tasks which they did not previously expect to be able to be solved (Kirkbride, 2006).

3. Intellectual stimulation

The third component of transformational leadership, intellectual stimulation, is related to the cognitive intelligence of the followers (Hofmann and Frost, 2006). The leader's task related to this component is the promotion of intelligence and rationality. Transformational leaders have the objective of encouraging organizational members to be creative and innovative, which means looking at regular or old problems from different perspectives compared to those the organization usually takes. The leader's role is to encourage the taste of discovering new things, to trigger followers' interest, and to excite their curiosity for the outside world. Leaders have to act as a stimulus, generating new opportunities to encourage followers to develop their imagination and to come with fresh and innovative ideas

(Hofmann and Frost, 2006). Stimulating followers to think through issues and problems for themselves makes them developers of their own abilities (Kirkbride, 2006).

To develop followers' potential, transformational leaders should first set goals. They then have to share the resources from the top on down the organizational pyramid, and then they involve people in the innovation process, encouraging followers to go outside the organization, to observe, to be curious about the outside world. Leaders also organize brainstorming sessions and urge teams to listen to customers. Ultimately, transformational leaders are able to convert imagination into useful and concrete ideas (Kanter, 2003).

Stimulating innovation is considered a key factor for success by many authors. Kanter (2003) pointed out that *imagination to innovate* is the most important element to carry a "change adept organization". Besides being respectful, sincere and authentic toward their followers, transformational leaders build a change adept organization. As a consequence, leaders are continually questioning, demanding further explanations, reformulating problems, approaching old situations in new ways, breaking news, entertaining bold ideas, and encouraging followers to employ intuition. The result is the creation of new opportunities, changing continually the business model of their industry. In a transformational organization, nothing is considered fixed: each practice can move and become better. However, possessing an innovative spirit is not enough, and transformational leaders have to have the "courage to be the first" (Kanter, 2003, p.9). Even if it is easier to keep the routine, a transformational leader is not afraid to express ideas, to face critics, to fight for new visions, to share and spread innovative concepts, and to ask for help and collaboration

to develop innovations. It is the unique way to create a “culture in which experiments, questions and challenges are not just for the courageous” (Kanter, 2003, p. 9). For that, leaders from all levels of the organization should be involved; innovation should not be reserved to a specific department.

Moreover, transformational leaders encourage followers to participate and even to build their own thinking process from the discovery of the problem until the finding of a solution. Equally, in order to stimulate the minds within the organization, members have to feel free to express themselves, without being judged or criticized. Therefore, mistakes are not punished; on the contrary, they are seen as a learning stage which can be an opening for other interpretations.

4. Individualized consideration

The last component, individualized consideration, includes a coaching role, encouragement, autonomy, support and responsibility from the leader by demonstrating concern for followers. Individualized consideration aims at the follower’s needs (Avolio and Bass, 1995), and it represents the strongly personal component of a transformational leader. Emotional intelligence reinforces the talent for individualized consideration, as the use of emotions facilitates actions, helps in understanding the meaning of emotional cues, and manages the emotions of the self and others (Hofmann and Frost, 2006).

The concept behind this component is related to the concern of each individual within the organization. Leaders have to be aware that different personalities shape the organization, and that people have various ways of thinking, contrastive personalities and disparate cultures. Followers have to feel that their differences are recognized and that they are an asset to the achievement of higher

performance. Everyone has to be evaluated and to be considered as unique, and everyone has to possess a special place within the structure, creating harmony in the whole organization. This development of individuals and teams will have an impact on the performance of followers and the effectiveness of the organization.

Leaders are perceived by their followers as tutors, advisors, and guides, helping them discover their best skills, potential and capabilities, being available, creating a favourable climate, proposing individuals' career opportunities and rewarding individuals based on personal achievements. With consideration of the notion that every follower has a need for long-term development (Hofmann and Frost, 2006), transformational leaders nurture a long-term relationship with the organizational members based on reciprocity, and they interact and are committed personally to followers' work and encourage autonomy and responsibility.

A distinction should be made between support and development. Both are a part of individualized consideration but have different effects. The first includes coaching and mentoring in order to enhance followers' capacities and expertise. The second, which involves supporting, tends to be linked to being friendly and helpful to entertain a personal contact with people and to appreciate them for their personality. Making this distinction between developing and supporting is important for understanding the impact of transformational leaders on followers. Indeed, developing is a core transformational behaviour of transformational leadership, but it has been demonstrated that supporting has a weak effect on subordinate motivation or performance.

Proximity with followers is a factor of success for transformational leaders. Leaders have to be physically and personally available for their followers. Seltzer and

Bass (1990) demonstrated that a transformational leader impacts followers' behaviour by considering each of them as an individual. Authentic leaders tend to nurture a dyadic rather than a group relationship with their followers. Ross and Offerman (1997) said that transformational leaders do not have to be perceived by followers as part of a hierarchical structure. They do not have the need to prove their rank within the organization and perceive other organizational members as collaborators or partners.

Furthermore, Avolio and Bass (1995) stated that individualized consideration can be analyzed on different levels, such as the organization itself, the group and the individual. Individualized consideration is dependent on the context and on the environment, such as the organizational culture which influences how different actions of the leader are interpreted. Second, individualized consideration is dynamic because individual interpretations of an action change over time. Third, individualized consideration should be considered as an interactive process between leader and follower rather than a one-way exchange from leader to followers (Seltzer and Bass, 1990). Indeed, the leader's individualized consideration will be affected by the follower's reactions, and this can be related to Weick's (1995) theory about sense-making and sense-giving processes.

Researchers like Avolio and Bass, (1995) suggest establishing a top-manager with a bottom-up reasoning in the organization to create an organizational culture which values individual members' needs and rights. This structure would reinforce individualized consideration, spreading values from the bottom to the top. It also means that in terms of analysis of individualized consideration, the starting point has to be considered (Avolio and Bass, 1995).

To better understand this fourth component, a parallel would be made between individual consideration and the notion of Leader-member exchange (LMX). This concept means that leaders treat followers differently, resulting in two groups of followers: an in-group which is a small number of trusted followers with a special higher-quality relationship and an out-group characterized by a more formal relationship (Gerster and Day, 1997). The relationship between leader and the in-group might be characterized as transformational. It also means that in the same way as being transformational leaders, they are transformational followers. A transformational leader can try to influence followers to be part of the in-group. The quality of LMX is positively related to follower's satisfaction, organizational commitment, role clarity, performance ratings given by leaders, and objective performance, but negatively related to role conflict and turnover intentions (Gerster and Day, 1997).

After this illustration of the four transformational components, this study identifies that numerous critiques of Bass's theory have been undertaken concerning the negative aspects of transformational leadership. Recognizing this drawback in his theory, Bass compared authentic transformational leaders to pseudo-transformational leaders. This latter is characterized by the negative aspects. Authentic leadership requires that the leader engages in an enduring change concerning values of followers, their identity and self-concepts. This process influences the person as a whole. In comparison, pseudo leadership merely achieves minor change on "cosmetic aspects" in followers' affective outcomes (Bass and Steidlmeier, 1999). Pseudo-transformational leaders seem to have the attributes of a transformational leader at first sight, but, in fact, in the long term, serve their own self-interest through being

narcissistic and immoral. Minier (2005) added that even if leaders serve their own interest, they could be efficient, achieving their goals and objectives for the organization and enhancing the organization's performance. Bass, setting up the notion of the pseudo-transformational leader, does not answer the real issue which is to introduce in the transformational theory behaviours that have negative aspects on the organization, therefore producing negative results. Examples include manipulation of the followers, creation of a crisis to establish a stronger leadership, overstating the leader's achievements, restricting and selecting information, hiding errors, etc.

4.2.3 The transformational leadership recipe

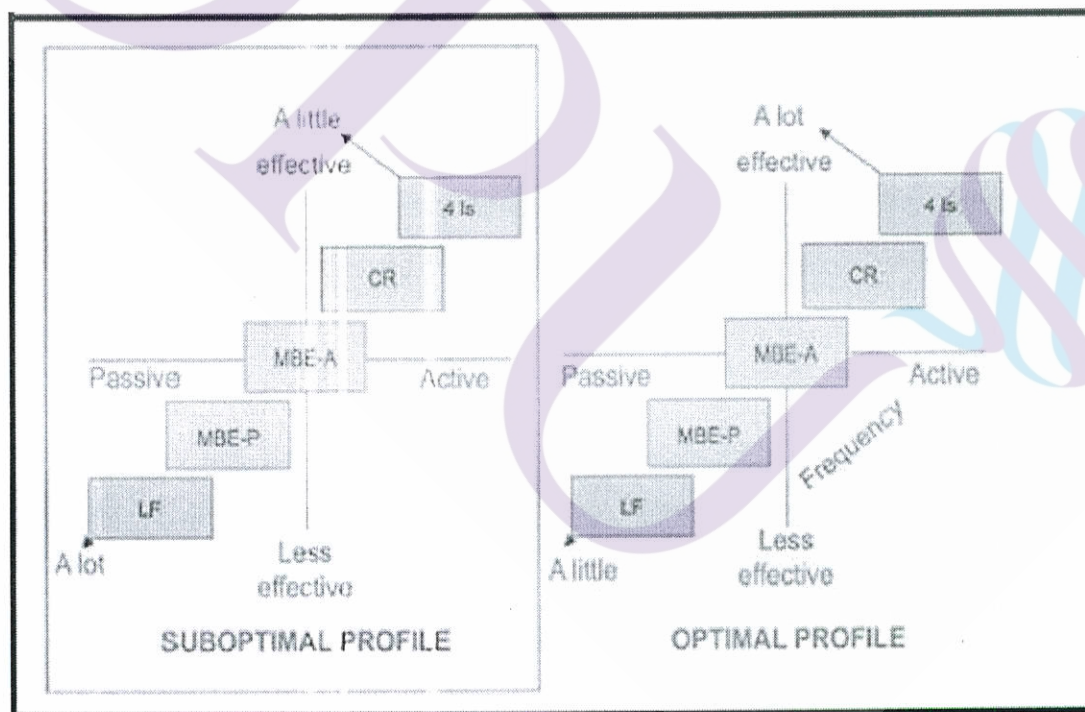


Figure 4.3 Efficiency of a Leader in Relation to the Weight of Different Leadership

Styles (Kirkbride 2006, p.26).

As a conclusion to the use of the transformational components, this study can summarize Bass's theory as a recipe including the different characteristics we have previously seen. A transformational leader can be more directive or participative, democratic or authoritarian. Although a transformational leader will use mainly a democratic and a participative style, he has to know and to judge situations when it is necessary to come up with a more authoritarian or directive style.

From Figure 4.3 it can be seen that the success of leadership is influenced by the right balance of different leadership styles. This means that a leadership style profile is optimal ("optimal profile") when leaders rarely display the laissez-faire style (LF) or transactional leadership styles (MBE-P: Management-by-exception passive, MBE-A: Management-by-exception active, CR: Contingent reward.). Leaders will instead use the most effective form of transactional leadership (contingent reward - CR), and will primarily base their leadership on the four transformational components- the 4 Is. By comparison, the "suboptimal profile" describes an inefficient leader who in fact does not have leadership power, displaying mainly laissez-faire leadership (LF) and management-by-exception (MBE-P, MBE-A), and using from only time to time some elements of the four components of transformational leadership (4 Is). Consequently, leaders who conduct their leadership using mainly the four transformational components, the "4 Is", avoiding the passive form of management-by-exception and laissez-faire leadership, will be leaders characterized as the most active and effective.

To limit the focus of this thesis, this study concentrates on the "4 Is", which are components characterising transformational leadership. In order to build this analysis, this study is not taking into consideration the non-leadership "laissez-faire"

style, or the transactional leadership styles of management by exception and contingent reward.

4.2.4 Factors Influencing Transformational Leadership

It is wrong to think that a leader is only transformational or transactional. Like all other theories, the important thing is to find the right measurement of the ingredients; different leadership styles are used according to different situations. Several factors should be taken into consideration.

1. Environmental risk

Bass and Steidlmeier (1999) and Avolio (1999) pointed out that leadership styles differ according to the situation; different styles will predominate in situations of change or crises when compared to situations of stability. Therefore, as mentioned above, in the day-to-day business not characterized as a situation of change, the transactional leadership style can occur, while in situations of change the same leader will be characterized as following a transformational leadership style through acting according to the four components of transformational leadership. In that sense, Bryman (1996) claimed that the transformational leadership theory does not sufficiently consider the context and the situation a leader has to face. Indeed, crisis, acquisitions, new competitors, and other stakeholders will modify the way of leading and will also have an impact on the followers' way of reacting.

2. Hierarchical level

The leader's hierarchical level is another factor of influence. Zaccaro (2001), showed the use of different leadership styles according to the hierarchy level, for instance. He demonstrated that the role of leaders concerning individualized consideration is easier on the lowest levels of the organization. In the low-hierarchy

level, leadership is more focused on tasks and is more technical oriented. This will demand a different leadership style than the leadership style on higher levels of hierarchy which deal rather with strategy and vision (Hunt, 1991).

3. Gender

Gender may also influence the leadership style or at least its perception, a perception which can be dependent on prototypes (Eagly and Johnson, 1990). In addition, Antonakis and Atwater (2002) found significant differences within the nine-factor-leadership model between a male and a female sample, with female leaders scoring higher with regards to individualized consideration, for example. Even in four different studies conducted by Bass, Avolio, and Atwater (1996), the leadership style of women was found to be more transformational than that of men. Underlining that fact, the Meyers-Briggs-indicator for female leaders is more “feeling” than for men (Myers and McCaulley, 1985).

4. Personality factors

Bass recognizes personality factors as an explanation to the way leaders will develop their leadership style, with the personality of leaders obviously continually shaping their way of leading. If we take into account a theoretical classification of leaders, the higher in terms of transformational style would be those who are characterized by social boldness and audaciousness, those who are deeper thinkers and possess a sense of analysis and those who are engaged at a high activity level. Those leaders are also able to use their authority: they have a need for self-realization, and they are respected for their maturity, integrity, creativity, and originality. In addition, Antonakis and House (2002) discussed the weight of the leader's personality in the transformational theory. They notice that leaders'

behaviours are to be considered and compared to the role of the leader's personality. However, no relevant studies have yet been done in that aspect.

More unexpectedly, the personality of followers interacts not only with the leaders' way of leading but also with the way they are developing their leadership style. It will be a challenge for a leader to influence a follower with a good education, with self-confidence, and with a high status because those are attributes less sensitive and susceptible to charisma. Leaders will also have more difficulties in building a personal relationship (individualized consideration) and stimulating the brain (intellectual stimulation) of narrow-minded and stubborn followers. On the other hand, followers who tend to be open-minded and concerned about their personal improvement will be well-disposed to transformational leadership.

In all cases, leaders have to deal with different personalities and have to learn how to cope with contrasting reactions from followers. According to the experiences leaders face, their leadership style will take different directions. The issue of leaders' and followers' personalities is interesting in many points, and perhaps in the future we will be able to predict the individuals who are particularly likely to mobilize transformational behaviours.

To sum up, these findings indicate that when we are talking about leadership styles, we have to be aware that measuring leadership is related to its context. And in conducting research, it is especially important to be aware of contextual factors. After discussing the transformational components and setting up the context of transformational leadership, the issue now underlines some elements which could influence transformational leaders.

4.2.5 Concepts tightly linked to transformational leadership

Many studies have already been undertaken concerning transformational leadership; some directly use Bass' components, while others conduct their analysis according to common elements which can be found in the former theory. Generally, we observe that some concepts are recurrent, and these will be discussed in order to gain a deeper understanding of what transformational leadership is and how a transformational leader is articulated. First, the notion of charisma will be introduced, followed by a look at the importance of empowerment. We will then highlight the role of morality for a transformational leader, and then finally other ideas which underlie the findings will be added.

1. Transformational leadership and charisma

The charisma dimension is related to the leader's capabilities to transfer pride, faith, and respect through a vision and a mission. Numerous authors, (Bass (1985), Bass and Steidlmeier (1999), Burns (2003), and House (1976)) have studied the role of charisma in leadership. It is the importance of leaders' personal values which conduct followers to act in a desirable mode of behaviour, emphasizing the role of values influencing leaders' and followers' behaviour and attitudes. Weber (1947) explained how charisma helps leaders to diffuse and to intensify social influence through their beliefs and their behaviours. Howell (1988) explained that charisma is a way to elevate effort for challenging goals, to increase group cohesion and cooperation. This results in the leader obtaining more commitment to his vision because of the followers' admiration and respect for him.

Empirical researches show that charisma brings to leaders better capacities concerning *social intelligence*, especially the kind of good communication skill

underlined as a major aspect related to inspirational influence (Hofmann and Frost, 2006). Self-confidence, sociability, capacity for status, stress tolerance, and an understanding of the social dynamics of organizational problem solving, are additional capacities (Hoffman and Frost, 2006).

After situating the notion of charisma, the most relevant issue is to relate it to the component of inspirational influence in order to discuss the actual debate which takes place concerning the similarity, the compatibility or even the mutual exclusivity of transformational and charismatic leaderships. Both are linked to the research field of organizational behaviour and share common elements. Some authors, such as Shamir, House, and Arthur (1993), do not differentiate between them and consider the two approaches as equivalent. Others consider transformational and charismatic leadership as two different concepts but “partially overlapping processes”; Yukl (1999) even suggests the incompatibility of transformational and charismatic leaderships, arguing that changes such as values and cognitive maps, which are dealt with in the context of transformational leadership, are not influenced by charisma. Supporting this view, Bennis and Nanus (2003) argued that leaders do not need to have charisma because “charisma is the result of effective leadership, not the other way around” (Bennis and Nanus, 2003, p.208). Consequently, we can consider the following issue: Can a leader be transformational without being charismatic?

As this study has already pointed out, Bass (1985) initially called this first factor of transformational leadership *charismatic leadership or idealized influence*. Bass and Steidlmeier (1999) subsequently separated charismatic leadership from transformational leadership, (re)naming the first component *inspirational influence*. Charisma still remains a key characteristic of inspirational influence, but Bass and

Steidlmeier (1999) take into account Yukl's (1999) position of differentiating charismatic from transformational leadership.

Charisma is often perceived as a natural asset a leader either does or does not possess. By comparison, transformational leadership is composed of four components, and a leader can learn how to deal with them; in other words leaders are not born as transformational but develop their own skills or capabilities, following training programs and practicing in order to shape their own transformational leadership styles.

To merge Yukl's and Bass's points of view, this study can refer to the following model (Figure 4.4) developed by Behling and McFillen (1996, p. 166), which has the objective of combining charismatic, transformational, and visionary leadership.

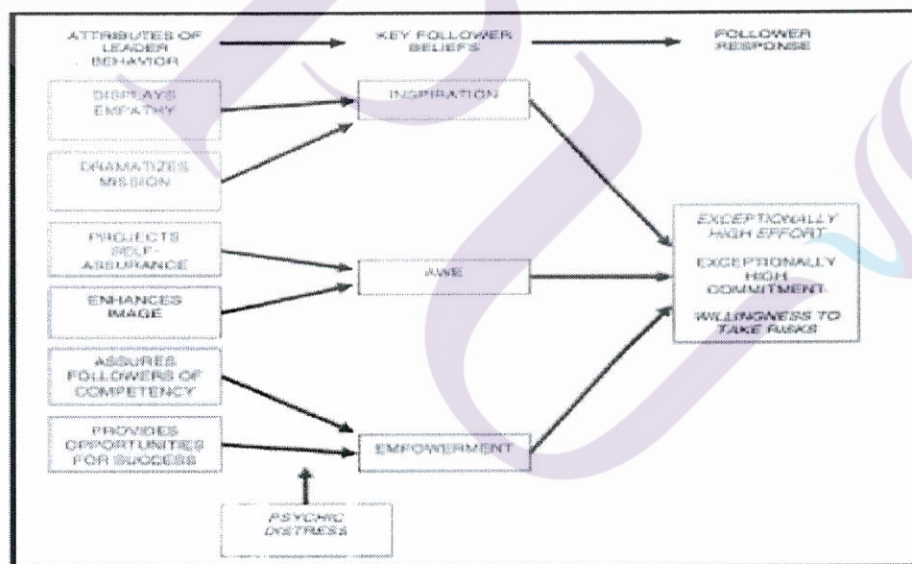


Figure 4.4 The Behling and McFillen Model (1996, p. 166)

The authors use three sets of variables: leader behaviours, followers' beliefs and responses. In addition, to these sets, six main behaviours can be observed which characterize a leader.

Displays empathy. A leader understands and knows how to highlight followers' individual needs and values.

Dramatizes the mission. This feature is related to a leader's sense of rhetoric. Leaders know how to dramatize the mission, and transform their organization into a theatre scene. They are artistic directors who conduct actors- the followers. Therefore, to nurture their stories, they use metaphors, similes, allusions, images and draw parallels related to the mission.

Projects self-assurance. The third behaviour is related to self-confidence. A leader has to take decisions and to act with conviction and certainty.

Enhances image. This behaviour can be considered as manipulation from the leader. Indeed, it implies that leaders develop their image, overemphasizing their competence, success, and commitment.

Assures followers of competency. A leader behaves as tutor for the followers, helping them to develop their competences in order to convince them of their abilities. The role of leaders is not limited. To convince followers, leaders have to foster trust in followers, demonstrating they can perform at high levels.

Provides opportunities for success. The last behaviour is related to the previous one. A leader must develop followers' skills, giving them responsibilities and providing them with opportunities and possibilities to prove their talents.

In parallel to leaders' behaviours, followers express beliefs. They need to be inspired by an organization with morals and ethics (*inspiration*). For that reason,

leaders have to demonstrate that they act for the interest of the organization. Second, followers must have faith in the abilities of the leader to drive the organization toward success (*awe*); therefore, the leader will be able to develop follower's aptitudes. Last is *empowerment*; followers' have beliefs in their own abilities and capacities, and they have to be socially integrated and to believe in their group, putting in effort for its success.

Figure 4.5 attempts to combine several aspects to address and answer the complexity of the relationships between leaders' behaviour and followers' beliefs. We essentially learn that awe is the most strongly predicted leader's behaviour. In addition, followers' beliefs in awe and inspiration have an impact on transformational and charismatic leadership, mediating their effects on follower's commitment. Somewhat unexpectedly, empowerment does not play a mediatory role, and it therefore does not have a direct impact on transformational leadership in terms of followers' commitment. Empowerment is clearly a key element in running a transformational leadership style within an organization, however, as it permits followers' personal development, helping them identify themselves to the identity structure in the long term.

Obviously, this debate allows us to limit this study. Although the charismatic leadership style will not be explored as one single approach, the notion of charisma will be investigated to the extent in which it helps transformational leaders be successful.

2. Transformational leadership and empowerment

Bass (1985) related empowerment to inspirational motivation. Transformational leaders provide challenges to their followers and encourage

autonomy and initiatives. Empowerment is the result of a relationship built between follower and leader which increases long term motivation, transforms the person and shapes followers' meanings.

Bennis and Nanus (2003) presented empowerment as the basic energy to initiate and sustain action. Employing power, leaders are able to translate their own vision into reality. It is a quality without which a leader cannot lead. According to Bennis and Nanus (2003, p. 16), empowerment is "the reciprocal of leadership". They align with Bass's view, considering empowerment as part of inspirational motivation: it creates a vision of success and mobilizes key employees. In short, "power is the ability to mobilize resources (human and material) to get things done" (Bennis and Nanus, 2003, p.136). To empower people, a leader has to be able to provide free access to information and resources needed to achieve organizational goals. As a result, powerful leaders increase their followers' moral and help people to find meaning in their work.

Bennis and Nanus emphasize the fact that it is not easy for a leader to deal with empowerment because people perceive it in a negative way. There exists an ambiguity: on one side, power is needed to achieve objectives, but on the other side, the society rejects confrontation, avoids conflicts and refuses to face power. Kanter (2003), in her book "On the Frontiers of Management", argues in that sense saying that "people who have it [power] deny it; people who want it do not want to appear to hunger for it; and people who engage in its machinations do so secretly" (Kanter, 2003, p.135). According to Bennis and Nanus' findings, the main explanation is that people do not differentiate power from empowerment. Empowerment means reciprocity between a follower and a leader involving an exchange of information. A

leader is not at all the expression of the power itself; it is the alignment of collective energies behind an attractive role: inspiring rather than ordering, challenging rather than manipulating, encouraging rather than constraining. The Leader “pulls” people and does not push them. The Leader attracts followers, gives them energy and motivation, and creates an exciting vision for the future. That is the definition of empowerment.

By comparison, generic power is a one way exchange from leader to follower; it is a notion associated to authority, conventional status and often to inertia. Formal power does not create space for creativity, invention or personal development. Kanter (2003) also underlined this distinction, bringing into opposition the “change-adept organizations” which empower people and the bureaucratic organizations which constrain people to work.

To build a structure which empowers its members, leaders need to feel powerful themselves and it requires a professional behaviour and discipline. The role of transformational leaders is to move the organization, to create visions and opportunities, to increase people’s commitment, to establish new culture and strategies, to drive energy and resources, to face responsibilities during crisis, and to make employees confident. For that, powerful leaders understand the importance of delegating, know how to reward talent, and value team work - highlighting individual competences.

More precisely, Kanter (2003) found that to generate power, organizational members expect their leaders to provide a variety of tasks, flexibility around employment of people, explanations about the organization’s missions, a personal commitment, an active participation in events, and an involvement in decision

making. Transformational leadership is “a collective though a subtle interplay between followers’ needs and wants and the leader’s capacity to understand”; there is a “symbiotic relationship between leaders and followers” (Bennis and Nanus, 2003, p.202). Authentic leaders understand that empowering others does not mean losing power; on the contrary, it increases their influence attaining higher performance. Leaders use empowerment as a balance between what they bring to followers and what followers can bring back to them.

Concretely, a leader who uses empowerment places followers in the centre of interest, giving them confidence. He learns and transmits knowledge, teaching and developing followers’ competences; he makes people work together through creating a community where members of the group share a common cause and can rely on each other. Also, he challenges success, and encourages a culture of pride; he inspires, and generates a fun environment where employees enjoy working. In short, effective leaders empower their world by proposing something different.

This study can relate the latter findings to Kark, Shamir and Chen (2003) who introduced the notion of dependence into the equation. They determined the efficiency of a transformational leader as the combination that they build between dependence and empowerment, arguing that followers need both. Dependence is more related to idealized influence. Followers identify themselves to their leader who has a function as a role-model. Still, empowerment does not have to be perceived as the opposite of independence; a leader who empowers followers gives a sense of team work and creates a social context and a collective way of working. As a result, followers must identify themselves to a group, putting in the effort to make it perform and be successful.

3. Transformational leadership and morale

“Leadership is morally purposeful and elevating, leaders can, through deploying their talents, choose purposes and visions that are based on the key values of the workforce” (Bennis and Nanus, 2003, p.202). Quoting the authors, we understand that morale represents the roots for leaders to express their leadership style. Morale and ethics can be the inputs or the outputs (or both) of empowerment. Although charisma, empowerment and morale are considered as three distinct concepts, they are linked and they are part of the transformational process.

Morale may be the most unexpected concept. A large number of managers are running after personal rewards, trying to increase their self-esteem. They forget that morale and ethics are key elements leaders must have to develop their transformational leadership style to be an effective leader. Authentic leaders have a high level of morality with a strong value system. They adopt standards of goodness and rightness.

Bass (1985), Burns (1978), and Howell and Avolio (1992) have all dealt with the issue of leaders' morality influencing their leadership style. However, the literature does not offer a perspective based on the influence of leaders on the orientation of followers' morality. In other words, the morals of a leader influence the leadership style and therefore the values related to the structure they are in charge of. Followers are appealed to by an organization which fits their personal moral schema. This, as a consequence, will increase or decrease their involvement in their work.

An effective leader should be able to interact in the value system of the followers to adapt their sense of morality according to their vision for the organization, an issue which is most relevant from a psychological perspective. Thus,

in order to find managerial answers and to link morality with transformational leadership, Popper and Mayselless (2003) draw a parallel between the parent-child relation and the leader-follower relation. Comparing those two relationships, they find elements to explain how a leader can shape followers' morality based on how the parents build the morality of their children. They emphasize the fact that it is essential to understand that morality is based on the individual perception of life. The morality of individuals is unique and is built before entering into an organization according to their individual frame of reference (which is based on education, studies, personal and professional experiences and life background). Therefore, individuals will search consciously or unconsciously for a structure which will fit their selection of ethical principles and their end values of justice, reciprocity, equality of human rights, and respect for people, etc. If the organization and the individual share a sufficient amount of common norms and values, a fusion will appear increasing personal commitment and motivation and by extension the global performance of the organization.

According to Popper and Mayselless (2003), transformational leaders first expect from their followers a morally appropriate conduct. It means that leaders have to recruit people who respond to the ethical principles of the organization and who have expectations and goals that are moral in nature. Second, leaders have to maintain trustworthy and communicative relationships. It is only through creating a forthcoming climate based on trust and reciprocity that a leader can interfere with the morale of followers. In that respect, Roush and Atwater (1992) argued that a transformational leader places more emphasis on human relations, on the importance of the attitude of others, on concern for their welfare, and on promoting an

atmosphere of openness. Judge and Bono (2000) saw agreeableness as one of the most important factors for a transformational leader. In addition, Podaskoff, Mackenzie, Moorman and Fetter (1990) asserted that trust acts as the most significant factor on performance, attitudes, and satisfaction of the followers.

To continue in Popper and Maysel's (2003) view, effective leaders use inductive methods such as reasoning and explanation processes in order to generate empathy and pro-social behaviours. Indeed, authentic leaders make clear the objectives, the rules and the way of doing things. Leaders justify their actions and their beliefs, and they are logical; they find connections between events proving to followers the power of their mind to think, and they understand and form judgments. Through this approach, leaders manifest their ability to perceive and to share peoples' feelings and create a positive and helpful environment within which social acceptance and friendship can be promoted. This view is in line with Solomon and Henson's (1983) findings; they observe that being sensitive and attentive to the fundamental wants, needs and aspirations of the followers are key variables for being perceived as a moral leader. Kuhnert and Lewis (1987) enhanced this point by defining transformational leadership as holding a sense of moral obligation to the organization as an end value, which in turn is also adopted by followers.

Furthermore, the notion of moral courage has also been developed by Kanter (2003). 'Moral courage' means that leaders never default on their beliefs, and are honest with both others and themselves. Transformational leaders therefore not only have a sense of morality and possess ethical principles, but are also able to be engaged in the value system of followers in order to affect their motivation, goal and conduct. This results in improved guidance of the followers through concern for

others and for the organization, and through general higher order values such as justice and the well-being of others.

4.2.6 Theories which underline the findings about transformational leadership

1. Maslow's hierarchy of needs

Unifying the different arguments from the theories of Freud, Adler, Jung, Levy, Fromm, Horney, and Golstein, Maslow created a theory of human needs (Oleson, 2004). He established a hierarchy of needs constituted by steps (Figure 4.5).

Maslow made two assumptions: first, needs are hierarchical; and second, needs move to a higher level as soon as the need for the lower level has been satisfied. The fundamental stage is physiological needs, the satisfaction of which guarantees survival; this incorporates the basic need of food, rest and shelter. The second step, safety and security needs, is expressed in the preference for structure and routine in life. Next, love and belongingness are social needs and emphasize the importance of family and friends to make individuals feel accepted and loved. This need is followed by esteem needs: human beings have the need to be respected, and the desire for status, self-respect, self-esteem and the respect or esteem for others are all part of this need. Here, Maslow built two categories: first, "the desire for strength, for achievement, for adequacy, for confidence in the face of the world, and for independence and freedom" (Maslow, 1943, p. 381); and second, "the desire for reputation or prestige (respect or esteem from other people), recognition, attention, importance, or appreciation" (Maslow, 1943, p. 382). The satisfaction of this hierarchical level of needs results in self-confidence, power, worth, adequacy, and other feelings of usefulness (Oleseon, 2004). The last and highest level of needs is the

need for self-actualization. Individuals have to fulfil their potential, desiring to behave according to how they are perceived. Elements of self-actualization, such as autonomy, purpose in life, openness to experience, courage and curiosity, have been discussed in Summerlin (1997).

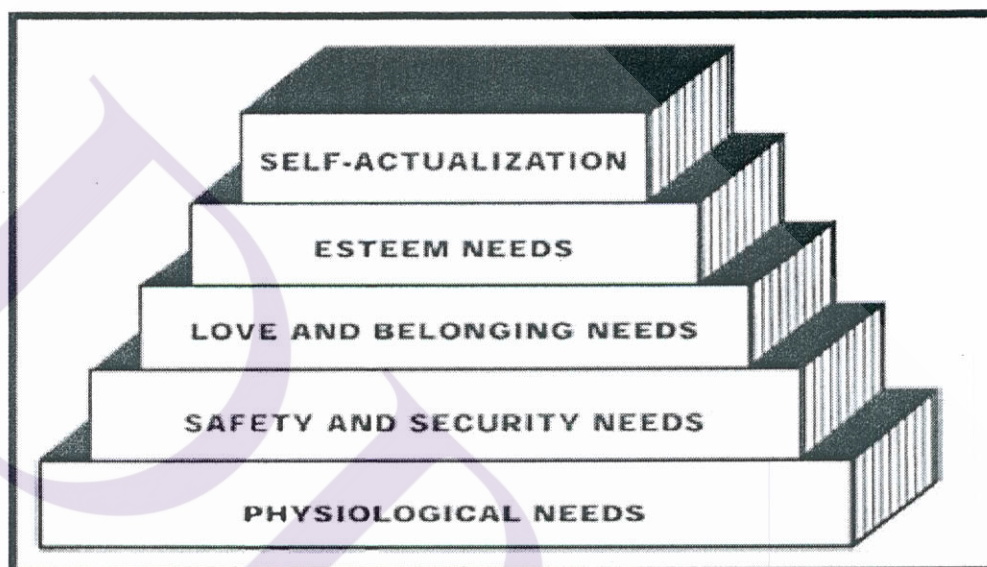


Figure 4.5 Maslow's hierarchy of human needs (Oleson, 2004, p.84)

2. Transformational training

The issue of transformational training is part of the process of transformational leadership. Barling, Weber and Kelloway (1996) demonstrated that managers who receive a transformational leadership training can positively influence intellectual stimulation, charisma and individual consideration and thus increase the organizational commitment of their organization's members.

Bass and his collaborators provide a model for a trainee program based on the feedback of the MLQ profile results (see Methodology part). The objective is to confront leaders with the answers given by their followers, whereupon leaders can

realize the perceptions evident in their organization. The objective is not to present scores or numerical data; the aim is rather to find an explanation and an interpretation for leaders to develop their own priorities, plans and goals. To be more specific, the training is defined by fourteen modules spread over several days, interrupted by a practice period to develop and test the skills leaders have learned. Different trainings are proposed according to their focus on one or two transformational elements. Concerning the efficiency of this coaching, several studies, including these by Barling, Weber and Kelloway (1996), showed that leaders significantly improved the skills they were working on: their performance and the organizational effectiveness increased. Transformational trainings are increasingly studied in the literature because of their positive impact on leaders, on followers, and consequently on the whole organization's performance.

3. The romance of leadership

To finish with the concepts which can bring additional elements that explain why transformational leaders are more efficient, an original theory related to the followers-leaders relationship has been selected. People, including followers, often attribute more "romance" to leadership than is happening in reality. Meindl (1990, 1995) argued that more emphasis is placed on leadership in a situation of change, when the organization is transformed. In order to face these events, followers need leaders to explain to them and guide them. They search for a leader and idealize her/him irrespective of the efficiency of the leadership. This also means that charismatic and transformational leadership appear on the basis of emotions and are spread through the network of interpersonal relationships of the followers. However, Awamleh and Gardner (1999) showed that romance of leadership does not always

operate, some followers being more sensitive to this romance than others. This theory enhances the fact that transformational leadership is built according to an organizational context. Also, it stresses the importance of the individual consideration component to succeed in the implementation of an organizational identity change. Leaders have to be especially aware of the personal features of their followers, adapting their leadership style in relation to their personality, experiences, and education.

4.3 Organizational Identity

4.3.1 Organizational Identity: Roots and Discussion

When discussing the notion of organizational identity, it is with reminding ourselves that this notion of identity originally belongs to psychological and sociological domains, these fields considering it before it was used within the organizational area (Hatch and Schultz, 2004). Several early researchers in other domains should therefore be mentioned here in order to help give a more holistic idea of the different inputs related to the specific research field of organizational identity.

The sphere of philosophy is a vast one, and it is not possible (nor wholly necessary) here to cover more than merely the most relevant areas. Nevertheless, to fully understand the idea of identity, it is imperative we briefly mention certain key philosophers, namely Freud and Foucault. For Foucault, individuals do not have a fixed essence within themselves; they only communicate this identity during the interaction they have with others. It means that identity is a temporary construction. Foucault identifies the self as being defined by a continuing discourse in a shifting communication of oneself to others (Petula, 2007).

Generally, the idea of an organizational identity was largely created through the research of Albert and Whetten (2004). In this landmark study, organizational identity has two concepts: the scientific concept which defines and characterizes certain aspects of organizations, and the concept that identity is presented as a question of organizations to characterize aspects of themselves. Identity for Albert and Whetten is central, distinctive and temporally continuous.

Schwartz (2004) related his theory about organizational identity to Freud's psychoanalytic theory. Based on Freud's discussion about the ego, he suggests that for individuals who have no clear identity, the organizational ideal is a substitution. In short, every individual is searching for an ego-ideal in order to have the opportunity to return to the infantile state of total love and protection.

4.3.2 Different Points of View of Organizational Identity

The literature about organizational identity is directed following different points of view. In order to have a general outline, we can demarcate groups of authors. First, one circle of authors considers organizational identity as a phenomenon which is related to the mind of the individual itself. At the same time, other authors, such as Tajfel and Turner (1979), and Brewer and Gardner (1996), perceive organizational identity as a property related to the organization itself. They take into consideration processes on the organizational and collective level. A third group sees organizational identity arising from inter-subjective actions which are created by group social relations. This last view combines the first two approaches, linking the influence of the individual's mind to the importance of organizational interactions. Furthermore, while one part of the literature is concentrated on the manifestation of organizational identity, the biggest part of literature investigates how it is socially

constructed.

4.3.3 Organizational Identity in the Context of Leadership

“An organizational culture affects its leadership as much as its leadership affects the culture” (Bass, 1998, p.63). When an organizational culture or an organizational identity fits the demands of the environment, the efficiency of the organization increases (Bass, 1998). However, in the case of a strong but inflexible culture, the organization will have difficulties in adapting to changes in its environment, such as changes in markets, suppliers, governments, available personnel and technological developments. In contrast, when an organization builds a strong and flexible culture, it gathers the key elements to be effective and to enhance its performance.

Introducing a strong but flexible identity is the challenge of leaders. The leadership style they play has significant influence and shapes the organizational identity. For example, in the case of Motorola, the success of the implementation of a new supply chain was strongly based on the organizational culture and on the measures taken by the leader (Gubman, 2006).

Albert and Whetten’s definition of identity (which today is the most often used) sees identity as “that which is central, enduring, and distinctive about an organization’s character” (Gioia et al., 2004, p. 349). In the context of organizational identity, the notion of image is often used as a connection. The reason is that the organization is also dependent on the picture or view the external world has of it. In contrast to the main group of previous researchers, Gioia et al. argued that identity is not of a permanent but of a dynamic nature which is transformed by its members. Those authors perceive identity as a stable development of the organization, and draw

a picture of a successful organization which is changing but somehow staying the same. The tension between compliance and choice is an important issue of strategic orientation within an organization. Behind the aspect of legitimacy, firm compliance is also necessary to avoid misalignment between the organization and the stakeholders. Nevertheless, a certain amount of choices which implies a certain degree of differentiation from the regular industry structure is necessary to create a competitive advantage (De Wit and Meyer, 2004). In other words, and according to Cheney and Christensen (2001), the goal is to create a maximum level of persuasion and affectivity. The organization has to find an identity which on the one hand is distinctive and on the other hand is replying to more general concerns. To conserve a certain degree of stability of the organizational identity it is important to maintain the employee's and consumer's identification with the organization (Cheney and Christensen, 2001). In addition, identity is dependent on organizational values; however, these values are supposed to be interpreted differently over time, meaning the image of an organization changes and hence the actions based on those values also underline changes.

It can be seen that organizational identity is a key element a leader has to deal with. It is a continual process which requires special abilities and time to change it. Leaders have to be aware of the elements which build the identity of their organization, and have to act on them. They have to take into consideration the influences of various actors - both those who intervene from within the organization, and also from the environment. In order to have a global picture of organizational identity and its influences, we will use Figure 4.6.

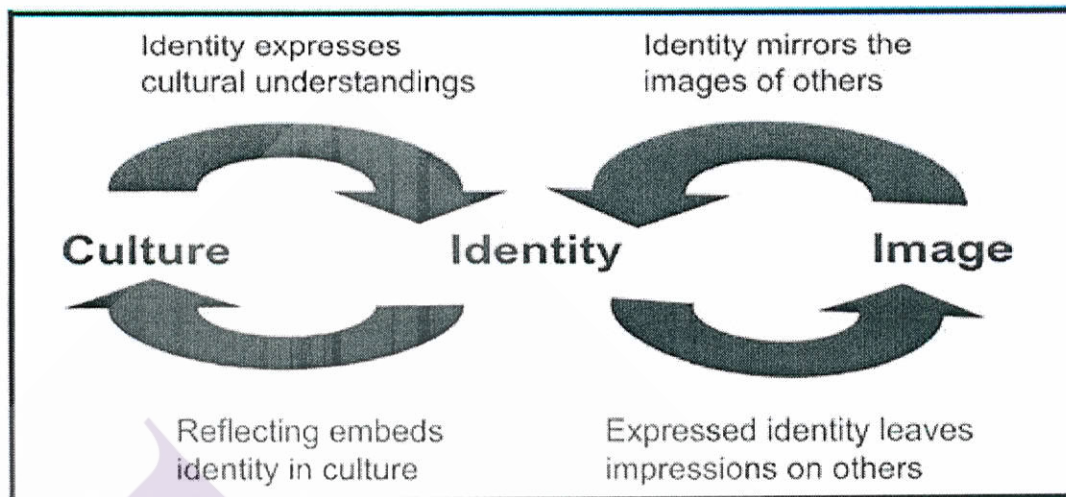


Figure 4.6 The organizational identity dynamics model (Hatch, Schultz, 2004, p.991)

According to Figure 4.6, culture is regarded as “the tacit organizational understanding that contextualizes efforts to make meaning” (Hatch and Schultz, 2004, p. 383). Yet although identity and culture are related to one another, the author’s state that they are not the same: whereas culture is contextual, tacit and emergent, identity is more textual, explicit and instrumental. Organizational identity can be seen as being a product of image and culture standing in relation to one another.

As this study has already mentioned, identity is strongly interrelated to the image of the external environment and the organizational culture. Dutton and Dukerich (2004) confirmed this point, showing that the organizational identity is influenced by the environment’s perception of it. They add that if members of an organization think that the image their organizational environment has of them differs from the image they have of themselves, they will adapt themselves; they will either act to change the image the environment has of them, or they will adapt their identity. Those images others have of an organization will be interpreted independently based on the culture containing its values and basic assumptions.

All in all, organizational identity is “not only the collective expression of organizational culture. It is also a source of identifying symbolic material that can be used to impress others in order to awaken their sympathy by stimulating their awareness, attracting their attention and interest, and encouraging their involvement and support” (Hatch and Schultz, 2004, p. 389).

Alvesson and Willmott (2004) highlighted that a corporate image is “singled out as a particular concept and target for instrumental action” (Hatch and Schultz, 2004). In the organizational context, an image transfers a picture of the organization to several stakeholders. If the image of an organization strongly differs from the image of the individual itself, this can lead to identity problems.

Another interesting thought which introduces the role of a leader in a process of identity change is carried further by Alvesson and Willmott (2004). They mention that managing identity of employees is an important element in the implementation of new directions. They also add that identity work is a controlling tool of high importance: influencing different aspects which influence control, such as hierarchy, rewards, leadership and reward systems are part of identity work. They point out that related to identity work and to influence control, employees have to be motivated to be more creative and innovative about what should lead to the creation of new control mechanisms. As a transformational leader is supposed to create an atmosphere motivating innovation and creativity, the aspect of control related to organizational identity is a relevant aspect to investigate, and one objective of this study is to investigate which transformational leadership components affect organizational identity.

4.4 Conceptual Framework and Model

This study aims to present an understanding of the process of change which includes explicitly the leadership perspective and the key concept of change; it indicates what is related to leading change and why the transformation effort might fail. Therefore, the study presents the phases in the process of change which can be identified and what role and impact are played in the process by the leader. Concentration is focused on the fundamental role of leadership during the process of change, through which actions transformational leadership apply in practice. Furthermore, this study describes transformational leadership and which components are perceived as the most relevant for leaders and followers in the process of influencing change. The following concepts are the research's gaps, identified from Chapters 2-4, which are related to the literature review.

4.4.1 Necessary Link Between the Change Process and the Role of Leadership

Thorough reading and understanding of the theory of change management, transformational leadership and leadership change model does not make a strong enough link between the process of change and leadership. However the literature does indicate the importance of the leader's role in facilitating the process of change. But the particular role of the leader in this process is not explicit in the specific phases of the change processes and the impact he/she can have within the process. This research is motivated by this issue, as shown in Figure 4.7 (p. 141).

4.4.2 The Impact of Leadership on the Process of Change Concept

If one is analysing the impact of leadership on the process of change, it is of the utmost importance to highlight the difference between a leader and a manager

presented by Kotter (1990). The most crucial difference is that a leader can be found anywhere in the hierarchy whereas a manager's role is mostly defined by a job description. The differences between management and leadership are indicated in Tables 3.1 and 3.2. In addition, leaders are "people who are able to establish direction, aligning people, and are motivating and inspiring" (Kotter, 1990, p.7-8). This thesis clearly places the focus on leaders in the process of change rather than on managers.

4.4.3 Resistance to Change Concept

This study found different causes of resistance to change. Due to the fact that a change process always involves people, this study has to consider psychological resistance towards change as well as attitudes towards. The fear of the unknown and instability is a common and natural human feeling that a leader has to deal with. Moreover, resistance can be caused by political moves within the company. The parts within the company which will lose more than they will gain (privileges, authority, money, etc.) can cause problems as well. Also, the corporate culture of a company will play an important role when implementing change; this was indicated, for instance, by Kruger in the figures showing the Effects of Individual Corporate Cultures (Figures 2.7 and 2.8). The stronger the organizational culture, the more difficult it is to change. It can become harder to implement change if the new way of doing this is against the existing corporate culture (De Wit and Meyer, 2004). A leader must consider these critical aspects in order to implement a long-lasting effective change.

4.4.4 Discontinuous and Continuous Change

The distinction between discontinuous and continuous change is important to make in order to better understand the process of change. This would not have been possible without thoroughly explaining these two concepts earlier. Depending on the culture and the situation of the organization, one would fit better than the other, and both can be combined one after the other. Therefore, the focus of this research is on the discontinuous aspects of change (Details 2.2.2).

4.4.5 The Process of Change

After reviewing the change process models of this study, it was found that all authors agree with the fact that change has to be planned before it is implemented in the organization. Prosci (2010) indicates “a new definition of change management is the process, tools and techniques to manage the people side of change to achieve the required business outcome”. Bridges and Bridges (2003) also indicate that change is a process. Kotter (1996) puts forward the idea of planning a vision at the beginning of the process of change in order to encourage the people to embrace it easier. The process of change therefore needs to identify the first step, which is the change plan. This is characterized by elaborating strategies on how to solve the identified problem in the previous phase, and by preparing the employees for change.

For the second step, after the planning and the design have been elaborated, the urge for action is needed in order to implement change. However, uneasiness and instability are common during this step. For Lewin (1951), during the “transition” phase, uncertainty and confusion overwhelm the organization at all levels. People understand that the old order is being modified but do not have a clear picture of the new one. Schein (n.d.) asserts that in order for people to move to the second step

(changing) and actually change, they have to be certain that the process will not trigger feelings of embarrassment, humiliation or loss of face and self-esteem (as cited in Burke, 2002). Members of the organization have to feel secure psychologically, in other words, they must have no fear of punishment or retribution by embracing the change.

For the third step, the authors agree on the importance of stabilizing what has been changed once change has been implemented. Lewin (1947) and Schein (n.d.) mentioned clearly this important aspect of the process in their respective “*freezing*” or “*refreezing*” steps. Kotter (1996) emphasizes the continuity of the implemented change at the end of the process. The change agents have to make sure that the employees’ behaviour is really changed and that it will continue to be so later. He insists on the constant checking of the implemented change afterwards. He also asserts that the goal for every process of change should be the implementation of long-lasting and extensive transformation. Both learning from the change process and establishing the best practices for change have to be taken into consideration. For the application of long lasting change, the change leader should try to change the employees’ minds not just their behaviour. This study of the process of change is divided into 4 phases, as shown in Figure 4.7 (p. 142).

4.4.6 The Role of Leader in the Change Process

For the second part of this research issue, involving the role and impact of leadership within the process of change, it is necessary to study the concept of leading change in the literature. The presented concepts are chosen because they are the most common, widely known and detailed ones. However, it must be acknowledged that

the characteristics of a transformational leader share a lot in common with those of the change leaders (Details in Chapters 3 and 4).

To develop this research, the researcher studied what defines transformational leaders and what their additional abilities are that move their organizations toward another identity. This study found that all successful leaders must have an inspirational influence. Going through leaders' views, the most relevant element related to inspirational motivation is commitment. Intellectual stimulation is the primary step to stimulate followers' minds to make them understand the business (Avolio and Bass, 2002). They consider individuals by recognizing their intrinsic characteristics, in order to pay attention to the personal and professional development of each team member. Therefore, the components of a transformational leader are studied: Inspirational Influence, Intellectual Stimulation, Individualized Consideration and Inspirational Motivation (Bass, Steidlmeier, 1999). The tangible elements which characterize each of the transformational components are studied and made more concrete. This study makes a parallel between transformational leadership and other factors which are only indirectly linked, but which nonetheless have a direct influence on transformational leaders and their followers.

4.4.7 Transformational Leadership

The main characteristics of a transformational leader are being: charismatic, visionary, dynamic, creative, trustworthy and inspiring. Consequently, this approach combines the features of a change agent with the concepts of leading change.

The role of leaders is to create a structure which is able to respond and adapt to change. In those situations, transformational leadership is seen as a

successful leadership style. To support this concept, Dublin (2007) describes how transformational leadership helps the employees to understand the need for change. Ropo (1989) states that transformational leadership activities are required mainly to change things in the organization.

Transformational leadership aims at reaching big changes in the organization. Chemers (1997) referred to Hour and Shamir (1993) who found that transformational leaders transform “the values, preferences, and aspirations of followers from self-interest to collective interests” (p.89).

The results of this study are that many successful change leaders revealed actions relating to transformational leadership. It shows that leaders and followers evaluate differently the components of transformational leadership and their elements.

This research also shows that transformational leadership is an actual issue, as it has very positive effects both from a personal and from an economic viewpoint. If leaders want to improve their leadership style, they have to be aware of the fact that their present way of influencing their followers is not necessarily the same compared to what followers perceive as optimal. Thus, leaders should first invest time in getting to know the characters and the individual preferences of their followers.

An objective of this study is to investigate which transformational leadership components affect the organizational identity. Therefore, we focus on Gioia *et al.* (2004), whose point of view defines identity as an unstable process; only from this point of view can the transformational leader affect the organizational identity.

4.4.8 Concept or Theory: Communication

If studying the field of leading change, one can see the presence of a constant occurrence in every concept or theory: communication. This feature includes the ability to listen carefully, to transmit clear messages, to read and write. In order to lead through a process of change, a leader must be talented in sending messages and interpreting the received ones. As Kanter (1999) asserts, a change leader must try to acquire as much information by listening carefully inside and outside the organization. He/she must also be able to sell the dream – the vision – to the followers. Communicating the vision about the future state of the company is a recommendation nearly every author in the field of leading change gives to change leaders. The question here is whether change leaders create a future state and whether this can be accomplished in practice. Kotter (2002), in addition, claims that it is advantageous to make the future dream or the problem of the company visible in order to get the employees' attention and their reaction to action. Possible tools to make it visible are presentations, pictures, stories, events, performances and so forth.

4.4.9 Change Leaders' Characteristics

First, it is imperative that the change leader understand the employees by being a good listener. This is to envision, inspire people and identify the causes of problems so that a change can be made. In addition, the change leader should be a good speaker who has a skill to communicate his or her vision well in order to change behaviour. It is important to send messages properly for the simple reason that people are often insecure and scared about new things and changed ways of doing things.

A second characteristic is that change leaders should have the ability to motivate people. Throughout the whole change process, change leaders should be

deeply involved and show total commitment, according to the research. With the communicative energy and participation of the leader, employees are more likely to be inspired and to find the will to go through this difficult period. It is therefore interesting to find out whether change leaders are deeply involved in the change process. It is also important to have an incentive system in order to motivate people. Having small goals, rewards, punishments and praise can be helpful tools to stimulate employees (Kanter (1999), Bridges (2003), Buchanan and Boddy (1992)). The leader should, furthermore, be able to encourage people to come to see him or her and ask questions, and make requests and announcements.

A third point, researchers like Fullan (2003), Bridges (2003), Buchan and Boddy (1992) claim, is that leaders should also rely on others to implement change. It is therefore advisable to build a change team, which helps the change leader direct and coordinate the process of change more efficiently. Similarly, their role is to communicate and explain the implication of change to lower levels of the organization. Within a change team, roles, responsibilities and tasks can be split; it is then easier for the change agent to successfully run the change project.

4.4.10 Organizational Identity

The issue of organizational identity is debated through the role of leaders in moving the image and the culture of their organizations. Identity is becoming one of the major challenges leaders have to face. “Opinions and impressions, feelings and fantasies, hopes and expectations expressed by employees, suppliers, customers, shareholders, governments, and their regulatory agents as well as community members, the general public, the media, and political activists, whether positive or negative, all contribute to defining the identity of an organization” (Hatch and

Schultz, 2004, p.1). To conserve a certain degree of stability of the organizational identity, it is important to maintain the employee's and consumer's identification with the organization (Cheney and Christensen, 2001). Moreover, Alvesson and Willmott (2004) mention that managing the identity of employees is an important element to implement new directions. As they point out, employees have to be motivated to be more creative and innovative, which should lead to the creation of new control mechanisms. As a transformational leader is supposed to create an atmosphere motivating innovation and creativity, the aspect of control related to organizational identity is a relevant one to investigate. According to many studies, identity is one aspect which is related to the successful outcome of an organization. It is seen as a key factor of being successful in a situation of organizational change.

4.4.11 Summary of Conceptual Framework

From the literature reviews, the conceptual framework of this study is defined and the weaknesses of the process of change are to:

- Identify the process of change which has to have a strong link between the change process and leadership along with the role of Transformational leadership in the change process, providing the motivation for the conduct of this research.
- Concentrate on gathering the key concepts of change, focusing on the fundamental roles of leadership during the process of change.
- Indicate the importance of the leader's role in facilitating the process of change in the specific series of each phase of the change process, and the impact he/she can have within the processes which are presented in this study.

• Focus on the study of how the different characteristics of transformational leadership components can influence, adapt or transform an organizational identity.

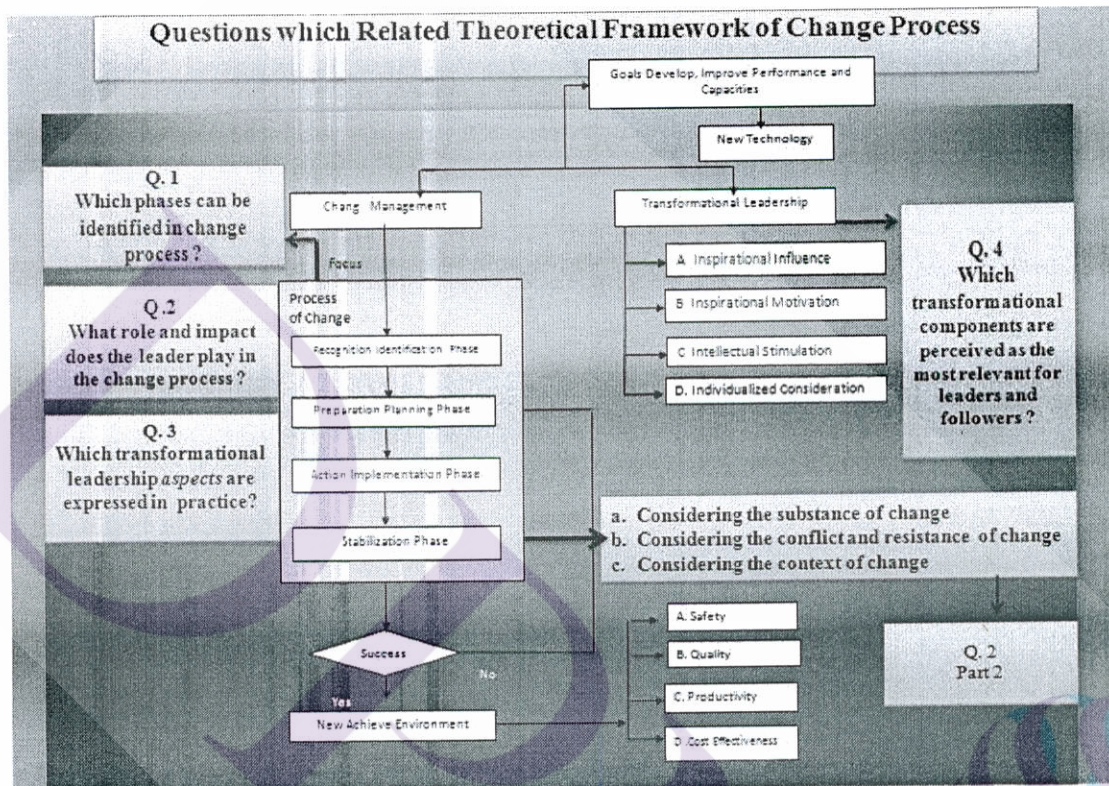


Figure 4.7 The Conceptual Framework: Questions Related Theoretical Framework of Change Process

Source: Developed for this research based on a literature review

4.5 Conclusion

This chapter has presented a framework of transformational leadership, including four components which have implications for managing the process of change. The chapter has also identified the implication of transformational leadership which influences the process of change. Factors influencing transformational

leadership have been presented. The conceptual framework of this study has thus been presented in order to identify the research questions. The next chapter presents the research methods in relation to the literature review.



CHAPTER 5

RESEARCH METHODS

5.1 Introduction

The previous chapters addressed the literature review and the research issues relating to the research questions identified in the Research Background and Research Issues Section in Chapter 1 as follows:

1. Which phases and plans in the process of change can be identified?
2. What role and impact does the leader play in the process of change?

The role and impact the leader plays are studied through the: (1) substance, (2) politics, and (3) context of change, which affect the organization.

3. Which transformational leadership aspects are expressed in practice?
4. Which transformational components are perceived as the most relevant for leaders and followers in the process of influencing changes in an organization and, ultimately, changing the identity of the organization?

Chapter five deals with the methodology of the research. It presents and discusses the compatibility of the methods used and the types of problems at the core of the research. In this chapter, a discussion of both qualitative and quantitative approaches appropriate to the research questions is conducted.

5.2 Research Design and Measurement

A framework was developed from a study of change management and transformational leadership review literatures. An empirical investigation involving a qualitative and quantitative case study approach was then conducted in order to assess the efficacy of the framework during this study process. This study attempts to collect data from different viewpoints which focus on the issue of change management and transformational leadership.

In order to obtain clarity of the main actual process of this research, it is necessary to introduce the methods and approaches used during each phase. Therefore, it is important to review the literature covering the most widely used research techniques relevant to this study and reflect upon a personal understanding of these methods and approaches. This study has decided to favour the qualitative research approach, inspired from the hermeneutic paradigm. The reason behind this is that knowledge is impossible or very difficult to measure. There are no devices or tools other than one's imagination and reasoning abilities that would permit the observation and analysis of the process of communication during any change process. Quantitative research methods would therefore seem to be inappropriate in this case, as shown in Table 5.1.

The emergence of hermeneutics represents a reaction against the ingrained rigidities of positivism in relation to certain types of problems in the social field. Instead of trying to explain causal relationships through objective facts and statistical analysis, hermeneutics is based on a more personal interpretative approach which enables the participants to understand reality. Language has a central role, qualitative

assessments partially replace quantitative data, and general characteristics become of lesser interest than specific features (Gummesson, 2000).

In order to make the difference between the positivistic and hermeneutic research more explicit, their main features are juxtaposed for the sake of comparison, as shown in Table 5.1 (Gummesson, 2000, p. 153).

Table 5.1: The Difference Between the Positivistic and Hermeneutic Paradigms

Positivistic Paradigm	Hermeneutic Paradigm
Research concentrates on description and explanation.	Research concentrates on understanding and interpretation.
Well-defined, narrow studies.	Narrow as well as total studies (holistic view).
Thought is governed by explicitly stated theories and hypotheses.	Researchers' attention is less focused and is allowed to "float" more widely.
Research concentrates on generalization and abstraction.	Researchers concentrate on the specific and concrete ("local theory") but also attempt generalizations.
Researchers strive to use a consistently rational, verbal, and logical approach to their object of research.	Pre-understanding that often cannot be articulated in words or is not entirely conscious – tacit knowledge – takes on an important role.

Table 5.1: The Difference Between the Positivistic and Hermeneutic Paradigms

(Continued)

Positivistic Paradigm	Hermeneutic Paradigm
Statistical and mathematical techniques for quantitative processing of data are central.	Data are preliminary non-quantitative.
Researchers are detached, i.e., they maintain a distance between themselves and the object of research; take on the role of external observer.	Both distance and commitment; researchers are actors who also want to experience what they are studying from the inside.
Distinction between science and personal experience.	Researchers accept influence from both science and personal experience; they use their personality as an instrument.
Researchers try to be emotionally neutral and make a clear distinction between reason and feeling.	Researchers allow both feelings and reason to govern their actions.
Researchers discover an object of research external to themselves rather than “creating” the actual object of study.	Researchers partially create what they study, for example the meaning of a process of a document.

Source: Gummesson, 2000, p. 153

One other significant characteristic which is embedded in this methodology is that of pre-understanding and understanding phases.

Before starting a part of research, it is important to obtain a certain degree of pre-understanding. Gummesson (2000) stated that the concept of pre-understanding refers to people's insights into a specific research problem before the researcher begins the real research; it serves as the input. In contrast, understanding refers to the insights gained during the actual research; it is the output of the study. This output in turn serves as pre-understanding for the next task. Generally, the pre-understanding appears in the form of theories, models, and techniques as well as personal experience, whereas it usually lacks knowledge of conditions under specific circumstances.

In the figures below (Figures 5.1 and 5.2), the main sources of pre-understanding are own experience of an author and the experience of others derived from textbooks, internet sites, case studies, research reports, scientific articles, annexes, documents, etc. Finally, all of this information passes through the frames of reference, and then researchers make sense of it and decide whether it is relevant to their research and worth using as a part of pre-understanding (Weick, 1995).

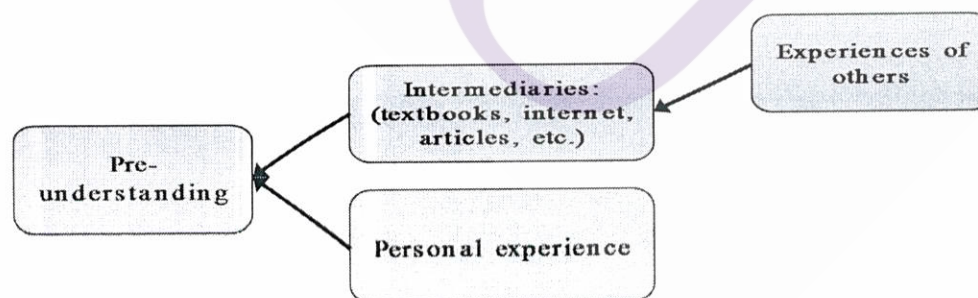


Figure 5.1 Pre-understanding

Source: Weick, K. E. (1995), *Sense-making in Organizations*

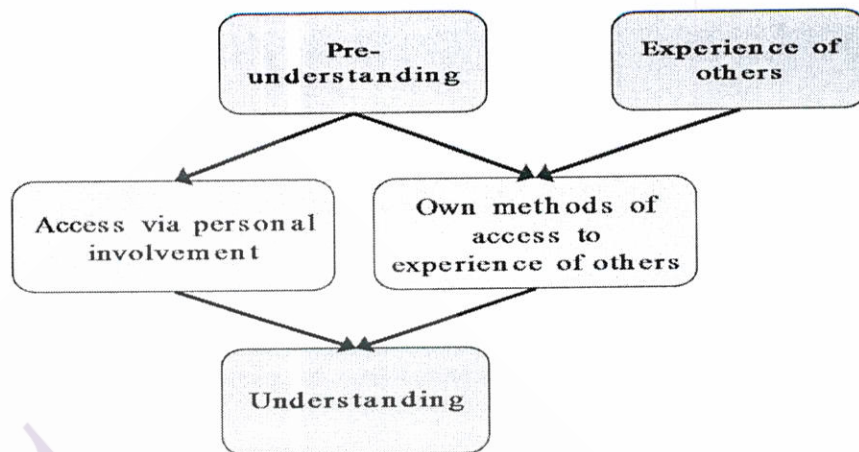


Figure 5.2 Understanding

Source: Weick, K. E. (1995). Sense-making in Organizations

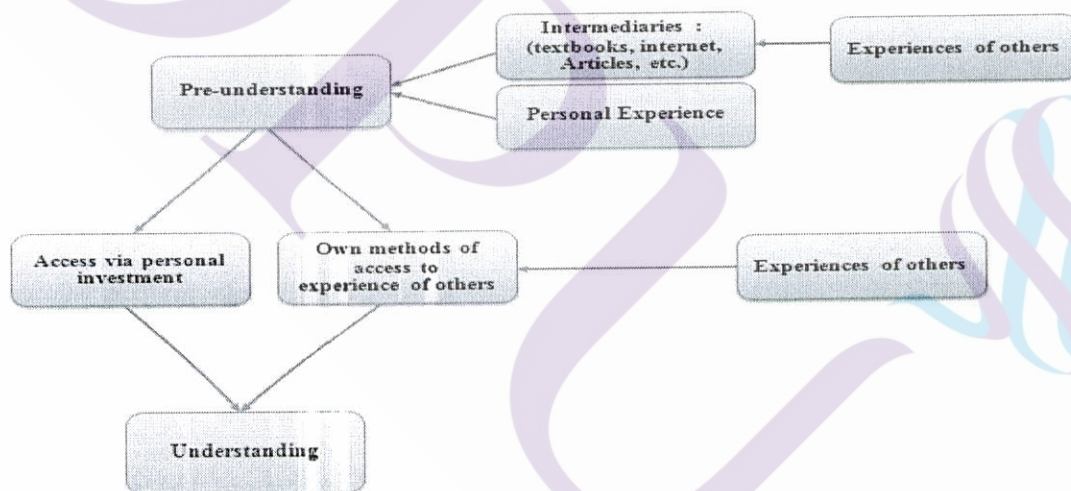


Figure 5.3 Pre-Understanding and Understanding

Source: Developed for this research based on Weick, K. E. (1995), Sense-making in Organizations.

Through personal access to the studied phenomenon researchers are able to gain certain insight of their own (Figure 5.2). At the same time, they apply the methods which allow them to analyze and interpret the experience of others (Daudi, 2009). In this study, research strategy and data gathering methods are divided into the pre-understanding and understanding phases shown in Figure 5.3.

5.3 Methodological Structure and Approach

5.3.1 Research Methods

Research methods can be divided into two categories: qualitative and quantitative methods. In general, the first implies that research will not involve any statistical, inferential or mathematical means of quantification. Qualitative methods “permit the evaluator to study selected issues in depth and details. Approaching fieldwork without being constrained by predetermined categories of analysis, contributes to the depth, openness, and detail of qualitative inquiry” (Patton, 1990, p.13). In contrast, quantitative methods “require the use of standardized measures so that the varying perspectives and experiences of people can fit into a limited number of predetermined response categories to which numbers are assigned” (Patton, 1990, p.14). The advantage of the quantitative approach is that it allows the measurement of a great number of people by limiting a set of questions, facilitating the comparison and statistical gathering of data. On the other hand, qualitative methods produce more refined and extensive information about a much smaller number of people and cases. Patton asserts that “in qualitative inquiry, the researcher is the instrument. Validity in qualitative methods, therefore, hinges to great extent on the skill, competence and rigour of the person doing fieldwork” (Patton, 1990, p.14). The usual methods under

this category include the use of interviews, surveys, and questionnaires among others. Regardless of the method chosen for research, clarity, thoroughness and rigor must be the norm.

In order to make a clear distinction between quantitative and qualitative research, it would be reasonable to reflect these research approaches based on the hermeneutic paradigm. Qualitative analysis involves words as well as other data which are presented in a non-numerical form whilst quantitative analysis involves numbers and other data that can be transformed into numbers (Robson, 1993a). It is essential to the discussion to mention Denzin and Lincoln's *Handbook of Qualitative Research* (2000), where they state that qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied along with the situational constraints which shape the inquiry. They seek answers to questions that emphasize *how* social experience is created and given a meaning. In contrast, quantitative studies emphasize the measurement and analysis of causal relationships between variables, not processes. Proponents of such studies claim that their work is done from within a value-free framework. Quantitative researchers usually simply rely on more inferential empirical methods and materials.

Similarly, there are differences with regards to sample numbers. Qualitative researchers tend to work with a relatively small number of cases; as a result, they are prepared to sacrifice scope for detail. While quantitative researchers search for more clarity in the correlations between variables, their qualitative opponents strive for details in such matters as people's understanding and interactions. This is largely due to the fact that qualitative researchers tend to use a non-positivist model of reality instead of a positivistic one (Silverman, 2005).

Given the objective of this research, the qualitative approach is regarded as most suitable for answering the research questions. The field of leadership should be better approached through a qualitative approach because leadership styles are not specific, but rather vary according to situations and culture. Furthermore, the reading of the literature shows that there is no “one unique way of doing” in the field of leadership, and this also applies to the field of change. As the topic is mainly dependent on the concrete and specific actions of people for conducting change, and as leadership is a social phenomenon, the qualitative approach was chosen for this research in order to facilitate understanding of these topics. The quantitative approach was also employed to ascertain some key empirical indicators, such as the profiles of participants in the study and comparison of participant perception related to effect of change process, as well as comparison of gender and age of participants related to feelings about the change process. Such mixed methods research designs involving a combination of qualitative and quantitative data gathering are indeed enjoying a renaissance (Bazeley, 2002).

5.3.2 Methodology and Research Model

In order to answer the research questions, this study has adapted methodologies which build a research model. A research model employed for driving this research is through a practical case, focus groups, individual interviews and questionnaires. The levels of research are shown below:

1. Setting up of the levels of analysis to collect the data

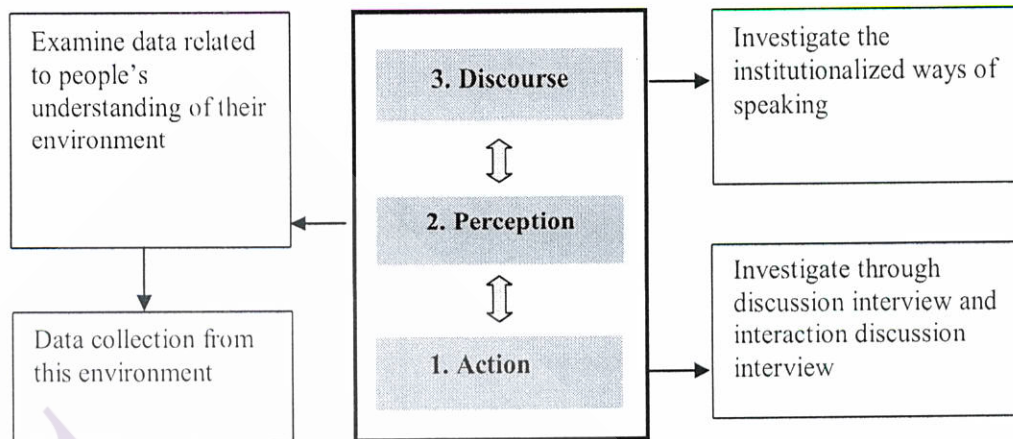


Figure 5.4 Levels of Research

Source: Developed for this study

There are three levels of analysis for interviewing: *Discourse*, *Perception* and *Action*, as shown in Figure 5.4. First, the researcher is connected to the *action level* to deal with investigations which take place directly within the place of interest (organization) through direct discussions, interviews and interactions. The result is the collection of objective data based on facts. Second, the *perception level* examines data related to people's understandings of their environment. This level of analysis is subjective, being influenced by people's personal feelings, opinions and views about their organization. For this reason, sense-making is part of this level. The perception level is interesting for researchers because they can analyze how people are influenced, how they react and how they interact in an organizational context according to their personal concerns. In addition, the perception level does not have the objective of describing reality through the collection of facts. Rather, its aim is to understand what is important for people and therefore which behaviours a leader has

to adopt in order to influence them. Third, the *discourse level* aims to investigate the institutionalized way of speaking. The way in which people express themselves using symbols, rhetoric and stories influences the behaviour of others in the work place. According to these three degrees of analysis, the collection of data is more or less abstract-oriented.

The research questions are answered mainly through the second level, which is based on the perceptions of participants with regard to managing and leading changes. Through the questionnaires, interviews and cases, we analyze participants' perceptions concerning change management, change process models and leading change models, leadership, and more precisely those concerning the transformational components as described in the literature review of Chapters 2, 3, and 4.

2. Development of grounded theory

To run and analyze empirical data, techniques and procedures were employed to develop grounded theory, as proposed by Strauss and Corbin (1990). From this method, a theory was created which emerges from data collection, taking into account the strong connection which exists between gathering data, analyzing data and building a theory. Consequently, preparation of the current data collection concerning the interviews and the questionnaire follows Strauss and Corbin's (1990) work. The method used in this research then, is the so called "*Grounded Theory*". The general idea of this approach is as follows:

1. The researcher's theoretical framework and intellectual orientation are vital inputs in the investigation of the study at the empirical level. However, the background and the theoretical sensitivity of the researcher should not constitute a

bias in the investigation, but should function as an enhancer of the empirical sensitivity.

2. The researcher collects empirical data from the field, realizing that it represents the experiences of the actors concerned and the phenomenon being studied.

3. This data is collected, researched, organized and analyzed at the theoretical level. Key theoretical concepts are used and conclusions are made.

4. Depending on the result that emerges from the analysis, a new empirical investigation might be necessary.

5. Thus, the name “grounded theory” means literally that the developed theory in this thesis will be grounded in the real life experiences of the actors of change in the studied organization. However, the analysis and the conclusions are also likely to be useful to any organization embarking on an evolutionary process of change.

5.3.2.1 Grounded Theory: A Theory Building Approach

In order to prepare this thesis on a solid base, this study carefully followed Strauss and Corbin’s methodology about grounded theory. This approach is “a qualitative research method that uses a systematic set of procedures to develop an inductively grounded theory about a phenomenon.” (Strauss and Corbin, 1990, p.24).

Grounded theory is a “qualitative research approach whose systematic techniques and procedures of analysis enable the researcher to develop a substantive theory that meets the criteria for doing “good” science” (Strauss and Corbin, 1990, p.31). In traditional scientific research approaches, the researcher elaborates hypotheses first and this is followed by thorough testing through empirical data and statistical analysis to confirm or inform. Conversely, in grounded theory, an

involved researcher first goes to the field and checks and observes the phenomena in real time rather than developing links and theories sitting in an office. Grounded theory is an attempt to discover theory from data which are systematically extracted through social research. Essentially, grounded theory is an evolving process which requires constant analysis and interaction between the data grounded in reality and the researcher in order to create a theory. It is this approach which has been selected for the purpose of answering the questions of this research.

Strauss and Corbin (1990) raised the question of “how to find a researchable problem and how to narrow it down to make it workable” (Strauss and Corbin, 1990, p.33). These authors suggest that one way to find a research problem is to seek suggestions from a researcher conducting research in an area of interest. Another way is to search for it in the technical literature; most importantly, the final choice should be something which triggers the researchers’ own interest.

Additionally, they refer to the use of technical and non-technical literature in their study. The technical literature allows the researcher to identify previous research in the field, but one should not rely too much on technical literature because it can hinder progress and stifle one’s creativity. It should also be remembered that non-technical literature consisting of letters, biographies, diaries, reports, videotapes, newspapers, and a variety of other materials plays an important role in grounded theory studies (Strauss and Corbin, 1990). Technical and non technical literatures were selected for use in the preparation of this thesis. In the current study, the data were gathered from a large number of texts, books, reviews, case studies and so forth in order to acquire a better understanding of the issue. In

addition, reports, newspapers, articles and interviews were used for a broader scope and a more refined, non-technical analysis.

Another relevant point is the importance of creativity, which enables the researcher to ask pertinent questions from the data and “make comparisons that are elicited from the data insights into the phenomenon and to develop a novel theoretical formulation” (Strauss and Corbin, 1990, p.31). Creativity is also an important feature for the writing of this current thesis, and a theoretical model of change is created to assess the influence of leadership during the process of change. This aspect is also verified during the model elaboration step when different models and different ideas from the interviews are compared.

Strauss and Corbin (1990) explain the concept of open coding which is “naming and categorizing of phenomena through close examination of data” (Strauss and Corbin, 1990, p.62). There are two basic analytical procedures in the coding process; namely asking questions and making comparisons. For this part, these procedures were managed during the process of discussing and analyzing the data, and the comparison and confrontation of the interviews was also critical in order to analyze the results.

Another point emphasized by these procedures is axial coding, which “puts data back together in new ways by making connections between the category and its subcategories” (Strauss and Corbin, 1990, p.96). The focus is on specifying a category in terms of conditions, context, the action/interaction strategies and consequences. Moreover, subcategories are related to their categories through a paradigm model, which relates subcategories to a category, verifies, continues to search for the properties and dimensional locations, and compares them. Axial coding

is relevant for making the connections between the inputs of the interviews and categorizing them. Further, these authors describe selective coding. This procedure consists of explaining the story line, relating subsidiary categories around the core category by means of paradigm, relating categories at the dimensional level, validating those relationships against data, and filling in categories that may need further refinement and/or development (Strauss and Corbin, 1990). For that part, the categories and the data (from reading and interviews) related to those which form the “core” of work which was integrated: the process of change in organizations with the influence of leadership.

The process part in Strauss and Corbin’s grounded theory analysis shows how change and movement can be brought into the theory. These authors indicate that this process is the linking of active/interactive sequences as they evolve over time. This part of the grounded theory means that changing conditions make the researcher change her behaviour or action in order to attain the early desired goal from the phenomenon. A last important point underlined by these authors is the writing part: when writing, one must first know what the analytical message will be. In addition, researchers should write in an elegant but especially communicative way in order to catch the readers’ attention and interest.

The Grounded Theory applied as the research method in this study is also described by Glaser and Strauss (1967). Their description is as follows:

1. Verification of using Grounded Theory is generated through logical deduction from past studies and knowledge.
2. Comparative Analysis is used in generating the data.

3. Theory generation does not require many cases. They suggested that one case could be employed to generate conceptual categories, and a few cases used to confirm the indication.

4. Grounded Theory investigates the realities and analyzes the data with no predetermined hypotheses.

5.3.3 Methods and content of data collection

The data collection of the study is shown in Table 5.2. The particular empirical cases studies for this research are concerned with the Air Traffic Management (ATM) Systems for Air Navigation Service Providers (ANSPs) in developing countries, such as Thailand (main data), Laos Burma, Cambodia, Nepal, Indonesia, The Philippines, and Mongolia. These countries are affected by the introduction of a new technology for Air Traffic Management (ATM) Systems. This research also received some insight involving ATM systems from Swedavia, Swedish consultants that have been involved with implementing the new system in Sweden and Norway. The number of participants is 250. Questionnaire and interview methods were used. The study also includes interviews with 22 leaders in developing countries, including ANSP in Thailand and a Swedavia Consultant.

The primary and secondary data from the field of study (AEROTHAI organization) were collected during the period of 2003 to 2010. The data were used to evaluate the key performance indicators, such as safety, efficiency, productivity and cost effectiveness of the field of study as shown in the details in Chapter 6.

Data are based on managers' experience, leadership's behaviour in main functions and the managerial work of the organization. The information gained from the questionnaires and interviews was used to design a model to manage the process

of change. Other participants, such as followers who are pilots, the CNS/ATM project leaders, air traffic controllers, and engineers have been interviewed by using a structured questionnaire. Other methods used adopted a precise methodology which builds a particular research model through practical cases and individual interviews. The method of using a focus group of transformational leaders in Thailand and undeveloped countries was adopted for collecting data by individual interviews and discussion. The other methods, such as observation, activity sampling, project report, and critical incidents report have also been employed. The following data collection methods are used:

5.3.3.1 Methodology for Interviews

The purpose of this research study is to understand the role and impact of leadership and followers on the process of change in organizations of air navigation. Interviews to obtain critical input from the field are conducted, and the empirical data developed from these interviews. An important first task is to understand (by reading appropriate literature) these ways of elaborating relevant questions and of conducting interviews effectively. The methodology of qualitative research interviews used here relies on the recommendations presented in the books *Constructing questions for interviews and questionnaires* by Foddy (2003) and *Interviews: An Introduction to Qualitative Research Interviewing* by (Kvale, 1996). As Foddy (2003) states, “a necessary preparation to a successful question-answer meeting is that both the researcher and the respondent should have a common understanding of the investigated topic” (Foddy, 2003, p.24). Foddy also acknowledges that the use of verbal data has been predominant in the field of contemporary social science, and this trend is not declining. He mentions that the act

of interviewing is an active process; therefore, both the researcher and the respondent show a “reflective intelligence” (Foddy, 2003, p.23). The reason for this is that they argue, negotiate, and talk about the meaning of the questions and the meaning of the answers at the same time. The recommendations about the typical traps to avoid when conducting interviews are studied: difficult and abstract words should be avoided; sentences should be short and not in a negative form for clarity purposes; brevity, simplicity and concreteness must be the norm.

Additionally, Foddy (2003) presents a list of typical biased questions that the researcher should not ask (e.g. questions with multiple ideas or subjects, that contain one or more instructions, the ones with difficult phrases or which are too long). These recommendations are valuable and necessary for that part of the research process. Further, different respondents can give various answers to the same question because a question might have a high degree of response freedom. The danger of such variety is that the researcher might be biased during the analysis of the output by comparing the different answers given to him/her for the same question. Therefore, during the data analysis, the study has to pay particular attention to this possibility. Furthermore, even if the researcher is aware that the respondents have been exposed to a phenomenon or event, it is wrong to assume that they will automatically remember it during the interview since each human being does not react the same way to external stimuli. Moreover, the researcher should avoid at all costs putting respondents in a situation where they entirely invent or elaborate answers on the basis of little information, in order to avoid biased information. Foddy (2003) recommends the use of closed and open questions in order to have a varied approach. This study closely follows Foddy’s recommendations for interviews. According to

Kvale (1996), there are no common rules for conducting interview research. “Interview research is a craft that, if well carried out, can become an art” (Kvale, 1996, p.13). He adds that, “An interview is literally an *interview*, an inter change of views between two persons conversing about a theme of mutual interest” (Kvale, 1996, p.12). The author’s main contribution is probably the Seven Stages of an Interview Investigation (Kvale, 1996), in which he created a model of all the steps needed for creating, conducting, and analyzing interviews. This model is briefly summarized below:

1. *Thematizing*. It implies clarifying the purpose of the research to obtain knowledge of the research subject by being aware of the research techniques.
2. *Designing*. It is the planning of the study and the application of the seven steps.
3. *Interviewing the respondents*. It is conduct of the interview based on a guide.
4. *Transcribing the interview into a written form*.
5. *Analyzing the data*.
6. *Verifying*. This phase is about evaluating the reliability and the validity of the interview results.
7. *Reporting or communicating the result of the research*.

5.3.3.1.1 The Questions for Interview

Boyce and Neale (2006) state that “In-depth interviews are useful when you want detailed information about a person’s thoughts and behaviours or want to explore new issues in depth” (p.3). This study used in-depth interview

based on the leaders' perspectives and behaviours. The question was replaced by the relevance of some questions which were discussed, adding some, deleting others, and making them clearer and more concise. Finally, it was decided for this study to regroup all the remaining information into the seven main categories described in the aforementioned Seven Stages of an Interview Investigation. "Open-ended questions" (Patton, 1990, p.295) were used in order to allow the respondents to answer in their own terms, but "dichotomous questions" were employed as well. This study justifies that choice because to the desire was to meet Foddy's (2003) requirements about using various types of questions at the same time as avoiding biasing the interview. For this study, interviews were conducted with a mix of closed and open questions such as "Where did the need for change come from?", "Did you encounter some resistance problems from the employees?" etc.

The questions used were generally guided by theory and the research setting. From the conceptual framework and model shown in section 4.4, the study presents and understands the process of change which embraces the leadership views and the key concepts for successful managing of change. The impact of leadership is the one key factor that affects change. The phases in the process of change were identified, and the important role and impact of leadership during the process of change was specified. The study also focuses on transformational leadership and which components are perceived as the most relevant for leaders and followers in influencing change. Yin (2003) states that a case study's design should be considered when the focus of the study is to answer "How" and "Why" it should be made. 'How' and 'why' types of questions should be thus be addressed in

designing the interview questions. The guideline for interviews is shown in both English and Thai languages (See more details in Appendix 1B).

The guideline for interviews was sent to leaders before interviewing. The questions were divided into two levels:

Level 1: the background of the leader is composed of the following:

1. How long have you been working in this organization?
2. What is your academic background?
3. What is your work experience?
4. What are the main competitive advantage(s) in your organization?
5. Do you think your organization has a corporate culture?

Level 2: the following themes and questions (Sub- Categories) listed in interviews are composed of:

a. The Need for Change

Why did we change to new technology?
 What were the problems and limitations of the conventional system?
 Why is the change being made?
 What the risk of not changing is being happened?

b. Change Process in the Organization

What is your view of the process of change from the old system to the new system?
 Were your expectations of the new system met?

c. Preparation and Planning-Phase

Could you tell us more about the change or changes you implemented lately?

Where did the need for change come from?

Were the reasons for change internal, external or both?

d. Planning-Phase

Could you tell us more about the change or changes you implemented lately?

Did you plan the implementation of change in advance or did you adapt to the circumstances?

Who was involved in the planning process?

Did you use some kind of method or methodology (tools, models) or did you just rely on your experience?

According to you, which stages of the change process were crucial?

Were some people or departments more involved during the process of change?

How did you prepare your employees for the acceptance of change?

e. Action-Implementation Phase

Could you tell us more about the change or changes you implemented lately?

Have you been closely involved into the process of change?

Did you feel stressed during change implementation?

According to you, which stages of the change process were crucial?

Were some people or departments more involved during the process of change?

f. Stabilization Phase

Did you control/supervise permanently the process of change? If yes, how?
 Did you communicate to all the stakeholders the effects of change after the implementation? If yes, how?
 How long did the process of change last?
 What was the result of the implemented change?
 According to you, which stages of the change process were crucial?
 Were some people or departments more involved during the process of change?

g. Leader's role

Was your action particularly more important during one of the steps?
 What are the required qualities for a CEO as a change leader according to you?
 Have you been closely involved into the process of change?

h. Rigidities towards Change

Do you think your company has a corporate culture?
 Do you feel that the corporate culture played an important role when implementing change?
 Could you feel some resistance due to the values of the company?
 Did you therefore have to change the corporate culture?
 Did you encounter some resistance problems from employees?

i. Communication Skills

How did you prepare your employees for the acceptance of change?
 Did you use special communication channels (mail, assembly, meeting, workshops?)
 Did you create a vision to increase the acceptance of the change process?
 Did you use some special communication tools in order to implement change?
 Did the employees have an easy access to you?

j. Leader's Ability to Motivate

Was it possible for them to contact you with questions about the change process?
How did you cope with the resistance from employees?
Have you been a visible, active agent of change?
Have you been closely involved into the process of change?

k. Creating a Change Team

Did you implement the change alone or with the help of others?
Did you create a change team?
What were the role and tasks of the change team?
Were some people or departments more involved during the process of change?

After the questionnaires were returned, an interview was conducted for each follower (Use questionnaires shown in Appendix 1C as a guideline)*. Two hundred and fifty questionnaires were selected. The number of selections will be discussed in more detail in the section of survey and questionnaire. In this group, the questionnaire structure was used as a guideline for interviewing. This is a method for

checking the quality of data to find out whether they would be willing or reluctant to answer the questions. For the questionnaires, the researcher requested the followers to write their names. Moreover, the researcher distributed questionnaires at specific places. For fifty percent of the followers, the researcher went to their field of study (work place) for the interview. The remainders were interviewed by telephone.

The empirical data of this study was mainly collected through interviews which were carried out on an ongoing basis during the entire change process. For the approach of this case study, the researcher collected the data from a variety of sources and methods and to congregate the data in order to illustrate the case and answer the research questions. The researcher used many methods in this case study to ensure enough details were provided in order to enhance overall quality or trustworthiness. Many researchers identify that the case study research uses triangulation of various data sources and data types, a strategy which increases data credibility (Patton, 1990; Yin, 2003; Baxter and Jack, 2008). The interviews were carried out mainly with the leaders who were involved in the change process of new technology for ANSP in the organization, followed by the followers in ANSP. The questions were used as a guideline for interviews both with leaders (as shown in Appendix 1B) and followers (as shown in Appendix 1C). These participants included the top leader of the organization (AEROTHAI), the project leaders of the CNS/ATM, directors, managers, air traffic controllers, pilots and air traffic services officers, who are mainly responsible for Air Navigation Services. They are the personnel associated with the change technology at AEROTHAI's organization and in undeveloped countries. The procedure for the interview was composed of:

1. Informing the participants by letter and telephone, and including the guidelines of the interview in order to make an appointment. This guideline addresses all questions or topics listed in the interview guideline as shown in Appendix 1B; in addition, obtaining informed consent from each participant prior to the interview.

2. Introducing the new technology to all participants.

3. Dividing the structure of the interview into 2 types of questionnaires.

The first type is the guideline for participants who are senior leaders and projects leader; the second is questionnaires for participants who are classified as followers. All details are shown in Appendices 1B and 1C.

4. Following the “Seven Stages of an Interview Investigation”.

5.3.3.2 Methodology for Documents

This study uses secondary data in the form of written documents, such as annual reports and plans, monthly statistical reports, change policies and processes and confidential memoranda at an operational level. These documents were used to gather information on ANSPs organization, and structural changes. For example, written job descriptions provide significant data initially for an investigation to be made for studying leadership as well as transformational leadership. In other cases, documentary tools provide cross-sectional information during the change process analysis (Ropo, 1989).

5.3.3.3 Methodology for Survey (Questionnaires)

This study uses a survey method to collect some of the information. “Survey research is probably the best method available to the social researcher who is interested in collecting original data for describing a population too large to observe directly” (Babbie, 2005, p.252). As a statistical survey is used to

acquire quantitative information concerning items in a population, and as a survey may well focus on notion or factual information depending on its purpose (Abramson and Abramson, 1999), a survey instrument was adopted and employed for some parts of this study.

A questionnaire survey is not considered relevant in every case in this thesis for answering the research problems. The respondents may have forgotten their reasons because no intervention was available for explanation. They may not be motivated to give accurate answers due to structured surveys, particularly those with closed-ended questions, which may have low validity when researching effective variables (Abramson and Abramson, 1999).

1. Participants and the sample size

The participants of this case study are involved in the air navigation service.

The term, Air Navigation Services Provider, used by ICAO (2007a, p.xi) identifies that “it is an independent entity established for the purpose of operating and managing air navigation services, and empowered to manage and use the revenues it generates to cover its costs.”

Participants in the current study are approximately 2,800 employees of a Air Navigation Service Provider who are involved the adoption in new technology in Thailand. As previously stated, they are the head of the organization, the CNS/ATM project leaders, directors, managers, traffic controllers, Air Traffic Services officers, and Pilots and Engineers who are mainly responsible for air traffic services. The Air Navigation Service Provider is studied covering all civil airports and Department of

collects empirical data from the field, realizing that it represents the experiences of the participants concerned and the phenomenon being studied.

This study used sample sizes based on the degree of accuracy required, the degree of variability, and the number of different variables. Large and high quality samples were selected as this is needed for high accuracy Neuman (2006).

2. Survey Procedures

A set of questionnaires was distributed by the researcher to the followers; some were sent via e-mail and the rest by mail and hand delivery. The researcher selected the case to study based on Grounded Theory. Followers were reached at work and asked to fill in a set of questionnaires concerning various aspects of work life, including their training program period. The participants had expressed interest in taking part in a “survey” and informed that a report would subsequently be written to which they would have access. It was also made explicit in the introductory section of the inventory that they were required to identify themselves by name, and an instruction was again provided by the researcher before participants answered the questionnaire. They could complete the questionnaires either at home or at work. The questionnaires were checked by the researcher before the followers were interviewed again to ensure that the data they gave was accurate. This study selected only 250 from 500 followers.

3. Pre-testing of survey questioners (Validity Check)

This preliminary study was to determine the feasibility study of the questionnaires and guided questions for interviewing a small group of participants prior to a larger sample. The reason is to improve the questionnaires’ quality and efficiency. The pilot study was conducted with two groups. The First group was

composed of thirty Air Traffic Controllers at Chiang Mai International Airport. The second group consisted of five experts, three of whom were experienced in methodology. The other two participants in this second group were professors involved in the supervision of this thesis. The feedback from the participants was considered, and any necessary changes were made to the revised version to make the questions as effective and efficient as possible. The following comments represent the feedback from the participants:

1. Many Air Traffic Controllers did not understand the technical English used in the questionnaire. They equally did not understand the new technology. Therefore, a new version of the questionnaire was made which includes both the translation into Thai language and an explanation of the new technology. The method of questionnaire distribution was also changed. The researcher would have to go to the field to access the data, at which point, it would be important to describe more details about the changes in the questionnaire to the participants.

2. The pertinence between the research question and questionnaires was suitable.

The only recommendation was for the researcher to group the questionnaires in categories and separate them using different introductions stating what each category is about.

5.3.3.4 Methodology for Focus Group

As Liamputtong (2011) states, focus group interviews are used extensively nowadays. She also indicates that the focus group is conducted in combination with other research methods. In addition, she indicates that “the focus group setting provides the researcher with opportunities to follow up the comments

and to cross-check with the participants in a more interactive manner than a questionnaire or individual interview can offer” (p.6). Furthermore, Liamputtong (2011) identifies that the focus group method allows the participants to engage in discussing the topic in greater details.

The shared vision concept in two focus groups was employed to support the findings in conjunction with other research methods in this study. This research attempted to present a relationship between leaders and followers which is very important for managing the process of change. The study seeks to identify the leaders’ roles and activities in the process of change. The researcher also needs to identify the requirements for change and transformational components which are perceived as the most relevant for leaders and followers. The focus groups were separated into two groups, as detailed below.

The first focus group was Air Traffic Controllers at Suvarnabhumi International Airport; they are the followers. For this group, they were followers who attended the course to be senior Air Traffic Controllers. The researcher was invited to give a lecture on the new systems in relation to Performance based Navigation. During this opportunity, the researcher spent about 3 hours discussing change from the conventional to the new system. The shared vision concept is linked to the perceived necessity for change to new technology. The researcher was the moderator for discussing the questionnaires, which were designed as shown in Appendices 1B and 1C.

The second focus group was the CNS/ATM project leaders from several less developed countries that were selected by ICAO to attend the workshop at the Civil Aviation Training Centre Courses of the CNS/ATM and Controller Pilot

Data link Communication in September/October 2008 and January 2011. ICAO set standard requirements for the participants who should attend the course; i.e. a candidate should be a project leader who has experience in air traffic management or a manager involved in the CNS/ATM systems. They should understand the English language in order to be able to communicate with other participants in the workshop. The participants were from the Philippines, Cambodia, Myanmar, Mongolia, Laos, Nepal, Indonesia and Sweden (Swedish consultants). This focus group was established when the researcher was an instructor of the course on the CNS/ATM systems. Again, it took about 3 hours to discuss how to manage change, and the researcher was again the moderator. To ensure that the interpretation of the information was realistic, the researcher cross-checked the information with every participant in each interview.

Questionnaires used as a guideline for the interviews as shown in Appendix 1B were also employed in the second group. The acceptance or rejection of new technology was expressed by participants.

The researcher attempted to combine the results of the two focus groups with the followers' questionnaires and leaders' interviews in the field of this case study (AEROTHAI). In addition, the researcher needed to cross-check whether the data are different or similar in the 2 groups compared with others to ensure that the information could be reconciled. Therefore, the researcher could understand a certain perspective of the participants' feelings towards the new CNS/ATM technologies. The combination of research methods also allows the participants to participate more in the topic and leads to obtaining reliable data. This would in turn lead to a more accurate interpretation of the results.

5.3.3.5 Methodology for the Case Study

The case study is like other research strategies in that it is an empirical method of Investigation; however, it has particular advantages. Yin (2003) states that “it depends on (a) the type of research question; (b) the control the investigator has over actual behavioural events, and (c) the focus phenomena” (p.1).

As a research strategy, the case study is used in several situations to contribute knowledge by individuals, groups, and organizations, as well as show social, political and related phenomena. The case study method can focus on contemporary events. “Using case studies for research purposes remains one of the most challenging of all social science endeavours” (Yin, 2003, p.1). The case study method allows the researcher to retain the holistic and meaningful characteristics of real-life events, such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations, and the maturation of industries (Yin, 2003). Furthermore, case studies also show the deep implications for new practices at a global level. For these reasons, the case study has become a common research strategy, and this study uses the case study as a source of empirical data for presentation and discussion.

The practical cases proposed by Avolio and Bass (2002) are used here to discuss and analyse elements describing the factors of the research model.

5.3.4 Summary of the Content and Data Collection of the Study

The content of this study is shown in Tables 5.2, 5.3 and 5.4, which summarize the data collection of the theoretical framework related to change management and transformational leadership. The theoretical framework and intellectual orientation are vital inputs in the investigation of the study at the empirical

level. The researcher has collected empirical data from the field, realizing that it represents the experiences of the actors concerned and the phenomenon being studied. This data were collected, researched, organized and analyzed at the theoretical level.

Table 5.2: Methods of Data Collection

Methods are listed
<ol style="list-style-type: none"> 1. Interviews with leaders, managers and project leaders through focus groups and individual interviews. The participants were from the Philippines, Cambodia, Myanmar, Mongolia, Laos, Nepal, Indonesia, China and Sweden (Swedish consultants), and senior leaders at AEROTHAI, Air Traffic Controllers, Air Traffic Service officers, Engineers and the pilots. 2. Written documents (theses, articles, reports, plans, projects, confidential letters, change policy of ANSP (AEROTHAI) and International Civil Aviation Organization). 3. Questionnaires (filled out by service providers; these are Air Traffic Controllers, Air Traffic Service officers, Engineers and the pilots who work only for the air navigation service provider and not commercial airlines). 4. Case studies (Dissertations in the field of change management, leadership and Air Navigations Service, such as ANSP performance in Thailand). 5. Electronic Data-base 6. Raw data through collection (This is the primary data which is related to key performance indicators. For example, the researcher identified the number of aircraft delayed in landing in 2008. A number of pilots were satisfied with their flight level to fly their aircraft, the researcher recorded arrival time of aircraft from original flight plan. The details are shown in Chapter 6). 7. Observation of air traffic controllers providing air traffic control service, and the perspectives as well as actions of senior leaders in conferences, particularly in the meeting between leaders and followers in many occasions.

Source: Developed for this research

Table 5.3: Subject/ Topic Areas Examined

Contents of Data
1. On leaders/ managers/leaders' projects/controllers/pilots backgrounds and characteristics
2. Overview of the organization
3. Need for change and context of change
4. Substance of change, political aspect and resistance to change
5. Adoption of change
6. Change process in ANSP organizations (ANSPs)
7. Steps in the process of change (planning, implementation, control of the process of change)
8. Control of the process of change
9. After the implementation of change
10. Actions by transformational leadership
11. Leading change
12. Management and leadership
13. Transformational components
14. Perspectives of the Transformational leader, pilots, controllers and project leaders
15. Safety level of ANSPs
16. Quality of airspace management
17. Productivity performance and cost effectiveness

Source: Developed for this research

Table 5.4: Source of Data and Content

Source/ Contents (a)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Interviews/Focus Group	**	**	**	**	**	**	**	**	**	**	**	**	-	-	-	-	-
Documents	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Questionnaires	**	**	**	**	**	**	**	**	**	**	**	**	**	**	-	-	-
Case Studies	-	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-
Electronic data	-	-	-	-	-	-	-	-	-	-	-	-	*	*	*	*	*
Raw data	-	-	-	-	-	-	-	-	-	-	-	-	*	*	*	*	*
Observe													*	*	*	*	*

Key: **=primary source; *=secondary source.

(a): See Table 5.3 for description of subject/topic areas

Source: Developed for this research

5.3.5 Checking Tools' quality

This study uses many methods to crosscheck the data. These methods are outlined below:

- Using Qualitative and Quantitative approaches. The use of the mixed-method is to enhance the quality of final results and to provide a more comprehensive understanding of analyzed phenomena. Sydenstricker (2011) states that the mixed-method is a method to appear with creative alternatives to traditional or more monumental ways to visualize and implement evaluation. The one purpose of using the mixed-method in this study is that it can provide a range of details for the study

exploring specific features of each method. In the current case, integration of procedures mentioned above will explain the process of change, leading to more discussion on the roles of leaders and followers.

- Qualitative and Quantitative data are collected by gaining access to the field. As with the “Grounded Theory” methodology suggested by Strauss (1987), the researcher uses a constant comparative method for analysing the data. The constant comparative method of analysis occurs when the researcher continually compares the data for finding similarities and differences of different perspectives of the actors’ experiences. Comparisons are examined within individual interviews and across all participants’ experiences. Furthermore, comparisons are also considered about literature related to the field and in a variety of contexts.

- Making guided interviewer’s questions and questionnaires which use a pre- test with 30 participants at Chiang Mai Approach Control Centre to confirm quality. These were checked by 5 experts, three of whom are experienced in survey methodology, and two of who are the researcher’s supervisors. Feedback on the questionnaires was given.

- Using triangulation of data and methods to obtain the best results. The use of the triangulation data source is common in the case study (Veal, 2005). The triangulation of this case study for managing change process is shown in Figure 5.5.

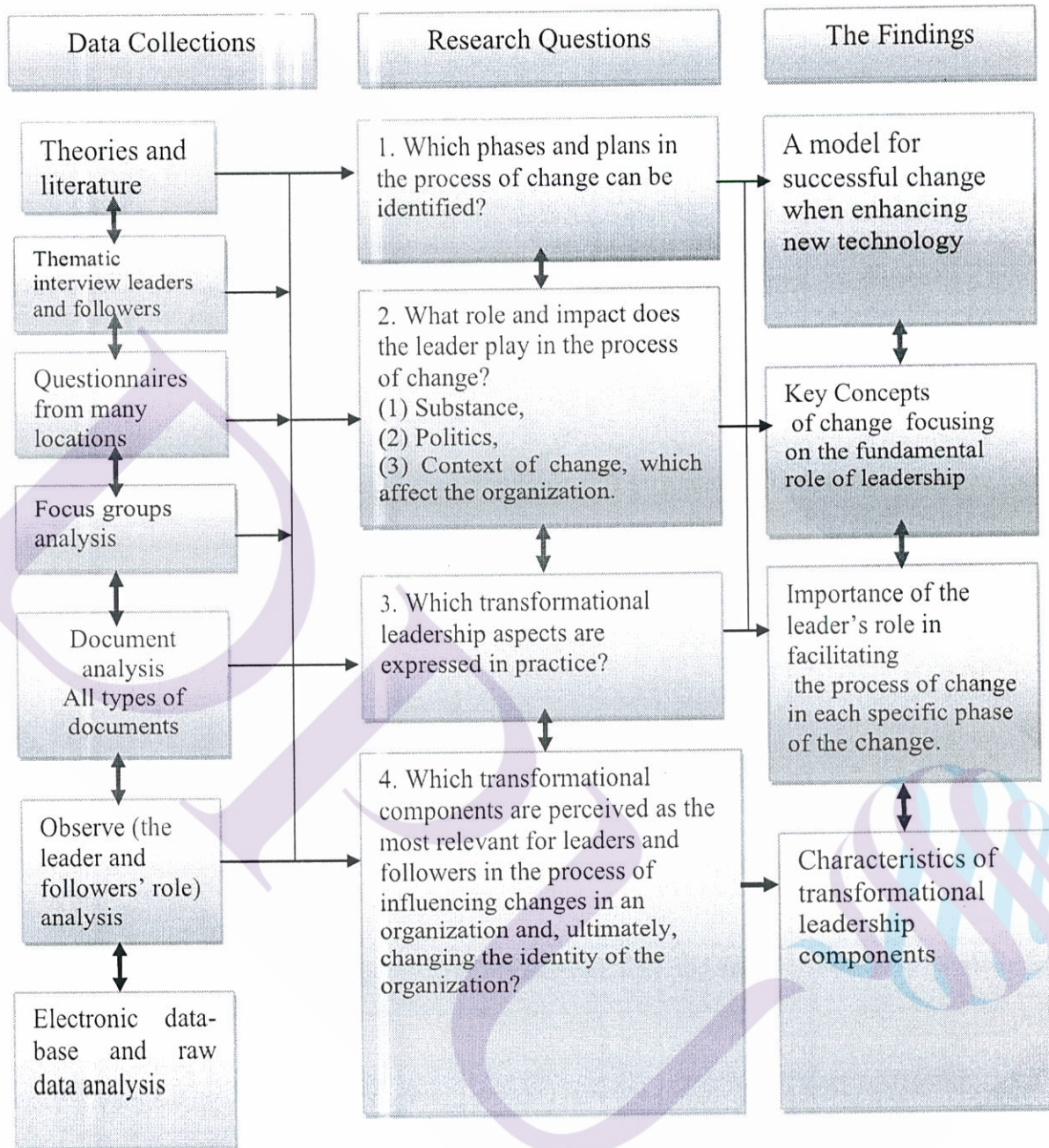


Figure 5.5 The Triangulation of This Case Study for Managing the Change Process

Source: Developed for this study

• Audit Trait and Trustworthiness of the research findings was demonstrated by my two professors who have expertise and extensive experience in the field of management, documentation of analysis, and presentation of the research process development to researchers.

5.3.6 Validity and Reliability

Seale (1999) indicated that “trustworthiness” is the heart of the issues conventionally termed as validity and reliability. Examination of trustworthiness is crucial to establish reliability in qualitative research. Patton (2002) indicated that the criteria for quality case studies depend on the case selected and studied. Patton (2002) also supports the employing of triangulation by stating “triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches” (p. 247). In addition, the triangulation is typically a strategy for improving the validity and reliability of research or evaluation of findings. This thesis uses both qualitative and quantitative data; the systems to achieve validity and reliability of a piece of research from the qualitative research perspective are intended to eliminate bias (Golafshani, 2003). Golafshani (2003) refines triangulation as “a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study” (As cited in Golafshani, 2003 p.604). Therefore, this research selects triangulation defined as a validity tool. The knowledge has been obtained, both empirical and theoretical, from different sources and from original sources (of participants). The study verifies the result by discussion with followers and leaders again on many occasions, such as through a workshop and personal contact with leaders and followers in the field of aviation at international

organizations and from other agencies. For instance, the researcher interviewed a CEO of the Airbus Industry about the key factors which are important for managing change at the ATC Global Conference on 8-10th March 2011. The fact is that the new technology comes with new aircraft. The researcher obtained various perspectives from him, the discussion and recommendations were deployed as a guide to verify the reliability (credibility, validity) of data and findings in this study. Keys for success, steps of managing the process of change that could be identified and activities were also discussed at:

1. The International Seminar on the Edge of Management and Economic Reform, on 6th August 2009, Faculty of Management Science, Sakon Rajabhat University. The researcher presented a paper on the topic “Managing the Process of Change: A Case Conceptual Study of Air Traffic Management (ATM) Systems For Air Navigation Service Providers” at this seminar.

2. The 3rd International Colloquium on Business and Management (ICBM)/2nd International Conference on Business and Management Education (ICBME), on 23rd - 26th January 2010 at Ramada D'MA, Bangkok. The researcher presented an article on the topic “Navigating Processing of change to move towards Performance Based Navigation” at this conference.

3. The workshop of Certificate in Change Management and Performance Consulting for Leaders, Human Resource and Organizational Development Professionals by Professor Rothwell, Pennsylvania State University, on 22nd-24th March 2010, Bangkok.

4. The Asian Forum on Business Education-AFBE International Conference, on 8th-11th June 2010, Bogor Agricultural University, Indonesia. The

researcher presented an article on the topic “Navigating Process of Change towards New Technology”.

From discussion at work and conferences, one point highlighted is that the corporate culture should be considered in the process of change because all countries have different views about cultures. However, to be more reliable, this study presented the role and activity of transformational leaders in the preparation and planning phase. Leaders need to be engaged and share vision: it is important to understand their corporate culture along with the followers. This study also identifies those transformational leaders in this phase. Corporate culture has to be created and taken into account, as shown in the results in Figure 7.5. This study also considered the corporate culture as one key factor to drive the change, as shown in the context of change in Section 7.4.4.

From the discussion in this study, the researcher gained useful information to identify that the model of managing processes of change and key factors described in this thesis is appropriate.

5.4 Limitations of the Research

As with any research, this study is not without its shortcomings. The following limitations have been encountered during the study:

1. Some information available from the International Civil Aviation Organization has not been clear to participants. This is because ATM systems, employing digital technologies, including satellite systems together with various levels of automation, are not finalized in support of a seamless global air traffic management system.

2. The actors' understanding of new technology is limited. The limitation is due to inadequate understanding of the English language, some of these people have a language barrier, including some specialists who normally coach the in-depth knowledge of technological concepts to followers. Furthermore, books and materials contain technical information which provides new concepts of technology. Therefore, there is a possibility that the respondents would be biased in answering questionnaires and interviews.

3. There were limitations in conducting surveys and interviews for this study with specific groups of participants; the perspective levels from participants might be different from private companies. This is because the technology of the aviation field deals with complex systems and is not simple for applying and deploying to implement. The context of change and employment is different from the private sector.

The members of staff will not have an effect in this case study because the environment of organizations depends on ICAO guidelines. This study would be more appropriate for ANSPs and other organizations similar to state enterprises.

4. There was a limitation of the change model of this study due to corporate culture. The study found that the ICAO established task force core team consisted of 6 countries and 2 international organizations to support change. The value of each state (company) was therefore clearly evident, but they compromised with the common goal of getting the system up and running, which overcame differences in corporate culture. (Information based on the interview: the interviewee did not specify which countries). The affect of corporate culture could therefore be disposed of. Nonetheless, the process of change was cross-checked from various

sources - from developing countries, experts from ICAO and developed countries to discuss this study and all implications that the researcher attempts to identify and describe in this chapter.

5.5 Conclusion

This study used extensive literature to define the research and also to prepare for the interviews and develop the questionnaire. Research was first done to determine the context for this study. Second, from reading the authors' findings, an overview of the most relevant questions to integrate into the questionnaire and interviews was obtained. Reading the literature increases sensitivity about transformational leadership, and this study could consequently focus on the most pertinent questions needed to be examined according to the study subject.

In general, data gathering is influenced by several aspects. First, this study had to choose which groups and which environments would be useful to find empirical data related to the research questions. The second challenge was to select which methods to use to collect data. As mentioned at the beginning of the work, this thesis is most closely related to the perception level. To collect and to analyze empirical data, techniques and procedures were employed to develop Grounded Theory as proposed by Strauss and Corbin (1998). Hence, the facts are not observed directly within an organization, and for this reason, interviews and questionnaires are the most efficient tools to detect peoples' perceptions and therefore answer the research questions. All research methods used in this study are shown in Figures 5.6 and 5.7.

Baxter and Jack (2008) state that “For the novice research a case study is an excellent opportunity to gain tremendous insight into a case. It enables the researcher to gather data from a variety of sources and to converge the data to illuminate the case” (p.556). Such mixed-method research designs involving a combination of qualitative and quantitative data gathering are indeed enjoying a renaissance (Bazeley, 2002). This case study used triangulation in quantitative and mixed approaches; they would support the confirmation of findings.

The next chapter will present the case study description and investigate the performance level of the case study.

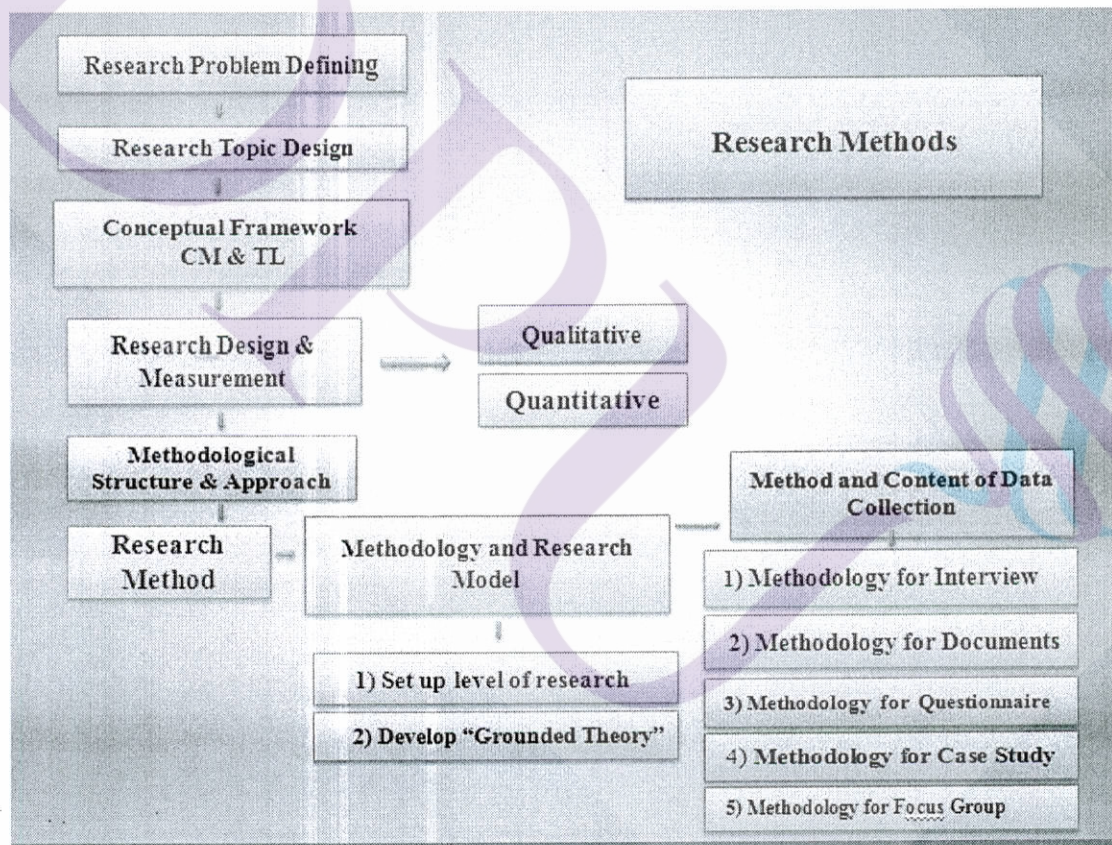


Figure 5.6 The Research Methods

Source: Developed for this study based on a literature review

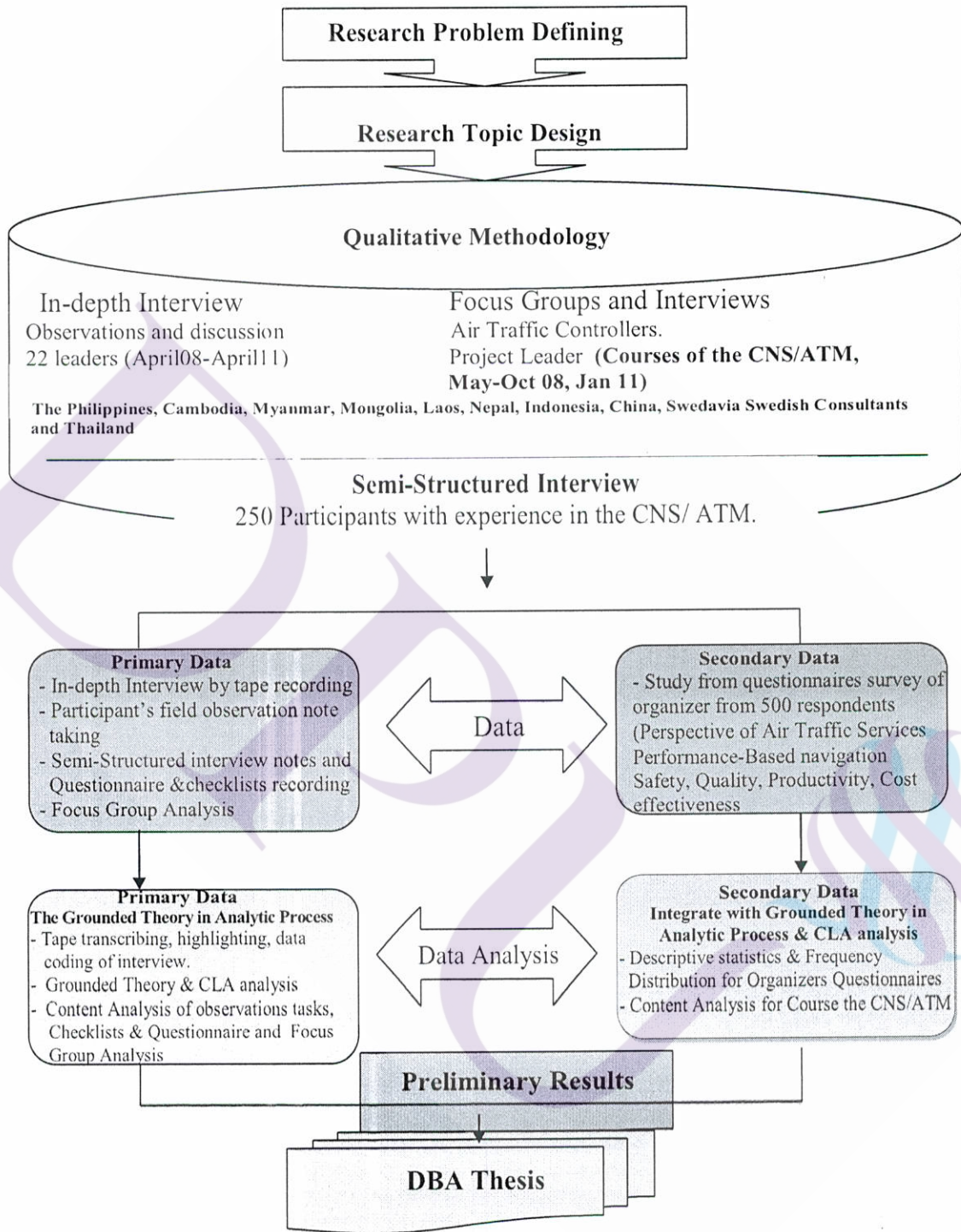


Figure 5.7 Research Method and Analysis

Source: Developed for this study based on a literature review

CHAPTER 6
EMPIRICAL INVESTIGATION AND CASE STUDY
DESCRIPTION OF THE EMPIRICAL LEVEL FOR ANSP

6.1 Introduction

This chapter presents the empirical study; it identifies and presents the significant actors of change in relation to the introduction of a demanding new technology. It also includes the empirical description of changes of Air Navigation Service Providers (ANSPs) which are the significant actors in this study. The empirical investigation is also presented.

This thesis introduces how, at empirical level, Air Navigation Service Providers (ANSPs) will be affected by a transition to a new technology of Air traffic Management (ATM) Systems. Key performance indicators are a valuable tool for assessing and improving air navigation services. These indicators are composed of safety, quality of service and cost-effectiveness as specified by the International Civil Aviation Organization (ICAO) standard regulations. In order to raise an awareness to comply with standard regulations, a change is required. Managing the process of change relates to the introduction of a performance enhancing new technology in which the key defining criterion is united for implementing change in organizations. ICAO (2007) indicates that the key performance indicators of Air Navigation Service Providers should improve safety, quality, productivity and cost-effectiveness (ICAO, 2007).

6.2 Institutional Models for ANSPs

Organizations which provide air navigation services are named as 'Air Navigation Service Providers' - or ANSPs. The Air Navigation Services involve issues relating to national sovereignty, international obligations and safety services. Air navigation services are provided by national statutory monopolies operating under public sector rules, in most countries either as government departments or agencies. ANSPs also act as national civil aviation administrators with the associated rule-making authority (Mistry and Fairbanks, 2002). Mistry and Fairbanks (2002) also state that the models are determined by specific factors depending on the national legal framework and management as well as corporate culture, as shown in Table 6.1.

The ANSP Aeronautical Radio of Thailand (AEROTHAI) was set up in 1948. (See empirical background and organization's structure in Appendix 1E.) The organization was established as a state enterprise, as described in Table 6.1.

Table 6.1: Institutional Models for ANSPs

Model	Ownership	Governance Structure	Authorisation/ Mandate	Financial Provisions	Audit/ Regulation
(1) Government Department	State	<ul style="list-style-type: none"> • Direct political control • Director General reporting to minister • Civil service structure 	<ul style="list-style-type: none"> • (Constitution) • Parliamentary laws • Civil aviation regs • Air navigation orders • AIP 	<ul style="list-style-type: none"> • Inside state general budget provisions • Annual budgeting 	<ul style="list-style-type: none"> • External audit by government auditor • Regulations set internally
(2) Government Agency or Authority	State	<ul style="list-style-type: none"> • Independent • Board of directors • Director General • Reports to government department • Civil service structure 	As (1) plus: <ul style="list-style-type: none"> • Act of establishment 	<ul style="list-style-type: none"> • Inside state general budget provisions • Annual budgeting 	<ul style="list-style-type: none"> • External audit by government auditor • Regulations set internally

Table 6.1: Institutional Models for ANSPs (Continued).

Model	Ownership	Governance Structure	Authorisation/Mandate	Financial Provisions	Audit/Regulation
(3) State Enterprise	State	<ul style="list-style-type: none"> • Independent • Board of directors • CEO • Reports to government department • Civil service structure 	As (2) plus: <ul style="list-style-type: none"> • Articles of association • Laws governing state enterprises 	<ul style="list-style-type: none"> • Inside state general budget provisions • Financial accounting – P&L account – Balance-sheet • Generates annual return 	<ul style="list-style-type: none"> • External audit by government auditor • Financial audit by independent auditor • Regulations set internally
(4) Corporatised Entity	State as shareholder	<ul style="list-style-type: none"> • Shareholders • Supervisory board • Management board • CEO • Company/Business structure 	As (2) plus: <ul style="list-style-type: none"> • Articles of association • Laws governing state companies 	<ul style="list-style-type: none"> • Mainly independent of state • Financial accounting – P&L, balance-sheet • May generate dividends • Subject to company tax 	<ul style="list-style-type: none"> • Financial audit by independent auditor • Regulations set externally • Compliance checked by external regulator
(5) (Part) Private Entity	General shareholders (can be a mixture of state and private or non-share capital company)	<ul style="list-style-type: none"> • Share (stake) holders • Supervisory board • Management board • CEO • Company/business structures 	As (2) plus: <ul style="list-style-type: none"> • Articles of association • Laws governing private companies 	<ul style="list-style-type: none"> • Independent of state • Financial accounting – P&L account – Balance-sheet • Generates dividends • Subject to company tax 	<ul style="list-style-type: none"> • External audit by government auditor • Regulations set internally

Source: Mistry, H., & Fairbanks, M. (2007). *The Changing Nature of Providing Air Navigation Services*: UK National Air Traffic Services

6.3 The Empirical Objects Case of this Study

The empirical objects of this study are the case of the Air Traffic Management (ATM) Systems for ANSPs. This industry is selected because the

ANSPs are significantly affected by the introduction of a new technology of worldwide Air traffic Management (ATM) Systems. The international Civil Aviation Organization-ICAO (2009) is driving a more rapid and comprehensive implementation of new air traffic management at the national level.

6.4 Technology Changes in Air Transport: An Empirical Case

This research concentrates on the air transport industry, which is one of the fastest growing sectors of the world economy (ICAO, 2005). The continuing growth of aviation places increasing demands on airspace capacity and emphasizes the need for the best use of the available airspace (The International Air Transport Association (IATA), 2010).

In the 1980s, the ICAO considered the steady growth of international civil aviation, taking into account emerging technologies. ICAO realized that the constraints of the ATM could be improved by assessing the technologies serving civil aviation. In 1991, the ICAO Council endorsed future air navigation systems concepts, which came to be known as the “communication, navigation and surveillance/air traffic management (CNS/ATM) systems”. These systems, employing digital technologies, including satellite systems together with various levels of automation, are applied in support of a seamless global air traffic management system (ICAO, 2005).

In order to raise awareness for the need to change and comply with the ICAO standard regulations, various methods of managing air traffic management (ATM) systems should be planned for air navigation services. In future planning,

choice increasingly needs to be justified in advance by a thorough analysis of anticipated performance needs and achievements (ICAO, 2007b).

ICAO's desire is to develop a seamless, globally coordinated system of air navigation services that will cope with worldwide growth in air traffic demand as a simplified view of the impact of ATM (ICAO, 2005), as shown in Figure 6.1 and Appendix 1A.

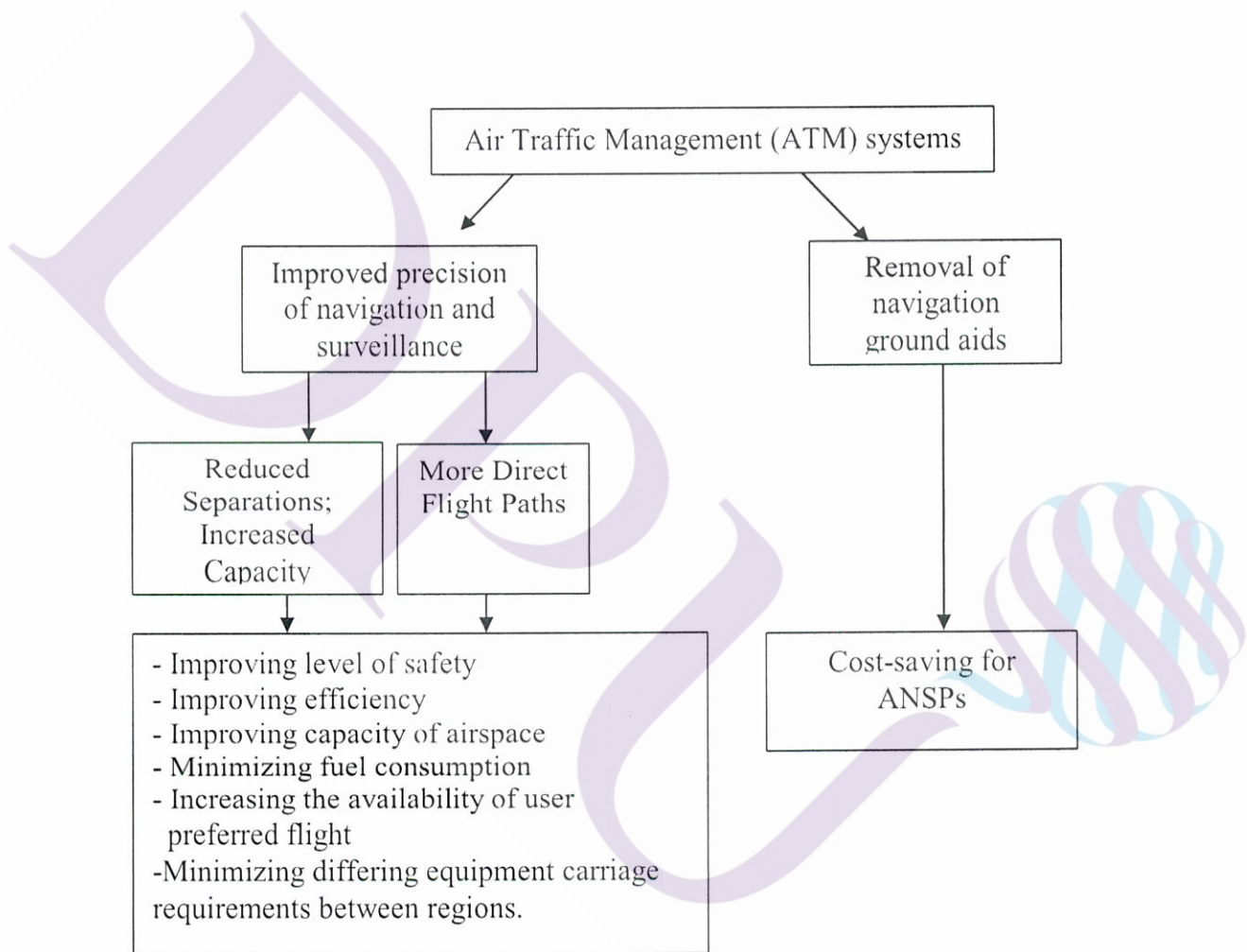


Figure 6.1 A Simplified View of the Impact of ATM

Source: Developed for this research based on a literature review

An important process of ensuring aircraft safety and efficiency is to optimize the flow of traffic and cost effectiveness of flight operations, and reduce conflicts of ATM. ICAO (1995) described the shortcomings of CNS systems around the world, as shown in Table 6.2.

The International Air Transport Association (IATA) reports that volumes of air traffic have increased after the economic crisis in all regions for 2010 (IATA, 2010). IATA also anticipated that air journeys will expand; and as approximately 10,000 new commercial aircraft will enter service over the next 10 years, a larger burden is placed on an already strained airspace system. This could potentially result in more and longer flight delays. To prevent these burdens caused by the traffic growth rate, the U.S. Federal Aviation Administration (FAA) and EUROCONTROL have been working to establish a new satellite-based airspace system guaranteed to make flying more efficient while at the same time maintaining safety. The particular empirical case being scrutinized in this thesis is the ANSPs which are affected by the introduction of a new technology of the ATM Systems, both now and in the future. “The ATM environment, like so many other environments today, is driven by safety and increasingly by commercial or personal outcome expectations” (ICAO, 2005 and 2009).

The particular empirical cases of data for this research are concerned with the ATM Systems for Air Navigation Service Providers (ANSPs) in developing countries, such as Thailand (main data), Laos, Burma, Cambodia, Nepal, Indonesia, The Philippines and Mongolia. These countries are affected by the introduction of a new technology for ATM Systems. This research also received some opinions involving ATM systems from Swedavia, Swedish consultants whose work has been

implemented in Sweden and Norway. The navigating process is perceived as a significant one by the concerned actors, as it illustrates causal layered analysis in air navigation in the future. The causal layered analysis method is related to air navigation services, as shown in Table 6.2; Inayatullah's model (1993) is used to analyse the preparation and development of the process of change for ANSPs.

The CNS/ATM systems have captured air traffic service provider's interest over the last two decades, particularly with concepts and applications based on performance standards. These performance based concepts are area navigation (RNAV), required navigation performance (RNP), required communication performance (RCP), and required surveillance performance (RSP). Functionality of these technologies continues to play a major role in the transition process of aviation organizations.

From this study, it was found that constraints in rerouting the air traffic and using the airspace in the Bangkok Terminal Control Area has an impact on air transportation, resulting in flights with average delays of 5-10 minutes per/flight, schedule disruptions, passengers and operators' inconvenience as well as inefficient flight operations (AEROTHAI, 2009). The new concept of navigation systems and the requirements for operational efficiency in terms of more direct routes, improved track-keeping, optimized vertical profiles, reduced route spacing and reduced noise levels, have resulted in the concept of performance-based navigation (PBN), surveillance performance (RSP), and communication performance (RCP). This study indicates that these environmental factors are likely to become critical.

Table 6.2: Applying Casual Layered Analysis in a Transformative Pathway of Air Navigation.

From the past and current	To the desired future state
<p>1. The Litany Level (Level of problems) Problems (Air Traffic Management) Demand (D) more than Supply (S1+S2+S3): D = Air traffic is increased at all International airports in Thailand. It is constantly expanding in every region elsewhere. S1 = Voice channel capacity problem, airspace capacity problem and traffic delay, S2= Limitations of present Communication, Surveillance and Navigation Systems, S3 = ANSP workload. Conclusion: Safety and efficiency are reduced in the air transport industry. Solution: Driver for change</p>	<p>ATM systems, employing digital technologies, including satellite systems together with various levels of automation, are applied in support of a seamless global air traffic management system (ICAO, 2005).</p> <p>Conclusion: For a successful change, leaders must embrace the existing intelligence and shift behaviour as well as communication to transformation to a more sustainable state. Air Transportation and Air Traffic Management are developed as follows: - Standard systems and regulations for all countries; - Seamless sky and free flight operation; - Increased safety and efficacy worldwide; - Benefit for ANSPs and users.</p>
<p>2. The Social Science Analysis Level -The propagation limitation of current line of sight system; -The difficulty, caused by a variety of reasons, to implement the current CNS system and operate it in a consistent manner in many parts of the world; (Galotti, 1999; ICAO, 2005) -The limitations of voice communication and the lack of digital air to ground data interchange systems to support automated systems in the air and the ground (ICAO, 2005) Conclusion: In-depth analysis for new technological, economic, environmental and political causes. Solution: Integrated approach for systemic solutions.</p>	<p style="text-align: center;">Process of Change</p> <p>4. Stabilisation Phase 3. Action Implementation Phase. 2. Preparation Phase 1. Recognition Phase</p> <p>Via navigating process of change by transformational leaders.</p>
<p>3. The Discourse Analysis /World View Level -New manufacturers attempt to conduct in-depth analysis for creating new technology and Committee constituted by ICAO Council to deal with ATM systems such as PBN, ADS-B and Communications. Conclusion: Conference on awareness of future goals Solution: Transformation to new technology And a rethinking of regulations and procedures.</p>	<p>4. The Myth/ Metaphor Level Evolutionary rather than revolutionary approach. Conclusion: Navigating the change related to new technology is guided by transformational leaders. Solution: Required to move towards new technology for seamless sky and free flight operation. Remarks New technology such as, PBN = Performance Based Navigation ADSB =Automatic dependent surveillance broadcast</p>

Source: Developed for this research based on literature review and interview

These factors will affect airline businesses and air transport management, unless a new infrastructure becomes available. This study focuses on the new performance based air traffic management for air navigation service providers. New technology should play a significant role in creating the new economy of ATM, but an interesting question is how the ATM systems can be managed to change organization goals. These components allow flexibility for reducing a conflict in air traffic management and for increasing capability in airspace. Moreover, these components will lead to more efficient design for airspace and instrument procedures which would improve safety, access, capacity and efficiency and minimize the environmental impact. PBN is one of the tools for managing and developing the Air Traffic Service by AEROTHAI and all other countries.

A performance-based air traffic management system is becoming so complex that new ways of discipline of flight operations have to be devised. It was found from the interviews and focus groups that Air Traffic Service Providers showed constraints in adopting and developing the ATM system concept; these constraints consisted of a variety of views.

- Participants have different ways of dealing with common problems. For example, within AEROTHAI's corporate culture, participants do not want to change the activities they have been accustomed to and have operated for many years:

Participants often say: "I do not like to change; nothing to change, the activities for creating culture are the same as work, why we need to change [sic.]. It is too boring. It wastes time."

- Participants do not understand the reasons for change. Some examples of what participants say are:

"I do not understand why there is a need to change. I do not trust the new systems, such as the CNS/ATM systems when the Global Positioning outages occur".

- Most members of staff have limited time to learn and share knowledge.

Some of them indicated that no training has been conducted for them:

Followers asked, "Why do we have to come on Saturday and Sunday?"

We have to work every day. We cannot say something to improve anything because someone will not like it. I have never been abroad to learn new technology. The CNS/ATM is too complex to understand. I do not have time to read".

- The value of managing change has been challenged, with some studies from the literature indicating that 70% of change management initiatives fail. This exerts heavy economic and human tolls on the organization (Beer and Nohria 2000). The potential for failure is great. The Harvard Business Essentials (2003) tracked the impact of change efforts among the Fortune 100 and found that all companies had implemented at least one change program between 1980 and 1995, but only 30 percent produced an improvement. Change management proponents have also been criticized for failing to conduct evaluations. It is necessary to document and clarify the results of change management initiatives, examine their cost effectiveness, and acknowledge the difficulties, costs, and complexity of managing organization-wide change (MacDonald 1998; Kotter 1998; Abrahamson 2000).

6.5 Need for change in air traffic management

6.5.1 The Changing of Air Traffic Management (ATM)

ICAO considered the steady growth rate of international civil aviation in 1980, taking into account emerging new technologies (ICAO, 1995 and 2005). ICAO recognized that the constraints of air traffic management could be improved. Therefore, planning for the future air navigation concepts was endorsed by the ICAO council to improve ATM systems in 1990, a concept that was known as communications, navigation and surveillance (CNS)/air traffic management (ATM)–the CNS/ATM system.

The convention on international civil aviation (which is known as the ‘Chicago Convention’) has been accepted by 189 countries throughout the world (ICAO, 2009). Thailand is one of the contracting states to have adopted this convention. AEROTHAI is an organization providing Air Traffic Control Services which complies with ICAO’s standard regulations and the Thai government; the government has delegated the Air Traffic Service to Aeronautical Radio of Thailand Ltd. (AEROTHAI) in managing the traffic in the Bangkok Flight Information Region for 61 years (Department of Aviation, Aeronautical Information Publication, 2010).

Air traffic has been shown in the International Civil Aviation Organization (ICAO) report on international growth in the last decade, and this growth is expected to continue. The airspace capacity in the terminal control area is overwhelmed with an increased rate of air traffic, especially in the Bangkok terminal control area. This has caused an increase in traffic leading to delays which average 5-10 min/flight as a result of congestion in the airspace (AEROTHAI, 2009). However, AEROTHAI has

begun improving safety and efficiency levels since 1990. The transition to new technology based ATM systems is shown below:

- 1990-2003: a study, assessment and demonstration of new technology of communications, navigation and surveillance were conducted. This study found the implementation was not successful because the followers showed resistance by not using those systems. They believed that the systems were too complex to manage. Data link systems and flight data processing at all air traffic control centres are examples of the 'complex systems'. These systems will be used to establish the whole of the CNS/ATM systems in the future.

- 2003-2014: some of the CNS/ATM systems were established. The CNS/ATM (GNSS) was provided as the secondary system, with ground navigation aids provided as part of the primary system. This study found that some implementations of new systems involved successful and unsuccessful cases. The implementation of the CNS/ATM systems was successful at the Suvarnabhumi International Airport. The participants believed that the implementation relating to some automation systems failed because of politics and unreliable systems.

- 2014-2025: full CNS/ATM systems are to be established. *ICAO has given notices to all countries that they need to move towards the CNS/ATM systems (ICAO, 2007).*

6.5.2 The Changing of Air Traffic Management (ATM) Systems

Transition to Performance Based Navigation (PBN) New Technology of Air Traffic Management is beneficial to ANSPs. The Performance Based Navigation (PBN) concept is one important part of the ATM systems for navigation that is recognized and being utilized globally. Gonzalez (2009) spoke on behalf of the

Group of Presidents of the Council of ICAO and emphasized that PBN would reduce airport and airspace congestion. The benefits for ANSPs are as follows:

- Increased predictable performance in operation;
- Reduced controllers/pilot workload for communications;
- Reduced fuel consumption with continuous vertical descents method for landing;
- Reduced distance flown between fix/point in en-route and terminal control area;
- Reduced criteria for flying in multiplex airspace;
- Reduced environmental effects.

Area Navigation (RNAV) and Required Air Navigation Performance (RNP) specifications facilitate more efficient design of the procedures which result in improved safety, access, capacity, predictability and operational efficiency (ICAO, 2009).

AEROTHAI has adopted new Performance Based Navigation (PBN) which will improve terminal airspace use and implement new procedures by taking advantage of point-to-point track reliability.

Area navigation and improved navigation performance achieved by the Global Positioning System (GPS) are installed on many modern aircraft. The PBN method will allow aircraft to fly on a more direct path and remove the need to use ground-based navigation aids systems, thus reducing the maintenance cost of ground navigation aids. This will lead to long-term aircraft investments based on business plans. However, stakeholders will not fully realize the maximum benefits of Required Navigation Performance (RNP) until airspace is redesigned, avionics and operator

capabilities are standardized, and advanced CNS and ATM technologies are implemented (ICAO, 2005). In the long term, air traffic management will evolve into a more strategic management of airspace and aircraft trajectories.

Changes in ANSPs have followed the international developments based on concepts of the ICAO. As Thailand is one of the member states of ICAO, the future systems in Thailand will therefore be different from the current systems, as shown in Table 6.3.

Table 6.3: Communication, Navigation and Surveillance Systems Evolution in Future

Function	Current Systems	Future Systems
Navigation systems	<ul style="list-style-type: none"> - Distance Measuring Equipment (DME) - Automatic Direction Finding system (ADF) - VHF Omni directional Radio range (VOR) - Instrument Landing System (ILS) 	<ul style="list-style-type: none"> - VHF voice/data - Secondary Surveillance Radar(SSR), Modes data link - Area Navigation (RNAV) - Global Navigation Satellite System (GNSS) - Required Navigation Performance (RNP)
Surveillance System	<ul style="list-style-type: none"> - Primary Radar - SSR (Mode A/C) 	<ul style="list-style-type: none"> - SSR (Mode A/C or Mode s) - Automatic Dependent Surveillance Broadcast (ADS-B)

Source : Global Co-ordinate Plan for the transition to the CNS/ATM system

: Analysis for this thesis based on a literature review

6.6 Key Performance Indicators are a Valuable Tool for Navigating Change

The ICAO (1995), identified the performance of communications, navigation and surveillance and associated air traffic management facilities which provide air traffic control services necessary for the conduct of today's air transport tasks. The performance of the systems can be measured by their impact on the capacity of the airspace to cope with the traffic volume; on the cost, reliability and speed by which the air traffic task is undertaken; and on the environmental effects of air traffic.

In 2004-2006, the ICAO Assembly stressed the importance of developing a performance framework for the future global air traffic management (ICAO, 2007). Performance measurement systems were also considered. The Symposium suggested a guideline for ICAO States regarding the use of performance measurement and management systems for Air Navigation Service Providers (ANSPs). The performance measurement is composed of primary key performance indicators: safety, quality, productivity and cost-effectiveness (ICAO, 2007). Applied at national, regional and global levels, these performance indicators can help ANSPs improve system performance and manage costs whilst ensuring safety. These potential improvements are:

1. At a national level, performance indicators show the quantity, quality and cost-effectiveness of services provided for aircraft operators. They identify areas for improvement and may justify potential new investment and associated benefits and costs to users.

2. At a regional level, performance indicators can be used to define benchmarks to compare the quantity, efficiency, or quality level of different service providers within a region.

3. At a global level, international performance guidelines could be issued (for instance, through ICAO) containing a set of practices to be observed by ANSPs when adopting performance indicators.

The key empirical indicators with the empirical level are addressed and presented in the following section

6.6.1 Several Performance Indicators are Developed in Support of Performance.

Goals and objectives of service should be associated with performance indicators. For ANSPs, this would guarantee the safe and efficient movement of aircraft. Consequently, performance measurement would at least cover areas such as safety, quality of service, productivity and cost-effectiveness. With respect to the operational concept, the measurement of performance occurs slowly in every key performance area expected by ICAO. The organization indicated that the key factors of air navigation service providers should focus on continuously improving safety, quality, productivity and cost-effectiveness (ICAO, 2007).

With the above considerations, this thesis concentrates on these key factors before planning the process of change. ICAO (2007) defined the performance indicators for ANSPs to consider before transition to the new CNS/ATM technology. There are several considerations in selecting current performance indicators as shown below:

1. ICAO (2007b) states that safety normally focuses on actual or potential safety events, risk categories and event causality. Safety indicators: potential measures are reported as shown in Table 6.4. The table shows the Key Performance Safety Indicators which are measured by accidents, incidents and major incidents of aircraft per 100,000 flights.

Table 6.4: Safety Indicator Performance of ANSP (AEROTHAI)

Potential Level	Fiscal Year 2009				
	1	2	3	4	5
Number of accidents					
Number of serious accidents (accidents per 100,000 flights)	1.143	0.857	0.571	0.286	0.076
Number of serious incidents (incidents per 100,000 flights)	2.286	2.000	1.714	1.429	1.094
Number of Major incidents (incidents per 100,000 flights)	9.714	8.286	6.857	5.429	3.906

Source: AEROTHAI 2009 Report

The Potential level indicated the number of accidents that occurred per 100,000 flights. The table shows the various potential levels compared with those of ICAO, FAA and EUROCONTROL. AEROTHAI met standard level five, which means there were: 1. serious accidents: 0.076 /100,000 flights; 2. incidents: 1.094 /100,000 flights; 3. major incidents: 3.906 /100,000 flights.

2. Quality of service performance indicators should reflect the customers' perspectives. Service quality has been acknowledged as a key factor for measurement.

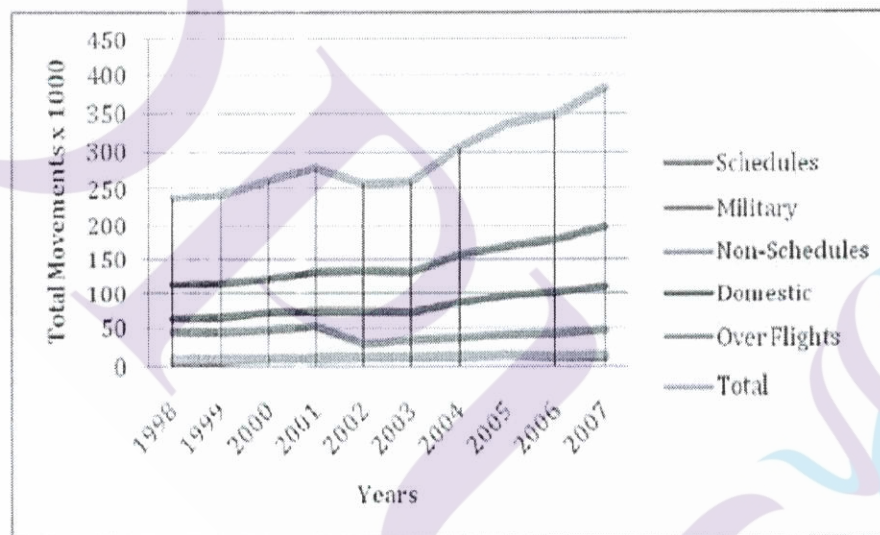
2.1 The main aspects of service that affect quality measured by using quantitative performance include:

a. Capacity to meet airspace user demand, especially in terms of an organization's services. Potential measures are (ICAO, 2007):

- Airport annual service volume (aircraft movements per year).

This study used the growth rate as shown in Table 6.4 to identify service performance. Table 6.4 indicates that aircraft movements tended to increase.

Table 6.4 Aircraft Movements of Bangkok Area Control Centre (1998-2007)



The growth of traffic 1998 to 2007 at Bangkok Area Control Center.

Source: Report 2009, AEROTHAI

b. Flight efficiency indicator: Potential measures include:

- vertical deviations from requested to optimum flight level;
- horizontal deviations from requested to optimum route. Flight

efficiency indicator details are shown in Table 6.5.

c. Capacity to meet airspace user demand at peak times and locations while minimizing restrictions on traffic flow: Potential measures are identified by a measures predictability indicator which is measured by flight delay time for departure, as shown in Table 6.5.

Table 6.5 Flight Deviations from Requested to the Optimum and Flight Delay time for

Departure

Date	The estimate Number of Aircraft in enroute (Departure)	OI		Flight Plan																	Average delay of the remaining scheduled flights
		0	1	15	17	18	25	28	290	300	310	320	330	340	350	360	370	380	390	400	
Monday	273	220	53	2	1	1	4	4	16	13	7	32	56	18	21	7	75	5	9	0	0:14
Tuesday	268	194	74	4	4	0	2	2	14	13	6	32	61	12	21	8	73	3	10	0	0:08
Wednesday	274	224	50	1	5	1	2	1	14	11	3	37	61	19	24	9	67	4	11	1	0:12
Thursday	258	202	56	4	1	1	2	1	15	12	3	27	54	10	21	11	72	5	13	0	0:12
Friday	285	215	70	6	4	1	1	4	11	16	6	38	60	11	25	7	81	3	8	2	0:17
Saturday	258	202	56	5	2	1	2	2	13	14	6	26	61	17	19	10	65	4	10	0	0:11
Sunday	290	227	63	3	4	1	2	0	12	19	2	33	78	13	23	11	74	5	9	1	0:13

1 = The flights can go through the optimum flight level without delay or traffic.

0= The flights can go through the optimum flight level but with delay or avoided traffic.

Source: Analysis of field study.

Table 6.5 presents the vertical flight level requested by aircraft to the optimum flight level. It was found that about 30-40 % of the aircraft could go through the flight level requested without delay or traffic. This percentage value shows that the pilots have approximately 30-40 % satisfaction with their flight level.

The Single European Sky ATM Research Programme - SESAR (2008) - states that the percentage of diversions caused by service disruption should be reduced as shown in Table 6.8. This is due to new technology. With regards to the average delay of the remaining scheduled flights, it was found that their average delay for taking off was approximately 12-13 minutes. When this delay is compared with the key performance indicator proposed by SESAR (2008), it is found to be higher than the target time of about 3 minutes, as shown in Table 6.9. Figure 6.2 also shows the number of flights landing in the Bangkok Control Area. In the peak period during 2006-2008, the average traffic delay was approximately 7.08-9.52 %. However, SESAR shows that the target ought to be less than 5 %.

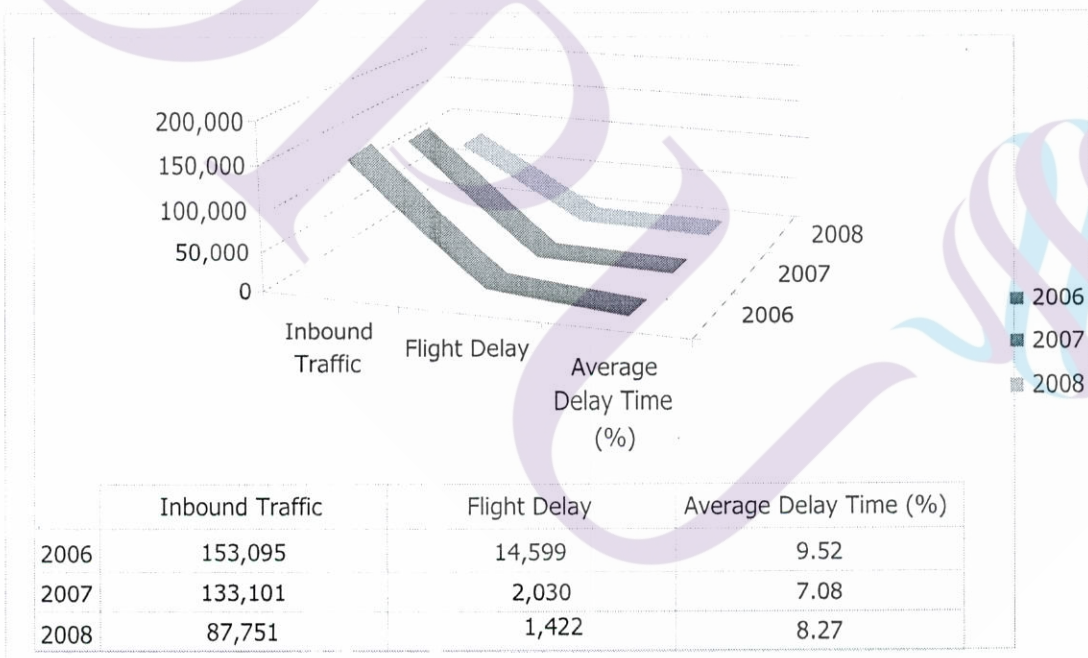


Figure 6.2 The Number of Flight Delay

Source: Derived from this study data on AEROTHAI.

2.2. Quality of service performance indicators are also measured by using questionnaires (AEROTHAI, 2008 Assessment of Customers' satisfaction) and interviews.

Reference to discussion was made on the conflict level of air traffic flow management and limitations of the current ATM at Bangkok International Airport relating to aircraft operation. These are some of the comments from customers:

- a. Forecasting of air traffic and evaluation to the operation concept should be supported.
- b. There is requirement to fly circuitous departure and arrival procedures.
- c. There is always an air traffic delay of 5-10 minutes due to traffic by radar vectoring (Conventional system).
- d. A study conducted for high traffic density areas is required.
- e. The operation of aircraft at inappropriate altitudes and speeds should be improved.
- f. Instrument Flight Procedures for management and planning for air traffic flow management have been employed but need to be updated and to comply with ICAO regulations.
- g. The line of sight of current systems should be improved.

3. Productivity performance indicators measure the quantity of output produced by a unit of input. They are shown in Table 6.7.

Table 6.7: Performance of Productivity of Output

Key performance Indicator (KPI)	Performance of productivity			Goal
	2006	2007	2008	2009
Traffic on time for Domestic flight (%)	85.25	91.37	91.57	91.5

Source: derived from this study data on AEROTHAI (2009).

Table 6.7 presents flights arriving on time, representing about 85-90 % of domestic flights. When compared with the Key performance in SESAR (2008), this is found to be less than the target time of 5-6 %, as is shown in Table 6.8.

4. Cost-effectiveness measured by economic cost-effectiveness method to define key performance area indicator.

Financial cost-effectiveness of a service is generally measured as the cost per unit of output. For air navigation services, with traffic as the output, the cost-effectiveness indicator would be the cost per unit of traffic. The appropriate cost components (e.g. labour operations and maintenance, capital costs) and traffic units would vary depending on the specific cost-effectiveness being measured. It should be noted that cost-effectiveness is related to productivity (ICAO, 2007).

This study found that ANSP (AEROTHAI) manages cost-effectiveness at an average level, but Productivity and Revenue are lower than Global benchmarking. The information, compared with the Global Benchmarking by CANSO (2009), is shown in Table 6.8.

Table 6.8 Productivity Performance Indicators

KPI	Assessment	Results	Average (1 st -3 rd Quartile)
Price	Example Consolidated Price per 1000 km Flight for A320 by ANSP	\$299/ 1000 km.	\$885 / 1000 km.
Productivity	Continental IFR Flight hours per Continental ATCO in Operations	500 Hours/Person	1035 Hours/Person (790-1211) Hours/Person)
	Average Annual Working Hours for ATCOs in Operations by ANSP	2649 Hour/Year	1634 Hour/Year (1433-1786) Hour/Year
Cost Effectiveness	Continental Cost per Continental IFR Hour by ANSP	\$518 /Hour	\$647 /Hour (\$444-\$772 /Hour
	Continental Employment Cost for ATCOs in Operations per Continental IFR Flight Hour Combined with Purchasing Power Parity by ANSP	In standard Level	\$170 /Hour (\$79-\$197/ Hour
Cost Effectiveness	Continental Employment Cost for ATCOs in Operations per ATCO in Operations Combined with Purchasing Power Parity by ANSP	In standard Level	\$154499 /person (\$69904-\$190708 /person)
	Total Cost of Capital and Depreciation as a Percent of Total Costs, Continental and Oceanic	17%	19% (14%-22%)
	Total Employment Cost of ATCOs in Operations as a percent of Total Operating Cost, Continental and Oceanic	21%	33% (25-38%)
Revenue	Continental ANS Revenue per Continental IFR Flight Hour by ANSP	\$479 /flight/ hour	\$757 /flight/hour (\$485-\$891/flight/hour)
Information data compare with Global Benchmarking Report: ANSP Performance Result by CANSO (2009)			

Source: AEROTHAI, 2009

This assessment of safety indicators, quality of service performance indicators and productivity indicators showed that ANSP Thailand needed to improve performance.

In summary, the indicators shown in Tables 6.2 - 6.4 and Figure 6.1 apply ICAO (ICAO, 2007) Performance Base Transition Guidelines and Performance Management and Measurement for improvement of ANSP's performance and monitoring of air navigation service which are used to move to the new technology and benchmarks to:

1. Provide an insight into the opportunities for the improvement of individual ANSPs' performance (learning opportunities, setting performance targets);
2. Support constructive industry dialogue with all stakeholders;
3. Provide customers with visibility of industry and set expectations for service delivery; and
4. Provide global reach to expand the knowledge base of transition to the CNS/ATM technology.

6.6.2 Key Performance Indicator Target for 2020

Table 6.9 shows the key performance indicators that are presented by the single European Sky Air Traffic Management (ATM) Research Programme. This table identifies the Key Performance Indicators (KPIs) to drive and be a standard for improving performance of air traffic services in all countries.

Table 6.9: Key Performance Indicator

KPA	Key Performance Indicator(KPI)	Baseline		2020 Target	
		Year	Value	Absolute	Relative
Capacity	Annual IFR flights in Europe	2005	9.2 M	16 M	+ 73 %
	Daily IFR flights in Europe	2005	29,000	50,000	+ 73 %
	Best In Class (BIC) declared airport capacity in VMC (1 RWY), mov/hr	2008	50	60	+ 20 %
	BIC declared airport capacity in VMC (2 parallel dependent RWYs) , move/hr	2008	90	90	+ 0 %
	BIC declared airport capacity in VMC (2 parallel dependent RWYs) , move/hr	2008	90	120	+ 25 %
	BIC declared airport capacity in IMC (1 RWY), mov/hr	2008	25	48	+ 90 %
	BIC declared airport capacity in IMC (2 parallel dependent RWYs) , move/hr	2008	45	72	+ 60 %
	BIC declared airport capacity in IMC (2 parallel dependent RWYs) , move/hr	2008	45	96	+ 110 %
Cost Effectiveness	Total annual en-route and terminal ANS cost in Europe. €/flight	2004	800	400	- 50 %
Efficiency	Scheduled flights departing on time (as planned)			> 98 %	
	Avg. delay of the remaining scheduled flights			< 10 min	
	Flights with block-to-block time as planned			> 95 %	
	Avg. block-to-block time extension of the remaining flights			< 10 min	
	Flights with fuel consumption as planned			> 95 %	
	Avg. additional fuel consumption of the remaining flights			< 5 min	
Flexibility	Accommodation of VFR-IFR change requests			> 98 %	
	Unscheduled flights departing on time (as requested)			> 98 %	
	Avg. delay of the remaining unscheduled flights			< 5 min	
	Scheduled flights with departure time as requested (after change request)			> 98 %	
	Avg. delay of the remaining scheduled flights			< 5 min	
Predictability	Coefficient of variation for actual block-to-block times: for repeatedly flown routes			< 1.5 %	
	Flights arriving on time (as planned)			> 95 %	
	Avg. arrival delay of the remaining flights			< 10 min	
	Total reactionary delay	2010			- 50 %
	Reactionary flight cancellation rate	2010			- 50 %
	Total service disruption delay	2010			- 50 %
	Percentage of diversions caused by service disruption	2010			- 50 %
Safety	Annual European-wide absolute number of ATM induced accidents and serious or risk bearing incidents	2005		No increase	
	Safety level (per flight)	2005			x 3
Environmental Sustainability	Avg. fuel savings per flight as a result of ATM improvements	2005			10 %
	Avg. CO ₂ emission per flight as a result of ATM improvements	2005			- 10 %
	Compliance with local environmental rules			100 %	
	Number of proposed environmentally related ATM constraints subjected to a transparent assessment with an environment and socio-economic scope			100 %	

Source: SESAR consortium "SESAR Master Plan D5", April 2008.

An important process of ensuring aircraft safety and efficiency would be necessary for optimizing both the flow of traffic and the cost-effectiveness, and for reducing conflicts of management. This indicates that in Thailand a policy leading to a continuous and organized flow of traffic synchronization would be required. Therefore, an analysis of airspace and air traffic management would be essential for air navigation leaders/operators who would play an important role in managing change to new technology and developing the economy in general.

6.7 Conclusion

This chapter has presented the ANSPs' need to change to new systems. The analysis in a transformative pathway of air navigation has been presented, and the key factors of performance-based transition of ATM systems for ANSPs have been examined. The chapter also focused on successful factors of change management on performance transition and the performance specified by the ICAO standard. In addition, the research also ascertains whether the ANSPs have adequate safety, service quality and cost-effectiveness. The results of this thesis will help ANSPs and stakeholders (especially airlines) to improve long term levels of safety, quality of service and cost-effectiveness of air traffic management as appropriate - at local, regional and global levels.

CHAPTER 7

ANALYSIS OF DATA AND RESULTS

7.1 Introduction

Chapter seven presents the results of the study. In this chapter, explanatory elements of change management and transformational leadership related to change processes are presented. Furthermore, the significance of the key empirical indicators is presented and analyzed against the background of the theoretical framework. This chapter also includes discussion.

7.2 Empirical Results and Data Analysis

7.2.1 The Content and Results of the Study

The results of this study are shown in relation to each issue which summarizes the data collection of the theoretical framework related to change management and transformational leadership as indicated in Chapter 5. The theoretical framework and intellectual orientation are vital inputs in the investigation of the study at the empirical level. The researcher has collected empirical data from the field of study representing the experiences of the participants concerned and the phenomenon being studied. The data were collected, researched, organized and analyzed at the theoretical level. Key theoretical concepts have been used.

The results are shown in each table and refer to the questions in the guidelines for interview shown in Appendices 1B and 1C; these are related to the research questions of the study and the data collected from the sources referred to in Chapter 5. An assessment of the representativeness of the sample was based on the results of the sampling methods. Each of these subjects is discussed.

The results and contents of the sampling are divided into 2 categories depending on the quantitative and qualitative approaches identified in Chapter 5. The combining of both approaches is employed for analyzing the data of this study.

7.2.2 The Data Collection

The data collection is composed of:

1. Questionnaires

Out of 500 questionnaires given to followers (air traffic controllers, air traffic service officers, engineers, and the pilots who work only for air the navigation service provider), 350 were returned. After reviewing the questionnaires, only 250 were used for study. These questionnaires were screened by the researcher in order to ensure that the followers answered the questions properly. The researcher checked the answers at each location of every follower in the survey. The researcher found that 100 questionnaires were not completed adequately. The respondents did not identify their names and locations therefore these questionnaires had to be excluded. Initially, only the researcher kept the questionnaires of the participants who answered all questions. Many participants found the questions too difficult to follow; to ensure that these questionnaires were realistic, the researcher needed to interview the followers in order to confirm the answers. As the researcher needed information which was more focused, it was imperative that specific questions be used, as shown in Appendix 1C.

2. Interview

The researcher also interviewed 22 leaders who provided the main data as described in Section 5.3.3. The researcher introduced the background of the new technology by briefing each participant before the interview. The Grounded Theory method and content analysis were used to answer the research questions.

3. Focus Groups

The researcher set up focus groups to discuss how to manage change while the participants attended the ATM course. (See more details in Section 5.3.3.4.)

4. Observation and Field Notes

The researcher observed participants, focusing on senior leaders and followers, particularly at meetings related to the new technology. Moreover, observed leaders and followers presented their notions about change to new systems in several circumstances (See more details in Section 5.3.4.).

5. Document Analysis

The researcher studied and analyzed written documents focusing on the transition to new technology (See more details in Sections 5.3.3.2 and 5.3.4.).

6. Electronic Analysis

The researcher analyzed the data and compared them with the standard key performance indicators, as shown in Chapter 6.

7. Raw Data

The researcher collected the data recorded from the evidence of the original sources. The researcher analyzed and interpreted the data following the ICAO's guideline to answer the level of performance related to flight operations, as shown in Chapter 6.

7.2.3 Procedures for Content Analysis in this Study

1. Raw data files (produce of fieldwork)

The levels of analysis were set up to collect the data used during analysis for interview as described in Section 5.3.2. The data were collected in the form of hand written and audio-taped texts.

2. Processed data

The raw data analysed were rendered into findings or transcripts.

3. Analysis of the process of the data is shown in Figure 7.1.

Field notes were organized into narrative descriptions, and themes and categories were identified. A change process model was developed and cross checked with the data. Grounded Theory was used to analyse the following concepts:

- Theoretical Sensitivity: Using literature for theory, research and supporting evidence, and professional experience and background knowledge of the researcher in the field of air navigation.

- Open Coding: The process of breaking down, examining, comparing, conceptualising and categorising. Data reduction was used. Open coding consists of:

- Labelling phenomena by:

1. Breaking down raw descriptive field notes by asking questions about notes (What is this? What does it represent?);

2. Giving each discrete phenomenon a name;

3. Comparing the discrete phenomena to others already discovered;

- Discovering categories of concepts;

- Developing Properties and dimensions.

- Axial Coding consists of:
 - Taking categories and identifying;
 - Expanding out the knowledge of the categories.
- Selective coding:
 - Selecting the core category, and then relating it to other categories;
 - Developing a theoretical framework.

4. Presentation of the results: The examples are shown in the Table 7.6

7.2.4 Processing of Results

1. The evolution of a thesis involving an integrated analysis of structured qualitative and quantitative data.

2. The quantitative data is generated by using SPSS for Windows for frequency, cross tabs, correlation and factor analysis.

3. The qualitative data also is generated analysis by the Grounded Theory Method.

4. Schatzman (1991) presents a dimensional matrix to create the order and conceptualization of data. This author's dimension matrix was developed for use for this current study, as shown in Table 7.1. All data from the individual interviews, focus groups and survey by questionnaire have been collected from many sources. The concept of the process of change was developed to be an analytical tool, as shown in Table 7.1.

Table 7.1 describes dimension matrixes of the concepts of managing the process of change from the coding to conceptualizing process. As in all Grounded

Theory approaches, parallel processes are data collection, analysis, theoretical decision, and theoretical sampling.

Table 7.1 Dimension Matrix: Managing Process of Change

Dimension	Category	Sub category
Perspectives	Process of change related to new technology, Attitude to change, Aspect to change.	Adoption, resistance, effects, feelings, etc.
Causes	Increase safety and efficiency, the need for change, the substance of change, the politics and the context of change and creating a corporate culture.	New technology is employed, new procedures; new equipment and instruments, etc.
Conditions	Navigating a process of change. Transformational leadership activities and roles.	Inspirational influence, motivation, intellectual stimulation and individualized considerations etc.
Strategies	Leading change, leading a team, supporting a system, managing resistance, reinforcing and rewarding, creating an organizational culture.	Creating a change team, appointing project leaders and senior leaders. Creating awareness and persuasion. Engaging and sharing vision. Developing a sponsor and developing a communication process.
Consequences	Achieving a new environment	Safety, Quality, Productivity, Cost effectiveness

Source: Developed for this research

7.2.5 Profiles of Participants

The participants' profiles are composed of leaders of Air Navigation Service Providers (ANSPs) of developing countries (in The Philippines, Cambodia, Myanmar, Mongolia, Nepal, Indonesia, China, and Thailand), Swedavia Swedish consultants (Sweden) and staff members (followers) at AEROTHAI ANSP. The objective of profiling and analyzing the demographic aspects of participants was to identify the characteristics of participants and assess the representativeness of the focus of the samples. The participants' profiles were analyzed for characteristics including gender, age, education and position. The profiles of the participants are summarized in Table 7.2.

In relation to the participants' profiles, the objectives of profiling and analyzing the demographic details of participants are to identify the characteristics of participants. The characteristics profiles are related to the substance of change that is taking place, such as the effect of the introduction of a new technology managing and navigating change, as shown in Table 7.2

Table 7.2 Profiles of Participants in the Study

Characteristics	Surveyed Followers [n=250]	Interviewed Followers [n=250]	Unit Percentage [n=250]	interviewed Leaders [n=22]	Unit Percentage [n=22]
The Questions for survey and Interview/guideline for interview	Questions for survey and Interview (Details in Appendix 1B-1C)				
1. Gender:					
- Male	109	109	43.6	20	90.9
- Female	141	141	56.4	2	9.09
Total	250	250	100	22	100

Table 7.2 Profiles of Participants in the Study (Continued).

Characteristics	Surveyed Followers [n=250]	Interviewed Followers [n=250]	Unit Percentage [n=250]	interviewed Leaders [n=22]	Unit Percentage [n=22]
The Questions for survey and Interview/guideline for interview	Questions for survey and Interview (Details in Appendix 1B-1C)				
2.Age Range:					
- 20 – 30	50	50	20.0	-	-
- 31 – 40	129	129	51.6	4	18.18
- 41 – 50	47	47	18.8	10	45.45
- 51 – 60	24	24	9.6	8	36.36
Total	250	250	100	22	100
3.Level of education:					
- Postgraduate	150	150	60	14	63.63
- Postgraduate	100	100	40	8	36.37
Total	250	250	100	22	100
4.Employment:					
- Director / Senior Leader	-	-	-	14	63.63
- Change Leader of CNS/ATM	7	7	2.8	8	36.37
- Air traffic manager	38	38	15.2	-	-
- CNS/ATM manager	9	9	3.6	-	-
- Pilot	7	7	2.8	-	-
- Air traffic controller	138	138	55.2	-	-
- Other	54	54	21.6	-	-
Total	250	250	100	22	100
5. Duration of Employment:					
- 2 – 5 years	69	69	27.6	-	-
- 6 – 11 years	48	48	19.2	-	-
- 12 – 16 years	50	50	20	3	13.64
- 17 + years	83	83	33.2	19	86.36
Total	250	250	100	22	100
6.Status:					
- Full time	225	225	90.0	22	100
- Regular	1	1	0.4	-	-
- Civil servant	2	2	0.8	-	-
- Other	22	22	8.8	-	-
Total	250	250	100	22	100

Table 7.2 Profiles of Participants in the Study (Continued).

Characteristics	Surveyed Followers [n=250]	Interviewed Followers [n=250]	Unit Percentage [n=250]	interviewed Leaders [n=22]	Unit Percentage [n=22]
The Questions for survey and Interview/guideline for interview	Questions for survey and Interview (Details in Appendix 1B-1C)				
7. Change effect on Participants :					
-Yes	152	152	60.8	22	100
-No	98	98	39.2	-	-
Total	250	250	100	22	100
8. Which of these statements best applied to how change is managed in an organization?					
- ANSP exists in a state of rapid and continuous change	39	39	15.6	-	-
- ANSP evolves through long periods of stability with short bursts of fundamental change.	34	34	13.6	3	13.64
-Departments within ANSP deal with change incrementally and separately.	135	135	54.0	19	86.36
ANSP is constantly undergoing small changes.	41	41	16.4	-	-
Other (Please specify)	1	1	0.4		
Total	250	250	100	22	100

Table 7.2 Profiles of Participants in the Study (Continued).

Characteristics	Surveyed Followers [n=250]	Interviewed/ Focus Groups Followers [n=250]	Unit Percentage [n=250]	interviewed Leaders [n=22]	Unit Percentage [n=22]
9. Which of these statements best describes the new technology of the CNS/ATM project?					
- The CNS/ATM project is managed within a set timeframe with clear objectives and methods that were communicated in advance and managed in a controlled way	49	49	19.6	2	9.09
- The CNS/ATM is a dynamic project which changes in timescales. It has a focus on contingency in which the complexity of issues can be appreciated.	53	53	21.2	4	18.18
- The CNS/ATM project is a combination of the above not necessarily in equal proportion.	125	125	50	16	72.73
- Other	22	22	8.8	-	-
Missing 99	1	1	.4	-	-
Total	250	250	100	22	100

Source: Analysis of field study.

Table 7.2 presents followers comprising women and men, although the number of women was higher than that of men. There were more male than female leaders. Most of the followers had an age range of 31-40 years old and most leaders had an age range of 41-50 years old. The level of education of most followers was

undergraduate (60%), with the remainder postgraduate. Of the followers, 55% were air traffic controllers. For interview selection, 63 % were director/senior leaders of ANSPs.

The followers and leaders commented that the best solution was to address how to manage change in an organization. It would be most appropriate that the departments within the ANSP deal with change incrementally and separately for communication, air navigation and surveillance. However, the followers understood that the CNS/ATM project was the best technology. The project should be managed within a set timeframe with clear objectives and methods that were communicated in advance, and managed in a controlled way. They also stated that the CNS/ATM project is a dynamic project which changes with time. It has a focus on contingency in which the complexity of issues can be appreciated.

7.3 Data and Results Analysis

A framework was developed from a study of the change management and transformational leadership literature reviewed in Chapter 2 (Change management), Chapter 3 (Leadership and leadership change models), and Chapter 4 (The area of transformational leadership, conceptual framework, and model). An empirical investigation involving qualitative and quantitative case study approaches as shown in Chapters 5 and 6 was then conducted in order to assess the efficacy of the results during this study process.

7.3.1 Comparison of means analysis

The profile of participants (most data came from followers) was shown in Table 7.2. From this study, it was found that the managing of the process of change

in some of the CNS/ATM systems projects was started 10 years ago. The operation of the CNS/ATM system would not be expected to be fully functional for ANSPs until 2016 (ICAO, 2007a). The results of the data are presented in Tables 7.3-7.6.

Table 7.3: Comparison between Males and Females relating to the Perception of Change Affecting Participants

Perception of Change affecting Participants (Male and Female) (n=250)	Mean	T- test	Significant [2-tailed]
Equal variances not assumed		-.860	.391
Male	2.90		
Female	3.00		

All data measured on 5 point scales.

Source: Analysis of field study.

Table 7.4: Comparison between Males and Female Relating to the Feeling in the Management of Change

Perception of feelings of between males and females (n=250)	Mean	T- test	Significance [2-tailed]
Equal variances not assumed		-.760	.448
Male	3.10		
Female	3.20		

All data measured on 5 point scales

Source: Analysis of field study.

Table 7.5: Comparison of Age Groups of Participants Relating to the Effect of the Change Process

Perception of affects on participants by age groups (n=250)	Mean	F - test	Significant [2-tailed]
20 – 30	2.9283	7.096	.000*
31 – 40	3.1216		
41 – 50	2.5559		
51 – 60	2.7774		

*Significantly different

All data measured on 5 point scales

Source: Analysis of field study.

Table 7.6: Comparison of the Age Groups of Participants Relating to Feelings about the Change Process

Perception of feelings of participant in age groups (n=250)	Mean	F - test	Significant [2-tailed]
20 – 30	3.1459	3.608	.014*
31 – 40	3.2608		
41 – 50	2.9210		
51 - 60	2.7292		

*Significantly different

All data measured on 5 point scales.

Source: Analysis of field study.

From Tables 7.3-7.6, the study measured perceived effects of the change process and feelings toward the change process among all participants. Responses to these two questions were analyzed across gender and age groups. Results are summarized in Tables 7.3 through 7.6, and no significant differences were found between male and female respondents for neither perceived effects of the change nor their feelings towards the change. A comparison between age groups, however, revealed that there was significant difference.

The researcher interviewed the leaders who have gained experience in implementing new the CNS/ATM technology. The study found that the attitude of older participants would mean that many would not trust the new equipment. A number of older controllers identified that the new technology would not help them to manage traffic. Rothaug (2003) states that older controllers have a higher reluctance to use computers, which are a new automation of the CNS/ATM. When they gain more experience, the negative attitude turns more positive. Therefore, transformational leaders should consider the followers' ages, as this is a significant factor for managing change when implementing a new technology.

This study attempts to collect data from different viewpoints focusing on the issues shown in Table 7.1. Table 7.1 presented the dimension matrix to identify activities and leaders' roles in each phase of managing the process of change.

In this thesis, interviews and focus groups are the main sources of data and are saved as individual documents. Secondary and primary data from the field of aviation are separated into reports and policy documents. The International Civil Aviation Organization's Annex and recommendation documents also influenced the analysis and are saved as memos. The study used the Endnote (software) for

supporting memos combined with the theoretical framework as shown in the relevant literature examined in Chapters 2, 3, and 4.

The change process model developed from the matrix has two dimensions for the ordering and analysis of data as shown in Table 7.1 (Christensen et al., 2006 and Schatzman, 1991). The matrix is integrated with vertical and horizontal axes. The vertical dimension describes perspectives, causes, conditions, strategies and consequences. The horizontal dimension describes categories and sub-categories. The matrix is integrated with all participants' attitudes, expectations, perceptions, intentions, desires and behaviours, while the perspective on processing of changes has been designed as a questionnaire for survey and interview.

For the analysis of data, the coding processes started with open coding or dissecting the data, as shown in Figure 7.1. The data were subsequently grouped for similarities into coding for analysis, which is presented in "Grounded Theory" of Strauss and Corbin (1990), as shown in Tables 7.1 and 7.6, Figures 7.1, and 7.2. All coding therefore emerges from the data rather than from fixed models, theories or hypotheses. Strauss and Corbin (1990) advocate the use of discipline-based knowledge as long as knowledge fits the data and is not improperly applied to it.

This analytical technique uses the dimensions shown in Table 7.1, Figure 7.1, and examples in Table 7.7. Furthermore, analytical techniques such as questioning and detailed line-by-line analysis compared the data with examples from inside and outside the area of focus. The author asks questions of the data that are collected, as the Grounded Theory approach, data collection analysis, theoretical framework and theoretical sampling are concurrent processes.

The study also uses content analysis and constant comparison to analyze the data. Constant comparison in the process of Grounded Theory is a constant interplay between the initial data and data analysis. Analysis is then extended to embrace literature as data to check the emerging result of a new concept of the change processes model. The developing theory is clarified and a coherent analysis written.

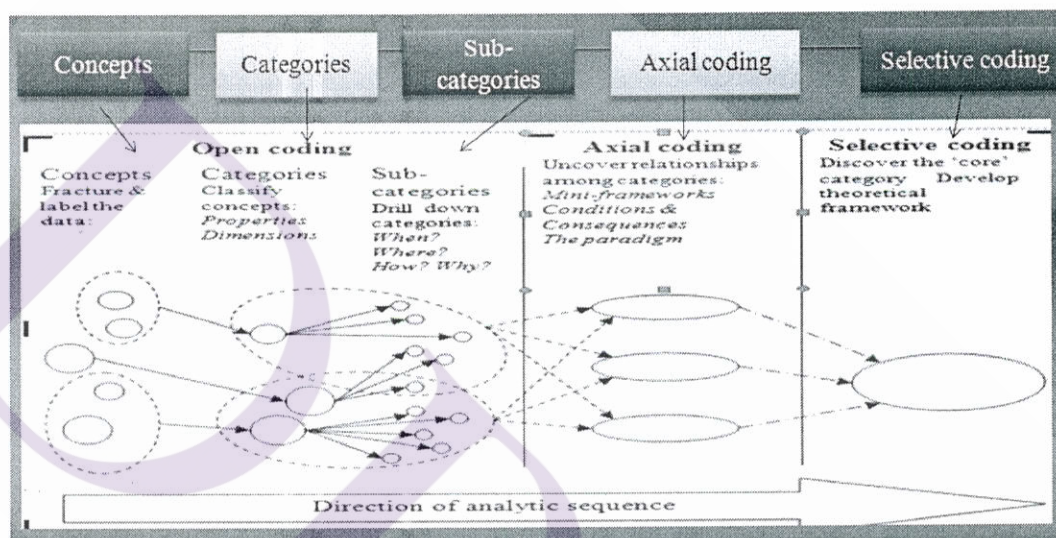


Figure 7.1 Analytical Tool of the Process of Change, the Grounded Theory: Using an Analytical Process.

Source: Adopted from Strauss and Corbin (1990).

For clarity on the actual process of this research, it is the methods and approaches followed in Chapter 5 that this study uses during each phase. From the study, it was decided to follow a qualitative research approach as the main analytical approach. The data are presented to answer the research questions. Some supplements are presented by using a quantitative approach (See some results shown in Tables 7.12-7.13.).

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change

Open Coding		Axial coding	Selective Coding
Research - Factors Categories Classify Concepts: Properties Dimension	<p>Questions Sub- Categories Drill down categories: When? Why? How? Where?</p> <p>Code</p>	<p>Uncover relationships: Mini-frameworks Conditions and Consequences The paradigm</p>	<p>Discover the core Category. Develop Theoretical framework CM: Change Management TL: Transformational Leadership</p>
1.Process of Change	<p>IIL* IIF/Q* IG I* (*remark page 242)</p> <p>What is your view of the process of change from the old system to the new system?</p> <p>Were your expectations of the new system met?</p>	<p>IIL I agree with the need of behavioural change from the customary and familiar practice to a new and improved one, but it should be carried out <i>gradually</i>.</p> <p>I agree that it should be conducted <i>step by step</i>. It will take time for us to ensure that new systems can replace the old systems. The systems <i>are complex</i>.</p> <p>IIF It would be most appropriate that the departments within ANSP deal with change <i>incrementally</i> and separately for communication, air navigation and surveillance. It is a <i>dramatic</i> change.</p> <p>IG I We did not see any change that would move to new technology without using ground navigation system.</p>	<p>Results</p> <p>Gradual change</p> <p>Evolution</p> <p>The location of the results</p> <p>Table 7.23</p>

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

		Open Coding	Axial coding	Selective Coding	
				Results	The location of the results
1. Process of Change	IG1* IG2* (*remark page 242)		<p>IG1 We do not know when the change will be. A few experts understand the new Performance Based Navigation. It is a <i>complex</i> navigation system.</p> <p>IG2 We <i>cannot change</i> because only a few people understand what the CNS/ATM systems are. We <i>need time</i>.</p> <p>We found that change should be <i>evolution rather than revolution</i>. We <i>need to test many systems</i>. We have heard for more than 10 years that the change moves to new technology. We do <i>not believe</i> that the Global Position System would be out of service.</p> <p>There must be a change from the old to the new system which should be taken very <i>seriously</i> before the process change takes place.</p>	<p>Gradual change</p> <p>Evolution</p>	Table 7.23
		<p>What is your view of the process of change from the old system to the new system?</p> <p>Were your expectations of the new system met?</p>			

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

	Open Coding	Axial coding	Selective Coding	
			Results	The location of the results
2. The Need for Change Recognition and Identification phase	21L* 21F/Q* 2G1* 2G2* (*remark page 242)	<p>21L/ 21F/Q Both internal and external (ICAO). Discussions of the change: On top of this reason, I think the size of aircraft is one reason for approaching the technology change, using more criteria of taking off and landing that are different. It is essential to change the procedure of air navigation to be more accurate, <i>conforming to the technology changes</i>. Things are going according to our goals and objectives.</p> <p>2G1 The change team was assigned to create awareness and acceptance of the change among the staff members.</p> <p>The new system <i>reduces many problems</i> that used to be the causes of air traffic incidents. Its effectiveness has been undoubtedly proven.</p> <p>2G2 The reasons for change: 1) For the upgrading of the systems. 2) For the survival of the global need. 3) For the timely transition to the CNS/ATM</p>	-Create CM and TL Support -Create awareness And Persuasion	Recognition Phase Leaders' role and Recognition Phase Follower Figure 7.2 Figure 7.5 Table 7.8 Table 7.15 Context of change
		<p>1. Why did we change to new technology? 2. What were the problems and limitations of conventional system? 3. Why is the change being made? 4. What the risk of not changing is being happened?</p>		

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

	Open Coding		Axial coding	Selective Coding	
				Results	The location of the results
2. The Need for Change Recognition and Identification phase	2G2* (*remark page 242)	<p>Why did we change to new technology?</p> <p>What were the problems and limitations of conventional system?</p> <p>Why is the change being made?</p> <p>What the risk of not changing is being happened?</p>	<p>2G2</p> <p>4) To cope with the increasing Traffic in ASIA PACIFIC.</p> <p>We would like to understand why and when we have to change. We need influence from leaders.</p> <p>The reasons for change to new technology:</p> <ul style="list-style-type: none"> - Increase of traffic - Out of date Equipment. 	<p>-Create CM and TL Support</p> <p>-Create awareness And Persuasion</p>	<p>Recognition Phase Leaders' role and Recognition Phase Follower Figure 7.2 Figure 7.5 Table 7.8 Table 7.15 Context of change</p>

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

Open Coding		Axial coding	Selective Coding		
			Results	The location of the results	
3. Preparation and Planning-Phase	3IL* 3IF/Q* (*remark page 242)	<ol style="list-style-type: none"> 1. Could you tell us more about the change or changes you implemented lately? 2. Did you plan the implementation of change in advance or did you adapt to the circumstances? 3. Who was involved in the planning process? 4. Did you use some kind of method or methodology (tools, models) or did you just rely on your experience? 5. According to you, which stages of the change process were crucial? 6. Were some people or departments more involved during the process of change? 7. How did you prepare your employees for the acceptance of change? 	<p>3IL We began the process of change by <i>re-examining</i> an overall picture of the existing air traffic services, and by sending <i>professional teams</i> abroad to collect data and information on the new technologies and management systems in developed countries as well as neighbouring countries.</p> <p>We try to let them engage our plan as far as possible.</p> <p>3GL <i>Requirements for study</i> and research: Research should be carried out to find the levels of suitability and requirements for the company.</p> <p>3IF/Q Each phase begins with <i>no planning</i>. The leader has an unclear plan for implementation of the CNS/ATM.</p>	Prepare Teamwork	
				Engage Change Plan	Project Leader And Followers

Table 7.7: Examples of the Grounded theory in analytical process of change (continued).

Open Coding		Axial coding	Selective Coding	
			Results	The location of the results
31L* 3G2* (*remark page 242)	<ol style="list-style-type: none"> 1. Could you tell us more about the change or changes you implemented lately? 2. Did you plan the implementation of change in advance or did you adapt to the circumstances? 3. Who was involved in the planning process? 4. Did you use some kind of method or methodology (tools, models) or did you just rely on your experience? 5. According to you, which stages of the change process were crucial? 6. Were some people or departments more involved during the process of change? 7. How did you prepare your employees for the acceptance of change? 	<p>31L and 3G2 We use our experience to manage <i>our teams</i>. Members team must go along together. There are those who do not wish to join the group. We will use the people or <i>team to explain or intercept the idea or try to change of his/her idea.</i></p> <p>The staff members were given an opportunity to fully <i>participate</i> in the decision-making process before the purchase of any equipment.</p> <p>Most of the staff were <i>Involved</i> in the planning process. We found that the change has been successful for introducing new technology at the new airport.</p>	Engage	Followers (FO) Figure 7.2 Figure 7.5 Table 7.9 Table 7.15 Table 7.16
3. Preparation and Planning-Phase				

Table 7.7: Examples of the Grounded theory in analytical process of change (continued).

Open Coding		Axial coding	Selective Coding	
			Results	The location of the results
4. Action-Implementation Phase	<p>4IL* 4IF/Q* (*remark page 242)</p> <p>1. Could you tell us more about the change or changes you implemented lately?</p> <p>2. Have you been closely involved into the process of change?</p> <p>3. Did you feel stressed during change implementation?</p> <p>4. According to you, which stages of the change process were crucial?</p> <p>5. Were some people or departments more involved during the process of change?</p> <p>6. Did you control/supervise permanently the process of change? If yes, how?</p> <p>7. Did you communicate to all the stakeholders the effects of change after the implementation? If yes, how?</p> <p>8. How long did the process of change last?</p> <p>9. What was the result of the implemented change?</p>	<p>4IL I have been closely involved in the process with full support from the agency's top leaders. I was authorized to issue orders, with necessary back-up in terms of budget and overtime payment as well as motivating the staff.</p> <p>4IF/Q Change is expected without being linked to an incentive and motivation.</p>	<p>Provide direct support by motivation and influence</p>	<p>Team, project Leaders</p> <p>Action and Implement-action Phase Figure 7.2 Figure 7.5 Table 7.10 Table 7.17</p>
5. Stabilisation Phase	<p>5IL* (*remark page 242)</p>	<p>5IL The results of the process of change are both successful and unsuccessful. I considered the change which was unsuccessful, should be used as a lesson learnt as part of developing the new process. I explained to our staff what has been implemented and unsuccessful should be used as a lesson and adapted as part of the new process.</p>	<p>Sustain change Process by Assessment and Evaluation</p>	<p>Leaders' role</p>

Table 7.7: Examples of the Grounded theory in analytical process of change (continued).

Open Coding		Axial coding	Selective Coding	
			Results	The location of the results
5. Stabilisation Phase	<p>5G1* 5G2* 5 IF/Q* (*remark page 242)</p> <p>According to you, which stages of the change process were crucial? Were some people or departments more involved during the process of change?</p>	<p>The new systems have a warning about safety net. New systems are very good. We expect we can meet the goal required by ICAO The systems were established in Sweden. We found that the new system can reduce the workload by reducing separation. The new system can give a more accurate position resulting in a reduction of separation for the aircraft. Furthermore, this will help to reduce the air space congestion, conserve fuel and protect the environment. We found that the controllers use new technology if they would understand that new systems should be better than the old system. We took 3 years to cope with the new system. 5G1 and 5G2 We do not like to change because we do not believe the new systems work already properly. The direction of implementation is met with resistance. 5 IF/Q Change projects create resistance which has to be overcome.</p>	<p>Sustain change Process by Assessment and Evaluation</p>	<p>Leaders' role Figure 7.2 Figure 7.5 Table 7.11 Table 7.18</p>



Table 7.7: Examples of the Grounded theory in analytical process of change (continued).

Open Coding		Axial coding	Selective Coding	
6. Leader's Role			Results	The location of the results
6IL* 6IF/Q* 6G1* 6G2* (*remark page 242)	Was your action particularly more important during one of the steps? What are the required qualities for a CEO as a change leader according to you? Have you been closely involved into the process of change?	6IL The change should be done by a <i>group or a team</i> an opinion for change between <i>leaders and followers</i> should be taken into consideration. 6IF/Q We found that <i>leading change</i> is unclear. Some leaders should have <i>access and understand</i> the CNS/ATM The strategy, system design and process are determined from <i>outside</i> . Project <i>Leaders need to understand</i> and transfer knowledge to followers. 6G2 <i>Senior leaders must be an important tool and sponsor.</i> 6G1, 6G2 <i>Vision, motivate, of course: Have strong change of purpose, commitment to change.</i> <i>Inspirational motivation is more influence to followers.</i>	Acquire Project Leaders Engaging strongly Access and understand Sponsoring Motivate influence	Figure 7.4 Figure 7.6



Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

	Open Coding	Axial coding	Selective Coding	
			Results	The location of the results
7. Rigidities towards Change	<p>1. Do you think your company has a corporate culture?</p> <p>2. Do you feel that the corporate culture played an important role when implementing change?</p> <p>3. Could you feel some resistance is due to the values of the company?</p> <p>4. Did you therefore have to change the corporate culture?</p> <p>5. Did you encounter some resistance problems from employees?</p>	<p>7IL Use a tactic to convince the follower with the truth and find out his/her opinion for the <i>resistance</i>. I believe the change was not successful. It was a <i>lesson learnt</i> in developing new Technologies. If any staff member demonstrated any sign of <i>resistance</i> to change, the team would approach the person to provide him/her with a <i>detailed explanation</i> on a one by one basis. 7G2 The change team was assigned to create awareness and acceptance of the change among the staff members.</p> <p>7IF/Q The direction of the implement is influenced by <i>resistance</i>. Change projects <i>create resistance</i> which has to be overcome.</p>	<p>Manage resistance</p>	<p>Leaders' role</p> <p>With Senior Leaders</p> <p>Train and Educate Followers by Motivation, influence and Coach.</p> <p>Figure7.2 Figure7.4 Figure7.5 Figure7.6 Table 7.10</p>

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

		Open Coding	Axial coding	Selective Coding	
				Results	The location of the results
8.	Communication Skills	<p>8IL* 8IF/Q* 8G1* (*remark page 242)</p> <p>1. How did you prepare your employees for the acceptance of change? 2. Did you use special communication channels (mail, assembly, meeting, and workshop)? 3. Did you create a vision to increase the acceptance of the change process? 4. Did you use some special communication tools in order to implement change? Did the employees have an easy access to you?</p>	<p>8IL I used 'two-way' communication. I employed a one-to-one communication approach by first sending the trainers to study the new system with the suppliers. They were then assigned to explain to the staff how to operate the new equipment effectively.</p> <p>8IF/Q and 8G1 Communication about the implementation is not given in advance or is not relevant. We need someone are experts to explain to us directly. Communication about change is limited to only those directly concerning the project.</p>	<p>Coach support</p>	<p>Engage Followers Engage Followers Inspirational motivation, Inspirational Influence, intellectual stimulation and individualized consideration respectively. Figure 7.2 Figure 7.5 Figure 7.6 Table 7.10 Table 7.17</p>

Table 7.7: Examples of the Grounded Theory in Analytical Process of Change (continued).

Open Coding		Axial coding	Selective Coding	
			Results	The location of the results
9. Leader's Ability to Motivate	9IL* 9G2* 9F1/Q* (*remark page 242)	<p>1. Was it possible for them to contact you with questions about the change process?</p> <p>2. How did you cope with the resistance from employees?</p> <p>3. Have you been a visible, active agent of change?</p> <p>4. Have you been closely involved into the process of change?</p>	<p>Senior Leaders' aspects, roles</p> <p>Action and Implement</p> <p>ation Phase</p> <p>Provide direct support by motivate and influence.</p>	<p>Figure 7.2</p> <p>Figure 7.4</p> <p>Figure 7.6</p> <p>Table 7.10</p> <p>Table 7.17</p> <p>Table 7.18</p> <p>Table 7.19</p>
		<p>9IL and 9G2</p> <p>I always use general <i>communication tools</i>, with an emphasis on the use of simulators to demonstrate the <i>positive effects</i> of the new system, in order to <i>create confidence and cooperation among the staff</i>. I have <i>direct line for followers to create ideas and tell me how to help organizations in the better ways</i>. Always <i>admire the staff who intent to work</i>. I tell them <i>directly or the letter</i>. I always <i>support them with nice words</i>. I always <i>speak soft words to motivate them</i>.</p> <p>9F1/Q</p> <p>Training is inadequate leaving unanswered questions about the change.</p> <p>9G2</p> <p><i>We need the leader who has vision and strong sense of purpose.</i></p>		

Source: Analysis of field study

Remark of Table 7.7: * Data of factor coding

1. Process of Change	1IL	=	Interview Leaders
	1IF/Q	=	Interview Followers and Questionnaire
	1G 1	=	Interview Focus group 1
	1G2	=	Interview Focus group 2
2. The Need for Change Recognition and Identification phase	2IL	=	Interview Leaders
	2IF/Q	=	Interview Follower and Questionnaire
	2G1	=	Interview Focus group 1
	2G2	=	Interview Focus group 2
3. Preparation and Planning- Phase	3IL	=	Interview Leaders
	3IF/Q	=	Interview Followers and Questionnaire
	3F2	=	Interview Focus group 2
4. Action-Implementation Phase	4IL	=	Interview Leaders
	4IF/Q	=	Interview Follower and Questionnaire
5. Stabilisation Phase	5IL	=	Interview Leaders
	5 IF/Q	=	Interview Follower and Questionnaire
	5G1	=	Interview Focus group 1
6. Leader's Role	5G2	=	Interview Focus group 2
	6IL	=	Interview Leaders
	6IF/Q	=	Interview Follower and Questionnaire
7. Rigidities towards Change	6G1	=	Interview Focus group 1
	6G2	=	Interview Focus group 2
	7IL	=	Interview Leaders
	7IF/Q	=	Interview Follower and Questionnaire
8. Communication Skills	7G2	=	Interview Focus group 2
	8IL	=	Interview Leaders
	8IF/Q	=	Interview Followers and Questionnaire
	8G1	=	Interview Focus group 1
9. Leader's Ability to Motivate	9IL	=	Interview Leaders
	9FI/Q	=	Interview Followers and Questionnaire
	9G2	=	Interview Focus group 2

7.4 The Result of this Study

The results from the data analysis have been divided into four parts, according to methods of research used.

Part 1, Research question 1: Which phases in the process of change can be identified? Depiction of the phases is based on both empirical results and a theoretical review.

Part 2, Research question 2: What role and impact does the leader play in the process of change?

7.4.1 Change Management (CM) Phases and Activities in the Process of Change and Activities.

In managing the Process of Change within the change process models used in this study, there are many differences, nuances or refinements to the existing concepts. However, some similarities between the various approaches can also be found from the literature review.

Participants described the most crucial CM activities for navigating leaders in the process of change. The data is divided into four main phases which are identified in the process of change. They are: Recognition and Identification Phase; Preparation and Planning Phase; Action and Implementation Phase; and Stabilization Phase. The activities are categorized by using a grounded theory research method according to the main participants who are composed of:

- Project leaders
- Transformational Leaders (senior leaders – TE)
- Staff members or followers

The change process model developed from the matrix for this study is two dimensional, as shown in Figure 7.2 which outlines two critical dimensions before starting any change in an organization. The first dimension, presented on the vertical axis, is the extent to which people agree on what they want: the results they seek from their participation in the enterprise; their values and priorities; and which trade-offs they are willing to make in order to achieve those results. The second dimension,

shown on the horizontal axis, is the extent to which participants agree on *cause and effect* and which actions will lead to the desired outcome.

The change process model developed from the matrix for this study is two dimensional. The matrix is integrated with all participants' attitudes, expectations, perceptions, intentions, desires and behaviours while the topic of change implementation has been designed as a questionnaire for survey and interview. The results of analysis both of the theoretical framework and the empirical data are divided into: Recognition and Identification Phase; Preparation and Planning Phase; Action and Implementation Phase; and Stabilization Phase. This division helps make sense of change management and transformational activities shown in Figure 7.2 and Tables 7.7 - 7.12, Figure 7.6 and Tables 7.16-7.18).

	Project Leaders	Senior Leaders	Followers
Process of Change Phases	The Recognition and Identification Phase	Prepare Teamwork	Establish Transformational Leaders (TE) Create Awareness and Persuasion
	The Preparation and Planning Phase	Change Plan	Involve Transformational Leaders Engage Followers
	The Action and Implementation Phase	Project Phases Participants	Coach Transformational Leaders (TE) Train Followers
	The Stabilization Phase	Support Change	Monitor Progress Understand Followers

Change management and Transformational Leadership Activities →

Figure 7.2: Result of Managing the Process of Change can be identified.

Source: Analysis of field study.

1. Recognition and Identification Phase

Before any change is planned or implemented, the leaders should recognize if there is a need for change in the organization. This aspect is important because leaders have either the option to act or to react to the environment. During the Recognition Phase, the need for change has to be identified by the organization as soon as there is a sign that there is something that is likely to adversely affect it. The change leader has to start searching for the reason for the deficient situation. This is a major step in the change process because it is necessary to correctly identify the need for change (Linstead and Pullen, 2009). The results from empirical study, indicating and managing the process of change activities which are identified in the recognition phase as shown in Figure 7.2 and Table 7.8.

Figure 7.2 presents the results where the activities and steps in the process of change are identified. The dimension in Figure 7.2 summarizes the research results related to those focusing on project leaders, senior leaders and followers in the ANSP organization. The various methods involving participants of the Air Navigation Service Providers which will be included in a description of how these perceptions identify, influence and affect management of the process of change. Table 7.8 presents the results from surveys, focus groups, and interviews, indicating activities which are identified in the Recognition and Identification phase.

All the phases consisting of different elements have to be conducted in order during the process of change implementation.

Table 7.8: Results of the Recognition and Identification Phase which can be identified.

Change Phase	Project Leaders	Leaders	Followers
Recognition and Identification Phase	Prepare Teamwork	Establish TE	Create Awareness
	With Project Leaders	With Senior Leaders	With Followers
	Prepare Teamwork	Establish Transformational Leaders (TE)	Create Awareness and Persuasion
The Recognition and Identification Phase	1. Identify a suitable team; considered by function and selection of those who understand and manage the technology of change in the organization 2. Identify the need and reasons for change.	1. Identify the most important or main leaders required. They should directly provide their support. 2. Identify the key leaders who accept the change with the accepted positions (access). They must have competency to manage and understand the change including having a good vision for the new technology.	1. Instigate initial communication with followers to create awareness of the need and reasons for change. 2. Instigate initial communication with followers to persuade them to participate at an early stage (Leader Group).

Table 7.8: Results of the Recognition and Identification Phase which can be identified (continued).

Change Phase		Project leaders	Leaders	Followers
Recognition and Identification Phase		Prepare Teamwork	Establish TE	Create Awareness
The Recognition and Identification Phase	With project Leaders	With senior leaders	With followers	
	Prepare Teamwork	Establish Transformation Leaders (TE)	Create Awareness and Persuasion	
	3. Access and analyze the current and future status of key performance indicators. 4. Analyze the substance, of organizational politics and the context of change	3. Identify the leaders' roles and impacts which apply in the change process. "Leaders should include ethical aspects of changing to a new technology and have inspirational influence. Leaders should be "role models." (Interviews and voices in the organization). 4. Show project leaders the orientation of ANSP, why the change is being made and how the ANSP organization is prepared for change.	3. Listen to the feedback and share vision with followers about the change. 4. Focus on succeeding by using the word "Develop" rather than "Change" throughout the process.	

Source: Analysis of field study.

Table 7.8 presents the results from surveys, focus groups, and interviews, identifying the activities which are identified in the preparation and planning phase.

2. Three main recurrent stages in the Change Process.

This research has identified three main recurrent stages after studying the process of change and describing them as: Preparation, Action and Stabilization. These elements are discussed next.

2.1 Preparation of the Planning Phase

Most authors agree that change has to be planned before being implemented in the organization. If this is not the case, change efforts are likely to be unfocused, scattered and set on unimportant issues. The problem of a change process which is not adequately planned leads often, if not always, to ineffectiveness, confusion and wasted resources. Kotter (1996) puts forward the idea of planning a vision at the beginning of the process of change in order to encourage employees to embrace it more easily. The preparation planning phase is identified in the study as important to the process of change.

The Planning Phase is characterized by developing strategies on how to solve the problems identified before preparing the employees for change. Firstly, a well-thought-out planning process is needed for the effective implementation of change. Planning should be taken seriously because it will be the guideline of the process of change. If a vision is clear, and well-communicated, and if people consider it makes sense, commitment and motivation are more likely to follow. To reduce resistance, it is advisable to have first persuaded people in higher levels in the organization in order to use their power to persuade the people at lower levels. Therefore, making the people part of the process of change is vital. In this period it is,

furthermore, advisable to take the corporate culture of the organization into account. De Wit and Meyer (2004) argued that the stronger the organizational culture is, the more efficient it is in terms of performance. However, the drawback is that a stronger organizational culture makes it more difficult and rigid to change. A strong corporate culture cannot be shifted suddenly and takes time to be adapted to change. The results from the empirical study, indicating the managing of the Process of Change activities which are identified in the preparation and planning phase, are shown in Figure 7.2 and Table 7.9.

Table 7.9: Results of the Preparation and Planning Phase which can be identified.

Change Phase	Project Leaders	Leaders	Followers
Preparation and Planning phase	Develop CM and TL plan	Involve Transformational change Leaders (sponsors)	Engage Followers
The Preparation and Planning Phase	With the project Leaders	With Leaders	With Followers
	Develop Change Management (CM) plan and Transformational Leadership (TL) plan	Involve Transformational Leaders (sponsors)	Engage Followers
	<ol style="list-style-type: none"> 1. Create strategic plan for change. 2. Create a change team from each level. 3. Establish plan and design. 4. Integrate transformational leadership into the change management process. 	<ol style="list-style-type: none"> 1. Create transformational leaders' role. 2. Train senior and middle level managers on change management in the transformational leadership context. 	<ol style="list-style-type: none"> 1. Identify the process of change with clear vision. 2. Take the corporate culture into account.

Source: Analysis of field study

2.2 Action and Implementation Phase

After the planning and design have been established, action is needed to implement the change. However, uneasiness and instability are common during this stage. Lewin (1951 and 1958) stated that during the “transition” phase the change occurs. Uncertainty and confusion overwhelm the organization at all levels. The employees understand that the old order is being modified but do not have a clear picture of the new one (Burke, 2002). Schein (1999) asserts that in order for people to move to the second step of the change process, which is to actually change, they have to be sure that the process will not trigger feelings of embarrassment, humiliation or loss of face and self-esteem (Burke, 2002). Members of the organization have to feel secure psychologically. In other words, they must have no fear of punishment or retribution by embracing the change. According to Bridges (2003), people have to get used to the change and have to identify themselves with the new situation. To them, it is obvious that the change implemented triggers uneasiness and that it is a necessary phenomenon in all change processes (Bridges, 2003).

The Action and Implementation Phase is a step in the study of the process of change related to the application of the general planning which means action and involvement. This is the time for making the change itself. This phase takes some time, possibly months or even years.

The main characteristic of this phase is the period of instability inherent in the process; therefore, the resistance towards the implementation can increase. This is also due to the fact that more and more people are getting involved and engaged in the process than were in the planning phase. The rigidity is an unavoidable aspect of the process of change and can be lowered to a certain extent

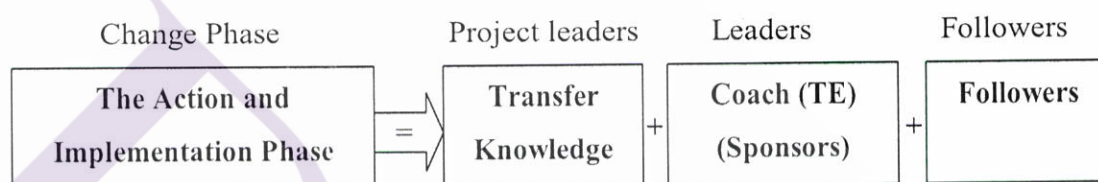
through good communication and good preparation; on the leadership dimension, communication and motivation are therefore more important than ever and are deeply connected. It is important to be present, visible and available for employees and for them to be fully committed to their tasks. The change team can support the leader's action in fulfilling these tasks. If the change team consists of other change leaders some of these tasks can be delegated to other team members. They can, for example, help to communicate and to motivate employees in their hierarchical levels.

In order to motivate employees, the change leader and his team must support and encourage the people within the organization and attempt to give them inspiration to keep things moving forward in a positive way. If the participants do not feel supported, uneasiness and stress will appear and the change is likely to fail because the participants would rather stay with the previous system.

The ability of communicating a vision in an organization is of the utmost importance for the leader because it underlies what is necessary to achieve that vision. The leader has to give sense to the audience and that, is another key aspect for involvement and motivation. The results from the empirical study indicating and managing the Process of Change activities which are identified in the action and implementation phase are shown in Figure 7.2 and Table 7.10. Furthermore, changes in planning can appear at any moment of the implementation. In this case, the company has to step back to the planning phase.

Table 7.10 presents the results from surveys and interviews, identifying the activities in the action and implementation phase.

Table 7.10: The Results of the Action and Implementation Phase which can be identified.



	With the Project Leaders	With Senior leaders	With Followers
	Transfer Knowledge	Coach Support	Train Followers
The Action and Implementation Phase	<ol style="list-style-type: none"> 1. Act and involve. 2. Support and help their coaches and followers to improve their performance. 3. Support the leaders' actions in fulfilling their tasks. 4. Support local trainers in each section to implement education and training related to new procedures and systems. 	<ol style="list-style-type: none"> 1. Provide leaders with strong tangible activity. 2. Increase the level for communicating with followers. 3. Support the budget. 4. Manage resistance. 	<ol style="list-style-type: none"> 1. Train followers using a one-by-one method. 2. Listen to followers and support them if possible and as soon as possible. 3. Share the critical problems and success factors for developing a change process.

Source: Analysis of field study

2.3. Stabilization Phase

Most authors agree on the importance of stabilizing what has been changed once change has been implemented. Lewin (1951, 1958) and Schein (1999) clearly mentioned this important aspect of the process in their respective “*freezing*” and “*refreezing*” steps (Burke, 2002). According to Lewin (1958), the implemented change cannot be allowed to “drive or fade away”. Kotter (1996) emphasizes the continuity of the implemented change at the end of the process. The change agents have to make sure that the employees’ behaviour is really changed and that it will continue to be so later. Some authors insist on the constant checking of the implemented change afterwards and also assert that the goal for every process of change should be the implementation of long-lasting and deep transformation. Anderson (2001) also shares the same views as Kotter (1996). This final step should trigger the creation of a system which refines and improves the new state continuously. Learning from the change process and establishing the best practices for change have to be taken into consideration. Anderson and Kotter’s approach definitely praises long-run constructive change. Kotter’s approach of changing the people’s feelings in order to get change implemented seems to be a completely new approach, but it is not. For the application of deep lasting change, the change leader should try to change the employees’ minds not just their behaviour (Burke, 2002). A full acceptance and commitment towards the new situation is necessary to accomplish change in the long run. Bridges (2003) states that people at the end of the process of change are waiting to follow the ones who have already adopted the new state of mind. This is an interesting psychological aspect because the employees, in their fear/hate of uncertainty, will

observe others first and then decide to move with them when they feel they do not have any other choice.

The Stabilization Phase in this study can overlap with the implementation phase as well due to the fact that in some parts of the organization the implementation phase can be completed earlier than in other parts. The stabilization phase is characterized by the assessment and the evaluation of the change process as well as by checking and controlling the success. The results from empirical study indicating and managing the Process of Change activities which are identified in the stabilization phase are shown in Figure 7.2 and Table 7.11. Table 7.11 presents the results from surveys and interviews, investigating the activities which are identified in the stabilization phase.

Table 7.11: The Results of the Stabilization Phase which can be identified

Change Phase	Projective Leaders	Leaders	Followers
The Stabilization Phase	Support Change	Monitor Progress	Understand Followers
	With the Project Leaders	With Leaders	With Followers
	<ol style="list-style-type: none"> 1. Monitor activity and evaluate. 2. Celebrate the successful change or review the critical problems for unsuccessful change. 3. Identify lessons learned and develop change management tools. 	<ol style="list-style-type: none"> 1. Participate with sponsors in managing resistance. 2. Check and control the success. 3. Communicate to all stakeholders the effects of change after the implementation. 	<ol style="list-style-type: none"> 1. Share vision for improvement.

Source: Analysis of field study.

7.4.2 Transformational Leaders' Role and Impact.

Research question 2: What role and impact does the leader play in the process of change?

2.1 The substance of change is considered, that is the type and scale of organizational change that is taking place, such as the effect of the introduction of a new technology and/or a new management technique.

7.4.2.1 The Substance of the Change

Table 7.12 presents the statements that are best applied as to how followers feel about how the CNS/ATM project is managed. The study found that the factor analysis was composed of 3 factors. The first factor found was that the followers (controllers and air traffic officers) have seen the initiation of the projects with no planning beforehand. The followers pointed out that: 1. The guideline is important as regards how the system implementation is to be managed and followed. 2. Ideas are openly communicated and encouraged with the implementation. 3. Once the implementation has taken place, users' involvement in the project begins. The second factor included: 1. The reasons for change are unclear and there are different views of the goals for implementation. 2. Communication about the implementation is not given in advance or is not relevant. 3. The leader has an unclear plan for implementation of the CNS/ATM. 4. The direction of the implementation was influenced by resistance. The third factor found was that the strategy, system design and processes are determined completely outside the organization. The details are presented in Table 7.12

Table 7.12 Factor Analysis: CNS/ATM Systems Affect The participants' Job Roles

Which of the statements below best applies to how you feel the CNS/ATM project is managed?	Factors		
	1	2	3
1. There are predetermined guidelines as to how the system implementation is to be managed and followed.	.814		
2. Ideas are openly communicated and encouraged within the implementation.	.714		
3. Once the implementation has taken place, users' involvement in the project begins.	.719		
4. Incentives are linked with the implementation to aid the process of change.	.670		
5. Training is frequently given with supporting materials creating confidence with the system and the processes.	.668		
6. Wide timescales for the implementation are set and goals are met.	.584		
7. Implementing communication is open and readily available.	.523		
8. Key implementation personnel are chosen and put in charge.	.390		
9. The reasons for change are unclear and there are different views of the goals of the implementation.		.807	
10. Communication about the implementation is not given in advance or is not relevant.		.614	
11. The leader has an unclear plan for implementation of CNS/ATM.		.577	.555
12. The direction of the implementation is influenced by resistance.		.529	.369
13. There is no cooperation between regulator and ANSP for implementation of the CNS/ATM systems.	.304	.421	
14. Each phase begins with no planning.			
15. The strategy, system design and processes are determined completely outside the organization.			.565
16. Conflicts within the implementation are avoided.			.515

N=250 Extraction Method: Principal Axis factoring.

Rotation Method: Varimax with Kaiser Normalization

Source: Analysis of field data.

Table 7.13 presents management of change of the CNS/ATM affecting Air Traffic Controllers and Air traffic Service officers who are the core of the activity for Air Navigation Service Providers. The study showed that the output was composed of 5 factors. The only 2 factors were importance. The first significant factor was that the senior leader influenced followers: 1. Conflicts within the change were looked for and the leader tried to solve problems. 2. Communications about the change were timely and relevant. The second significant factor was the project leader. The followers commented that: 1. The training was inadequate, leaving unanswered questions about the change. 2. Sometimes, project teams did not work in an orderly manner and were not consistent with regards to the change.

Table 7.13 Factor Analysis: the CNS/ATM Systems affect the participants' Job Roles.

How does the management of change of CNS/ATM affect your job role?	Factors				
	1	2	3	4	5
1. Conflicts within the change are looked for and the leader tries to solve problems.	.821				
2. Communication about the change is limited to only those directly concerned with the project.	.701				
3. The project leader for the change is known and project champions aid the planning and implementation.	.662				
4. There are logical reasons for change which are visible and the goals are transparent.	.642		.379		
5. The implementation of the change within your role is managed solely by the head of the organization.	.636				
6. The process of implementation for the change is flexible and reactive.	.557				

Table 7.13: Factor Analysis: the CNS/ATM Systems affect the participants' Job Roles

(Continued).

How does the management of change of the CNS/ATM affect your job role?	Factors				
	1	2	3	4	5
7. Those concerned with the outcome of the change project take part in planning.	.450			.323	
8. Training is inadequate leaving unanswered questions about the change		.770			
9. Sometimes, project teams do not work in an orderly manner and are not consistent in regards to the change.		.648			
10. There are delays in the timescales that are set in the change project.	.318	.506			
11. There are long periods of planning before the change is delivered.	.328		.467		
12. Change is expected without being linked to incentives.			.453		
13. Communication about the change is limited to only those directly concerned with the project.				.473	
14. Good ideas for change are hidden and used for personal agendas.				.437	
15. Involvement in the change project before implementation.	.314		.325		.596
16. Change projects create resistance which has to be overcome.					

N=250

Extraction Method: Principal Axis factoring.

Rotation Method: Varimax with Kaiser Normalization

Source: Analysis of field data.

Part 2, Research question 2: What role and impact does the leader play in the process of change?

2.2. The politics of change is considered, that is the political activity of consultation, negotiation, conflict and resistance that occurs at various levels within and outside an organization during the process of managing change.

7.4.3 The Conflict and Resistance in ANSP Organizations.

Data from the surveys and interviews of participants in ANSP AEROTHAI and other ANSPs organizations are consistent with themes designed for this study. This explains why followers resist change to new technology. The study analyses resistance by comparing changes in successful and unsuccessful cases and the impact that the leader plays in the process of change in ANSP organizations. In particular, participants cited a variety of reasons why followers resist change in their failure to introduce new technology (the CNS/ATM systems):

1. Lack of awareness and understanding

For unsuccessful changes in ANSP, followers resist change because they lack awareness as to why the change to new technology is occurring. Most followers said that they need to understand the requirements for change in the CNS/ATM. They indicated that the most important thing is to understand why change is happening and why it is necessary. Participants also identified that they required a transformational leader's appreciation of how the change will take place and be effectively communicated.

2. Impact on routine jobs

Participants, specifically most of the staff members, resisted changes when they believed the changes would be troublesome and complex. In the failure associated with such change, followers believed that there would be a negative impact on their workload. Followers were not satisfied and were resistant to changes that would:

- Increase the quantity of work to greater than before. They believed that the old system was better than the new one and the new one would have a negative impact on their workload.

- Increase complications in their job role. Some participants stated that the idea of change seemed to be a threat to the employee's security, especially change involving new expertise and competency.

- Change everything on the job. At the same time, they were afraid to use the new technology. Participants said it was not safe for the control of aircraft because nobody could prove the new technology would be a good system. They were concerned or worried that something bad would happen.

- Establish the new technology without analyzing an appropriate context.

Most of the staff members who had resisted the change were of the opinion that the new technology could be unreliable. They feared the change, as they thought that the former procedure might have been safer to use, being as they did not have to rely on unfamiliar equipment or technology. It is a natural reaction for people to be worried that they might not be able to cope, or that they might lose the usual benefits that they have enjoyed in the past.

3. Lack of support and commitment from managers or leaders.

Participants cited a lack of support from managers or leaders who have authority. Participants stated that leaders did not support the change when senior leaders were not involved in the change or were expressing opposition to the new system, so followers would not support the new system either. Furthermore, participants cited that when followers lacked trust in their leaders, they (the followers) would not change anything.

Part 2, Research question 2: What role and impact does the leader play in the process of change?

2.3. The context of change is considered that has occurred or is occurring and the external and internal operational environments as well as the influence of future projections and expectations.

7.4.4 The Context of Change in an ANSP Organization

In navigating the process of change, the impetus for change is the force or pressure which drives for change. As a result of the empirical interviews, leaders indicated that the force comes from two sources – internal and external drivers for change. The drivers for change, the speed of change, the long term plan, and the delay for change are factors which affect the influence in the processing of change. Price (2009) indicated that drivers for change often present a complex picture from which people in organizations have to select their priorities.

The scope within the context of organization change and the drivers for change that have a considerable impact on both social and personal change must be considered (Price, 2009). The driver for change (details in Figure 7.3), of the environment within which ANSP organizations operate can be divided into three levels:

1. The Far (Macro) Environment

The macro level is named the Far Environment comprising the wider world in which the organization functions. An organization has little power to control or influence this level (Price, 2009).

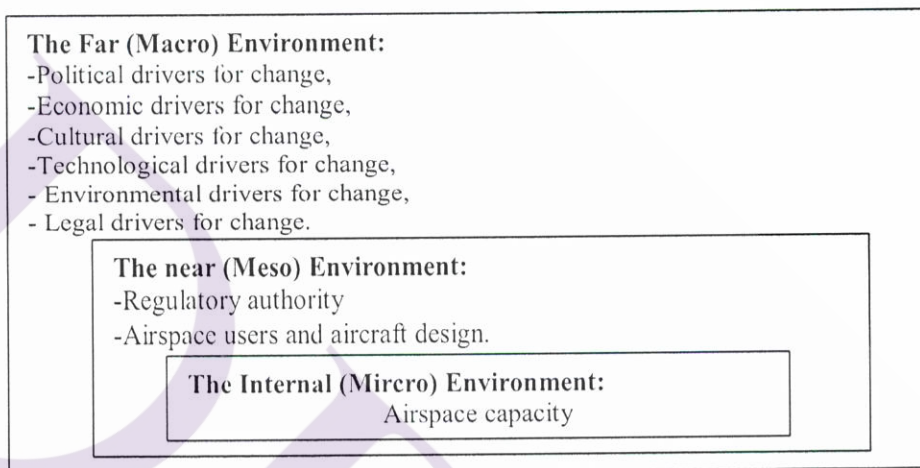


Figure 7.3: The Driver for Change Levels.

Source: Analysis of literature review and field study.

The strategy, system design and processes are mostly determined by ICAO. This study explored the Far Environment that could be described for ANSP organizations as follows:

1.1 Political Drivers for Change

The politics of the Air Traffic Management (ATM) environment are driven by safety and increasingly by commercial or personal outcome expectations. A number of States and the International Civil Aviation Organization (ICAO) embarked on ATM concepts which are intended to improve aviation by implementing the

CNS/ATM technology. ICAO established the air traffic management operation Concept Panel (AIMOP) to develop the CNS/ATM technology requirements. This panel seeks to derive benefits for all members of the ATM community (ICAO, 2005). The operation concept addresses what is needed to increase system capacity and improve safety levels in the future ATM. ICAO defined the scope of operation that all members of the ATM community will be required to operate the new systems. It is crucial that all ANSPs are driven by the need to meet the ATM community's expectations to implement the appropriate technology up to and beyond 2025 (ICAO, 2005). AEROTHAI is part of the ATM community that has been delegated for providing air traffic control service from a contracting state, namely the Thai government. It is obligatory for ANSP organizations to manage change in order to make certain what they do and how to implement ATM systems that do not conflict with the political requirements.

1.2. Economic Drivers for Change

ANSP organizations are driven for change by both national and international economics. ICAO (1995) indicated that the shortcomings of the current systems are affected by three factors:

- a. Limitations of current line-of-sight systems and/or accuracy and reliability limitations imposed by the variability of propagation characteristics of other systems;
- b. The difficulties, due to a variety of reasons, in implementing the current CNS systems and operating in a consistent method in most parts of the world; and
- c. The limitations of voice communication, the lack of digital air-ground data and interchange systems to support automated systems in the air and on the ground.

The existing shortcomings of current systems and problems of air traffic management (ATM) will be changed by implementing the CNS/ATM concept as shown in Tables 7.14, 7.22 and Appendix 1A. The new technology systems will change the performance of the systems which measure the safety, productivity, quality and cost-effectiveness of ANSP services (ICAO, 2007). These performance indicators affect the organization's ability to achieve ANSP objectives. Their purpose is to increase the capacity of the airspace and reduce the operating cost of the air transport industry, while at the same time maintaining or increasing safety and efficiency by providing an efficient air traffic control service.

Table 7.14: Problems, Effects and Solutions of Air Traffic Services

Problems	Effects	Solution
<p>Problems (Air Traffic Management)</p> <p>Demand (D) more than Supply (S):</p> <p>D= Air traffic is constantly expanding in every region</p> <p>S= Voice channel capacity problem, airspace capacity problem and traffic delay.</p>	<p>Harder to gain access to airspace because of the competition from the commercial sector.</p> <p>Current surveillance and communication systems based on voice radio are not sufficient for air traffic increase.</p>	<p>To maintain or increase safety and efficiency by providing air traffic control service with new technology.</p>

Source: Analysis of field study.

1.3. Cultural Drivers for change

The corporate culture of Aeronautical Radio of Thailand (AEROTHAI report, 2008) is explored from a staff perspective by questionnaires, interviews and focus groups. All levels of staff participated in planning to develop the corporate culture of AEROTHAI. The study found that the word “SMART” is established to present the corporate culture of AEROTHAI. The measures of organization culture from this perspective are as follows:

- “S” is safety; it is composed of 3 objectives: safety instinct, safety driven and safety standards.

- “M” is Morality; it is composed of 3 objectives: honesty, contributor and organization first.

- “A” is Accountability; it is composed of 3 objectives: self-control, accountability and sacrifice.

- “R” is Recognition; it is composed of 3 objectives: passion of learning, innovation and trustworthiness.

- “T” is Teamwork; it is composed of 3 objectives: brotherhood, collaboration and teamwork.

De Wit and Meyer (2004) argued that the stronger the organizational culture is, the more efficient it is in terms of performance. This study found that in this case study, corporate culture is weak. Furthermore, the study of performance indicators measured from pilots’ perspectives also indicated the levels of safety, quality, efficiency and cost-effectiveness of ANSP (AEROTHAI, 2008). The study measured from the perspective of domestic and international customers. Both empirical results follow the same orientation. These results would affect the

performance of an organization in the future. Therefore, performance of AEROTHAI would be less efficient in terms of air navigation service. The efficiency of an organization depends on motivation, inspiration intellectual stimulation and individualized consideration for managing change by a transformational leader.

AEROTHAI senior leaders have to create and support a new identity through the strategic planning process of the organization. The management system of AEROTHAI is hierarchical. Followers trust and comply with the change leader who is the head of the AEROTHAI organization. Senior leaders are the key drivers of achieving the strategic goal whilst supporting corporate culture and changing to new technology.

Senior leaders expect a commitment to ethical behaviour from every supplier, partner and collaborator by providing a policies and principles handbook. The guide for suppliers reinforces the action plan. Moreover, senior leaders act as a role model of AEROTHAI's SMART leaders.

1.4. Technological Drivers for Change

Technology is a driver for change in the air traffic management system due to the shortcomings of the current systems, including cost, efficiency, safety, environmental aspects and national interest. The ATM operational concept is open to new technology without specifying the details of that technology (ICAO, 1995; 2005). "Global implementation of a seamless Air Traffic Management (ATM) system, through the provision of the CNS/ATM facilities and seamless service, shall neither infringe nor impose restriction upon States' sovereignty, authority or responsibility in the control of air navigation and the promulgation and enforcement of safety regulations" (ICAO, 2005, p. A-4). New technology is composed of surveillance,

navigation and communications systems and advanced information management technology which are used to functionally combine the ground-based and airborne systems. However, the need to meet the expectations of the ATM community enabled by the appropriate technology drove the evolution of the global ATM system. Furthermore, the systems should be based on global standards and uniform principles to ensure that they are homogeneous systems.

This system involves advanced technology offering organizations the potential to do things faster, more accurately, more efficiently and better, but comes with some costs of transition. People need to be trained to use new systems, processes and procedures. An organization must consider how new technology can force change.

1.5. Legal Drivers for Change

The study found that the contracting states adopted the convention on international civil aviation, signed in Chicago on 7 December 1944. The contracting states are members of the International Civil Aviation Organization (ICAO) that comply with ICAO standard regulations. “The attention of contracting states is drawn to the obligation imposed by Article 38 of the convention by which contracting states are required to notify the organization of any differences between their national regulations and practices and International Standards” (ICAO, 2004, p.vii). These legal standard regulations are required to identify the different regulations through the Aeronautical Information Service. Therefore, all states have to abide by the new standard technology issued by the International Civil Aviation Organization. This is a pressure for enhancing the new technology.

1.6. Environmental Drivers for change

The aviation growth rate is continuously increasing. Some environmental aspects of aviation are closely monitored and environmental measures are introduced. The implementation of air navigation technology would provide environmental benefits through the performance based on the navigation concept (ICAO, 2007b). This concept states that air navigation users are required to optimize a flight profile on both departures and landings that could make flights more efficient in terms of fuel consumption/combustion. Additionally, requirements for reducing emissions, shorter routes, noise preferential routes or continuous descent approaches (CDA) are environmental drivers for change.

The ICAO Environmental Report (2007b) described the technological changes required to design new aircraft with low emissions/noise.

2. The Near Environment is composed of stakeholder groups who have a vested interest in the organization, such as suppliers, customers, competitors, collaborators, partners, etc. Drivers for change at this level depend on the nature of the relationship with the organization (Price, 2009). The study from interviews, reports and meetings found that there are three stakeholders' categories.

2.1. The first is the regulatory authority that is responsible for certain aspects on the whole performance of the aviation of a contracting State. Hence, the drivers for change depend on a regulatory authority policy and desired performance through safety standards, pilots, controllers and system certification as well as environmental regulations. It is not clear from the regulatory authority to what extent the change should be made. The government budget is also limited for improving or supporting new technology. Furthermore, in order to improve air navigation services,

some significant roles will be introduced by using new technology. However, ANSP has not been delegated by the regulatory authority.

2.2. Second are the airspace users (customers) in operation, who consist of many types of vehicle characteristics and capabilities. The ATM system will accommodate the limited ability of some vehicles to dynamically change trajectory. The risk of collision should be at an acceptable level (ICAO, 2007c).

2.3. Third, aircraft design, including avionics and operational characteristics by suppliers, has an effect on driving for change. Additionally, the next driver of change has the potential for driving all kinds of organizations in terms of fuel and material consumption. Therefore, suppliers are driven to produce new technology products and services which affect emission effectiveness. Enormous risk is involved; there are many causes affecting future technology and aircraft (ICAO, 2009).

3. The Internal Environment

The internal environment is composed of the connection between employees, managers, the organization's structure and the processes as well as the systems (Price, 2009). ANSP organization is driven in the following way:

3.1 Airspace Capacity is a Driver for Change

Mogford et al. (1993) and EUROCONTROL (2000) indicate that airspace capacity is a driver which affects employees (controllers) who control air traffic workload. The main factor influencing the controller's workload is the environment in the airspace. The functional workload consists of the structure of airspace, sectors, route structure, danger areas, restricted areas, prohibited areas, instrument flight procedures and the number of aircraft. In addition, there are other factors which affect

types of traffic mixture, the systems' quality of navigation, communication and surveillance, including the controllers who use their cognitive strategies to provide for their traffic. The status of workload is primary for implementing new technology to sort out problems by increasing or maintaining safety, efficiency, quality and cost-effectiveness.

Part 3, Research question 3: Which transformational leadership aspects are expressed in practice?

7.4.5 Transformational Leaders' Aspects and Impact are expressed in practice.

Transformational Leaders (TE) are senior leaders in this study. They are most important for dealing with sponsors with regard to the budget and leading the organization throughout the project success shown in Tables 7.8-7.13 and Figures 7.2 and 7.4. The results of the data are identified by this researcher in Figure 7.4: Participants identified 5 imperative aspects/roles for leaders that are required for success:

1. Engage forcefully and visibly throughout the projects.
2. Access and understand how to manage resistance.
3. Communicate directly with staff members and project leaders.
4. Integrate motivation and influence by the transformational leaders to manage in process of change.
5. Involve sponsors for budget.

The key concepts are a construction that can be described as "ideas" which are composed of:

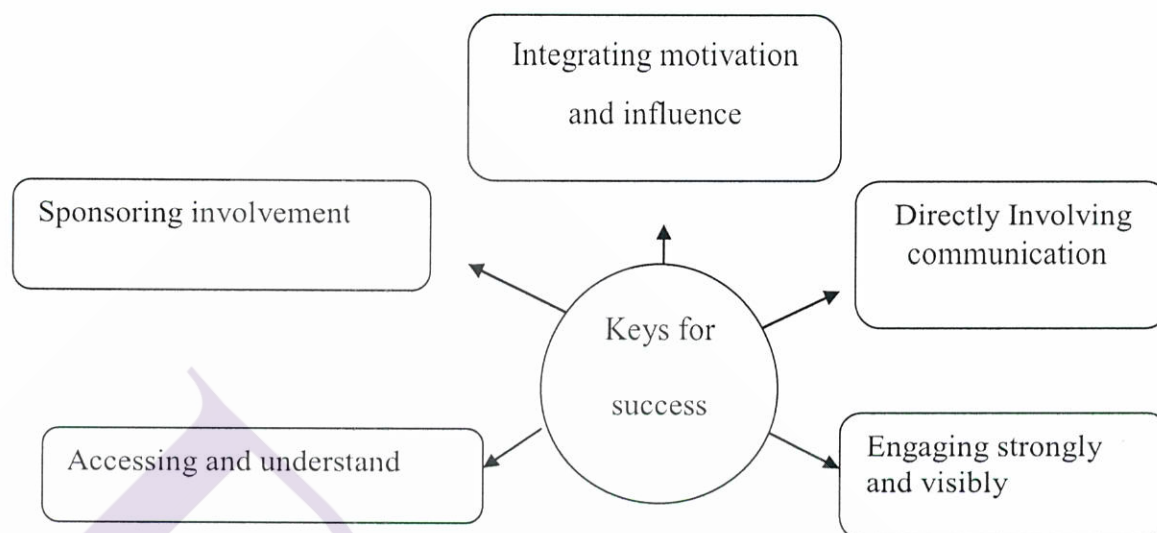


Figure 7.4: Transformational Leader's Aspects for success

Source: Analysis of field data.

Transformational Leaders (TE) who were participants described the most crucial activity for navigating leaders in the process of change. The data was also separated into 4 main phases which were identified in the process of change. These are Recognition and Identification Phase, Preparation and Planning Phase, Action and Implementation Phase and Stabilization Phase. These processes are the same as change management activities. The activities and roles were categorized by using a grounded theory research method according to the main participants who are composed of: Project Leaders, Transformational Leaders (senior leaders who sponsor the change), Staff Members or Followers.

The Transformational Leader's aspects, roles and activities in terms of the process of change are identified as shown in Figure 7. 5. The Figure illustrates the roles

and impacts that the transformational leader plays in each phase of the change process.

Figure 7.5 presents Transformational Senior Leaders' aspects, roles and activities in practice, answering research questions 2 and 3. The Transformational Leaders' role and aspects are expressed in each practical phase of the change process, as shown in Tables 7.15-7.18. All the activities described in Figure 7.5 for various phases required the implementation of the change process to be in a sequence.

	With project Leaders	With Senior Leaders	With Followers
The Recognition and Identification Phase	Acquire Project Leaders	Create CM and (TL) Support	Create Awareness and Persuasion
The Preparation and Planning Phase	Develop Change Management and Transformational Leadership plans	Develop Sponsorship	Engage and Share Vision and Understand corporate culture.
The Action and Implementation Phase	Provide direct support by motivating and influencing.	Manage Resistance	Train and Educate Followers by motivating, influencing and coaching them.
The Stabilization Phase	Sustain the change process by assessment and evaluation	Monitor progress and Manage resistance	Strengthening and Rewarding
Change Management and Transformational Leadership Activities			

Process of Change Phases

Figure 7.5: Presents Transformational Senior Leaders' Aspects, Roles and Activities
CM = Change management, TL = Transformational Leadership

Source: Analysis of field data.

Table 7.15: Transformational Senior Leaders' Aspects, Roles and Activities in Recognition and Identification Phase

Change Phase	Project leaders	Senior Leaders	Followers
Recognition and Identification Phase	Acquire Project Leaders	Create CM and TL	Create Awareness

	With the project Leaders	With Leaders	With Followers
	Acquire Project Leaders	Create CM and (TL) support	Create Awareness
The Recognition and Identification Phase	<ol style="list-style-type: none"> 1. Select a suitable team; chosen by functions and selection of team members and the best leader who has expertise in CM and TL including new technology of CNS/ATM. 2. Provide knowledge for the team in CM and TL including new technology of CNS/ATM. 3. Clear the projects' goals and indicate the projects' orientation. 	<ol style="list-style-type: none"> 1. Create network and support change. 2. Create a committee of key leaders who accept the change with the right positions (access). They must have competency to manage and understand the change including a good vision for new technology, inspirational motivation and inspirational influence. 	<ol style="list-style-type: none"> 1. Deploy the need and reasons for change and explain context of change. 2. Listen to the feedback and share vision with followers about change. 3. Communicate frequently with followers face-to-face.

Source: Analysis of field study.

Table 7.16: Transformational Senior Leaders' Aspects, Role and Activities in Preparation and Planning Phase

Change Phase	Project Leaders	Senior Leaders	Followers
Preparation and Planning Phase	Develop Change plan	Develop Sponsorship	Engage Followers

	With the project Leaders	With senior Leaders	With followers
	Develop Change plan	Develop sponsorship	Engage followers
The Preparation and Planning Phase	1. Develop Change Management Transformational Leadership plans and analyze lessons learned and provide feedback.	1. Conduct committee meetings to resolve the problem issue.	1. Create corporate culture and take this into account.
	2. Protect Resistance and Risk management plan.	2. Communicate project progress to all levels.	2. Enable followers to participate and be involved.
	3. Develop strategic plan for change.	3. Address and approach the resistant area.	3. Train followers.
		4. Build support and sponsorship among senior leaders.	4. Admire and recognize the good work and create a good opinion of work that staff members have done.

Source: Analysis of field study.

Table 7.17 Transformational Senior Leaders' Aspects, Roles and Activities in Action Implementation Phase

Change Phase	Project Leaders	Leaders	Followers
The Action Implementation Phase	Provide Direct Support	+ Manage Resistance	+ Train and Educate

	With Project Leaders	With Leaders	With Followers
	Provide Direct Support by motivate and influence of TE.	Coach and Support	Train Followers
The Action Implementation Phase	<ol style="list-style-type: none"> 1. Provide direct support by motivating and influencing transformational leader style. 2. Participate with the team by attending meeting for resolve problems. 3. Create enthusiasm and help the team overcome barriers to change. 	<ol style="list-style-type: none"> 1. Provide progress updates of change and resolve issues. 2. Continue to meet and communicate expectations at all levels. 3. Manage resistance from Project leaders. 	<ol style="list-style-type: none"> 1. Train and educate followers at higher level by motivation, influencing and coaching. 2. Increase personal communication.

Source: Analysis of field study.

Table 7.18: Transformational Senior Leaders' Aspects, Roles and Activities in Stabilization Phase

Change Phase	Projective leaders	Leaders	Followers
The Stabilization Phase	Sustain Change	Monitor Progress	Strengthen and Reward

Change Phase	With Project Leaders	With Leaders	With Followers
The Stabilization Phase	Sustain Change by assessment and Evaluation	Monitor Progress and manage resistance	Strengthen and Reward
	<ol style="list-style-type: none"> 1. Sustain the change process by assessment and evaluation. 2. Maintain impetus for implementing. 	<ol style="list-style-type: none"> 1. Stay involved and visible throughout the whole project. 	<ol style="list-style-type: none"> 1. Share vision for improvement. 2. Share successes and celebrate successful change to new technology.

Source: Analysis of field study.

Part 4, Research question 4: Which transformational components are perceived as the most relevant for leaders and followers in the process of influencing changes in an organization and, ultimately, changing the identity of the organization?

7.4.6 Transformational components as perceived for participants (leaders and followers)

From focus groups and interviews, the followers and leaders' typical answer to the question "What are the required qualities for a person as a change leader according to you?" was:

Firstly, I think the influence on me for change related to new technology, communication is very important [sic.]. Secondly, the visionary view in future has been important for leadership. Leaders should have a good plan for managing change. They can transcribe their plan into real action. Finally, the plan can be put into practice.

Our organization needs leaders who should act as a role model for followers.

The first implication is that leaders must have moral ethics, followed by a vision. The vision must go along with an ethical conduct, then, it should have a good direction for managing change. The outcome would be a positive result. The communications are the best tools for coping change.

I think people of all countries focus on leaders must not be corrupt [sic.]. The leaders' roles must have the new creative ideas to cope with the problems. The new technology is one tool to develop our country.

I think the leaders should not be involved in corruptions in order to buy a new technology to replace the old one.

Leaders influence me when they can provide me with a challenge to work with enthusiasm. If they comment or complain, they should give me constructive criticisms.

From the literature review and focus groups, it was found that the for roles and impacts of leadership within the process of change, transformational leaders have the potential to influence the organization in both positive and negative ways (Morgan, 1997). Employees need to recognize and feel the reason for change (Kotter, 1996). Therefore, the followers' perspectives about how they feel and what affects them would indicate a good orientation about change projects in the organization.

This study shown that regardless of the drivers for change, followers within an organization are not ready for change without simulation, communication, explanation, motivation and influence given by transformational leaders. The leaders' role requires defining the needs and the reasons for change. The followers indicated that the requirements are related to changes to the new systems. The participants numbered 250 persons. These results were obtained with a ranking test and interviews by focus groups in the field of study and in interviews with 22 leaders. The results are shown in Tables 7.15-7.18 and Figure 7.5.

Table 7.19 presents the results of requirements for change and transformational components which are perceived as the most relevant for leaders and followers in the process of influencing change. The most important component for transformational leadership is inspirational motivation. The four components of transformational leadership were described in the Conceptual Framework, as shown

in Chapter 4. The notion of ‘follower’ is important (Avolio and Bass,2002); (Bass, Steidlmeir, 1999).

Table 7.19: Summary of Requirements for Change Related to Transformational Component

Ranking Frequency		Perspective of requirements of followers	Analysis of Requirement of leaders' roles which influence participants	Leaders' Roles (Components of Transformational Leadership)
Frequency	Percent			
1. Most important		1. Appreciation of how the change will take place and be effectively communicated.	Requires excellent communication.	1. Make followers involved in activities and communicate with clear expectations, goals and objectives. 2. Act as stimulus to make people understand their expectations. (Inspirational Motivation)
111 Participants	44%			
2. Very important persons		2. Understanding why change is happening and why it is necessary.	Requires very good reasons and needs to recognize the change.	Converse enthusiastically about the needs for change. (Inspirational Motivation)
74 Participants	29.6 %			

Table 7.19: Summary of Requirements for Change Related to Transformational Component (continued).

Ranking Frequency		Description of perspectives	Analysis of Requirement of leaders' roles which influence participants	Components of Transformational Leadership and leaders' role (Theoretical frame work)
Frequency	Percent			
3. Important				
65	26.4%	3.1 Be aware of who is finally responsible for the project, being able to take ownership and influence details of the change.	Requires good project leaders to assist.	1. Explain the importance of questioning. 2. Encourage followers to ask questions about the organization and the change. 3. Make followers understand their environment. (Intellectual Stimulation)
250 participants	100%	3.2 Have assistance from the project leaders, project infrastructure, training specialists to create a supportive environment.		4. Help followers to improve their ability and to be aware of individual competence. (Individualized Consideration)

Source: Analysis of field study.

While an attempt has been made to describe the problem and its importance, transformational leadership is studied by considering the role of leadership in the process of change. One of the results in this research is that the aspects of transformational leadership which are perceived as the most relevant are

inspirational motivation, inspirational influence, intellectual stimulation and individualised consideration respectively. These components have influence on leaders and followers in Air Navigation Service Providers, as shown in Figure 7.6.

Managing the Process of Change

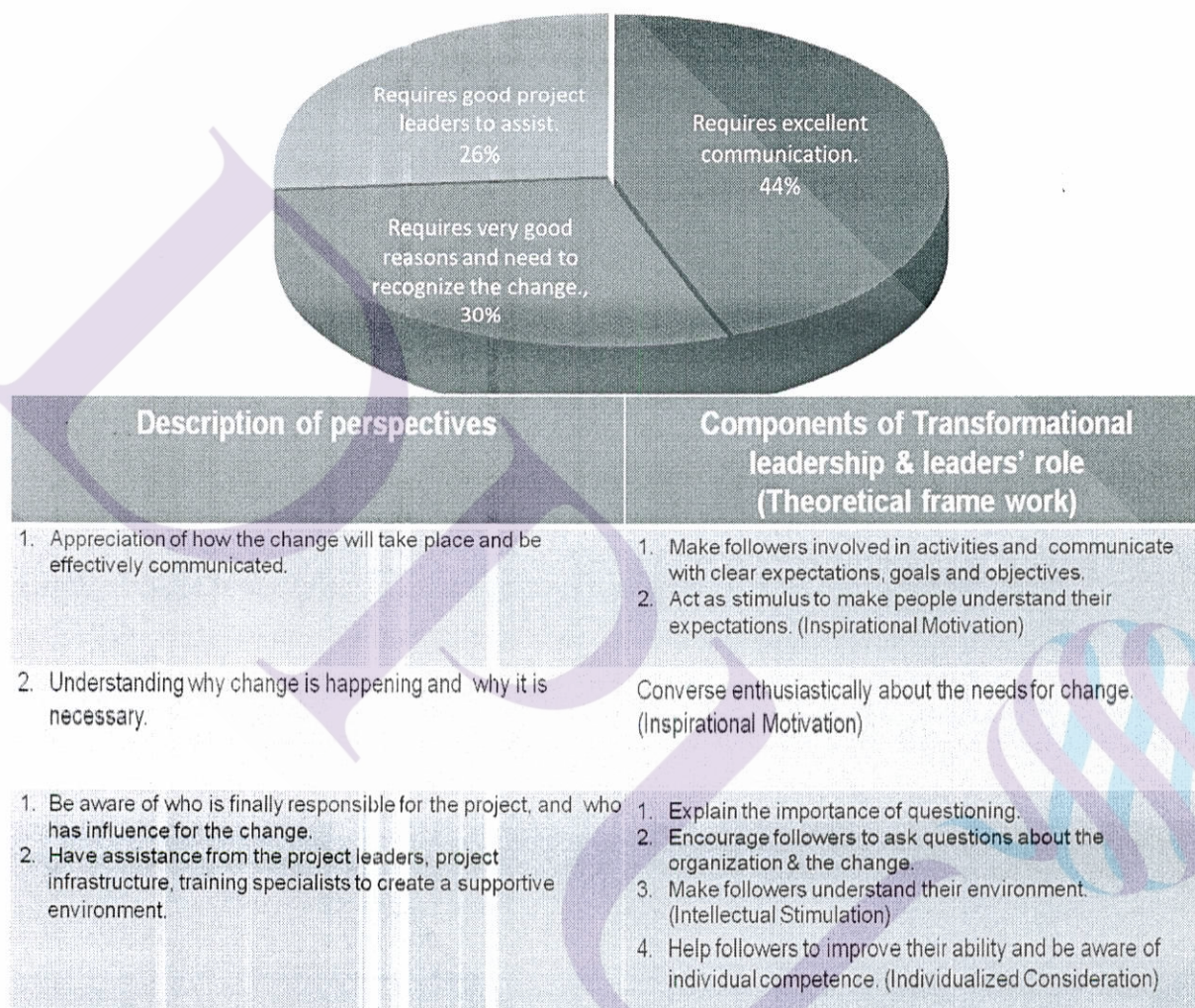


Figure 7.6 Components of Transformational Leadership and Leaders' Role

Source: Analysis of field study

The results of this study are that many successful change leaders revealed actions which are related to transformational leadership. (See details in Tables 7.18

and 7.19). It shows that leaders and followers evaluate differently the components of transformational leadership and their elements. The research also shows that transformational leadership is an actual issue, as it has very positive effects both from a personal and an economic viewpoint. If leaders want to improve their leadership style, they have to be aware of the fact that their present way of influencing their followers is not necessarily the same compared to what followers perceive as optimal. Thus, leaders should first invest time in getting to know the characters and the individual preferences of their followers.

7.4.7 Communication of leaders' roles which influence participants

From the analysis of leaders' roles which influence participants shown in Section 7.4.6, the one important key for navigating change which influences followers is communication. The followers indicated that they required excellent communication from leaders to explain to them why and how the new technology is needed for the change. Furthermore, they indicated that ideas were openly communicated and encouraged with the implementation. Therefore, the checklist for ensuring communication efforts are governed by best practice of leaders' roles for navigation of change should be identified. This is shown in Table 7.20.

Table 7.20: Checklist for ensuring communication efforts are governed by best Practice in Change Management

Check	Activities in Practice
	Impacted groups have been segmented - specific, unique audiences of communication are identified
	The "why" for this change has been thoroughly developed including the risk of not changing
	The spokesperson for these messages is a "preferred sender" from the perspective of that particular audience
	The messages have been customized or adapted for each segmented group and are designed to meet their specific needs
	Communication is face-to-face whenever possible and always include two-way communications
	Employees are given the chance to provide feedback in a safe, non-threatening environment throughout the change
	Employees hear from both "the person they view as in charge" as well as their immediate supervisor (and key messages are consistent from both individuals)
	Key messages about the change are repeated 5 - 7 times

Source: The study adopted the tool from <http://www.change-management.com/tutorial-communication-with-without.htm>

7.4.8 Readiness in an Organization before Actually Changing

The study found that one of the important tools in managing change should be assessing the readiness in an organization before actually changing. Rothwell (2010) identified a tool for checking on how ready an organization is for change. This study used Rothwell's tool is an instrument to assess the Air Navigation Service Providers organization's readiness. As a result, this study recommends certain issues be analyzed from more locations before designing the change plan. These issues are shown in Table 7.21.

Table 7.21: The activity on assessing readiness for change in ANSP

How supportive is each of the following for the specific change that has been proposed?		Rating				Notes About What to Work On to Increase Readiness for Change
		Not at all 1	Somewhat Unsupportive 2	Somewhat Supportive 3	Very Supportive 4	
1	Pressure exists from the external environment	1	2	3	4	3
2	The mission and strategy of the organization align with the desired change	1	2	3	4	2
3	The leaders of the organization agree that the desired change in necessary	1	2	3	4	3
4	The organization's corporate culture will likely support the change	1	2	3	4	2

Table 7.21: The activity on assessing readiness for change in ANSP (Continued)

How supportive is each of the following for the specific change that has been proposed?		Rating				Notes About What to Work On to Increase Readiness for Change
		Not at all 1	Somewhat Unsupportive 2	Somewhat Supportive 3	Very Supportive 4	
5	The organization's structure, as depicted on the organization chart, will most likely encourage the change.	1	2	3	4	2
6	The organization's policies and procedures will support the change	1	2	3	4	2
7	The organization's existing technology is robust enough to support the change	1	2	3	4	3
8	Workers in all groups in the organization will likely support the change feeling which is necessary.	1	2	3	4	3
9	Manager will encourage people to change	1	2	3	4	2
10	People have the skills they need to change	1	2	3	4	2
11	People will change	1	2	3	4	2
12	People will be motivated to be rewarded for performing in line with the desired change	1	2	3	4	2
Add up all the ratings and insert the total score in the box						28

Source: Developed for this study (used Rothwell's tool)

Scoring

48 – 37 The organization is very supportive of the change and is ready for it.

36 – 25 The organization is only somewhat supportive of the change.

24 – 13 The organization is somewhat unsupportive of the change.

12 – 0 The organization is not at all supportive of the change.

The finding score of 28 indicates that the organization is somewhat unsupportive of the change. The organization's policies and procedures should increase readiness for change to support the change; in particular, the mission and strategy of the communication developed by senior leaders should be aligned with the desired change. The terms message and verbalization that support change should be positive concepts. The implications for future research are that an empirical study related to the communication process lacks support. Therefore, managing the process of communication should be studied in future research as one of the main factions linked to the process of change.

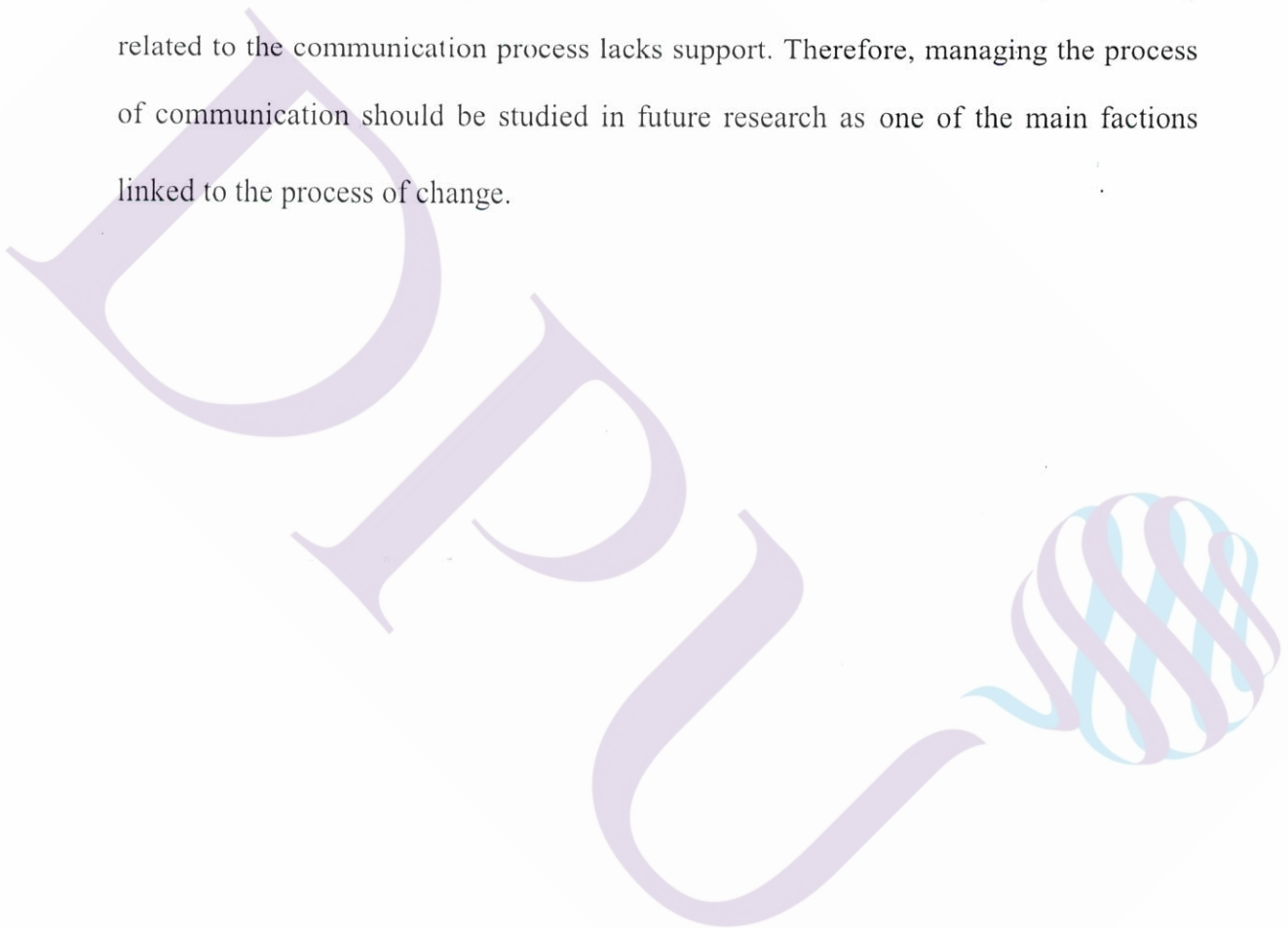


Table 7.22: Summary of Causal Layered Analysis of Navigating Leaders for a Transformational Leadership

	Individuals' view(Controllers, Engineer, etc)	Organisations' view(ANSPs)	State, Regions' view	Worldview
Layers	<ul style="list-style-type: none"> •People recognize the problems work load, level of safety and efficiency. •The direction of the implementation is influenced by resistance. •Each release begins with no anticipated planning. 	<ul style="list-style-type: none"> •Change projects create resistance which has to be broken. The change in the past why they were un successful. •Leaders recognize the problems of work load, level of safety and efficiency. 	No cooperation between regulator and ANSP for implementation of the CNS/ATM systems.	ICAO intends to drive more rapid and comprehensive implementation of new air traffic management at the national level.
Litany	<ul style="list-style-type: none"> •Communication about the change is timely and relevant affected and influence. •Followers have a image about changes in the past. •They need more understanding about change, why change is happening and why it is necessary. 	<ul style="list-style-type: none"> •Leaders need to access and understand about new technology. Vision and commitment to change, have strong sense of purpose, trust and role model are considered for changing. •Leaders have a vision which drives the people where they want to go(Avolio and Bass,2002, p.17) 	<ul style="list-style-type: none"> • The State should recognize the problems which they have to understand, but the budget is limited. •Regulator requires expertise to achieve higher performance. 	ICAO is developing a new course for State regulators for operational approval.
System	Having assistance from the project leaders, project infrastructure, training specialists to create a supportive environment. Employees have received data about new technology very quickly. Therefore, employees need support from leaders' roles by articulating a compelling vision for the future.	Make followers involved in activity and communicate with clear expectations, goals and objectives. Leaders who have inspirational influence are seen as "mentors" by their followers. Vision and commitment to change, having a strong sense of purpose is considered for change. Stimulating innovation is considered a key factor	The participation is considered among regulators, ANSP and stakeholders. Navigating directions for managing change by each State should be prepared.	ICAO Journal (2009) indicated that the Global strategic planning processes are now in place.
Worldview	Employees have to be motivated to be more creative and innovative which should lead to the creation of new control mechanisms (Alvesson and Willmott, 2004).	Transformational leaders have to provide new directions, new inspiration, and new behaviour for organization.	Key issues for States are the requirement to have qualified personnel who can certify airlines for the new procedures. (IATA interview, 2009)	A driver for change is significant. Training and assistance are required in order for States to bring forward their new capabilities.
Mythology	Extent to which people agree on cause and effect			

Source: Analysis of field study.

In summary, the scenario of navigating process is perceived as a significant one by the concerned actors, and illustrates causal the layered analysis model (1993) in air navigation at the present and in the future. The causal layered analysis method is related to the perspective of individuals' view, organizations' view (ANSPs), the state, regions' and worldview, as shown in the summary of causal layered analysis of navigating leaders for a transformational leadership in the process of change (Table 7.22).

7.5 Discussion

7.5.1 Understanding Change

According to De Wit and Meyer (2003), the process of control can be either made at the top or at the bottom. Furthermore, Kotter (2002) claimed that it was not possible that just a few people on the top can be the change agents. The people at every level and in every department can support the change leadership. Many techniques can be used to change the structure by leaders (Robbins and DeCenzo, 2005): the first is downsizing; the second is delaying; the third technique is divesting. In 'Consensus, the hidden code of Swedish leadership', Alexander (2008), stated that the Swedish leadership style is getting everyone to agree at all levels of decision making. This includes emphasis on team-work, coaching, and a non-confrontational style of communication. All these could be described as a Swedish model on management styles.

From the understanding of change, the data shows that the change process succeeds or fails in implementing change depending highly on the people themselves. After a change has occurred, the process of control can be referred to

either the top or bottom to drive the organization. The study found that the best conditions for a change process should be for staff at all levels to desire change. The study agrees with LÄMSÄ (2008) and Alexander (2008) who identified the Swedish leadership style of getting everyone to agree at all levels of decision-making. This study provides a new model focusing on all participants (project leaders, transformational leaders–senior leaders and staff or followers) attitudes, expectations, perceptions, intentions, desires and behaviours while implementing changes. The change process model of this research is derived from data collection which focuses on the perspective, shared-vision and feedback from participants at all levels.

7.5.2. Continuous Change over Discontinuous Change

The study is derived from empirical data and a literature review which is different with the other context of research by De Wit and Meyer (2003), and Hiatt and Creasey (2003). This study found empirical data differs from the literature review. De Wit and Meyer (2003) qualify these two elements “the dichotomy between discontinuous renewal perspective and the continuous renewal perspective” (p.182). The characteristics of the discontinuous renewal perspective are revolution over evolution, disruptive innovation, creative destruction, radical pace of change, sudden break of the *status quo*, a stable and unstable alternation of states and a punctuated equilibrium.

A continuous change, the continuous renewal approach, would be more suitable in some cases than violent upheaval. The principal features of this approach are evolution over revolution, uninterrupted improvement, organic adaptation, moderate and unromantic change, gradual and steady pace of change, continuous adjustment, and a persistent transient state and gradual development (De Wit and Meyer, 2004).

Dramatic change is frequently driven by a crisis or significant opportunity facing the organization. This change leads to dramatic performance improvements in business processes which are no longer applicable to the current business condition. This dramatic change is not required in the long term period. The change is not often an improvement today, but rather a replacement with brand new ideas such as reengineering, regulatory changes, merging and acquisitions (Hiatt and Creasey, 2003).

ICAO also indicates that changes in communication, navigation and surveillance systems to the new technology are dramatic and radical. This kind of change would entail an evolutionary rather than revolutionary approach (ICAO, 2009). This study would suggest an *evolutionary rather than revolutionary approach* for managing the process of change related to the introduction of a performance enhancing new technology as shown in Table 7.23. The reasons are composed as follows:

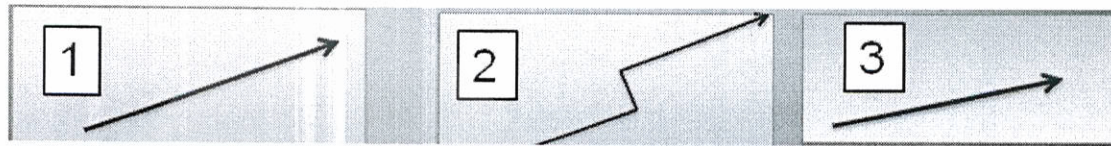
1. This study concerns managing the process of change, particularly in the context of enhancing new technology. Implementing new technology is a disruptive innovation and is therefore unstable. The standard principles and regulations will be updated depending on the environment and the period of time. A performance enhancing new technology of change in this environment is dramatic and requires a long term period of adjustment for participants.

2. New technology is required for communication, navigation and surveillance systems for air navigation services. The changes are significant and the systems are required to be simulated and tested in real situations before implementation. The change is not incremental because the objectives of each

increment of the change are small. From the evidence, this change can be identified as dramatic and radical. The objectives for changing are performance improvement of procedures, services, and systems for air navigation. The change is an interrupted improvement. This is driven by a crisis facing the air navigation service.

3. The move towards new systems, change management and leading change by transformational leaders are critical success factors. This study suggests that the change process would be essential for a long term period which is gradual or more incremental. The gradual change is appropriate because the CNS/ATM systems employ digital technologies, including satellite systems, together with various complex levels of automation (ICAO, 2005). The old or current systems are conventional, which is different from that of the CNS/ATM systems. ICAO (2007a) indicates that a number of states and all ICAO regions started implementing the program of the CNS/ATM technologies to improve air navigation services. They found that the technology was not an end in itself. This is because employees need more time to recognize, prepare the change management plan, implement and support the change. The new systems came with the required standard solutions. Therefore, this kind of change would be evolutionary rather than revolutionary, metaphorically speaking.

Table 7.23: Comparison of Substance of Change: Scale or Degree and Size of Change



	Incremental change	Radical change	Gradual change
Change Activities	1. Incremental change	2. Radical change	3. Gradual change
Objectives	Small and deliberate improvements	Immediate and dramatic improvement performance in business process.	Dramatic improvement performance in service process.
The type of Change	<ul style="list-style-type: none"> • Not driven by financial or immediate demand for improvement. • Focus on improving key business areas. • Specific operations 	<ul style="list-style-type: none"> • Driven by a crisis or significant opportunity facing the business. • Replacement with brand new technology. 	<ul style="list-style-type: none"> • Driven by a crisis or significant opportunity facing the business. • Establish new complex systems • Operation areas
Time	Long period of time Hiatt and Creasey (2003)	Long period of time Hiatt and Creasey (2003)	Long period of time With gradual or incremental change
<i>Conclusion: It should be evolutionary rather than revolutionary</i>			

Source: Source: Analysis of field study.

7.5.3 Access and Understand How to Manage Resistance

7.5.3.1 Access and Understand Resistance

Coch and French (1949) assert that in order to implement change in organizations without active resistance, the employees themselves have to be included in that process. Without implicating the people into issues which concern their work directly, the companies risk ruining the potential of a change or even amplifying a problem. The fear of the unknown, the fear to lose something precious and the feeling that the change is not profitable for the organization are the three main reasons which motivate peoples' psychological resistance to change (Robbins and De Cenzo, 2005). Besides, many resist change because of the uncertainty and ambiguity which accompany any shift from the old way of doing business.

Overall, this study found some reasons for resistance to change. Due to the fact that a change process always involves people, this study has to consider psychological resistance towards change as well as attitudes towards change. The fear of the unknown and instability are common and natural human feelings that a leader has to deal with. Resistance can be, moreover, caused by political moves within the company. The parts within the company which will lose more than they will gain (privileges, authority, money, etc.) can cause problems as well. Furthermore, the corporate culture of a company will play an important role when implementing change; the stronger the organizational culture, the more difficult it is to change, as shown in Figure 2.7 and section 7.4.4, item 1.3. De Wit and Meyer, (2004) state that it can be more difficult to implement change if the new way of doing so goes against the existing corporate culture. They argued that the stronger the organizational culture is, the more efficient the performance is. Nevertheless, the

problem is that a stronger organizational culture makes it more difficult and rigid to change. Lewin (1951) notes that increased worker knowledge, empathy and involvement are all methods that reduce resistance to change. These methods also allow the change effort to overcome that resistance. A leader must consider these critical aspects in order to implement a long-lasting effective change.

7.5.3.2 Managing Resistance

This study analyses resistance by comparing change in successful and unsuccessful cases and the impact that the leaders have in taking part in the process of change in ANSP organizations (Details in section 7.4.3.). Specifically, the study found that most people see four important reasons why followers resist change in ANSP organizations these are: 1. lack of awareness and understanding; 2. impact on routine job; 3. lack of support and commitment from managers or leaders; and 4. a number of followers do not trust the systems. Moreover, the study found that participants are not likely to trust the new system, and also they would like to buy a new model without investigating the previous one that they established/installed. They also comment that the system is out of date and cannot be used in the future. Rothaug (2003) also states that older controllers have a higher reluctance to use computers which are a new automation of the CNS/ATM because they do not trust the system until they gain more experience. Their negative attitude then becomes more positive.

Similarly, the data from Prosci's (2008) report indicates that employees are fearful of any change that would affect their employment. From interviews, in the majority of ANSPs, employees are not sensitive about this problem

because most of those (employees) in government organizations are in permanent positions. Those in ANSP (AEROTHAI) also have stable jobs.

From the interviews, the number of qualified air traffic controllers and staff related to the field with experience in CNS/ATM is still less than the required level. The International Civil Aviation Organization (ICAO) has introduced a new Air Traffic Flow Management Section in place of the previous position of air traffic controllers. Therefore, the total number of employees will not be reduced. However, some participants are resistant to change because they have not received an opportunity to participate early in the change process. Lack of engagement and involvement in the readiness plan at all levels of participants results in participants resisting change because they are not associated with those activities. Moreover, the participants state that the senior leaders or project leaders can help to mitigate resistance by focusing on a strong case and demonstrating their commitment.

Managing change is how to manage resistance: "Which type of conflict and barriers arise and consequently, which kind of implementation management is appropriate depends on the kind of change and applied change strategy" (De Wit and Meyer 2004, p.207). This study identifies that safety, aircraft equipment, the existing navigation system and complexity - as well as a range of actors - are barriers against change. These barriers need to be managed to overcome resistance during implementation. Kruger (1996) points out that change management in a particular case may be beneficial by combining evolution and revolution in a counter current process (Figure 2.8). He divides the personnel barriers (the core problem) into three categories: company-wide barriers; management barriers; and employee barriers. Company-wide barriers are located in the company members' mind-set and

behavioural patterns form the centre of corporate culture. Managing barriers are related to the people's fear of losing their positions. The barriers have to be taken into account during change management. Employee barriers can be explained by individual insecurity and fear of negative results. Participation in change is considered as part of the solution. In addition, the transformational leaders require having the ethical dimension leading to positive outcomes.

The results of the study are identified in the process of change model and action research model (Transformational senior leader's aspects and activities) in Figures 7.2 and 7.5. The empirical data of this study meets the requirement of the personnel barriers as core problems, which are divided into three categories as defined by Kruger (1996).

What the leaders need is how to manage resistance. The first step in the process of change model and action research model (Transformational senior leader's aspects and activities) is shown in Figures 7.4 and 7.5. This step is to recognize organizational problems. Change does not occur without senior leaders or senior managers in the organization who recognize that change is essential. Change has to be identified, and leaders or managers need support from a sponsor (Management board). Leadership and sponsorship are the responsibility of senior leaders in an organization who authorize, fund and charter the top-down management changes that end up as initiatives. Top-down management will be used and separated in the change management activities model. Recognition and identification data need to be collected from the past and present in order to define possible problems and situations in the future.

The next step is that senior leaders have to establish an environment to prepare team work and transformational leaders from top-down management in order to create awareness and persuasion. From the feedback, the followers' perspective shows that they fear loss of position, and are afraid of negative results. Participation is considered as a solution. For example, ANSPs have interacted by co-determination executed through a workers' board. Meetings take place between the head of organization and followers where followers can express opinions about the proposed change. Senior leaders listen to the feedback and share the vision with followers about change for developing the change processes. Some of the feedback might imply that the change is successful. In organizations such as AEROTHAI where lower and middle management have some power of decision making, management barriers have significance for reducing resistance. Impacts from bottom-up have influence in the change process.

7.5.3.3 Importance of Communication Concept

When studying the field of leading change, the presence of a constant occurrence of concepts or theories can be seen. These include the ability to listen carefully, to transmit clear messages and to read and write clearly. In order to lead a process of change, a leader must be talented in sending messages and interpreting the received ones. As Kanter (1999) asserts, a change leader must try to get as much information by listening carefully inside and outside the organization. He/she must also be able to sell the dream and the vision to the followers. Communicating the vision about the future state of the company is a recommendation nearly every author in the field of leading change gives to change leaders. The question here is whether change leaders create a future state and whether this can be

accomplished in practice. Kotter (2002) claims that it is advantageous to make the future dream or the problem of the company visible in order to get the employees' attention to take action. Possible tools to make it visible are presentations, pictures, stories, events, performances and so forth.

In "Communicating a Compelling Aspiration" it is argued that to convince the followers of the change, the leader can use a number of tools (Kanter, 1999 P.185). Nadler et al. (1995) additionally state that the leader should be able to create and communicate a vision. Communication is an important point in helping people to understand the problem or the cause that lies behind change. Buchanan and Boddy (1992) identified that change agents must have communication skills for the change process. Communication goes along with information sharing and distribution, involvement of all employees and the ability to listen to people. It can include every appropriate communication tool according to the situation. Beer and Nohria (2002) suggest challenging complacency approaches for accomplishing change management. For instance, an organization's competitive situation generates discussion with employees about current and future problems, communicating and participating with employees in order to create opportunities for employees to inform of their dissatisfaction and problems, and creating dialogue on the data with employers to aim for a joint understanding of company problems. Lastly, setting high standards and expecting people to meet them are important.

Similarly, from the empirical results of the analysis of responses from the participants, it was found that communication about the implementation plan was not given in advance and was not relevant. Although actors have identified that communication related to change is not limited to only those concerned with the

project, they still require the reasons for change. The participants' desire is to appreciate how the change will take place with more effective communication. Moreover, they need to understand why change is happening and necessary. This study has identified the key points relating to the leaders' roles following the change phases with a series of steps in which there is not interaction with participants. This is insufficient to drive the successful change in an organization. The right approach of transformational leadership should communicate the specific situation directly to participants. This activity of direct communication has to be used rather than simply using information technology (IT) or commanding by letter.

7.5.4. Managing the Process of Change

Regardless of the fact that the need for change is often unanticipated, it tends to be reactive, discontinuously interrupted and resistant, while the success of managing the change process is accepted as a requirement in order to develop organizations. According to the Harvard Business Review, 70 percent of change undertakings are unsuccessful and initiatives fail (Beer and Nohria, 2002). Burns (2003) suggested that efforts fail because of a fundamental lack of a valid framework of how to implement and manage organization change. Furthermore, practitioners have a wide range of conflicting and confusing theories and approaches. It is necessary to document and clarify the results of change management initiatives, examine their cost effectiveness, and acknowledge the difficulties, costs, and complexity of managing organization-wide change (MacDonald 1998; Kotter, 1998; Abrahamson, 2000).

Most processes of change in use for air navigation service providers and other models are in the form of a process or set of steps for change management. The International Civil Aviation Organization (2009) indicates that experts have created a

standard process based on their consultancy models. Most models, processes or activity lists developed by trial and error are based on the experiences of experts in the field of change management (Hiatt and Creasey, 2003). This research has contributed to the theory of change management and transformational leadership by addressing these weaknesses.

Change management and transformational leadership are related as the process identified in this research model. This section of the research compares some similarities, differences, nuances or refinements of each change theory to the existing concepts in this research, as shown in the main models of Figures 7.1 and 7.6. The results of this research are compared with the previous change models and leadership models. This discussion is shown in sections 7.5.5 and 7.5.6.

7.5.5 Comparison of Change Process Model

Comparison and discussion of the Change Process Model is between the theoretical framework and the implications of the empirical data of this study. The change process and activities model for transformational leadership of this study which is applicable is so because:

1. It makes sense;
2. It shows the steps;
3. It drives action;
4. It prevents resistance;
5. It motivates and inspires from one person's to the groups' interests to access and understand change.

This thesis developed the new change process model based on Lewin's Three-Step-Model (1947 and 1951), which is deployed as a fundamental concept of

the ANSPs change process model which forms the heart of this thesis. This process also uses Lewin's model (1951) is the foundation, and applies Schein's Change Process Model (Burke, 2002) to identify the need and readiness for managing change suggested in this study, as shown in Table 7.21. The activity on assessing readiness for change in an organization has to be analyzed before planning change. The study found that Edgar Schein's Change Process Model (Burke, 2002) and Lewin's and Schein's approaches are helpful for planning and managing a change effort. This simple linear sequential planning can be useful: if A is done, B is likely to follow. This view helps the study to make sense of complex and messy organizational behaviour.

Kurt Lewin's Three-Step-Model (1947) was used to identify three distinct phases of change, placing considerable focus on moving the current state to transition and future. The study sees the point that Lewin's model (1947) has a goal and steps of a plan, which is reasonable and extremely relevant, but that the model does not take the individual factors into account. Thus, Kritsinis (2004-2005) said that Lewin's Three-Step-Model (1947) looks good on paper because it is rational, but cannot be implemented. This study can also confirm that it seems to lack human feelings, experience and effects in the change process.

This study found that the participants' feelings and effects on the CNS/ATM project influence their job, as shown in Tables 7.12 and 7.13. While an attempt has been made to describe the problem and its importance, transformational leadership is studied by considering the role of leadership in the process of change. As a result, the participants indicated that the transformational leaders can stimulate and motivate them by showing strong action and providing access to participants through

the change process. Participants would like to know the feasibility of the project based on concepts of new technology with permanent and clear vision for changing. One of the other results in this research is that the aspect of transformational leadership that is perceived as the most relevant is inspirational motivation, as shown in Table 7.19 and Figure 7.6. This component has influence on leaders and followers of the Air Navigation Service Providers. The study compounds these concepts mentioned above, including a context of change. The scope within the context of organization change and the drivers for change that have considerable impact on both social and personal change must be considered (Price, 2009).

This study uses these concepts by defining the four phases in the process which identify the new model used. The activities and roles are factors which are categorized by using the grounded theory research method according to the main participants who are composed of: project leaders; transformational leaders - senior leaders who sponsor the change); and staff members or followers. The results identify and place these participants' activities and roles into four phases, as shown in Figures 7.2 and 7.5.

The study is derived from empirical data. The study agrees with Kotter's Eight Steps Model (1996) that this kind of change is chaotic, complex and takes time through a series of steps. A gradual change is appropriate. The evidence shows that the concept of this technology started in 1991, when the International Civil Aviation Organization (ICAO) Council endorsed future air navigation system concepts which came to be known as the 'communication, navigation and surveillance/air traffic management systems' (CNS/ATM). These systems, employing digital technologies, including satellite systems together with various complex levels of

automation, are applied in support of a seamless global air traffic management system (ICAO, 2005). The International Civil Aviation Organization (2007c) indicated that a number of states and all ICAO regions started on an implementation program of the CNS/ATM technologies to improve air navigation services. Afterward, it was recognized that technology was not an end in itself; an integrated and global air navigation system, based on clearly established operational requirements, was needed. This shows that creating vision was also needed as part of a plan to implement the CNS/ATM. The guidance helped by providing a description of how the emerging and future air navigation system should be operated to introduce the high-level implementation of the CNS/ATM technology.

Making sense of change and enabling managers as well as leaders should be established. Followers would like to see leaders who have positive vision and produce positive outcomes, especially communicating to make clear their goals and objectives. Furthermore, followers expect leaders to have the ability and knowledge to increase employees' engagement in the process of change, transferring their vision into action. This study identifies these concepts into the process of change and the role of transformational leadership, as shown in Figures 7.2, 7.5 and 7.6.

The study is derived from interviews and a survey, it supports Hiatt's ADKAR model of change, but additionally underlines a necessary link between the change process of change management and leadership along with the role of transformational leadership in the change process. The data identify that participants need to understand the nature of change, reasons for change, and what will happen if they do not change. Therefore, the first step that participants seek to understand is an important factor for managing change: that is, communicate the need for change and

explain why the change is necessary as well as elucidate the risks in not changing. According to the Change Management Process (2007) in which 411 companies were referred to, it was found that the one core reason for resistance to change was lack of awareness as to why the change was being made. Creating awareness is the first important factor for managing change. Acceptance of awareness information is influenced by followers' views of the recognition phase. After the participants understand change, the next point is that leaders should identify activities to support and engage in a change. This study attempts to understand the underlying key factors which influence followers who desire to change. The data is collected to identify the substance of change - what the change is and how it will impact followers (Details in Table 7.12-7.13.).

The environmental context for the change and the politics of change are identified in section 7.4.4. However, the empirical case of the study described how leaders desire to participate and support change. From the interviews, it was found that the participants must realise that one of the key factors is to have access to and understanding of the change to new technology. Participants identified that training and education on the skills and behaviours for change were needed. Followers need to have coaching, and the coach needs to understand how to use the new process system and tools. The transformational leaders need to understand their role to support change in the action and implementation phase. Moreover, reinforcement to keep the change in place is imperative to support the change. Celebrating the successful change or reviewing the critical problems for unsuccessful change would support the change at the stabilization phase.

Within the change process models of this study, there are many differences, or refinements to the existing concepts. Nonetheless, some similarities between the various authors' approaches can also be found. The concept of this study supports some concepts of Anderson's model. For this reason, it deploys the change management concept that is composed of four phases: the recognition and identification phase, the preparation phase, the action and implementation phase and the stabilization phase. My concept is to separate the stabilization phase from the implementation. Kotter (1996) emphasizes the continuity of the implemented change at the end of the process. The change agents have to make sure that the employees' behaviour is really changed and that it will continue to be so later. However, the downstream of Anderson's model identifies celebration and integration of the new state to be a sub-step to support and strengthen the change. Consequently, transformational leaders would support and strengthen in the change process after implementing new technology to all levels of employees.

7.5.6 Implications of Transformational Leadership

7.5.6.1 Comparison and discussion of Change Model between the theoretical framework of transformational leadership and the implication of the empirical data.

Strategic leadership is composed of three fields of research: charismatic theory of leadership, transformational leadership and visionary theories of leadership (Boal and Hooijberg, 2000). Bass (1985) argues that superior performance is possible only through transforming followers' values, attitudes and motives from a lower to a higher plane of arousal and maturity.

The reviewed literature and the interview data focus on transformation leadership theory. A number of senior leaders in ANSPs recommended that persons who are leaders for changing should understand change management and transformational leadership. The successful change of ANSPs inevitably happens when transformational leaders understanding their change process.

7.5.6.2 The Concept of Transformational Leadership

For Kotter (1947), a transformational leader has charisma, shows a vision and gets awe, trust and respect from others. He has the ability to inspire people, but he also sets high expectations. Additionally, he draws on symbols and relies on creative problem solving. In the literature, an optimal change leader is highly affected by a transformational leadership style. Furthermore, it is essential that the leader has a transactional approach (Northhouse, 2004). The study shows on change affected by a transformational leadership style, but that is not a transactional approach. In 'Heart of Change', Kotter (2002) states that the fundamental challenge for a leader is to change the people's behaviour. To accomplish this goal, it is important to change the people's feelings.

This study agrees with Kotter (2002) in that the fundamental challenge for a leader is to change the people's behaviour and feelings. The data show that the followers have seen the initiation of the projects with no prior planning. The direction of the implementation is influenced by resistance. The leaders interviewed share the same opinion as the followers if the goal of the project is ambiguous and there is a lack of effective communication. Most of the participants considered excellent communication as a requisite for implementing change (Details in Table 7.19 and Figure 7.6).

The results of the study confirm that for the participants culture, structure and strategy of ANSPs organizations affect their job roles. This is shown in Tables 12-13, Figure 7.2 and Figure 7.5. Therefore, participants agree that transformational leadership style can influence them in changing their actions and attitude. Kanter (1999) claimed that the change agents have to make extensive transformations in the culture, structure and strategy of the companies to build long-term capabilities for an organization, which requires people to change their actions and attitudes.

“Transformational leaders motivate others to do more than they originally intended and often even more than they thought possible. Such leaders set more challenging expectations and typically achieve higher performances” (Avolio and Bass, 2002, p. 1). An analysis of Coleman *et al.* (1995) summarizes the outcome of 27 different studies related to which leadership style is perceived as better. The results show that subordinates see transformational leaders as the best leaders. The results support the above research, showing that the participants would like to have transformational leaders to manage change in their organizations.

7.5.6.3 The Four Components of Transformational Leadership

This study summarised the four components of transformational leadership proposed by Bass and Steidlmeier (1999). These are:

Inspirational Influence: this describes leaders who act as mentors or role-models for followers, requiring vision to set a standard and vision.

Inspirational Motivation: this describes leaders who can communicate with clear expectations, goals and objectives, inspiring them (followers) through motivation, and using vision for commitment to change.

Intellectual Stimulation: this describes leaders who stimulate followers to be creative and innovative, question assumptions and seek differing perspectives when solving problems.

Individualized Consideration: this describes leaders who coach, listen to others and promote self development.

The results of this study are that many successful change leaders have revealed actions which are related to transformational leadership. It shows that leaders and followers evaluate differently the components of transformational leadership and their elements. The research also shows that transformational leadership is an actual issue, as it has very positive effects both from a personal and from an economic viewpoint. If leaders want to improve their leadership style, they have to be aware of the fact that their present way of influencing their followers is not necessarily the same as what their followers perceive as optimal. Thus, leaders should first invest time in getting to know the characters and the individual preferences of their followers. One study review found that employees have to be motivated to be more creative and innovative, which in turn should lead to the creation of new control mechanisms (Alvesson and Willmott, 2004). A transformational leader is supposed to create an atmosphere for motivating innovation and creativity. The results from this research show that inspirational motivation, inspirational influence, intellectual stimulation and work individualized consideration respectively are perceived as being leaders' aspects of transformational leadership (Yenpiem, 2010a and 2010b). These components have influence on leaders and followers of the Air Navigation Service Providers. The study compounds the concepts mentioned above, including a context of change. The scope within the context of organization change and the drivers for change

that have a considerable impact on both social and personal change must be considered (Price, 2009). Buchanan and Boddy (1992) state that the competencies cannot be seen separately; therefore, the leaders apply their capabilities according to the context. This study found that the leaders' role would be to apply the activities to manage change according to the context of organization change.

7.5.6.4 Factors in Influencing Transformational Leadership

Several factors of influence should be taken into consideration. Lord and Emmrich (2001), and Avolio and Bass (1999) all pointed out that leadership styles differ according to the situation. Hence, in situations of change or crises, other styles will be important compared to situations of stability. These situations are environmental risk, hierarchical level, and gender and personality factors. Price (2009) indicated that drivers for change often present a complex picture from which people in organizations have to select their priority.

De Wit and Meyer (2004) argued that the stronger the organizational culture is, the more efficient the performance is. Nevertheless, the problem is that a stronger organizational culture makes it more difficult to change. Lewin (1951) identified that increased worker knowledge, empathy and involvement are all methods that reduce the resistance to change. These methods also allow the change effort to overcome that resistance. The study discusses the following factors which could influence transformational leaders:

1. *Considering the substance of change, such as the effect of the introduction of a new technology and/or a new management technique* (Details in Table 7.13). Table 7.13 presents the management of change of the CNS/ATM affecting air traffic controllers who are at the core of activity for Air Navigation

Service Providers. The followers suggest that change projects create resistance which has to be overcome. Good ideas for change are hidden and used for personal agendas which affect their roles.

Moreover, the study found that many followers do not trust the systems, believing that the systems are not reliable. In contrast, the results from leaders do not identify the problems. All transformational leaders have to access and understand the new technology. They should gain knowledge in order to communicate and participate with followers. Furthermore, they have to influence the followers to understand the new systems by convincing and training them. When they understand the systems and how they work, they would become more positive.

2. The politics of change that is the political activity of consultation, negotiation, conflict and resistance that occurs at various levels within and outside an organization during the process of managing change. This study supports De Wit and Meyer's (2004) belief that the stronger the organizational culture is, the more efficient it is, in terms of performance. This study found (through the empirical results) that corporate culture is weak. Furthermore, the study of performance indicators measured from the pilots' perspective also indicated the levels of safety, quality, efficiency and cost-effectiveness of ANSP (AEROTHAI, 2008). The study measured from the perspective of domestic and international customers. Empirical results go along with the same orientation. These results would affect the performance of an organization in the future. Therefore, performance of AEROTHAI would be less efficient in terms of air navigation service. The management system of AEROTHAI is hierarchical. Followers trust and comply with requirements set by the change leader who is the head of the AEROTHAI organization. Senior leaders are

the key drivers of strategic goals whilst supporting corporate culture and changing to new technology.

3. *The context of change that is the past and the present external and internal operation environments as well as the influence.* The context of the study is shown in section 7.4.4. In the empirical interviews, leaders indicated that the force comes from two sources, internal and external drivers for change. The driver for change, the speed of change, the long period plan, and the delay for change are factors which affect the influence in the processing of change. The drivers for change, the environment within which ANSPs organizations operate can be divided into three levels, as shown in Figure 7.3.

7.5.7 Difference between Management and Leadership

Table 7.24: Matrix Summary of the Differences between Management and Leadership in ANSPs

	Management	Data	Leadership	Data
Creating an Agenda	Planning/Budgeting <ul style="list-style-type: none"> • Establish steps • Set timeTables • Allocate resources 	√√ √√ √√	Establishing Direction <ul style="list-style-type: none"> • Create a vision • Set strategies 	√√ √√
Developing a Human Network for Achieving the Agenda	Organizing/Staffing <ul style="list-style-type: none"> • Establish structure • Staff structure with people • Establish policies, rules and procedures 	√√ √√ √√	Aligning People <ul style="list-style-type: none"> • Communicate the direction • Build teams and coalitions 	√√ √√

Table 7.24 Matrix Summary of the Differences between Management and Leadership
in ANSPs (continued)

	Management	Data	Leadership	Data
Execution	Controlling/Problem Solving <ul style="list-style-type: none"> • Monitor results and plan • Identify differences • Generate solutions • Take corrective action 	 √√ √√ √√ √√	Motivating and Inspiring <ul style="list-style-type: none"> • Inspire and energize people to overcome major barriers • Satisfy unmet needs 	 √√ √×
Outcomes	<ul style="list-style-type: none"> • Certainty • Order • Consistent key results 	√× √× √√	<ul style="list-style-type: none"> • Change of a dramatic degree • Extremely useful change 	√× √√

Code to understand the Matrix

√√= significance in theory and for actors' perspective.

√× = significance in theory but to some extent for actors.

Source: Analysis of field study.

Table 7.24 presents a summary of the differences between management and leadership where the theories from the theoretical framework have been compared with the empirical data. The data is derived from the interviews and surveys with leaders and followers in ANSPs organizations.

From the literature, the study found that the terms *leader* and *leadership* are very disparate and that there are many definitions of leadership (Stogdill, 1974). Management and leadership is a many-sided research with a great diversity of approaches (Yukl, 1989). Both are important for the change process, because they have different impacts on different stages (Afsaneh, 2003). The most important point is that leaders have a great ability to produce change. A leader has a great influence within the process of change (Kotter, 1990). Consequently, this thesis uses the term “manager” to describe a formal position in organizations, referring to the term “management” as being the planning and changing activities required of a manager. Nicholls (1988) stated that leadership can not only be seen as an influencing process directed at individuals, but also as a stimulus that drives an organization to achieve success. Similarly, this study also uses the four components of transformational leadership as process oriented influences on people (Bass and Steidlmeier, 1999). These components are inspirational influence, inspirational motivation, intellectual stimulation and individualized consideration.

In the interview, the actors called for a clear vision of direction of new technology from the international civil organization’s view. At the same time, the followers called for clear vision from leaders of various organizations. The actors desire that leaders have access to their positions in order to understand the new technology. Most actors desire leaders who are the main driver to understanding the need for change and can communicate with clear reasons. The actors expect that teams and coalitions are created by senior leaders for change to the CNS/ ATM so that they understand the change management and transformational leadership theory. They should have a great ability to establish the change plan, and control and monitor

the problem solving. Kotter (1990) identified the imperative of different roles between leaders and managers. Both positions are important in the process of change. Kotter (1990) emphasizes that leaders have a great ability to produce change. Afsaneh (2003) stated that both managers and leaders are the main driver for change: managers and leaders therefore influence and motivate the acceptance of change.

7.5.8 Organizational Identity

7.5.8.1 Organizational Identity Roots and Discussions

When organizational identity is discussed, the notion of identity originally belongs to psychological and sociological domains, where it was considered before it was used within the organizational area (Hatch and Schultz, 2004).

Schwartz (2004) related his theory about organizational identity to Freud's psychoanalytic theory. Based on Freud's discussion about the ego ideal, he suggests that for individuals who have no clear identity, the organizational ideal is a substitution.

7.5.8.2 Different Points of View of Organizational Identity

First, one circle of authors considers organizational identity as a phenomenon which is related to the mind of the individual itself. In a different vein, other authors, such as Tajfel and Turner (1979), and Brewer and Gardner (1996), perceive organizational identity as a property related to the organization itself.

To conserve a certain degree of stability of the organizational identity, it is important to maintain the employee's and consumer's identification with the organization (Cheney, Christensen, 2001). Alvesson and Willmott (2004) mention

that managing the identity of employees is an important element in implementing new directions.

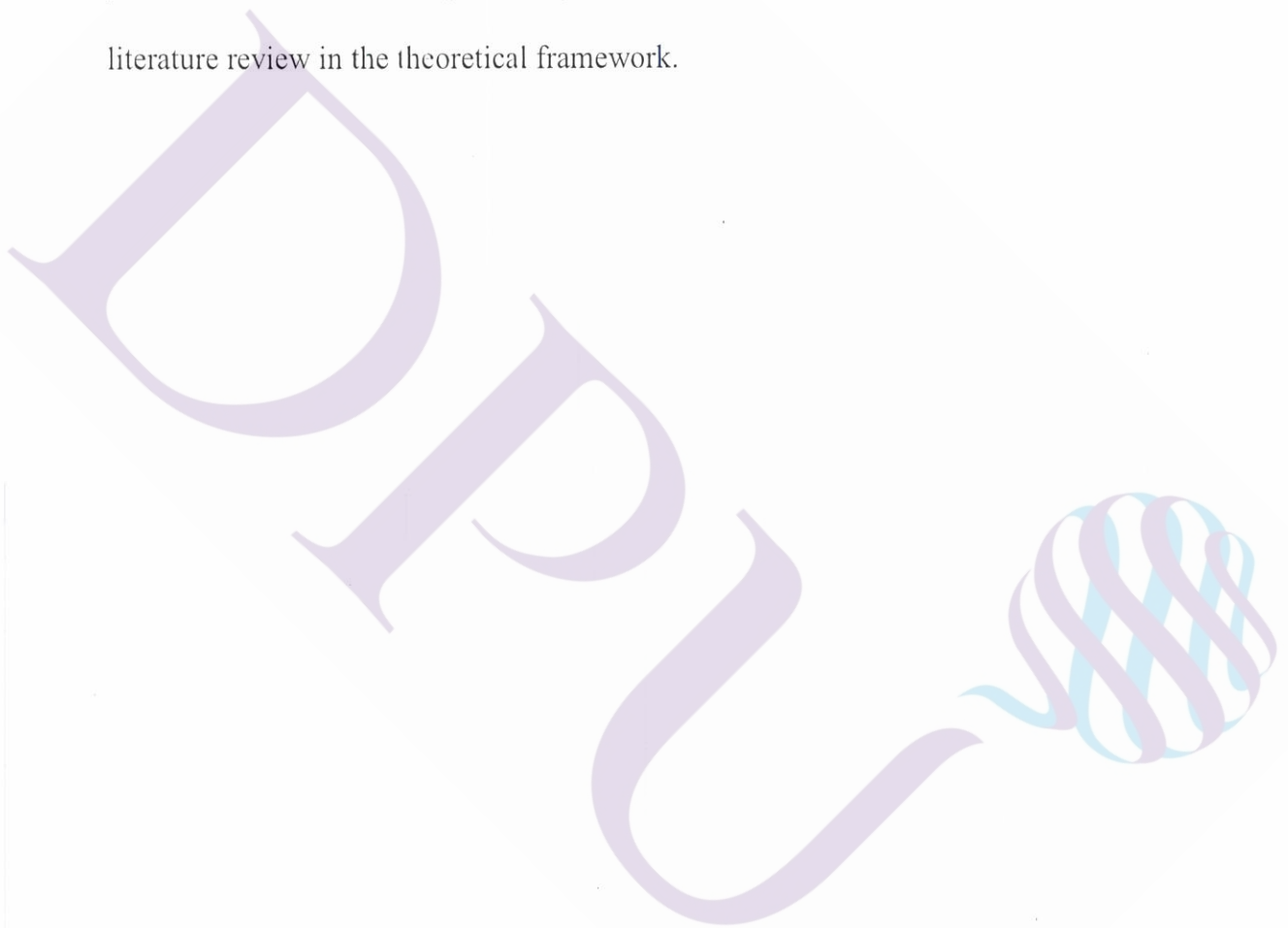
Ashforth and Mael (1996) created a connection between an individual and the organizational level of analysis and point out the complexity of organizational identity. A collective identity is crucial for the identification process on the individual level.

From the results of section 7.4.5, this study is to investigate which transformational leadership components affect organizational identity. For that, this study focuses on Gioia et al. (2004) whose point-of-view defines identity as an unstable process. Only from this perspective can the transformational leader affect the organizational identity. The study indicates that most participants (both leaders and followers) accept that the transformational leaders influence them. (Table 7.18) The result presents an identity of ANSP organizations indicating that communication is strongly related to the process of change to reduce resistance in ANSPs. Comments from several followers argue that leaders who act as mentors or role-models influence followers based on an ethic of transformational leadership. The leaders are required to have positive vision to set a standard direction for managing change. This vision is named *the inspirational influence* component. The participants identify that transformational leaders produce positive outcomes which are associated with ethical conduct.

7.6 Conclusion

The empirical results and data analysis have been presented. The data collected from the followers and leaders were analyzed and the profile of every

participant was explained. Data and results analysis were also presented. Examples of the Grounded Theory in a process of change were analyzed, including mixed-methods, which were employed to support the confirmation of findings. An illustration of all results which answered the research questions related to change processes were identified in the form of descriptions, tables and figures. The change process model of this study and key factors were discussed and compared with the literature review in the theoretical framework.



CHAPTER 8

IMPLICATIONS AND CONCLUSIONS

8.1 Introduction

Chapter eight summarizes the essential dimensions which have been extracted from the whole thesis, focusing on the most significant aspects and drawing adequate conclusions. The results from the analysis in chapter seven are drawn and finalized. The implications of these results are subsequently presented. Recommendations are also identified for future research.

8.2 Implications and Conclusions

The major weaknesses identified in the area of the process of change and transformational leadership in the conceptual framework of this thesis were summarized in chapter four as follows:

- The process of change needs to have a strong link between the change management and leadership along with the role of transformational leadership in the change process.
- The study concentrates on gathering the key concepts of change and focuses on the fundamental roles of leadership during the process of change identified.
- The study focuses on the importance of the leader's role in facilitating the process of change in each specific phase of the change process and the impact participants can have within the process.

- The study focuses on how the different characteristics of transformational leadership components can influence and or transform an organization's identity. In addition, this study explores how an organization's identity can be adapted.

This thesis has contributed to the theory of change management and transformational leadership by addressing these gaps and weaknesses. It has identified the process of change related to the introduction of performance enhancing new technology for Air Navigation Services (ANSPs) with a focus on evolutionary rather than revolutionary approaches. Although change activities objectives lead to dramatic improvements in performance, this kind of change managing is not revolutionary. As a result, new complex systems are established in the process driven by a crisis or significant opportunity facing the services. The improvement has taken a long period of time with gradual or incremental change. During the change period in ANSPs, it was found that the effects to implement changes failed. Specifically, this study found that most participants see four important reasons that employees resist change in ANSP organizations; these are: lack of awareness and understanding; impact on routine jobs; lack of support and commitment from managers or leaders; and that a number of followers do not trust the system. Therefore, this thesis also investigates *Key Performance Indicators* linked with the change process which are required to support transformational leaders develop communication plans through strategic foresight and conversation. This thesis has implications for theory and research by using an analysis of the grounded theory technique involving both quantitative and qualitative methods. Therefore, the research carried out and reported in this thesis has a theoretical implication which is to present an understanding of the process of change

including explicitly the leadership activities and perspectives. Both the influence of the leaders and their actions are strongly relevant in the change process and are necessary to implement successful change. To identify the key concepts and factors of change focusing on the fundamental role of leadership, managing a clear entrepreneurial and leading attitude are necessary during the process of change. The key concepts are an identifiable construction.

The importance of the leader's role in facilitating the process of change in each specific phase of the change process and the impact he/she can have within the process is presented in this study. The series of steps in the change process were identified in order to enhance the knowledge of the organization in change management. This case study involved ANSPs and identified various aspects involved in the change to new technology. An investigation of the nature of the type and scale of characteristic change within the organization was conducted. The politics and context of change in organizations are affected by new technology.

8.3 Conclusions of the Implications of the Change Model in this Study

8.3.1 The Implication of the Research Questions and the Research Results.

According to the questions related to the theoretical framework of the change process shown in Figure 4.7, the research questions of this thesis are categorized into two major areas. The first part of the research is associated with the development model of the process of change management. This part deals with the results referred to and shown in Figure 8.1 where the activities and steps in the change process are identified (Question 1). This development model is also causally linked with change management (CM) and transformational leadership (TL). The study

results are to present what roles and impacts the leaders play and are also referred to and shown in Figure 8.1. These roles and impacts being considered are related to the substance of change (Question 2a) and the conflict and resistance to change (Question 2b), as well as to the context of change (Question 2c).

The second part of the research is related to transformational leadership. This part deals with the transformational leadership aspects which are expressed in practice (Question 3) and is also referred to in Figure 8.1. The study presents which transformational components are perceived as the most relevant for leaders and followers in the process of influencing changes in an organization and, ultimately, changing the identity of the organization (Question 4). All the questions are related in the conceptual change model and results shown in Figures 8.1 and 8.2.

8.3.2 The Implications of the Change Model are Drawn and Finalized

The results of the analysis and discussion in Chapter 7 are drawn and finalized. Within the change process models of this study, it was found that there are many differences, nuances or refinements to the existing concepts. Some similarities between the various approaches can also be found. However, some are difficult and intricate in practice. This study has provided the best techniques for breaking into the four phases of the change model which can be identified based on both the empirical results and on a theoretical review. This process is divided into the Recognition and Identification Phase, Preparation and Planning Phase, Action and Implementation Phase, and Stabilization Phase; all are used to help make sense of change.

Conceptual of Change Process and Relation of the Results in this Study

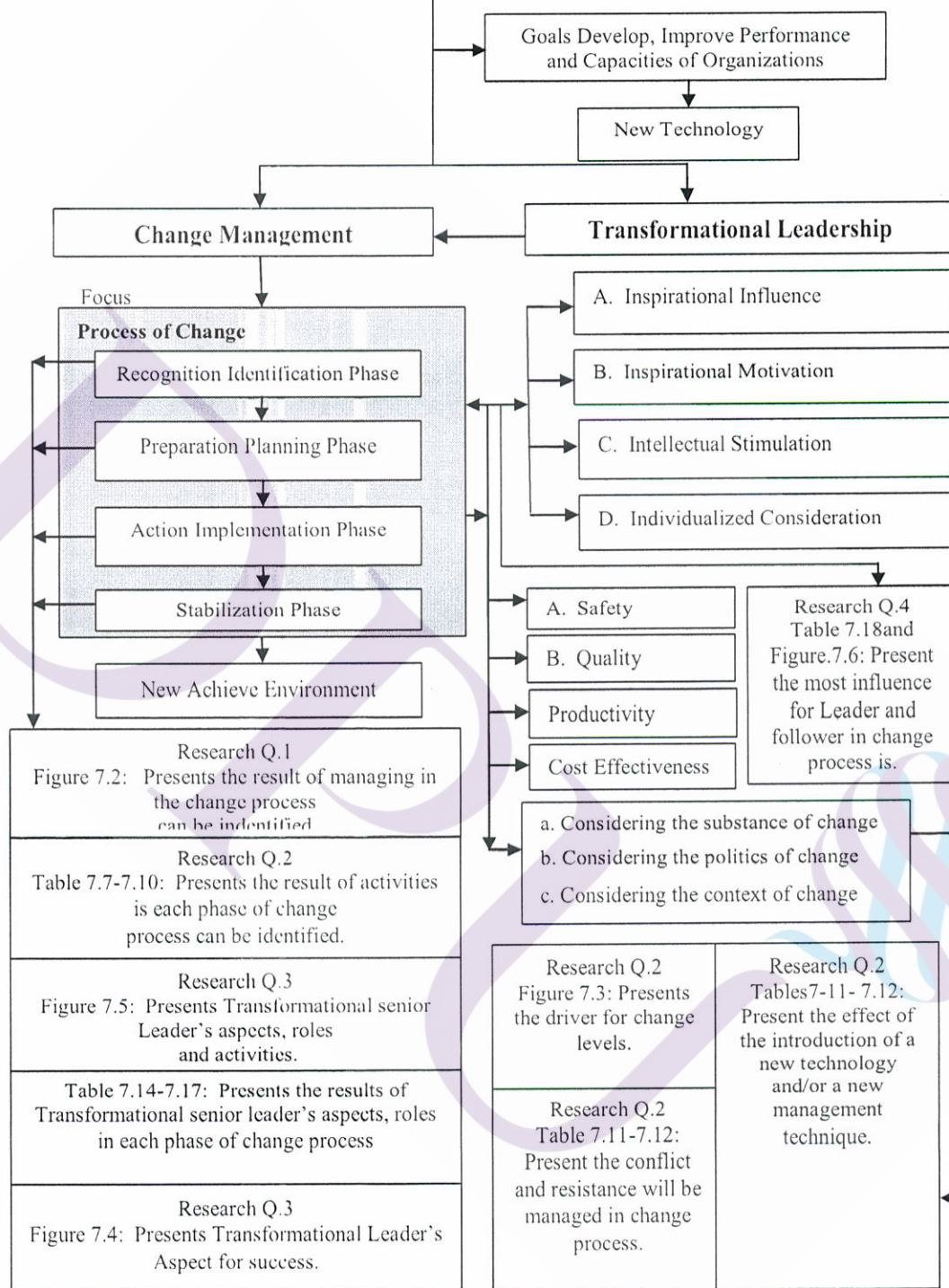


Figure 8.1 Change Process and Relation of the Results in the Study

Source: Developed for this study.

Conclusion of the Result of Change Process Model

Why Change: Increase capacity, Increase efficiency, cost problems, maintain safety etc.		
Goals developed, improve performance and capacities of organization		
Change Management (Process of Change)		Transformational Leadership
1. Recognition/Identification Phase 2. Preparation/Planning Phase 3. Action/Implementation Phase 4. Stabilization Phase	“IDEAS” : Keys Concepts 1. Integrating motivation and Inspirational Influence (I) 2. Directly involving communication (D) 3. Engaging strongly and visibly (E) 4. Accessing and understanding (A) 5. Supporting involvement (S)	1. Inspirational Motivation 2. Inspirational Influence 3. Intellectual Stimulation 4. Individualized Consideration
Context of Change	Substance of Change	Politics of Change
The Far (Macro) Environment: -Political drivers for change, -Economic drivers for change, -Cultural drivers for change, -Technological drivers for change, -Legal drivers for change, -Environmental drivers for change. <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>The near (Meso) Environment: -Regulatory authority -Airspace users and aircraft design.</p> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-top: 5px;"> <p>The Internal (Micro) Environment: Airspace capacity</p> </div>	The Substance of Change Factors: 1. Communications 2. Hidden agendas (personal) 3. Planning 4. Age of participants	Conflict and Resistance Factors: 1. Lack of awareness and understanding 2. Impact on routine Jobs 3. Lack of supports and commitment
CM= Change Management , TL= Transformational Leadership		

Figure 8.2 Conclusion the Result of Change Process Model

Conclusion the Result of Change Process Model (Continued).

Change Process	Project Leaders	Senior Leaders	Followers
Recognition and Identification Phase (Changes can be identified)	Prepare Teamwork	Establish Transformational Leaders (TE)	Create Awareness and Persuasion
Recognition and Identification Phase (Leadership Activities)	Acquire Project Leaders	Create CM and TL Support	Create Awareness and Persuasion
Preparation and Planning Phase Changes can be identified	Change Plan	Involve Transformational Leaders	Engage Followers
Preparation and Planning Phase (Leadership Activities)	Develop Change Management and Transformational Leadership plans	Develop Sponsorship	Engage and Share Vision and Understand corporate culture
Action and Implementation Phase (Changes can be identified)	Project Phases Participants	Coach Transformational Leaders (TE)	Train Followers
Action and Implementation Phase Leadership Activities	Provide direct support by motivating and influencing	Manage Resistance	Train and Educate Followers by motivating, influencing and coaching them.
Stabilization Phase (Changes can be identified)	Support Change	Monitor Progress	Understand Followers
Stabilization Phase (Leadership Activities)	Sustain the change process by assessment and evaluation	Monitor progress and Manage resistance	Strengthening and Rewarding
Evolutionary rather than revolutionary approaches			

Figure 8.2 Conclusion the Result of Change Process Model (Continued).

Source: Developed for this study.

In addition to the implications for theory and research addressed above, this study also has an implication for many stakeholders involved in the implementation of new technology. The activities are categorized by the grounded theory research method according to the main participants who are composed of:

- Project leaders;
- Transformational Leaders (senior leaders – TE);
- Staff members or followers.

The study identifies various theories to change management and transformational leadership. These theories show that there is no one right or wrong method for managing in the change process. However, the importance of transformational leadership shows that it has influence on participants without showing in each step how it should be employed in the change process.

This study points out the necessary link between the change process and leadership along with the role of transformational leadership in the change process. Consequently, this study identifies all the steps in the change management process of the change model. The change model of this study is divided into four phases, including three categories of participants described above. The results identify the key concepts of change and focus on the fundamental role of leadership during the process of change. The study accepts that leaders would use their power to direct others through a definite course of action in achieving a goal.

The study identifies two views of management in the navigating of the change process. These two views are organizational (top-down view) and individual (bottom-up view) change management. Organizational change management is the leaders' perspective which looks from the top into the process of change.

Additionally, individual change management is the followers' perspective which provides the feedback information for transformational leaders. Both organizational and individual levels require skills which today's leaders are required to have for success in change management (Hiatt and Creasey, 2003).

Participants described the most crucial change management (CM) activities for navigating leaders in the process of change. The results of this current study are to present what roles and impacts the transformational leaders play, shown step-by-step. Participants identified five imperative aspects/roles that are required of leaders for success. Leaders need to:

1. Engage consistently and visibly throughout the project;
2. Access and understand how to manage resistance;
3. Communicate directly with staff members and project leaders;
4. Integrate motivation and influence as transformational leaders to manage the process of change;
5. Involve sponsors for budget provision.

These roles and impacts being considered are related to the substance of change and the conflict and resistance of change as well as the context of change. The study also deals with the transformational leadership aspects which are expressed in practice. In this study, while an attempt has been made to describe the problem and its importance, transformational leadership is investigated by considering the role of leadership in the process of change. The result shows which aspects of transformational leadership are perceived as the most relevant. The salient aspects to be provided are inspirational motivation, inspirational influence, intellectual stimulation and individualized consideration respectively.

8.3.3 The Air Transport Industry

The air transport is an industry which is one of the fastest growing sectors of the world economy (International Civil Aviation Organization - ICAO, 2005). The continuing growth of aviation places increasing demands on airspace capacity and emphasizes the need for the best use of the available airspace (The International Air Transport Association (IATA), 2010). The Air Navigation Service Providers (ANSPs) are significantly affected worldwide by the introduction of a new technology for Air traffic Management (ATM) Systems. The ICAO (2009) needs to drive more rapid and comprehensive implementation of new air traffic management at the international level. All ANSPs have to implement the new systems to enhance or maintain their performance by improving the level of safety, efficiency and capacity of airspace in order to minimize fuel consumption and increase the availability of preferred flights. This study also identified the key performance indicators in ANSP (AEROTHAI) to compare them with international standard level. Therefore, this study can support or help leaders in all ANSPs or other organizations succeed in the change management process for renewing their organizations.

8.3.4 Summary of the Importance of this Thesis

From the results of this study, it can be indicated that the change process model is an important link between change management and transformational leadership. The study shows the important link between the change process and leadership along with the role of transformational leadership. The study identifies the key factors of change, focusing on the fundamental role of leadership activities during the change process. In addition, the study highlights the importance of leaders' roles in facilitating the process of change in each specific phase of the change process and

the impact he/she can have within the process. Last, the study identifies how the different characteristics of transformational leadership components can influence, and/or transform an organization's identity.

The communication element is most important between senior leaders and followers. Therefore, the discussions and results explored show how in organizations, and especially in ANSP organizations, identity can be adapted for moving towards new technology and developing their organizations

Both the leaders and managers are drivers for change but have different roles in the process of change. The study accepts that leaders would use their power to direct others through a definite course of action for the achievement of goals. At the same time, a collection of data provides feedback and involves participants at all levels. Top-down and bottom-up management can be used for managing and driving change. These are the best solutions. Senior leaders and project leaders need to have an ethical dimension in transformational leadership.

8.3.4.1 The Implications Role of Senior in Practical

The senior leaders of organizations or project leaders of new technology can help to mitigate resistance by making a strong case for the need for change and by demonstrating their commitment. Employees (followers) follow senior leaders when they decide if a change is important and followers would judge what they see and hear from this group. If senior leaders are not committed to a change or waver in their support, employees will regard the change as unimportant and resist the change. Inspirational motivation, inspirational influence, intellectual stimulation and individualized consideration respectively are the most relevant aspects of transformational leaders. These components have influence on leaders and followers

of Air Navigation Service Providers. The transformational leaders are also required to access the position of authority for changing, including understanding the new technology to create the direction of implementation. Furthermore, leader values are ethical transformational leadership requires. Armstrong and Muenjoin (2008) also argue that there are comments from respondents who recommend that in an ideal situation with a coherent organization, the right staff, a leader with the right abilities, and access to the right knowledge and information, it can work well. By contrast, the study would identify that if the leaders are without transformational leadership components, including ethical behaviour, they are probably not right for changing to the positive direction or unsuccessful change occurs. This study argues that the leaders influence the followers, if the leaders have a wrong vision and non-ethical conduct, it might be a bad direction for change resulting in a negative outcome.

8.4 Recommendations and Implications in Practice and Future Research

This research has provided the knowledge of performance enhancing new technology for managing the process of change: a case study of the air traffic management systems for air navigation. The opportunity for future research of each area is discussed as follows:

1. This thesis did not consider participants in all regions. This might have some effects on the process of change due to different cultures. The empirical study has collected data from many locations to identify and create new concepts that will be the developments of the change process. The knowledge obtained from this thesis should be beneficial to all relevant organizations.

2. However, from the study, it is recommended that transformational leaders should focus on using the word “Develop” rather than “Change” throughout communication of the change process. Most of the organizations’ projects, both from the literature review and empirical studies show that the main reasons for change are that the organizations need to improve in performance by developing technologies, tools, procedures, the human element, etc. There are a number of approaches and methods for developing solution designs for the change process. The main point focuses on change effort that is an organization development. Organization development seeks to bring about change by training followers with new knowledge, in order to create new skills for using new technology. The study indicates the questions through the research as to why, what and how to develop in creating a new organizational identity. Rothwell (2010) states that it is seldom that training can change culture because it brings about change in one person at a time, which is not a critical mass. In contrast, organization development efforts focus on changing groups in terms of long term change. This explains how the participants develop their jobs, skills, and principles. If the transformational leaders and followers do not adopt the ethics or morals or fairness to develop their activities, the project would also not be successful for supporting these individuals through the change required.

From my observation, empirical study and experience, it was found that people fear change. Referring to the reality, when a new process is introduced the feeling of participants affects their jobs differently. If a new process is delivered and established, and no one follows it, it would be of no value in managing change in the organization. It will be successful only when an organization or a group has a new identity.

The results of this study show the development of a theory about “How to Develop Management Values” rather than “Change Management Values.” This affects transformational leadership but it lacks empirical support. In addition, the study of Organization Development (OD) explains how to relate change management, which is an interesting issue. These components have important implications for the study of change management and transformational leadership in the future.

3. The study indicates that one key condition for successful change is communication to all participants. This is related to an introduction of performance enhancing new technology for managing the process of change. The finding is that a communication plan should be established in order to keep participants interacting in the change process. Therefore, the study recommends that a communication plan should be a process itself similar to the change process. This plan should support the change process. It should have a target for particular participants, indicating why the change is happening and addressing their specific concerns, linked to the key performance indicators through strategic foresight and conversation. The tools and verbalization should be designed in the context of change management. The terms of the message should be in a positive direction in order to encourage and motivate followers. The senior leaders should act as role models to achieve higher performance; leaders have to make employees involved in the organization’s life, creating devotion and dependence toward the structure of which they are part (Avolio and Bass, 2002).

This study suggests that change not only has to deal with steps, but should address other issues as well. For the appropriate approach for successful change to be effective, the transformational leaders should focus on the participants and be specific

in the situation of the change. For example, the study found that transformational leaders are required to discuss current and future problems with employees, creating a dialogue on the data between employees and employers. The aim is to have a joint understanding of company problems in order to reduce resistance (Beer and Nohria, 2002). From the analysis, communication skills are required for transformational leaders. The communication plan is an important key in the process of change. This study can confirm that communication is strongly related to the process of change to reduce resistance in ANSPs. Two-way communication is vital.

8.5 Conclusion

The researcher has attempted to make a contribution to the field of managing and leading change. As change in today's organization environment is inevitable, successful change is likely to become a critical organization capability. The researcher found that it would not be simple to navigate change. This exploratory study may open up new avenues for future research. Indeed, the researcher has received a summary of the thesis examination report indicating that this study does make an original contribution regarding the relationships of leaders and followers in the ATM systems. The findings of this study provide baseline data that might be useful to future studies relating to the ATM systems, and has broken new ground for further research. Moreover, the researcher expects that the results of this research will have real implications and benefits for leaders and managers who make the policies for their organizations.

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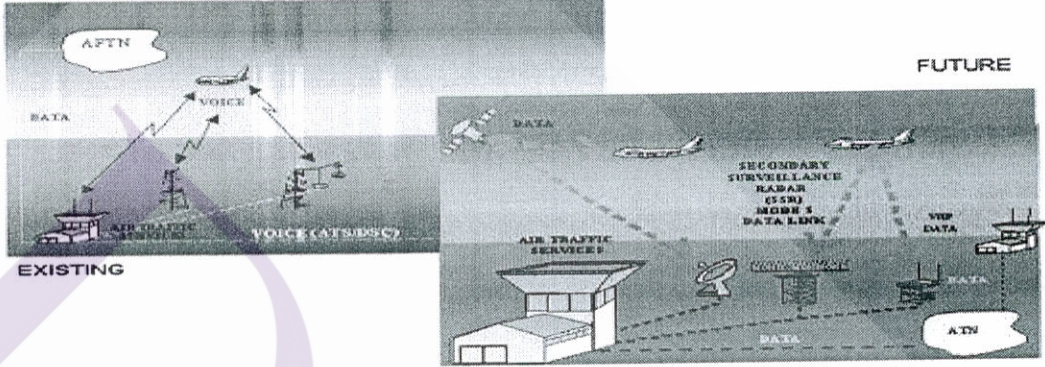
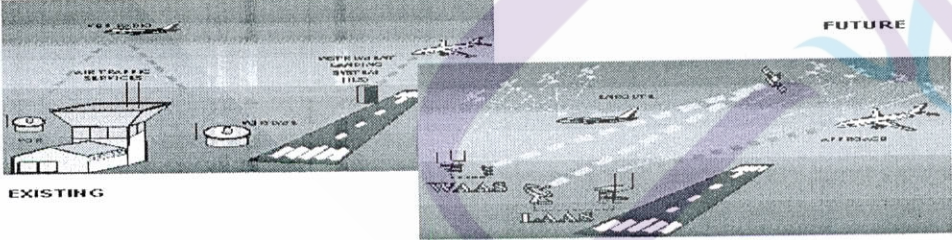
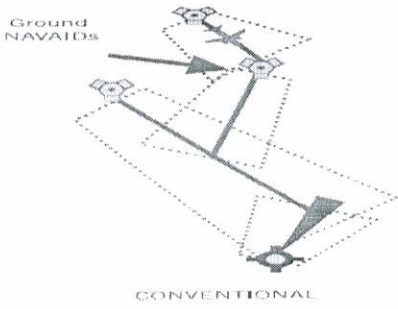
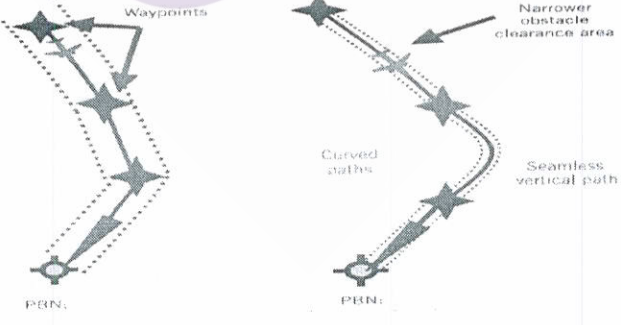
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Appendix 1A: Comparison between current system and future technologies.



Comparison between current system and future technologies.

Conventional Systems Air Traffic Control Systems	Future ATM/CNS Concept Air Traffic Management Systems
<p>Communication</p>	
	
<p>Analogue VHF and HF voice between aircraft and ground stations. Problems: the limitations of voice communications and the lack of digital air-ground data interchange systems (ICAO, 2005)</p>	<p>Controllers and pilots will communicate through digital voice and data link</p>
<p>Navigation</p>	
	
<p>Current Systems</p> 	<p>New Technology</p> 

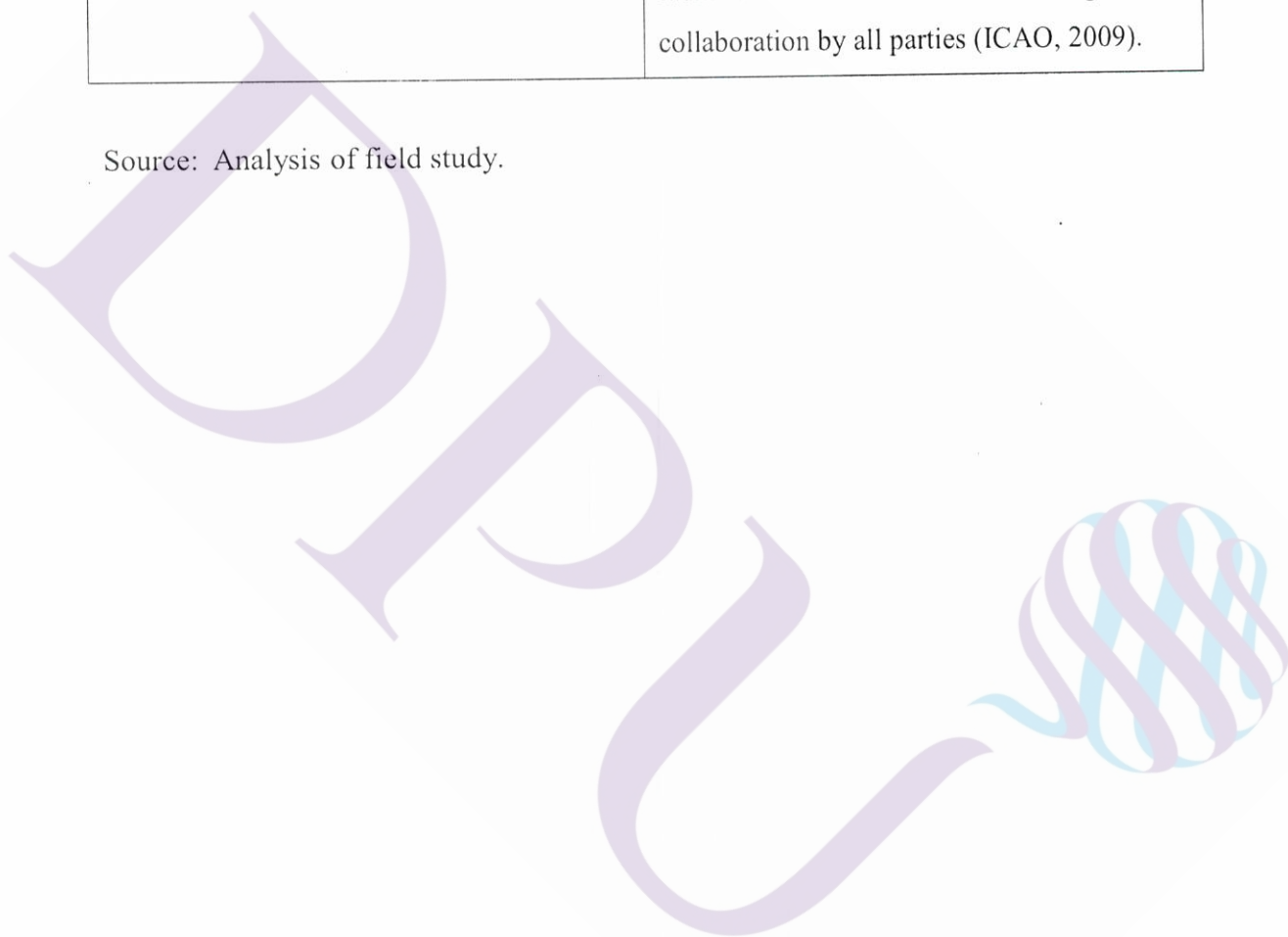
Comparison between current system and future Technologies (Continued)

<p>Conventional Systems Air Traffic Control Systems</p>	<p>Future ATM/CNS Concept Air Traffic Management Systems</p>
<p>Ground Based Navigation Systems Problems: The limited coverage of current ground-based navigation system. Limited capabilities of existing system.</p>	<p>Performance Based Navigation (PBN) Navigation Satellite Systems (GNSS) Required Navigation Performance/ Area Navigation (ICAO, 2009).</p>
<p>Surveillance</p> <div style="display: flex; justify-content: space-around;"> <div> <p>EXISTING</p> </div> <div> <p>FUTURE</p> </div> </div> <p style="text-align: center;">Next-Generation</p> <p style="text-align: center;">Source: ENAC (2008)</p>	
<p>Voice position reports, primary and secondary surveillance radar. Problems: the propagation limitations of current line-of-sight systems and/or accuracy.</p>	<p>Automatic dependent surveillance (ADS-B)</p>
<div style="display: flex; justify-content: space-around;"> <div> <p style="text-align: center;">Air traffic control</p> <p style="text-align: center;">EXISTING</p> </div> <div> <p style="text-align: center;">Air traffic management</p> <p style="text-align: center;">FUTURE</p> </div> </div> <p style="text-align: center;">Source: ENAC (2008)</p>	

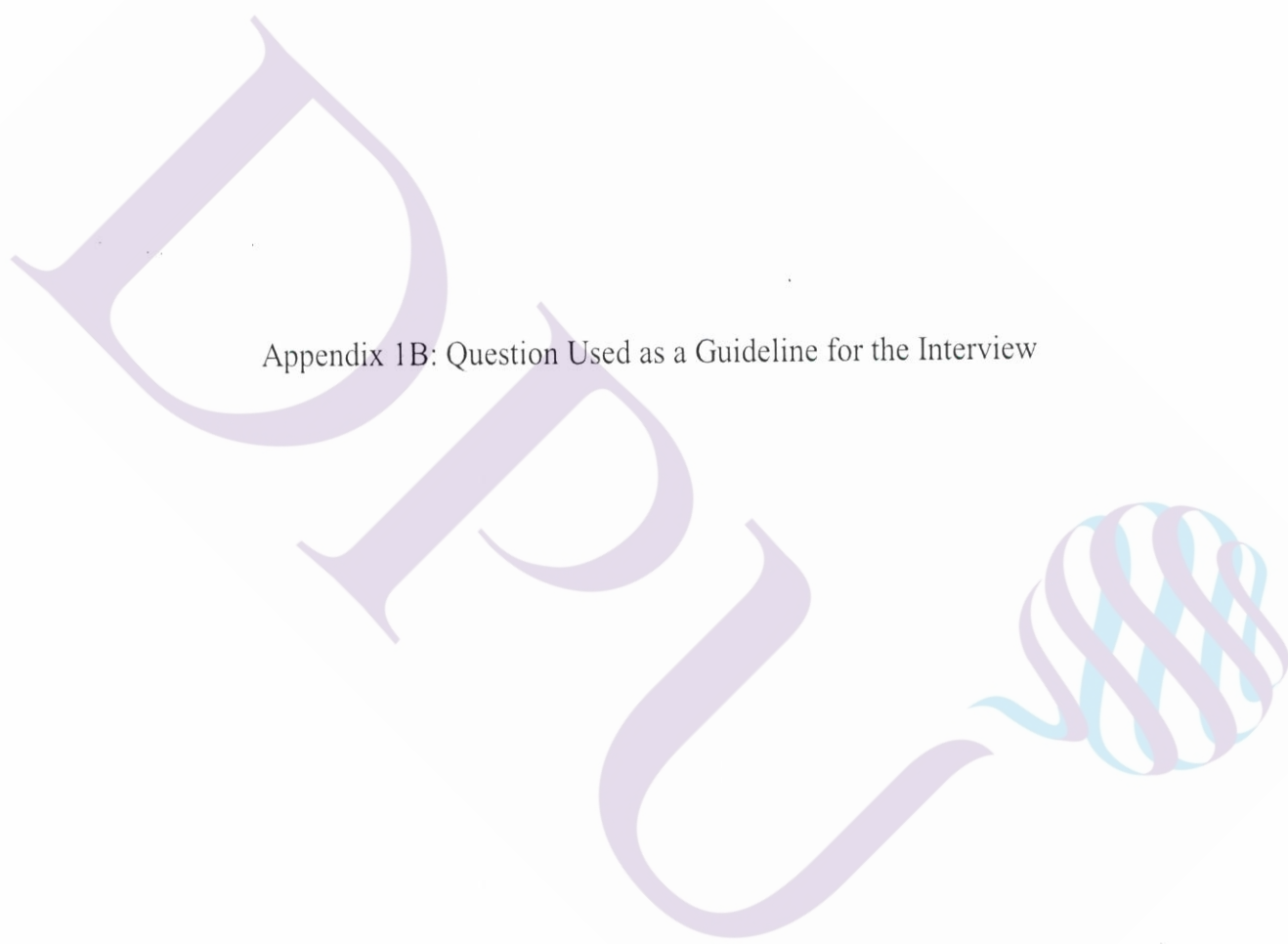
Comparison between current system and future Technologies (Continued)

Conventional Systems	Future ATM/CNS Concept
Air Traffic Control Systems	Air Traffic Management Systems
Separation assurance, conformance monitoring, hazard monitoring conflict monitoring and resolution (ICAO, 2009).	Maintaining similar responsibilities but providing more dynamic management of air traffic and airspace through the provision of facilities and seamless services through collaboration by all parties (ICAO, 2009).

Source: Analysis of field study.



Appendix 1B: Question Used as a Guideline for the Interview



Questions: Used as a Guideline for the Interview

Background of the Leader

1. How long have you been working in this organisation?
ท่านทำงานในองค์กรนี้จำนวนระยะเวลาานเพียงใด
2. What is your academic background?
ท่านมีความรู้ทางด้านวิชาการด้านอะไร
3. What is your work experience?
ท่านมีประสบการณ์ทำงานเกี่ยวกับอะไร
4. What are its main competitive advantage(s) in your organization?
อะไรเป็นข้อได้เปรียบหลักในการแข่งขันขององค์กรของท่าน
5. Do you think your organization has a corporate culture?
ท่านคิดว่าองค์กรของท่านมีวัฒนธรรมองค์กรหรือไม่

Change Process in This Organization

ขบวนการเปลี่ยนแปลงในองค์กรนี้

6. What is your view of the process of change from the old system to the new system?
ท่านมีความเห็นอย่างไรต่อขบวนการเปลี่ยนแปลงจากระบบเก่าเป็นระบบใหม่
7. Were your expectations of the new system met?
ระบบใหม่เป็นไปตามคาดหวังของท่านหรือไม่
8. In your opinion, what were the reasons for changing from the old to new system?
ในความเห็นของท่านอะไรเป็นเหตุผลในการเปลี่ยนแปลงจากระบบเก่าเป็นระบบใหม่
9. Could you tell us more about the change or changes you implemented lately?
ท่านสามารถระบุเพิ่มเติมเกี่ยวกับการเปลี่ยนแปลงในการที่ท่านได้นำมาใช้งานเมื่อเร็ว ๆ นี้
 - การผลักดันให้มีเทคโนโลยี
 - การกำกับดูแลที่ดีในองค์กรเพื่อความโปร่งใสของหลักการบริหาร
10. Where did the need for change come from?
ความจำเป็นของการเปลี่ยนแปลงคืออะไร
 - a. The reasons for change were internal, external or both?
เหตุผลของการเปลี่ยนแปลงเป็นภายใน ภายนอก หรือทั้งภายในและภายนอก

Steps in the Process of Change

ขั้นตอนต่างๆในขบวนการของการเปลี่ยนแปลง

Planning (การวางแผน)

11. Did you plan the implementation of change in advance or did you adapt to the circumstances?

ท่านมีการวางแผนล่วงหน้าหรือท่านปรับตัวตามสถานการณ์หรือเหตุการณ์

a. Who were involved in the planning process?

ใครมีส่วนเกี่ยวข้องในการวางแผนการเปลี่ยนแปลง

i. Were these people Internal or external?

บุคคลเหล่านี้เป็นบุคคลภายในหรือบุคคลภายนอก

12. Did you use some kinds of methods or methodology (tools, models) or did you just rely on your experience for managing change?

ท่านใช้วิธีการหรือกรรมวิธีบางอย่าง(เครื่องมือต่างๆ หรือรูปแบบต่างๆ) หรือท่านใช้ประสบการณ์ของท่านในการบริหารการเปลี่ยนแปลง

13. How did you prepare your employees for the acceptance of change?

ท่านได้เตรียมการให้ลูกจ้างของท่านยอมรับการเปลี่ยนแปลงอย่างไร

a. Was it easy to do so?

เป็นการเตรียมการที่จะให้มีการยอมรับง่ายหรือไม่

Implementation (การนำมาใช้งาน)

14. Have you been closely involved in the process of change?

ท่านมีบทบาทอย่างใกล้ชิดหรือไม่ในกระบวนการเปลี่ยนแปลง

a. Have you been a visible, active agent of change?

ท่านอื่นๆ เห็นหรือไม่ที่มีการเปลี่ยนแปลงเกิดขึ้น

15. Did you use some special communication tools in order to implement change?

ท่านเคยใช้เครื่องมือสื่อสารพิเศษต่างๆในการสั่งงานหรือไม่

b. Did the employees have an easy access to you?

ผู้ใต้บังคับบัญชาของท่านเคยใช้วิธีการสื่อสารที่เข้าถึงท่านได้ง่ายหรือไม่

c. Was it possible for them to contact you with questions about the change process?

ความเป็นไปได้หรือไม่ที่พวกเขาเหล่านั้นจะขอเข้าพบคุณเกี่ยวกับคำถามเรื่องกระบวนการเปลี่ยนแปลง

16. Did you feel stressed during change implementation?

ท่านรู้สึกกดดันหรือไม่ในช่วงการเปลี่ยนแปลงวิธีการนำมาใช้

17. Did you implement the change alone or with the help of others?

ท่านดำเนินการคนเดียวหรือกับคนอื่น ๆ ด้วย

a. Did you create a change team?

ท่านเคยสร้างทีมงานเพื่อการเปลี่ยนแปลงหรือไม่

b. If yes, what were the role and tasks of the change team?

ถ้าใช่ ทีมเหล่านั้นมีบทบาท หน้าที่อย่างไรบ้าง

18. Did you encounter some resistance problems from employees?

ท่านเคยประสบกับปัญหาการต่อต้านจากผู้ใต้บังคับบัญชาหรือไม่

a. How did you cope with this?

ท่านมีวิธีรับมือกับปัญหานี้อย่างไร

b. Did you use special motivation or punishment incentives?

ท่านใช้วิธีการสร้างแรงจูงใจหรือการลงโทษหรือไม่

Evaluation of the Change Process

การประเมินค่าในกระบวนการเปลี่ยนแปลง

19. What was the result of the implemented change?

ผลของกระบวนการเปลี่ยนแปลงคือ

a. Was it a success or a failure?

b. Are you satisfied with it?

ท่านพึงพอใจกับผลงานหรือไม่

c. Can you give us some reason(s)?

โปรดให้เหตุผลประกอบ

20. How long did the process of change last?

กระบวนการเปลี่ยนแปลงครั้งสุดท้ายใช้เวลานานเท่าไร

21. According to you, which stages of the change process were crucial?

จากงานของท่าน มีกระบวนการเปลี่ยนแปลงระยะใดที่เกิดปัญหารุนแรงหรือไม่

22. Was your action particularly more important during one of the steps?

ระหว่างการดำเนินงานของท่าน กระบวนการใดที่มีความสำคัญที่สุด

23. Were some people or departments more involved during the process of change?

ในระหว่างการดำเนินงานเปลี่ยนแปลง มีบุคคลหรือฝ่ายใดที่เกี่ยวข้องเป็นพิเศษหรือไม่

24. Do you feel that the corporate culture played an important role when implementing change?

ท่านคิดว่าวัฒนธรรมการร่วมมือกันในองค์กรมีความจำเป็นต่อกระบวนการเปลี่ยนแปลงหรือไม่

a. Could you feel some resistance due to the values of the company?

ท่านคิดว่าการเกิดการต่อต้านบางประการขึ้นในองค์กรเหมาะสมหรือไม่

b. Did you therefore have to change the corporate culture?

ด้วยเหตุนั้น ท่านเปลี่ยนแปลงวัฒนธรรมองค์กรหรือไม่

25. What are the required qualities for a CEO as a change leader according to you?

ท่านคิดว่า คุณสมบัติที่สำคัญของผู้บริหารระดับสูงที่ควรเปลี่ยนแปลงคืออะไร

การควบคุมกระบวนการเปลี่ยนแปลง

Did you control/supervise permanently the process of change? If yes, how?

After the Implementation of Change

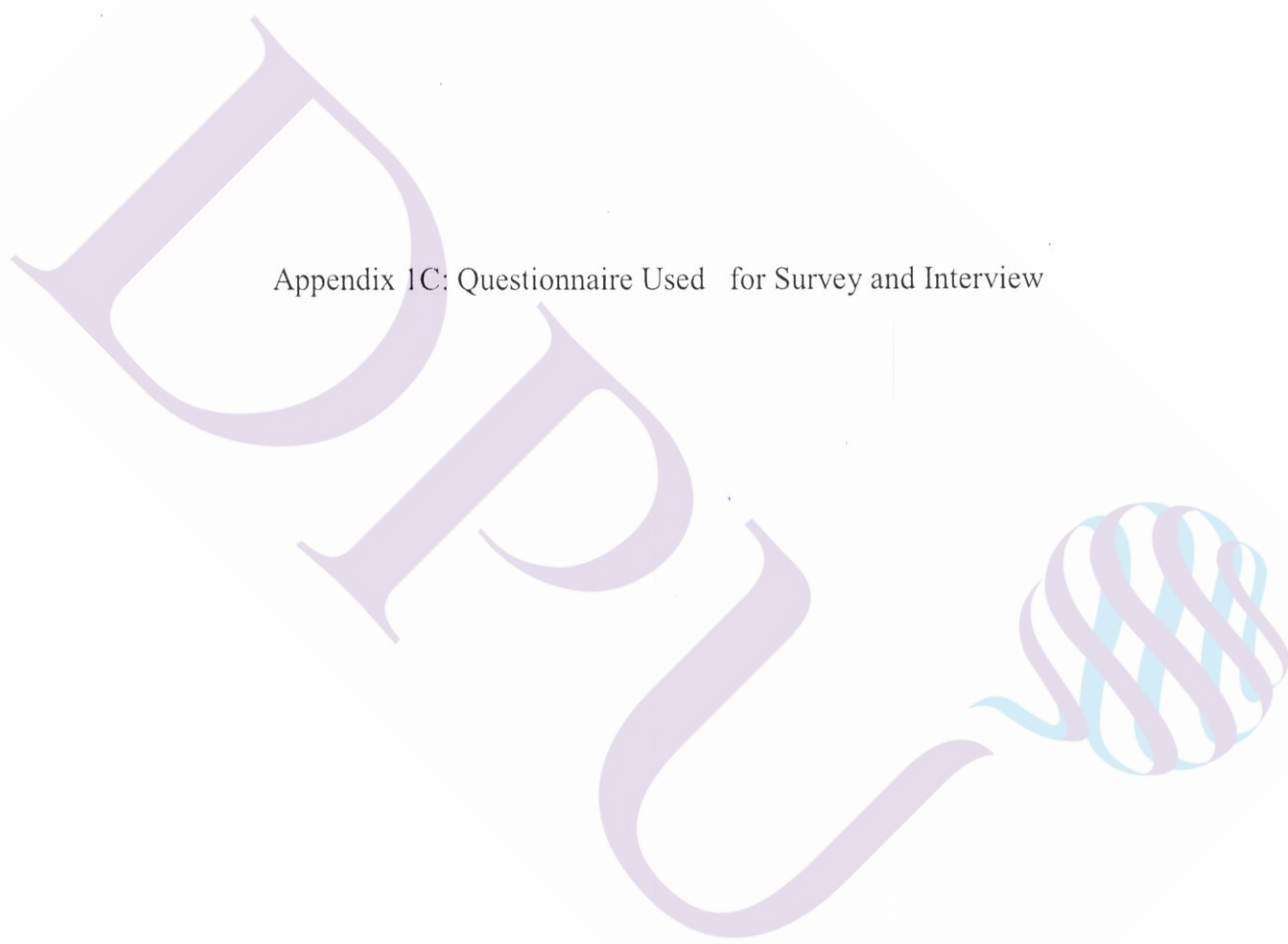
หลังจากการนำผลของการเปลี่ยนแปลงมาใช้งาน

26. Did you communicate to all the stakeholders the effects of change after the implementation? If yes, how?

การติดต่อกับผู้มีส่วนได้ส่วนเสียนั้นมีผลกระทบต่อการเปลี่ยนแปลงหลังจากการนำมาใช้ หรือไม่ อย่างไร



Appendix 1C: Questionnaire Used for Survey and Interview



1. What is your gender?

1. Male
2. Female

2. What is your age?

1. 20- 30
2. 31-40
3. 41-50
4. 51-60

3. What is your educational level?

1. Undergraduate
2. Postgraduate

4. What is your Job Title? (please select as applicable) *

- Director
- Air traffic control manager
- CNS/ATM Manager
- Pilot
- Air traffic controller
- Change leader of CNS/ATM
- Other (please specify)

แบบสอบถามนี้ใช้ทำการวิจัยเพื่อเปลี่ยนแปลงไปสู่ระบบ CNS/ATM ของผู้บริการการจราจรทางอากาศ **Managing the process of change related to the introduction of a performance enhancing new technology “Air Traffic Management (ATM) Systems for Air Navigation Service Providers (ANSPs)”**

5. How long have you been working?

- 2 - 5 Years
- 6 - 11 Years
- 12 -16 Years

17+ Years

6. What is your current job status?

* สถานะลักษณะงาน ของท่าน

Full Time Employee (FTE)

พนักงานของ บริษัท องค์กรที่ทำงานเต็มเวลา

Regulator

ผู้ตรวจสอบกฎเกณฑ์

Civil servant

ข้าราชการ

Other (please specify) หน้าที่อื่นๆ

7. Are you familiar with the term of Change Management and how it relates change affecting your status?

ท่านคุ้นเคยกับความหมายการบริหารการเปลี่ยนแปลงและมีผลกระทบต่อสถานภาพของท่านอย่างไร

* ให้ตอบว่าใช่หรือไม่ใช่

และช่วยอธิบาย

Yes ผ่านหลักสูตรการบริหารการเปลี่ยนแปลง

No

อธิบาย.....

8. Which of these statements best applies to how change is managed in an organization?

ข้อความใดที่สามารถประยุกต์ใช้ได้ดีที่สุดในองค์กรของท่านได้ในการบริหารการเปลี่ยนแปลง CNS/ATM และทำการเปลี่ยนแปลงอย่างไรในองค์กร*

ANSP (Air Navigation service provider, such as air traffic service) exists in a state of rapid and continuous change

บาท, ที่เป็นอยู่มีการเปลี่ยนแปลงอย่างรวดเร็วและต่อเนื่อง

ANSP evolves through long periods of stability with short bursts of fundamental change

บาท, มีวิวัฒนาการเปลี่ยนแปลงพื้นฐานด้วยช่วงสั้นๆเป็นเวลานานในช่วงของการเปลี่ยนแปลงที่มั่นคง

Departments within ANSP deal with change incrementally and separately

ฝ่ายต่างๆภายใน บวท. จัดการเปลี่ยนแปลงแบบอัตราก้าวหน้า(มีการเปลี่ยนแปลงที่เพิ่มขึ้น) การเปลี่ยนแปลงและแยกจากกันในแต่ละส่วนขององค์กรในแต่ละระบบ คือ ระบบสื่อสาร เครื่องช่วยการเดินอากาศ และระบบการติดตามอากาศยาน

ANSP is constantly undergoing small changes
ANSP (บวท.)มีการเปลี่ยนแปลงเล็กน้อยอย่างคงที่

Other (please specify) ระบุถ้าเป็นอย่างอื่น

9. Please select how applicable each of these statements is in describing the management of change of CNS/ATM affecting your job role?

โปรดเลือกในแต่ละข้อความที่นำมาใช้อธิบายในการบริหารการเปลี่ยนแปลง CNS/ATM ที่กระทบบทบาทหน้าที่ของท่าน คือ

Strongly Agree =1 เห็นด้วยอย่างมาก

Agree = 2 เห็นด้วย

Neutral = 3 เป็นกลาง เฉยๆ

Disagree= 4 ไม่เห็นด้วย

Strongly disagree= 5 ไม่เห็นด้วยอย่างมาก

1. Change is expected without being linked to incentives *

การเปลี่ยนแปลงถูกคาดหวังโดยปราศจาก
เชิงเชื่อมโยงกับแรงจูงใจ

1 2 3 4 5

2. There are long periods of planning before the change is delivered *

มีระยะการวางแผนที่ยาวนานเป็นช่วงๆก่อน
การเปลี่ยนแปลง CNS/ATM

Strongly Agree =เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree= ไม่เห็นด้วย

Strongly disagree=ไม่เห็นด้วยอย่างมาก

3. Communication about the change is limited to only

those directly concerned with the project *

การสื่อสารเกี่ยวกับการเปลี่ยนแปลงถูกจำกัด

เฉพาะโดยตรงกับผู้ที่เกี่ยวข้องโครงการ

CNS/ATM

4. Those concerned with the outcome of the change project take part in planning

บุคคลที่เกี่ยวข้องกับผลลัพธ์ของการ

เปลี่ยนแปลงโครงการ CNS/ATM มี

บทบาทในการวางแผน

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความเห็น

5. Change projects create resistance which has to be broken *

โครงการการเปลี่ยนแปลงนี้ก่อให้เกิดการ

ต่อต้านและต้องจัดการต่อต้านนี้ออกไป

6. Involvement in the change project before implementation*

การเข้าไปเปลี่ยนไป

ใช้ระบบ CNS/ATM ก่อนการ

เปลี่ยนแปลงจริงจะเกิดขึ้น

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

7. Good ideas for change are hidden and used for personal agendas *

ความคิดที่ดีสำหรับการเปลี่ยนแปลงเป็นการ

ซ่อนเร้นและใช้เป็นวาระส่วนบุคคล

8.The process of implementation for the change is flexible and reactive *



ขบวนการของการนำไปใช้ในการเปลี่ยนแปลงเป็นลักษณะยืดหยุ่นและมีการตอบสนอง

Strongly Agree =เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง ใดๆ

Disagree= ไม่เห็นด้วย

Strongly disagree=ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความความคิดเห็น

9.Sometimes, project teams do not work in an orderly manner and are not consistent in regards to the change *



บางครั้งทีมนักโครงการไม่ได้ปฏิบัติตามลำดับและไม่คงที่ในการบริหารการเปลี่ยนแปลง

10.Training is inadequate leaving unanswered questions about the change *



การฝึกอบรมไม่เพียงพอไม่ตอบคำถามเกี่ยวกับการเปลี่ยนแปลงของระบบ

Strongly Agree =เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง ใดๆ

Disagree= ไม่เห็นด้วย

Strongly disagree=ไม่เห็นด้วยอย่างมาก

11.There are delays in the timescales that are set in the change project *



มีความล่าช้าในขอบเขตของเวลาที่กำหนดไว้ในโครงการ

12.There are logical reasons for change which are visible and the goals are transparent



*

มีเหตุผลซึ่งสมเหตุสมผลสำหรับการ
เปลี่ยนแปลงซึ่งเห็นชัดเจนและเป้าหมาย
โปร่งใส

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความคิดเห็น

13. Conflicts within the change are looked for and the leader tries to solve problems *

ปัญหาข้อขัดแย้งในการ

เปลี่ยนแปลงเป็นสิ่งที่ยอมรับและผู้นำ

พยายามจะทำการแก้ไข

14. Communications about the change are timely and relevant *

การสื่อสารเกี่ยวกับการเปลี่ยนแปลงเป็นไป

ตามเวลาและมีความสัมพันธ์กัน

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความคิดเห็น

15. The project leader for the change is known and project champions aid the planning and implementation

ผู้นำโครงการเป็นที่รู้จักและผู้ที่มีชื่อเสียงของ

โครงการส่วนในการวางแผนและการ

นำไปใช้งาน

16. The implementation of the change within your role is managed solely by the head of

Organization (ANSP)

การนำไปใช้งานของการเปลี่ยนแปลงภายใต้
บทบาทที่บริหารจัดการ โดยผู้นำสูงสุดของ
องค์กร

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความคิดเห็น

9. Which of these statements best describes the new technology of CNS/ATM project?

ข้อความใดที่ดีที่สุดที่อธิบายเทคโนโลยีใหม่*

1. The CNS/ATM project is managed within a set timeframe with clear objectives and methods that were communicated in advance, and managed in a controlled way
โครงการบริหารงานภายใต้กรอบเวลาที่มีวัตถุประสงค์และวิธีการที่ชัดเจน

2. The CNS/ATM is a dynamic project which changes in timescales. It has a focus on contingency which appreciates the complexity of issues
โครงการเป็นการเปลี่ยนแปลงที่ไม่หยุดนิ่งภายในกรอบเวลาและมุ่งเน้นไปที่แผนรองรับซึ่งเข้าใจถึงความซับซ้อนของเรื่อง

3. The CNS/ATM project is a combination of the above two statements but not necessarily in equal proportion
โครงการนี้เป็นโครงการรวมกันระหว่างข้อความทั้ง 2 ข้างบน แต่ไม่จำเป็นต้องมีสัดส่วนที่เท่ากัน

4. Other (please specify)

Strongly Agree = เห็นด้วยอย่างมาก

Agree = เห็นด้วย

Neutral = เป็นกลาง เฉยๆ

Disagree = ไม่เห็นด้วย

Strongly disagree = ไม่เห็นด้วยอย่างมาก

Prefer not to say = ไม่แสดงความคิดเห็น

10. Which of the statements below best applies to how you feel the CNS/ATM project is managed?

1. Communications about the implementation are not given in advance and not relevant *

การสื่อสารในการนำไปใช้งานไม่มีล่วงหน้าและไม่สัมพันธ์กัน



2. Each release begins with no anticipated planning *

แต่ละส่วนในการนำไปใช้งานไม่มีการวางแผนล่วงหน้า



3. Incentives are linked with the implementation to aid the process of change *

การจูงใจสัมพันธ์กับการนำไปใช้งานและช่วยขบวนการเปลี่ยนแปลง



4. Ideas are openly communicated and encouraged within the implementation

ความคิดเป็นการสื่อสารที่เปิดและให้กำลังใจในสถานการณ์เปลี่ยนแปลง



5. Leader has an unclear plan for implementation of the CNS/ATM

ผู้นำไม่มีแผนการที่ชัดเจนในการนำป้ใช้งานระบบ CNS/ATM



7. The strategy, system design and processes are determined completely outside of organization *

กลยุทธ์ การออกแบบระบบและขบวนการเปลี่ยนแปลงถูกกำหนดจากนอกองค์กรทั้งสิ้น



8. Training is frequently given with supporting materials creating confidence with the system and the processes *

การฝึกอบรมมีข้อมูลที่โครงการสนับสนุนการใช้



อุปกรณ์ วัสดุต่างๆ เพื่อการเพิ่มความเชื่อมั่นของ
ระบบและขบวนการ

9. There are predetermined
guidelines as to how the
system implementation is to be
managed and these are
followed



มีแนวทางปฏิบัติสำหรับแสดงว่าระบบการนำไป
จะนำการบริหารจัดการอย่างไรและปฏิบัติตาม
อย่างไร

10. Key implementation
personnel are chosen and put in
charge.



บุคคลที่สำคัญที่จะนำไปปฏิบัติได้รับการ
คัดเลือกและให้เป็นผู้รับผิดชอบ

11. The direction of the
implementation is influenced
by resistance *



ทิศทางของการนำระบบ CNS/ATM ไปใช้
งานถูกอิทธิพลของการต่อต้าน

12. Once the implementation
has taken place, user
involvement in the project
begins *



เมื่อการนำไปใช้งานถูกเกิดขึ้นการเริ่มต้นที่
เกี่ยวข้องกับผู้ใช้ถูกเริ่มต้นขึ้นเหมือนกัน

13. Implementation
communications are open and
readily available *



การสื่อสารของการนำไปใช้ใหม่แบบเปิดและมี
พร้อมใช้งาน

14. The reasons for change are unclear and there are different views of the goals of the implementation *

เหตุผลในการเปลี่ยนแปลงไม่ชัดเจนหลายมุมมองของเป้าหมายในการนำไปใช้งาน



15. Wide timescales for the implementation deliverables are set and goals are met *

ขอบเขตเวลาของงานสำหรับการนำไปใช้งานและสิ่งที่ต้องทำให้ขึ้นไปตามเป้าหมายที่ตั้งไว้



16. No have cooperation between regulator and ANSP for implementation of the CNS/ATM system *

ไม่มีการร่วมมือช่วยเหลือระหว่าง ขอ. และ ANSP(มาก)



11. Please rank these requirements about change to be CNS/ATM in order of importance to you, from 1 to 6.

โปรดจัดลำดับความต้องการเปลี่ยนแปลงไปสู่ระบบ CNS/ATM

(1 = most important; least important) *

ให้เรียงลำดับความสำคัญ ที่องค์กรจำเป็นต้องเปลี่ยนไปสู่ระบบ CNS/ATM

จาก ลำดับ 1-6

1. Appreciation of how the change will take place and be effectively communicated.

การเข้าใจการเปลี่ยนแปลงว่าจะเกิดขึ้นอย่างไรและสามารถสื่อสารในการอธิบายการเปลี่ยนแปลงที่เกิดขึ้นอย่างมีประสิทธิภาพ

2. Aware of who is finally responsible for the project

Being able to take ownership and influence details of the

Change. การรับรู้ว่าคุณคือใครเป็นผู้ซึ่งรับผิดชอบและเป็นผู้ที่เป็นเจ้าของโครงการและมี

อิทธิพลในรายละเอียดของการเปลี่ยนแปลง

3. Having assistance from the project leaders, project infrastructure, training specialist to create a supportive

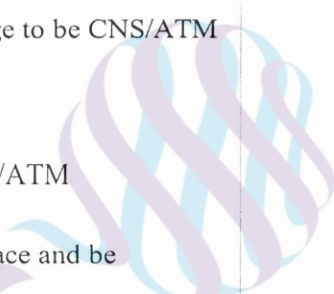
environment. มีความช่วยเหลือจากผู้นำโครงการ ต่างๆ ในส่วนของส่วนพื้นฐานที่จำเป็น

ในระบบ การฝึกอบรมที่มีความสามารถในระบบที่เปลี่ยนแปลง

4. Conscious that key individuals are involved in the project

Feeling that everyone is focused on the same goals and objectives.

การตระหนักแต่ละบุคคลที่สำคัญที่ถูกเกี่ยวข้องกับโครงการ CNS/ATM และรู้สึกว่าการ



คนมุ่งไปที่เป้าหมายและวัตถุประสงค์เดียวกัน

5. Understanding why change is happening and why it is necessary.

ความเข้าใจการเปลี่ยนแปลงที่กำลังเกิดขึ้นและเข้าใจว่าทำไมถึงมีความจำเป็นต้องเปลี่ยนไประบบใหม่

6. Recognise the project is being implemented by people with the necessary core skills in a clearly defined and tracked manner

การรับรู้ว่าโครงการ CNS/ATM ที่กำลังนำมาใช้งาน โดยบุคคลที่มีความชำนาญเป็นหลัก ที่จำเป็นที่กำหนดอย่างชัดเจนและสามารถหาข้อมูลในส่วนของของระบบใหม่ได้

Rank values must be between 1 and 6

12. Please describe if the Change Management techniques used at your organisation during the CNS/ ATM implementation influenced your adoption of the system

โปรดอธิบายถ้าเทคนิคการบริหารการเปลี่ยนแปลงถูกใช้ที่องค์กรของท่านขณะที่นำระบบ CNS/ ATM มาใช้งานมีอิทธิพลของการยอมรับของระบบ

การสร้างความสัมพันธ์กับ ระบบ/ระเบียบปฏิบัติ/อุปกรณ์ ใหม่ ๆ จนเป็นที่ยอมรับของผู้ปฏิบัติ



13. Please describe any difficulties excluding system performance or operation that affected your adoption of the CNS/ATM system

Appendix 1D: Empirical background of Aeronautical Radio of Thailand Ltd.
(AEROTHAI)



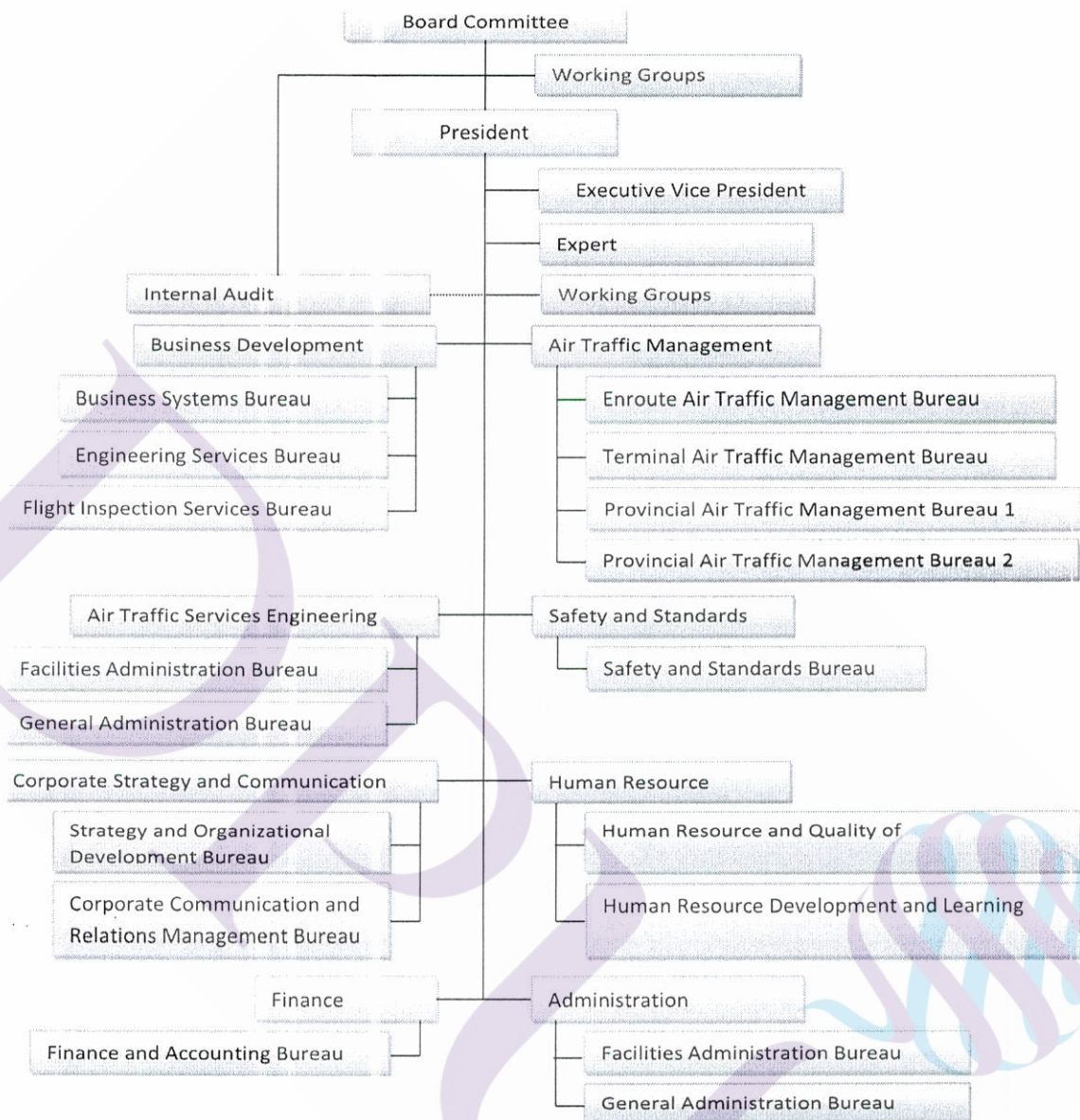
Empirical background of Aeronautical Radio of Thailand Ltd. (AEROTHAI)

After the First World War, The Post and Telegraph Department was appointed by the Royal Thai Government to provide air traffic control and aeronautical communication services.

After the end of the Second World War, commercial and civil aviation operations resumed. In 1948, Aeronautical Radio Inc. (ARINC) of the United States of America, International Aeradio Ltd. (IAL) of the United Kingdom and various airlines operators together formed the Aeronautical Radio of Siam Ltd. (AEROSIAM). Recognizing the importance of AEROSIAM's operations to national security and the development of the aviation industry, the Royal Thai Government acquired the entire share capital of the company on November 6, 1963 and changed its name to Aeronautical Radio of Thailand Ltd. (AEROTHAI). Later, the airlines that operated in and out of the Kingdom were allowed to become minor shareholders.

AEROTHAI provides Air Traffic Control Services in accordance with international standards and regulations as well as providing Flight Information Services and Alerting Services to ensure safe, convenient and expeditious air travel. Additionally another role is to coordinate search and rescue operations. It provides Air Traffic Services to both civilian and military flights using Radar System and Automatic Dependent Surveillance System, or ADS-B. Both systems can provide aircraft information such as call sign, position, heading and altitude as well as other information necessary for effective Air Traffic Control Operations. AEROTHAI is the air navigation service provider in Thailand (Department of Aviation, 2010).

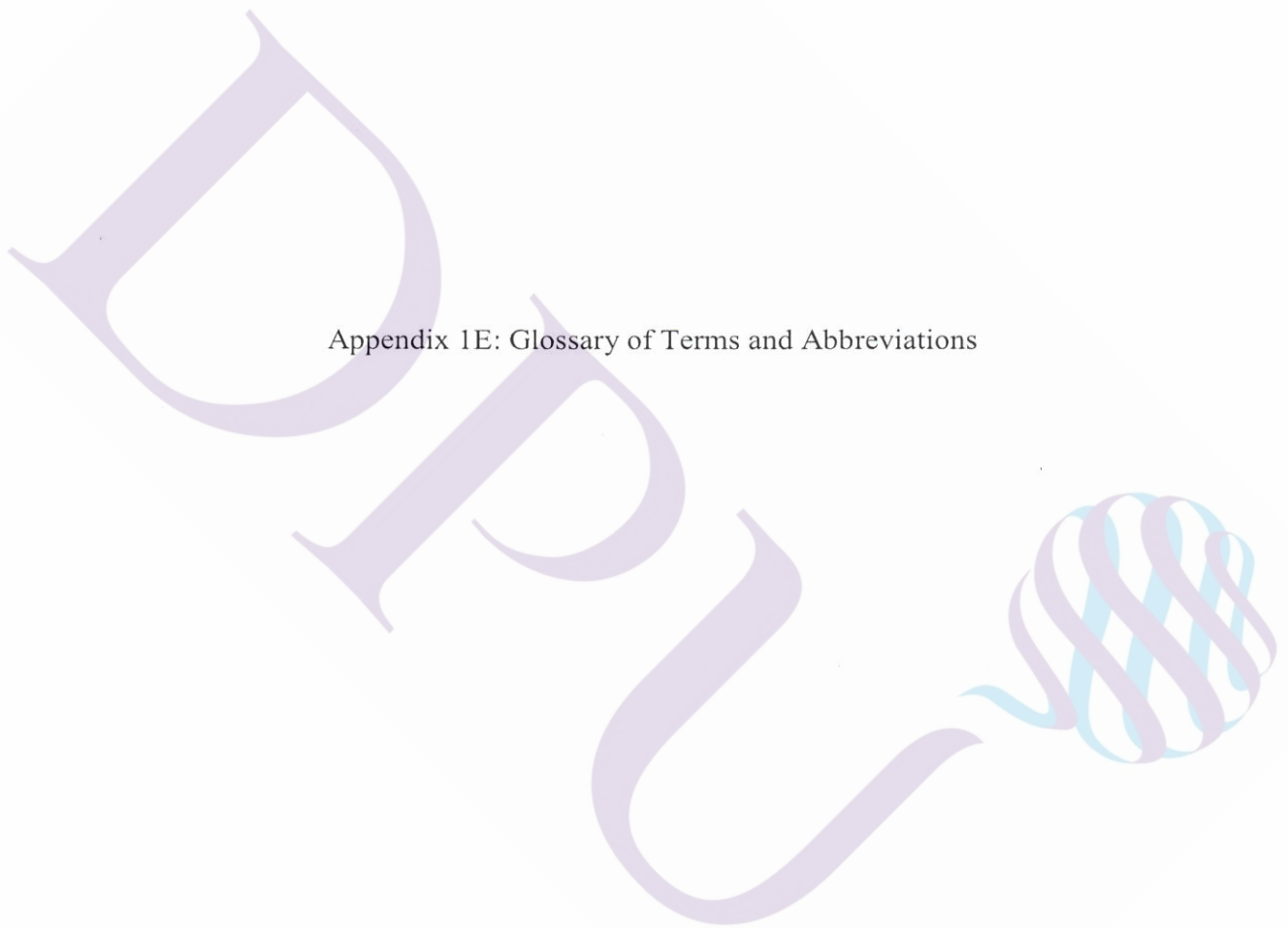
AROTHAI'S STRUCTURE



Source: www.aerothai.co.th (2010). Structure of Organization, Retrieved 16th

April 2010.

Appendix 1E: Glossary of Terms and Abbreviations



GLOSSARY OF TERMS AND ABBREVIATIONS

Air navigation services. This term includes air traffic management (ATM), communications, navigation and surveillance systems (CNS), meteorological services for air navigation (MET), search and rescue (SAR) and aeronautical information services (AIS). These services are provided to air traffic during all phases of operations (approach, aerodrome and en route).

Air navigation services provider. An independent entity established for the purpose of operating and managing air navigation services, and empowered to manage and use the revenues it generates to cover its costs. In this manual, the terms provider, entity and organization are used interchangeably.

Air traffic control (ATC) service. A service provided for the purpose of:

a) preventing collisions:

1) between aircraft; and

2) on the manoeuvring area between aircraft and obstructions; and

b) expediting and maintaining an orderly flow of air traffic.

Air traffic management (ATM). The aggregation of the airborne functions and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations.

Air traffic service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Alerting service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

The glossaries used in this thesis with their expansions are given in the following list;

- AEROTHAI	Aeronautical Radio of Thailand
- ANSP	Air Navigation Service Provider
- ANSPs	Air Navigation Service Providers
- ATC	Air Traffic Control
- ATM	Air Traffic Management
- ATS	Air traffic Services
- CNS/ATM	Communication Navigation Surveillance/Air Traffic Management
- IATA	International Air Transport Association
- ICAO	International Civil Aviation Organization
- PBN	Performance Based Navigation
- RCP	Required Communication Performance
- RNAV	Area Navigation
- RNP	Required Navigation Performance
- STAR	Standard Instrument Arrival
- SID	Standard Instrument Departure
- TE	Transformational Leader
- TL	Transformational Leadership
- VOR	VHF-Omni-directional Radio-range

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หน้าประวัติผู้แต่ง