

THE STUDY OF KEY FACTORS RESISTANCE TO CHANGE WHEN ADOPTION OF
NEW TECHNOLOGIES IN THE COMPANIES



THE STUDY OF KEY FACTORS RESISTANCE TO CHANGE WHEN ADOPTION OF
NEW TECHNOLOGIES IN THE COMPANIES

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This Independent Study Manuscript Presented to
The Graduate School of Bangkok University

In Partial Fulfilment

Of the Requirements for the Degree

Master of Business Administration

2015



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**This Independent Study has been approved by
the Graduate School
Bangkok University**

Title: THE STUDY OF KEY FACTORS RESISTANCE TO CHANGE WHEN
ADOPTION OF NEW TECHNOLOGIES IN THE COMPANIES

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April 9, 2015

Sing, K.M.B.A., April 2015, Graduate School, Bangkok University

The Study of Key Factors Resistance to change when Adoption of New Technologies in the Companies (86 pp.)

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ABSTRACT

This research conclude that globalization, restructuring and new technology developments in each and every sector has bought tremendous changes in all aspects of business and human lifestyles. One of the major changes that took place in business is change technology. Technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management. Change in technology has been identified to have both positive and negative effects on employees work performance and attitude. Thus this research identify the factors that may point to employees' resistance to technological change within public companies. Major reasons for resistance to technological change from management perspective were found to be fear of overload, loss of power, increasing work load and from employee perspective need to learn and re-learn, lack of appropriate reward policies. There is a need to do research as to what extent employees and management are able to cope with new systems and conduct regular surveys and to collect opinions from employees to know what they need in order to cope with the new technology. Further it is essential for employees and managers to make them selves comfortable in accepting change with the help of training and other knowledgeable sources.

ACKNOWLEDGMENT

I would like to thank Dr. Sumas for his kindness and support he has shown in the past year in order to finalize my independence study. Furthermore I would like to thank my parents and my husband for their encouragement, support and love throughout the process. And last not the least Mr. Jack, for his generosity and guidance throughout the year.

I would like to convey my deepest appreciation to all those who provided me to complete this report. Especially to my supervisor Dr. Sumas, who helped with his contribution and continuous encouragement, coordinated and help me write the report and complete it.

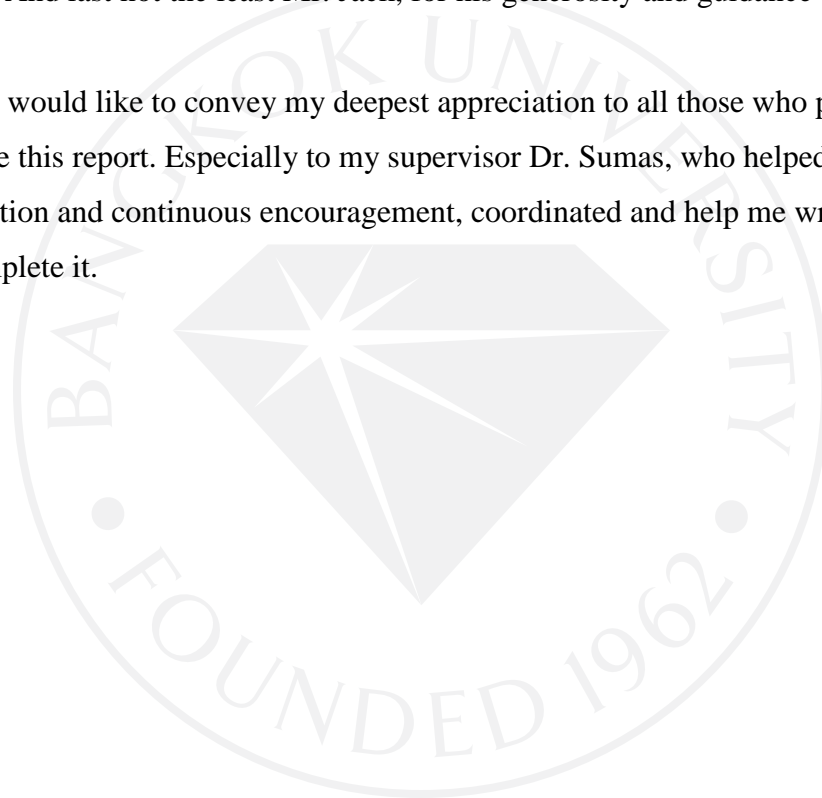


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CHAPTER 1

INTRODUCTION

1. Introduction

Introduction of innovation technological in our society on a personal level is absorbed readily although able to change the nature of people personal relationships and personality working culture is undergoing changes globally. The need for transformational “leadership” in the public sector is made most evident by the pressures for change felt by today’s public managers. These change-related pressures come from many sources: an aging public sector workforce, resource constraints, globalization, technological breakthroughs, increasingly complex public problems, and new horizontal and vertical relationships with non-profit and private sector organizations. In many cases, these demands for change conflict with one another and constantly compete for the public manager’s time and resources. Furthermore, in both the public and private sectors, inescapable demographic facts are raising questions about how organizations will meet their talent needs in the years to come. The first step is “Leadership Next” where organizations’ have to gather a group of the finest leaders, which has become a challenge for businesses. New directions in government, born of economic disruption and a change of administration, require the public sector to assume new roles and responsibilities even as a talent and employment crisis looms. Moreover, technological innovation continues to impact on the public sector workplace as much as it does in the private sector. A new imperative to address the unique needs and aspirations of the individual is gradually gaining recognition in workplaces of all kinds. These workforce trends are even now presenting the public sector with a broad range of significant employment challenges which will increase with time. In the face of remarkable changes, the public sector must find new ways of managing its workforce to enhance skills, capabilities, productivity and high performance.

“Change” has become common and pervasive in most organizations but is often resisted by employees resulting in conflicts and reduced organizational performance. Coetsee (1999, pp.205) stated "any management's ability to achieve maximum benefits from change depends in part on how effectively they create and maintain a climate that minimizes resistant behavior and encourages acceptance and support".

According to Zander (1950), resistance to change is defined as "behavior which is intended to protect an individual from the effects of real or imagined change" (cited in Dent and Goldberg, 1999, p. 34). According to Folger and Skarlicki (1999, pp.36) resistance has been defined as "employee behavior that seeks to challenge, disrupt, or invert prevailing assumptions, discourses, and power relations”.

This study focuses on key factors which resistance to change when adoption of new technologies in the companies.

Research questions:

- What are the factors that lead to resistance to technological change in the public sector organization?
- How can opportunities for improvement be identified and measured in order to overcome resistance to change brought about by new technology implementations?

Purpose:

Employee resistance is one of the main reasons due to, which most change management projects fail. This is particularly a relevant consideration when it comes to techno-structural change. The purpose of this research is to identify the factors to assess employees' resistance to technological change within public companies and to identify the factors that lead to technological resistance. This investigation involves the analysis of some aspects of technological change and the attitudes of employees towards this change i.e., the degree of resistance to this change. This research will help the management, organizations as well as researchers to understand the major reasons for technology change resistance on how it shows an impact on employee's performance and management.

Scope of the Study:

In this research, to study technology adoption within the public sector companies, highlighting the employee's resistance to change, primarily addressing the major problems in the sector that result from the resistance to technological change. Due to the fast pace of technology change characterizing the current business environment, businesses have to build a sustainable competitive advantage. This study can only be met through creating an organizational culture, which encourages innovative thinking on the part of the employees that helps in minimizing employee's resistance to new technologies. Employee resistance is one of the main reasons due to, which most change management projects fail. This is particularly a relevant consideration when it comes to techno-structural change. There are many factors that can create resistance to change. This research will provide a better understanding of the resistance to technology change and employee performance in the companies which should be of benefit to other researchers in this field also.

CHAPTER 2:

LITERATURE REVIEW

2. Introduction

This chapter provides a literature review of research that has studied change, resistance to change and job performance. The literature review chapter is divided into seven different sections to let the readers clearly understand the concepts and ideas provided. The first section of the literature review provides a clear understanding of the research in the field of concepts, types and reasons for change. This section starts defining change and its concepts, the types of change and the major reasons for change. Section two discusses the various aspects of technology change and types of resistance to change. In this section the literature review focuses on various aspects of the reasons for change such as corporate evolution, globalization, technology development and privatization. Furthermore it looks at the literature which discusses the different levels of resistance to change. Section three discusses various aspects of the resistance to change. Section four discusses reasons for the resistance to change. Section five discusses the various factors that affect resistance to technological changes. This section looks at what the literature shows on the various factors that lead to employee resistance to technology change in relation to human factors (behavior, demographic, psychological, social and cultural aspects) management factors (which includes the high cost of change) and other factors such as efforts to learn new technology, fear of loss of power and fear of overload. All these factors give a clear understanding of the thesis and the background to the impact of technology change on employee and the reasons for resistance to technology change in organizations. Section six discusses employee job performance and resistance to change and includes a discussion of the strategies used to overcome resistance to change. Finally, section seven discusses the indicators of job performance effectiveness.

2.1 Concept, Types and Reasons for Change

First of all, what is change? De Jager (cited by Egan and Fjernerstad, 2005) explained change through the following terms “it occurs whenever we replace the old with the new. It is about travelling from the old to the new, leaving yesterday behind in exchange for a new tomorrow.”

According to Honey (1988), change is like most other things in life that tends to occur slowly and in an unsymmetrical way that leads to change in attitude, way of thinking and is often considered as a reaction to pressure that can no longer be positioned. It is the same with both individuals and organizations. A number of researchers have stressed the importance of change in organizations (Honey, 1988; Manuela and Clara , 2003; Price and Chahal, 2005; Stjernholm and John, 2005). New technologies and rising customer demands increase the pressure to make changes. Change helps organizations to navigate successfully and facilitate growth. Change champions must help resolve objections to change and encourage alignment (Stjernholm and John, 2005). Change is, therefore, one of those processes that benefit from some careful thoughts and deliberate planning (Honey, 1988). Thus, change can be seen as an important element for development and success that requires careful and well thought planning in order to bring about positive outcomes and a smooth progress to advancement.

Manuela and Clara (2003) suggest that the main aim of organizational change is adaptation to the environment or to improve organizational performance. They described two different types of changes in an organization.

Patrick (2002) discussed the importance of change and the problems it brings. His study raises some very important issues, among which are: the meaning of change, the objectives of change, and the way to deal with change including the suggestion that organizations must have a sound change management policy. The main aim of organizational change is adaptation to environmental changes or improvement in

performance (Manuela and Clara, 2003, p.148). In terms of scope, organizational change can be differentiated as developmental change (improvement of existing situation), transitional change (implementation of known new situation for a controlled period of time) and transformational change (emergence of a new state which is not known until it is implemented) (Lles and Sutherland, 2001; Alas and Sharifi, 2002, p.315).

Turner and Craford (2002) also discussed the phenomenon of change and pointed out the need and importance of change for an institution. They emphasized the need to convince employees who resist change of its positive benefits in order to avoid the consequent effects of resistance which include decreased productivity, decreased performance, product and services' quality. This study is very important because it highlights the importance of employee acceptance to adapt to new operations through training sessions and colloquiums and by motivating employees in order to increase performance, production and quality within an organization. At the governmental level, there are a number of reasons for supporting technological change which include: minimizing costs (e.g., by reducing the need to hire support personnel), improving efficiency, exerting control, and supporting new services (Price and Chahal, 2006). Administrators of change know that change can improve the business but usually they are not the ones which are affected by the change. Thus, there is a need to convince the ones which are affected by the change to make things work. There can be many reasons for resistance to change, such as uncertainty about job security and fear of the unknown.

Innovation comes from changes in technology and technology change has become an increasingly important topic over past 20 years due to the fact that innovation is vital and of significance for the survival of any organization, whether it is a public sector firm that needs to improve their services to public and attract attention or a private sector firm that needs to increase their market share. Innovation matters because change is required

constantly. It was mentioned by many researchers that companies in any industry look at innovative strategies and strive hard to get success because innovation is imperative and it is necessary to either innovate or move out of the competition, that firms have to decide before taking challenges of innovation (Eveleens, 2010). It is true that change happens slowly but such change brings vast changes in various aspects for both individuals and organizations. In lieu of organization, change is important as it brings improvements in business in terms of profits and performance. Initially business may face resistance to change but slowly it will get adopted by the changes that take place in businesses and employees will change their attitude towards the new change processes.

2.2 Technology Change and Types of Resistance to Change

The term technology change refers to overall process of invention, innovation and diffusion of technology or processes (Jaffee et al., 2002). According to Mark, (1987), introduction of new technology has become vital in all sectors so as to reduce cost and compete with the national and internal markets. Johnstone and Michel (2008) are of the view that technology change is a most important initiator that allows people to do innovative things that have not been done before or would have done in a less efficient manner. Another group of analysts (Taylor and Hascic, Johnstone and Michel, 2008) expressed the view that technological changes are helpful for all walks of society and asserted that these changes are more evolutionary than revolutionary in nature, thus creating more job opportunities than the opportunities that they eliminate. Mark, (1987) suggested that the pace of technological change is accelerating and both white and blue collar workers are affected (often under the term of labour saving innovations). In addition, Mark, (1987) pointed out that techniques for maintaining job security will still be required. According to Peter (2011) adopting new technologies with new strategies and approaches enable a business to produce effective outcomes. The outcomes of businesses depend much on the rate of implemented technology change; this rate of

change can have differing impacts on the organization in terms of production and performance.

In view of Yuan, Yongbin and Liu (2005), technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. It is said that technology change can improve a firm's competitive advantage and increases the overall performance of organizations. Information system (IS) researchers (Jiang et al., 2000) have considered technology change as an irrational process and understanding and effectively managing resistance are, therefore, important determinants of the success of system. Jiang et al. (2000) further are of the view that resistance to change should be expected.

- When change is undertaken without involving employee
- Situations where change includes many interpretations
- When employees feel strong forces deterring them from the change
- When great pressure is placed on employees to make the change(s) instead of clearly directing them to adapt steadily to the change, and finally
- When change is made on personal grounds as opposed to the benefit of the organization (Dent and Goldberg, 1999, p. 33).

Thus, given the viewpoint, researchers (Metha, 2006; Kailash and Thomas, 1998) have called for further research to better understand the complex issues surrounding technology change and new technology implementation. Kailash and Thomas (1998), are of the opinion that adopting new technology is a challenging task for organizations as it alters job design and the role and responsibilities of employees and can lead to negative consequences for employees. Metha (2006) is of the opinion that

technological change can also lead to changes in job satisfaction, stress, working conditions, productivity and operational efficiency. However, these fears can be mitigated by public sector management by imparting training to their employees in different phases and at different levels. In the view of Metha (2006) IT should be evaluated with respect to ten major factors that influence technology change. These factors include scalability, extensibility, reliability, adaptability, flexibility, maintainability, performance, simplicity, backward compatibility, and features or usability.

Thus Peter (2011) suggested that sometimes the idea of resistance to change can be a good one as technology innovation or change has an important influence on organizational performance. However, technology change can be an initiator that allows people to do innovative things. It is also important to see that resistance to change should be expected when the change is undertaken without involving employees.

2.3 Factors Driving Technological Changes

A question arises, “is there any resistance to a change to new technology and to new approaches of doing business”? As per the Management of Change, Wargin and Dobbie (2001) discussed three reasons why people resist change with respect to technological changes. Firstly, people resist change because they do not have the required skills to use, or gain the benefits from, the new technology. Secondly, traditional companies and industries’ employees do not understand the application of new technology and how such business is undertaken, processed and executed. And, finally, new technology changes organizational structure as top and middle level management inclined to redefine business models.

According to Prosci (2002), resistance to change is a natural reaction and the integration of new technology causes concern for many employees. Much research has been carried out on change management and on the factors which influence change management. According to Gray (2006), there are many factors which drive technological changes and these come from different factors which mostly include corporate evolution, globalization, privatization and technological developments. In his study he suggested that there is a need for change management when implementing new technological solutions and that management should discuss with the employees the issues encountered during this type of change.

2.4 Corporate Evolution

The overriding goal of the "cultural evolution" is to create an ambidextrous organization that is inventive and able to respond to the changing demands of the marketplace. (Smith, 2001, p.23) Smith (2001), in his study, discussed the influence of corporate change on employee resistance to change. He stated that the most important and common feedback from employees concerning the process of implementation of a new corporate culture is of a sense of a development imposed on them without thinking about the impact of this

change on the particular work environment. Smith (2001) also stated that the end result of such an environment may mean that the organization receives compliance from the employees to whatever they have instigated but not their full commitment. Organizations need to bring in the changes they need in order to adapt to global restructuring but, at the same time, they need to keep the level of commitment and motivation among the employees the same. In order to do this, management should understand how major strategy shifts bring in changes in the cultural norms in which the employees operate (Mullins and Brenda, 2001). According to Wargin and Dobiey (2001), a prompt change to technology-driven solutions means that employees must be able to multi-task and this

brings change process development into a fitting corporate culture which, in turn, assists the organization to achieving its strategic goals. This is well said by these researchers as without multi-tasking there will be a negative cultural shift in the organization and this leads to an unhealthy environment. Mullins and Brenda (2001) also believe that developing smart and healthy strategies in an organization leads to higher morale and to greater productivity.

According to Oliver (2000) the implementation of corporate evolution culture is a logical process. This should be undertaken by top level management and should be supported by all the members of the organization. Organizations should be made a party to the strategy/strategies being implemented so that it/they can reach grassroots level. It is true that successful corporate transformation requires great effort and clarity from the top management in an organization. Furthermore, Oliver (2000) stated that a unified executive group who share a common vision of change priorities and change technology stands as a strong competitor. Therefore, if all the sections of the process are followed, a determined strategic and corporate culture change is achieved. If any one of the part is left out or ignored, the productiveness of the organization decreases and thus the organization fails to achieve the goals and objectives of the change which, in turn, creates a negative impact on the corporate culture.

In the new corporate culture there are big changes that are making it easier to challenge. Because of the increasing need for more innovative products, companies have moved from their traditional way of research and development and have built up new strategies during the development process (Ciarli, Paul and Chris, 2009) According to Brynjolfsson (2009), one of the important factors in corporate technology is challenging conventional wisdom which results in easier, cheaper and immeasurably faster products.

When such a change is observed, companies' corporate culture changes and employees start to participate in change with an active encouraging speed.

According to Malecki (2009), one of the factors that drive change in an organization is corporate evolution. This occurs due to market implications that force organizations to change their policies with regard to culture, values and approaches. The growth in competition in the markets in which a company is operating and financial providers brings about corporate changes. All the factors mentioned are in response to innovation, consumer needs etc.

2.5 Globalization

In today's business world, companies need to undergo change constantly if they want to remain competitive. One factor which rapidly affects emerging technology is globalization which forces organizations to respond quickly in order to withstand and survive in the market (Peters and Watermann, 2004). According to Thomas, Bateman and Carl (1990), nowadays businesses are influenced highly by changes coming from a large number of sources which may come from inside the organization (a kind of pressure that comes from top or bottom level employees who bring about a force for change) or from outside pressure (which affects the company in terms of revenues, market share, reputation etc. and which comes from legal, technological and economic environments).

Resistance to change can be foreseeable and employees tend to see the changes in the organization in global context. In globalizing a business, management must take care of employees by motivating them and making them understand the importance of change and its benefits in the organization. Job security and new opportunities for promotion are

the greatest fears in the minds of employees which need to be addressed. In such a scenario the company chairman's message should be that human resources are our greatest assets and, with technology development, the aim is to reduce costs, increase profitability and enhance productivity. During this process management has to take the initiative in communicating with the employees directly (Peters and Watermann, 2004). According to Gray (2005), many companies who have plans for globalization keep changes secret from their employees and due to this they create problems in the workforce. It is important for organizations to take steps in order to avoid such situations. Organizations should be more specific on the in-coming changes and explain their benefits to the employees, for example, that such changes will provide better career opportunities and enhance pay and bonuses.

According to Higgs and Rowland (2000), leaders must not only inspire confidence among employees but also must inspire and motivate the employees to put trust in them regarding changes due to globalization. Leaders must show their employees that there will be better future business prospects because of the business going global. So, leaders can discuss with their employees the opportunities of business development, expected outcomes and motivate them to update to the new technology as this can help employees to avoid resistance to change.

Rewarding employees for their work sends positive signals to other co-employees that they will also be recognized and rewarded for efforts made in reaching company milestones and goals (Malecki, 2009). Management, therefore, needs to reward employees and this should enhance enthusiasm, motivation and encourage a friendly environment within the company and assist the organization towards going global.

Many economies in the world have become globally independent and companies nowadays are competing directly against foreign competitors. To be competitive with foreign companies, domestic firms are continuously improving technology. Such changes bring many benefits like decreasing operating costs, attracting more customers, increasing lending opportunities, enhancement of creditworthiness etc. Technological improvements, alongside competition with global markets, are increasing extensively in all sectors and are creating opportunities in foreign markets which, in turn, can provide off-shore growth for companies' future success (Malecki, 2009).

2.6 Technological Development

Nowadays technology is changing fast and it is very difficult to keep track and to stay constantly aware of new technological developments. Technology changes continuously and all the time there will be continuous improvements in the abilities of companies to do things faster, better and cheaper (Chapman, 2002). It is a must for companies to adopt and implement technological developments in this competitive world (Chapman, 2002). According to Beer and Nohria (2000), change is happening faster than most of employees care to think about change or its importance. Most of the employees do not want change as they assume the premise that change will always have a negative impact. The main reasons for this resistance to change are fear of failure, fear of being made redundant and fear about an uncertain future (Beer and Nohria, 2000).

When the company introduces new technology and this new change is viewed as a positive one by the employees it enhances the overall development of the company. Once employees understand more about change and its potential impact this brings success to the organization. Most resistance will occur when change is seen as negative as many employees think that change increases work pressure by adding unwanted work, responsibility and accountability (Chapman, 2002). Furthermore, Chapman (2002) stated

that most employees oppose new technologies because they feel that change will not solve all the problems in one particular period of time. The question arises as to “how to deal with resistance to change with regard to technological development?” Many researchers have given suggestions on this. For example, according to Oliver (2000), organizations must involve employees in making the changes as this causes the employees to understand the need for change. Furthermore, Oliver (2000) said that employees’ resistance is not only towards technological change but also towards social change, as this develops a positive relationship among employees which in turn affects change. Oliver also suggested that management can take steps and encourage employees to think in different ways, that management can look at positive ways of overcoming resistance and can serve as positive influences in directing and timing technological changes.

According to Shane (2009), technology development can be seen in every sector and organization. Both quantitative and qualitative approaches are used for the development of organization; for example, database assessment tools for evaluating the performance of an employee is a technology-based development in HR. Technology development is new generation, which can facilitate the entire system of an organization in collaboration with organizational changes. Currently organizations who adopt technology have extended their level of communication beyond normal correspondence and have facilitated online collaboration, community building and share best practices globally in terms of collaborative learning (Young, 2009).

There are factors in technological change that affect business positively and negatively. Positive results are shown when everyone in the company accepts change and focus on the development of the organization. The decisions taken with regard to technology change shape the markets in economy as a whole. Technology development

has many features that develop technical standards, improve accessibility and also increase communication capacity. The availability of new machinery, techniques and strategies allows a company to compete with others globally and to enhance their market share in global markets. Technology development brings multiple resources. To a company and stabilizes costs (Suebsin and Gerd Sri, 2009).

2.7 Privatization

In terms of organizations, employees tend to resist change due to privatization and this can be a dominant factor which affects employee resistance. According to Buchanan and Huczynski (2004), one of most powerful forces driving change in the roles and relationships in a structured organization is privatization. In addition, Buchanan and Huczynski stated that public service employees have wide social networks, a higher quality of working life and feel that their employment is safe and secure. Once an organization is privatized employees feel insecure about their jobs. In other words Buchanan and Huczynski (2004) argues that privatization invokes sense of job insecurity and this is mainly because of new changes either in management or introduction of new technology or need to learn new concepts and procedures (that take place after privatization) which employees do not intend and they resist change. Organizations, in order to avoid resistance, recognize that there is a need to reconcile the goals of structural and systematic changes in order to introduce greater job flexibility and enhance employment security as well as assisting in decentralized decision-making (Goodstein and Burke, 1991).

Abeyasinghe and Paul (2005) stated that private organizations can easily adopt technological changes within the company and can hire employees with the required skills needed for these changes, whereas for public sector organizations adopting and implementing new technology is not that easy and employees will not necessarily have

the required skills; this can cause them to feel insecure about their jobs and dissatisfied with their work and thus resist change. In this regard, public sector organizations work hard to avoid the consequences that may come due to technological change. Organizations are focusing on the long term implications of the concentration of wealth and power and on the increasing domination of public service provision by translational corporations. Paul (2005) stated that increasing opportunities for employees by motivating them and involving them in all aspects of change that the company necessitate in order to gain its future goals can have a positive impact on their perception of the organization and on its goals and objectives.

According to Bhardwaj (2003), the consequences of privatization that impact on employee relations, pay and other terms and conditions vary greatly. There are a consistent set of factors which affect the impact of privatization on employee resistance which include the time of privatization, employee relationships with management, attitude towards the organization, technological changes, etc. All these factors influence the outcomes of the employees in terms of productivity, scope for expansion and other variables specific to the organization.

According to Mullins (1999), technological changes will have an impact on an individual level particularly when an organization decides to privatize for the sake of improving performance in order to overcome fierce competition. This brings many changes in an organization such as organizational structure, corporate culture, mission statement, and so on. Furthermore, Mullins stated that, in order to support these changes,

Organizations should bring in new training programmes to help the employees as well as the managers to understand the nature of change and why the company is following this path and what its future goals will be. The company has to stabilize changes by establishing systems that can create new different behavioral patterns in the organization. For example, a new performance appraisal system based on behavior and results can be created to emphasize customer service and subordinate development. Currently organizations are undergoing tremendous changes for various reasons. So it is vital to identify the factors that drive resistance to change. For this, there needs to be an understanding of the present external and internal scenarios to know why people resist change particularly with respect to technological change. There are various matters, as discussed above, that can help organizations to identify issues and make decisions on how to deal with the type of factors that affect their organization.

2.8 Types of Resistance to Change

“Active” resistance, “passive” resistance and “aggressive” resistance are the different ways through which resistance to change is exhibited (Goldberg et al., 1999). There are three levels of resistance to change. These types can be broken down into three groups: organization-level resistance, group-level resistance and individual-level resistance. Understanding these different types of resistance can help in understanding the ways to reduce resistance and to encourage compliance with change.

- **Organizational Level resistance** – This includes resistance to change due to organizational culture, power and conflict, structure and differences in functional orientations.
- **Group Level resistance** - This includes resistance to change due to group thinking, group cohesiveness, escalation of commitment and also group norms (Mike, Paul and Rodger, 2006).
- **Individual Level resistance** (Goldberg et al., 1999) - This includes resistance to

change due to selective perception and retention, uncertainty and insecurity and employee habits.

Employees resist change due to their low tolerance levels whereby they are not able to develop the new skills and new behavior that are required for the new circumstances resulting from the introduced change (Mike, Paul and Rodger, 2006). This resistance also arises because of employees' fear of learning new skills and fear or inability to adapt. Resistance is said to depend on the treatment that employees receive during the change process (Folger and Skarlicki, 1995) and on the relationship between employees and the organization (Strebel, 1996). Sometimes change may include psychological dynamics known as "competing commitment" where change is not challenged but is resisted or not implemented due to certain issues which the employees face (Kegan and Lahey, 2001).

Finally, when looking at technological resistance to change, it is the changes in technology and the perceptions of managers and employees with regard to all types of change as well as that play a significant role (Pham, 2011)

2.9 Resistance to change

Resistance is defined as behavior intended to prevent the implementation or use of a new system or to prevent the system designers from achieving their objectives (Goldberg et al., 1999; Egan and Fjermestad, 2005). According to Manuela and Clara (2003), resistance is a phenomenon which affects the change process by delaying its beginning or hindering its implementation which, in turn, increases cost. Resistance is also defined as a conduct which tries to keep the status quo and to avoid change.

People are reluctant to change. In every organization, people resist change. It is a human characteristic to resist change as "... the natural human response to change is

resistance. People become attached to familiar ways of doing things, even ways they initially regarded as cumbersome, costly, or ineffective (cited by Egan and Fjermestad, 2005)". Resistance usually comes from the transfer of previous experience. In other words, if something new such as technology comes into people's lives, it is natural for them not to want to use it; they want to do things like they did before.

According to Honey (1988), attempts to introduce change in organizations usually run into some form of resistance. Furthermore, Honey stated that resistance to change has become a common pervasive in most organizations when organizations implement change. Even though many managers are aware of this fact, only a few take time before organizational change is implemented to assess who might resist change and find reasons for it. Thus it is very important for managers to assess the different reasons for resistance and find out who might resist change in organizations.

Resistance to change is an important factor to consider in any change process and appears to be more influential in strategic changes as opposed to evolutionary changes (Manuela and Clara, 2003). "No matter how carefully and slowly the idea of change was introduced, the immediate reaction? From the lower supervisors and operators was to resist it and this was like a conditioned reflex". People do not resist change; they resist being changed. Sometimes people simply question what the change means to them. It is suggested that familiar ways of doing things provides cognitive comfort compared with the uncertainty of change (Alas and Sharifi, 2002, p.316).

Manuela and Clara (2003) concluded that, the more transformational and radical the change is, the higher the resistance to such change will be. It has been suggested that sources of resistance to change are linked to strong cultures which stress loyalty and cohesion as key values while at the same time limiting innovation and creative

capabilities (Manuela and Clara, 2003, p.153). In addition, Manuela and Clara have suggested that the significance and importance ranking of sources of resistance to change is almost the same for both revolutionary and normal changes.

According to Manuela and Clara (2003, p.148), stress is considered as one of the reasons for the failure of many change initiatives. Cost and delayed processes are introduced through resistance to change; these are difficult to anticipate but have to be taken into consideration. The fear of extra investment will be taken care of by additional investments or by raising borrowing subject to the condition that earnings will increase several times over as compared to the capital expenses earned. Resistance can be considered as a source of information that is useful in learning how to develop more successful change processes. Resistance to change must be considered as a key aspect by management and should be seriously considered as a way to help an organization achieve transformation advantages. Moreover, analyzing the main sources of resistance to change and their relationship with the types of change is also important. In today's world many managers in organizations complain that their employees resist change. Resistance to change is not just a matter of gaining consensus to start a change; the best way to avoid resistance is to assure employees by supporting them and motivating them, involving them and explaining clearly why the change is taking place and what the benefits are that they are going to receive. By doing this employees have a clear vision and a sense of direction of the job that has to be performed and they can also reduce their feelings of insecurity about losing their job. One of the more modest strategies is to build a supportive employee and management relationship which can be used as a way to avoid resistance to change. Process checking can be very helpful in guaranteeing that the contributors to change are fully involved and dedicated, and also in evading the groupthink problems that can "turn off" other functions of the organization (Ali, 2010). It is most common for people to be reluctant and to resist change. Managers as well as employees have to accept change because change is inevitable for an organization. Thus

management has to build a positive environment when a change is introduced by creating good relationships with their employees in order to facilitate the introduction of the new change.

2.10 Reasons for Resistance to change

As Strickland (2000) stated “People resist change because they experience a loss of identity, of belonging”. Schor (2003) listed some more specific factors that contribute to resistance to change. They include:

- Self interest when workers see the changes as harmful in one way or another.
- Psychological impact which refers to the impact of the change on job security, professional expertise and social status in the organization.
- Redistributive factors when the workers think that they may lose some or all of their privileges through the redistribution of tasks and responsibilities.
- The destabilization effect caused by the introduction of new people who are not familiar with the organization’s culture and operations.
- The political effect which refers to the power relationships in an organization and the degree to which they are threatened.

This issue leads to the question: how to deal with resistance to change and how to minimize or avoid the effects of resistance to change. Horgan and Simeon (1988) identified the types of people in organizations and later, using concepts from “expectancy theory”, “open system theory” and “social information processing theory” predicted the reasons for resistance to change in organizations. Based on the expectancy theory, Horgan and Simeon (1988) predicted that persons with low expectations of success and those who believe that successful performance will not lead to reward are likely to be poor adapters to change. According to the open system theory, in mutual relationships

and when boundaries are optimally permeable, adaptation to change is easier than when compared to closed systems. According to the social information processing theory, people who receive negative information will be more stressed and anxious about an upcoming change. Conversely, a person who receives positive information tends to have a positive attitude.

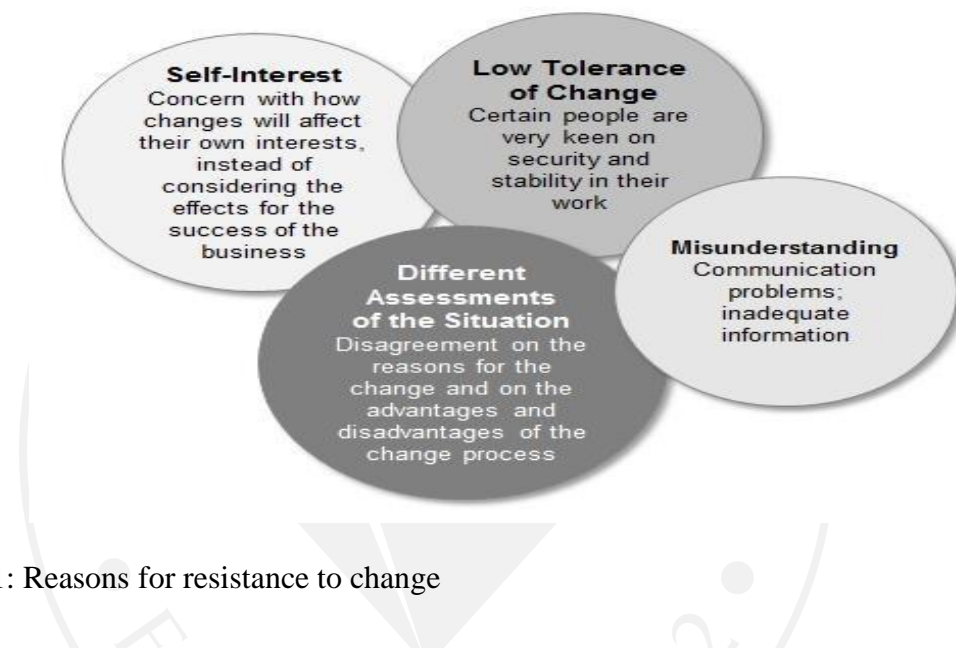


Figure 1: Reasons for resistance to change

According to Rick (2011) there are many reasons why people resist change; it may be the purpose of the change is made not clear, in the sense of employees' understanding about change and not being involved in change process. When there is an appeal for change based on personal reasons, where the employees' habitual patterns are ignored and in cases where there are no organizational change processes like technology development, changing policies and, change management. When there is poor communication about change, the reason for resistance may be the fear of failure or high pressure from the market, competitors or any other external factors. When there is less recognition received in spite of hard work, less satisfaction is manifested by employees. Apart from all these reasons, resistance is common from the employees' point of view which may be because of a lack of knowledge, skills and competence. Thus it has been identified that employees generally resist change but the reasons for this could be many.

Identifying individual reasons is difficult but identifying reasons in general can be easier. As discussed above, there are many reasons but the reasons, based on group and individual perceptions, need to be identified and addressed before implementing change.

2.11 The Factors Explaining Resistance to Technological change

Behavioral factors

According to Ristino and Robert (2000), the term ‘resistance to change’ is more frequently used in the context that significantly associates it with the employees’ attitudes towards organizational change. As a general rule, it is not the anticipated changes that people resist but the impact that the changes will have on them personally. Employees start to become comfortable in their jobs, in their areas of specialization, and in their relationships with co-workers and managers. Even when personnel are not very satisfied with the current work environment and therefore welcome change, they may find change to be stressful. All these factors usually explain about the behavioral dynamics of an employee in a working environment. Piderit (2000) discussed resistance to change which includes cognitive and operative components which come from different stages of the resistance process whereby the employees’ feelings, change may not necessarily coincide. Oreg (2003) identified that people are different from one another in their personal inclination to resist or adopt to change. These responses can be seen in employees’ perceptions and their attitudes towards specific changes which are both voluntary and imposed. Furthermore, Oreg (2003) stated that employees who have dispositional resistance to change will incur negative emotional reactions such as anxiety, anger, fear etc. and these dispositional reactions have a strong impact on employees’ emotional responses.

According to Stern (2011), although management make many attempts to minimize the resistance to change, some of the reactions to change are inevitable.

Positive reaction shows a positive impact on the behaviour of employees, whereas negative reactions show negative behavior and reactions. It has been identified that there are four reactions to change which are disengagement, misidentification, disenchantment and disorientation. Disengagement is a psychological withdrawal from change and in such cases the employees lose interest in the job and will not take any initiative in work. In this reaction employees fear change, will not undertake any challenge and simply do nothing except hoping for the best. In case of misidentification, employees react because they feel that their identity has been threatened by change and feel vulnerable, negative and angry. Disenchanted employees recognize that the past is gone, and they are angry about this fact. And finally, disoriented employees are confused and unsure about their feelings and waste time and energy trying to know what to do rather than actually doing things.

Therefore, management should be aware of employees' feelings concerning resistance to organizational change and they also should consider employees' emotions and their willingness to remain in the organization because these factors bring employee commitment to the organization to achieve the organization's long term objectives. (Lombard and Crafford 2003). According to Lombard and Crafford (2003), there is a relationship between demographic factors and resistance to change. As far as, age is concerned, employees who are 50 years and above tend to be more resistant to change (Lombard and Crafford, 2003). It is true that at the senior level managers do not accept change and want to be stable in their current position; this means that the older one is the more one is likely to resist change. Some employees who have higher educational qualifications and who are in a higher position in organizations, resist change because they do not want to lose or change their status and position in the company. They believe that if any change takes place that it is going to have negative influence on their status and they feel that their current position may be affected.

Another study reports that employees' performance and resistance to change is also affected by certain demographic characteristics such as age, gender, experience and race (Hassan and Roy, 2003, p.381). These factors can be organized into two groups: 1) static factors such as personality, intelligence, past experience, age and gender; 2) dynamic variables such as attitudes, informal social structures and present experience. Thus, to overcome these issues, it has been suggested (Hassan and Roy, 2003) that motivating employees will help as employees will then feel more comfortable and more likely to work with ease in overcoming the said factors. Horgan and Simeon (1988) suggested that informal social structures are an important aspect which helps to foster learning in organizations but that, in fact, most organizations overlook this aspect. They also stated that team building, introducing strong group support and maintaining established work teams are effective in developing positive and realistic expectations towards change.

Psychological factors

One of the important reasons for resistance is the emotional confusion that a change may cause especially if the past experiences of change are not positive. According to Oreg (2003), the psychological reasons for resistance to change are a lack of appreciation, a lack of trust in other employees, job security etc. It was stated by Mason (2006) that an employee may feel that management is not recognizing his or her performance and thus feels a lack of appreciation. Safety and security are high priorities an organization and they can feel uncertain about the impact of change, especially concerning job security. When employees feel that change may have an impact on their jobs they resist it; this fear always has a major impact on the employee decisions (Mason, 2006).

According to Lines (2004), resistance to change is a natural part of the change process as it involves the state of going from the known to the unknown and involves many psychological factors. Employees differ in terms of their ability to adapt to, and

their acceptance of, organizational change. This is because employees experience changes in different ways; some may easily move through the change process and some move rather quickly, some may have objections due to multiple alterations in their job Mason (2006) described psychological reasons for the resistance to change. Employees may have a fear that change in technology may bring tedious work and boredom into their field of work. They may also feel that they have to work hard to learn new skills if the technology changes and they may not be able to understand the applications of the new ideas and methods that are suitable for the new environment. It has been further stated that employees who have a negative impression of change technology will have negative psychological thinking and this will not bring positive results for the organization. So, there is a need for the organization to convince employees of the positive impacts of change by giving them motivation and need-based training for the required change environment (Lines, 2004). Psychological factors which show a negative impact on adapting to change includes employees' fears due to a lack of appreciation or tolerance, differences which can arise between employees and management, fear of uncertain results because of change, and the need to feel secure in their existing position or job. Employees have negative feelings and thoughts about change that have an impact in their minds especially when things go wrong or have negative results. Once negative thoughts fill the employees' minds, it is very difficult for the management to overcome these psychological issues until and unless they provide motivation, give proper training and counselling about change and its positive impact on the employees career (Stern, 2011).

Social Factors

Every individual have social contacts like friends, enhancing a feeling of belongingness etc. An employee in an organization maintains certain social relationships with other employees, by this they become members of certain informal groups. When change takes place in an organization it brings fear into the minds of people because individuals do not like new changes and its associated adjustments as they think that it could break down their present social status and relationships (Martin et al., 2005).

Mullins and Laurie (2005) stated that new changes in an organization require new adjustments and involve stresses and strains; the workers can feel that the changes that the company is looking at will only benefit the organization rather than benefiting them. Mullins and Laurie (2005) also stated that workers can resist change which is brought in suddenly without consulting them. This creates tensions in the workplace and the new social setup that arises out of the change will cause less satisfaction in the organization.

As per the research of Gomez and Rosen (2001) it has been proven that, by introducing new technology in an organization, changes in the social environment are also brought about as well as changes in the work lives of employees. New technology brings about drastic changes in the social organization of work, in the accessibility to resources, in organizational structure, both formal and informal, and in management control patterns. In gaining an understanding of new changes in an organization and their role in changing the work environment, Martin, Quigley and Roger (2005) used the concept of “workplace visions” which consists of four possible changes in the way work is organized effectively.

- Metamorphoses
- Migration
- Elaboration/reinforcement, and
- Stability

Martin, Quigley, and Roger (2005) explained that recognition and support from peers and top level management can change the perception of an employee towards change in the organization, as this automatically bring the change into the social environment of the employee. Special efforts should be taken to communicate with the employees in order to ensure that they feel secure and to maintain cooperation. It is true that differences between management and unions can be overcome if there is transparency and that this interaction can protect the interest of employees and other members of the organization (Mullins and Laurie, 2005).

Peter, Cheryl and Song (2010) discussed the fact that every organization has to work in a social environment and any changes made can display a great impact on the society because of the interest and disinterest of several social groups. The social groups and employees within an organization want to maintain the same relationships within their society, both formal and informal, and hence employees fear change may cause a negative impact on his or her image within that society. The values of society are based on certain facts within that society and on its groups; if change takes place employees have to accept the change compulsorily and it requires a lot of effort to alter themselves to fit in with the change process.

Cultural Factors

Cultural factors are considered to be the least tangible of all the types of factors that may bring about resistance but they can be the most difficult factors. An organization's culture consists of its shared assumptions, values and beliefs. Greenberg and Cropanzano (2001) discussed that, when an organization whose prototypical culture is followed if it tries to adopt a change, the change may require many organizational activities to alter; particularly manager and employee relationships can be altered with a change in culture because there are deep rooted values in the organization. These characteristics (shared assumptions, values and beliefs) show that these are serious problems that have a higher incidence in times of change and when organizations seek a fundamental transformation (Val and Martines, 2003).

A question arises "can cultural factors influence the resistance to change?" According to Mullins and Laurie (2005), in order to avoid resistance to change, management should pay special attention to certain areas such as how much the organizational culture fits in with the change objectives and what can be done to adopt the change. This will help the organization to reduce resistance that may be caused by deep rooted values and cultural issues.

Another key aspect in change is training which can be a good tool to avoid communication difficulties and also the resistance caused by communication barriers. It also helps organizations to reduce the gap between the present situation, values, beliefs and capabilities that are required and the change processes (Greenberg and Cropanzano, 2001).

Cultural dimensions and their impact on management have been summarized in the research by Jelavic and Ogilvie (2010). Considering the power distance in terms of information systems Jelavic and Ogilvie stated that a higher power distance results in technology becoming a greater equalizer within an organization.

Additionally, in terms of technology development and operations, high power distance results in management control over projects with low end user participation. In terms of technology transfer, high power distance results in a low level adoption of power reducing technologies such as discussion forums. In terms of the globalization of technology, high power distance is said to result in a low need of technology for decentralization and a high emphasis on organizational hierarchy. According to Manomenidis and Neroulia (n.d), cultural dimensions that deal with the dynamics of resistance to change over a power distance is expressed in a combination that includes deeper knowledge of the changing environment and a greater freedom to express views Manomenidis and Neroulia stated that power distance expresses the acceptance of the less powerful members of organisations *and that the power in the organisation is unequally distributed through deeper knowledge and greater freedom.*

The psychological thinking of employees, cultural aspects (both local and organizational), social aspects, the behaviour of employees and, finally, demographic aspects such as age and gender show an impact on resistance to change. sometimes employees feel that they cannot adapt to change (and some older employees also seem to resist change) especially if they perceive that it may affect their job or other issues. In organizations management has to focus on such issues as well identify best suitable strategies to overcome them.

Management Factors

Bolognese (2008) stated that employees and managers can actively or passively resist change, but that resistance to change is inevitable. Training can assist employees in improving their performance and understanding levels, recognition and reward programmers can improves the behavior, attitudes and skills that are needed for change

to take place. Despite all these efforts resistance to change still exists and this is particularly of concern at the managerial level.

According to Carr (2002), resistant managers become significant obstacles to the implementation of an organizational change effort. The dynamic of managerial resistance to change is one reason for the continuing involvement of senior managers in implementing the change effort at each step. It puts everyone on notice that senior managers are committed to making the needed changes and will not become easily distracted from this important work. All resistance to change is not irrational, however, and there can be valid reasons why managers may resist a change effort. When senior supervisors and managers take part in guiding joint work with their subordinates in order to alleviate their valid concerns within the change effort, they eliminate much of this managerial resistance. But, in the very rare instances, where a manager continues to resist, senior leadership must directly address this behaviour as appropriate (Bolognese,2008).

It is very important that the change manager anticipates and plan strategies for dealing with resistance. Management may have problems with implementing change which are related to cost, technology, lack of expertise, etc. This problems may apply not only at the introduction of the change but also throughout the change so there must be follow- through so that the change manager can monitor the change over the long-term and keep alert for difficulties that may appear in future (Carr, 2002)

The Cost of Change is High

According to Kaila (2005), managers and supervisors bring about change in order to improve their performance according to the market trends, conditions and competition from industry. Even when management think that change is inevitable they are afraid of the expenses that may be involved in the change process and in changing technology. The change process involves high costs and these costs are constantly incurred during the change period. Management has to implement action to bear the costs and expense during the change process. Costs that may occur because of installing new technology, for training and development that may take place to assist the employees to learn about the adjusted technology, installation expenses etc. are compulsory in the change process. Furthermore, it is the responsibility of managers to think about these requirements before implementing the change process within the organization.

Management feel that changes brings many costs to an organization, whether it be the planning to implement the changes such as planning for technology, machinery etc., the labour required for meeting the changes or the many costs that relate to advertisements, research and development etc. Although the change can be accepted by employees and management, they worry about the costs that will be incurred in the change process. Post- implementation costs also need to be borne. Once management has implemented change it has to bear the expenses then involved particularly if there has been a bad change process (in spite of many tests undergone beforehand) (Harwinder and Khamba, 2009).

Fear of Loss of Power

Carr (2002) stated that, during the change process, managers have a fear of losing their power or designation which is one reason why they may not want any changes to take place in the organization. When an organization is planning to implement change it is the responsibility of managers to know the requirements that are necessary for the change process without having the fear of loss of their job or power. When they do so there are higher chances of retaining them in the organization for a longer period.

According to Harwinder and Khamba (2009) it is a genuine reason when managers and other employees resist change because of a fear of loss of power and status in the organization. When a change process takes place, it is essential for the employees as well as managers to make themselves comfortable in accepting the change with the help of training and other knowledgeable sources. They can fear that they might be replaced with other employees who are young, energetic and have a sound knowledge about new trends and or about approaches that helps the organization in meeting their requirements for the change process; hence they are resistant to change. It is the duty of everyone in the organization to learn the new techniques associated with the change process which will ultimately help them in long run.

Requirement of Extra Effort to Learn and Relearn

It is compulsory to learn and learn and acquire knowledge about the new changes that are taking place in an organization. It is the responsibility of the managers to acquire such skills and also to help employees and subordinates in the learning process of change management (Kaila, 2005).

In order to deal with change employees need to retrain themselves in order to constantly update their knowledge in all the areas which are essential for the organization's future. Where there is absence of such retraining and knowledge there is a chance of both economic and social threats for both the employees and the management and hence management should motivate their employees to be involved in the change process; this will ensure the success of future developments and improvements in the organization (Peter, Cheryl and Song, 2010)

Fear of overload

Kaila (2005) stated that most managers have a fear that they will get overloaded in the change process by having to learn new things, attend training sessions, ensure that the employees learn, acquire new knowledge and spend more time in the office etc. For all these reasons they resist change. Kaila (2005) explained that there are many advantages in the change process that may be obtained in the future. One benefit is that employees and managers can acquire new skills and knowledge which can help them in adopting new strategies in the future and to become more successful in their work environment. Honey (1988) listed different reasons for resistance to change including

- Low tolerance for change – Employees resist change when they fear they are not capable of learning or cannot cope with new change or unfamiliar consequences. Sometimes, the need for change is intellectually accepted but, due to emotional circumstances, people feel unable to actively accept change. These types of people tend to fight hard to maintain the status quo even if they are not able to articulate the reasons behind doing so.
- Parochial self interest – Employees think they could lose something of value as a result of change. It is seen that, in this type of situation, people mostly focus on their own interests and not on the interests of the organization as a whole.
- Different assessments – One of the most common reasons why employees resist change is because employees assess change in a different way than that of the change initiator. This mostly happens due to miscommunication between the managers (or, in another sense, the change initiators) and the receivers. For example, sometimes managers just assume that the change information that they know is also known to the people who are affected by the change. This difference in knowing information certainly leads to different assessments of the change process.
- Misunderstanding and lack of trust – Employees sometimes do not understand the implications of change and perceive that change might cost them more. Furthermore, misunderstandings and distorted perceptions can occur due to a lack of trust between change initiators and the people being affected by it or being at the receiving end of change.
- People can also resist because they assume that past decisions taken by management are not right.

In this research “The Management of Change”, Honey (1988) explained the various driving forces for change and the restraining forces against change. These concepts can be clearly explained by the following Figure.

| Driving Forces (for change) | | Restraining Forces (against change) |
|--|---|--|
| Desire to be more efficient by passing responsibility down the Hierarchy | ↔ | Reluctance of senior managers to delegate |
| The need to increase customer Satisfaction | ↔ | The need to utilize current production practices |
| Low motivation and morale amongst graduate staff | ↔ | Reluctance to give graduates real responsibility early in their career |
| Desire to be more flexible and Adaptive | ↔ | The need to get it right, not make Mistakes |

Figure 2: Driving forces and restraining forces of change

Manuela and Clara (2003) differentiated the sources of resistance to change at two different stages, one stage being the “formulation stage” and the other being the “implementation stage”. Three different set of sources were found at the formulation stage and two set of sources at the implementation stage. The primary source of resistance at the formulation stage explains that change starts with the perceptions of its need and the major initial barrier to change would be wrong perceptions. This includes:

- Inability of the organization to look into the future with clarity.
- Inability to accept any information that is not desired.
- Tendency of the people to go on with their present thoughts even though the situation has changed.
- Implicit assumptions, communication barriers.
- Organizational silence when the flow of information is limited to individuals. In other words, it can be said that decisions are taken without taking all the necessary information into consideration.

The second set of sources in the formulation stage mainly deals with low motivation for change. Major sources at this stage includes changes in direct cost, changes that bring success to a product and, at the same time, bring losses to others, and lack of motivation for change which is also known as cross subsidiary comforts. In addition, past failures can have a negative impact on future changes. Other sources of resistance can also include the different perceptions of employees and management, and a lack of motivation in employees for whom there is no value in the change result

The high cost of technological change can be one of the main reasons for resistance. In addition, some managers know that implementing change is difficult and requires a lot of effort. Some managers have a fear that they may lose power over employees as a result of technology change. All these factors show that there is a need to understand the major factors of resistance to change and to identify suitable strategies to overcome it.

2.12 Employee Job Performance and Resistance to Change

It is accepted that change affects employees' performance and job satisfaction when employees are subjected to a change in their job profiles (Mike, Paul and Rodger, 2006). In such cases, management and decision-makers need to take certain actions e.g., training, guidance and support through which employees can adapt to the new changes (Kegan and Lahey, 2001).

There is a strong positive relationship between HRD practices and employee performance (Yuan, Yongbin and Liu, 2005). New HRM practices such as appraisals, motivation, proper training, mentoring and guidance can help organizations and employees to improve performance (Honey, 1988). In addition, conducting regular training programmes has been shown to have a positive impact on employee job performance.

Strategies to Overcome Resistance to Change

According to Eisenhardt (2000) there are several ways and means that managers can use to reduce resistance to change. Education and communication can be used. Management should explain to employees why the change is needed, should identify the benefit of the change to individuals and departments and should be willing to answer all the questions raised by employees. Communication between management and employees can occur in the form of discussion groups, memos, formal reports, scheduled meeting, one-to-one meetings, etc.

Many theories have been put forward not only to try to explain why employees resist change but have also contained different strategies to overcome resistance to change. It is important to know the impact of resistance in an organization. According to Krantz (1999), resistance to change weakens the base upon which the employer and employee relationship (called a personal compact) is built. All the formal compacts that are defined by the company such as job description, employment contracts and performance agreements which are very important for organizational tasks and performance requirements are lessened in value if the employer/employee relationship is weakened. Feelings such as trust and dependence between employer and employee, which is the foundation of an employee's personal commitment to individual and company objectives, can distract from the organizational structure. As a further point, employees can have negative perceptions about the culture of an organization and this will show as a negative impact on the success of the organization. Thus, it is important to acknowledge and fully understand the nature of resistance. Once it is identified there are several strategies that can be used to overcome resistance to change within organizations (Eisenhardt, 2000).

Motivation

Yusoff, Kian and Idris (2013, p.18) *motivation is referred to as willingness to exert high levels of effort, toward organizational goals, conditioned by the effort's ability to satisfy some individual need.* So this shows that motivation has three key elements efforts, organizational goals and needs. Yusoff, Kian and Idris (2013) are also of the view that motivation includes boosting employee performance through assistance, guidance, discussions with employees as this helps in improving employee performance. So it is the responsibility of managers of organizations to keep their employees motivated. Hutchin (2001) is also of the view that motivation can be undertaken through giving proper counselling which includes discussing with employees on problems they are facing in performing work. Motivation can also be given through promotions and appreciations (performance appraisals). Yusoff, Kian and Idris (2013) are of the view that by maintaining stability and seeking consensus, managers can overcome resistance and this is possible only through effective feedback system, communication

channels and appropriate trainings. These factors will help employees to get motivated and accomplish given task effectively. Gabriel and Carr (2002) stated that discussing with workforce establishes respect and is a powerful tool to build self-esteem in employees. Management should ensure that they always act fair with everyone to avoid any unconstructive feelings and mistrust which are the fundamental ingredients of resistance (Yusoff, Kian and Idris, 2013).

According to Rebecca and Rolf (2009), motivated employees easily adapt to change and unmotivated employees resist change. Motivation can differ from time to time and from person to person when the change process is about to take place. This means that, at the initial stages of introduction to new technology, management has to guide, motivate and train employees and inform them why the change is needed and what their duties are with regards to the change process (Yusoff, Kian and Idris, 2013).

Training

According to Butterfield (2010), at work change is constant and, accordingly, employees need to change themselves within the working environment. It is not so difficult to change according to the working environment. One strategy which can overcome resistance to change is training and development. New technology and new procedures should be learned in order to improve productivity and quality in the workplace. It is essential for managers to implement “innovative” training sessions so that they can build a strong environment in the organization. These training sessions will provide a kind of motivation for their employees to improve their performance and achieve the organizational goals effectively

Dent and Goldberg (1999) stated that raising awareness and changing beliefs create understanding and a caring attitude that will assist in easing initial concerns. Management must educate individuals and groups in an organization about the organization's current and future perspectives and they must also create an awareness in the individuals and groups that change is a positive factor and inevitable in today's marketplace. Dent and Goldberg also stated that, by making resistors part of the project and motivating them by providing enough training to improve their skills, a successful change process can be implemented in the organization. They stated that it is true that motivation and training are two important tools in the effective implementation of change in an organization. According to Palmer and Dunford (2008), managing change is a sound management practice and a well organized planned approach to the change process together with managers who create a positive, assertive and confident style of management will create a good impression on the employees and can bring down the pressures felt by dealing with change.

According to Dean and Linda (2010), training should be an on-going process with regard to motivating employees to accept the change. The training should include planning for the new changes, objectives, resources and also a consideration of the results. Each employee should be aware of these steps before changes in the organization are made. Effective training brings great results in the acceptance of change by employees. Additionally, through training, employees will come to know exactly what the company is expecting them to do. During the explanations in the trainings employees will come to know the procedures and each step will be explained showing why it is important. This measure will deliver a clear and simple statement of affairs. A demonstration of each step of the procedures in the new plan(s) allows employees to adopt to change as quickly as possible and avoid future consequences. Training can motivate employees because it helps them to understand their work and to envision the future.

Communication

According to Cornelissen, Kafouro and Lock (2005), organizations should establish consultation with, and participation by, the work force when it is planning a change process. Communicating with the employees regarding the present situation and the future desired state brings trust among the employees which is important and there is a chance of getting important advice from employees that may suit the change process. New channels of communication must be established in order to avoid isolating sections of the workforce so that everyone in the organization should be able to access the information available and discuss it. When implementing change effectively management must understand the feelings that individuals experience when confronted with change as these feelings influence their subsequent actions (Krantz, 1999).

Horgan and Simeon (1988) stated that communicating with employees effectively will help in overcoming resistance to change. It can be observed that ineffective communication leads to low level job satisfaction and this could affect employee job performance especially when a change in technology, management or work structure (role and responsibilities) occurs. Ineffective communication also leads to other factors such as job stress, a lack of a work-life balance, fear of coping with new changes etc. Thus communication plays a vital role here.

According to Rick and Jeanenne (2011), one of the important strategies in overcome resistance to change is communication, because communication is the key that is available to anyone in order to clear their negative impressions about change. Resistance occurs when there is a lack of communication between management and employees because employees feel that they are not involved in the process and have not received any communication about anything in the change process. Employees' feelings can be understood by communicating with them and understanding their perceptions. Furthermore, Rick and

Jeanenne (2011) stated that employees who communicate with management have a positive impact on solving the problems of change process.

Rewarding Policy

Rewarding employees based on performance is one of the strategies which management should apply to overcome resistance. The implementation of a reward policy will acknowledge the work undertaken by employees. According to Stavrakakis (2008), compensation and recognition in the form of money or something of equal value brings satisfaction to employees and boosts their morale. Rewards are a kind of extrinsic motivators that management can give to support and to overcome the negative feelings and attitudes towards organizational change. Stavrakakis (2008) also stated that, by evaluating and examining the success of the execution of the process at planned intervals, strategic resolutions can be designed to measure the success of the process over time and allow for making corrections for unanticipated consequences.

Dennis, Schraeder and Mike (2009) stated that one motivating strategy is rewards. Each employee can be motivated by different things and a rewarding strategy is best motivation of all. Most employees are motivated by rewards (usually by cash rewards). However financial rewards do not always motivate and for management it is a costly affair. In this regard Dennis, Schraeder and Mike (2009) suggested that there are many things that management can do to let their employees know their efforts are recognized and to ensure that rewards will be appreciated. Continuous interaction with employees and giving them recognition about 'a good job well done' can really motivate employees. Consequently, if motivated, employees will put in their talent, effort and spare time and the employer, in turn, will provide total rewards that are valued by the employees. A total reward includes compensation, quality in the work-life balance, benefits, career opportunities, and recognition. This strategy brings satisfaction to employees and increases their work productivity.

It is clearly understood from the literature that resistance to change is a common thing. How to overcome this resistance is a big task for management. As discussed in the earlier sections, organizations have to initially identify the reasons, factors and driving forces that cause resistance to change and then plan and formulate strategies that help them to overcome such issues. If an organization successfully implements effective strategies, as discussed above, this will not only help employees improve performance but also helps management to overcome issues of resistance.

2.13 Hypotheses

After considering the theories, the research problem and objectives for this study, these are the following hypotheses:

Hypothesis 1 (H1): There is an impact of Human Factors on resistance to technological change when adopting of new technologies in the companies.

Hypothesis 2 (H2): There is an impact of Management Factors on resistance to technological change when adopting of new technologies in the companies

Theoretical Framework

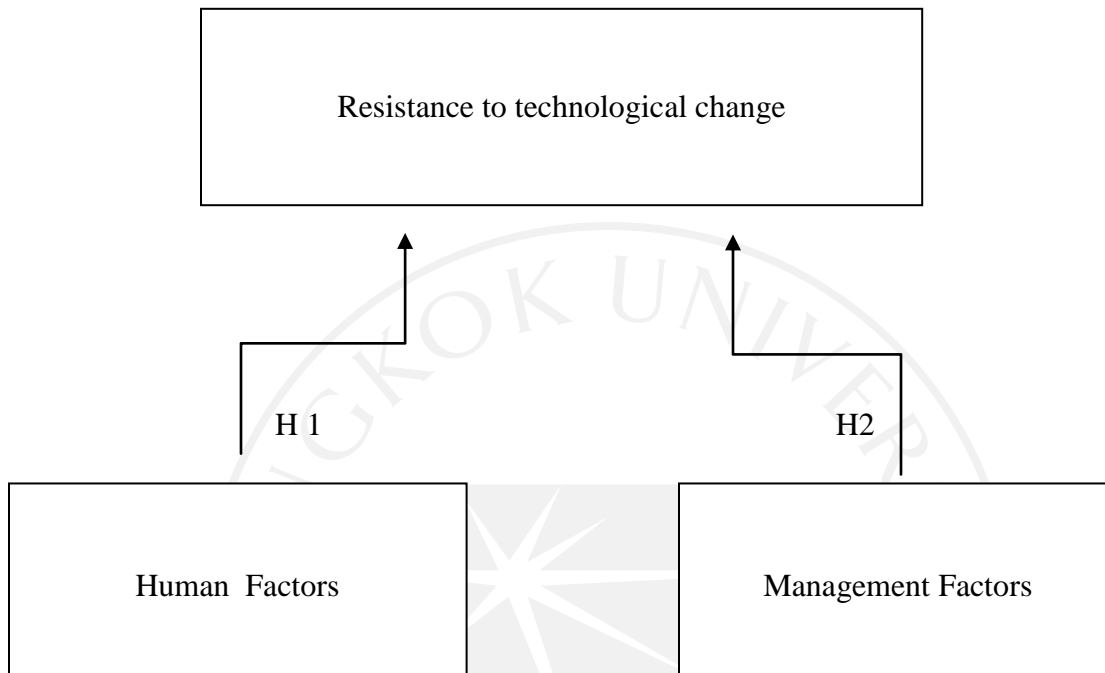


Figure 3: Conceptual Framework

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the methodology employed in this research which aims to explore and understand resistance to technological change in public sector organizations. Focuses on to presents the discussion on research and the methodology used which drawn from literature review and develop the conceptual framework. It also discusses description of the research and the data collection.

3.1 Research Design

To develop this research is much important to detect since beginning for all the requirements. The begging stages in this research are most important to identify the forces of that resistance that found in this research. This survey research we have assigned to specification of requirements for initial treatment to detection of the force resistance. By used a survey research as distributing the questionnaires to the sample units of individual surveys of employees. This survey has been allowed to know the work of employees in each position and existing problems they faced. The researcher will do the T-Test first, for check the reliability statistics. If the survey is high enough then researcher will continue to distribute the questionnaires to employees in other company in next step. And main point researchers try to know about employee feeling to change in their workplace. The surveys questionnaire will be answered by the respondents who working in Thailand.

3.2 Data Collection

Yin (1989) identified six sources of evidence to support case studies, namely, documents, archived records, interviews, direct observation, participants' observation and physical artefacts. The nature of the research topic itself (resistance) could mean

that documents and archived records may not be very useful or relevant as an information source; resistance is often fuelled by a hidden agenda or personal interests and is rarely documented. Nevertheless, the company could have conducted its own review of IT project implementation which might have described useful information including the project timeline, the people involved, the project mile stones, the problems that have arisen, the deviations from the plan and other useful information. In addition, since the researcher is an outside observer, direct observation is excluded as a possible information source. Subsequently, the primary technique to be employed in the collection of primary data is in-depth interviews of both employees and managers.

Nandhakumar and Jones (1997) argued that interviews can enable a sensitive exploration of actors' interpretations at a small number of sites. However, due to the sensitivity of the topic of resistance and the understandable fear of adverse consequences such as dismissal, this researcher expects that employees might be reluctant to share information. Consequently, a major step in these interviews is the building of trust. According to Nandhakumar and Jones (1997), relationships between field researchers and their subjects rest on the basis of trust which, in turn, rests on the basis of liking.

3.3 Questionnaires' Design

Questionnaires are one of the instruments used in the collection of primary data from respondents and are designed for the statistical analysis of the responses (Mellenbergh, 2008). Questionnaires are a quick, simple and inexpensive way of collecting data from a number of respondents. Because questionnaires do not involve an interviewer or an observer, they tend to be free from interviewer bias. Questionnaires need to be designed carefully if they are to provide reliable information. As a downside questionnaires can be considered inflexible because the information exchange is limited to the specified questions. Consequently, questionnaires can fail to identify the underlying causes of a problem and its potential solutions. Some of the

problems a researcher may face with using a questionnaire are low response rate, time delays, no control over who completes it, problems with incomplete questionnaires and not being possible to give assistance if required (Parajuli, 2004).

The researcher opted for a self-administrated questionnaire in order to maximize the response and thus consequently increase data reliability. It also allows the researcher to interact with the respondents and gives more control to the researcher. Further, when collecting the questionnaires the researcher could check if some of the questionnaires are not completed or if the respondents needed some further clarifications with regard to some questions, as has been the case in this research.

3.4 Survey Questionnaire Sample

The researcher initially conducted a pilot study, as discussed above and questionnaire was handed over only to those who were interested. The survey sample included a total of 6 questions relating to demographics (age, gender), personal information (education, job, experience). The questionnaire also contained a further 7 questions relating to the reasons for employee resistance to technology change, reasons for management resistance to technology change, before distributing the survey questionnaire to the employees, the researcher explained the purpose of the survey to the participants and reiterated important instructions for completing the questionnaire. A total of **400** employees from four different companies were selected. The questionnaire was distributed to an identified sample of 400 people, of which 400 responded to the survey.

3.5 Population and Sampling

In a research study, 'population' means a group of people. The population in this research was all employees in Thailand public sector companies. Researchers are hardly able to study every member of a population. Instead, they usually study some members

of the population to represent a sample or a subset of a population. Researchers then generalize their findings about the sample to the population.

3.6 Data Analysis

Statistics unlike many other fields is interdisciplinary. The statistical tools and methodologies available have applications in virtually every discipline. In this study the collected data is analyzed using Statistical Package for the Social Sciences SPSS (SPSS). The SPSS is a computer package used for statistical analysis. Among the statistics included in the base software which are used in this study.

3.7 Instrument Pretest

The questionnaire instruments surveys has examined by distributing to surveys to respondents at Manufacturing's company first and after is finished the compulsory changes and corrections are done to the survey instrument. To test the reliability of these survey questionnaires with reliability test, Cronbach's Coefficient Alpha scales are used to assessing the reliability of psychometrically developed scales, the Cronbach's alpha is used as a widely used measure (Cronbach and Snow, 1977). The quality of the instruments to ensures. An acceptable alpha reliability coefficient preferably higher than 0.70 and should not be less than 0.60. And with this research study the reliability coefficient of it is equal to 0.626 for these variables.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

This chapter explains the results from the data analyses. These data was received from the questionnaire survey and then processed in the respondent. This chapter starts with an analysis based on the results from the questionnaires. Analysis is undertaken based on the respondents' demographic features, Tests of Reliability and ANOVA analysis methods using SPSS. The descriptive statistical method was used for each question presented in the questionnaire including for the personal information of the participants and the reasons for resistance. The results of the analysis are presented in tables. The test of reliability and the ANOVA analysis is also presented. Four hundred surveys were initially sent to people inside Bangkok industrial Estates with 400 returned; the response rate was 100 %. It is divided into 2 parts which are following, and SPSS program is used to analysis the data.

The Respondents' Demographic Features

This section discusses the study findings with regard to the demographic features and the characteristics of the respondents in the four surveyed public sector companies. The researcher was able to collect and use 400 questionnaires total.

Respondents' Demographic Variables

A- According to work sector:

Table 1: Distribution of the sample according to work sector

| Company | Frequency | Percent |
|--------------|------------|--------------|
| Nawarat | 85 | 21.3 |
| TOA | 126 | 31.5 |
| Alphatex | 106 | 26.5 |
| Alfino | 83 | 20.8 |
| Total | 400 | 100.0 |

- A: Nawarat Patanakarn Public Company Limited (NWR)
- B : TOA Paint (Thailand) Co., Ltd.
- C: Alphatex Industries Co., Ltd.
- D : Alfino International Co., Ltd.

According to Table (1) it can be concluded that participants from company A represents company B represents 31.5%, company C represents 26.5% and, finally, company D represents 20.8 % of the total sample units. This shows that the surveyed samples were fairly evenly distributed among all participating companies.

B-Gender:

Table 2: Distribution of the sample according to gender

| Gender | Frequency | Percent |
|--------------|------------|--------------|
| male | 210 | 52.5 |
| female | 190 | 47.5 |
| Total | 400 | 100.0 |

According to Table (2) above show that females represented 47.5% of the total sample population while males represented 52.5%.

C- Age:

Table 3: Distribution of the sample members according to age

| Age | Frequency | Percent |
|-----------------------------------|------------|--------------|
| Less than 25 years old | 41 | 10.3 |
| From 25 to less than 30 years old | 163 | 40.8 |
| From 30 to less than 35 years old | 108 | 27.0 |
| From 35 to less than 40 years old | 88 | 22.0 |
| Total | 400 | 100.0 |

According to Table (3) illustrates the distribution of the sample population according to participants' ages. As shown, 10.3% of participants were aged 25 years or less, 40.8% were in the age group 25-30, 27% in the age group 30-35 and 22% in the age group 35-40. This gives a fairly good distribution of participants across various age groups.

D- Education:

Table 4: Distribution of the sample members according to education

| Education | Frequency | Percent |
|------------------------------|------------|--------------|
| Diploma | 67 | 6.8 |
| Higher diploma | 103 | 25.8 |
| University degree | 203 | 50.8 |
| Higher degree (Master's/PhD) | 27 | 16.8 |
| Total | 400 | 100.0 |

Table (4) details the academic qualifications obtained by the participants. The results show that the participants generally have some type of academic qualifications.

The majority of the participants (50.8%) have a bachelor's degree followed by 25.8% with a Higher diploma. Nearly 6.8% have Masters/PhD degree. A small proportion of the participants (6.8%) have a diploma. Educational level provided the researcher with significant information.

E- Experience:

Table 5: Distribution of the sample members according to work experience

| Work Experience | Frequency | Percent |
|------------------------------------|------------------|----------------|
| Less than one year | 26 | 12.5 |
| From one year to less than 5 years | 160 | 36.3 |
| From 5 years to less than 10 years | 161 | 25.6 |
| More than 10 years | 53 | 25.6 |
| Total | 400 | 100.0 |

Table (5) above show the distribution of the participants according to length of work experience. The majority of the participants (36.3%) had between one to less than five years of experience. The next two largest groups had equally the same percentage (25.6%) covering between five years to less than ten years, and more than ten years of experience. The smallest group (12.5%) constituted those participants with less than one year of experience. The results reveal that the overwhelming majority of the respondents have had many years of experience. This is significant in terms of the participants' perceptions about the introduction of new technology as well as their perceptions about performance in companies and departments as affected by the introduction of new technology.

F- Position:

Table 6: Distribution of the sample according to position

| Position | Frequency | Percent |
|--------------|------------|--------------|
| Manager | 123 | 30.8 |
| Accountants | 107 | 26.8 |
| IT | 4 | 1.0 |
| Technicians | 3 | .8 |
| Engineer | 131 | 32.8 |
| Others | 32 | 8.0 |
| Total | 400 | 100.0 |

According to Table (6), it can be concluded that manager's positions represent 30.8% of the total while accountants represent 26.8%, and IT represents 1.0 %. Technicians represent .8 %, furthermore Engineering represents 32.8 % and, finally, other positions represent 8% of the total sample units.

Which of the following is an important key driver for technological change in your company?

Table 7: Important key drivers for technological change in the company

| N | Statements | Frequency | Percentage |
|--------------|---------------------------|------------|--------------|
| 1 | Corporate evolution | 212 | 50.6 |
| 2 | Globalization | 34 | 8.8 |
| 3 | Privatization | 19 | 5.6 |
| 4 | Technological development | 135 | 33.8 |
| Total | | 400 | 100.0 |

According to Table (7), it can be concluded that the (Corporate evolution) frequency represents (50.6%) while the (Globalization) frequency represents (8.8%) but (Privatization) frequency represents (5.6%) finally (Technological development) frequency represents (33.8%) from total sample units. From the results it can be deduced that corporate evolution and technical development are the drivers of technological change.

Tests of Reliability

Reliability

Reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that field consistent measurements.

Validity

Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure. While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring the validity. Validity is one of the major concerns in research. Validity is the quality of a research that makes it trustworthy. Scientific validity is the use of scientific methods in research to make the research logical and acceptable.

Table (8) below describes the measurements for a number of variables using Cronbach's alpha reliability coefficient for variables the questions that used Likert's five point scale

Table 8: Reliability Statistics.

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .626 | 27 |

And the reliability of the surveys is equal to 0.626.

The quality of the instruments to ensures. An acceptable alpha reliability coefficient preferably higher than 0.70 and should not be less than 0.60. And with this research study the reliability coefficient of it is equal to 0.626. is considered to be acceptable.

When your company introduced new technology, was there any resistance from the employees to the technological change?

Table 9: Resistance from the employees to the technological change.

| | Frequency | Percent |
|--------------|------------|--------------|
| Yes | 237 | 65.6 |
| No | 163 | 34.4 |
| Total | 400 | 100.0 |

According to Table (8), it can be concluded that interval of Sector (Yes) represents 65.6%, while the interval (NO) represents 34.4%.

The reasons for employees' resistance to technological change

Table 9: Descriptive statistics for the reasons for employees' resistance to technological change

The reasons for employees' resistance to technological change

Table 10: Descriptive statistics for the reasons for employees' resistance to technological change

| NO. | Statements | MEAN | SD | RANK |
|-----|---|--------|---------|------|
| 1 | Are employees rewarded when technological change is successfully implemented? | 3.2000 | 1.15361 | 15 |
| 2 | When employees resist technological change, is their job performance in the company affected? | 3.3313 | 0.98875 | 11 |
| 3 | Does resistance to technological change impact on the employee's loyalty to the company? | 3.5250 | 1.01529 | 10 |
| 4 | Are there clearly defined implementation steps for your employees for the technological change process in your company? | 3.6250 | 0.95001 | 8 |
| 5 | Is there any conflict between the employees' expectations for their jobs and the goals of your company within any new technological change? | 3.4500 | 0.86730 | 5 |
| 6 | Does the management of the company look for and solve the issues of the employees that arise during technological change? | 3.6375 | 0.93491 | 6 |
| 7 | Do employees have a fear of uncertain outcomes from new technological change? | 3.7000 | 0.90977 | 4 |
| 8 | Do employees lack the necessary information, skills and adequate training to accept new technological change? | 3.4438 | 1.16418 | 13 |

| | | | | |
|----------------|---|---------------|----------------|----|
| 9 | Are employees comfortable with current technology and routine procedures? | 3.6188 | 0.83079 | 3 |
| 10 | Do employees desire to keep their existing positions in the company? | 3.8250 | 0.87272 | 2 |
| 11 | Is training given with supporting materials to create confidence in the system and the processes? | 3.9313 | 1.01015 | 7 |
| 12 | Are ideas openly communicated and encouraged within the implementation of technological change? | 3.5625 | 0.99488 | 9 |
| 13 | Are there long periods of planning before technological change is delivered? | 3.4313 | 1.17426 | 14 |
| 14 | Do employees understand why technological change is happening and why it is necessary? | 3.9750 | 0.69996 | 1 |
| 15 | Does the change agent lack the required skills necessary to adopt new technological change in your company? | 3.2938 | 1.05566 | 12 |
| Average | | 3.5700 | 0.45301 | -- |

According to the descriptive statistics in Table (9), it can be concluded that:

The seven most *identical* variables are: do employees understand why technological change is happening and why it is necessary? Do employees desire to keep their existing positions in the company? Are employees comfortable with current technology and routine procedures? Do employees have a fear of uncertain outcomes from new technological change? Is there any conflict between the employees' expectations for their jobs and the goals of your company within any new technological change? Is training given with supporting materials to create

confidence in the system and the processes? And finally: Does the management of the company look for and solve the issues of the employees that arise during technological change? These variables were calculated as having the following coefficient of variation (17.61%); (22.82%); (22.96%); (24.59%) and (25.14%), (25.7%) and (25.7%) respectively.

- On the other hand, the seven most *non identical* variables are: are employees rewarded when technological change is successfully implemented? Are there long periods of planning before the technological change is delivered? Do employees lack the necessary information, skills and adequate training to accept new technological change? Respectively The coefficient of variation for these variables were calculated as (36.05%); (34.22%); (33.81%); (32.05%) and (29.68%), (28.8%) , (27.93%) .
- The value of the total weighted mean for the reasons for employees' resistance to technological change is (3.57), with coefficient of variation (12.69%) which is in a positive direction.

When the company introduces new technology is there any resistance from the management to the technological change?

Table 11: Resistance from the management to the technological change.

| | Frequency | Percent |
|--------------|------------|--------------|
| Yes | 57 | 20.6 |
| No | 343 | 79.4 |
| Total | 400 | 100.0 |

According to Table (10) it can be concluded that interval (Yes) represents (20.6%) while the interval (NO) represents (79.4%)

The reasons for management's resistance to technological change

Table 12: Descriptive statistics for the reasons for management's resistance to technological change.

| NO. | State ment | MEAN | SD | CV | RANK |
|-----|--|---------------|----------------|--------------|-----------|
| 1 | Is the high cost of change the primary reason for management's resistance to change? | 3.4103 | 1.14651 | 33.62 | 5 |
| 2 | Does the management team have a fear of losing their current job in the company? | 3.3846 | 1.15542 | 34.14 | 6 |
| 3 | Does the management in the company have a fear of losing control and power? | 3.4167 | 1.07738 | 31.53 | 2 |
| 4 | Does the management team work extra time in order to learn more about new technology and manage technological change | 3.4091 | 1.07627 | 31.57 | 3 |
| 5 | Does management team involve employees in designing technological change? | 3.2338 | 1.14214 | 35.32 | 7 |
| 6 | Does the management team have feelings of indifference to their subordinates? | 3.0584 | 1.02413 | 33.49 | 4 |
| 7 | Do managers give their priority to other business objectives rather than pay attention to technological change? | 3.2581 | 1.01187 | 31.06 | 1 |
| | Average | 3.3053 | 0.65549 | 19.83 | -- |

According to the descriptive statistics in Table (14) it can be concluded that:

The most three *identical* variables are: do managers give their priority to other business objectives rather than pay attention to technological change? Does the management in the company have a fear of losing control and power? And finally, does the management team work extra time to learn more about new technology and manage the technological change successfully? These variables were calculated to have the coefficients of variation of (31.06 %), (31.53%) and (31.57%) respectively.

The three most *non identical* variables are: does management team involve employees in designing technological change? Does the management team have a fear of losing their current job in the company? Is the high cost of change the primary reason for management's resistance to change? with coefficients of variation of (35.32%), (34.14%) and (33.62%) respectively.

The value of the total weighted mean for the reasons for management's resistance to technological change is (3.30), with a coefficient of variation of (19.83%), therefore there is a positive direction for the reasons for management's resistance to technological change

Factor Analysis:

KMO and Bartlett's Test

| | |
|--|--------------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .748 |
| Bartlett's Test of Sphericity | Approx. Chi-Square |
| | 974.220 |
| | Df |
| | 231 |
| | Sig. |
| | .000 |

In this case, $0,5 < KMO = 0,748 < 1$ mean factor analysis is appropriate with (Bartlett's Test) $Sig = 0,000 < 0,05$ demonstrate the observed variables are correlated with each other in the overall.

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| | 1 | 3.235 | 14.706 | 14.706 | 3.235 | 14.706 | 14.706 | 2.608 | 11.854 |
| 2 | 1.915 | 8.705 | 23.411 | 1.915 | 8.705 | 23.411 | 2.389 | 10.857 | 22.711 |
| 3 | 1.381 | 6.277 | 29.687 | 1.381 | 6.277 | 29.687 | 1.300 | 5.907 | 28.618 |
| 4 | 1.206 | 5.483 | 35.170 | 1.206 | 5.483 | 35.170 | 1.285 | 5.840 | 34.458 |
| 5 | 1.149 | 5.222 | 40.392 | 1.149 | 5.222 | 40.392 | 1.201 | 5.459 | 39.917 |
| 6 | 1.113 | 5.060 | 45.452 | 1.113 | 5.060 | 45.452 | 1.130 | 5.135 | 45.052 |
| 7 | 1.025 | 4.660 | 50.112 | 1.025 | 4.660 | 50.112 | 1.113 | 5.060 | 50.112 |
| 8 | .998 | 4.538 | 54.649 | | | | | | |
| 9 | .957 | 4.349 | 58.998 | | | | | | |
| 10 | .948 | 4.310 | 63.308 | | | | | | |
| 11 | .901 | 4.096 | 67.404 | | | | | | |
| 12 | .830 | 3.773 | 71.177 | | | | | | |
| 13 | .810 | 3.683 | 74.860 | | | | | | |
| 14 | .784 | 3.563 | 78.423 | | | | | | |
| 15 | .703 | 3.197 | 81.621 | | | | | | |
| 16 | .687 | 3.123 | 84.744 | | | | | | |
| 17 | .667 | 3.031 | 87.774 | | | | | | |
| 18 | .614 | 2.792 | 90.567 | | | | | | |
| 19 | .568 | 2.582 | 93.149 | | | | | | |
| 20 | .558 | 2.535 | 95.684 | | | | | | |
| 21 | .494 | 2.243 | 97.927 | | | | | | |
| 22 | .456 | 2.073 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

- a. **Factor** - The initial number of factors is the same as the number of variables used in the factor analysis. However, not all 22 factors will be retained. In this example, only the first three factors will be retained (as we requested).
- b. **Initial Eigenvalues** - Eigenvalues are the variances of the factors. Because we conducted our factor analysis on the correlation matrix, the variables are standardized, which means that the each variable has a variance of 1, and the total variance is equal to the number of variables used in the analysis, in this case, 22.
- c. **Total** - This column contains the eigenvalues. The first factor will always account for the most variance (and hence have the highest eigenvalue), and the next factor will

account for as much of the left over variance as it can, and so on. Hence, each successive factor will account for less and less variance.

d. **% of Variance** - This column contains the percent of total variance accounted for by each factor.

e. **Cumulative %** - This column contains the cumulative percentage of variance accounted for by the current and all preceding factors. For example, the third row shows a value of 68.313. This means that the first three factors together account for 50.112% of the total variance.

f. **Extraction Sums of Squared Loadings** - The number of rows in this panel of the table correspond to the number of factors retained. In this example, we requested that three factors be retained, so there are three rows, one for each retained factor. The values in this panel of the table are calculated in the same way as the values in the left panel, except that here the values are based on the common variance. The values in this panel of the table will always be lower than the values in the left panel of the table, because they are based on the common variance, which is always smaller than the total variance.

g. **Rotation Sums of Squared Loadings** - The values in this panel of the table represent the distribution of the variance after the varimax rotation. Varimax rotation tries to maximize the variance of each of the factors, so the total amount of variance accounted for is redistributed over the three extracted factors.

Rotated Component Matrix^a

| | Component | | | | | | |
|-------------|-----------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| employees9 | .668 | | | | | | |
| employees8 | .648 | | | | | | |
| employees12 | .643 | | | | | | |
| employees13 | .638 | | | | | | |
| employees11 | .567 | | | | | | |
| employees10 | | | | | | | |
| employees5 | | .711 | | | | | |
| employees3 | | .709 | | | | | |
| employees4 | | .657 | | | | | |
| employees2 | | .637 | | | | | |
| employees6 | | .508 | | | | | |
| employees7 | | | | | | | |
| management2 | | | .655 | | | | |
| management1 | | | .591 | | | | |
| employees15 | | | | | | | |
| management4 | | | | | | | |
| employees14 | | | | .690 | | | |
| management3 | | | | .553 | | | |
| management7 | | | | | .709 | | |
| management6 | | | | | .633 | | |
| employees1 | | | | | | .733 | |
| management5 | | | | | | | .805 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Rotated Factor Matrix - This table contains the rotated factor loadings (factor pattern matrix), which represent both how the variables are weighted for each of actor but also the correlation between the variables and the factor. Because these are correlations, possible values range from -1 to +1. On the/format subcommand, which tells SPSS not to print any of the correlations that are .3 or less. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway.

KMO and Bartlett's Test

| | |
|--|--------------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .742 |
| Bartlett's Test of Sphericity | Approx. Chi-Square |
| | 532.806 |
| | Df |
| | 36 |
| | Sig. |
| | .000 |

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.473 | 27.483 | 27.483 | 2.473 | 27.483 | 27.483 | 2.217 | 24.633 | 24.633 |
| 2 | 1.790 | 19.888 | 47.371 | 1.790 | 19.888 | 47.371 | 2.046 | 22.739 | 47.371 |
| 3 | .914 | 10.157 | 57.529 | | | | | | |
| 4 | .720 | 8.002 | 65.531 | | | | | | |
| 5 | .712 | 7.911 | 73.442 | | | | | | |
| 6 | .660 | 7.330 | 80.773 | | | | | | |
| 7 | .637 | 7.076 | 87.849 | | | | | | |
| 8 | .582 | 6.462 | 94.310 | | | | | | |
| 9 | .512 | 5.690 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

| | Component | |
|-------------|-----------|------|
| | 1 | 2 |
| employees12 | .693 | |
| employees13 | .677 | |
| employees9 | .661 | |
| employees11 | .635 | |
| employees8 | .625 | |
| employees3 | | .740 |
| employees5 | | .714 |
| employees4 | | .707 |
| employees2 | | .672 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

KMO and Bartlett's Test

| | | |
|--|--------------------|-------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .517 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2.274 |
| | Df | 3 |
| | Sig. | .518 |

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.086 | 36.206 | 36.206 | 1.086 | 36.206 | 36.206 |
| 2 | .973 | 32.448 | 68.654 | | | |
| 3 | .940 | 31.346 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

This table shows the actual factors that were extracted. There were three factors with eigenvalues greater than 1 mean that factors have the best summary data. Also Rotation Sums of Squared Loadings (cumulative%) is 68,6543% >36.206% proved of the data variance is explained by 22 factors.

**Rotated
Component
Matrix^a**

| |
|--|
| |
|--|

a. Only one component was extracted. The solution cannot be rotated.

In this case Only one component was extracted mean they already become in 1 group and 12 questions are satisfy and convergence so no need to remove any question

Analysis of Variance (ANOVA)

This section of the study is intended to examine the completely randomized data of the respondents by using a one-way analysis of variance. The one-way ANOVA compares the means of the respondents' opinions on the technological change based on one factor, the studied.

Hypothesis 1 (H1): There is an impact of Human Factors on resistance to technological change when adopting of new technologies in the companies.

Table 13: Analysis of single direction variables in order to compare the semantics of differences between the variable acceptance rates

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | .782 | 1 | .782 | 6.042 | .014 ^a |
| | Residual | 51.517 | 398 | .129 | | |
| | Total | 52.299 | 399 | | | |

a. Predictors: (Constant), Human Factors

b. Dependent Variable: Resistance

This shows that the relationship between Human Factors and Resistance is significant ($F = 6.042$, $p = .014$).

Coefficients^a

| Model | Standardized Coefficients | |
|---------------|---------------------------|------|
| | Beta | Sig. |
| (Constant) | | .000 |
| EmployeeFinal | .122 | .014 |

a. Dependent Variable: Resistance

This shows that the relationship between Human Factors and Resistance is positive.

Hypothesis 2 (H2): There is an impact of Management Factors on resistance to technological change when adopting of new technologies in the companies.

Table 14: Analysis of single direction variables in order to compare the semantics of differences between the variable acceptance rates

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|------|-------------------|
| 1 | Regression | .061 | 1 | .061 | .460 | .498 ^a |
| | Residual | 52.236 | 397 | .132 | | |
| | Total | 52.297 | 398 | | | |

a. Predictors: (Constant), Management

b. Dependent Variable: resistanceFinal

This shows that the relationship between Management Factors and Resistance is significant ($F = 0.460$, $p = .498$)

.Coefficients^a

| Model | | Standardized Coefficients | |
|-------|------------|---------------------------|------|
| | | Beta | Sig. |
| 1 | (Constant) | | .000 |
| | Management | .034 | .498 |

This shows that the relationship between Management Factors and Resistance is negative.

Hypothesis (3) : There is an impact of resistance on employee to technological change when adopting of new technologies in the companies

Table 15: Analysis of single direction variables in order to compare the semantics of differences between the variable acceptance rates

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|----------|-------------------|
| 1 | Regression | 85.342 | 14 | 6.096 | 1468.865 | .000 ^a |
| | Residual | 1.598 | 385 | .004 | | |
| | Total | 86.940 | 399 | | | |

This shows that the relationship between Resistance and Human Factors is significant ($F = 1468.865$, $p = .000$).

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|---|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .125 | .028 | | 4.467 | .000 |
| | Are employees rewarded when the technological change is successfully implemented? | .068 | .003 | .138 | 19.865 | .000 |
| | When employees resist the technological change, is their job performance in the company affected? | .069 | .003 | .160 | 19.965 | .000 |
| | Does the resistance to technological change impact the employee's loyalty to the company? | .063 | .004 | .131 | 16.167 | .000 |
| | Are there clearly defined implementation steps to employees for the technological change process in your company? | .066 | .004 | .143 | 18.126 | .000 |
| | Is there any conflict between the employees' expectations for their jobs and the goals of your company within the new technological change? | .070 | .004 | .150 | 18.217 | .000 |
| | Does the management of the company look for and solve the issues of the employees during the technological change? | .070 | .003 | .162 | 21.287 | .000 |
| | Do employees have the fear of the uncertain outcomes of the new technological change? | .067 | .003 | .149 | 19.336 | .000 |

| | | | | | |
|---|------|------|------|--------|------|
| Do the employees lack the necessary information, skills and adequate training to accept the new technological change? | .065 | .004 | .135 | 17.389 | .000 |
| Are employees comfortable with the current technology and the routine procedures? | .070 | .003 | .179 | 23.028 | .000 |
| Do employees desire to keep the existing positions in the company? | .073 | .004 | .162 | 20.494 | .000 |
| Is training given with supporting materials to create confidence with system and the processes? | .069 | .004 | .148 | 18.161 | .000 |
| Are ideas openly communicated and encouraged within the implementation of technological change? | .075 | .003 | .191 | 23.707 | .000 |
| Are there long periods of planning before the technological change is delivered? | .072 | .004 | .158 | 19.882 | .000 |
| Do employees understand why technological change is happening and why it's necessary? | .072 | .003 | .154 | 21.080 | .000 |



CHAPTER 5

DISCUSSION

In this chapter, it presents the summary, discussion and recommendations for further application and further research. The results of the research study have been illustrated below with the findings.

5.1 Hypothesis summary:

In this research it can be concluded that there is strong agreement from human factor employees the most important key driver to technological change within a company it can be seen that it is evident that factors such as the change agent lacking the required skills to adopt the new technological changes and lacking the necessary information, skills and adequate training lead to employee resistance to technological change when a company introduces new technology. No such resistance was identified in the management when a company introduces new technology which indicates that management is positive towards the introduction of new technology. Researcher conducted an ANOVA analysis so as to identify the possible relationship between the reasons of resistance and the factors that affect resistance. From the analysis had identified that there are significant statistical differences between the respondents in each of the four companies that have been investigated on human factor which impact to employees the most.

Nowadays organizations that adopt technology have extended their level of communication beyond general correspondence and facilitate online collaboration, community building and the sharing of best practices globally in terms of collaborative learning. Furthermore, managers expressed the belief that most employees do not want to change as they assume the premise that change will always have a negative impact. The

main reasons for resistance towards change are fear of failure, fear of being made redundant and fear about an uncertain future. Managers believe that most resistance occurs when change is seen as negative as many employees think that change will increase work pressure by adding unwanted work, responsibility and accountability.

5.2 Discussion:

There are three hypothesis that discussed in this paper to understands that employee resistance to technology change is mainly due to fear of losing jobs (for example, if they are not able to learn or understand the concepts of the new technology, or maybe there are other skilled employees who may dominate them) or to job dissatisfaction whereby employees feel that they are being put under more pressure to meet organizational objectives and that, in some instances, they are being forced to learn new technology if they wish to keep their job. All these behavioral attitudes lead to employee resistance to technology change. And management factors also lead to resistance to technology change. The researcher identified that managers have a fear of loss of power. Mostly this situation has developed due to the fact that such employees are in senior positions. They do not want to take the risk of losing power and thus they are not able to become, or are not capable of becoming, acquainted with change. When organizations plan to implement change it is the responsibility of managers to know the requirements that are necessary in the change process without having any fear of loss of their job or power; when they do so there is a high chance of retaining them within the organization for long run. The major reasons for resistance to technology change on the part of both management and employees were found to be fear of overload, loss of power, increasing work load, a need to learn and re-learn, and a lack of appropriate reward policies.

5.3 Recommendation for further application

Technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. It is said that technology change can improve a firm's competitive advantage and can increase the overall performance of organizations. It can also be seen that the pace of introduction of new technology appears to be increasing in many industries as these industries modernize in order to reduce cost and compete more effectively in domestic and overseas markets. Thus the following recommendations are put forward for further transparency. It is important for organizations to take steps in order to avoid such situations; organizations can be more specific about the changes and can explain how globalization will benefit employees such as providing better career opportunities in terms of pay and bonuses. Leaders and managers should focus on maintaining a positive work environment and keep the employees motivated so that they can perform well and feel responsible for what they are undertaking within the organization. In order to maintain stability, and by seeking consensus, organizations can meet resistance successfully if they provide feedback, communicate effectively, motivate and provide appropriate training. This will develop a positive response by employees towards their management and will help managers to overcome their fears as regards the issue of loss of power. With regard to communication, organizations should establish consultation with and participation by, the work force when a change process is planned. There is a need to study as to what extent employees and management are able to cope with new systems. There is a need to conduct regular surveys and to collect opinions from employees to know what they need in order to cope with the new technology. The most managers have a fear of losing control and power, fear for the high cost of change, and have a fear of losing their current job. To improve the situation it is vital to see that, when a change process takes place, it is essential for the employees as well as managers to make themselves comfortable in accepting change with the help of training and other knowledgeable sources such as new trends and approaches

that can help the organization in meeting its requirements for the change process.

Employees need regular retraining in order to constantly update their knowledge in all the areas which are essential for an organization's future. Further results indicate that fear of loose of power is one major factor identified as management factors to resistance to technology change. So reasons for fear of loss of power in management perspective could also be studied.



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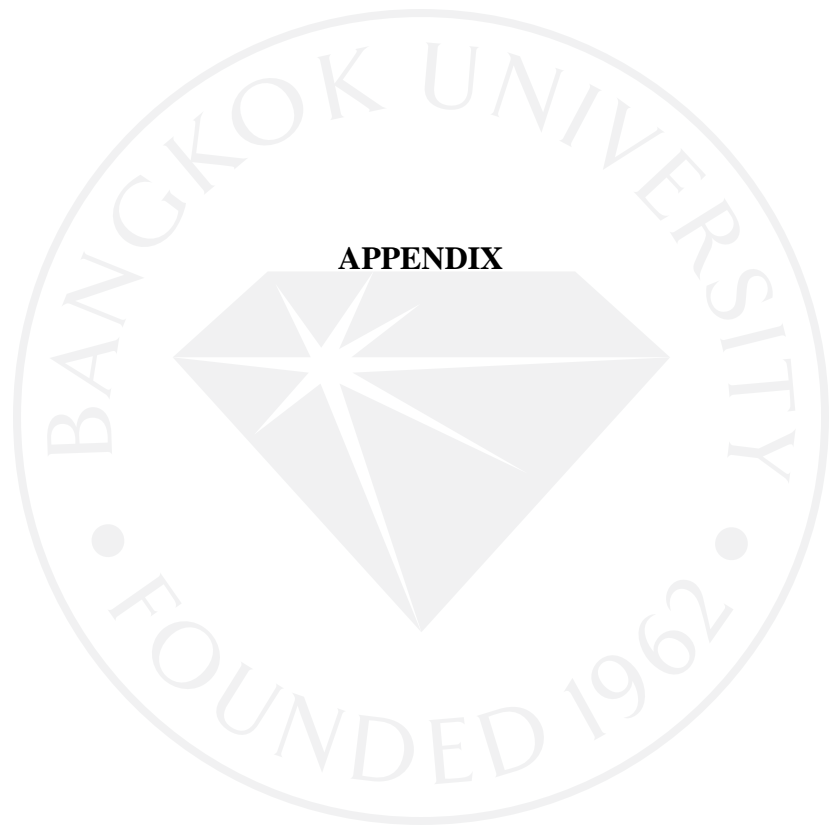
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APPENDIX

Appendix

Research Questionnaires:

The study of key factors resistance to change when adoption of new technologies in the companies – Survey

Part I : Demographic details

1- Gender:

- Male
- Female

2- Age:

- Less than 25 years old
- From 25 to less than 30 years old
- From 30 to less than 35 years old
- From 35 to less than 40 years old
- Above 40 years old

3 - Education level:

- Diploma
- Higher diploma
- University degree
- Higher degree (Master's/PhD)

4- Position in the company:

- Manager
- Accountants
- IT
- Technicians
- Engineer
- Others

5- Name of the company:

- Nawarat Patanakarn Public Company
- TOA Paint (Thailand) Co., Ltd
- Alphatex Industries Co., Ltd
- Alfino International Co., Ltd

6- How long have you been working in the company?

- Less than one year
- From one year to less than 5 years
- From 5 years to less than 10 years
- More than 10 years

Part I : Identify the reasons in human factors & management factors on resistance to technological change when adopting of new technologies in the companies.

2. Which of the following is an important key driver to the technological change in your company ?

- Corporate evolution
- Globalization
- Privatization
- Technological development

3. When your company introduced a new technology, was there any resistance from the employees to the technological change?

- Yes No

4. The following set of questions is to identify the reasons for employees' resistance to technological change in the company, please tick (√) in front of words that correspond with the degree of your answer.

| Ser | | Strongly disagree | Somewhat disagree | Neutral | Somewhat Agree | Strongly agree |
|-----|---|-------------------|-------------------|---------|----------------|----------------|
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Are employees rewarded when the technological change is successfully implemented? | | | | | |
| 2 | When employees resist the technological change, is their job performance in the company affected? | | | | | |
| 3 | Does the resistance to technological change impact the employee's loyalty to the company? | | | | | |
| 4 | Are there clearly defined implementation steps to employees for the technological change process in your company? | | | | | |
| 5 | Is there any conflict between the employees' expectations for their jobs and the goals of your company within the new technological change? | | | | | |
| 6 | Does the management of the company look for and solve the issues of the employees during the technological change? | | | | | |
| 7 | Do employees have the fear of the uncertain outcomes of the new technological change? | | | | | |
| 8 | Do the employees lack the necessary information, skills and adequate training to accept the new technological change? | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| 9 | Are employees comfortable with the current technology and the routine procedures? | | | | | |
| 10 | Do employees desire to keep the existing positions in the company? | | | | | |
| 11 | Is training given with supporting materials to create confidence with system and the processes? | | | | | |
| 12 | Are ideas openly communicated and encouraged within the implementation of technological change? | | | | | |
| 13 | Are there long periods of planning before the technological change is delivered? | | | | | |
| 14 | Do employees understand why technological change is happening and why it's necessary? | | | | | |
| 15 | Does the change agent lack the required skills to adopt the new technological change in your company? | | | | | |

5 - When the company introduces a new technology, is there any resistance from the management to the technological change?

Yes No

6 - The following set of questions is to identify the reasons for management's resistance to technological change in the company, please tick (√) in front of words that correspond with the degree of your answer.

| Ser | | Strongly disagree | Somewhat disagree | Neutral | Somewhat Agree | Strongly agree |
|-----|---|-------------------|-------------------|---------|----------------|----------------|
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Is high cost of change the primary reason for management to resist change? | | | | | |
| 2 | Does the management team have the fear of losing their current job title in the company? | | | | | |
| 3 | Does the management in the company have the fear of losing the control and power? | | | | | |
| 4 | Does the management team work extra time to learn more about the new technology and manage the technological change successfully? | | | | | |
| 5 | Does management team involve employees in designing the technological change? | | | | | |
| 6 | Does the management team have the feeling of in-difference to their subordinates? | | | | | |
| 7 | Do managers have priority of other businesses rather than pay attention to technological change? | | | | | |

7- The following set of questions is to identify the necessary strategies to mitigate the resistance to the technological change in the company, please tick (√) in front of words that correspond with the degree of your answer.

| Ser | | Strongly disagree | Somewhat disagree | Neutral | Somewhat Agree | Strongly agree |
|-----|---|-------------------|-------------------|---------|----------------|----------------|
| | | (1) | (2) | (3) | (4) | (5) |
| 1 | Is communication about the change timely and relevant? | | | | | |
| 2 | Does the company provide adequate training courses to increase the job performance and remedy the resistance of change? | | | | | |
| 3 | Does the management team empower the employees in the change process and listen to them to fulfill their needs? | | | | | |
| 4 | Do leaders in the company meet with employees who encounter difficulties in the change process? | | | | | |
| 5 | Is there an effective rewarding policy to pay for performance? | | | | | |

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