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The Factors of Resistance to Organizational Change Management Process:

A Case Study at

Ethiopian Revenue & Customs Authority (ERCA)

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**October 2015
Addis Ababa, Ethiopia**

Declaration

I, the undersigned, declare that this research project is my original work and has not been presented for a degree award in any other university and all sources of the materials used for this thesis have been duly acknowledged.

Signature: _____

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Abbreviations

ERCA: Ethiopian Revenue and Customs Authority

BPR: Business Process Reengineering

V: a single predictor

IV: Independent Variables

DV: Dependent Variables

Abstract

In this paper, the factors of resistance to organizational change management are studied in view of the Lewin's three phase model of change process. The coefficients of fifteen sources of resistance were the critical cancers and were weighed against which sources of resistance presents higher disparity of impact in the phases of the change process. One hundred fifty questionnaires were distributed randomly in ERCA, Addis Ababa. A unidirectional logit regression of odds ratio and marginal function analysis was used to get a finding that age and gender are not predictors to resistance, while education and experience are negatively and positively predictors respectively. It is also found that a variable factor can have varied significance level in the unfreezing, moving and refreezing phases of change a process. In this regard vulnerability driven factor was the highest significant factor in the first two phases while managerial incapability driven factor in the last phase of change management process.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Research

Nowadays, many literatures about organizational change like for example (Rumelt, 1995; Frankwick, 1995; Freeze, B.1998) make their introductory paragraph as an obligation to underscore change as a steady state of the contemporary organizations. This thesis is no exception. Organizations have to change to adapt to the new demands of their environments. But implementing change is so difficult that it is a miracle if it is enhanced easily. One major traced barrier for implementing change is resistance from employees Schein (1995). Many psychological and management literatures describe resistance as a normal or even natural psychological response to change, Rumelt (1995).

Some scholars like Rumelt (1995) said that the stability of human behavior is based on a quasi-stationary equilibrium maintained by a complex field of driving and restraining forces. For change to be accepted, then, the equilibrium needs to be destabilized before old behavior can be discarded (unlearned), and the future should promise to be better. For others like Lewin (1947a) human's sense of self is defined by one's context of the known and learning. Change, which represents the unknown, then forces to redefine oneself and one's world. Resistance is then a result of this fear. Still others like Gebriel (2002) extrapolate resistance to come from the combination of managerial problems, level of social placement, and vulnerability issues which is the focal interest of this study.

The Ethiopian Civil Service which was formally established during the reign of Menelik II in 1907 underwent a series of structural and strategic changes commensurable with new needs and global imperatives, Getachew H. & Richard K. (2006).

The organ which is currently operating as Ministry of Civil Service is practicing change management principles and knowledge in the public organizations. In the recent five to ten years, change is a day to day agenda to almost all public sectors of Ethiopia. Almost all public organizations of the country have tried Business Processing Reengineering (BPR) since 2003, (Tilaye, 2007, & Yetimgeta, 2007). While many failed to successfully practice BPR (Tilaye, 2007), the following public organizations were the first successful ones; Commercial Bank of

Ethiopia (CBE), Transport Office, Ethiopian Revenue and Customs Authority (ERCA), Ministry of Trade and Investment, Ministry of Agriculture and Rural Development (Tesfaye, 2009).

Important question that must be posed now is how these organizations were successful to practice BPR. While so many factors can contribute for the failure or success of a change effort, for it is not manageable to exhaust all, resistance to change is separately taken for this study while the Ethiopian Customs and Revenue Authority (ERCA) is the target of the study. There are four criteria to select ERCA as a population. First, the authority is among the best successful implementers of BPR as per Tesfaye (2009). Second, as managing change resistance takes the greater share on the successful implementation of change management (Ansoff, 2009; Marc Maltz, 2008, Lewin, K., 1947), and the authority has successfully managed it. After considering these issues the third criteria is, as of Levy & Merry (1986), to make a clear and successful research on resistance, the organization had to be involved at least in a major or second-order change process. As of the same author, this kind of change processes affects the strategy, structure, culture, technology, and work processes of an organization. It is more likely to find resistance in second-order change processes than in situations where little improvement is sufficient to deal with external demands or to solve internal problems. So, the third criterion for selecting Ethiopian Customs and Revenue Authority (ERCA) as a case is due to that the authority has made a second order or major change. Fourth, the needed variable factor in using logit regression and sample match can be gained in this target.

The study is interested on identifying the most significant issues that managers leading any change process at any phase should be aware of; meaning to note that which source of resistance at what phase of change presents the highest impact on change effort and determine which aspects should be specially considered at an organizational change.

Then what possible spring points of resistance are there in employees to downpour or secrete confrontation during managerial change effort so that possible counter avoiding can be designed.

1.2 Problem Statement

This study follows firmly the three phase model classification of change process of Lewin (1947), which is a well renowned model by a well known scholar in the field of management, and takes backups and extrapolations from many other authors whom arguments and principles circle around the Lewin's model. Resistance to change is a topic of interest for researchers in the field of management and business administration. Pardo *et al.* (1999), for instance, made an empirical study on resistance to change;

- To observe if resistance is higher in strategic than in evolutionary change and found the more radical and transformational the change is, the more powerful resistance to change is.
- To know which sources of resistance present a higher disparity considering evolutionary and strategic changes and found the source related to deep rooted values followed by conflict of interests between employees and managers, and the existence of change values that are against organizational values that hinder change is highly inconsistent.
- To compare the degree of importance of the sources of resistance in general, in evolutionary and in strategic changes, and found that in evolutionary changes the progression of the importance of the sources of resistance is almost the same as in changes in general. Conversely, in strategic changes such hierarchy was found altered. For example, the lack of a creative response was eleventh in general changes and thirteenth in evolutionary changes, but it moved up to the fourth place of importance in strategic changes.

Therefore, in this study all sources of resistance are grouped in to three that is demographic attributes of employees' driven, personal vulnerability driven as well as managers' incapability driven factors for which their theoretical underpinnings can be seen in the literature review. The coefficient of all sources of resistance are the critical concerns of this study and are weighed against which aspect of sources of resistance presents a higher disparity of impact considering the phases of the change process. The specific areas that this study assumed need to be empirically investigated are:

- How are the vulnerability driven factors of resistance and factors related to the managerial incapability regarding their strength and distribution over the Lewin's three phases of the change process (Unfreezing, Moving and Refreezing).
- How is the significance level of the effect of specific factor under vulnerability driven and the same under managerial incapability driven factors over the phases.
- The existence and distribution of resistance over the demographic attributes of an individual within an organization; how is distributed over age, gender, over experience and educational level, if any

1.3 Gap Identification of the Research

The following are some characteristics that set this study apart from the previous researches conducted on the issue. They entail which problems were covered so far and which were not, which specific problem is to be covered now from among the universe of the issue and which is not.

1. While the above study, Pardo *et al.* (1999), focuses on the disparity of resistant to changes compared between evolutionary and strategic types of changes, whether the strength of the factors of resistance is similar or not on all the phases of the change process (unfreezing, moving and refreezing), is not on its domain, for which the current study is interested to cover this gap. Even if there are consensuses on the theoretical underpinnings on the relationship between demographic characteristics of an employee and the tendency to resist changes, this study aims at verifying their relationship based on empirical results. This contributes not only on adding new knowledge but also on the confirmation of the existing knowledge if the theories are confirmed.
2. This topic and scope of study is its first in type to the Ethiopian Revenue and Customs Authority (ERCA) as primary data confirms and to my knowledge and may hopefully show a localized perspective of the facts on resistance to change as they may be affected by local view points, culture, technology and political setups.

So, these facts are believed by the researcher to somehow contribute for the peculiarity of this study and thereby for the necessitation of conducting this research.

But, while each resistance variable's statistical significance at different level of the change process (individual, group and organizational level) for the inertia to change are not determined by Pardo *et al.* (1999), the current study has not also covered it; but believes this perspective is

part of the universe of the issue and need to be covered despite the fact that decision is not made to cover this specific problem in this study.

Generally, the need to get depth & scale in some cases and verify the issues that the scientific community has theoretically agreed on other cases, thereby to reach evidenced conclusion backed by compendium of empirical studies constitute the basis for undertaking this move.

1.4 Objectives of the Research

The main objective of the study is to determine the factors that attribute to resistance of change management in ERCA. Specifically, it aims:

- To find out the degree of significance of each of the agreed sources of resistance to change with respect to the Kurt Lewin's three phases of change management process.
- To determine whether demographic attributes of an employee like age, gender, education and experience have any significance to resistance to change management.
- To determine the significance level of personal vulnerability on resistance to change management.

1.5 Hypotheses of the Research

The following three debatable points were considered in tradeoff to one another; then which one is declined and which other one accepted are put after the statistical tests.

- H_1 : A single factor of change resistance can have varied significance level on different phases of the Lewin's three phase's model of change process.
 H_0 : A single factor of change resistance cannot have varied significance level on different phases of the Lewin's three phase's model of change process.
- H_1 : Demographic attributes of an employee are significant to the tendency to resist an organizational change effort.
 H_0 : Demographic attributes of an employee are not significant to the tendency to resist an organizational change effort.
- H_1 : Personal vulnerability presents highest significance level on resistance to change throughout all the phases of the change management process.
 H_0 : Personal vulnerability doesn't present highest significance level on resistance to change throughout all the phases of the change management process.

1.6 Significances of the Research

Some of the significances of this study are:

- It may contribute for the academic to the knowledge of resistance to change from perspectives like the phases of the change process, typology of changes, as well as drivers of resistance by a large compendium of empirical study and different theoretical underpinnings existed separately in discretion forms.
- It may provide for the public and business sector analytical reflections on which possible source of resistance should be specially considered and which to need customized focus according to the phases by showing which concern to increase with what phase, type and level of change it is.
- Besides, it can be taken as reference for other researchers to conduct further research on the topic, or others can refer on the methodology of this study.

1.7 Scope of the Research

For reasons to be explained in the methodology part, the study is geographically delimited to the internal environment of the ERCA headquarter and in the 18 branches.

This study is conceptually delimited to the determinants of change resistance on selected types of changes that have happened in the Ethiopian Revenue and Customs Authority (ERCA). Literally, two perspectives, change types and phases of change processes, are the major concepts to be covered.

From magnitude perspective, resistance on transformational type of change, as many considers BPR to be transformational; for example *Stephen & Godwin* (2010) are covered. But there will always be incremental and major changes as a subset of transformational changes. So, the study also covered these small changes, too. The same is true from focus wise; it is mainly strategic, but operational and evolutionary changes are also there. But resistances according to the level of change, meaning individual, team/unit as well as organizational levels are not seen.

Hoping to observe variable factors significance in different phases of the change process, the Lewin's (1947) three phase's model of change process (unfreezing, moving and refreezing) is exhaustively dealt with.

1.8 Limitations of the Research

The research dwells to the unidirectional simple logit regression analysis. While some may expect the simultaneous or bidirectional/two way/ effect of the dependent and independent variables, for the simultaneous relationship of the variables in this topic would make no sense, the simultaneous model is out of reach of this study.

According to Geoffrey M.et al. (2005), any research has to comply with the following reliability and validity indexes; external, constructive and statistical validity indexes as well as test-retest reliability indexes.

Accordingly, this study lacks external validity; meaning the results of the study may not generalize to conditions, participants, times, and places other than the stated one.

However, the rest validity indexes are fulfilled in that constructive validity is mentioned because any question and variable factor indexing element is guided by strong theoretical underpinnings which serve as base for the causal relationship and empirical test of variables. Statistical validity is also fulfilled in that any aspect of the data quantification and data processing modeling is logit model that is well distinguished in realms of research as a powerful model to analyze a data with a binary categorization.

From reliability angle, this study lacks the test-retest reliability in that stability of test scores overtime is not well known because this action is not repeated on another occasion or time. Another limitation is that the data is as true as the honest of the respondents; assumption is respondents are honest. Besides to this, individual's decision to behave in some way is an amalgamated result of various inner processes that no research can comprehend and exhaust the inner process rather what is seen is the final decision of the person only, which has unavoidable impact on the accuracy of the research.

All in all, under the unavoidable limitations, using the aforementioned tactics, the study has tried to get data that helps support or reject the established hypotheses of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The following two major issues to the fore are put in this chapter to form the theoretical framework by wholly basing the theoretical and empirical underpinnings to show the relationship:

- The theoretical and empirical backgrounds of what change management, its types and phases and why of change management
- The theoretical and empirical backgrounds of resistance to change management, sources of resistance in relation with the phases of the change process.

2.1 Theoretical Backgrounds of Organizational Change Management Process

Organizational change management is an important aspect of the discipline of management that tries to ensure that a business or any organization of people and asset responds to the environment in which it operates, (Van de Ven and Poole, 1995), by a conscious introduction of new ways of thinking and operating that suit the demand of the changing world for better future (Freese, 1998). Change management occurs when you need to adapt to the environment (Child and Smith, 1987; Leana and Barry, 2000), or when you are dissatisfied with where you are (Boeker, 1997). Dealing with change is inevitable.

Change management has got different typologies. Changes can be defined along continuum starting in magnitude (incremental, major changes and transformational), by focus of change (strategic or operational), by level of change (individual, team, organizational), (Bernard, 2004, Strebel, 1994), and by phase of change (unfreezing, moving and refreezing), (Kurt Lewin, 1947).

a) From magnitude perspective

Change management is classified into the following three types in magnitude viewpoint

- 1) Incremental changes are small changes that alter certain small aspects, looking for an improvement in the present situation, but keeping the general working framework (Levy, 1986).
- 2) Major changes are substantial changes in an organization and its operations (Nadler and Tushman, 1989). Examples include BPR, organizational restructuring, being effective and efficient in service delivery, enhancing the efficiency of the revenue collection to a high level, etc.

3) Transformational changes are radical changes where the organization completely changes its essential frameworks and values (Ghoshal and Bartlett, 1996) and affecting the core concepts of the organization (Ruiz and Lorenzo, 1999).

b) From Phases of the change process viewpoint

Kurt Lewin's three phases of change Management process theory.

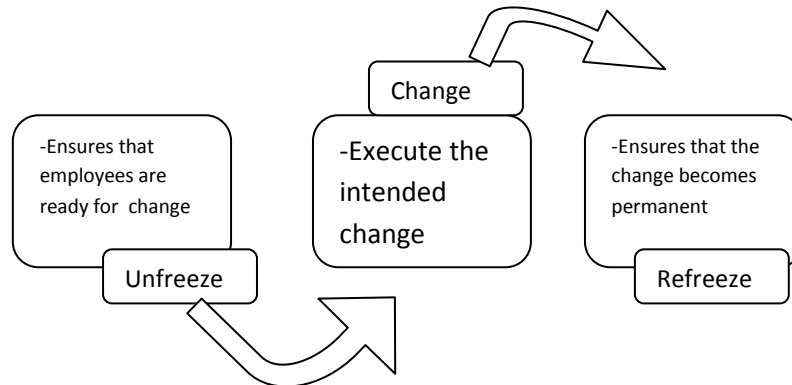


Diagram 1: Lewin's three step process

Source: [http://WWW.flatworldknowledge.com/pub/1.0/principles – management – andorga/32778#web-32778](http://WWW.flatworldknowledge.com/pub/1.0/principles-management-andorga/32778#web-32778)

Kurt Lewin is often cited for his key contribution to organizational change (Burnes, 2004; Rumelt, 1995). A successful change project, Lewin (1947) argued, involved three steps, which is known as the unfreezing-change-refreeze model, Burnes (2004).

Stage 1 – Unfreezing

According to Lewin's (1947) argument, the stability of human behavior was based on a quasi-stationary equilibrium supported by a complex field of driving and restraining forces. He argued that the equilibrium needs to be destabilized (unfrozen) before old behavior can be discarded (unlearned) and new behavior successfully adopted. It means getting motivated to change this phase of change is built on the theory that human behavior is established by past observational learning and cultural influences. Change requires adding new forces for change or removal of some of the existing factors that are at play in perpetuating the behavior. The unfreezing process has three sub-processes that relate to a readiness and motivation to change for proper unfreezing to occur.

1) Disconfirmation of the validity of the status quo; where present conditions lead to dissatisfaction. However, the larger the gap between what is believed and what needs to be believed for change to occur, the more likely the new information will be ignored.

2) The induction of guilt or survival anxiety; previous beliefs now being seen as invalid creates “survival anxiety”. However, survival anxiety may not be sufficient to prompt change if learning anxiety is present.

3) Creating psychological safety; learning anxiety causes defensiveness and resistance due to the pain of having to unlearn what had been previously accepted. Three stages occur in response to learning anxiety: denial, escape gloating & passing the buck; and maneuvering & bargaining.

It is necessary to move past the possible anxieties for change to progress. This can be accomplished by either having the survival anxiety be greater than the learning anxiety or, preferably, learning anxiety could be reduced, Schein (1996)

Stage 2 – Moving (Changing)

Once there is sufficient dissatisfaction with the current conditions and a real desire to make some change exists, it is necessary to identify exactly what needs to be changed. Three possible impacts from processing new information are: words take on new or expanded meaning, concepts are interpreted within a broader context, and there is an adjustment in the scale used in evaluating new input.

A clear view of the new state is required to clearly identify the gap between the present state and that being proposed. Activities that aid in making the change include imitation of role models and looking for personalized solutions through trial-and-error learning.

As Schein (1996), unfreezing creates motivation to learn but does not necessarily control or predict the direction. This reflects Lewin’s view that any attempt to predict or identify a specific outcome from planned change is very difficult because of the complexity of the forces concerned. Instead, one should seek to take into account all the forces at work and identify and evaluate, on a trial and error basis, all the available options (Lewin, 1947).

Stage 3 – Refreezing

Refreezing is the final stage where new behavior becomes habitual and the change is permanent which includes developing a new self-concept and identity and establishing new interpersonal relationships. It seeks to stabilize the group at a new quasi-stationary equilibrium in order to ensure that the new behaviors are relatively safe from regression. The main point about refreezing is that new behavior must be, to some degree, congruent with the rest of the behavior, personality and environment of the learner or it will simply lead to a new round of disconfirmation (Schein, 1996). This is why Lewin saw successful change as a group activity, because unless group norms and routines are also transformed; changes to individual behavior will not be sustained. In organizational terms, refreezing often requires changes to organizational culture, norms, policies and practices (Cummings and Huse, 1989).

2.2 Theoretical Backgrounds of Resistance to Change Management

Different authors have classified sources of resistance from different perspectives. After wide range assessments of the various sources of resistance under different names and angle of looking, the researcher heavily followed Rumelt (1995), but divides the sources of resistance into three groups. To entertain different perspectives from other authors, other sources of resistance are added to Rumelt's proposal. Some sources of resistance which were treated separately by Rumelt (1995) are mingled with other similar sources and gained another general name. The names of the groups are also altered in order to include the new sources, insights and perspectives.

Accordingly, in this study all the determinants of resistance stated by different authors are made to lay fewer into three general factors mainly; demographic attributes driven factors, vulnerability driven factors or managerial incapability driven factors.

2.2.1 Theoretical Backgrounds of Resistance to Organizational Change Management Process

A) Demographic Characteristics Driven Factors

For reasons not reached or/and covered in this study, individual level attributes or person oriented issues, which are equally crucial for the success of change (Maria V. et. al (2003)), have been neglected in many of the scientific studies on organizational change, despite organizational characteristics in change process has been extensively discussed in areas of management literatures. So, the purpose of the present study is to add a different way of looking and working with

organizational change by focusing on individuals' demographic attributes, but personal traits are not also failing under the scope of this study despite the fact that they are personal factors. This paper will explore how individuals' demographic attributes can hinder or rather facilitate organizational change at an individual level by exploring the relationship between these attributes and attitudes toward organizational change.

After a thorough revision of literatures, the study has got it more sounding to concentrate on the following employees' demographic attributes as highly pronounced by Rumelt (1995) for the empirical to be detailed under each subsection of the attributes; age, gender, educational qualification and work experience are brought to debate for many scholars on their significance level to resistance to organizational change management.

B) Vulnerability Driven Factors

According to Marc (2008), change affects the various boundaries within an organization. Boundaries to mark are the technical, formal and informal structures that an individual will assume in his or her job position and summarized them into three groups.

- Role is the place a person is assigned in an organization,

- Task is the act required by an individual to work for achieving an output,

- Authority is how the above roles and tasks are authorized, what decision-making authority an individual or group has.

During any change process, the alignment of these boundaries becomes skewed than impacts role, task and authority. Resistance, then, is the way the employees protect themselves from the tilting, operational unfamiliarity, work load and regulatory tightening and the emotions connected to these losses that come from boundary shifts.

As Peter (2007) stated resistance is tied to our belief systems, culture, familiarity in our own and the tension of losing future general benefits or not meeting our future goal. He assumes that our fear of loss is at the heart of change. Resistance is a result of this fear, an expression of how people feel about the change effort at hand. When things change, people begin to worry about what they might lose, including job and position, income and benefits and work place & social destructions. According to William (1980), human's sense of self is defined by his or her roles, his or her responsibilities, and his or her context of the known and learning. Change then forces to redefine

oneself and one's world. Change represents the unknown. Change could mean the possibility of failure, the surrender or diminishing of one's span of control and authority or anything of that sort for that matter. Employees do not want to lose the familiar, safe, routine ways of life in favor of the unknown and possibly unsafe area. As humans, one tends to prefer routines and accumulate habits easily since humans' behavior which is the function of learning is shaped by rehearsal and usualness. Any one of these possibilities can cause fear, then causing resistance; however, fear of change may be attributed to or can engulf even more than the mere tendency towards regularity or adaptation.

C) Managerial Incapability Driven Factors

The factors that can be brought to this category of sources of resistance according to SADC (2000) were:

- Knowledge and skills of the leader- change will be resisted if the change agent cannot effect change and does not have the appropriate knowledge and skills to practice, if cannot educate the implementers on what the change is all about, cannot communicate the objectives that should be achieved and if any doubts and questions the population has is not dispelled and answered promptly,
- Poor communication (lack of information, misinformation)- workers carrying out the change are not informed about the targets of the change; the requirements to introduce the change and how the change will be introduced are not communicated; if incorrect information is given and the usefulness of the change is not well taught,
- Organizational climate with low trust- if there is mistrust in the organization,
- Weak relationships- when relations between the change agent and the employees are not smooth,
- Fear of failure- if employees are not sure of the outcomes.

2.3 Resistance relating to the phases of change process

A) Sources of Resistance in the unfreezing stage

The under mentioned sources of resistances are the sources that are mainly proposed by Rumelt (1995) but have got many supports from others too. These are taken as a basis to formulate the theoretical framework of the current study but are manipulated in a way that can entertain other way of looking from, for example, listed in the above theoretical and empirical underpinnings. When the frame work is constructed, it has got some sort of new name, general inclusive phrase in a very short way but for now, let's directly go to Rumelt's proposal.

1) Managerial Incapability driven factors it includes:

- Myopia- inability of the organization to look into the future with clarity (Rumelt;1995,Barr et al., 1992);
- Communication barriers-information distortion or misinterpretations (Hutt et al., 1995;Rumelt,1995);
- Organizational silence-individuals who do not express their thoughts and meaning (Rumelt, 1995; 2000;Nemeth, 1997);
- Past failures which leave a pessimistic image for future changes (Rumelt, 1995; Lorenzo, 2000).

2) Vulnerability driven factors

- Direct costs of change (Rumelt, 1995)
- Cannibalization costs, change that brings success to a product but at the same time brings losses to others, (Rumelt, 1995);
- Cross subsidy comforts; because the need for a change is compensated through the high rents obtained without change with another different factor, (Rumelt, 1995);
- Different interests among employees and management; employees value change results less than managers value them (Rumelt,1995; Waddell & Sohal, 1998);
- Complex environmental changes; do not allow a proper situation analysis (Ansoff, 1990; Rumelt, 1995).

B) Sources of Resistance in the moving stage

This phase is phase of implementation which is the critical step between the decision to change and state of stability in the new world (Klein and Sorra, 1996). In this phase also, two sources of resistance can be found, mainly;

1) Vulnerability driven factors

- Implementation climate; relation between personal change values and organizational values, (Klein and Sorra, 1996; Rumelt, 1995);
- Denial; refusal to accept any information that is not desired (Rumelt, 1995);
- Departmental politics or resistance from those departments that will suffer with the change implementation (Rumelt, 1995);

- Incommensurable beliefs; definitive disagreement and conflict among groups of workers about the nature of the problem and its consequent alternative solutions (Klein and Sorra, 1996; Rumelt, 1995);
- Forgetfulness of the social dimension of changes (Lawrence, 1954; Rumelt, 1995);
- Forgetfulness of the social dimension of changes (Lawrence, 1954; Rumelt, 1995).

2) Change agent's incapability driven factors : The factors that fall under this category according to Rumelt, (1995) are;

- Leadership inaction, leaders are afraid of uncertainty
- Collective action problems, difficulty to decide who is going to move first
- Capabilities gap, lack of the necessary technical capabilities to implement change.

C) Sources of resistance in the refreezing stage

- Perpetuation of ideas-,the tendency to go on with the past thoughts even after the situation has changed
- Deep rooted values and emotional loyalty
- Inadequate strategic vision, lack of clear commitment of top management to changes (Rumelt, 1995: Waddell and Sohal, 1998).

In this phase based categorization, demographic driven factors are not listed because one thing they are not under the proposal of Rumelt (1995) and second thing demographic attributes will not basically change in the phases of change process.

2.3.1. Empirical Backgrounds of Resistance to change management

A) Vulnerability driven factors

Tesfaye (2009,), who made his studies in the then Ethiopian Ministry of Capacity Building and Ethiopian Roads Authority about resistance to change revealed that change resisters were due to fear of losing their jobs, while many were waiting to see group that feel indifference about the change, and few tried to protect their friends or subordinates, He also found that the acronym “BPR”, the phrase “Result Based Performance Management” and the word “reengineering” was associated with downsizing thereby had become the sources of fear and insecurity for many of the civil service employees. It was also assumed that according to the same author these words

are meant for eliminating non –value adding activities, then automating the previous manual activities lead to at least cost reshuffling of employees or downsizing the workers unless the volume of work remained same otherwise. He further assumed that horizon integration leads to the combination of two or three functional processes into one which resistance was not to abandon their status and benefits while BPR was assumed to cause obsolescence of their knowledge.

Finally, he gave a concluding remark of his research by stating the major causes of resistance are fear of losing position, jobs, benefits, status and obsolescence of skills and knowledge while he found that resistance of change could come from all managerial levels.

According to SACD (200), which made its study in South African companies, the reasons that can be brought to this category of sources of resistance were: fear of the unknown (uncertainty about causes and effects of the change), threat to status (reduction in the size of an organization then to lose their top posts or positions) and threat to power base (reduce the influence one has if resisted by the affected persons).

B) Managerial incapability driven factors

The determinants that can be brought to this category of sources of resistance according to SACD (2000) which made its study in South African companies were;

- Knowledge and skill of the leader (if the change agent cannot effect change and does not have the appropriate knowledge and skills to practice if cannot educate the implementers on what the change is all about, cannot communicate the objectives that should be achieved and if any doubts and questions the population has is not dispelled and answered promptly), change will be resisted,
- Poor communication which seems the same with the above but differs in that it concentrates in one lack of information (workers carrying out the change are not informed about the aims of the change and the requirements to introduce the change and how the change will be introduced are not communicated) second, when misinformation (if incorrect information is given and the usefulness of the change is not well taught) happens,
- Organization climate with low trust if there is mistrust in the organization,

- Weak relationships- when relations between the change agent and the employees are not plain,
- Fear of failure- if employees are not sure of the results,
- Unclear benefits- if the benefits to be gained out of the change are not clear, if there is no any motive to go forward,
- Fear of looking stupid-when the procedures for implementing the change are not clarified or are unfamiliar to the employees.

As stated by Beer and Nohrian (2000), seventy percent of change efforts fail because of the incapability of the top and middle level managers of change mainly; the absence of clear strategy and foreseeable vision, miscommunication and trust, lack of top management commitment, lack of resources needed to fully practice the change, lack of managerial skills on change management and lack of managing resistance to change.

C) Demographic Attributes Driven Factors

1) Age

According to Bouti (2010), who studied the relationship between employees' age and their resistance to change by considering organization tenure as moderators in explaining the age / resistance to change association, a negative relationship between age and the tendency to resist change was found, that implies that younger employees were more resistant to change than older ones. He extrapolated his study to find out the behind why of the observation, then stipulated that having a longer work tenure are identified as positive boundary conditions for the observations

on the relationship of the two to be opposite. But according to Maria and Ioannis (2005), no differences were identified among the four age groups of their samples.

2) Educational Attainment

Maria V. et al. (2003) studied on the relationship between personal variables and attitudes towards organizational change. To identify whether educational attainment affects employees attitude towards organizational change, he put four levels: basic education, further education degree, university degree and post graduate degree then found that there is a significant effect of educational attainments on resistance to change in that university graduates express less positive attitudes than both the postgraduate and further education graduates but according to Maria and

Ioannis(2005), education showed a positive impact on attitudes towards change in that employees with higher education are better equipped to meet new challenges at work then supported their ideas that Iverson (1996) confirmed their finding.

3) Gender

Maria V. et al. (2003), studied on the relationship between personal variables and attitudes towards organizational change. He wanted to examine whether there is significant difference between males and females regarding their attitudes towards organizational change. The result of his study revealed that there was no gender difference regarding attitudes towards the organizational change. Sverdlik and Oreg (2009) also observed that no significant difference between men and women in terms of resistance to change management if gender is treated independently. But through interaction effect of the combination of gender and experience, males who had held a position of authority at an earlier employer were less likely to resist change than those who did not fit those criteria (both being male and previous position).

But according to Maria and Ioannis (2005) aiming to investigate whether gender affects both attitudes to change and stress at work, they conducted independent t-tests and consequently femaleness scored higher than males on attitudes towards organizational change suggesting that males tend to be more reluctant than females towards organizational change. In terms of occupational stress, they reported that males also scored significantly higher than females on a number of scales that they used to as indexing; mainly work relationships, overload and overall job stress indexes that they believed that change would bring them, demonstrating thus higher levels of occupational stress is found in males compared to females.

Identifying the difference between men and women in change process is also complex since there are feminist men and non-feminist women, Sverdlik and Oreg (2009).

4) Experience

According to Sverdlik and Oreg (2009), while all of the demographic variables treated individually have not predicted resistance to change, three combination of the variables mainly; gender, work experience, and administrative responsibilities at various place of employment together negatively predicted the outcome variable (resistance to change), but not until the interaction was observed a significant change.

2.4. Theoretical framework of the research

The following sources of resistances are sources that are extracted from the whole review of literature. The base is Rumelt (1995) but has got many supports from others too. These are taken as a basis to formulate the theoretical framework of the current study but are manipulated in a way that can entertain other way of looking from, for example, listed in the beginning document titled as theoretical and empirical underpinnings. When the frame work is constructed, it has got some sort of new name, general inclusive phrase in a very short way. A summary of this literature review of resistance results in the following sketch of the common view of the concept.

Table 2.1: Main Variables

Demographic attributes driven factors	Age Gender Educational status Work Experience
Vulnerability driven factors	Future work load Future job security and position Future income and fringe benefits Social destruction and operational unfamiliarity Future Rules and regulations
Managerial incapability driven factors	Myopia/ shortsightedness Interpretation/ communication barriers Organizational silence / apathy Existing investment Past failure and uncertainty anxiety Implementation capability's gap

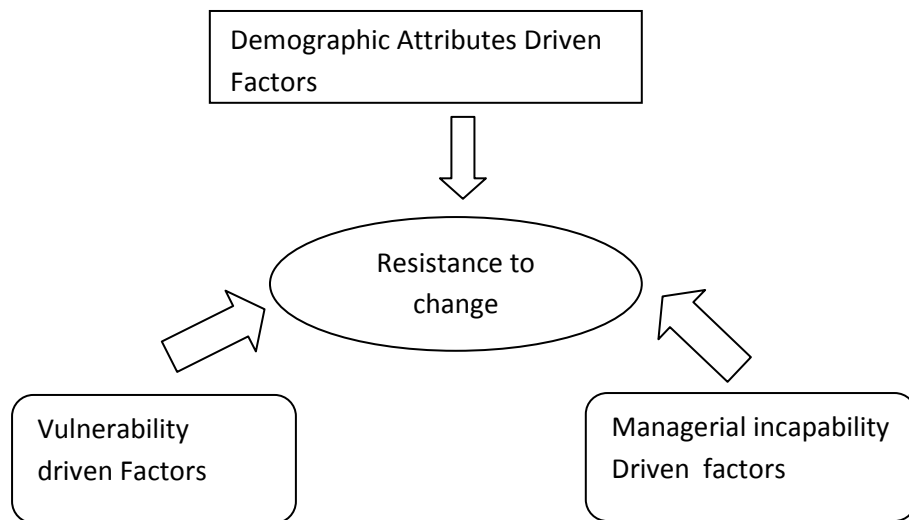
Source: compiled from literature review

Table 2.2: The Variable Relationship

Independent variable	Dependent variable
Managerial incapability driven factors	Resistance to organizational change management
Demographic Attributes Driven factors	
Vulnerability driven factors	

Source: compiled from literature review

Diagram 2: A relationship that shows the variable prediction



Source: summary of literatures

After this theoretical exposition, if sources of resistance resulting from the literature review agree with the ones observed in organization practice are checked. Finally, the relationship between sources of resistance in the theoretical framework and the dependent variables are analyzed.

CHAPTER THREE

METHODOLOGY OF THE RESEARCH

3.1 Research Design

This research is interested to study the causal relationship of each of the independent variables and the dependent variable on resistance to change. So, apparently, it follows causal research design. The study has, therefore, assumed a causal type of research design that suits for this study having the following causational features of the variables.

- It believes that variations in the independent variable will be followed by variations in the dependent variable, when all other things are equal, and so do the hypothesis of the current study.
- It is concerned with describing the causal relationships of the variables.

3.2 Sample Design

3.2.1 Target Population

The population taken for this study is the employees of Ethiopian Revenue and Customs Authority (ERCA). It has two criteria for selecting this case.

As of Levy & Merry (1986), to make a clear and successful research on resistance, the organization had to be involved in a major or second-order change process. This kind of change processes affects the strategy, structure, hierarchy, culture, technology, and work processes of an organization. It is more likely to find resistance in second-order change processes than in situations where little improvement is sufficient to deal with external demands or to solve internal problems. So, the first criterion for selecting ERCA as a population was due to that the authority had made a second order or major change by BPR.

As of Seashore (1987), an appropriate population to be targeted to work with the feedback method is that the population of the case would be medium-sized (i.e., has 100 to 500 respondents as the author defines medium sized). So, this was the second criterion for selecting ERCA as the needed amount can be gained in the authority .

3.2.2 Sample Frame

For a reason to be explained in the sample size determination, from among the 29 branches of the ERCA, 18 branches and headquarter were taken that are found in Addis Ababa for a reason to be

explained in the sample size determination. Selecting Addis Ababa has the following cost and scientific advantages;

- Its reputation for better implementation of the reform programs and thereby for better practice of the designed second order change process, as resistance to change process can be better observed in major changes like strategy, culture, structural, hierarchical, and operational changes, (as of Levy & Merry (1986)).
- Closeness of branches to one another that may relatively have similar trends and practices on the reform program then for better validity and accuracy of data.
- Due to proximity of branches of the authority, significant time and cost reduction can be achieved.

3.2.3 Determination of Sample size

According to Miller & Kunc (1973) and Halinski & Feldt (1970) as cited by James B. et al. (2001), not to face the risk of over or under fitting in using logit regression analysis, an optimal sample size must consist of ten observations per an independent variable.

Then, theoretically, there are fifteen causing variables for which their variations thought to be followed by variations in the dependent variable of resistance. Their details are covered in the literature part of this paper.

Thus, taking in to account the idea of the above scholarly people conservatively, the study used 150 as a sample size of the study which is the multiplied output of ten observations and fifteen independent variables of the study. According to Levy & Merry (1986), the top level and middle level managers would have better sight of the problems during the change process. Then in the piloted pre data collection, it is found that on average seven respondents can be found in this position. By dividing 150(the multiplication of ten observations and fifteen variables) to seven, it came 22 branches to be approached for data to entertain these ideas of the scholarly.

The concept of sample penalty is dully applied here as some rigidity is required that data from one hundred fifty should be collected excluding incomplete answers and unfilled questionnaires.

According to James B. et al. (2001), it can be assumed that about 75 percent of the distributed would be collected back correct and therefore in this study it was decided that 25 percent more be distributed. Therefore, 200 questionnaires were distributed and the number of authority branches

to be approached was raised up to 27 while collection was conducted up to the needed correct amount is gained. Response rate was not determined as collection was stopped after complete 150 were collected.

3.2.4 Sample Selection

The sampling used is hierarchical; meaning, non probability sampling methods in taking profile but probability sampling to observe a case. This is because according to Levy and Merry (1986), those who found in higher organizational structure of the authority may have better sight of the situation in change process and are better part of the change as it will affect the hierarchy, strategy and role of the position that they work at. But from among the same profile, probability sample selection is conducted.

Code was given to avoid bias on selection of a case or sample unit. Each sample unit in the population had to get a numerical code according to the name fetched from the organization. The numerical code was submitted to excel which case to select then to be produced objectively in lottery method.

3.3 Type of Data

A retrospective dataset but a snapshot from cross section of the population consisting of current single observations on variables at earlier continued points in time was taken. Time is an important dimension in a causal research design and so do the dataset taken for this study. It believes that respondents asked at a single point can give reliable retrospective reports of what continuously happened to them or what they thought at some earlier continuous points of time designed in a way of making time series analysis.

Apparently, quantitative type of data was required for the study. But to entertain qualitative ideas, a qualitative questionnaire was designed in such a way that it can be changed in to quantifiable one during analysis so that the data could be processed in inferential statistics. The data taken constituted primary only, as it has something to do with the behavioral science and this study believes that behaviors are better studied primarily in person, not from documents.

3.4 Method of Data Collection

The research was carried out based on questionnaire distributed to respondents. Respondents had to answer questions dealing with a change process and the tendency to resist that had happened in their respective departments and subordinates. The questions that are expected to allow establish the planned comparison included a list describing the factors that are considered previously as sources of resistance to change. Respondents were asked to give their confirmation or disconfirmation on indirect statements that talk about how much the before-mentioned sources of resistance had affected their tendency to resist. Respondents had to indicate their position among two points on that continuum. Scoring 0 to indirectly talk that it was not a source of resistance at all, and 1 to mean that such source of resistance had contributions to the tendency to resist but not necessarily that it either made the change agents to rethink on the change strategy and process or had slowing effect on implementation. The questionnaire was designed as flexible enough as possible which can allow respondents to include other sources of resistance that was not on the sight of the study with their respective relative impact on the change effort. Unfortunately, however, none of them added new factor leading to a conclusion that the factors taken were not only appropriate but also complete.

3.5 Method of Data Analysis and Statistical Treatment

3.5.1 Method of Data Analysis

For the reason that the hub and title of the study is binary categorical in its very nature, applying logit regression model of data analysis seems meaningful and appropriate than other analysis and regression models. A binary dependent variable is a dependent variable whose range of values is substantively restricted to two, zero and one (yes or no), Geoffrey M. et al. (2005). Thus; the research used logit to explain the factors for enhancing change management effort successful or hindering change management efforts. Besides to this, the study used descriptive statistics to describe the sample characteristics.

Descriptive analyses were also used to summarize a study sample and single variable factor prior to analyzing the research's primary hypotheses by amalgamating all sub-variables together.

To draw conclusions beyond the immediate samples and data on a single variable, inferential statistics were used in an attempt to draw inferences about the populations from which the samples were drawn as well as about the relative effect of the one variable among others.

3.5.2 Statistical Treatment and Modeling

3.5.2.1. The Logistic Regression Function

The binary logit regression modeling that was used for this study is based on the theoretical backgrounds that resistance is a function of demographic characteristics driven factors, vulnerability driven factors, and managerial incapability driven factors. This is found after so many clash of theories and studies of so many angles then all combined and concluded by the current study in the following manner. These theories are well covered in the literature part.

The function is;

$$R = f(H, M, V)$$

Where;

R = the tendency to resist

H = Demographic attributes driven factors

M = Managerial incapability driven factors

V = Vulnerability driven factors

Then the model is put as follow

The model is; $\text{Logit}(R) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_6 X_6$

$$\text{logit}[p(x)] = \log \frac{p}{1-p}$$

Where:

- X_1 to x_6 are the explaining variables,
- p = the probability that a case is in a resistant category, $1-p$ = the probability not to resist

- The intercept α is the predicted value of R when the x_1 through x_n equal zero when ($\forall x_i = 0$) that is the disturbance associated with; it contains factors other than x_1, x_2 up to x_6 that affect R. It is the log odds of a person with zero value of the current explaining variables but to be in the resistant category.
- β_1 is the parameter associated with the predictor variable x_1 while β_2 is the parameter associated with the independent variable x_2 and so on through β_6 and x_6 .

3.5.2.2 Odds Ratio and Marginal Function Analysis

The statistical tools are brought from Geoffrey M. et al. (2005) and Jamess B. et al. (2001) as shown in the following section that.

For a binary event R (i.e. the event 5either occurs ($R = 1$) or doesn't ($R = 0$)) let

P is the P ($R = 1$)

$$P1 = P(R = 1 \mid V = 1)$$

$$P0 = P(R = 1 \mid V = 0) \text{ where}$$

V is some binary characteristic that is thought to play a role in the conditional distribution of R (resistance). V could be gender, vulnerability, managerial incapability, age, education or experience.

Once one of these predictors are found that they have some influence on the probability of the event R to happen, then these result are presented and interpreted in the following potential parameters of interest:

Computing Odds Ratio from Logistic Regression Coefficient;

Odds

Odds are ratios defined as the ratio of the probability to its complement, or the ratio of favorable to unfavorable cases. If the probability of an event is a half, the odds are one-to-one or even. If the probability is 1/3, the odds are one- to-two.

$$\text{Odds} = \frac{p}{1-p}$$

Log Odds

Natural log of the odds are also known as logit. **log odds = logit** = $\text{logit}(p) = \log \frac{p}{1-p}$. To see this point note that as the probability goes down to zero the odds approach zero and the logit approaches $-\infty$. At the other extreme, as the probability approaches one, the odds approach to $+\infty$ and so does the logit. Note that if the probability is 1/2 the odds are even and the logit is zero. Negative logits represent probabilities below one half and positive logits correspond to probabilities above one half. If, for example, there are 30 vulnerable among the 150 respondents, so we estimate the probability as $30/150 = 0.2$. The odds are 30/120 or 0.25 to one, so non-vulnerable outnumber vulnerable by roughly four to one. The logit is $\log(0.25) = -0.602$. In the vulnerable data the estimated logit was -0.602. Conducting exponentiation on this value one can obtain odds of $\exp(-0.602) = 0.25$ and from this one can obtain a probability of $\frac{0.25}{1+0.25} = 0.2$.

Odds Ratio: The standard way of interpreting a coefficient in logistic regression is using the conversion of it to an odds ratio using the corresponding *exp* (coefficient) value, James B. et al. (2001). This is ratio of ratios. Odds ratio (OR), estimates the change in the odds of membership in the target group for a one unit increase in the predictor. It is calculated by using the regression coefficient of the predictor as the exponent or *exp*.

$$\begin{aligned} \text{Odds Ratio} &= \frac{\text{odds 2}}{\text{odds 1}} = \frac{p}{1-p} \\ &= \frac{P(R=1 | V=1, x)}{1-P(R=1 | V=1, x)} \\ &= \frac{P(R=1 | V=0, x)}{1-P(R=1 | V=0, x)} \end{aligned}$$

If coefficient is equal to 2.69, the odds ratio is $\exp 2.69$ or 14.73. Therefore, the odd of incorporating is 14.73 times greater for a case, for example, which has a one unit greater value.

If the logit $b = 1.5$, then the corresponding odds ratio (**exp (B)**) will be 4.48. One can then say that when the independent variable increases one unit, the odds that the case can be predicted increase by a factor of around 4.5 times, when other variables are controlled.

A 1 unit increase in education, for example, increases the odds of resistance about 4.5 times.

The idea here is that we want to evaluate everyone's probability of being resistant in two states of the world: when $V = 1$ and when $V = 0$. One should thus compute $P(R = 1 \mid V = 1; x)$ and $P(R = 1 \mid V = 0; x)$ for each observation in the sample.

Presenting the results of odds ratio in percentage, the decimal number is reported. For instance, if the odds ratio is 1.2, then one can say on average the vulnerable are 20 percent probable to be incorporated in the resistant category. It means for a one unit increase or decrease in one variable, we expect to see about 20 percent decrease or increase in the odds of being in the resistant category.

- **Coefficient** = $\text{Lan} \frac{\ln(p)}{1-p}$

It means, holding other things at a fixed value, what is the odds of getting a resistant category for a person possessing x variable over the odds of getting in to resistant category for a person not possessing x variable.

- **Mfx** (marginal function) = keeping other things constant, what is the probability of a person to incorporate in to resistant category due to one unit increase or decrease of a variable's value from its mean value.

It is the difference of R occurring for those for whom $V = 1$ over those for whom $V = 0$ for dummy variables and the difference between $V = x$ and $V = x-1$ or $x+1$ for continuous variables where x is the mean):

It is the relative risk of R occurring for those for whom $V = 1$ over those for whom $V = 0$. It is not the difference in risks. Rather, it is the

$$\underline{P(R=1/V=1, x)}$$

$$P(R=1/V=0, x)$$

Marginal Effects in the Logit

The marginal effect is the difference in the probability of the event occurring between those for whom $V = 1$ and $V = 0$

The Marginal Effect of V on the probability of R : $ME = p_1 - p_0$

$$= P(R = 1 \mid V = 1, x) - P(R = 1 \mid V = 0, x)$$

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

It is too hard to exhaustively put the profile of respondents at age, experience, education were put in a continuous way year after year. So to just give a glimpse of the profile, mean value and standard deviation are taken. Accordingly, the mean of the age of the respondents is 34.97 years while on average a single individual's age deviates from this value by 4 years. Then the mean value of the years of experience of the respondents is 6.79 and the standard deviation of this experience value is 2.8, while on average an individual respondent has 15.89 numbers of formal educational years. Gender wise, 52% of the respondents are female.

Table 4.1 Profile of respondents

Variable	Obs.	Mean	Std.Dev.
Age	150	34.97	4.10
Education	150	15.89	1.30
Experience	150	6.79	2.81

Source: primary data produced by STATA

Assumptions of this analysis:

- 1) This study assumes that attitudes towards organizational change that will enable a person to decide for accepting or resisting a change is a bi-dimensional construct with a two opposite poles (one positive and one negative). It is in this assumption that the questionnaire is developed.
- 2) The impact of education for completing one more year of school is considered same no matter which grade year one completes
- 3) The impacts of age are considered to give the same per one year older or younger across entire range of ages, no matter which age level

N.B. These assumptions can be rejected at any time other than this research

Table 4.2 Marginal Functions of the Predictors in all the phases

Phases of change process	predictors	*dy/dx	Std. error	Z	P> z	[95% conf	C.I.	Interval]
Unfreezing	gender	-.0071179	.05132	-0.14	0.890	-.107703	.093467	0.52
	vulnerability	.4790161	.11565	4.14	0.000	.25234	.705692	.28
	Managerial incapability	.1426356	.0742	1.92	0.055	-.002787	.288058	.333333
	Education	-.0626887	.02558	-2.45	0.014	-.112816	-.012561	15.8933
	Age	.0080302	.00927	0.87	0.386	-.010137	.026197	34.9667
	experience	.0321467	.01552	2.07	0.038	.00172	.062573	6.79333
Moving	gender	.0284055	.07184	0.40	0.693	-.112395	.169306	.52
	vulnerability	.5257476	.09301	5.65	0.000	.343446	.708049	.426667
	Managerial incapability	.1966289	.08061	2.44	0.015	.038642	.354616	.54
	Education	-.1128887	.03482	-3.24	0.001	-.181129	-.044649	15.8933
	Age	-.0103804	.01303	-0.80	0.426	-.035918	.015157	34.9667
	experience	.045889	.02069	2.22	0.027	-.005334	.086444	6.79333
Refreezing	gender	.0244118	.03418	0.71	0.475	-.042588	.091411	.52
	vulnerability	.1053151	.05667	1.86	0.063	-.005749	.21638	.366667
	Managerial incapability	.4338297	.09431	4.60	0.000	.248984	.618675	.366667
	Education	-.0438404	.01938	-2.26	0.024	-.08182	-.00586	15.8933
	Age	-.0070984	.00632	-1.12	0.262	-.019489	.005292	34.9667
	experience	.0212898	.0107	1.99	0.047	.000324	.042256	6.79333

*dy/dx is for discrete change of dummy variable from 0 to 1
Source: primary data

4.1 Analysis on the Demographic Attributes Driven Factors of Resistance

To determine the significance level of the general variables that affect the tendency to resist an organizational change effort, a logistic regression analysis was conducted to predict resistance for 150 respondents using vulnerability, managerial incapability and demographic attributes driven factors as predictors. The results of the logistic regression are interpreted using the conversion of it to an odds ratio and marginal functions. Analysis of the odds ratio estimates the change in the odds of the membership in the target group (resistance group) for a one unit increase or decrease in the predictors. The marginal function is the difference in the probability of the event occurring between those for whom $IV=x$ and $IV=x-1$ for continuous variables and for whom those $IV=1$ and $IV=0$ for dummy variables.

Education

For detail about the following, refer annex B.1-C and table 4.2

To investigate whether educational level affects the tendency to resist or accept the change, logit analysis with conversation of it in to odds ratio and marginal function was performed. The independent variable was the educational attainment counted the number of formal school years and the dependent variable was the tendency to resist while the other predictors were age, experience, managerial incapability, gender and vulnerability.

The marginal function analysis show that if educational level is increased by one year from its mean value, keeping other things constant, the response probability to resist for a change decreased by 0.0626887 in the up freezing phase, by 0.1128887 in the moving phase and by 0.438404 in the refreezing phase all in the p-value lower than the usual threshold of 0.05(95% significance). An odds ratio analysis provide that, when other factor are controlled, the odds of getting in to a resistant category for people with lower educational level over the odds of getting in to a resistant category for people with higher educational level is 0.5058056 per one formal school year educational level in the unfreezing, 0.5490948 in the moving and 0.5228659 in the refreezing phase of a change process. In percentage , for a one formal school year increase in education ,it's expected to see 51% decrease in the odds of being in the resistant category in the unfreezing , 55% in the moving and 53% in the refreezing phases of a change process.

This finding is consistent with the finding of Maria V. et al (2003) who found that there is a significant effect of educational attainments on resistant to change in that university undergraduates expressed less positive attitudes than the post graduate. It's also consistent with the finding of Maria and Loannis (2005) who even extrapolated their findings by stating employees with higher education are better equipped to meet new challenge at work which is also confirmed by Iverson (1996). Therefore; it can be tentatively (as an experiment, not explanatory and single study, the findings should be considered tentative until verified by additional research on the why of the relationship) concluded that educational attainment negatively predicts the tendency to resist to an organizational change effort.

Experience

For detail about the following, refer annex B.1-C and table 4.2

The marginal function analysis shows that if experience is increased by one year from its mean value, keeping other things constant, the response probability to resist for a change increased by 0.0321467 in the unfreezing phase, by 0.045889 in the moving phase and by 0.0212898 in the refreezing phase (all in the $p < 0.05$ (95% significance)). The odds ratio analysis provided that, holding other factor at a fixed value, the odds of getting in to a resistant category for people with lower experience level over the odds of getting in to a resistant category for people with higher experience is 0.435387 per one year experience level in the unfreezing 0.382336 in the moving and 0.432382 in the refreezing phase of change process. In percentage, for a one year increase in experience, is expected to see 38.23% increases in the odds of being in the resistant category in the unfreezing, 43.54% in the moving and 43.23% in the refreezing phases.

The finding is consistent with finding of Maria V. et al (2003) in that they found experience positively predicting the outcome variable. They also extrapolated their finding to the fact that the more the employees have internal experience that the more they get a strong quasi-stationary equilibrium of the self-maintained by restraining force in the context of the known and learning. They underlined that the equilibrium to be destabilized needs a strong devastating force before old behavior can be discarded (unlearned) and the day to come should promise to be better; otherwise change which represents the unknown as well as which forces to be redefined oneself and one's world would be resisted for granted.

This finding is inconsistent with the finding of Sverdlik and Oreg (2008), in that all of the demographic variables treated individually have not predicted resistant to change in their study.

It's also inconsistent because in theirs the three interactions of the variable mainly; gender, faculty experience and administrative responsibility at the previous place of employment together negatively predict the outcome variable (resistant to change), for which prediction are positive in the current study.

For the odd ratios, coefficient and marginal function analysis presented a strong relationship of the variables in this study, as well as for the interaction effect analysis is not conducted in the current study (it's not statically valid to compare two different test) it seems plausible to tentatively concluded that experience positively and strongly predicts resistance by sticking to the current outcome.

Table 4.3 coefficient analysis of the predictors in all of the phases

Predictors	coefficient	Std.err	Z	p> z	[95% conf. interval]		
Unfreezing Obs.=150 LR chi2(6)=72.49 Prob.>chie2=0.000 Log likelihood=45.247594 Pseudo R2=0.4448	Gender-1	- 0.0799158	0.5762905	- 0.14	0.890	-1.209424	1.049593
	Valunerab-1	3.193757	0.7429257	4.30	0.000	1.737646	4.649865
	Imanaginic1	1.31748	0.5465013	2.41	0.016	0.2463566	2.388602
	Education	- 0.7048263	0.2574858	- 2.74	0.006	-1.209489	- .2001634
	age	0.0902853	0.1038507	0.87	0.385	-.1132583	.2938289
	experience	0.3614344	0.1776071	2.04	0.042	0.0133308	.709538
	_cons	2.085881	4.961242	0.42	0.674	-7.637974	11.80974
Moving Obs.=150 LR chi2(6)=75.17 Prob.>chie2=0.000 Log likelihood=53.179678 Pseudo R2=0.4141	Gender-1	0.2008976	0.5106137	0.39	0.694	-.7998869	1.201682
	Valunerab-1	3.275679	0.6460872	5.07	0.000	2.009371	4.541986
	Imanaginic1	1.421709	0.6031327	2.36	0.018	.2395901	2.603827
	education	- 0.7964982	0.2298409	- 3.47	0.001	-1.246978	- .3460183
	age	- 0.0732399	0.922177	- 0.79	0.427	-.2539833	.1075035
	experience	0.3237748	0.1460756	2.22	0.027	.0374719	.6100778

	_cons	9.17179	4.201067	2.18	0.029	.9378503	17.40573
Refreezing	Gender-1	0.4131202	0.5685308	0.73	0.467	-.7011797	1.52742
Obs.=150	Valunerab-1	1.43697	0.6080867	2.36	0.018	.2451422	2.628798
LR chi2(6)=60.30	Imanaginic1	3.935963	0.8177563	4.81	0.000	2.33319	5.538736
Prob.>chie2=0.000	education	- 0.7399578	0.2713833	- 2.73	0.006	-1.271859	- .2080563
Log likelihood=42.052758	age	-0.11981	0.1073626	- 1.12	0.264	-.3302368	.0906167
Pseudo R2=0.4176	experience	0.3593389	0.1797309	2.00	0.046	.0070728	.7116049
	_cons	8.628381	5.00873	1.72	0.085	-1.18855	18.44531

Source: Primary data

Age

For detail about the following, refer table 4.3

Hoping to know how resistance to organizational change is distributed over the different age level of employees, the same analysis was conducted. The result revealed that the impact of age on the tendency to resist was not statically significant in all phases and in all p value ($p < 1\%$, $p < 5\%$ and $p < 10\%$). This is in contrast with the finding of Bouti (2010), who found a negative relationship between age and the tendency to resist change, which implies that younger employees were more resistant to change than older one. He extrapolated his study to find out the behind why of the observations, and then stipulated that having longer work tenure was identified as positive boundary conditions or moderators for the observations on the relationship of the two to be opposite.

But this study is consistent with the finding of Maria and Ioannis (2005), as no differences were identified among the four age groups of their samples.

It's possible that the dependency is observed in Bout's finding because Bouti used experience as moderator for that the prediction probability came in age might have come through experience in an invisible root. It may have resulted from the fact that age and experience are conceptually overlapping items, though the items were generated based on different theoretical underpinning

in the literature. But, in here predictors are analyzed independently together. So, without neglecting the finding of Bout but dedicating to the current one as interaction analysis was not reached seems plausible for that the tendency of age to predict resistance for an organizational change is tentatively not accepted or is declined.

Gender

For detail about the following, refer table 4.3

To investigate the distribution of resistance over the male and female groups, coefficient analysis, marginal function and odds ratio analysis methods were conducted. While the result of three of the above presented some gender wise variation with regard to the tendency to resist over the phase, they were reject able in which those value were not statically significant to predict the tendency in all p value ($p < 1\%$, $p < 5\%$ and $P < 10\%$). This finding is consistent with the finding of Maria V et al (2003) who found that there was no gender wise varied impact on resistance. Sverdlik and Oreg (2006) also observed no significant difference between men and women in terms of resistance to change management if gender is treated independently. But through interaction effect of the combination of gender and experience, male who had held a position of authority at an earlier employer were less likely to resist change than those who did not fit those criteria (boss being male and previous position). But the current finding is not consistent with the finding of Maria Vakola and Ioannis Nikolaou (2005) who conducted independent t-test and consequently suggesting that males tend to be more reluctant than females toward organizational change.

To get gender predicting resistance Sverdlik and Oreg (2009) conducted interactional effect analysis and Vakola and Ioannis Nikolaou (2005) conducted independent t-test. These tests and analysis were not conducted in here. Statically it makes sense to dedicate to the type of model used. Therefore, by sticking to the current result of the logit regression analysis, tentatively it's concluded that the dummy variable gender (maleness or femaleness) doesn't predict resistance to an organizational change.

The analysis conducted up to this point help to consider the **alternative hypothesis 2; demographic attributes of an employee are significant to the tendency to resist an organizational change effort**. This alternative hypothesis is partially accepted as educational and experience negatively and positively predicted the tendency to resist a change, respectively. The null hypothesis of it (**demographic attribute of an employee are not significant to the**

tendency to resist an organizational change effort,) is also partially accepted because both age and gender independently have not predicted the outcome variable (tendency to resist).

4.2 Vulnerability versus Managerial incapability driven factors; Odds Ratio and Marginal Function Analysis

Refer both annex B and table 4.2 together about here

That fitted model presented that, holding other things at a fixed value, the odds of getting in to a resistant category for vulnerable over the odds of getting in to a resistant category for non-vulnerable is equal to 24.37985 in unfreezing phase, 26.46118 in moving and 4.207927 in the refreezing phase all in the p-value lower than the upper threshold of 0.05(95% significance).

Besides to this the marginal function analysis shows that the probability of getting resistance from the vulnerable people due to a change plan is higher than the probability of getting resistant people from the non-vulnerable group of the change plan by 0.4790161 in the unfreezing, by 0.5257476 in the moving and by 0.1053151 in the refreezing.

This result happened at $p < 0.01$ significance level in the first two phases but came down into $p < 0.05$ in the refreezing phase. The coefficients and significance levels of personal vulnerability driven factors in the first two phases are the highest coefficient and significant level from the factors studied in this study but managerial incapability driven factors took the position in the refreezing phase at $p < 0.010$ (99% significance) which was only at 5% that it was significant in the first two phase.

Therefore, tentatively it can be concluded that resistance that come from personal vulnerability factors are more strong and significant in the plan formulation and implementation phases , then this get reduced during the close up phase and resistance due to the problem that come from managerial incapability gets stronger and more significant at the close up phase of a change process.

In this sense, **the alternative hypothesis 1 which says “personal vulnerability presents highest significance level in all the phases of the change process” is rejected or declined. In other word, the null hypothesis of it (“personal vulnerability doesn’t present higher significance level in all the phase of the change process”) is accepted.**

4.3 A single variable impact consistency through the Lewin's three phases model of change process

Table 4.4 predictor ranking through the ratio of the occurrence =1 given a predictor is 1 and occurrence =1 given a predictor is 0 in the unfreezing phase; derived from the column and row statistics of annex C

Independent variable	$Fr(R=1/IV=1;x)$	$Fr(R=1/IV=0;x)$	$\frac{Fr(R=1/IV=1;x)}{Fr(R=1/IV=0;x)}$	Rank of ratio	Pr
Work load	20	15	1.333	4	0.000
Position	23	12	1.925	2	0.000
Income and benefits	19	16	1.200	5	0.001
Operational unfamiliarity	20	15	1.333	4	0.023
Job rule	18	17	1.100	6	0.000
Myopia	21	14	1.500	3	0.000
Communication barrier	26	9	2.900	1	0.000
Organizational silence	19	16	1.200	5	0.000
Existing investment	26	9	2.900	1	0.000
Past failure	26	9	2.900	1	0.000
Skill gap	11	24	0.800	7	0.007

Source: primary data

Table 4.5 predictor ranking through the ratio of the occurrence=1 given a predictor is 1 and occurrence=1 given a predictor is 0 in the moving phase; derived from the column and row statistics of annex C

Independent variable	$Fr(R=1/IV=1;x)$	$Fr(R=1/IV=0;x)$	$\frac{Fr(R=1/IV=1;x)}{Fr(R=1/IV=0;x)}$	Rank of ratio	Pr
Work load	32	11	2.910	4	0.000
Position	34	9	3.800	2	0.000
Income and benefits	30	13	2.310	7	0.000
Operational unfamiliarity	32	11	2.910	4	0.000
Job rules	26	17	1.530	9	0.000
Myopia	31	12	2.600	6	0.000
Communication barrier	29	14	2.100	8	0.000
Organizational silence	33	10	3.300	3	0.000
Existing investment	31	12	2.600	6	0.000
Past failure	34	9	2.800	5	0.000
Skill gap	37	6	6.211	1	0.000

Source: primary data

Table 4.6 predictor ranking through the ratio of the occurrence =1 given a predictor is 1 and occurrence =1 given a predictor is 0 in the refreezing phase; derived from the column and row statistics of annex C

Independent variable	$Fr(R=1/IV=1;x)$	$Fr(R=1/IV=0;x)$	$\frac{Fr(R=1/IV=1;x)}{Fr(R=1/IV=0;x)}$	Rank of ratio	Pr
Work load	21	7	3	3	0.000
Position	21	7	3	3	0.000
Income and benefits	21	7	3	3	0.000
Operational unfamiliarity	13	15	0.910	7	0.004
Job rules	20	8	2.500	4	0.000
Myopia	23	5	4.600	2	0.000
Communication barrier	25	3	8.333	1	0.000
Organizational silence	21	7	3	3	0.000
Existing investment	17	11	1.60	5	0.000
Past failure	14	14	1	6	0.002
Skill gap	21	7	3	3	0.000

Source: primary data

Refer table 4.4-4.6 altogether about here

This analysis aimed to observe if the resistance is same or not in the three phase of the change process as well as if a single factor has varied impact to resistance over these phases or not. This result makes it fundamental for organization to identify which source of resistance at which phase deserve special attention to successful manage resistance for change recurrently.

In so doing, a ratio analysis of the frequency of individual who are expressed by the predictor and are on the resistant category ($fr(R=1/IV=1; x)$) over the frequency of individuals who are expressed by the predictor but not the part of the resistant category ($fr(R=1/IV=0; x)$) with a χ^2

test showing the real significant association of the variable is run distinguishing the three phase of the change process.

As can be observed, every factor that is previously considered to lay in the vulnerability driven or managerial incapability driven indicates that it has had an influence, more or less, (all at p value less than 5%) and as such theoretical exposition is supported. The questionnaire also allowed respondents to include other source of resistance. None of the respondents added any significant factor; so, the list can not only be taken as appropriate but also as complete.

Demographic attributes driven variables are not considered here because these attributes apparently remain same throughout all the phases, more or less.

Through all the list that were taken for test were significant (at p value less than 5%), no single source were pointed out as the most severe difficulty to achieve the change plan throughout all the phase of the change process; one moves up and the other moves down with the phases. In the unfreezing phase, the sources of resistance to change with the highest ratio are communication barrier, existing investment and past failure (all with 2.900). It is followed by the fear to lose position (2) and then myopia (1.5). In this phase, change agents' implementation skill gap (0.800) and job rule (1.100) presented the first and the second least important factor respectively.

However, in the moving phase such hierarchy is altered; change agents' implementation skill gap moved up to the first place on the list (with a ratio of 6.211) which was the least in the unfreezing phase. Communication barrier, existing investment and past failure which were the first important factors in the unfreezing phase moved down to, more or less, least place of importance in the moving phase (8th, 6th, 5th with a ratio of 2.1, 2.6 and 2.8 all respectively). A similar variation happened with almost all the rest except of the resistance associated with fear to lose position which remained the same in rank in both phases but with a higher ratio on the second phase (3.800).

Similarly, in the refreezing phase, the source of resistance to change with the highest ratio was communication barrier (8.333), followed by myopia (4.600). a tight job rule which was the least important factor in the moving phase was moved to 4th in the refreezing phase with 2.5 ratios. In this phase, operational unfamiliarity, past failure and existing investment presented the first, second and third least important factors with a ratio of 0.910, 1, and 1.610 respectively.

The resistance related to losing position came down to third in this phase which was a second in both moving and in the unfreezing phases indicating its important effect and that effect increasing the more at the start up the change phase is .Communication barrier is also found to be more devastating the more in the plan formulation and closing the change process is.

In this case, **the guiding alternative hypothesis that says “a single variable factor may have a varied significance level over the three phases of a change process” is accepted. Likewise, the null hypothesis of it, (“a single variable factor cannot have a varied significance level over the three phase of change process”), is declined.**

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This Chapter deals with findings of the study, conclusions that are drawn on the bases of these findings, and recommendations forwarded.

5.1 Summary of the Major Findings

Analyses of the data gathered confirm the following findings from hypothesis perspective.

The alternative hypothesis, “ demographic attributes of an employee are significant to the tendency to resist an organizational change effort “, is partially accepted as education and experience negatively and positively predicted the tendency to resist a change, respectively. Likewise, the null hypothesis of it, (“demographic attributes of an employee are not significant to the tendency to resist an organizational change effort”), is partially accepted because both age and gender independently have not predicted the outcome variable (tendency to resist).

The alternative hypothesis that says “a single variable factor may have a varied significance level over the three phase of a change process “ is accepted. Likewise, the null hypothesis of it, (“ a single variable factor cannot have a varied significance level over the three phases of the change process “), is rejected.

At last alternative hypothesis which says “ personal vulnerability factor may have a varied significance level in all phases of change process “ is rejected or declined. In other word, the null hypothesis of it (“ personal vulnerability doesn’t present highest significance level in all the phases of the change process”) is accepted.

5.2 Conclusion

Taking the data analysis and the findings in to account the following conclusions are drawn:

- Resistance factors significance level present variation considering the phase of change process

- Vulnerability driven factors present highest significance level for resistant to change in the unfreezing and moving phase of a change process while managerial incapability driven in the refreezing one.
- Educational attainment negatively predicts resistance to organizational change process
- Experience positively predicts resistance to organizational change process.
- Age and gender do not predict resistance to organizational change process.

5.3 Recommendation

It is recommended that an interactional effect analysis of the predictors be conducted to disintegrate overlapping concepts (if any), which was not covered here.

The implication of the research for managers is to focus on which sources of resistance at which phases of change process.

This study restricts itself from prescribing anything to the business world as it is inappropriate to do so before it is verified by another extensive research.

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ANNEX

Annex A: Questionnaire
Addis Ababa University
School of Business & Economics
Department of Management
EMBA Program

A questionnaire for employees working at Ethiopian Revenue and Customs Authority (ERCA)

Dear respondents,

I am a post graduate student at Addis Ababa University in Executive MBA. This questionnaire is developed to collect data and information for a study entitled **"Factors of Resistance to Organizational Change Management"** as a partial fulfillment of the Executive MBA program. The study aims to find out the various sources of resistance to organizational change management process at different stages when Business Process Reengineering (BPR) was initially implemented in ERCA and to determine the significance and level of different sources of resistance to change management process. The research will be an input for the public and business communities and your response to the questions will have significant impact on the quality of this data and paper.

I, therefore, kindly request you to attentively look at the questions and provide me answers within three days of receipt of this questionnaire.

Finally, I confirm to all respondents that the information gathered from this questionnaire shall be used only for academic purpose and will not be transferred to third party by any other means.

I thank you very much for your time and genuine opinion!!!

Part One

1. Sex: Male ☐ Female ☐

Your answer for question no.2-4 is as observed during the beginning year of **Business Process Reengineering (BPR)** implementation in the post where you worked.

2. Age: ____ (specific age is required, no range)

3. Total years of school: ____ (it is counted from elementary to highest education)

4. No. of years of work experience:

Internal (in ERCA) _____

External (prior to ERCA) _____

5. Did you have any sense of disagreement, discontent, or discomfort with the practice of BPR?

Yes ☐ No ☐

6. If your answer to question no.5 is “yes”, in which of the following phases of BPR implementation process was your disagreement expressible or expressed?

Planning or announcement phase ☐ Implementation phase ☐

Completion or close up phase ☐

Planning and Implementation phases ☐ Planning, Implementation and completion phases ☐

Part Two In the following phases of BPR implementation, there are statements that need your agreement or disagreement. If you agree with the statement encircle 1, if you do not agree encircle 0

No	Planning or Announcement Phase		Implementation phase		Completion phase	
7	You expected higher work load if BPR is implemented	1 0	Functions or tasks were merged and working hour was increased	1 0	There was higher work load than before BPR	1 0
8	You were afraid of your job continuity or position	1 0	New positions were created and the existed one was distorted	1 0	You were asked to leave existed position	1 0
9	You expected that you may be changed to another branch or another department	1 0	Functions shift reached up to changing to another department or branch	1 0	You were changed to another branch or another department	1 0
10	You were afraid that your job team will be collapsed or disturbed	1 0	Your job team was collapsed or disturbed	1 0	You could not mingle or join with new staff members or you could not build up team spirit	1 0
11	You felt the change will bring factors to reduce fringe benefits or your income	1 0	Incomes and benefits started to change with regards to a change in task or new policy	1 0	Your fringe benefits or your income was reduced	1 0
12	You thought BPR would change the organizational culture	1 0	Organizational cultures like dressing code started to be changed	1 0	You were confronting with new organizational culture	1 0
13	You thought new operational skills would be required or your current knowledge would be obsolete	1 0	New technologies were introduced which require new operational skills	1 0	New operational skills were required in your job	1 0
14	You thought BPR would bring new job rules, regulations and sophistications	1 0	BPR brought new job rules, regulations and sophistications	1 0	You could not fit with new job rules, regulations and sophistications	1 0
15	Change agents have not created the long term vision of the authority to you	1 0	Change agents have not created image of long term vision of the authority to you	1 0	You could not capture the long term vision or picture of the authority	1 0

16	There was communication problem of what BPR really is	1 0	There was miscommunication between the change agents and you	1 0	You were not as well informed about BPR as the change agents	1 0
17	It was not such concerning to you to practice BPR	1 0	It was not such concerning to you to practice BPR	1 0	You were not involved as an active part of the change endeavor	1 0
18	You thought BPR would require another new investment or changing the existing one	1 0	BPR required another new investment or changed the existing one	1 0	Adding new investment or changing the existing one was not right decision	1 0
19	You had negative experiences with previous change processes	1 0	Changes were started with confusions that have to do with your past experience of failure	1 0	The conclusion was not as smooth as, which is guaranteed not to slide back, as possible.	1 0
20	You thought change agents have implementation skill gap	1 0	Change agents were confused in prioritizing or sequencing tasks, budgeting capital, departmentation, and hiring technology & all other tasks	1 0	The skill gap of the change agents was not overcome	1 0
21	Any other problems that you expected BRP would bring? _____ _____ _____ _____ _____ _____ _____		Any other problems of both personal and organizational that were brought with the introduction of BPR? _____ _____ _____ _____ _____		Any other problems of both personal and organizational that you faced after BPR introduction? _____ _____ _____ _____ _____	

Annex B
The pearsonian chi-square correlation and linear dependence measure of variable

Annex B.1: coefficient wise logit result and odds ratio in the unfreezing phase

a. Coefficient phase 1

Iteration 0: log likelihood =-81.490917
 Iteration 1: log likelihood =-50.638714
 Iteration 2:log likelihood =-45.874858
 Iteration 3:log likelihood =-45.268845
 Iteration 4:log likelihood =-45.247631
 Iteration 5:log likelihood =-45.247594

Logistic regression number of obs. = 150
 LR chi2(6)= 72.49
 Prob.>chi2 =0.000
 Log likelihood =-42.247594 pseudo R2= 0.4448

Resistance	Coef.	Std. err	Z	p> z	[95% conf. interval]
Gender-1	-.0799158	.5762905	-0.14	0.890	-1.209424 1.049593
Valunerab-1	3.193757	.7429257	4.30	0.000	1.737649 4.649865
Imanaginic-1	-1.31748	.5465013	2.41	0.016	.2463566 2.388602
Education	-.7048263	.2574858	-2.74	0.006	-1.209489 -.2001634
Age	.0902853	.1038507	0.87	0.385	-.1132583 .2938289
Experience	.3614344	.1776971	2.04	0.042	.0133308 .709538
Cons	2.085881	4.961242	0.42	0.674	-7.637974 11.80974

b. Odds ratio phase 1

Iteration 0: log likelihood =-81.490917
 Iteration 1: log likelihood =-50.638714
 Iteration 2:log likelihood =-45.874858
 Iteration 3:log likelihood =-45.268845
 Iteration 4:log likelihood =-45.247631
 Iteration 5:log likelihood =-45.247594

Logistic regression

number of obs. = 150

LR chi2(6)= 72.49

Prob.>chi2 =0.0000

Log likelihood = -45.247594

pseudo R2 = 0.4448

Resistance	Odds ratio	Std. err	Z	p> z	[95% confid interval]
Gender-1	.9231941	.532028	-0.14	0.890	.298369 2.856488
Valunerab-1	24.37985	18.11242	4.30	0.000	5.683968 104.5708
Imaginac-1	3.733998	2.040635	2.41	0.016	1.279356 10.89825
Education	.4941944	.127248	-2.74	0.006	.2983496 .8185969
Age	1.094487	.1136632	0.87	0.385	.89292 1.341554
Experience	1.435387	.254935	2.04	0.042	1.01342 2.033052

ANNEX B.2: Coefficient Wise Logit Result and Odds Ratio in the Moving Phases**a. Coefficient phase 2**

Iteration 0: log likelihood =-90.766406

Iteration 1: log likelihood =-57.362338

Iteration 2:log likelihood =-53.548876

Iteration 3:log likelihood =-53.185697

Iteration 4:log likelihood =-53.17968

Iteration 5:log likelihood =-53.179678

Logistic regression

number of obs. = 150

LR chi2(6)= 75.17

Prob.>chi2 =0.000

Log likelihood =-53.179678

pseudo R2= 0.4141

Resistance	Coef.	Std. err	Z	p> z	[95% conf. interval]
Gender-1	.2008976	.5106137	0.39	0.694	-.7998869 1.201682
Valunerab-1	3.275679	.6460872	5.07	0.000	2.009371 4.541986
Imaginac-1	1.421709	.6031327	2.36	0.018	.2395901 2.603827
Education	-.7964982	.2298409	-3.47	0.001	-1.246978 -.3460183
Age	-.0732399	.0922177	-0.79	0.427	-.2539833 .1075035

Experience	.3237748	.1460756	2.22	0.027	.0374719	.6100778
Cons	9.17179	4.201067	2.18	0.029	.9378503	17.40573

b. Odds ratio in phase 2

Iteration 0: log likelihood =-90.766406

Iteration 1: log likelihood =-57.362338

Iteration 2:log likelihood =-53.548876

Iteration 3:log likelihood =-53.185697

Iteration 4:log likelihood =-53.17968

Iteration 5:log likelihood =-53.179678

Logistic regression number of obs. = 150

LR chi2(6)= 75.17

Prob.>chi2 =0.000

Log likelihood =-53.179678 pseudo R2= 0.4141

Resistance	Odds ratio	Std. err	Z	p> z	[95% conf. interval]
Gender-1	1.2225	.6242251	0.39	0.694	.4493798 3.325707
Valunerab-1	26.46118	17.09623	5.07	0.000	7.458625 93.8771
Imanaginic-1	4.144195	2.4995	2.36	0.018	1.270728 13.51536
Education	.4509052	.1036364	-3.47	0.001	.2873719 .7074995
Age	.9293778	.0857051	-0.79	0.427	.7757048 1.113495
Experience	1.382336	.2019256	2.22	0.027	1.038183 1.840575

ANNEX B.3: Coefficient Wise Logit Result and Odds Ratio in the Refreezing Phase

a. Coefficient phase 3

Iteration 0: log likelihood =-72.203

Iteration 1: log likelihood =-47.853706

Iteration 2:log likelihood =-42.709416

Iteration 3:log likelihood =-42.079849

Iteration 4:log likelihood =-42.052829

Iteration 5:log likelihood =-42.052758

Logistic regression number of obs. = 150

LR chi2(6)= 60.30

Prob.>chi2 =0.000

Log likelihood =-42.052758 pseudo R2= 0.4176

Resistance	Coef.	Std. err	Z	p> z	[95% conf. interval]
Gender-1	.4131202	.5685308	0.73	0.467	-.7011797 1.52742
Valunerab-1	1.43697	.6080867	2.36	0.018	.2451422 2.628798
Imanaginic-1	3.935963	.8177563	4.81	0.000	2.33319 5.538736
Education	-.7399578	.2713833	-2.73	0.006	-1.271859 -.2080563
Age	-.11981	.1073626	-1.12	0.264	-.3302368 .0906167
Experience	.3593389	.1797309	2.00	0.046	.0070728 .7116049
Cons	8.628381	5.00873	1.72	0.085	-1.18855 18.44531

b. odds ratio In phase 3

Iteration 0: log likelihood =-72.203

Iteration 1: log likelihood =-47.853706

Iteration 2: log likelihood =-42.709416

Iteration 3: log likelihood =-42.079849

Iteration 4: log likelihood =-42.052829

Iteration 5: log likelihood =-42.052758

Logistic regression number of obs = 150

LR chi2(6)= 60.30

Prob>chi2 =0.000

Log likelihood =-42.052758 pseudo R2= 0.4176

Resistance	Odds ratio	Std. err	Z	p> z	[95% conf. interval]
Gender-1	1.511527	.8593496	0.73	0.467	.4959998 4.606278
Valunerab-1	4.207927	2.558785	2.36	0.018	1.277803 13.85711
Imanaginic-1	51.21144	41.87848	4.81	0.000	10.31078 254.3562
Education	.4771341	.1294862	-2.73	0.006	.28031 .8121613
Age	.8870889	.0952401	-1.12	0.264	.7187535 1.094849

Experience	1.432382	.2574433	2.00	0.046	1.007098	2.037258
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(*) $\frac{dy}{dx}$ is for discrete change of dummy variable from 0 to 1

Source: primary data ANNEX C: column and row statistics of the predictor with their pearsonian χ^2 association and significance in three of the phases, respectively

key			Resistance				Work load		total	
							no	yes		
Frequency row percentage			Not				91	24	115	
							79.13	20.87		
Column percentage			Resistance				85.85 total	54.55	76.67	
							15	20		
Position			no				42.86	57.14	100.00 total	
							107	14.15		
no			yes				106	44	150	
							88.30	42.86		
total			Resistance				70.67	29.33	100.00	
							72.96	27.05		
Resistance			Not				100.00	100.00	100.00	
							92.71	81.11		
total			Resistance				Pearson chi2(1)=17.0323 Pr= 0.000		28	
							28.57	21		
no			yes				150	75.00	100.00	
							25.00	38.89		
yes			total				100.00	54	150	
							98			
total			Resistance				Pearson chi2(1)=35.4361 Pr= 0.000		100.00	
							64.00	36.00		
Resistance			Not				100.00	100.00	100.00	
total			Resistance				Pearson chi2(1)=22.7267 Pr= 0.000			
no			yes							
yes			total							
total			Resistance							
Resistance			Not							
total			Resistance							
no			yes							
yes			total							
total			Resistance							
Resistance			Not							
total			Resistance							
no			yes							
yes			total							
total			Resistance							
Resistance			Not							
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Resistance			Not							
total			Resistance							
no			yes							
yes			total							
total			Resistance							
Resistance										

Resistance	position		total
	No	yes	
Not	83	39	122
	68.03	31.97	100.00
	92.22	65.00	81.33
Resist	7	21	28
	25.00	75.00	100.00
	7.78	35.00	18.67
Total	90	60	150
	60.00	40.00	100.00
	100.00	100.00	100.00
Pearson chi2(1)=17.5717 PR= 0.000			

Resistance	Benefit and income		total
	No	yes	
Not	87	28	115
	75.65	24.35	100.00
	84.47	59.57	76.67
Resist	16	19	35
	45.71	54.29	100.00
	15.53	40.43	23.33
Total	103	47	150
	68.67	31.33	100.00
	100.00	100.00	100.00
Pearson chi2(1)=11.1780 PR=0.001			

	89.89	44.26	71.33
Resist	9	34	43
	20.93	79.07	100.00
	10.11	55.74	28.67
total	89	61	150
	59.33	40.67	100.00
	100.00	100.00	100.00
Pearson chi2(1)=36.8444 PR= 0.000			

Resistance	Benefit and income		total
	no	yes	
Not	84	38	122
	68.55	31.15	100.00
	92.31	64.41	81.33
Resist	7	21	28
	25.00	75.00	100.00
	7.69	35.59	18.67
Total	91	59	150
	60.67	39.33	100.00
	100.00	100.00	100.00
Pearson chi2(1)=18.3529 PR= 0.000			

Resistance	Benefit and income		total
	no	yes	
Not	75	32	107
	70.09	29.91	100.00
	8523	51.61	71.33
Resist	13	30	43
	30.23	68.77	100.00
	14.77	48.39	28.67
Resistance	Operational unfamiliarity		total
total	86	62	150
	no	yes	
	58.67	41.33	100.00
Not	74	41	115
	100.00	100.00	100.00
	64.35	35.65	100.00
Pearson chi2(1)=20.0985	PR= 0.000		
	83.15	67.21	76.67
Resist	15	20	35
	42.86	57.14	100.00
	16.85	32.79	23.33
total	89	61	150
	59.33	40.67	100.00
	100.00	100.00	100.00
Pearson chi2(1)=5.1362 PR=0.023			

Resistance	Operational unfamiliarity		total
	no	yes	
Not	79	28	107
	73.83	26.17	100.00
	87.78	46.67	71.33
Resist	11	32	43
	25.58	74.42	100.00
	12.22	53.33	28.67
Total	90	60	150
	60.00	40.00	100.00
	100.00	100.00	100.00

Pearson chi2(1)=29.7544 PR= 0.000

Resistance	Tight job rule		total
	no	yes	
Not	82	33	115
	71.30	28.70	100.00
	82.83	64.71	76.67
Resist	17	18	35
	48.57	51.43	100.00
	17.17	36.29	23.33
Total	99	51	150
	66.00	34.00	100.00
	100.00	100.00	100.00

Pearson chi2(1)=6.1796 PR=0.013

Resistance	Tight job rule		total
	no	yes	
Not	85	37	122
	69.67	30.33	100.00
	91.40	64.91	81.33
Resist	8	20	28
	28.57	71.43	100.00
	8.60	35.09	18.67
Total	93	57	150
	62.00	38.00	100.00

Resistance	Operational unfamiliarity		total
	no	yes	
Not	97	25	122
	79.51	20.49	100.00
	86.61	66.79	81.33
Resist	15	13	28
	53.57	46.43	100.00
	13.39	34.21	18.67
total	112	38	150
	74.67	25.33	100.00
	100.00	100.00	100.00

Pearson chi2(1)=8.0991 PR=0.004

Resistance	Tight job rule		total
	no	yes	
Not	80	27	107
	74.77	25.23	100.00
	82.47	50.94	71.33
Resist	17	26	43
	39.53	60.47	100.00
	17.53	49.06	28.67
total	97	53	150
	64.67	35.33	100.00
	100.00	100.00	100.00

Pearson chi2(1)=16.6632 PR= 0.000

	100.00	100.00	100.00
Pearson chi2(1)=16.3286 PR= 0.000			
Resistance	myopia		total
Resistance	no	yes	total
Resistance	Communication barrier	Communication barrier	total
Resistance	no	yes	total
Not	75.42	98.58	100.00
	91	31	122
Not	85.37	25.41	110.78
	74.59	25.41	100.00
Resist	77.35	22.65	100.00
	96.81	55.36	81.33
Resist	90.82	50.99	79.67
	3	25	28
Resist	94.63	25.59	38.67
	10.71	89.29	100.00
Total	25.82	74.28	100.10
	3.19	44.64	18.67
Total	94.67	50.93	23.33
	94	56	150
Total	98.00	58.00	150.00
	62.67	37.33	100.00
Pearson chi2(1)=17.4180	PR= 0.000	34.67	100.00
	100.00	100.00	100.00
	100.00	100.00	100.00
Pearson chi2(1)=39.7161	PR= 0.000		
Pearson chi2(1)=21.6390	PR= 0.000		
Resistance	Organization silence		total
	no	yes	
Not	83	24	107
	77.57	22.43	100.00
	89.25	42.11	71.33
Resist	10	33	43
	23.26	76.74	100.00
	10.75	57.89	28.67
Total	93	57	150
	62.00	38.00	100.00
	100.00	100.00	100.00
Pearson chi2(1)=38.4073 Pr=0.000			

Resistance	myopia		total
	no	yes	
Not	95	20	115
	82.61	17.39	100.00
	87.16	48.78	76.67
Resist	14	21	35
Resistance	40.00	80.00	100.00
Resistance	12.84	51.22	23.33
Resistance	Organization silence	Organization silence	total
Resistance	no	yes	total
Not	77.05	22.95	100.00
	72.67	27.33	100.00
Not	98	17	115
Not	96.85	52.90	81.03
	100.00	100.00	100.00
	85.22	14.78	100.00
Pearson chi2(1)=24.5269	PR= 0.000	36.45	100.00
	85.96	47.22	76.67
	87.88	52.14	100.00
Resist	16	19	35
Resist	51.45	48.55	100.00
Resistance	Organization silence	Organization silence	total
total	32.56	67.44	100.00
	16.04	52.78	23.33
	66.00	34.00	100.00
Not	93.4	29.6	120
total	100.00	100.00	100.00
	76.90	23.10	100.00
Pearson chi2(1)=35.5574	PR= 0.000	45.33	100.00
	99.00	50.00	80.00
	100.00	100.00	100.00
Pearson chi2(1)=22.9568	Pr=0.000	21	28
Pearson chi2(1)=11.8893	PR=0.001		
	25.00	75.00	100.00
	7.00	42.00	18.67
total	100	50	150
	66.67	33.33	100.00
	100.00	100.00	100.00
Pearson chi2(1)=26.8955 Pr=0.000			

Resistance	Existing investment		total
	no	yes	
Not	88	27	115
	76.52	23.48	100.00
	90.72	50.94	76.67
Resist	9	26	35
	25.71	74.29	100.00
	9.28	49.06	23.33
Total	97	53	150
	64.67	35.33	100.00
	100.00	100.00	100.00

Pearson chi2(1)=30.3155 Pr=0.000

Resistance	Existing investment		total
	no	yes	
Not	66	41	107
	61.68	38.32	100.00
	84.62	56.94	71.33
Resist	12	31	43
	27.91	72.09	100.00
	15.38	43.06	28.67
total	78	72	150
	52.00	48.00	100.00
	100.00	100.00	100.00

Pearson chi2(1)=14.0189 Pr=0.000

Resistance	Existing investment		total
	no	yes	
Not	100	22	122
	81.97	18.03	100.00
	90.09	56.41	81.33
Resist	11	17	28
	39.29	60.71	100.00
	9.91	43.59	18.67
Total	111	39	150
	74.00	26.00	100.00
	100.00	100.00	100.00

Pearson chi2(1)=21.5626 Pr=0.000

Resistance	Past failure		total
	no	yes	
Not	87	28	115
	75.65	24.35	100.00
	90.63	51.85	76.67
Resist	9	26	35
	25.71	74.29	100.00
	9.38	48.15	23.33
total	96	54	150
	64.00	36.00	100.00
	100.00	100.00	100.00

Pearson chi2(1)=29.0437 Pr=0.000

Resistance	Past failure	total
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Resistance	Past failure		total
	no	yes	
Not	75	32	107
	70.09	29.91	100.00
	89.29	48.48	71.33
Resist	9	34	43
	20.93	79.07	100.00
	10.71	51.52	28.67
Total	84	66	150
	56.00	44.00	100.00
	100.00	100.00	100.00
Pearson chi2(1)=30.0885 Pr=0.000			

Resistance	Skill gap		total
	no	yes	
Not	101	14	115
	87.83	12.17	100.00
	80.80	56.00	76.67
Resist	24	11	35
	68.57	31.43	100.00
	19.20	44.00	23.33
Total	125	25	150
	83.33	16.67	100.00
	100.00	100.00	100.00
Pearson chi2(1)=7.1627 Pr=0.007			

	no	yes	
Not	96	26	122
	78.69	21.31	100.00
	87.27	65.00	81.33
Resist	14	14	28
	50.00	50.00	100.00
	12.73	35.00	18.67
total	110	40	150
	73.33	26.67	100.00
	100.00	100.00	100.00
Pearson chi2(1)=9.5846 Pr=0.002			

Resistance	Skill gap		total
	no	yes	
Not	63	44	107
	58.88	41.12	100.00
	91.30	54.32	71.33
Resist	6	37	43
	13.95	86.05	100.00
	8.70	45.68	28.67
total	69	81	150
	46.00	54.00	100.00
	100.00	100.00	100.00
Pearson chi2(1)=24.9222 Pr=0.000			
Not	101	21	122
	82.79	17.21	100.00
	93.52	50.00	81.33
Resist	7	21	28
	25.00	75.00	100.00
	6.48	50.00	18.67
Total	108	42	150
	72.00	28.00	100.00
	100.00	100.00	100.00

Pearson $\chi^2(1)=37.7220$ Pr=0.000