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GRADUATE INSTITUTE
SOCIAL SCIENCES**

**The Influence of Organizational Culture, Leader–Member
Exchange (LMX) and Employees’ Attitudes toward Change on
Information Systems Implementations in Turkey**

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YEDİTEPE UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES

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ÖZET

Bu çalışmanın amacı; örgüt kültürü, lider-üye etkilişimi ve çalışanların değişime olan tutumlarının çalışanların bilgi sistemleri uygulamalarıyla ilgili başarı algılamaları ve sistemi benimsemeleri üzerindeki doğal etkilerini araştırmaktır.

Araştırmacı bu çalışmada, sosyal ve örgütsel faktörler ile bilgi sistemleri uygulamalarının başarısı ve benimsenmesi arasındaki ilişkiyi araştırmaktadır. Araştırmada teknik konuların etkisini en aza indirgiyebilmek için bilgi sistemleri uygulamaları devreye alınmış geniş ve gelişmiş IT ekiplerine sahip örgütler seçilmiştir.

Bu çalışmanın Türkiye’deki bilgi sistemleri uygulamalarını etkileyebilecek ilişkisel ve örgütsel faktörler ile sosyal düzenleyicileri ortaya çıkarması beklenilmektedir.

Buna ek olarak, bu çalışma ile bilgi sistemleri uygulamalarının çalışanlar tarafından başarılı olarak algılanması ile çalışanlar tarafından benimsenmesi arasındaki ilişkinin varlığının araştırması hedeflenmiştir.

ABSTRACT

The purpose of this study is to investigate the natural influence of organizational culture, leader-member exchange and employees' attitudes toward change on employees' perceptions of IS implementation success and acceptance.

In this study, the researcher purposes to provide an understanding of the relationship between organizational and social factors and IS implementation success and acceptance. In order to minimize risk of high consideration and interaction of technical issues, which may affect the IS implementations, organizations which have highly developed IT processes and staff and have enough resources to handle major IS implementations are chosen.

The results of this study are expected to reveal more information about the social enablers and important organizational and relational concepts, which may directly or indirectly affect IS implementations in Turkey.

The study, also, aims to provide an understanding of the relationship between acceptance of the IS implementation and employees' perceptions about its success.

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CURRICULUM VITAE

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Project Experiences:

ING Bank

Vakıfbank

Anadolu Hayat Emeklilik

Garanti Emeklilik

KuveytTürk

Dubai Islamic Bank

DubaiBank

Finansbank

Eurobank Tekfen

Türk Ekonomi Bankası

Nissan Türkiye

Evyap

Bristol Myers Squibb

1. INTRODUCTION

Today's organizations value and implement enterprise resource planning (ERP) as a significant strategic tool for competition and survival. Information systems play an important role in today's enterprise management and are beginning to be the backbone of organizations. It was found out that more than 60 percent of Fortune 500 companies had adopted of IS systems (G. Stewart et al 2000).

In spite of their benefits, many IS implementation projects with a high percent ratio fail to succeed with an over budget, insufficient quality or time excess. (Stratman and Roth, 1999) [130]

Approximately 90 percent of enterprise resource planning (ERP) implementations are late or over budget (Martin, 1998) [98] and 70 percent of IS implementations fail to deliver anticipated benefits (Al-Mashari, 2000) [9].

1.1 Importance and Originality of the Study

Researchers analyzed Information Systems (B2B, B2C, ERP, CRM...) implementations, and their failure reasons based on organizational environments, technical problems and technology, vendor support, data accuracy and project management. While each set of these factors is important, there appears to be a growing consensus among researchers that human and organizational factor, more than technical or economic, are critical to the success of information systems implementation projects. The impact of cultural aspects on the success of the implementation is also analyzed in several papers. For example, Yen and Sheu [49] claim national culture to be a critical factor in multi-national settings; Kwasi Amoako-Gyampah and Salam [77] concur that shared beliefs may make implementation easier through a better acceptance of the system. But, few of them focus on organizational culture and leader-member relations, employees' attitudes and their overall effects on IS success and acceptance perceptions.

Information systems implementations usually involve radical organizational change because they are often associated with fundamental organizational improvements that cut across functional and organizational boundaries. Recognizing that IS systems involve organizational change and their implementations are overshadowed by a high failure rate, this study focuses attention on employees' perceptions of such organizational change and cultural and leadership impacts on organizational change behaviors and IS acceptance.

Many research has been done to identify the causes and consequences of IS implementation failures. Mostly were based on vendor and software technical capabilities, project management methods and so on. Very few studies have been conducted to find out the social, organizational and relational factors that affect information systems implementation successes and failures. This study intends to find out the most important social enablers that affect IS implementation as at least other technical and project management factors.

In Turkish business, most of the organizations apply or plan to apply IS solutions. According to a research in USA, the return on investment rates (annual return rates based on the total investment) change from %5 to %20 [139]. This shows us that the return on investment period is approximately between 5 years to 20 years. In a very rapidly changing business context, it realistically shows how hard for organizations to decide to implement IS or change current system with an entirely new IS system. The researcher believes that the results of this study will be a useful guide for organizations which plan to implement IS but do not know where to start to succeed in the overall processes.

Most researchers in the world have studied [150][80] about the critical success factors in IS implementations. These studies mostly include functional and operational items while ignoring social and human factors.

One of these studies (Weiling Ke; Kwok Kee Wei, 2007) [150][78][146] is the Weiling' article that studies about how leadership affects IS implementation by fostering the desired organizational culture. Some researchers focus on the fit between IS supplier's culture and organization's national culture [87]. Few studies have been made in Turkey. Oya H. Yüğenir and Gülsün Karaçay had a study about the critical success factors in IS implementations

including project management, people management, software selection, top management support and so on [105].

This study includes the attitudes of the employees toward organizational change and their effects on IS acceptance and IS implementation success, organizational culture and leader-member exchange and their overall effect on IS implementation and employee attitudes. When reviewing the literature on organizational behavioral factors on IS implementations, articles referring leader-member exchange and its effects on employee attitudes and IS implementation perceptions were not found. Consequently this research will be the first study analyzing the conceptual relation between organizational factors on organizational change and IS implementations in Turkey.

Another thundering point of the study is that the influence on IS implementations will be measured on two different dimensions, IS Success and Acceptance. These to-be correlated dimensions will show us the impact and momentum of influences on IS implementations.

This research will be the first study measuring LMX and attitudes toward change concepts in Turkish business context.

As a summary, this study introduces 4 original features;

1. This is one of the first study worldwide exploring the social enablers for IS implementation success factors and the first study in Turkish business context
2. This study will be the first study measuring LMX and attitudes toward change concepts in Turkish business context.
3. This study will be the first study exploring IS implementations on two different concepts, IS Success and IS Acceptance in a single research.
4. This study will be the first study measuring TAM and D&M success models in Turkish business context.

1.2 Definition of Major Abbreviations

There are lots of abbreviations and terms used by some scholars and societies which are related to the topics of this study.

But in this study, only the ones which appear in engineering textbooks, social science textbooks and journal articles are used. These abbreviations are;

IS : Information Systems
MIS : Management Information Systems
MRP : Material Resource Planning
ERP : Enterprise Resource Planning
LMX : Leader-Member Exchange
OC : Organizational Culture
OCI : Organizational Culture Index
TAM : Technology Acceptance Model

1.3 Structure of the Study

The study consists of 6 sections. In the first section, some background information, purpose and importance of the study are considered. In the second section, literature review on the study concepts is introduced. It contains the organizational and social factors, leader-member exchange, organizational culture and employees' attitudes toward change as well as acceptance and success perceptions of IS implementations. Section 3 describes the relationships between the study concepts and shows the theoretical framework which forms the conceptual model. Hypotheses of the study are also formed in this chapter.

Section 4 defines overall methodology of the study including the sampling, research design and data analysis methods used for the research. It also discusses the research approach and strategy and gives the preliminary results of the pilot study. Section 5 introduces the results of the empirical study. This chapter also includes the comparison of the proposed and modified model based on these findings. Section 6 evaluates and discusses the research findings and research questions of this study as well as suggestions for the future research and basic limitations of the study.

2. LITERATURE SURVEY

2.1 Information Systems (IS)

As the mostly used term, “*information system*” refers to a system of persons, data records and activities that process the data and information in an organization, and it includes the organization's manual and automated processes.

Additionally Silver et al. defined “*information systems*” as the implementations within an organization for the purpose of improving the effectiveness and efficiency of that organization. Whereas the “*management information systems*” refers to a planned system of collecting, processing, storing and disseminating data in the form of information needed to carry out the functions of management such as enterprise resource planning, sales and purchase processes, accounting and payroll management, knowledge management, decision support systems, customer relationship management and so on. MIS covers information systems additionally including decision making processes, performance analysis and executive summary sides. Since this study only explores business organizations and business industry and MIS is a subset of IS responsible for securing and delivering information to help executives to make operational, strategic and proactive decisions based on information systems, IS and MIS terms will be used interchangeably.

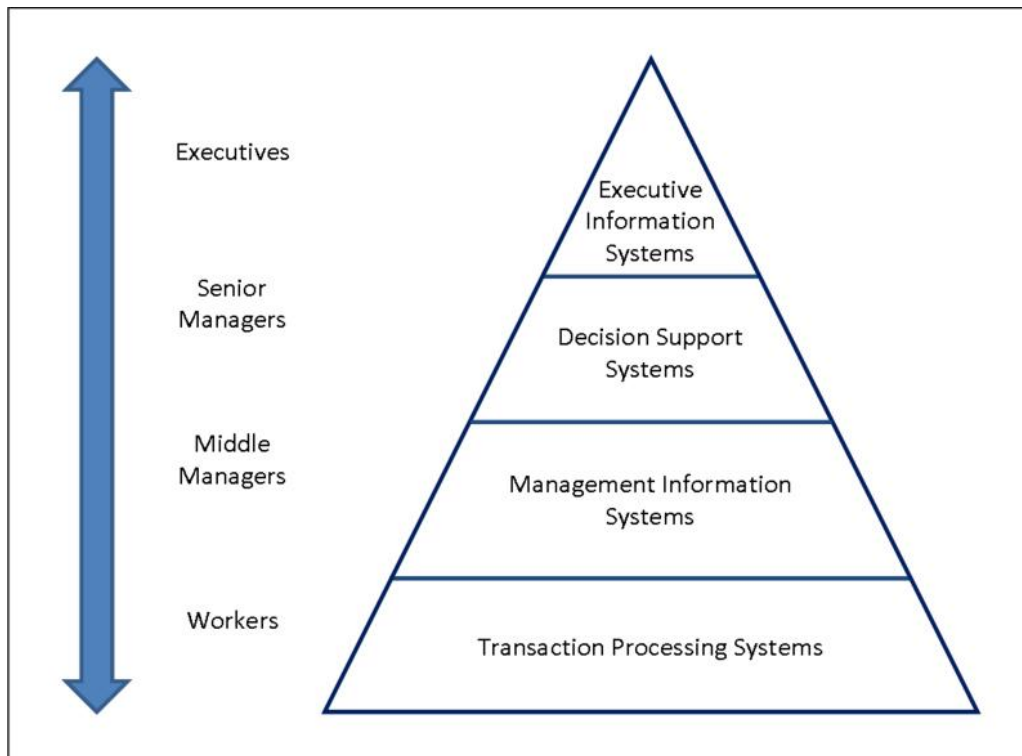
The 'classic' view of Information systems found in the textbooks [86] of the 1980s was of a pyramid of systems that reflected the hierarchy of the organization, usually transaction processing systems at the bottom of the pyramid, followed by management information systems, decision support systems and ending with executive information systems at the top. Although the pyramid model remains useful, since it was first formulated a number of new technologies have been developed and new categories of information systems have emerged, some of which no longer fit easily into the original pyramid model. Pyramid model is shown in Figure 1.

Some examples of such systems are:

- Data warehouses
- Enterprise resource planning

- Enterprise systems
- Expert systems
- Geographic information system
- Global information system
- Office Automation

Figure 1 Four Level Pyramid of IS



Source: Laudon, K.C. and Laudon, J.P. (1988). "Management Information Systems", (2nd edition), Macmillan

In this study, implementations from the Executive Information Systems, Decision Support Systems and Management Information Systems levels will be covered. These implementations include Enterprise Resource Planning (ERP) such as finance and accounting management, sales and purchasing management, human resource and customer relationship management.

Heizer and Render (2003) [50] define an ERP system as: “an information system for identifying and planning the enterprise-wide resources needed to take, make, ship and account for customer orders”. A complimentary definition is provided by (Aladwani, 2001) [8]: “an

integrated set of programs that provides support for core organizational activities such as manufacturing and logistics, finance and accounting, sales and marketing, and human resources’’.

The roots of ERP systems go back to material requirement planning (MRP) systems, which were developed in 1960’ s and 1970’ s decades, making it possible for the first time to plan production requirements based on future demands rather than on past data (Kennery 2001) [81]. In contrast to MRP, whose functionality is limited to production and manufacturing, ERP is cross- and multifunctional, delivering real time data from only one central database. It is integrated, thus linking all departments throughout the entire organization and modular meaning that any combination of modules can be jointly together.

ERP provides organizations with an overall view of the business through multidimensional information. Many firms have chosen ERP to facilitate strategically vital activities such as supply chain management, manufacturing, electronic commerce, and concurrent engineering. ERP systems impose great challenges on the adopting organizations. They require substantial material and managerial resources, a redesign of business processes and patterns of work flow, and a process of mutual adaptation of the system and organizational structure.

ERP systems are programs that aim to provide single integrated software to handle multiple corporate functions including customer relationship management, finance, human resources, manufacturing, materials management, and sales and distribution. ERP allow enterprises to:

- Integrate and synchronize all their activities within the supply chain and help in the management of the supply chain and its attendant benefits such as faster response to customers, reduced cycle times and productivity increases.
- Design an integrated information system that eliminates multiple sources of data, eliminates multiple data entries and provides more accurate and timely data.
- Facilitate information flows and communication among different organizational units so as to help meet the needs of both employees and customers.

- Reduce the costs required to maintain previously segregated legacy systems that provide incompatible data.

Enterprises mostly have these expectations from ERP software and vendors;

- Flexibility / Customizability
- Vendor Trustfulness
- Technology Adaption
- Functionality
- Consultancy
- Project Management
- User Friendship
- Sectorial Solutions
- References
- Manageable data warehouse
- Flexible Reporting

Some IS related statistics are given in Appendix 5 from Gartner's market research studies to show the importance and economic power of IS implementations worldwide.

2.2 Leader-Member Exchange (LMX)

The LMX theory occupies a unique position among leadership theories because of its focus on the dyadic relationship between leader and follower. LMX theory states that leadership is a process centered in the interaction between leaders and followers. The dyadic relationship between the two is at the center of leadership [106]. Research exploring the leader-member exchange (LMX) model of leadership suggests that leaders may develop very different relationships with different members of the same work unit (Dansereau, Graen, & Haga, 1975) [34].

A little after the contingency movement became popular, another line of research, labeled the relational theory perspective of leadership, generated substantial research. This movement was based on what was termed vertical dyad linkage theory (Dansereau, Graen, & Haga, 1975) and has evolved into what is now termed leader-member exchange (LMX) theory (Graen & Uhl-Bien, 1995; Uhl-Bien, Graen, & Scandura, 2000) [64] [65]. LMX theory describes the nature of the relations between leaders and their followers. High-quality relations between a leader and his or her followers are based on trust and mutual respect (i.e., the in-group) whereas low-quality relations between a leader and his or her followers (i.e., the out-group) are based on the satisfaction of contractual obligations. LMX theory predicts that high-quality relations generate more positive leader outcomes than do lower-quality relations.

Most of the research has shown that higher LMX increases performance, job satisfaction, and organizational commitment. For example, leader-member exchanges (LMX) has been found to be uniquely related to such favorable outcomes as in-role performance and citizenship behavior (Settoon et al., 1996; Wayne et al., 1997), and Gerstner and Day (1997) [62] reported that leader-member relationship quality is related to job performance, satisfaction with supervision, overall satisfaction, commitment, role conflict, role clarity, member competence, and turnover intentions.

In addition to all these research, many studies have examined the relationship between a supervisor's LMX quality and employee creativity (Shalley et al., 2004). The vast majority of these studies provided substantial support for the expected relationships between supportive (positive) and controlling (negative) LMX quality and creativity (e.g., Shalley & Gibson, 2004; Tierney & Farmer, 2002; Zhou & George, 2003).^{[125][135][157]}

These studies show that there is a high probability that high-quality relationship between leader and followers helps to create a more creative and innovative organizational culture.

2.3 Organizational Culture

Organizational culture is one type of environmental influence which impacts the way people (employees) think, perform tasks and communicate/interact with each other. In his widely accepted and well-known definition, Schein (1992) ^[131] defines culture as: "A pattern of shared basic assumptions that the organization learned as it solved its problems of external adoption and internal integration, to be taught to new members as the correct way to perceive, think and feel in relation to those problems". Furthermore, Schein (1992) ^[131] suggested that organizational culture is composed of three levels as artifacts (the visible level), values (not observable, at the mid-level) and basic assumptions (at the core of the formation).

Hofstede's (1983) ^[50] favorite definition of culture is "precisely that its essence is collective mental programming: it is the part of our conditioning that we share with other members of our nation, region, or group but not with members of other nations, regions, or groups." Hofstede also described organizational culture as "the way things are done in the business". Based on these definitions, it is obvious that the existing culture of an organization provides a corporate framework that provides guidance on issues like how work is done, the use of technology, how people think and communicate, how they feel about their organization, how they interact and how they behave and feel about new things.

According to Reichers and Schneider (1990) ^[114], following Smircich (1983) ^[133], there have been two distinct approaches to the definition of culture. While the first approach treats

organizational culture as “something an organization is, the second one accepts culture as something an organization has”. Although almost all of the academicians agree upon the second approach including Schein (1992) [131], Killman (1985) [83], and Hofstede (2000) [54], the concept of culture has not yet been clearly defined and accepted.

Work is done by people who make up an organization, not the organization itself. Several studies have shown how organizational culture or changes in organizational culture can facilitate or hinder business change initiatives such as MRP, ERP and TQM (Al-Khalifa and Aspinwall, 2000) [5].

In this study, the researcher draw on the work of Wallach (1983) [147], who developed a three-dimension measure of organizational culture (organizational culture index - OCI), based on the widely known work of Litwin and Stringer (1968) and Margerison (1979) [85].

Wallach’s Organizational Culture Index study can be used to access the organizations on three stereotypical profiles: bureaucratic, innovative, and supportive profiles proposed by Margerison [147].

Wallach (1983) [147] defines supportive cultures as including such climatic values such as harmony, openness, friendship, collaboration, encouragement, sociability, personal freedom, and trust. In earlier researchers, positive relationships have been found between supportive culture and employees’ behaviors. Shore and Wayne (1993) [127] found that perceived organizational support, such as organizational citizenship and impression management, was a strong predictor of employee behavior. The perception of employees that employee involvement programs can create benefits for the organization and the individual may well rest on the positive feelings of organizational citizenship that are generated through supportive organizational climates [127].

Wallach (1983) [147] defines innovative culture as including such climatic properties risk taking, results oriented, creative, pressurized, stimulating, challenging, enterprising, and driving. Since Burns and Stalker’s (1961) [24] early work, there has been a widespread view in the literature that innovative organizations are characterized by organic management

systems that involve teamwork, lateral communications, and blurring of job boundaries to facilitate the interaction of people participating in the work tasks.[24] In another study, Kanter (1983) [75] indicates that innovative climates also tend to have innovative human resources practices.

And we also know most of the scholars agree on the idea that organizational climate and organization culture have overlapping issues and indicate the association between these two concepts [131][35][100].

Wallach (1983) [147] defines bureaucratic culture as including such climatic properties; procedural, hierarchical, structured, ordered, regulated, established, cautious, and power oriented.

In this study, the researcher will investigate how, on a macro level, an organization's culture affects employees attitudes toward change and employees perceptions about the IS implementation success and their acceptance levels.

2.4 Attitudes toward Change

ERP systems usually involve radical organizational change because it is often associated with fundamental organizational improvements that cut across functional and organizational boundaries. Since ERP systems involve organizational change and their implementation is overshadowed by a high failure rate, this study will focus on employees' perceptions of such organizational change. IS-driven change initiatives require change of the organization's socio-technical system, which is intertwined of technology, task, people, structure, and culture (Laughlin, 1999) [88].

Transforming organizations with information technologies is an important business objective; as traditional structures are often ineffective in producing desired levels of productivity, customer service, employee welfare, and shareholder value.

Organizational change is defined as an attempt, or series of attempts, to modify an organization's structure, goals, and technology or work tasks [26]. It has been argued that the adoption and use of IS should be conceptualized as a form of organizational change [102]. For this purpose, the research incorporates a conceptual construct of attitude toward change that captures views about the need for organizational change through IS implementation.

The failure of organizational change programs to achieve their intended results is often attributed to employees' resistance to change (Bovey & Hede, 2001)[23], while many others acknowledge that positive employee attitudes toward change are critical to achieving organization goals (Eby et. al., 2000; Weber & Weber, 2000).[42][149]

But it should be noted that organizational change and its measurement is not relevant to this study. In this study, the research will focus on the employee attitudes while an organizational change (IS implementation) is taking place.

An examination of the organizational change and development literature identifies a wide variety of potentially useful information concerning how and why organizational members

react to organizational change (e.g., Beer & Walton, 1987; Connor & Lake, 1988; Sashkin & Burke, 1987) [19][31][116].

A number of writers have emphasized that member attitudes can play an important role in determining whether a person chooses to support or resist a change (Patchen 1965; Kirton and Mulligan, 1973) [108][84] .

For example, as early as 1965, Patchen noted that:

“In an era of swift technological and administrative changes, the degree of employee acceptance versus resistance to change is of considerable importance to managers. From the standpoint of individual well-being, general resistance to change may also be important in that it may indicate that the person feels threatened by the change in some way. It seems desirable therefore to be able to assess the extent to which employees react favorably or unfavorably to changes in the job situation.”

Organization development specialists often recommend pre-change organizational diagnoses. Jones and Bearley (1987) [73], for example, have developed a behavioral checklist which focuses on past behavior in handling organizational change. Since past behavior is often a good predictor of future behavior, such an instrument may be useful in managing change. Ajzen and Fishbein, however, note that attitudes often are better predictors of future behavior than is past behavior (1980) [11]. Consequently, an instrument which assesses attitudes toward change could be quite useful.

Organizational members who have favorable perceptions on organizational transformation are likely to proactively participate in any organizational change situation; and possibly look forward to changes in work patterns [80]. They tend to believe that organizational change should be realized to improve organizational performance and their productivity. Therefore, we can expect that individuals with favorable attitudes toward change believe that using the IS required for organizational change will help them to attain gains in job performance. Furthermore, individuals with favorable attitudes toward change are likely to easily adapt themselves to the new circumstances. They tend to believe that they can learn and utilize new

practices and technologies that are needed for the new situation; and without severe cognitive effort on their part. Therefore, we can expect that individuals with favorable attitudes toward change believe that they can learn how to use the information systems required for organizational change with little effort.

According to (Elizur & Guttman, 1976) [43], there are three types of individuals' or groups' responses to organizational change: affective, cognitive and instrumental. Affective response refers to the feeling of being linked to satisfaction or anxious about change. Cognitive responses are opinions relating to usefulness and necessity and about knowledge required to handle change, while instrumental responses refers to actions already taken or which will be taken to handle the change.

Dunham (1984) [40] stated that complex attitudes could be understood better by recognizing that every attitude has three distinct components, which are cognitive, affective and behavioral tendencies. Each of this type of attitude toward change may induce a person to support or not to support changes occurring in an organizational setting.

Attitude toward change generally consists of a person's affective reactions to change, cognitions about change, and behavioral tendency toward change. The affective component consists of the feelings a person has toward an attitude object, which involves evaluation and emotion, and is often expressed as like or dislike for the attitude object. The cognitive component of an attitude consists of the information a person possesses about a person or a thing which is based on what a person believes is true. The behavioral tendency concerns the way a person intends to behave toward an attitude object [39].

Few studies have investigated the relationship between attitudes toward change and organizational outcomes such as organizational commitment, job satisfaction and work ethics. Iverson [59] found that an employee's acceptance of organizational change increases with organizational commitment, a harmonious industrial relations climate, education, job motivation, satisfaction and security. Yousef (2000) [143] found that certain dimensions of organizational commitment directly influence certain attitudes toward organizational change,

and job satisfaction with certain facets of job directly and indirectly (through different dimensions of organizational commitment) influences the different dimension of attitudes toward organizational change. But there was no attempt to examine the impact of organizational culture and LMX on attitude toward change. Therefore, the fundamental issue of this study will be the investigation of organizational culture and dyadic relationship between leader and its members on the employee attitudes toward change.

2.5 Organizational Change

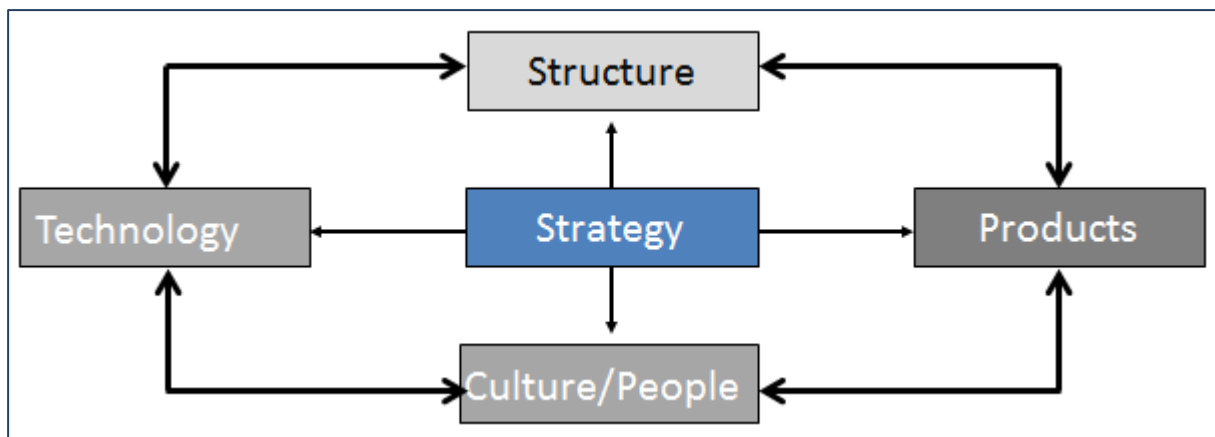
No matter how hard they try, companies can no longer afford the choice of whether or not to change. Companies must change in order to survive. And this change should be an *ongoing* one.

One of the most dramatic elements is the shift to a technology-driven workplace. Information systems implementations usually involve radical organizational change. Since it is often associated with fundamental organizational improvements it cuts across functional and organizational boundaries. Transforming organizations with information technologies is an important business objective since traditional structures are often ineffective in producing desired levels of productivity, customer service, employee welfare, and shareholder value.

Organizational change is defined as an attempt, or series of attempts, to modify an organization's structure, goals, and technology or work tasks [26]. Organizational change involves movement from the present state of the organization to some future or target state which may include a new strategy, a new technology, a new process, a new structure or changes in the organization's culture. As there are many different dimensions and approaches to categorize the types of organizational change, this study is related to the technology-driven change. For example, Lorenzi and Riley (2000) defined four types of change in an organization: operational, strategic, cultural, and political. In another categorization, Linda Ackerman [91] suggests three main types; development changes, transitional change and transformational change. In another very well know model of types of organizational change,

as shown in Figure 2 as a strategic movements which end up with changes in technology, structure, products or culture/people. [47]

Figure 2 Types of Organizational Change



Source: Harold J. Leavitt. (1964). "Applied Organizational Change in Industry: Structural, Technical, and Human Approaches."

In many organizations change is taking place at an ever-increasing rate (Schabracq, Winnubst, & Cooper, 2003). As a result, more and more employees today are faced with changes they never asked for. These continuous and surprise changes often give rise to stress reactions in employees, resulting in a number of negative consequences for both the employees and the organization (Tosi & Neal, 2003; Nahavandi & Malekzadeh, 1999). Employees resist change as it is perceived as threatening their needs for job security, social interaction, current status, competence, or self-esteem. Change requires coping and adaptive responses from the individual. When employees perceive that they have little or no control over changes or challenges, their stress levels may increase. On the other hand, when employees feel that control is possible, they view the challenge positively and believe that it can be met. Schein's (1998) classical work suggests that unless organizations recognize that change may give rise to stress reactions in employees, and as such implement internal organizational measures and conditions that are necessary for effective coping to occur, most change efforts will *fail*.

There are too many forces/drivers for organizational change. Many practitioners and authors emphasize different categories and dimensions of forces of change. For example, Todd D. Jick and Maury A. Peiperl explore the largest three as; “technology”, “customer focus” and “globalization” in their book “*Managing Change*”. (Todd D. Jick, Maury A. Peiperl, 2003). Despite this categorization, Nahavandi, Malekzadeh and Senior categorize forces of organizational change as internal forces including “changes in job characteristics”, “changes in organizational structure” and external forces including “economic climate”, “labor supply”, “new competition”, “changes in technology”, and “socio-political changes”. In another categorization, Oakland and Tanner (2007) categorize forces of change as internal forces including “human resource problems”, “managerial decisions/behavior” and external forces as including “demographic characteristics”, “technological advancements”, “market change”, “social and political pressures”. In addition to these, Brown & Eisenhardt (1998) noted that developing technology, the changing needs of stakeholders, and economic pressures all contribute to the need for organizations worldwide to significantly modify the way they do things.

These internal and external factors force/drive organizations to change in a continual manner. Just after an organizational change is initiated, planned and implemented, another one is initiated. In such an environment, employees' general attitudes toward change become the most significant, important and vital factor considering the individual level factors for the success of these change events. So in this study, instead of considering preposition and attitudes of employees to specific organizational events and their short-term behaviors and tendencies, their general attitudes toward change, organizational culture dimension are considered and emphasized.

Organizational change is an ongoing endeavor in any organization whatever the reasons and factors initiating it. The focus of this study is not to investigate these factors even if they are technological forces. The aim of this research is to investigate which social enablers affect and let these technologic-driven organizational change attempts to be completed successfully.

Once assured the organization has a well-crafted, well-communicated strategic plan, the organizational change consultant/agent must determine of the current organizational structure, culture, and human processes that will support the strategy. Invariably, attempts to implement even the best-crafted strategy will fail if the organization's structure, culture and human processes are not supportive.

But it should be noted that organizational change and its measurement is not relevant to this study. In this study, the research will focus on the employees' general attitudes while a technological type of organizational change (IS implementation) is carried out.

2.6 Resistance to Change

While there are many external and internal factors which are effective for managing and implementing change, there is no doubt that the greatest is the employees' reactions to change.

Beyond the issues of what kind of forces and drivers initiate change and what type of change is planned, it is very important for leaders and change agents to consider how to implement the change to be effective. Hence, in this study employees' attitudes toward change is investigated as one of the social enablers affecting the success of Information Systems implementations.

According to the SHRM 2007 Change Management Survey Report (Benedict, 2007), the two top obstacles encountered during major organizational change are "communication breakdown" and "employee resistance".

There are many reasons why employees resist change. The most important ones are the *fear of unknown, loss of control, maintaining the status-quo, fear of downsizing* and finally *attitudes toward change*. Some employees of any organization resist change. (Howell, 2005) Change agents and leader should be aware of their organizations' readiness to change, their employees' general attitudes toward change, should evaluate their levels.

2.7 IS Implementation Success

There have been numerous empirical studies on successful implementation of information systems and packaged software such as ERP systems.

However, the complexity and breadth of ERP implementation pose unique project challenges, including the difficulty of re-engineering business processes to fit the ERP process models, requiring higher levels of organizational authority/support and broader organizational participation, and essential organization learning to capitalize on the ERP implementation [68]. Some researchers argue that ERP implementation is an architecture innovation, which destroys the existing knowledge of how specialized subroutines are systemically integrated, while leaving the knowledge underlying those subroutines intact.

Due to the firm-wide impact of IS systems, practitioners and theorists are still grappling with the question of which constructs best represent IS implementation success.

Among the extant literature on ERP, ERP implementation success is mainly measured by whether the system is implemented on-time and/or within budget. This measurement is not directly related to the realization of ERP implementation's potential benefits [150]. Mabert report that firms over budget for ERP implementation tend to view the system as less successful in meeting desired company goals [139].

Their results implicate that process success (e.g., budget and schedule control) manifests the cost-effectiveness of a project. Their findings then indicate that firms whose ERP implementation is under/on budget tend to rate the system value (goal success and business case attainment) higher than the over budget firms. Such a result seems reasonable; a project overrun in cost and time discloses a potentially troubled venture and the likelihood of unfulfilled promises [139].

A number of generic IS success models have been developed and tested in recent years (Davis, 1989; DeLone & McLean, 1992; Rai, Lang, & Welker, 2002; Seddon, 1997) [7][155]

[113][118]. DeLone and McLean developed an IS Success Model in 1992, which conceptualize and operationalize IS Success [156].

Delone and McLean (1992) performed a review of the research published during the period 1981-1987, and created taxonomy of IS Success based upon this review.

The DeLone and McLean IS Model has three levels, technical level which defines the accuracy and efficiency of the communication system that produces information, semantic level which defines the success of the information in conveying the intended meaning and effectiveness level which defines the effect of the information on the receiver. In the model, “systems quality” measures the technical success; “information quality” measures semantic success; and “use, user satisfaction, individual impact and organizational impacts” measure effectiveness success. On their original model based on both process and causal considerations, they proposed that these 6 dimensions of success are interrelated rather than independent. [156]

Shortly after the publication of the D&M success model, IS researchers began proposing modifications to this model. Accepting the authors’ call for “further development and validation,” Seddon and Kiew (1996) studied a portion of the IS success model (i.e., system quality, information quality, use and user satisfaction). In their evaluation, they modified the construct use, because they conjectured that the underlying success construct that researchers have been trying to tap is *usefulness*, not *use*. Seddon and Kiew’s concept of usefulness is equivalent to the idea of perceived usefulness in TAM by Davis [127]. In this study, considering all the criticism of *use* dimension of D&M model and its overlapping literature background, the researcher will measure the *perceived usefulness* dimension in TAM.

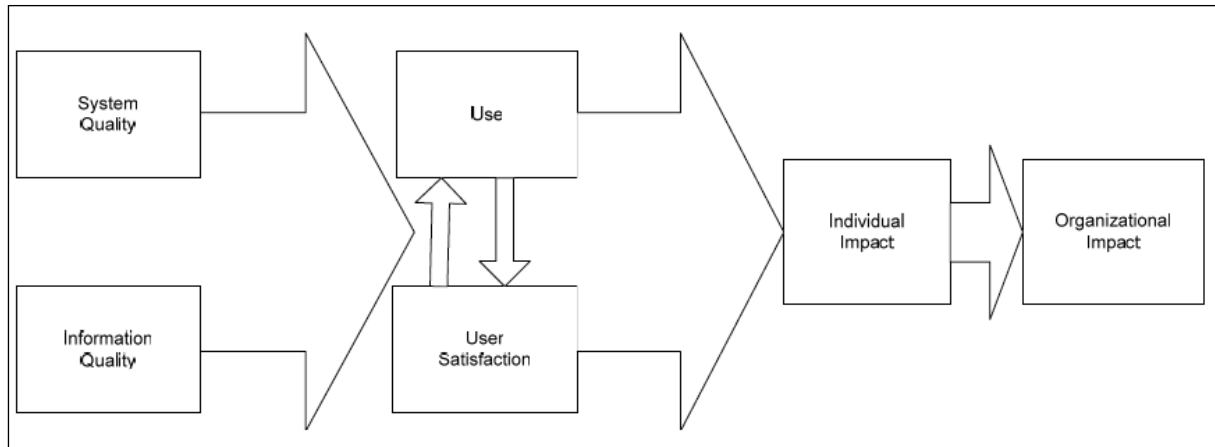
Researchers have also suggested that service quality be added to the D&M model. An instrument from the marketing literature, SERVQUAL, has become salient within the IS success literature within the past decade.

In addition to the modifications proposed by Seddon, there have been other calls to revise or extend the model. Some researchers have modified it to evaluate success of specific applications such as knowledge management and e-commerce [127].

Based on research contributions since the original paper, DeLone and McLean updated their original success model in their “The DeLone and McLean Model of Information Systems Success: A Ten-Year Update” study [156]. They added service quality to “system quality” and information quality as components of IS success. [156]

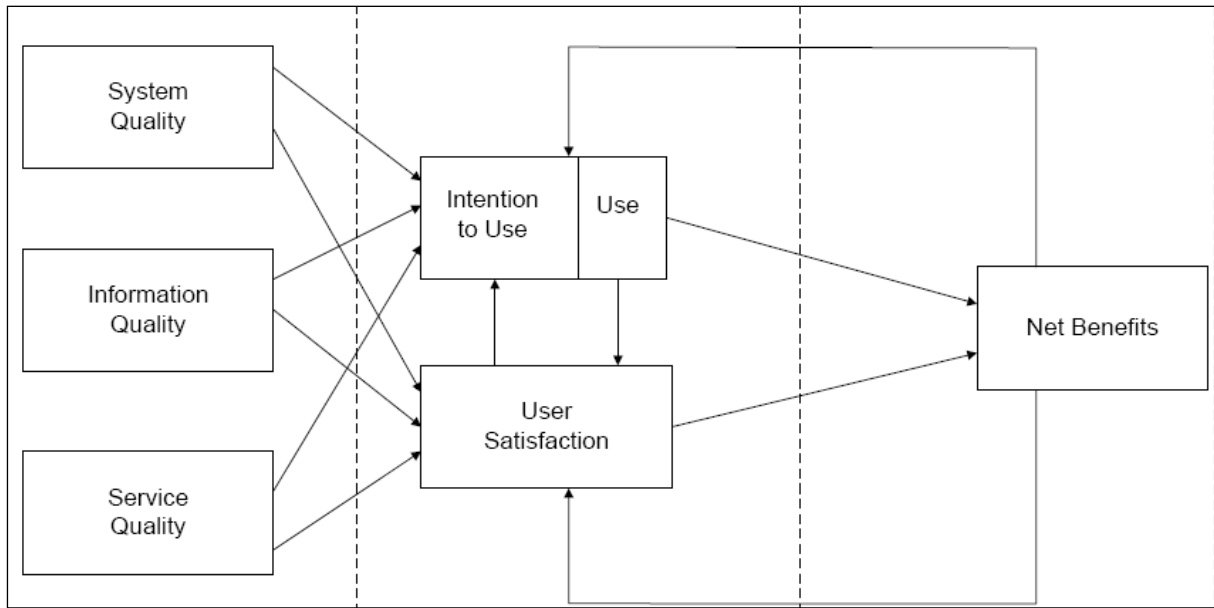
They also put individual impact and organizational impacts measures into a single impact (they also called as “benefit”) category called “net impact” [156]. They finally placed “intention to use” alongside “use” dimension, considering that substituting the former for the latter may resolve some of the process versus causal concerns that (Seddon, 1997) [119] has raised, since “intention to use” is an attitude where “use” is behavior [156].

Figure 3 The Original DeLone and McLean IS Success Model



Source: W.H. DeLone and E.R. McLean. (2003). “The DeLone and McLean Model of Information Systems Success: A Ten-Year Update”

Figure 4 The Updated DeLone and McLean Model



Source: W.H. DeLone and E.R. McLean. (2003). "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update"

In their study of qualitative literature review, Stacie Petter, William DeLone and Ephraim McLean have reviewed 180 papers in the academic literature for the period of 1992-2007 dealing with some aspect of IS Success. In this study, 90 empirical studies were examined.[127] Even only this summary review study shows the popularity, generalization and empirical validity of the IS Success model of DeLone and McLean.

2.8 Technology Acceptance

Most of the researchers emphasize the idea that managers change and redesign their organizations primarily in order to adapt them to changes in the environment, but also to adjust to changes in the managers' own aspirations and perceptions, or to unintended or unmanaged changes within the organization.

In some cases, although the top management fully supports the ERP implementation, the key users and users resist to accept the new system and its related changes. One of the hidden reasons of this resistance may be that the change request and force come from the top management not from the bottom-line and the change reflects the leader or the owner's aspirations and perceptions not the company-wide needs. So to measure the overall IS

implementation success and its company-wide acceptance, we should analyze the perceptions of the employees and their behaviors that indicate the level of resistance and acceptance of the new system.

Extant ERP research has explored how and why organizations and individuals adopt and utilize new ERP or existing ERP systems. One distinct stream of research, the technology acceptance model (TAM) [33], focuses on an individual's acceptance of technology; based on beliefs and intention or usage. TAM has gained popularity in recent years as a tool for assessing and predicting the utilization behavior of IS [93]. TAM posits that actual system usage is influenced by behavioral intention to use the system, which is in turn affected by attitude toward using the system. The model suggests that perceived usefulness and perceived ease of use represent the beliefs that lead to such an acceptance process. Numerous empirical studies have suggested a significantly strong causal relationship between intention and behavior; hence, the use of behavioral intention has been justified as a dependent variable to surrogate actual behavior [28].

Davis's (1989) Technology Acceptance Model (TAM) used the Theory of Reasoned Action and Theory of Planned Behavior (Fishbein & Ajzen, 1975) to explain why some systems are more readily accepted by users than others [127].

Two core constructs underlie TAM. These constructs are perceived usefulness and ease of use. According to TAM, both perceived usefulness and ease of use lead to behavioral intention. Ease of use also influences perceived usefulness of the technology. Davis (1986) [33] defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance". Davis also defined ease of use as "the degree to which a person believes that using a particular system would be free of effort."

Some current research on IS implementation have used various elements of TAM as part of the underlying constructs in trying to understand IS implementation success (Calisir & Calisir, 2004) [25]. For example, results obtained by Calisir and Calisir (2004) [25] show that

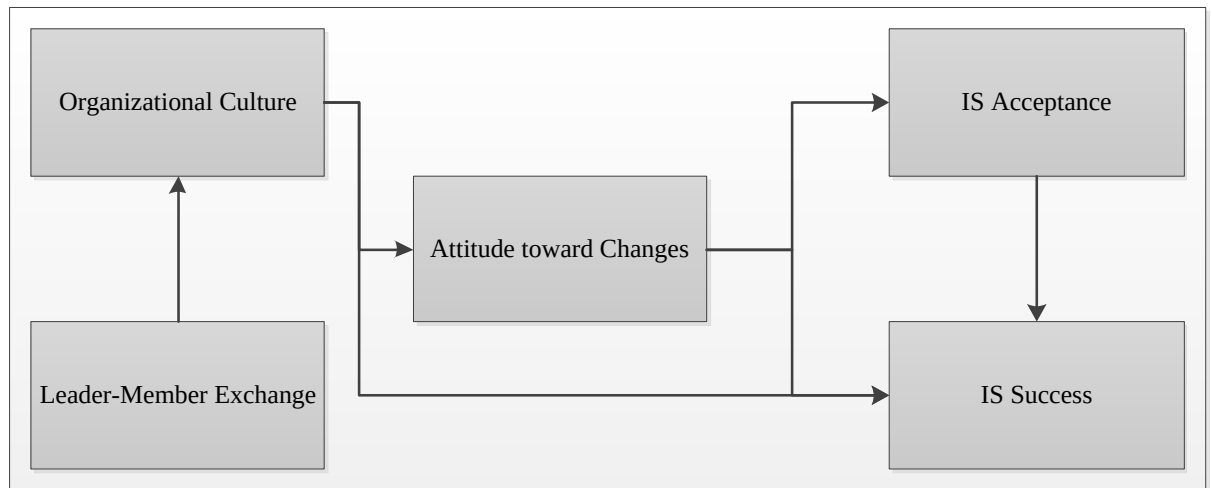
during ERP implementation, perceived usefulness is a significant determinant of end-user satisfaction and that ease of use affects the perceived usefulness of the ERP system.

3. PROPOSED MODEL OF THE STUDY AND HYPOTHESIS

3.1 Conceptual Model and Theoretical Framework

The conceptual model of the study is described in Figure 5. The theoretical framework of the study, relationships and interactions between the concepts and related research studies and proposed hypotheses are presented in the following pages.

Figure 5 The Proposed Research Model



3.1.1 Organizational Culture and Leader-Member Exchange

As the purpose of this study is to examine the IS implementation success and level of acceptance in Turkish business organizations, the national culture and its effects on organizational culture and interpersonal relationships become very important. Hofstede (1980) [52] defines culture as ‘the collective mental programming of the people in an environment and asserts that cultural values have significant impact on organizational behavior. Cross-cultural researchers study value dimensions that are argued to moderate the effects of managerial practices on employee behavior (Erez, 1994) [45]. In Hofstede’s very well-known study, Turkish culture was found to more collectivistic. And also the Turkish cultural system is classified as being high on power distance and uncertainty avoidance. (Hofstede, 1980; House 1999) [55].

In this study, paternalism, which has recently been added to the discussion of cultural value dimensions (James et al., 1996; Aycan, 2005) [72] [13], is also considered as an important literature value linking relationship between Turkish cultural values and leader member relations. Paternalism indicates that managers take a personal interest in the workers’ off-the-job lives and attempt to promote workers’ personal welfare (Paşa et al., 2001) [106]. In paternalistic cultures, people in authority assume the role of parents and consider it an obligation to provide protection to others under their care. In a cross-cultural study involving 10 nations, Turkey scored very high on paternalistic values (Aycan et al., 2000) [12]. This might be due to the Turkish family structure, where members are expected to comply with the decisions and directions of the father without question. The effectiveness of paternalistic leadership in the Turkish business culture, which stems mainly from acceptance of power inequalities, can be attributed to the influence of military culture in creating and sustaining hierarchical relationships in social institutions, including the workplace. For example, during the last four decades there have been two major military coups d’état (in 1960 and 1980). Furthermore, the legacy of a highly structured bureaucracy left by the Ottoman Empire is superimposed on every aspect of social life, which reinforces authoritarian management practices.

In a study of Mexican organizations, Martinez (2005) [99] suggests that, in paternalistic cultures, managers are seen as the caretakers and family of the workers. Employees expect their manager to act as a caring and protective head of the industrial household. Further, in collectivistic societies personal relationships are highly valued, and employees expect frequent contact.

According to LMX theory, effective leadership occurs when leaders and followers maintain a high quality exchange relationship characterized by a high degree of mutual trust, respect, and obligation (Graen and Scandura, 1987; Graen and Uhl-Bien, 1995) [64] [65].

In the Turkish context, we also expect to see a positive association, owing to the pervasive influence of paternalism in Turkish organizations, where the employees expect frequent and close contact, care, and protection. In fact, Uhl-Bien et al. (1990) [145] suggest that managerial paternalism in Japanese business organizations may originate from a high-quality exchange (LMX) relationship between the paternalistic manager and the employee.

In another study [141], Yahyagil found that employees of a Turkish organization perceived their organizations almost equally as being bureaucratic and innovative at a moderate level, and as being supportive at lesser degree. He mentions that it might be a result of the fact that the organization is a family owned organization, in spite of being a leading professional company. In his study, it is found to be a blend of the characteristics of supportive and innovative culture and surprisingly the composition of 2 innovative culture variables (result-orientated, pressurizing) along with almost all bureaucratic culture variables. Regarding the blend of the variables of “power-oriented and result-oriented”, he concluded that this might be related to the perception of Turkish national culture by the members of organizations. He concluded that in Turkish business world, employees who generally expect a paternalistic approach (Paşa, 2000; Kabasakal and Bodur, 1998) from their superiors might not fully grasp the difference between power-oriented and results-oriented approaches clearly for the achievement of organizational goals [141]. Thus, these research findings and literature review provide us with a reliable support to analyze the relationship between LMX theory and organizational culture in Turkish business organizations.

In this study, the researcher proposes that;

H1: There is a strong and positive relationship between the concepts of LMX and supportive as well as innovative type of organizational culture.

3.1.2 Attitudes toward Change and Organizational Culture:

Attitudes can be defined as a predisposition to respond to a stimulus (something in a person's environment such as an event, thing, place or another person) in a positive or negative way [68].

In the workplace, a person's attitudes are an important determinant of performance related behaviors- the quantity and quality of output, organizational commitment, absenteeism, turnover, and so forth [71]. Attitudes can be difficult to change once they have been learned (Dunham, 1984) [39]. Attitudes have three basic components, cognitive, affective and behavioral.

Leaders and managers attempting to introduce major change in an organization often begin assessing and then trying to change employee attitudes [1]. In general, beliefs and values precede attitudes, which then influence behavior. While an attitude may lead to intent to behave in a certain way, the intention may or may not be carried out depending on the situation or circumstances. At the same time, while attitudes do influence behavior, it is important to emphasize that behavior also influences attitudes [71]. And also employee perceptions are essential factors in determining individual behaviors both inside and outside an organization. In simple terms, we can define perception as it is how we view and interpret the events and situations in the world (organization) about us. Thus, perceptions can be thought of as an intervening variable which influence behaviors [18]. From this point of view, the researcher believes that organization's cultural profile based on perceptual descriptions of employees will be highly likely important indicating the attitudes of employees during an organizational change.

In the other hand, organizational culture appeared to have some influence on attitudes toward change (Ahmed, 1998; Lorenzo, 1998; Silvester and Anderson, 1999; Pool, 2000) [2][94][128][111]. According to Ahmed (1998) [2], innovation is the engine of change and the possession of positive cultural characteristics provides the organization with necessary ingredients to innovate. Culture could enhance or inhibit the tendency to innovate. Therefore, it is expected that certain types of culture might facilitate the change process while other types of culture might not.

In this study, the researcher proposes that;

H2: There is a positive and strong relationship between the concepts of attitude toward change and innovative organizational culture.

3.1.3 Attitudes toward change and IS Acceptance:

Transforming organizations with information technologies is an important business objective; as traditional structures are often ineffective in producing desired levels of productivity, customer service, employee welfare, and shareholder value. While the adoption of new IS often causes organizations to be dramatically transformed, it does not always lead to successful organizational change. IS are considered to play an important role in organizational transformation process, but only when they are accepted and used by organizational members. In a situation of organizational change efforts, however, newly introduced enterprise systems may not be accepted and used because of significant resistance by the employees; even if their functional and technological characteristics show a desirable level.

Organizational members who have favorable perceptions on organizational transformation are likely to proactively participate in any organizational change situation and accept the changes; and possibly look forward to changes in work patterns. Therefore, we can expect that individuals with favorable attitudes toward change believe that using the IS required for organizational change will help them to attain gains in job performance.

Furthermore, individuals with favorable attitudes toward change are likely to easily adapt themselves to the new circumstances. Therefore, we can expect that individuals with favorable attitudes toward change believe that they can learn how to use the information systems required for organizational change with little effort.

In Iverson's research, organizational commitment was found to be the next most important determinant of attitude toward organizational change [59]. An individual's commitment to an organization affects how she or he evaluates organizational change [87]. This implies that a highly committed individual might more readily identify with, and accept, organizational change efforts that are perceived as beneficial.

As a consequence, one could expect that they would be willing to adopt and utilize IS systems required for organizational change. The more positive the perception on organizational change is, the more useful IS systems can be, the easier they can be to use and the more they will be utilized [80].

In this study, the researcher proposes that;

H3: There is a positive relationship between attitude toward change and the employees' perceptions on the ease of use and usefulness of the IS system.

3.1.4 Organizational Culture and IS Implementation Success:

IS implementation success needs a culture of tolerance for conflicts and risk. To reap the benefits of strategic changes enabled by IS, the organization must examine the business processes status quo and redesign business processes in the light of IS systems' functionalities. Therefore, IS implementation disrupts existing patterns of work processes and requires the development of new routines and control and coordination mechanisms [112]. There could be contradictions and conflicts of interests in this reengineering process. A culture tolerating conflicts encourages the generation of innovative ideas and prevents the escalation of conflicts [69]. In addition, a culture of tolerance for risk allows these innovative ideas to be

tested for their feasibility and effectiveness. Such a culture also encourages the empowered employees to make ad hoc decisions in response to market changes and be responsible for their behavior.

The researcher also proposes that innovative type of organizational culture is the one which makes the greatest contribution the success level of IS implementation;

H4: The conceptual dimensions of encouragement, freedom (supportive cultural dimensions), and “being creative, stimulating” (innovative cultural dimensions) will be one of the most significantly contributing conceptual dimensions to have higher level of IS implementation success.

3.1.5 Attitudes toward Change and IS Success:

In this study, the researcher uses the statistically tested measures of individual impacts as *job performance, decision making, and quality of work and job effectiveness* to measure individual impacts of the new system on employees.

Job satisfaction, job effectiveness and job performance have been linked to many different issues when considering employees. Studies have been performed to see what the predictor of these concepts. For example, Yousef has investigated the relationship between job satisfaction and attitudes toward organizational change and showed the importance of this relationship [143]. Furthermore, the literature suggests that negative attitudes toward change can have negative consequences for an organization. For example, Rush, Schoel, and Barnard (1995) found that perceived pressures of change among state government employees were associated with increased stress, which, in turn, was associated with lower job satisfaction and increased intentions to quit.[115] The study of the relationship between job satisfaction and job performance has a controversial history. A review of the literature in 1985 suggested that the statistical correlation between job satisfaction and performance was about .17 (Iaffaldano & Muchinsky, 1985) [57] which was pretty low. However, in a more recent and comprehensive review of 301 studies, Judge, Thoresen, Bono, and Patton (2001) [74] found that when the

correlations are appropriately corrected (for sampling and measurement errors), the average correlation between job satisfaction and job performance is a higher .30. In addition, the relationship between job satisfaction and performance was found to be even higher for complex (e.g., professional) jobs than for less complex jobs. Thus, contrary to earlier reviews, it does appear that job satisfaction is, in fact, predictive of performance, and the relationship is even stronger for professional jobs.

H5: Employees' positive attitudes toward change will be one of the most significantly contributing conceptual dimensions to have higher level of employee's perceived individual impacts about the new system.

3.1.6 Technology Acceptance and IS Implementation Success:

Most studies on technology acceptance showed that perceived ease of use directly influenced perceived usefulness and attitude toward use (e.g., Ahn et al., 2004; Bruner & Kumar, 2005; Chen et al., 2002; Davis et al., 1989) [3][22][28][33]. In particular, Davis (1989) [33] stated that through perceived usefulness, perceived ease of use indirectly influences attitude toward use (which may lead to actual use - "system use" dimension of IS Success Model) and acceptance intention, which in turn clearly shows that perceived ease of use is the antecedent of perceived usefulness.

Delone and McLean's "*The DeLone and McLean Model of Information Systems Success: A Ten-Year Update*" study, they suggested "intention to use" to be a worthwhile alternative measure in some context. But in this study, the "intention to use" or the "attitude toward use" dimension is measured within the context of IS Acceptance. So the actual use, - system use-dimension of the initial Delone and McLean's model becomes meaningful and necessary.

H6: Perceptions on the ease of use and usefulness of the new system will be positively associated to employee's perceived individual impacts about the new system.

4. METHODOLOGY

In this chapter, we explain the research design, the procedures, the data collection methods, the research approach and strategy, and techniques used for choosing the sample, both for the pilot and for the main research and the data collection method. The last part of this chapter presents the preliminary results of the pilot study and the methods used for data analysis.

4.1 Sampling

Since the research is concerned with employees' perception of IS implementation success and their attitudes indicating IS acceptance, the context of the research is all white-collared employees including management team and key users in the organizations that have completed their IS implementations within 2 years.

The data used in the research is collected, mainly, from the organizations functioning in banking sector in Turkey. Banking sector was selected as majority because in Turkish business, banks have usually huge IT investment budgets compared to other sectors and even compared to foreign banks in other developed countries such as ones in Europe. They implemented various software projects including legacy system, core banking applications, CRM and other banking operations. Another important reason why the banking sector is selected as majority is that, in financial institutes and especially in banks, having too many employees, organizational and social concepts are more developed and relationship, perceptions and organizational culture aspects are more obvious to observe.

In some of the organizations, IS implementations have been taken place within two years where the researcher worked as senior consultant.

Since these organizations have different time scales for IS implementation and different time period passed after the IS implementation, the researcher believes that the perceptions of employees may differ in consideration of the success of IS implementation. Since the IS implementation is a long process, the perceptions of employees' in the beginning of the

implementation, in the middle of the implementation, just after the implementation and a long time after the implementation may differ significantly. The researcher used a mixed approach including quantitative and qualitative research methods in order to analyze the differentiation if any exists.

The quantitative data was held by a survey study including 5 measurement devices and qualitative data indicating the interpretations of the key users were held by private informal meetings with the key users and the management.

In the first phase of the research, quantitative research methodology including 5 measurement devices (Organizational Culture, Leader-Member Exchange, Attitude toward Change, IS Acceptance and IS Success) was used. SPSS 16.0 software program was used for statistical and analytical studies.

In the second phase of the research, qualitative research methodology was used with key users and management team who participated in IS implementation project phases in order to understand their overall interpretation about the project. The estimate timeline for the research is 24 months.

The purpose of this research is to provide an understanding of the relationship between organizational and social factors and IS implementation success and acceptance. In order to minimize risk of high consideration and interaction of technical issues, which may affect the IS implementations, organizations which have highly developed IT processes and staff and have enough resources to handle major IS implementations are chosen.

4.2 Research Approach

A quantitative research method was used for the present study. An explanatory (hypothesis testing) type of research design was selected because it seeks to understand the nature of the associations between the concepts of leader-member exchange, organizational culture, employees' attitudes toward change and employees' perceptions of IS implementation success

and acceptance. The nature of the design is correlational, and it is a cross-sectional investigation.

The survey questionnaire developed for this study (Appendix B) required respondents to rate their leaders' behaviors based on the dyadic relationship and define their organizational culture. Finally, respondents were asked to answer their attitudes toward change, how they interact with the new system and how they and the organization itself are affected by the new system. The survey also requested them to fill out a brief demographic profile of their and the organization they are working at. The survey uses five measurement instruments in total. All the items; except demographic and organizational culture questions are measured using 5-point Likert-type scales. Organizational culture questions are measured using 4-point Likert-type scale.

4.2.1 Instrument Development

Leader-Member Exchange:

Liden & Maslyn (1998) [90] developed a new scale for measuring leader-member exchange. The scale is called LMX-MDM. It has 12 questions to be answered on a Likert like scale. There are four categories comprising each three questions. These categories are: Affect, Loyalty, Contribution and Professional Respect. All survey items had a seven-point response format, with higher scores representing higher exchange quality. In this research, this scale is used.

Organizational Culture:

The measurement instrument used for organizational culture is Organizational Culture Index (OCI) originally developed by Wallach (1983) [145]. This instrument measures three major cultural dimensions as bureaucracy, innovation, and support. This instrument is (Yahyagil, 2004) [140] especially preferred for this study -on purpose- simply it creates the cultural profile of an organization based on perceptual descriptions of the members of organization. The instrument has a well-known 4-point Likert scale that includes 24 items ranging from

“does not describe my organization” to “describe my organization most of the time”. It is, in fact, a 24 item adjective trait questionnaire ranging from 0 to 3.

Attitudes toward change:

In this study, Dunham’s revised 18 item instrument is used. The initial instrument in Dunham’s study had 52 items. In his study, he distinguished the differences between attitude toward change in general and attitude toward change in specific. To analyze the relation and differentiation between these two, he converted each of the general items to have a specific focus. Thus, for example, “Change often helps me perform better” became “[This] change would help me perform better”. Items were written in such a way that they could be used for any specific change by inserting the description of the change within the brackets.

He claims that the distinction between attitude toward change in general and attitude toward specific change is important. An employee's attitude toward change in general might not always be a good predictor of behavior. For example, an employee may, in general, have a positive attitude toward change. However, a particular change could elicit negative attitudes.

In his study, he claims that there appears to be a moderate relationship between attitudes toward change in general and toward a specific change. He also concludes that for a specific change with which respondents have greater familiarities, this relationship was not found indicating that perhaps attitude toward change in general has greater influence on attitudes toward a specific change only in the absence of direct experience with the specific change or limited information about the specific change.

In this study, we will only apply general items rather than items to have a specific focus. This is because, firstly we have the ability and capacity to analyze the employees’ attitudes toward the specific change (ERP/IS Change) through their behavioral intentions, system use and perceived usefulness. Secondly, in this study, the researcher proposes that leader-member exchange and organizational culture has a positive relationship with the attitudes toward change in general of the employees. Third, ERP/IS implementations are long-term

organization changes taking more than 3-5 years in some cases which make it hard to identify it as a specific organizational change and make the attitudes toward change in general more important and critical than attitudes toward a specific change.

In summary, attitude toward change is measured by 18 items with the instrument developed by Dunham. The measurement items were designed to reflect three types of response to the introduction of organizational change – affective, cognitive, and behavioral tendency toward change. This instrument has 18 items including the three subscales - affective, cognitive, behavioral tendency and each scale has 6 items. A 7-point interval scale was used, ranging from 1 (strongly agree) to 7 (strongly disagree).

Technology Acceptance Model:

Perceived usefulness and ease of use is assessed using the measures developed by (Davis et al., 1989) [33]. The perceived usefulness measure will be asked to respondents to indicate their level of agreement on four items about how the technology would increase a user's productivity on the job, his/her effectiveness, his/her performance on the job, and the flexibility of the technology in the job environment. Perceived Ease of use will be assessed by three items that ask about learning to use the system and getting the system to do what the user wants and its lastingness on user's mind [33]. "Behavioral intention to use the technology" will be measured with two items asking about expected frequency of intended usage and the expected quality of the usage (Davis et al., 1989) [33].

IS Success Measures:

In order to measure IS implementation success, dimensions of the model developed by Delone & McLean (1992) [155] is used.

Individual Impact:

The use of the system and its information impacts the individual user in the conduct of his or her work, and these individual impacts collectively result in organizational impacts.

Several studies have been carried out to test the initial Delone and McLean's IS Success model and have tried to identify the significant associations between IS Implementation success model dimensions.

Seven studies based on the initial D&M IS Success model tested the association between “system use” and “individual impact” and association was found to be significant in each of the studies. In these studies, individual impacts were measured in terms of job performance and decision making [66][67][58][136][138][151][144].

Another five studies based on the initial D&M IS Success model that tested the direct association between “system quality” and “individual impact” found those associations to be statistically significant. In these studies, individual impacts were measured in terms of quality of work and job performance. [46][66][124][137][152]

Another four studies that tested the relationship between “information quality” and “individual impact” found the association to be significant. In these studies, individual impacts were measured in terms of decision-making performance, job effectiveness and quality of work [46][124][137][152].

In another study, based on a literature review Torkzadeh and Doll [138] developed a four-factor, 12-item instrument for measuring the individual impact of IS. The overall reliability of the 12-item scale was 0.92. The empirical evidence also supports the convergent and discriminant validity of the instrument. The resulting individual impact dimensions are:

- Task productivity—the extent to which an application improves the user's output per unit of time;
- Task innovation—the extent to which an application helps users create and try out new ideas in their work;
- Customer satisfaction—the extent to which an application helps the user create value for the firm's internal or external customers; and
- Management control—the extent to which the application helps to regulate work processes and performance.

From the theoretical perspectives of the dimensions in the previous IS Success validation studies and Torkzadeh and Doll's study, it is understood that task productivity and job effectiveness and task innovation and decision making dimensions overlap and indicate the same literature. The researcher also believes that customer satisfaction dimension of Torkzadeh and Doll's study can be explained by the dimensions of service quality.

Stacie Petter, William Delone and Ephraim McLean, in their criticisms of Delone and McLean (D&M) IS Success model measurements and dimensions, they highlighted the study of Sedera et al (2004) as a comprehensive IS Success measurement instrument for enterprise systems [129]. This success instrument has been applied and tested in three separate studies. It consists of four measures of individual impact and eight measures of organizational impact. They used "*learning, awareness/recall, decision making and individual productivity*" as items to measure individual impact. The researcher has decided to use all identical statistically tested measures above which have a major overlapping with the instrument of Sedera et al (2004) recommended by Delone and McLean.

In this study, the researcher will use all these statistically tested measures of individual impacts, *job performance, decision making, and quality of work and job effectiveness*.

Organizational Impact:

As individual impacts, organizational impacts are very important indicators of the IS implementation success. The use of the system and its information products then impacts or influences the individual user in the conduct of his or her work, and these individual impacts collectively result positively or negatively in organizational impacts.

Some scholars criticize Delone and McLean's measures of organizational impact. Ballantine claimed that Delone and McLean's measures of organizational impact are primarily financial and did not adequately account for potential organizational impacts of an enterprise system [16].

Gable and his colleague claimed in their study that while economic success is crucial for survival, an organization may be considered successful in many other ways (Ballantine et al. 1996; Kaplan and Norton 1992)[16][76] . It was, therefore, decided that a more holistic organizational impacts construct should include measures from the Shang and Seddon (2000) [126] IS benefits framework, as well as from the balanced scorecard (Kaplan and Norton 1992) [76]. The former account for IS-related measures, such as business process improvement, increased capacity, and e-business/e-government applications, while the latter provide a balanced view of IS success and include measures such as staff requirements reduction and cost reduction (Sedera et al. 2001).

Gable and his colleague also added new measures to organizational impacts such as “*increased capacity, business process change and e-business/e-government*” based on findings in enterprise system-related measures.

After this study, Darshana Sedera and Guy Gable have tested this model in their study of “*A factor and Structural Equation Analysis of the Enterprise Systems Success Measurement Model*”.

Measurement instruments which are used in this research study are shown in Table 32 and Table 33 in Appendix 3. Table 32 includes the item descriptions in English whereas Table 33 includes the descriptions in Turkish.

4.2.2 Demographic Variables

There are five demographic variables, namely age, gender, marital status, total work experience and the number of personnel working in the company.

4.2.3 Definitions of Variables

In Table 34 in Appendix 4, the abbreviation of each item and their numbers as variables used in the study are presented. In the follow-up Table 35 in Appendix 4, the type of measurement scales of these variables is exhibited. It should be noted that before starting the analysis, all the ordinal variables were transformed into nominal variables in order to ease the research process.

4.2.4 Data Collection

Considering the low response rates to hard and soft copies of surveys sent, online survey methodology was used in this study. The survey was uploaded on a private web-site, www.surveymonkey.com. The survey contained 80 questions. A total of 350 survey links were emailed to the respondents. 209 returned. % 20 of these responses was removed from the research statistics because of their incomplete answers to some critical questions. % 80 of the responses was included in the study, which have all answers completed to each questions in the survey. No partially completed survey responses were used in the study.

4.3 Data Analysis

In this section, methods used for analyzing the data will be presented.

4.3.1 Descriptive Statistics of the Study

First, in this study, in order to understand the basic features of the data, descriptive statistics is used. Mean values of all interval and ordinal scaled variables are calculated in order to see the general perception on leader-member relations, general view of organizational culture,

general attitudes of employees toward changed, general acceptance level of IS implementation and perceived success of the implementation. Mean values for all the variables are presented in Chapter 5 in order to define the average sample profile and general ideas about the study concepts.

4.3.2 Inferential Statistics of the Study

Inferential statistics help researcher to understand the relations between variables. Some of the methods used according to each hypothesis are introduced below.

- For the following hypothesis Pearson Correlation is used;

Hypothesis 1: There is a strong and positive relationship between the concepts of LMX and supportive as well as innovative type of organizational culture.

- For the following hypothesis Pearson Correlation is used;

Hypothesis 2: There is a positive and strong relationship between attitude toward change and innovative organizational culture.

- For the following hypothesis Pearson Correlation is used;

Hypothesis 3: There is a positive relationship between attitude toward change and the employees' perceptions on the ease of use and usefulness of the IS system.

- *Regression analysis* is used for the following hypothesis;

Hypothesis 4: The conceptual dimension of encouragement, freedom (supportive culture dimensions), and being creative, stimulating (innovative culture dimensions) will be one of the most significantly contributing conceptual dimensions to have higher level of IS implementation success.

- *Regression analysis* is used for the following hypothesis;

Hypothesis 5: Employees' positive attitudes toward change will be one of the most significantly contributing conceptual dimensions to have higher level of employee's perceived individual impacts about the new system.

- For the following hypothesis *Pearson Correlation* is used;

Hypothesis 6: Perceptions on the ease of use and usefulness of the new system will be positively associated to employee's perceived individual impacts about the new system.

- *Regression analysis* is used for the following hypothesis;

Hypothesis 6A: Individual impacts will explain most of the variance in organizational impacts IS.

4.3.3 Pilot Study

In order to check the quality, efficiency and reliability of the scales used in this research, a pilot study was conducted at the beginning of June 2009 on employees of private banks and global software companies operating in Turkey. 101 data were collected. The employees were briefly told about the aim of the study. At the end of July and during August 2009, SPSS 16.0 was used for the analysis of the pilot study. Both factor analysis and reliability analysis have been applied. KMO and reliability results of each scale are presented in Table 1 and in Table 2 below.

Table 1 KMO Results of the Study Concepts in the Pilot Study

CONCEPTS	KMO	SIGNIFICANCY
LMX	0,914	Sign.
Organizational Culture	0,837	Sign.
Attitudes Toward Change	0,818	Sign.
TAM	0,861	Sign.
IS Success	0,859	Sign.
Organization Impact	0,856	Sign.

Table 2 Reliability Results of the Study Concepts in the Pilot Study

CONCEPTS	Cronbach's Alpha	SIGNIFICANCY
LMX	0,947	Sign.

Organizational Culture	0,856	Sign.
Attitudes Toward Change	0,921	Sign.
TAM	0,926	Sign.
IS Success	0,956	Sign.
Organizational Impact	0,936	Sign.

The profile of respondents in the pilot study is shown in Table 3.

Table 3 Frequencies of the Demographic Variables

Variables	Frequency	Percentage
GENDER		
Male	56	55,4 %
Female	42	41,6 %
MARITAL STATUS		
Single	31	30,7 %
Married	61	60,4 %
Divorced	6	5,9 %
AGE		
20-29	25	24,8 %
30-39	61	60,4 %
40-50	11	10,9 %
TOTAL WORK EXPERIENCE		
0-4	0	0 %
5-9	11	10,9 %
10-14	36	35,6 %
15-	9	8,9 %
EMPLOYEE NUMBER		
0-9	4	4,0 %
10-24	3	3,0 %
25-49	9	8,9 %
50-99	4	4,0 %
100-249	20	19,8 %
250-499	0	0
500-	49	48,5 %

After a detailed analysis of the outcomes of the pilot study, it was concluded that pilot study indicated a very high reliability about the scales used in the study for Turkish business context.

5. RESEARCH FINDINGS

In this chapter, we present the results of the empirical study, which were obtained with the “Statistical Package for Social Sciences (SPSS) version 16.0”. It first explains the profile of the respondents found as a result of descriptive statistical methods applied and the relations between the demographic variables. Second, it covers hypothesis testing and reveals information about the relations between the variables. The chapter is finalized by presenting the modified model based on these findings.

5.1 Respondents’ Profile

The first analysis was on the profile of the respondents. Table 8 presents these results.

Table 4 Frequencies of the Demographic Variables

Variables	Frequency	Percentage	Variables	Frequency	Percentage
GENDER			NUMBER OF EMPLOYEES		
Male	103	65,6	0-100	44	28,0
Female	51	32,5	101-500	50	31,8
MARITAL STATUS			501-1000	19	12,1
Single	28	17,8	Over 1001	40	25,5
Married	118	75,2	AGE		
Divorced	8	5,1	20-30	31	19,7
SENIORITY			31-40	92	58,6
0-3 years	7	4,5	41-50	26	16,6
4-6 years	11	7,0	Over 51	5	3,2
7-10 years	31	19,7			
11-15 years	56	35,7			
Over 16	46	29,3			

As can be seen on the Table 8, the respondents of this study can be stated as 2 of 3 male (103 male, 51 female) in terms of gender. 58.6 % of the respondents are between the age of 31 and 40 having an average age of 37. In conformity with the average age of respondents, married people are weighted noticeably more (75.2 %). Out of five categories of total work experience, three have very similar results. 31 respondents have been working between 7-10

years (%19,7), 56 people between 11-15 years and 46 people over 16 years showing a high seniority profile. Finally, descriptive statistics show that %72 of respondents work in organizations having more than 100 employees. According to these results, a typical respondent of this study can be defined as;

- A married female aged 35, having an average of 14 years of total work experience, working at a large scale organization having more than 3000 employees or
- A married male aged 36, having an average of 15 years of total work experience, working at a large-scale organization having more than 1000 employees.

5.2 Relations between the Demographic Variables

In order to find out whether there is any relation between the nominal-scaled variables, Chi Square test is applied. It should be noted that in this study only the ones which gave significant results are mentioned.

According to Chi Square test, the gender of respondents is found to be significantly related to number of employees and marital status. Based on these findings, it can be said that females prefer large scaled organizations whereas male respondents refer organization having smaller number of employees. Also in our study, majority of male respondents are married whereas 1/3 female respondents are even single or divorced. Another interesting finding is, females are majority in overall divorced respondents whereas males are majority in single and married respondents.

5.3 Reliability of the Measurement Instruments

Hair et al. (2006) define reliability as “*an assessment of the degree of consistency between multiple measurements of a variable*” (p.137). One of the measures of reliability is internal consistency which applies to the consistency among the variables in a scale. To assess this consistency, Cronbach’s alpha is used in this study. It shows if the individual items or indicators of the scale are measuring the same construct and are thus highly inter-correlated. The lower limit for Cronbach’s Alpha that is generally agreed upon is 0.70 (Hair et al. 2006,

p.137). Before proceeding with any further analysis, first the reliabilities of each scale are calculated. In fact, they were already tested by other researchers before -as mentioned in Chapter 2-. However, the fact that all of them are translated from English to Turkish for this study requires finding the reliabilities again, since different data sets might give different reliability results for each scale. **Table 9** exhibits these results.

Table 5 Reliability Estimates for the Measurement Scales

CONSTRUCT	VARIABLES	CRONBACH'S ALPHA
LMX	LMX1+LMX2+LMX3+LMX4+LMX5+LMX6+LM7+LMX8+LMX9+LMX10+LMX11+LMX12	0,939
Affect	LMX1+LMX2+LMX3	0,841
Loyalty	LMX4+LMX5+LMX6	0,941
Contribution	LMX7+LMX8+LMX9	0,836
Professional Respect	LMX10+LMX11+LMX12	0,910
Organizational Culture	OC1+OC2+OC3+OC4+OC5+OC6+OC7+OC8+OC9+OC10+OC11+OC12+OC13+OC14+OC15+OC16+OC17+OC18+OC19+OC20+OC21+OC22+OC23+OC24	0,846
Innovative	OC1+OC6+OC7+OC11+OC13+OC18+OC19+OC23	0,774
Supportive	OC2+OC5+OC8+OC9+OC15+OC16+OC17+OC22	0,899
Bureaucratic	OC3+OC4+OC10+OC12+OC14+OC20+OC21+OC24	0,863
Attitudes Toward Change	ATC1+ATC2+ATC3+ATC4+ATC5+ATC6+ATC7+ATC8+ATC9+ATC10+ATC11+ATC12+ATC13+ATC14+ATC15+ATC16+ATC17+ATC18	0,895
Cognitive	ATC1+ATC3+ATC4+ATC5+ATC6+ATC16	0,577
Affective	ATC2+ATC7+ATC8+ATC10+ATC11+ATC15	0,793
Behavioral Tendency	ATC9+ATC12+ATC13+ATC14+ATC17+ATC18	0,882
TAM	TAM1+TAM2+TAM3+TAM4+TAM5+TAM6+TAM7+TAM8+TAM9	0,919
Perceived Ease of Use	TAM1+TAM2+TAM3	0,758
Perceived Usefulness	TAM4+TAM5+TAM6	0,946
Behavioral Intention	TAM7+TAM8+TAM9	0,733
Individual Impact	II1+II2+II3+II4	0,946
Organizational Impact	OI1+OI2+OI3+OI4+OI5+OI6+OI7+OI8	0,892

As Table 9 illustrates, except Cognitive dimension of Attitudes toward Change construct, all the reliability scores of the study concepts are found above 0.70 and mostly above 0.80. This means that the items of each concept are interrelated. Since the main construct, Attitudes toward Change has a reliability score above 0.70; all variables are included in the model.

5.4 Mean Values of Study Concepts

In the Table 10 below, the mean values of each study concept and dimensions of each variable, before extracting any items, are exhibited.

Table 6 Mean Value of each Study Concept

CONCEPT	MEAN VALUE
LMX – Leader Member Exchange	3,54
OC – Organizational Culture	2,39
OC – Innovative	2,67
OC - Supportive	2,38
OC- Bureaucratic	2,44
ATC – Attitudes Toward Change	3,60
TAM – Technology Acceptance Model	3,79
II – Individual Impact	3,81
OI - Organizational Impact	3,38

According to these findings, on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) for LMX, ATC, TAM, II and OI concepts and a four-point scale for OC concept, the averages are above the middle point and closer to the highest scale value. All the findings show us that, respondents of the study feel to work in an innovative organizational culture, having a high-quality relationship with their leaders, having positive attitudes toward change and feeling high level impacts both individual and organizations from IS implementations.

5.5 Factor Analysis

The purpose of the factor analysis is to define the sets of variables that are highly interrelated, known as factors (Hair et al. 2006). Factor analysis for each concept is done in this study to see how many different dimensions the respondents perceive in the concepts and whether they perceive them the same as in the original data with which the scale was developed. In other words, the factor analysis is done to find out, if with a different set of data, the same results defined in the literature, are found. At the beginning of each factor test, the measure of 110 sampling adequacy is calculated in order to see if the data is appropriate to apply the factor analysis to (Sipahi et al., 2006). Statistics that can represent this adequacy are Keiser- Meyer- Olkin (KMO) and Bartlett's test of sphericity. KMO shows that the data used in the analysis is a homogenous collection of variables and that there are correlations between variables. The minimum level of acceptability for KMO is defined to be 0.50 in the literature (Hair et al., 2006, p.115). Bartlett's test on the other hand provides the statistical significance that there are significant correlations among at least some of the variables (Hair et al., 2006). Thus, the value of p in the test should be lower than 0.05. KMO and Bartlett's tests in this study are found to be satisfactory for all six concepts.

5.5.1 Factor and Reliability Analysis for Leader-Member Exchange

Table 8 presents the results of the factor analysis for Leader-Member Exchange. In total, 12 items are included in the analysis. The factors are not the exact representation of the original scale. However, the composition of the items in each factor seems to be quite satisfactory as can be observed in Table 7, because the items belonging to the same dimensions originally are generally grouped under the same factor.

In this study, *Professional Respect* and *Contribution* dimensions' items form a single factor whereas *Affect* and *Loyalty* dimension items form the other main factor.

Table 7 Composition of the items of LMX

Factor 1	Factor 2
LMX12, LMX11, LMX10, LMX9, LMX8, LMX7	LMX6, LMX5, LMX4, LMX3, LMX2, LMX1

It is important to note that the Kaiser-Meyer-Olkin test for initial LMX items is recorded as 0.923, which shows that the data used in the analysis is a homogenous collection of variables which are suitable for factor analysis. Bartlett's test is significant and also highly confirms the statistical significance of the correlations. Before using factors in further analysis, it is needed to test their reliabilities, in other words their internal consistencies. Table 12 below presents the item loadings, explained variance of each factor and the internal consistencies. Internal consistencies are found to be high enough to continue with further analyses.

Table 8 The Factor Analysis Results of Leader-Member Exchange

Factor 1	Variable	Item Statement	Item Loadings	% of Variance Explained	Cronbach's Alpha
1	LMX11	Respect my supervisor's competence	0,824	%35,184	0,906
1	LMX10	Impressed with my supervisor's knowledge	0,805		
1	LMX9	Work hardest	0,767		
1	LMX8	Willing to apply extra effort	0,758		
1	LMX12	Admire my supervisor's professional skills	0,725		
1	LMX7	Do work beyond my job description	0,633		
2	LMX4	Protects me against a superior	0,846	% 34,776	0,913
2	LMX6	Defends me in case of a honest mistake	0,819		
2	LMX5	Supports me against an attack	0,815		
2	LMX3	Like to work with	0,709		
2	LMX2	Friendly	0,703		
2	LMX1	Like my supervisor personally	0,643		
			Total	% 69,96	0,939
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,923
			Bartlett's Test of Sphericity	Approx. Chi-Square	1,441E3
				df	66
				Sig.	,000

5.5.2 Factor and Reliability Analysis for Organizational Culture

Table 15 presents the results of the factor analysis for Leader-Member Exchange. In total, 24 items are included in the analysis. Only one item, *Ordered*, is found not enough to form or exists in a factor and extracted from the study. The Factors, *Results-oriented and Pressurized*, form a factor with high item loading values. But their Cronbach's Alpha value is found to be 0,496 which is less than lower limit of generally agreed upon. So these three factors are extracted from the study.

The factors are the exact representation of the original scale except item *Creative*. It exists in supportive culture dimension instead of being in innovative type of culture dimension which is totally acceptable. For example, similar result exists in Yahyagil's study, items related to innovation dimension or organizational climate resides in supportive type plot of organizational culture. [142]

The composition of the items in each factor seems to be quite satisfactory as can be observed in Table 10, because the items belonging to the same dimensions originally are generally grouped under the same factor. Items in Factor 1 represent *Supportive* type of organizational culture and items in Factor 2 represent *Bureaucratic* type of culture and finally Factor 3 represent *Innovative* type of organizational culture.

Table 9 Organization Culture Items left out after the Factor Analysis

Variable	Item Statement
OC12	Ordered
OC6	Results-oriented
OC11	Pressurized

Table 10 Composition of the items of OC

Factor 1	Factor 2	Factor 3
OC9, OC8, OC13, OC16, OC17, OC5, OC15, OC7 , OC22, OC2	OC14, OC20, OC3, OC10, OC24, OC4, OC21	OC23, OC19, OC18, OC1

It is important to note that the Kaiser-Meyer-Olkin test for all OC items is recorded as 0.873, which shows that the data used in the analysis is a homogenous collection of variables which are suitable for factor analysis.

Table 11 The Factor Analysis Results of Organizational Culture

Factor 1	Variable	Item Statement	Item Loadings	% of Variance Explained	Cronbach's Alpha
1	OC9	Sociable	0,809	% 28,964	0,921
1	OC8	Encouraging	0,773		
1	OC13	Stimulating	0,747		
1	OC16	Equitable	0,730		
1	OC17	Safe	0,735		
1	OC5	Relationship-oriented	0,775		
1	OC15	Personnel Freedom	0,699		
1	OC7	Creative	0,720		
1	OC22	Trusting	0,770		
1	OC2	Collaborative	0,651		
2	OC14	Regulated	0,849	% 19,425	0,872
2	OC20	Established, Solid	0,840		
2	OC3	Hierarchical	0,746		
2	OC10	Structured	0,772		
2	OC24	Power-oriented	0,753		
2	OC4	Procedural	0,701		
2	OC21	Cautious	0,568		
3	OC23	Driving	0,835	% 14,490	0,865
3	OC19	Enterprising	0,825		
3	OC18	Challenging	0,791		

3	OC1	Risk Taking	0,732		
			Total	% 62,879	0,853
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,884
			Bartlett's Test of Sphericity	Approx. Chi-Square	2,003E3
				df	210
				Sig.	,000

5.5.3 Factor and Reliability Analysis for Attitudes toward Change

Table 19 presents the results of the factor analysis for Attitudes toward Change. In total, 18 items are included in the analysis. Factor analysis is applied for 3 times.

In the first analysis, only one item, “*Changes are irritating*”, is found not enough to form or exists in a factor and extracted from the study. The Factors, “*Looking forward to changes*” and “*Change frustrates me*”, form a factor with high item loading values. But their Cronbach’s Alpha value is found to be 0,511 which is less than lower limit of generally agreed upon. The last factor consists of 1 item, which is not enough to form a factor. All these three items are extracted from the study.

In the second analysis, “*Organization benefits*” and “*Co-worker benefits*” form a factor with 2 items, which is not enough to form a factor. These two items are also extracted from the study. Although they are left out of the study, their very high factor loadings (0.842, 0.84 respectively) indicate that they are important and need to be investigated in the following research related to this study.

The factors are not the exact representation of the original scale. However, the composition of the items in each factor seems to be quite satisfactory as can be observed in Table 13, because the items belonging to the same dimensions originally are generally grouped under the same factor. Factor 1 consists of items from both *Cognitive* and *Affective* dimensions of the original scale whereas Factor 2 consists of item from *Behavioral Tendency* dimension. It shows that Turkish business employees are having problems separating cognitive and affective attitudes. This is also supported by the reliability analysis result of Cognitive dimension which is rather low, 0,649. The only one item, “*Support new approaches*” is not in its original factor but item loadings for both factors are very close to each other so can be acceptable to exist in its original scale dimension. ATC11’s item loading for Factor 1 is 0,479 whereas for Factor 2 is 0,512.

Table 12 ATC Items left out after the Factor Analysis

Variable	Item Statement
ATC10	Changes are irritating
ATC1	Looking forward to changes
ATC8	Change frustrates me
ATC16	Improve unsatisfactory situations
ATC4	Organization benefits
ATC6	Co-worker benefits

Table 13 Composition of the items of ATC

Factor 1	Factor 2
ATC5, ATC7, ATC3, ATC15, ATC2	ATC18, ATC17, ATC12, ATC13, ATC9, ATC14, ATC11

The means values for both factors are shown in Table 14. Respondents' cognitive and affective attitudes have an average of 4.06 whereas their behavioral intents have an average of 3.80.

Table 14 Mean Values of ATC Factors

CONCEPT	MEAN VALUE
ATC FACTOR 1	20,312
ATC FACTOR 2	26,668

Table 15 The Factor Analysis Results of Attitudes toward Change

Factor 1	Variable	Item Statement	Item Loadings	% of Variance Explained	Cronbach's Alpha
1	ATC5	Support new ideas	0,777	% 31,779	0,822
1	ATC7	Don't like change	0,759		
1	ATC3	Inclined to try new ideas	0,750		
1	ATC15	Hesitate to try new ideas	0,742		
1	ATC2	Usually resists new ideas	0,631		
2	ATC18	Benefits from change	0,850	% 30,150	0,888
2	ATC17	Pleasing	0,791		
2	ATC12	Perform better	0,783		
2	ATC13	Support change	0,635		
2	ATC9	Changes tend to stimulate me	0,593		
2	ATC14	Thought to support change	0,592		
2	ATC11	Suggest new approaches	0,512		
			Total	% 61,948	
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,896
			Bartlett's Test of Sphericity	Approx. Chi-Square	1,020E3
				df	66
				Sig.	,000

5.5.4 Factor and Reliability Analysis for Technology Acceptance Model

Table 21 presents the results of the factor analysis for Technology Acceptance Model. In total, 9 items are included in the analysis. The factors are not the exact representation of the original scale. Factor 2 represents the dimensions of *Perceived Ease of Use* whereas Factor 1 represents *Perceived Usefulness and Behavioral Intention* dimension of the original scale.

Table 16 Composition of the items of TAM

Factor 1	Factor 2
TAM6, TAM5, TAM7, TAM4, TAM9, TAM8	TAM2, TAM3, TAM1

Table 17 The Factor Analysis Results of Technology Acceptance Model

Factor 1	Variable	Item Statement	Item Loadings	% of Variance Explained	Cronbach's Alpha
1	TAM6	Increase the effectiveness	0,894	% 51,525	0,946
1	TAM5	Increases work productivity	0,892		
1	TAM7	Valuable	0,889		
1	TAM4	Improves the outcome	0,819		
1	TAM9	Except the information to be used	0,795		
1	TAM8	Except to use	0,792		
2	TAM2	Easy to become proficient	0,788	% 24,470	0,758
2	TAM3	Easy to remember	0,787		
2	TAM1	Easy to learn	0,748		
			Total	% 75,994	0,919
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,877
			Bartlett's Test of Sphericity	Approx. Chi-Square	1,225E3
				df	36
				Sig.	0,000

5.5.5 Factor and Reliability Analysis for Individual Impact

In total, 4 items are included in the analysis. Only one factor is extracted as expected. The reliability analysis is presented in Table 18.

Table 18 The Factor Analysis Results of Individual Impact

Cronbach's Alpha		0,946
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,796
Bartlett's Test of Sphericity	Approx. Chi-Square	679,881
	df	6
	Sig.	0,000

5.5.6 Factor and Reliability Analysis for Organizational Impact

In total, 8 items are included in the analysis. Two factors are extracted. The factors are not the exact representation of the original scale. However, the composition of the items in each factor seems to be quite satisfactory as can be observed in Table 19, because the items belonging to the same dimensions originally are generally grouped under the same factor. In Factor 1, process, work and effectiveness related items seem to group in whereas Factor 2 holds the items related to costs.

The reliability analysis is presented in Table 20.

Table 19 Composition of the items of OI

Factor 1	Factor 2
OI5, OI4, OI8, OI7, OI6,	OI2, OI3, OI1

Table 20 The Factor Analysis Results of Organizational Impact

Factor 1	Variable	Item Statement	Item Loadings	% of Variance Explained	Cronbach's Alpha
1	OI5	Improved outcomes	0,855	% 43,566	0,899
1	OI4	Overall productivity	0,855		
1	OI8	Business process change	0,808		
1	OI7	e-business	0,756		
1	OI6	Increased capacity	0,755		
2	OI2	Staff requirements reductions	0,876	% 28,766	0,803
2	OI3	Cost reduction	0,773		
2	OI1	Organizational costs	0,760		
			Total	% 72,332	0,892
			Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,842
			Bartlett's Test of Sphericity	Approx. Chi-Square	780,893
				df	28
				Sig.	0,000

5.6 Collinearity Test between IS Implementation Success Dimensions and Technology Acceptance

As indicated in the literature review IS Implementation Success and IS Acceptance dimensions have overlapping items and interrelated items such as attitudes and behaviors. Since these two concepts are linked to each other, it is important to find out if there is Collinearity between them. Collinearity is the association, measured as the correlation, between two independent variables (Hair et al., 2006, p. 186). High association is an unwanted situation, since it reduces their unique prediction power on the dependent variable. There is Collinearity between two independent variables;

1. If the correlation coefficient is bigger than 0.70,
2. If the result is between 100-1000, when the highest eigenvalue is divided by the lowest eigenvalue, both of which are in the Collinearity diagnostics table
3. If the highest value under the condition index is higher than 15 (Sipahi et al, 2006)
4. If the tolerance value ($1 - R^2$) is smaller than 0.19
5. If the VIF value ($1 / \text{tolerance value}$) is above 5.3 (Hair et al. 2006).

In order to detect Collinearity, regression analysis between IS Acceptance and Organizational Impact is done. The Correlation coefficients are found to be lower than 0.70. Furthermore, the result of dividing the highest eigenvalue by the lowest eigenvalue is 1, which is very far way from 100. The highest value under the condition index is 1, which is lower than 15. The tolerance value is found to be 1, which is higher than 0.19. Last, VIF value is 1, which is lower than 5.3. These results illustrate that there is not an acceptable level of Collinearity between IS Acceptance and Organizational Impact dimension of IS Implementation Success (Hair et al., 2006, p. 230).

In order to detect Collinearity, regression analysis between IS Acceptance and Individual Impact is done. The Correlation coefficients are found to be lower than 0.66 very close to 0.70, which might be a sign of Collinearity. Furthermore, the result of dividing the highest eigenvalue by the lowest eigenvalue is 1, which is very far way from 100. The highest value under the condition index is 1, which is lower than 15. The tolerance value is found to be 1, which is higher than 0.19. Last, VIF value is 1, which is lower than 5.3. These results

illustrate that there is not an acceptable level of Collinearity between IS Acceptance and Individual Impact dimension of IS Implementation Success (Hair et al., 2006, p. 230).

5.7 Hypotheses Testing

In this part of the chapter, we will discuss how the variables are related with each other, and hypotheses of the study will be tested with different analysis techniques. It should be noted that the correlation analyses are carried out after the explored relationships are shown to be linear after the data set is examined for marginal values. Furthermore, before the regression analyses, linearity between the variables is found by correlation and scatter diagrams.

5.7.1 Hypothesis 1 (H1)

H1: There is a strong and positive relationship between the concepts of LMX and supportive as well as innovative type of organizational culture.

In order to find the relationship between the types of organizational culture and leader-member exchange, the Pearson correlation analysis is used. It is used to determine the existence, direction and strength of the correlation between the interval scaled variables. Pearson analysis results show that there is a significant, positive and strong between LMX and supportive and innovative type of organizational culture whereas there isn't any significant relation between Bureaucratic type of organizational culture.

Table 21 Correlation Analysis for H1

Correlations					
		LMX	Supportive Type	Bureaucratic Type	Innovative Type
LMX	Pearson Correlation	1	,494**	-,047	,280**
	Sig. (2-tailed)		,000	,556	,000
	N	157	157	157	157
**, Correlation is significant at the 0.01 level (2-tailed).					

In order to examine in detail which of the LMX factors explain the types of the organizational culture the most, further multiple regression analysis is done. The test is repeated 2 times in order to have more details on the relationships. First, a regression test is done between organizational culture and leader-member exchange as whole concepts, after above mentioned items are extracted. Second, another regression test is done between the factors of the

organizational culture found after the factor analysis to see which of these factors are more effective to predict the dependent variable.

Regression tests between *Supportive* and *Innovative* types of organizational culture concept and LMX items show a mid-level explanatory relationship while no reliable relationship has been detected between LMX and *Bureaucratic* type of organizational culture.

Significant F ratios showed that both independent variables (LMX items) are suitable to predict the dependent variable (Factor 1 and Factor 3 of organizational culture) and they both make significant contributions to the model. LMX accounts for % 25.5 of variance in “*Supportive type of organizational culture*” and accounts for % 11.3 of variance in “*Innovative type of organizational culture*.” Thus, **H1** is accepted.

5.7.2 Hypothesis 2 (H2)

H2: There is a positive and strong relationship between the concepts of attitude toward change and innovative organizational culture.

In order to find the relationship between the types of organizational culture and leader-member exchange, the Pearson correlation analysis is used. All organizational culture factors and items are entered to equations separately and as a whole concept. Only “*Creative*” and “*Enterprising*” items of innovative organizational culture dimension separately account for a variance of 2.8 % and 2.6 % in “*Behavioral Tendency*” dimension of ATC consecutively.

As clearly seen in section 5.5.2, factor analysis of organizational culture items locates “*Creative*” item into supportive dimension instead of innovative type. When correlation analysis is repeated by locating the “*Creative*” item into the innovative type factor component, a significant correlation is observed at the 0.05 level (2-tailed) with accounting for 2.3 % variance in “*Behavioral Tendency*” dimension of ATC as shown in Table 22.

Table 22 Regression Analysis for H2 – Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,171 ^a	,029	,023	3,76253635
a. Predictors: (Constant), OC_FACTOR3_UPDATED_TOTAL				

Thus, **H2** is rejected.

5.7.3 Hypothesis 3 (H3)

H3. There is a positive relationship between the concepts of attitude toward change and the employees' perceptions on the ease of use and usefulness of the new system.

In order to find the relationship between the types of organizational culture and leader-member exchange, the Pearson correlation analysis is used.

In Table 23, Pearson analysis results show that there is a significant, positive and strong between ATC and employees' perceptions on the ease of use and usefulness of the new system.

Table 23 Correlation Analysis for H3

Correlations			
		TAM	ATC
TAM	Pearson Correlation	1	,594**
	Sig. (2-tailed)		,000
	N	157	157
ATC	Pearson Correlation	,594**	1
	Sig. (2-tailed)	,000	
	N	157	157
**. Correlation is significant at the 0.01 level (2-tailed).			

In order to examine in detail which of the ATC factors explain the IS acceptance factors most; further multiple regression analysis is done. First, a regression test is done between TAM and

ATC as whole concepts, after above mentioned items are extracted. Second, another regression test is done between the factors of the ATC found after the factor analysis to see which of these factors are more effective to predict the dependent variable.

Significant F ratio showed that the independent variable (ATC) is suitable to predict the dependent variable (TAM) and it makes significant contributions to the model. ATC accounts for % 34.9 of variance in the overall concept of TAM.

Table 24 Regression Analysis for H3 – Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,594 ^a	,353	,349	4,12250
a. Predictors: (Constant), ATC_TOTAL				

In order to obtain more details about the relationships, another regression analysis among the factors (2 factors of ATC) is done. Between them, the second factor of ATC, which consists of 7 items, is found to be a significant predictor for “IS Acceptance”. It accounts for 33 % of the variance that “*attitudes toward changes*” creates on “IS Acceptance”. The first factor of ATC accounts for an extra %1.8 of the variance in “IS Acceptance”. Thus, **H3** is accepted.

5.7.4 Hypothesis 4 (H4)

H4: Supportive cultural dimensions and innovative cultural dimensions will be one of the most significantly contributing conceptual dimensions of OC to have higher level of IS implementation success.

First, a regression test is done between OC and “IS implementation success” dimensions as whole concepts, after above mentioned items are extracted. Second, another regression test is done between the factors of the OC found after the factor analysis to see which of these factors are more effective to predict the dependent variables.

In Table 25, Regression analysis showed that the independent variable (OC) is suitable to predict the dependent variable (individual impact) and it makes significant contributions to the model. Innovative type of organizational culture accounts for a 5.9 % variance in individual impact dimension.

Table 25 Regression of OC on Individual Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,254 ^a	,065	,059	2,89613651
a. Predictors: (Constant), OC_FACTOR3_TOTAL				

And also significant F ratio showed that the independent variable (OC) is suitable to predict the dependent variable (organizational impact) and it makes significant contributions to the model. Supportive type of organizational culture accounts for an 8.3 % variance in organizational impact dimension and adding innovative type of culture to the model accounts for an extra 2 % variance in organizational impact. Thus, **H4** is accepted.

Table 26 Regression of OC on Organizational Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,298 ^a	,089	,083	5,18981628
2	,338 ^b	,114	,103	5,13345249
a. Predictors: (Constant), OC_FACTOR1_TOTAL				

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,298 ^a	,089	,083	5,18981628
2	,338 ^b	,114	,103	5,13345249
a. Predictors: (Constant), OC_FACTOR1_TOTAL				
b. Predictors: (Constant), OC_FACTOR1_TOTAL, OC_FACTOR3_TOTAL				

5.7.5 Hypothesis 5 (H5)

H5: Employees' positive attitudes toward change will be one of the most significantly contributing conceptual dimensions to have higher level of employee's perceived individual impacts about the new system.

First, a regression test is done between ATC and individual impact dimension as whole concepts. Second, another regression test is done between the factors of the ATC found after the factor analysis to see which of these factors are more effective to predict perceived individual impacts.

In Table 27, Regression analysis showed that the independent variable (ATC) is suitable to predict the dependent variable (individual impact) and it makes significant contributions to the model. ATC accounts for a 15.2 % variance in individual impact dimension.

Table 27 Regression of ATC on Individual Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,397 ^a	,157	,152	2,74896386
a. Predictors: (Constant), ATC_TOTAL				

And also significant F ratio showed that the independent variable (ATC) is suitable to predict the dependent variable (individual impact) and it makes significant contributions to the model. Thus, **H5** is accepted.

5.7.6 Hypothesis 6 (H6)

H6: Perceptions on the ease of use and usefulness of the new system will be positively associated to employee's perceived individual impacts about the new system.

In order to find the relationship between IS Acceptance factors and “impacts” indicating IS implementation success, the Pearson correlation analysis is used. It is used to determine the existence, direction and strength of the correlation between the interval scaled variables. Pearson analysis results show that there is a significant, positive and strong (Sipahi et al., 2006) relation ($r=0.500$; $p=0.000$) between TAM and individual impact. Analysis results also show that there is a significant, positive and strong (Sipahi et al., 2006) relation ($r=0.660$; $p=0.000$) between TAM and organizational impact.

Furthermore, TAM explains % 43 of variance in individual impact and explains % 25 of variance in organizational impact. Thus, **H6** is accepted.

Table 28 Regression of TAM on Individual Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,660 ^a	,436	,432	2,24946111
a. Predictors: (Constant), TAM_TOTAL				

Table 29 Regression of TAM on Organizational Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,500 ^a	,250	,245	4,70965540
a. Predictors: (Constant), TAM_TOTAL				

5.7.7 Hypothesis 6A (H6A)

H6A: Individual impacts will explain most of the variance in organizational impacts IS.

In order to find the relationship between individual impact and organizational impact dimensions, regression analysis is applied.

Regression analysis showed that the independent variable (individual impact) is suitable to predict the dependent variable (organizational impact) and it makes significant contributions to the model. Individual impacts account for a 42, 1 % variance in organizational impact dimension.

Table 30 Regression of Individual Impact on Organizational Impact - Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,652 ^a	,425	,421	4,12225109
a. Predictors: (Constant), II_TOTAL				

Thus, **H6A** is also accepted.

5.8 The Relation between the Demographic Variables and Study Concepts

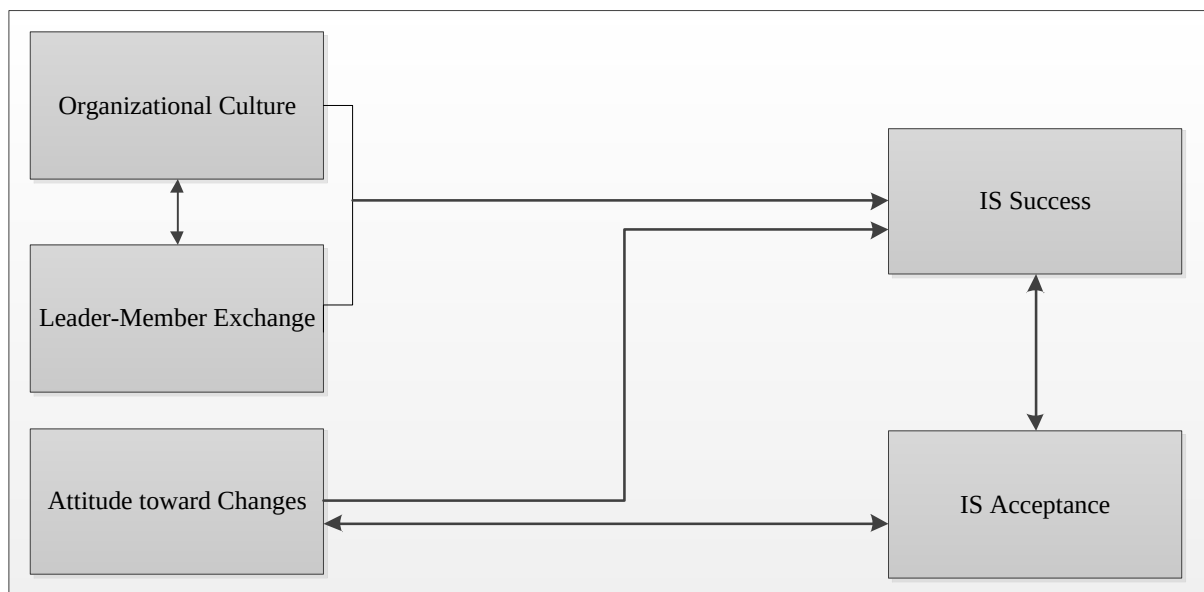
There are 4 demographic variables in this study. The relationship between each of these variables and the study concepts are analyzed by applying either t or ANOVA tests. This means that for each demographic variable, 6 different analyses are done since there are 6 independent variables (LMX, OC, ATC, TAM, OI, and II). The main idea behind these analyses is to find out whether different groups of the same demographic variable have different relations with the independent variables. Independent samples t-test is done to assess the statistical significance of the difference between two sample means for a single dependent variable, whereas ANOVA is done to assess it between more sample means for a single dependent variable (Hair et al., 2006, p. 387). Therefore, for the variable which consisted of two groups, gender, t-test is used to define their relationship between each concept of this study. For all the others which consist of more groups, the ANOVA test is used.

No relations were found to be significant in ANOVA and t-tests.

5.9 Modified Research Model

Based upon the factor analyses results, and hypotheses testing the model is modified as depicted in Figure 6.

Figure 6 The Modified Research Model



6. EVALUATIONS OF THE RESEARCH FINDINGS

In the last chapter, the research findings of the study will be evaluated and discussed around the research questions and purpose of the study. The outcomes of the data analysis of this study and the studies in the related literature will be compared. Furthermore, the importance of the study and its contribution to the existing literature will be discussed. Finally, limitations of this research and suggestions for future research will be presented.

6.1 Research Findings and Purposes of the Study

In general terms, this study aims to reveal aspects of the influence of social enablers on IS implementations. Firstly, the study, specifically, analyzes 3 very important social aspects, “*leader-member exchange*”, and employees’ “*attitudes toward changes*” and “*organizational culture*” and their relationship with each other and with “*IS acceptance*” and “*IS implementation success*”. Secondly, it analyzes if there is any Collinearity and overlapping factors between IS acceptance and IS implementation success dimensions. Below is a brief summary of the hypotheses that are supported:

- There is a moderate level relationship between the concepts of *LMX* and *supportive organizational culture* and pretty less but satisfactory level relationship between the concepts of *LMX* and *innovative type of organizational culture*.
- There is a positive relationship between the concepts of *attitudes toward change* and the employees’ *perceptions on the ease of use* and *usefulness of the new system*.
- *Supportive cultural* dimensions and *innovative cultural* dimensions will be the most significantly contributing conceptual dimensions of OC to have higher level of *IS implementation success*.
- *Perceptions on the ease of use* and *usefulness of the new system* will be positively associated to employee’s perceived *individual impacts* about the new system.
- Positive *individual impacts* gained result in positive *organizational impacts* in IS implementation.

Table 35 illustrates which hypotheses are supported and rejected after the data analyses.

Table 31 Results of Hypotheses Testing

	Relation between	Finding
H1	LMX – Supportive type of organizational culture	Accepted $r=0,515$, $p=0,00$, $R^2 = 0.255$
H1	LMX – Innovative type of organizational culture	Accepted $r=0,344$, $p=0,00$, $R^2 = 0.113$
H2	Innovative type of organizational culture – ATC	Rejected
H3	ATC – IS Acceptance	Accepted $r=0,594$, $p=0,00$, $R^2 = 0.349$
H4	Supportive type of organizational culture – IS Success	Accepted $r=0,254$, $p=0,00$, $R^2 = 0.059$
H5	ATC – IS Success (Individual impacts)	Accepted $r=0,397$, $p=0,00$, $R^2 = 0.152$
H6	TAM – IS Success (Individual impacts)	Accepted $r=0,660$, $p=0,00$, $R^2 = 0.432$
H6A	Individual impacts – Organizational impacts	Accepted $r=0,652$, $p=0,00$, $R^2 = 0.421$

The results of this study served couple of purposes. In the following paragraphs, these purposes will be evaluated by based on our findings.

The first purpose of the study is to provide an understanding of the human relations and social enablers that can directly affect IS implementation success in Turkish workforce. In this study, “*leader-member exchange*”, “*organizational culture*” and “*attitude toward change*” are considered as main social and organizational dimensions that do affect *IS implementation success* and *its acceptance*. The findings show us that *supportive and innovative organizational culture* and employees’ *attitudes toward change* have a direct influence on both *IS acceptance* and implementation success. Meanwhile, *leader-member exchange* is found to not have any effect on *attitudes toward change*, *IS implementation success* and *acceptance* however it has a considerable effect on *supportive and innovative type of organizational cultures*, which directly affect *attitudes toward change* and *IS implementations*.

The second purpose of this study is to understand if there are any overlapping factors between *IS acceptance* and *IS implementation success* and to identify if there exists any correlation

between these items. The findings show that an acceptable level of Collinearity does not exist between IS Acceptance and IS Implementation success concepts.

Another important purpose of this study is to provide an understanding of the relationship between employees' *attitudes toward change* and *organizational culture* and as well as the *relationship of employees' with their leaders*. In the literature there was no attempt to examine the impact of *organizational culture* and *leader-member exchange* on *attitude toward change*. Therefore, the fundamental issue of this study is the investigation of organizational culture and dyadic relationship between leader and its members on the employee attitudes toward change. The findings show us neither organizational culture nor leader-member relations have an effect on employees' attitudes toward change.

6.2 Suggestions for Future Research

This study is the first one in Turkey that empirically explores the organizational and social factors affecting IS acceptance and IS implementation success. As exploring social enablers in IS implementations is still a new and a novel concept for the world, it is a totally contribution for Turkish workforce. In this study as the social enablers, *leader-member exchange*, *organizational culture* and *attitudes toward change* are explored. Many other organizational and social factors, such as *organizational commitment*, *trust in leader*, other leadership styles (*transformational leadership*, *authentic leadership* and so on...) could be considered as social enablers for future research.

Consequence of this study shall be the investigation of most available and most suitable organizational cultures for IS related organizational changes. Continuous studies based on this study and research in Turkey shall give us new brand ideas for companies to make cultural change shifts and leadership changes before attempting IS related organizational changes.

6.3 Limitations

Although collecting data through the internet was beneficial for the confidentiality and for reaching many respondents at a high speed, it was very difficult and challenging to persuade top managements to ask respondents questions about organizational culture and their relationship with their leaders. Especially for banking sector, getting approval to publish such an important survey inside the bank is incredibly difficult and has lots of procedures and policies to be accomplished.

Describing the online survey privacy procedures and publishing www.surveymonkey.com's security policies helped a lot to convince both top managements and respondents.

Another very important point that enables these adversities was the author's role in these companies. The author worked as outsource IS consultant in these organizations for certain IS software implementation projects and this situation enabled key users and management staff to share their observations and perceptions without any interruption and shortage.

7. DISCUSSION AND CONCLUSION

In this study, organizational and social enablers that affect the success and acceptance of IS implementations are examined. The author tried to explore specific social and organizational factors, employees' attitudes that may cause perceptions of employees' on IS implementations.

Data analysis is done by SPSS. The results illustrated that supportive and innovative type of cultures and employees' attitudes toward change effects IS implementation success and acceptance perceptions. While LMX is found to be ineffective on IS implementation success and acceptance dimensions, it is found to account for % 25.5 of variance in supportive type of organizational culture and accounts for % 11.3 of variance in innovative type of organizational culture.

As a summary, supportive and innovative type of cultures and employees' attitudes toward change is found to be positively related with the employees' perceptions, behavioral intentions and individual and organizational impacts. While employees' relationship between their supervisors do not directly affect their attitudes toward change and perceptions on IS implementations, it may help to create more innovative and supportive organizational cultures.

In the study, a positive relationship between innovative type of organizational culture and attitudes toward change is proposed. Statistical findings of the research show that no valid relationship has been found between the concepts. Although this proposition is not critical and important for the research problems, the result is very surprising when considering past empirical studies and literature review. According to the author, it may depend on missing mediating variable and low level of person-organization fit.

Employees' organizational tenure may not be long enough to let organizational culture and organizational climate affect their attitudes and behaviors. Several studies have shown that simply as organizational tenure increases, people learn and come to accept the goals and

values of their employing organization (Hall, Schneider, & Nygren, 1975; Hinrichs, 1964)[48][50]. In addition, Ostroff and Rothausen (1995) [104] hypothesized that increased tenure leads to a better fit between individuals' personal orientations and organizational climate. Even though the average of employees' job tenure is high, it does not state that the average of employees' organizational tenure (seniority in their current organization) is also high. Empirical research of the same or similar, considering the respondents' organizational tenure, will be helpful and illuminating to this unexpected result. This is a huge and important contradiction to consider while interpreting the research findings. Future research studies could address this contradiction by collecting data on personal and organizational values separately from different groups of organization members considering their organizational tenures. For instance, data on organizational values could be collected from employees with relatively high organizational tenures or top managers who are presumed to have a satisfactory level of knowledge on organizational culture, whereas, another group of employees could be asked only to provide data on their personal values.

After the long meetings with bank top managers, sales representatives, evaluation of respondents' profiles and discussions with Yahyagil, the writer observed that majority of the respondents has a mean value of 15 for their seniority showing a high value experience in the banking sector. This indicates that they are highly professional and experienced employees. They are employed for their special knowledge and special experiences. Their attitudes and behaviors are less affected from their organization's culture and from their leaders with comparison to juniors. This situation may cause proposed relationship to fail. Further analysis and research should also be done to investigate this situation.

With these findings, this study contributed to the literature in several ways. First of all, it is the first study exploring the relationships between these concepts in Turkish business context. The findings shows us that organizational and social factors are very important for a successful IS implementation and its acceptance by the employees. This study shows that executive and change leaders should consider organizational, cultural and social factors as well as the technical issues before and after IS implementations. The practical implications of the findings will be discussed under “*managerial implications*”.

The study is also important for the Turkish literature in organizational behavior, since, to our knowledge, no Turkish studies have explored leader-member exchange and attitudes toward change yet. The translations of these scales used in this study were also the first attempt by a Turkish researcher.

7.1 Implications for Managers

Since IS implementations are radical organizational change practices involving all parts of an organization, and taking a long time all levels of management, directly or indirectly, may benefit from the findings of this study. The following paragraphs present how these findings of this study can be beneficial to managers.

This study serves as an **important diagnostic tool** for leaders to be used in all of the phases of the IS implementation. In the preparation phase, leaders can measure their employees' attitudes toward change and may choose the ones with positive attitudes as key users and implementation responsible. Also an organizational culture and climate research and as well as leader-member relationship quality measurement may show leaders if they are ready and adequate for such an organizational change issue.

In the evaluation phase, leaders can measure their employees' behavioral tendency and perceptions on the ease of use and usefulness of the new system just after the production and can measure perceptions on the success of the new system after some considerable time passes.

The author has interviewed 3 top managers from each organization included in this research. The common emphasis they did was the selection of employees responsible for IS implementations. For all change leaders, key users, implementers, project managers and pilot users, top managers select the ones who are more comfortable with changing requirements and continuous innovations and who are more compatible with their organizational cultures. Another important emphasis that the top managers did during these interviews is; they use different recruitment tests for the candidates for product development, project management

and R&D departments. They try to hire flexible and innovative specialists and managers with very friendly and positive mood. This shows us that LMX and employee attitudes are very important measures and instruments for organizations for specific employee selections to hire and to employ in specific organizational projects.

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9. APPENDICES

Appendix 1 The Sample of the e-mail sent to the companies to collect data (*in Turkish*)

Appendix 2 The Questionnaire (*in Turkish*)

Appendix 3 Measurement Instruments

Appendix 4 Variable Definitions and Measurement Scales

Appendix 5 IS Related Statistics

Appendix 1 The Sample of the e-mail sent to the companies to collect data (in Turkish)

“

Sayın...

Türkiye’de ilk defa şirketlerin organizasyon özelliklerinin, yönetici-çalışan ilişkilerinin ve çalışan tutumlarının ERP ve CRM proje uygulamalarına olan etkileri konulu bir araştırma yapılmaktadır. Yeditepe Üniversitesinde doktora çalışması yapmakta olan VeriPark İş Çözümleri Müdürü Mehmet Özgür Genç tarafından doktora tezi olarak hazırlanan araştırmanın, bu tarz projelere önemli zaman ve kaynak ayıran organizasyonlara çok faydası olacağını düşünüyorum.

Bu nedenle “<http://www.surveymonkey.com/s/OzgurGenc>” bağlantısından yaklaşık 10 dakikanızı alacak bu anketi doldurmanızı rica etmek için bu mesajı atıyorum.

Özgür Bey, çalışma sonuçlarını içeren tez çalışmasını bizimle paylaşacak ve tüm çalışanlarımıza bu çalışmayı iletiyor olacağız.

Anket içinde aşağıdaki konular hakkında sorular yer almaktadır;

- *Örgüt kültürü (bürokratik, yaratıcı ve destekleyici olma açısından),*
- *Liderlik Stili,*
- *Personellerin değişime olan tutumları,*
- *Yeni sistemin kullanım detayları (memnuniyet, sıklık, başarılı olup olmadığı algısı)*

Ankete katılan hiç kimsenin bilgisi anketi doldurduğumuz SurveyMonkey sitesi tarafından saklanmamaktadır. SurveyMonkey, bu konuda tüm dünyadaki en yüksek güvenlik sertifikalarına sahip kuruluşlardan biridir.

(Bu konudaki standartları “http://www.surveymonkey.com/Monkey_Privacy.aspx” adresinden inceleyebilirsiniz.)

Bu çalışmanın istatistiki açıdan geçerli ve bizler için anlamlı olabilmesi için, her yeni yanıtın büyük katkısı olacak. Ayırdığınız vakte şimdiden çok teşekkür ediyorum.

Saygılarımla

“

Appendix 2 The Survey Questionnaire (in Turkish)

No	Soru	Erkek	Kadın
1	Cinsiyetiniz		

No	Soru	
2	Yaşınız	

No	Soru	Bekar	Evli	Boşanmış
3	Medeni Durumunuz			

No	Soru	
4	İş tecrübeniz / kıdeminiz	

No	Soru	
5	Çalıştığınız firmadaki personel sayısı	

Çalıştığınız bu işyerinde bağlı olduğunuz yöneticinizle olan ilişkinizi ve yöneticinizle ilgili düşüncelerinizi aşağıdaki 12 ayrı durum bakımından değerlendirdiğinizde uç sınırları **kesinlikle katılmıyorum** ile **kesinlikle katılıyorum** ifadeleri olacak şekilde 1-5 arasında nasıl notladınız?

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4	Şık 5
6	Kişisel olarak yöneticimi çok beğeniyorum.	1	2	3	4	5
7	Yöneticim herkesin arkadaş olmak isteyeceği biridir.	1	2	3	4	5
8	Yöneticimle beraber çalışmaktan büyük keyif alıyorum.	1	2	3	4	5
9	Yöneticim detaylı bilgisi olmadığı durumlarda dahi beni üstlerime karşı korur.	1	2	3	4	5
10	Bana karşı bir saldırı olduğunda yöneticim bana destek verecektir.	1	2	3	4	5
11	Yöneticim dürüstçe bir hata yaptığımda şirket içinde beni savunacaktır.	1	2	3	4	5
12	İş tanımından fazlasını yöneticim için yaparım/yapıyorum.	1	2	3	4	5
13	Yöneticimin iş hedefleri için beklenenin üstünde ekstra efor sarfetmeye istekliyim.	1	2	3	4	5
14	Yöneticim için çok yoğun çalışmaya itiraz etmem.	1	2	3	4	5
15	Yöneticimin iş bilgisinden çok etkileniyorum.	1	2	3	4	5
16	Yöneticimin işle ilgili bilgi ve yeteneğine saygı duyuyorum.	1	2	3	4	5
17	Yöneticimin mesleki yeteneklerini takdir ediyorum.	1	2	3	4	5

Çalıştığınız bu işyerinin kendine has özelliklerini göz önüne alarak, işletme süreçleri bakımından, aşağıdaki tanımlanan 24 ayrı durumla ne ölçüde bağdaştığını, ilgili seçeneklerden birini seçerek ifade eder misiniz?

Tanımlanan Durumlar:

- 1 : Bu işyerinin özellikleriyle **hiç** bağdaşmıyor.
 2: Bu işyerinin özellikleriyle **biraz** bağdaşıyor.
 3: Bu işyerinin özellikleriyle **oldukça** bağdaşıyor.
 4: Bu işyerinin özellikleriyle **büyük ölçüde** bağdaşıyor

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4
18	İş yaşamına canlılık, heyecan katan	1	2	3	4
19	Çalışanlarına bireysel özgürlük veren	1	2	3	4
20	Çalışanlarıyla sosyal ilişkiler kuran	1	2	3	4
21	Yaratıcılığa, yenilikçiğe değer veren	1	2	3	4
22	Çalışanlarını, işlerinde başarılı olmaları için cesaretlendiren	1	2	3	4
23	Çalışanlarına adil davranan	1	2	3	4
24	İş süreçlerini çalışanlarına önem vererek sonuçlandırmak isteyen	1	2	3	4
25	İş süreçlerini çalışanlardan çok, işin sonuçlanmasına önem vererek yürüten	1	2	3	4
26	Katı bir işletme yapısı olan	1	2	3	4
27	Çalışanlarına güvenen	1	2	3	4
28	İş faaliyetlerinde risk alabilen	1	2	3	4
29	Girişimci bir niteliğe sahip	1	2	3	4
30	İş faaliyetlerinde atılgan, cesur davranan	1	2	3	4
31	İş faaliyetlerinde atılgan, cesur davranan	1	2	3	4
32	Kuralcı bir yapısı olan	1	2	3	4
33	Yapısal (bürokratik) yönü fazla olan	1	2	3	4
34	İşlerin sonuçlanması için çalışanlarına iş yükü ve zaman açısından baskı uygulayan	1	2	3	4
35	Formalitelere önem veren	1	2	3	4
36	Hiyerarşik bir yapısı olan	1	2	3	4
37	Çalışanları için güven veren	1	2	3	4
38	Otoriter bir işletme yapısı olan	1	2	3	4
39	Çalışanlarına talimat vererek destek olan	1	2	3	4
40	Tüm çalışanların işbirliği yaptığı	1	2	3	4
41	İş faaliyetlerinde ihtiyatlı davranan	1	2	3	4

Sizinle ilgili aşağıdaki 18 yorumu değerlendirdiğinizde uç sınırları **kesinlikle katılmıyorum** ile **kesinlikle katılıyorum** ifadeleri olacak şekilde 1-5 arasında nasıl not verirdiniz?

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4	Şık 5
42	İşyerimde değişiklikleri ipe çekerim.	1	2	3	4	5
43	Genelde yeni fikirlere direnç gösteririm. (Reverse)	1	2	3	4	5
44	Yeni fikirleri denemeye eğilimliyimdir.	1	2	3	4	5
45	Genelde şirket değişimden menfaat/fayda sağlar.	1	2	3	4	5
46	Genelde yeni fikirleri desteklerim.	1	2	3	4	5
47	Bir çok iş arkadaşım değişimden menfaat/fayda sağlar.	1	2	3	4	5
48	Değişimi sevmem. (Reverse)	1	2	3	4	5
49	Değişim beni çok rahatsız eder. (Reverse)	1	2	3	4	5
50	Değişikler beni teşvik eder ve canlandırır.	1	2	3	4	5
51	İşteki değişimlerin bir çoğu rahatsız edicidir. (Reverse)	1	2	3	4	5
52	İşimle ilgili konular için sık sık yeni yollar öneririm	1	2	3	4	5
53	Değişim genelde işimi daha iyi yapmama yarar.	1	2	3	4	5
54	Değişimi desteklemek için elimden geleni yaparım	1	2	3	4	5
55	Diğer insanlar değişimi desteklediğini düşünür.	1	2	3	4	5
56	Genelde yeni fikirleri denemeye tereddüt ederim. (Reverse)	1	2	3	4	5
57	Değişim genelde yetersiz, tatmin etmeyen durumların gelişmesine yardımcı olur.	1	2	3	4	5
58	Değişimlerin çoğunu memnuniyet verici bulurum.	1	2	3	4	5
59	Genelde değişimden fayda sağlarım.	1	2	3	4	5

Yeni sistemle ilgili aşağıdaki 9 yorumu değerlendirdiğinizde uç sınırları **kesinlikle katılmıyorum** ile **kesinlikle katılıyorum** ifadeleri olacak şekilde 1-5 arasında nasıl not verirdiniz?

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4	Şık 5
60	Yeni sistemi kullanmayı kolay buluyorum.	1	2	3	4	5
61	Yeni sistemi kullanmada uzman olmanın kolay olduğunu düşünüyorum.	1	2	3	4	5
62	Yeni sistemin kullanımını ezberlemeyi kolay buluyorum.	1	2	3	4	5
63	Yeni sistemin iş sonucunu geliştirdiğini düşünüyorum.	1	2	3	4	5
64	Yeni sistemin iş üretkenliğini arttırdığını düşünüyorum.	1	2	3	4	5
65	Yeni sistemin iş etkinliğini arttırdığını düşünüyorum.	1	2	3	4	5
66	Yeni sistemin işe değer kattığını düşünüyorum.	1	2	3	4	5
67	Yeni sistemi kullanmayı bekliyorum.	1	2	3	4	5
68	Yeni sistemden üretilen bilgilerin kullanılacağını tahmin ediyorum.	1	2	3	4	5

Yeni sistemin kişisel olarak sizin üzerinizde bıraktığı etkiyi ifade eden aşağıdaki 4 maddeyi *çok az etkisi oldu* ile *çok fazla etkisi oldu* ifadeleri arasında olacak şekilde 1-5 arasında nasıl not verirdiniz?

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4	Şık 5
69	İş performansına	1	2	3	4	5
70	Karar verme performansına	1	2	3	4	5
71	İş etkinliğime	1	2	3	4	5
72	Yaptığım işin kalitesine	1	2	3	4	5

Yeni sistemin örgüt üzerinde bıraktığı etkiyi ifade eden aşağıdaki 8 maddeyi *çok az etkisi oldu* ile *çok fazla etkisi oldu* ifadeleri arasında olacak şekilde 1-5 arasında nasıl not verirdiniz?

No	Soru	Şık 1	Şık 2	Şık 3	Şık 4	Şık 5
73	Örgütsel masrafları	1	2	3	4	5
74	Personel ihtiyaçlarının azalması	1	2	3	4	5
75	Genel masrafların azalması	1	2	3	4	5
76	Genel verimlilik/üretkenlik	1	2	3	4	5
77	Sonuç ve verimin iyileştirilmesi	1	2	3	4	5
78	Kapasitenin artırılması	1	2	3	4	5
79	E-İş uygulamalarının kullanılması	1	2	3	4	5
80	İş süreçlerinde değişimlerin yaşanması	1	2	3	4	5

Appendix 3 Measurement Instruments

Table 32 Question Items Used In the Study (in English)

Construct	Model/Dimension	Item	Measure	Scale	Reference
Perceived Ease of Use	TAM	PEU1	It is easy to learn the new system.	Likert 5	[33]
Perceived Ease of Use	TAM	PEU2	It is easy to become proficient in using the new system.	Likert 5	[33]
Perceived Ease of Use	TAM	PEU3	It is easy to remember how to use the new system.	Likert 5	[33]
Perceived Usefulness	TAM	PU1	The new system improves the outcome of work.	Likert 5	[33]
Perceived Usefulness	TAM	PU2	The new system increases work productivity.	Likert 5	[33]
Perceived Usefulness	TAM	PU3	The new system increases the effectiveness of work.	Likert 5	[33]
Perceived Usefulness	TAM	PU4	The new system is valuable to work.	Likert 5	[33]
Behavioral Intention	TAM	BI1	I expect to use the new system.	Likert 5	[33]
Behavioral Intention	TAM	BI2	I expect the information from the new system to be used	Likert 5	[33]
Attitude Toward Change	Dunham's Model	ATC1	I look forward to changes at work.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC2	I usually resist new ideas.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC3	I am inclined to try new ideas.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC4	Change usually benefits the organization.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC5	I usually support new ideas	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC6	Most of my co-workers benefit from change.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC7	I don't like change.	Likert 5	[39]

Attitude Toward Change	Dunham's Model	ATC8	Change frustrates me.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC9	Changes tend to stimulate me.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC10	Most changes at work are irritating.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC11	I often suggest new approaches to things.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC12	Change often helps me perform better.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC13	I intend to do whatever possible to support change.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC14	Other people think that I support change.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC15	I usually hesitate to try new ideas.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC16	Change usually helps improve unsatisfactory situations at work.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC17	I find most changes to be pleasing.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC18	I usually benefit from change.	Likert 5	[39]
Individual Impact	D&M IS Success Model	II1	Job performance	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II2	Decision making performance	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II3	Job effectiveness	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II4	Quality of Work	Likert 5	[66][67][58][136][138][151][144]
Organizational Impact	Gable's Model	OI1	Organizational costs	Likert 5	[61]
Organizational Impact	Gable's Model	OI2	Staff requirements reduction	Likert 5	[61]
Organizational Impact	Gable's Model	OI3	Cost reduction	Likert 5	[61]
Organizational Impact	Gable's Model	OI4	Overall productivity	Likert 5	[61]
Organizational Impact	Gable's Model	OI5	Improved outcomes/outputs	Likert 5	[61]
Organizational Impact	Gable's Model	OI6	Increased capacity	Likert 5	[61]
Organizational Impact	Gable's Model	OI7	e-government/e-business/e-commerce	Likert 5	[61]

Organizational Impact	Gable's Model	OI8	Business Process Change	Likert 5	[61]
Organizational Culture	Wallach's OCI	OC1	Risk taking	Likert4	[142]
Organizational Culture	Wallach's OCI	OC2	Collaborative	Likert4	[142]
Organizational Culture	Wallach's OCI	OC3	Hierarchical	Likert4	[142]
Organizational Culture	Wallach's OCI	OC4	Procedural	Likert4	[142]
Organizational Culture	Wallach's OCI	OC5	Relationships-oriented	Likert4	[142]
Organizational Culture	Wallach's OCI	OC6	Results-oriented	Likert4	[142]
Organizational Culture	Wallach's OCI	OC7	Creative	Likert4	[142]
Organizational Culture	Wallach's OCI	OC8	Encouraging	Likert4	[142]
Organizational Culture	Wallach's OCI	OC9	Sociable	Likert4	[142]
Organizational Culture	Wallach's OCI	OC10	Structured	Likert4	[142]
Organizational Culture	Wallach's OCI	OC11	Pressurized	Likert4	[142]
Organizational Culture	Wallach's OCI	OC12	Ordered	Likert4	[142]
Organizational Culture	Wallach's OCI	OC13	Stimulating	Likert4	[142]
Organizational Culture	Wallach's OCI	OC14	Regulated	Likert4	[142]
Organizational Culture	Wallach's OCI	OC15	Personal freedom	Likert4	[142]
Organizational Culture	Wallach's OCI	OC16	Equitable	Likert4	[142]
Organizational Culture	Wallach's OCI	OC17	Safe	Likert4	[142]
Organizational Culture	Wallach's OCI	OC18	Challenging	Likert4	[142]
Organizational Culture	Wallach's OCI	OC19	Enterprising	Likert4	[142]
Organizational Culture	Wallach's OCI	OC20	Established, solid	Likert4	[142]
Organizational Culture	Wallach's OCI	OC21	Cautious	Likert4	[142]
Organizational Culture	Wallach's OCI	OC22	Trusting	Likert4	[142]

Organizational Culture	Wallach's OCI	OC23	Driving	Likert4	[142]
Organizational Culture	Wallach's OCI	OC24	Power-oriented	Likert4	[142]
LMX	LMX-MDM	LMX1	I like my supervisor very much as a person	Likert 5	[90][92]
LMX	LMX-MDM	LMX2	My supervisor is the kind of person one would like to have as a friend	Likert 5	[90][92]
LMX	LMX-MDM	LMX3	My supervisor is a lot of fun to work with	Likert 5	[90][92]
LMX	LMX-MDM	LMX4	My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question	Likert 5	[90][92]
LMX	LMX-MDM	LMX5	My supervisor would come to my defense if I were "attacked" by others	Likert 5	[90][92]
LMX	LMX-MDM	LMX6	My supervisor would defend me to others in the organization if I made an honest mistake.	Likert 5	[90][92]
LMX	LMX-MDM	LMX7	I do work for my supervisor that goes beyond what is specified in my job descriptions	Likert 5	[90][92]
LMX	LMX-MDM	LMX8	I am willing to apply extra efforts, beyond those normally required, to meet my supervisor's work goals	Likert 5	[90][92]
LMX	LMX-MDM	LMX9	I do not mind working my hardest for my Supervisor	Likert 5	[90][92]
LMX	LMX-MDM	LMX10	I am impressed with my supervisor's knowledge of his/her job	Likert 5	[90][92]
LMX	LMX-MDM	LMX11	I respect my supervisor's knowledge of and competence on the job	Likert 5	[90][92]
LMX	LMX-MDM	LMX12	I admire my supervisor's professional skills	Likert 5	[90][92]

Table 33 Question Items Used In the Study (in Turkish)

Construct	Model/Dimension	Item	Measure	Scale	Reference
Perceived Ease of Use	TAM	PEU1	It is easy to learn the new system. / Yeni sistemi kullanmayı kolay buluyorum.	Likert 5	[33]
Perceived Ease of Use	TAM	PEU2	It is easy to become proficient in using the new system. / Yeni sistemi kullanmada uzman olmak kolay oluyor.	Likert 5	[33]
Perceived Ease of Use	TAM	PEU3	It is easy to remember how to use the new system. / Yeni sistemin kullanmayı hatırlamak kolay oluyor.	Likert 5	[33]
Perceived Usefulness	TAM	PU1	The new system improves the outcome of work. / Yeni sistemin iş sonucunu geliştiriyor.	Likert 5	[33]
Perceived Usefulness	TAM	PU2	The new system increases work productivity. / Yeni sistemin iş üretkenliğini artırıyor.	Likert 5	[33]
Perceived Usefulness	TAM	PU3	The new system increases the effectiveness of work. / Yeni sistemin iş etkinliğini artırıyor.	Likert 5	[33]
Perceived Usefulness	TAM	PU4	The new system is valuable to work. / Yeni sistemin iş için değerli.	Likert 5	[33]
Behavioral Intention	TAM	BI1	I expect to use the new system. / Yeni sistemi kullanacağım.	Likert 5	[33]
Behavioral Intention	TAM	BI2	I expect the information from the new system to be used / Yeni sistemden alınan bilgiler kullanılacaktır.	Likert 5	[33]
Attitude Toward Change	Dunham's Model	ATC1	I look forward to changes at work. / İşyerimde değişiklikleri iple çekerim.	Likert 5	[39]

Attitude Toward Change	Dunham's Model	ATC2	I usually resist new ideas. / Genelde yeni fikirlere direnç gösteririm.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC3	I am inclined to try new ideas. / Yeni fikirleri denemeye eğilimliyimdir.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC4	Change usually benefits the organization. / Genelde şirket değişimden menfaat/fayda sağlar.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC5	I usually support new ideas / Genelde yeni fikirleri desteklerim	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC6	Most of my co-workers benefit from change. / Bir çok iş arkadaşım değişimden menfaat/fayda sağlar.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC7	I don't like change. / Değişimi sevmem	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC8	Change frustrates me. / Değişim beni çok rahatsız eder	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC9	Changes tend to stimulate me. / Değişikler beni teşvik eder ve canlandırır.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC10	Most changes at work are irritating. / İşteki değişimlerin bir çoğu rahatsız edicidir.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC11	I often suggest new approaches to things / İşimle ilgili konular için sık sık yeni yollar öneririm.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC12	Change often helps me perform better. / Değişim genelde işimi daha iyi yapmama yarar.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC13	to do whatever possible to support change. / Değişimi desteklemek için elimden geleni yapacağım.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC14	Other people think that I support change. / Diğer insanlar	Likert 5	[39]

			değişimi desteklediğimi düşünür.		
Attitude Toward Change	Dunham's Model	ATC15	I usually hesitate to try new ideas. / Genelde yeni fikirleri denemeye tereddüt ederim.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC16	Change usually helps improve unsatisfactory situations at work. / Değişim genelde yetersiz, tatmin etmeyen durumların gelişmesine yardımcı olur.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC17	I find most changes to be pleasing. / Değişimlerin çoğunu memnuniyet verici bulurum.	Likert 5	[39]
Attitude Toward Change	Dunham's Model	ATC18	I usually benefit from change. / Genelde değişimden fayda sağlarım.	Likert 5	[39]
Individual Impact	D&M IS Success Model	II1	Job performance / İş performansım	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II2	Decision making performance / Karar verme performansım	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II3	Job effectiveness / İş etkinliğim	Likert 5	[66][67][58][136][138][151][144]
Individual Impact	D&M IS Success Model	II4	Quality of Work / İşimin kalitesi	Likert 5	[66][67][58][136][138][151][144]
Organizational Impact	Gable's Model	OI1	Organizational costs / Örgütsel masraflar	Likert 5	[61]
Organizational Impact	Gable's Model	OI2	Staff requirements reduction / Personel ihtiyaçlarının azalması	Likert 5	[61]
Organizational Impact	Gable's Model	OI3	Cost reduction / Masrafların kısılması	Likert 5	[61]
Organizational Impact	Gable's Model	OI4	Overall productivity / Genel verimlilik/üretkenlik	Likert 5	[61]
Organizational Impact	Gable's Model	OI5	Improved outcomes/outputs / İyileştirilmiş sonuç/verim	Likert 5	[61]
Organizational Impact	Gable's Model	OI6	Increased capacity / Kapasite Artışı	Likert 5	[61]
Organizational Impact	Gable's Model	OI7	e-government/e-business/e-commerce / e-devlet / e-iş / e-	Likert 5	[61]

			ticaret		
Organizational Impact	Gable's Model	OI8	Business Process Change / İş Süreci Değişikliği	Likert 5	[61]
Organizational Culture	Wallach's OCI	OC1	İş faaliyetlerinde risk alabilen	Likert4	[142]
Organizational Culture	Wallach's OCI	OC2	Tüm çalışanların işbirliği yaptığı	Likert4	[142]
Organizational Culture	Wallach's OCI	OC3	Hiyerarşik bir yapısı olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC4	Formalitelere önem veren	Likert4	[142]
Organizational Culture	Wallach's OCI	OC5	İş süreçlerini çalışanlarına önem vererek sonuçlandırmak isteyen	Likert4	[142]
Organizational Culture	Wallach's OCI	OC6	İş süreçlerini çalışanlardan çok, işin sonuçlanmasına önem vererek yürüten	Likert4	[142]
Organizational Culture	Wallach's OCI	OC7	Yaratıcılığa, yenilikçiğe değer veren	Likert4	[142]
Organizational Culture	Wallach's OCI	OC8	Çalışanlarını, işlerinde başarılı olmaları için cesaretlendiren	Likert4	[142]
Organizational Culture	Wallach's OCI	OC9	Çalışanlarıyla sosyal ilişkiler kuran	Likert4	[142]
Organizational Culture	Wallach's OCI	OC10	Yapısal (bürokratik) yönü fazla olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC11	İşlerin sonuçlanması için çalışanlarına iş yükü ve zaman açısından baskı uygulayan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC12	Çalışanlarına talimat vererek destek olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC13	İş yaşamına canlılık, heyecan katan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC14	Kuralcı bir yapısı olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC15	Çalışanlarına bireysel özgürlük veren	Likert4	[142]
Organizational Culture	Wallach's OCI	OC16	Çalışanlarına adil davranan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC17	Çalışanları için güven veren	Likert4	[142]

Organizational Culture	Wallach's OCI	OC18	İş faaliyetlerinde mücadeleci, atak olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC19	Girişimci bir niteliğe sahip	Likert4	[142]
Organizational Culture	Wallach's OCI	OC20	Katı bir işletme yapısı olan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC21	İş faaliyetlerinde ihtiyatlı davranan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC22	Çalışanlarına güvenen	Likert4	[142]
Organizational Culture	Wallach's OCI	OC23	İş faaliyetlerinde atılımcı, cesur davranan	Likert4	[142]
Organizational Culture	Wallach's OCI	OC24	Otoriter bir işletme yapısı olan	Likert4	[142]
LMX	LMX-MDM	LMX1	I like my supervisor very much as a person / Kişisel olarak yönetimi çok beğeniyorum.	Likert 5	[90][92]
LMX	LMX-MDM	LMX2	My supervisor is the kind of person one would like to have as a friend / Yöneticim herkesin arkadaş olmak isteyeceği biridir.	Likert 5	[90][92]
LMX	LMX-MDM	LMX3	My supervisor is a lot of fun to work with / Yöneticimle beraber çalışmak çok eğlenceli.	Likert 5	[90][92]
LMX	LMX-MDM	LMX4	My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question / Yöneticim detaylı bilgisi olmadığı durumlarda dahi beni üstlerime karşı korur.	Likert 5	[90][92]
LMX	LMX-MDM	LMX5	My supervisor would come to my defense if I were “attacked” by others / Bana karşı bir saldırı olduğunda yöneticim bana destek verecektir.	Likert 5	[90][92]
LMX	LMX-MDM	LMX6	My supervisor would defend me to others in the organization if I made an honest mistake. / Yöneticim	Likert 5	[90][92]

			dürüstçe bir hata yaptığımda şirket içinde beni savunacaktır.		
LMX	LMX-MDM	LMX7	I do work for my supervisor that goes beyond what is specified in my job descriptions / İş tanımımdan fazlasını yöneticim için yaparım/yapıyorum.	Likert 5	[90][92]
LMX	LMX-MDM	LMX8	I am willing to apply extra efforts, beyond those normally required, to meet my supervisor's work goals / Yöneticimin iş hedefleri için beklenenin üstünde ekstra efor sarfetmeye istekliyim.	Likert 5	[90][92]
LMX	LMX-MDM	LMX9	I do not mind working my hardest for my Supervisor / Yöneticim için çok yoğun çalışmaya itiraz etmem.	Likert 5	[90][92]
LMX	LMX-MDM	LMX10	I am impressed with my supervisor's knowledge of his/her job / Yönetimin iş bilgisinden çok etkileniyorum.	Likert 5	[90][92]
LMX	LMX-MDM	LMX11	I respect my supervisor's knowledge of and competence on the job / Yöneticimin işle ilgili bilgi ve yeteneğine saygı duyuyorum.	Likert 5	[90][92]
LMX	LMX-MDM	LMX12	I admire my supervisor's professional skills / Yöneticimin mesleki yeteneklerine takdir ediyorum.	Likert 5	[90][92]

Appendix 4 Variable Definitions and Measurement Scales

Table 34 The Definitions of Variables

Q. No	Variable	Name	Definition of Variable
1	Var1	LMX1 – Like my supervisor personally	LMX / Affect
2	Var2	LMX2 – Friendly	LMX / Affect
3	Var3	LMX3 – Like to work with	LMX / Affect
4	Var4	LMX4 – Protects me against a superior	LMX / Loyalty
5	Var5	LMX5 – Supports me against an attack	LMX / Loyalty
6	Var6	LMX6 – Defends me in case of a honest mistake	LMX / Loyalty
7	Var7	LMX7 – Do work beyond my job description	LMX / Contribution
8	Var8	LMX8 – Willing to apply extra effort	LMX / Contribution
9	Var9	LMX9 – Work hardest	LMX / Contribution
10	Var10	LMX10 – Impressed with my supervisor’s knowledge	LMX / Professional Respect
11	Var11	LMX11 – Respect my supervisor’s competence	LMX / Professional Respect
12	Var12	LMX12 – Admire my supervisor’s professional skills	LMX / Professional Respect
13	Var13	OC1 – Risk Taking	Organizational Culture / Innovative
14	Var14	OC2 – Collaborative	Organizational Culture / Supportive
15	Var15	OC3 –Hierarchical	Organizational Culture / Bureaucratic
16	Var16	OC4 – Procedural	Organizational Culture / Bureaucratic
17	Var17	OC5 – Relationship oriented	Organizational Culture / Supportive
18	Var18	OC6 – Results oriented	Organizational Culture / Innovative
19	Var19	OC7 – Creative	Organizational Culture / Innovative
20	Var20	OC8 – Encouraging	Organizational Culture / Supportive
21	Var21	OC9 – Sociable	Organizational Culture / Supportive
22	Var22	OC10 – Structured	Organizational Culture / Bureaucratic
23	Var23	OC11 – Pressurized	Organizational Culture / Innovative
24	Var24	OC12 – Ordered	Organizational Culture / Bureaucratic
25	Var25	OC13 – Stimulating	Organizational Culture / Innovative
26	Var26	OC14 – Regulated	Organizational Culture / Bureaucratic
27	Var27	OC15 – Personal Freedom	Organizational Culture / Supportive

28	Var28	OC16 – Equitable	Organizational Culture / Supportive
29	Var29	OC17 – Safe	Organizational Culture / Supportive
30	Var30	OC18 – Challenging	Organizational Culture / Innovative
31	Var31	OC19 – Enterprising	Organizational Culture / Innovative
32	Var32	OC20 – Solid	Organizational Culture / Bureaucratic
33	Var33	OC21 – Cautious	Organizational Culture / Bureaucratic
34	Var34	OC22 – Trusting	Organizational Culture / Supportive
35	Var35	OC23 – Driving	Organizational Culture / Innovative
36	Var36	OC24 – Power oriented	Organizational Culture / Bureaucratic
37	Var37	ATC1 – Looking forward to changes	Attitude Toward Change / Cognitive
38	Var38	ATC2 – Usually resists new ideas	Attitude Toward Change / Affective
39	Var39	ATC3 – Inclined to try new ideas	Attitude Toward Change / Cognitive
40	Var40	ATC4 – Organization benefits	Attitude Toward Change / Cognitive
41	Var41	ATC5 – Support new ideas	Attitude Toward Change / Cognitive
42	Var42	ATC6 – Co-worker benefits	Attitude Toward Change / Cognitive
43	Var43	ATC7 – Don't like change	Attitude Toward Change / Affective
44	Var44	ATC8 – Change frustrates me	Attitude Toward Change / Affective
45	Var45	ATC9 – Changes tend to stimulate me	Attitude Toward Change / Behavioral Tendency
46	Var46	ATC10 – Changes are irritating	Attitude Toward Change / Affective
47	Var47	ATC11 - Suggest new approaches	Attitude Toward Change / Affective
48	Var48	ATC12 – Perform better	Attitude Toward Change / Behavioral Tendency
49	Var49	ATC13 – Support change	Attitude Toward Change / Behavioral Tendency
50	Var50	ATC14 – Thought to support change	Attitude Toward Change / Behavioral Tendency
51	Var51	ATC15 – Hesitate to try new ideas	Attitude Toward Change / Affective
52	Var52	ATC16 – Improve unsatisfactory situations	Attitude Toward Change / Cognitive
53	Var53	ATC17 – Pleasing	Attitude Toward Change / Behavioral Tendency
54	Var54	ATC18 – Benefits from change	Attitude Toward Change / Behavioral Tendency
55	Var55	PEU1 – Easy to learn	TAM / Perceived Ease of Use
56	Var56	PEU2 – Easy to become proficient	TAM / Perceived Ease of Use
57	Var57	PEU3 – Easy to remember	TAM / Perceived Ease of Use
58	Var58	PU1 – Improves the outcome	TAM/ Perceived Usefulness
59	Var59	PU2 – Increases work productivity	TAM/ Perceived Usefulness
60	Var60	PU3 – Increases the effectiveness	TAM/ Perceived Usefulness
61	Var61	PU4 – Valuable	TAM /Perceived Usefulness
62	Var62	BI1 – Expect to use	TAM / Behavioral Intention

63	Var63	BI2 – Expect the information to be used	TAM / Behavioral Intention
64	Var64	II1 – Job performance	Individual Impact /Job Performance
65	Var65	II2 – Decision making performance	Individual Impact / Decision-making performance
66	Var66	II3 – Job effectiveness	Individual Impact / Job effectiveness
67	Var67	II4 – Quality of work	Individual Impact / Quality of Work
68	Var68	OI1 – Organizational costs	Organizational Impact
69	Var69	OI2 – Staff requirements reduction	Organizational Impact
70	Var70	OI3 – Cost reduction	Organizational Impact
71	Var71	OI4 – Overall productivity	Organizational Impact
72	Var72	OI5 – Improved outcomes	Organizational Impact
73	Var73	OI6 – Increase capacity	Organizational Impact
74	Var74	OI7 – e-business	Organizational Impact
75	Var75	OI8 – Business process change	Organizational Impact
76	Var76	Gender	Gender
77	Var77	Age	Age
78	Var78	Marital Status	Marital Status
79	Var79	Total Experience	Total Experience (in years)
80	Var80	Number of employees	Number of Personnel in the company

Table 35 Measurement Scales for the variables of the study

Nominal - Var76 – GENDER - Var78 – MARITALSTATUS	Ordinal - Var77 - AGE - Var79 - TOTALEXPERIENCE - Var80 – NOOFERS
Interval - Var1 - LMX1 - Var2 - LMX2 - Var3 - LMX3 - Var4 - LMX4 - Var5 - LMX5 - Var6 - LMX6 - Var7 - LMX7 - Var8 - LMX8 - Var9 - LMX9 - Var10 - LMX10 - Var11 - LMX11	Interval - Var41 - ATC5 - Var42 - ATC6 - Var43 - ATC7 - Var44 - ATC8 - Var45 - ATC9 - Var46 - ATC10 - Var47 - ATC11 - Var48 - ATC12 - Var49 - ATC13 - Var50 - ATC14 - Var51 - ATC15

• Var12 - LMX12 • Var13 - OC1 • Var14 - OC2 • Var15 - OC3 • Var16 - OC4 • Var17 - OC5 • Var18 - OC6 • Var19 - OC7 • Var20 - OC8 • Var21 - OC9 • Var22 - OC10 • Var23 - OC11 • Var24 - OC12 • Var25 - OC13 • Var26 - OC14 • Var27 - OC15 • Var28 - OC16 • Var29 - OC17 • Var30 - OC18 • Var31 - OC19 • Var32 - OC20 • Var33 - OC21 • Var34 - OC22 • Var35 - OC23 • Var36 - OC24 • Var37 - ATC1 • Var38 - ATC2 • Var39 - ATC3 • Var40 - ATC4	• Var52 - ATC16 • Var53 - ATC17 • Var54 - ATC18 • Var55 - PEU1 • Var56 - PEU2 • Var57 - PEU3 • Var58 - PU1 • Var59 - PU2 • Var60 - PU3 • Var61 - PU4 • Var62 - BI1 • Var63 - BI2 • Var64 - II1 • Var65 - II2 • Var66 - II3 • Var67 - II4 • Var68 - OI1 • Var69 - OI2 • Var70 - OI3 • Var71 - OI4 • Var72 - OI5 • Var73 - OI6 • Var74 - OI7 • Var75 - OI8
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Appendix 5 IS Related Statistics

Table 36 Market Share for CRM Software 2007 - 2009

CRM Software Market Share Results					
Vendor	Share 2007	Share 2008	Share 2009	2008 Growth	2009 Growth
SAP	25,52%	22,3%	20,2%	-0,8%	-8,6%
Other Vendors	18,80%	19,2%	20,0%	16,0%	5,1%
Oracle	16,26%	16,0%	16,3%	11,8%	3,2%
salesforce.com	8,34%	10,5%	12,5%	42,7%	20,6%
Microsoft	4,06%	6,3%	7,3%	76,4%	17,6%
Amdocs	5,16%	4,9%	4,2%	7,6%	-13,5%

SAS Institute	3,20%	3,0%	3,1%	4,7%	4,5%
Cegedim (TDV)	1,66%	2,6%	2,4%	77,5%	-6,5%
ATG	1,31%	1,5%	1,6%	29,6%	10,4%
SPSS	2,29%	2,1%	1,5%	4,9%	-30,2%
RightNow Technologies	1,07%	1,1%	1,2%	17,9%	12,5%
Unica	1,13%	1,1%	0,9%	8,1%	-15,9%
Sage	1,61%	1,2%	0,9%	-15,9%	-26,1%
Teradata	0,84%	0,8%	0,7%	7,4%	-10,2%
CDC Software	0,76%	0,7%	0,7%	2,0%	-1,9%
Infor Global Solutions	0,64%	0,6%	0,6%	6,2%	2,6%
Callidus	0,64%	0,6%	0,6%	10,9%	-10,8%
Chordiant	1,10%	0,8%	0,5%	-17,8%	-31,8%
NetSuite	0,41%	0,5%	0,5%	40,3%	5,1%
Consona	0,45%	0,4%	0,5%	1,4%	26,9%
IBM	0,00%	0,0%	0,5%	NA	NA
Aprimo	0,41%	0,4%	0,5%	1,7%	28,7%
SuperOffice	0,53%	0,5%	0,4%	11,6%	-15,0%
Kana	0,58%	0,5%	0,3%	0,4%	-31,7%
Intershop	0,25%	0,2%	0,3%	1,0%	33,2%
Update	0,37%	0,4%	0,3%	14,5%	-22,5%
CAS	0,32%	0,3%	0,3%	6,6%	-9,3%
FrontRange	0,28%	0,3%	0,2%	6,2%	-5,0%
Sterling Commerce	0,45%	0,3%	0,2%	-34,2%	-17,8%
Epicor	0,33%	0,3%	0,2%	-5,7%	-28,1%
Totvs	0,09%	0,2%	0,2%	86,9%	31,8%
Lagan Technologies	0,22%	0,2%	0,1%	-7,6%	-15,4%
Coheris	0,17%	0,2%	0,1%	3,4%	-15,5%
UFIDA	0,00%	0,1%	0,1%	NA	62,7%

Cegid	0,12%	0,1%	0,1%	10,0%	-39,5%
Inspur Genersoft	0,02%	0,0%	0,0%	44,7%	-45,3%
Kingdee	0,02%	0,0%	0,0%	-66,7%	13,5%
Technology One	0,00%	0,0%	0,0%	NA	NA
Dendrite	0,61%	0,0%	0,0%	-100,0%	NA
Datasul	0,02%	0,0%	0,0%	-34,4%	NA
Total	100,00%	100,0%	100,0%	13,4%	1,2%

Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

Table 37 Market Revenue for CRM Software 2007 - 2009

CRM Software Market Revenue Results					
Vendor	2007	2008	2009	2008 Growth	2009 Growth
SAP	2.071,0	2.054,8	1.877,5	-0,8%	-8,6%
Other Vendors	1.525,6	1.769,8	1.860,0	16,0%	5,1%
Oracle	1.319,8	1.475,1	1.522,8	11,8%	3,2%
salesforce.com	676,5	965,3	1.164,0	42,7%	20,6%
Microsoft	329,9	582,0	684,3	76,4%	17,6%
Amdocs	418,9	450,9	389,8	7,6%	-13,5%
SAS Institute	259,8	272,1	284,2	4,7%	4,5%
Cegedim (TDV)	134,5	238,7	223,1	77,5%	-6,5%
ATG	106,6	138,2	152,5	29,6%	10,4%
SPSS	185,8	194,9	136,0	4,9%	-30,2%
RightNow Technologies	87,0	102,6	115,4	17,9%	12,5%
Unica	91,5	99,0	83,2	8,1%	-15,9%
Sage	131,0	110,2	81,5	-15,9%	-26,1%
Teradata	67,9	72,9	65,4	7,4%	-10,2%
CDC Software	61,3	62,6	61,4	2,0%	-1,9%
Infor Global Solutions	51,8	55,1	56,5	6,2%	2,6%
Callidus	51,9	57,6	51,4	10,9%	-10,8%
Chordiant	89,0	73,1	49,8	-17,8%	-31,8%
NetSuite	33,0	46,3	48,6	40,3%	5,1%
Consona	36,5	37,0	47,0	1,4%	26,9%
IBM	0,0	0,0	44,0	NA	NA
Aprimo	33,2	33,8	43,5	1,7%	28,7%
SuperOffice	43,1	48,1	40,9	11,6%	-15,0%
Kana	47,0	47,2	32,3	0,4%	-31,7%
Intershop	20,0	20,2	26,9	1,0%	33,2%

Update	29,9	34,2	26,5	14,5%	-22,5%
CAS	25,6	27,3	24,8	6,6%	-9,3%
FrontRange	22,6	23,9	22,7	6,2%	-5,0%
Sterling Commerce	36,4	24,0	19,7	-34,2%	-17,8%
Epicor	27,0	25,4	18,3	-5,7%	-28,1%
Totvs	7,4	13,9	18,3	86,9%	31,8%
Lagan Technologies	17,6	16,3	13,8	-7,6%	-15,4%
Coheris	13,5	14,0	11,8	3,4%	-15,5%
UFIDA	0,0	5,5	8,9	NA	62,7%
Cegid	9,7	10,7	6,5	10,0%	-39,5%
Inspur Genersoft	1,4	2,0	1,1	44,7%	-45,3%
Kingdee	1,4	0,5	0,5	-66,7%	13,5%
Technology One	0,0	0,0	0,5	NA	NA
Dendrite	49,6	0,0	0,0	-100,0%	NA
Datasul	1,2	0,8	0,0	-34,4%	NA
Total	8.116,2	9.205,9	9.315,4	13,4%	1,2%

Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

Table 38 Market Share for ERP Software 2007 - 2009

ERP Software Market Share Results					
Vendor	Share 2007	Share 2008	Share 2009	2008 Growth	2009 Growth
SAP	28,3%	26,8%	25,8%	0,1%	-9,6%
Other Vendors	17,1%	17,5%	17,5%	8,1%	-6,3%
Oracle	12,9%	12,7%	12,0%	4,2%	-11,2%
Sage Software	6,9%	6,7%	6,8%	3,1%	-5,3%
Infor Global Solutions	6,1%	6,1%	5,7%	5,9%	-12,8%
Microsoft	4,3%	4,2%	4,2%	1,7%	-4,7%
Kronos	2,2%	2,1%	2,2%	4,2%	-1,1%
Lawson Software	1,7%	1,8%	1,8%	13,3%	-7,0%
Totvs	0,7%	1,1%	1,5%	77,7%	30,4%
Unit4	1,1%	1,3%	1,4%	27,0%	-1,3%
Concur	0,7%	1,0%	1,2%	57,9%	14,4%
Exact Software	1,2%	1,2%	1,1%	-0,2%	-12,3%
Cegid	1,0%	1,0%	1,0%	6,7%	0,8%
Epicor	0,9%	0,9%	0,9%	4,8%	-6,6%
IBM	0,7%	0,8%	0,9%	21,8%	0,2%
UFIDA	0,6%	0,7%	0,9%	31,5%	18,6%
Visma	0,8%	0,9%	0,9%	15,9%	-5,9%
Taleo	0,5%	0,6%	0,9%	32,0%	25,2%
Works Applications	0,6%	0,7%	0,8%	28,6%	7,7%
Deltek	0,7%	0,7%	0,7%	1,6%	-2,5%
SuccessFactors	0,3%	0,5%	0,7%	76,8%	36,8%
Ultimate Software	0,5%	0,6%	0,7%	16,1%	16,6%
QAD	0,8%	0,7%	0,7%	-4,9%	-10,5%
Fujitsu	0,5%	0,6%	0,7%	11,0%	8,7%
Kenexa	0,7%	0,8%	0,7%	10,0%	-18,1%

Northgate Information Solutions	0,5%	0,5%	0,5%	-2,2%	0,6%
IFS	0,6%	0,6%	0,5%	6,7%	-21,0%
OBIC	0,4%	0,4%	0,5%	14,0%	5,3%
Ventyx	0,3%	0,4%	0,4%	34,3%	2,4%
NetSuite	0,3%	0,3%	0,4%	34,5%	16,9%
Kingdee	0,3%	0,3%	0,4%	23,9%	14,7%
Inspur Genersoft	0,3%	0,4%	0,4%	41,0%	9,4%
COA Solutions	0,4%	0,4%	0,4%	-1,1%	-13,4%
Consona	0,3%	0,3%	0,3%	8,6%	0,4%
Workscope	0,3%	0,3%	0,3%	-2,6%	3,0%
Saba	0,2%	0,2%	0,3%	-0,2%	10,6%
Basware	0,2%	0,2%	0,2%	13,4%	16,8%
Mincom	0,4%	0,2%	0,2%	-52,5%	23,0%
Mamut ASA	0,2%	0,2%	0,2%	22,8%	-10,1%
CDC Software	0,3%	0,3%	0,2%	1,1%	-12,9%
Authoria	0,2%	0,2%	0,2%	10,0%	3,3%
Peopleclick	0,2%	0,2%	0,2%	6,0%	-1,0%
Syspro	0,2%	0,2%	0,2%	-5,6%	-13,5%
Salary.com	0,1%	0,2%	0,2%	30,7%	14,4%
Avantis	0,2%	0,2%	0,2%	10,3%	-1,8%
SilkRoad	0,1%	0,1%	0,2%	21,7%	35,7%
Meta4	0,1%	0,1%	0,2%	8,4%	11,3%
Blackbaud	0,1%	0,1%	0,1%	21,5%	-9,1%
Technology One	0,1%	0,1%	0,1%	56,5%	-11,7%
Maconomy	0,1%	0,1%	0,1%	20,6%	-8,5%
CyberShift	0,1%	0,1%	0,1%	0,9%	6,8%
Halogen	0,0%	0,1%	0,1%	81,5%	29,8%
IBS AB	0,1%	0,1%	0,1%	-8,6%	-2,5%

Softscape	0,1%	0,1%	0,1%	55,3%	24,1%
Midland HR	0,1%	0,1%	0,1%	11,7%	-2,4%
Jeeves	0,1%	0,1%	0,1%	14,5%	-18,3%
Duzon	0,1%	0,1%	0,1%	-12,3%	-14,0%
Ivara	0,1%	0,1%	0,1%	5,0%	-1,0%
MrTed	0,0%	0,0%	0,1%	22,1%	-0,6%
American Software	0,1%	0,0%	0,0%	-17,7%	1,2%
Samsung SDS	0,1%	0,0%	0,0%	-15,7%	-0,4%
Ramco Systems	0,1%	0,0%	0,0%	-24,7%	-4,6%
Workstream	0,0%	0,0%	0,0%	-20,9%	7,9%
Ameritege Technology Partners	0,0%	0,0%	0,0%	6,0%	-3,0%
Younglimwon	0,0%	0,0%	0,0%	-10,6%	15,2%
Deister	0,0%	0,0%	0,0%	14,6%	-16,4%
Incruit	0,0%	0,0%	0,0%	-15,8%	-16,2%
Adrenalin	0,0%	0,0%	0,0%	28,9%	-20,0%
Korea Hinet	0,0%	0,0%	0,0%	-32,9%	-81,6%
Coda	0,4%	0,0%	0,0%	-100,0%	0,0%
Vurv Technology	0,1%	0,1%	0,0%	-45,9%	0,0%
Datasul	0,3%	0,2%	0,0%	-26,0%	0,0%
Total	100,0%	100,0%	100,0%	5,5%	-6,2%

Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

Table 39 Market Revenue for ERP Software 2007 - 2009

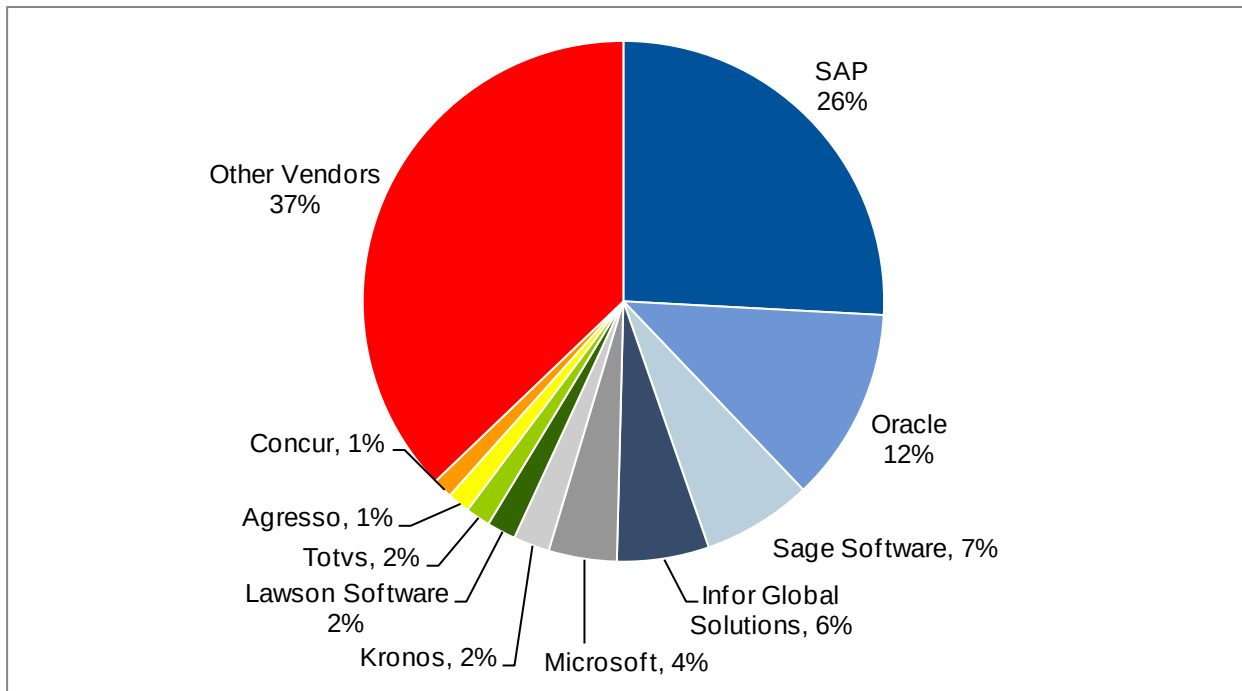
ERP Software Market Revenue Results					
Vendor	2007	2008	2009	2008 Growth	2009 Growth
SAP	5.728,5	5.732,6	5.182,7	0,1%	-9,6%
Other Vendors	3.463,8	3.745,5	3.510,0	8,1%	-6,3%
Oracle	2.608,3	2.718,9	2.414,5	4,2%	-11,2%
Sage Software	1.399,2	1.442,1	1.366,0	3,1%	-5,3%
Infor Global Solutions	1.239,6	1.312,6	1.145,1	5,9%	-12,8%
Microsoft	875,1	890,4	848,1	1,7%	-4,7%
Kronos	437,4	455,6	450,4	4,2%	-1,1%
Lawson Software	341,4	386,9	359,8	13,3%	-7,0%
Totvs	133,0	236,4	308,2	77,7%	30,4%
Unit4	223,8	284,2	280,4	27,0%	-1,3%
Concur	137,0	216,3	247,6	57,9%	14,4%
Exact Software	247,3	246,8	216,4	-0,2%	-12,3%
Cegid	194,8	207,9	209,6	6,7%	0,8%
Epicor	188,1	197,2	184,2	4,8%	-6,6%
IBM	146,9	178,9	179,3	21,8%	0,2%
UFIDA	113,6	149,3	177,0	31,5%	18,6%
Visma	159,6	185,0	174,0	15,9%	-5,9%
Taleo	105,0	138,6	173,6	32,0%	25,2%
Works Applications	114,0	146,7	157,9	28,6%	7,7%
Deltek	139,7	141,9	138,3	1,6%	-2,5%
SuccessFactors	57,0	100,7	137,7	76,8%	36,8%
Ultimate Software	101,6	117,9	137,5	16,1%	16,6%
QAD	161,2	153,3	137,2	-4,9%	-10,5%
Fujitsu	111,4	123,6	134,4	11,0%	8,7%
Kenexa	148,7	163,5	133,9	10,0%	-18,1%

Northgate Information Solutions	108,1	105,7	106,3	-2,2%	0,6%
IFS	120,0	128,0	101,1	6,7%	-21,0%
OBIC	75,4	85,9	90,4	14,0%	5,3%
Ventyx	65,5	87,9	90,0	34,3%	2,4%
NetSuite	53,8	72,4	84,6	34,5%	16,9%
Kingdee	59,5	73,7	84,5	23,9%	14,7%
Inspur Genersoft	54,5	76,9	84,1	41,0%	9,4%
COA Solutions	86,2	85,2	73,8	-1,1%	-13,4%
Consona	57,1	62,0	62,2	8,6%	0,4%
Workscope	60,8	59,2	61,0	-2,6%	3,0%
Saba	46,7	46,7	51,6	-0,2%	10,6%
Basware	37,1	42,1	49,1	13,4%	16,8%
Mincom	82,6	39,3	48,3	-52,5%	23,0%
Mamut ASA	42,7	52,5	47,2	22,8%	-10,1%
CDC Software	52,9	53,5	46,6	1,1%	-12,9%
Authoria	40,5	44,6	46,0	10,0%	3,3%
Peopleclick	38,1	40,4	40,0	6,0%	-1,0%
Syspro	49,0	46,2	40,0	-5,6%	-13,5%
Salary.com	25,9	33,9	38,7	30,7%	14,4%
Avantis	35,1	38,7	38,0	10,3%	-1,8%
SilkRoad	23,0	28,0	38,0	21,7%	35,7%
Meta4	26,7	29,0	32,3	8,4%	11,3%
Blackbaud	25,1	30,5	27,7	21,5%	-9,1%
Technology One	18,3	28,7	25,4	56,5%	-11,7%
Maconomy	22,6	27,3	25,0	20,6%	-8,5%
CyberShift	21,8	22,0	23,5	0,9%	6,8%
Halogen	9,3	17,0	22,0	81,5%	29,8%
IBS AB	24,3	22,2	21,6	-8,6%	-2,5%

Softscape	10,4	16,2	20,1	55,3%	24,1%
Midland HR	17,2	19,2	18,8	11,7%	-2,4%
Jeeves	16,7	19,1	15,6	14,5%	-18,3%
Duzon	19,4	17,0	14,6	-12,3%	-14,0%
Ivara	11,5	12,1	12,0	5,0%	-1,0%
MrTed	8,6	10,5	10,4	22,1%	-0,6%
American Software	11,6	9,6	9,7	-17,7%	1,2%
Samsung SDS	11,3	9,6	9,5	-15,7%	-0,4%
Ramco Systems	13,2	9,9	9,5	-24,7%	-4,6%
Workstream	9,9	7,8	8,4	-20,9%	7,9%
Ameritege Technology Partners	8,0	8,5	8,2	6,0%	-3,0%
Younglimwon	5,6	5,0	5,8	-10,6%	15,2%
Deister	3,8	4,3	3,6	14,6%	-16,4%
Incrut	4,2	3,6	3,0	-15,8%	-16,2%
Adrenalin	2,8	3,6	2,9	28,9%	-20,0%
Korea Hinet	3,9	2,6	0,5	-32,9%	-81,6%
Coda	72,1	0,0	0,0	-100,0%	0,0%
Vurv Technology	26,8	14,5	0,0	-45,9%	0,0%
Datasul	64,0	47,4	0,0	-26,0%	0,0%
Total	20.259,7	21.372,7	20.055,5	5,5%	-6,2%

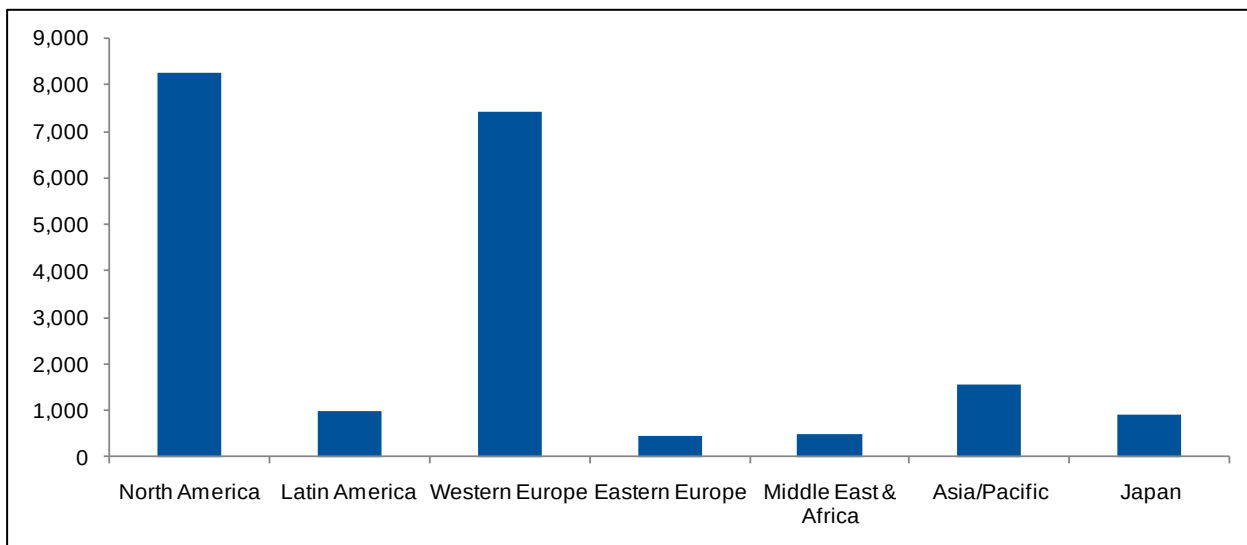
Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

**Figure 7 Top 10 Market Share Vendors for Worldwide
ERP Software Revenue Market, 2007-2009**



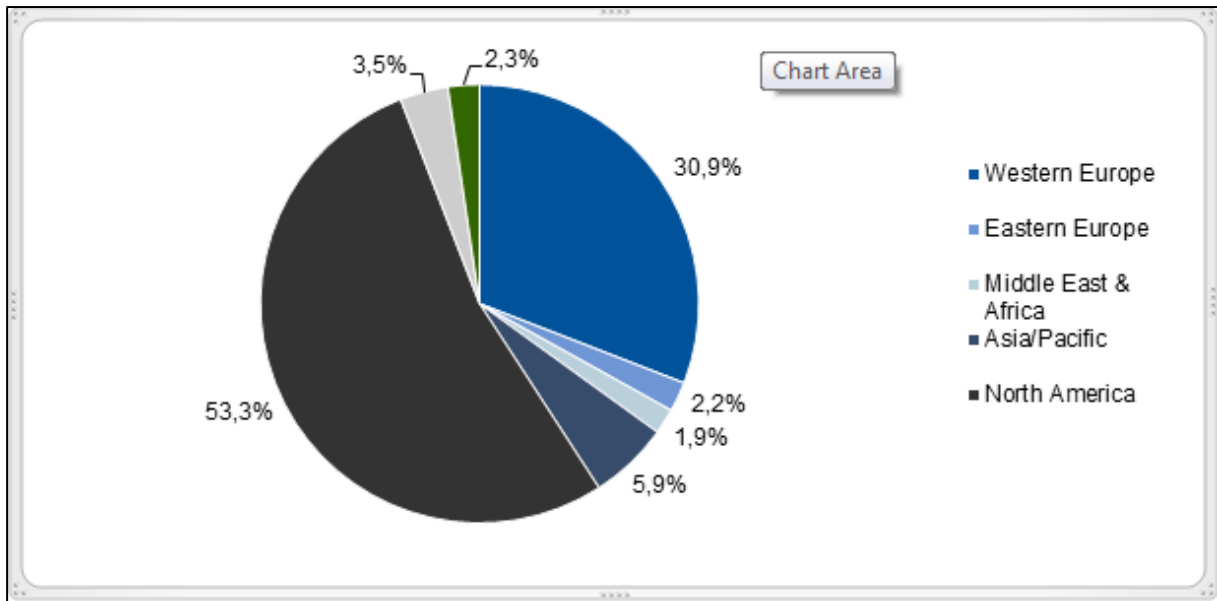
Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

**Figure 8 Total Worldwide Software Revenue
Market Share by Region, 2009**



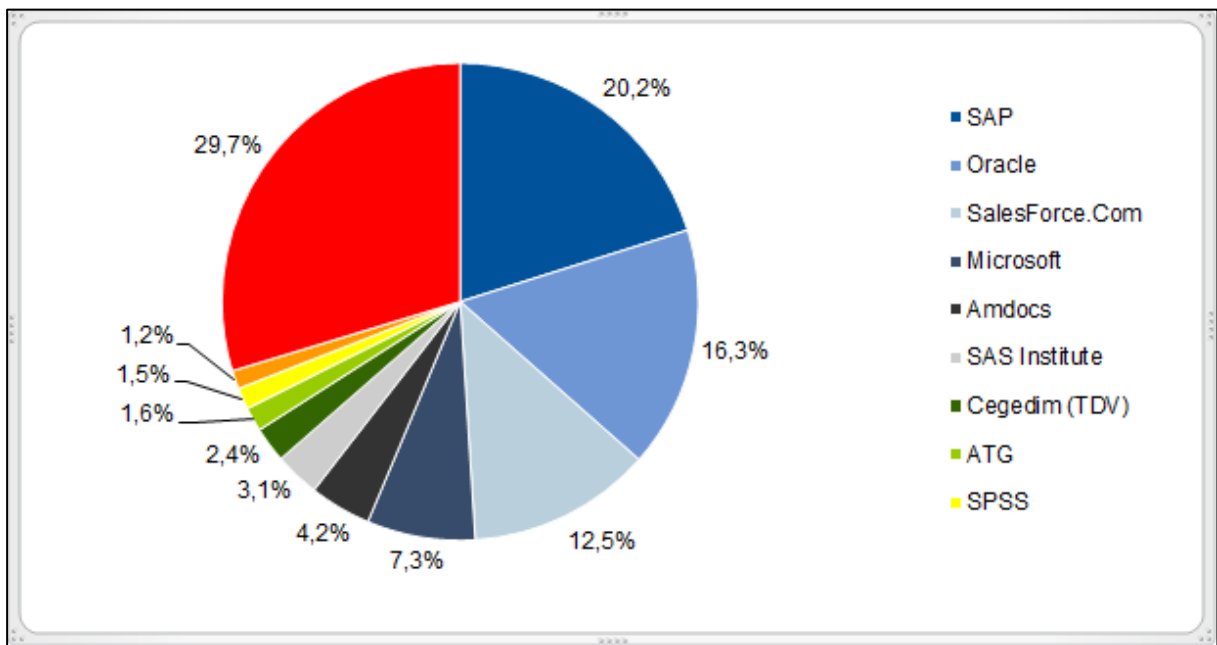
Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

**Figure 9 Top CRM Software Revenue
Market Share by Region, 2009**



Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)

**Figure 10 Total CRM Software Revenue
Market Share, Top 10 Vendors, 2009**



Source: Gartner. All revenue figures in US Dollars, expressed in Millions (April 2010)