

STRATEGIC TECHNOLOGY MANAGEMENT IMPLEMENTATION OF
CHANGE IN HEALTHCARE: AN APPLIED STUDY



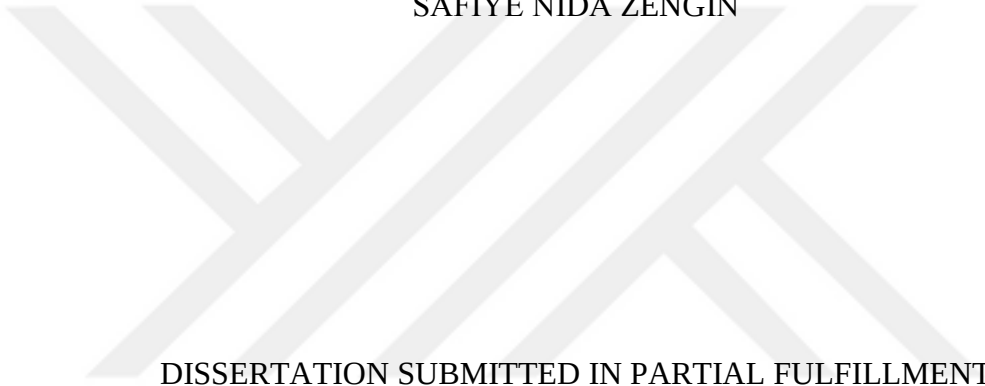
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JANUARY 2020

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CHANGE IN HEALTHCARE: AN APPLIED STUDY

BY

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DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF MASTER

IN

DEPARTMENT OF MANAGEMENT INFORMATION SYSTE

JANUARY 2020

PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

In an increasingly complex economic and social environment, companies are faced with accelerated technological development and global technology-based competition. The healthcare sector, which is one of the sectors where this competition is most experienced, has been using many different technologies for many years to achieve strategic advantage in the marketplace. Thus, the internal strategic technology management of organizations affects companies' strategies in the external (macro) competitive area. Companies have recently been implementing strategic models that combine technical and social contexts. Furthermore, the social contexts of technologies that are used in the healthcare sector in recent years provide a strategic advantage to the companies as well as the technical contexts. Healthcare companies implement ERP and disruptive technologies in operational infrastructures to keep their data and flows in a single system and ensure the use of new technologies. This research examines a healthcare company's entire operational processes, which apply ERP and disruptive technologies to its infrastructure, social and technical qualities in the implementation process within the ITIM model's internal contexts. A research survey was conducted among senior (top) managers, company & healthcare employees, and IT employees and managers in Turkey's largest healthcare company, at (1) one hospital and headquarters located in Istanbul. The data analyze quantitative method with SPSS program. The implementation process, taking the proper actions for the social effects of technology ensures efficient use of technology. This circumstance generates a strategically positive advantage for healthcare companies. Senior (top) managers, company & healthcare employees, and IT employees who participated in the study agreed that the application

process's social contexts were not effectively applied in a wide range of technology implementation processes, from project management to user satisfaction. Thus, failure to return to employees' feedback, lack of effective project management, and user experience are considered the main adverse problems. The implementation process of technology in hospitals should be planned and determined to the employees' needs. In addition, the employees' continuous training and development should be observed. The research also revealed that employees respond positively to the use of disruptive technologies in healthcare systems. The provision of employees' incentives for disruptive technologies and their diligent work on disruptive technologies should be considered. Finally, this study was examined with disruptive technologies' initial reactions and affections for Turkey's largest healthcare company.

Keywords: Strategic technology management, Disruptive technologies, ERP systems, ITIM model

ÖZET

Giderek karmaşıkleşan ekonomik ve sosyal ortamda, şirketler hızlanan teknolojik gelişme ve küresel teknolojiye dayalı rekabet ile karşı karşıyadır. Bu rekabetin en çok yaşandığı sektörlerden biri olan sağlık sektörü , uzun yıllardır stratejik üstünlük sağlamak amacı ile birçok farklı teknoloji kullanmaktadır. Son yıllarda sağlık alanında kullanılan teknolojilerin stratejik üstünlük sağlaması için teknolojinin uygulama sürecinde sadece teknik niteliklerinin değil aynı zamanda sosyal niteliklerine de önemli olduğunu ortaya çıkmıştır. Sağlık şirketleri , verilerini ve akışlarını tek bir sistemde tutmak ve yeni teknolojilerin kullanımını sağlamak amacı ile ERP ve yıkıcı teknolojileri kendi altyapılarında uygulamaktadırlar. Nicel bir çalışma olan bu araştırma ERP ve yıkıcı teknolojileri kendi altyapısına uygulayan sağlık şirketinin, sosyal ve teknik uygulamada ki süreçlerinin tamamını ITIM modelinin içsel bağlamları ile incelemektedir. Araştırmanın kapsamına göre belirlenen sorular İstanbul'da bulunan Türkiye'nin en büyük hastane grubunun , bir (1) hastanesinde ve genel merkezinde çalışan üst düzey yöneticiler, kurumsal & sağlık çalışanları ve IT çalışanları ile anket çalışması şeklinde yapılmıştır. Teknolojilerin uygulanmasında ki süreçte, sürecin sosyal etkilerinin doğru şekilde tanımlanması ve buna yönelik çalışmaların yapılması ,teknolojinin şirket içerisinde verimli kullanılmasını sağladığı ve stratejik olarak olumlu bir üstünlük oluşturduğu kanısına ulaşılmıştır. Araştırmaya katılan yöneticiler, kurumsal & sağlık çalışanları ve IT çalışanları teknoloji uygulanma süreçlerinde proje yönetiminden kullanıcı memnuniyetine kadar geniş bir çerçevede uygulama sürecinde ki sosyal etkilerin etkili bir şekilde uygulanmadığı üzerine birleşmişlerdir. Çalışanların geri bildirimlerine dönülmemesi, etkili proje yönetimi eksikliği, teknolojinin kullanıcı deneyiminin zayıf

olması gibi olumsuzluklar temel sorunlar olarak değerlendirilmiştir.Hastanelerde teknolojilerin uygulanma süreci planlı ve çalışanların ihtiyaçlarına göre belirlenmeli, personelin sürekli eğitim ve gelişimi gözetilmelidir.Ayrıca araştırmada yıkıcı teknolojilerin sağlık sistemlerinde kullanılması konusunda çalışanların olumlu bir tepki verdikleri ortaya çıkmıştır. Yıkıcı teknolojiler ile ilgili çalışan teşviklerinin sağlanması ve şirketin yıkıcı teknolojiler ile ilgili çalışmalarının aktif olarak yapılması gözetilmelidir.Son olarak bu araştırmada Türkiye 'de ilk defa sağlık alanındaki yıkıcı teknolojilerin gelişmesi ve organizasyonun bu gelişmeye olan aksiyonlarını incelemiştir.

Anahtar sözcükler: Stratejik teknoloji yönetimi, Yıkıcı teknolojiler , ERP sistemleri, ITIM modeli

ACKNOWLEDGEMENTS

I had support of many people during writing of this thesis.

First, I would like to thank Assoc.Prof. Murat Yücelen my thesis supervisor, for his support, encouragement, and patience. His technical and editorial advice was essential to completing this dissertation and has taught me innumerable lessons and insights on the workings of academic research in general.

Second, I would like to thank all my friends who supported me and never left me alone.

Thanks to the research participants who took their time in filling out the survey questionnaires.

Dr. Hakan Taşlı

Tolga Karaca

Third, thanks to Voiby Company

Finally, I would like to special thanks to my family and love. They receive my deepest gratitude and love for their dedication and the many years of support during my graduation.

TABLE OF CONTENTS

PLAGIARISM	i
ABSTRACT.....	ii
ÖZET	iv
ACKNOWLEDGEMENTS.....	vi
LIST OF TABLES	x
LIST OF FIGURES	xvi
LIST OF ABBREVIATIONS.....	xvii
1. INTRODUCTION	1
2. TECHNOLOGY	4
1.1 Technology Definition	4
1.2 Technology and Organization.....	6
1.3 History of Technology	8
1.4 Technology and Society.....	12
1.5 Technology and Globalization.....	13
3. STRATEGIC MANAGEMENT.....	16
3.1 Internal (Organizational) Management.....	16
3.2 External (Competitive) Management	19
3.2.1 Competitive position.....	19
3.2.2 Value chain strategy	22
3.2.3 Five forces model.....	25
3.2.4 Generic Strategy.....	27
3.3 Strategic Technology Management	30
4. ERP SYSTEMS.....	35
4.1 Definition and Features of Enterprise Resource Planning.....	35
4.2 ERP Types	38
4.3 ERP System in Management Level.....	39
4.4 Benefits Expected From ERP.....	41
5. DISRUPTIVE TECHNOLOGIES	44
6. STRATEGIC TECHNOLOGY MANAGEMENT IN HEALTHCARE	48
6.1 Inner Context.....	51
6.1.1 Nature of technology /innovation	51
6.1.2 Implementation	52

6.1.3 Interfacing system	54
6.1.4 Workflow	55
6.1.5 Users	55
6.1.6 Leadership.....	56
6.1.7 Communication.....	57
6.2 Outer Context	58
6.2.1 Accreditation and regulations	58
6.2.2 Economic environment	58
6.2.3 Facilitator	58
6.2.4 Vendors	59
7. METHODOLOGY	60
7.1 Research Method	63
7.2 Participants / Population	64
7.3 Informed Consent.....	65
7.4 Geographical Location.....	66
7.5 Data Collection	66
7.6 Likert -Type Question.....	67
7.7 Data Analysis	68
8. DATA ANALYSIS AND FINDINGS FOR IT EMPLOYEES AND MANAGERS	69
8.1 Descriptive Statics for IT Employees and Managers.....	69
8.1.1 Descriptive statistics for disruptive technology	82
8.2 Statistical Analysis for IT Employees and Managers	83
8.2.1 Reliability analysis.....	83
8.2.2 Normality test.....	85
.....	88
9. DATA ANALYSIS AND FINDINGS FOR COMPANY AND HEALTHCARE EMPLOYEES	90
9.1 Descriptive Statics for Company and Healthcare Employees.....	90
9.1.1 Descriptive statistics for disruptive technology	97
9.2 Statistical Analysis Company and Healthcare Employees.....	99
9.2.1 Reliability analysis.....	99
9.2.2 Normality test.....	101
10. DATA ANALYSIS AND FINDINGS FOR TOP MANAGERS.....	106
10.1 Descriptive Statics for Top managers	106
10.2 Cumulative Data and Statistical Analyses	121

11. CONCLUSIONS.....	129
LIMITATIONS, FUTURE WORK AND RECOMMENDATIONS.....	139
REFERENCES	140
APPENDIX.....	148



LIST OF TABLES

Table 1 Results of the Descriptive Statistics for Gender.....	68
Table 2 Results of the Descriptive Statistics for Age.....	69
Table 3 Results of the Descriptive Statistics for Education.....	70
Table 4 Results of the Descriptive Statistics for Work Experience.....	71
Table 5 Results of the Descriptive Statistics for the ERP development and implementation goal / vision?.....	72
Table 6 Results of the Descriptive Statistics for the criteria for choosing an ERP system.....	73
Table 7 Results of the Descriptive Statistics for strengths of the ERP System.....	74
Table 8 Results of the Descriptive Statistics for the weaknesses of the ERP system....	75
Table 9 Results of the Descriptive Statistics for factors are effective in the successful integration of the system.....	76
Table 10 Results of the Descriptive Statistics for Training.....	77
Table 11 Results of the Descriptive Statistics for planning training.....	78

Table 12 Results of the Descriptive Statistics for main difficulties in the training process.....	79
Table 13 Results of the Descriptive Statistics for what is the disruptive technology for you?.....	80
Table 14 Results of Descriptive Statistics Regarding Features of Disruptive technology.....	81
Table 15 Results of the Reliability Analysis.....	82
Table 16 Normality Test.....	83
Table 17 Results of the Normality Test.....	84
Table18 Results Non-Parametric Analysis.....	85
Table 19 Crosstabs Developing new products or services analysis.....	86
Table 20 Crosstabs Increasing the quality of products and services analysi.....	87
Table 21 Crosstabs Facilitating business processes analysis.....	88
Table 22 Crosstabs Ensuring the development of healthcare technology analysis.....	89
Table 23 Crosstabs Do you think disruptive technologies will affect healthcare system.....	90

Table 24 Crosstabs Do you believe that disruptive technologies will help detect and remedy diseases in healthcare? Analysis.....	91
Table25Crosstabs would you like to use disruptive technologies in future healthcare systems.....	92
Table26Crosstabs Would you like to use disruptive technologies in the future.....	93
Table 27 Results of the Descriptive Statistics for Gender.....	94
Table 28 of the Descriptive Statistics for Age.....	95
Table 29 Results of the Descriptive Statistics for Education.....	96
Table 30 Results of the Descriptive Statistics for Work Experience.....	97
Table 31 Results of the Descriptive Statistics for Job position in the company.....	98
Table 32 Results of the Descriptive Statistics for training	99
Table 33 Results of the Descriptive Statistics for training.....	100
Table 34 Results of the Descriptive Statistics for solution of ERP system.....	101
Table 35 Results of the Descriptive Statistics for what is the disruptive technology for you.....	102

Table 36 Results of Descriptive Statistics Regarding disruptive technology.....	88
Table 37 Results of the Reliability Analysis.....	103
Table 38 Kruskal-Wallis H test.....	104
Table 39 Crosstabs Do you believe that disruptive technologies will help detect and remedy.....	105
Table 40 Diseases in healthcare. Analysis.....	106
Table 41 Crosstabs developing new products or services analysis.....	107
Table 42 Crosstabs to increase the quality of products and services analysis.....	108
Table 43 Crosstabs to facilitate business processes analysis.....	109
Table 44 Crosstabs to ensure the development of healthcare technologies analysis.....	110
Table 45 Crosstabs to What do you think about the technology (ERP) system used within the company. Is it an effective and useful system? Analysis.....	111
Table 46 Results of the Descriptive Statistics for Gender.....	112
Table 47 Results of the Descriptive Statistics for Age.....	113

Table 48 Results of the Descriptive Statistics for Education.....	114
Table 49 Results of the Descriptive Statistics for Work Experience.....	115
Table 50 Results of the Descriptive Statistics for The ERP development and implementation goal / vision?	116
Table 51 Results of the criteria for choosing an ERP system.....	117
Table 52 Results of the Descriptive Statistics for strengths of the ERP System.....	118
Table 53 Results of the Descriptive Statistics for what positive processes did you encounter during the planning process during system integration.....	119
Table 54 Results of the Descriptive Statistics for typical activities occurring at project management levels, functional levels.....	120
Table 55 Results of the Descriptive Statistics for most important factors in the successful integration of the system.....	121
Table 56 Results of the Descriptive Statistics for biggest challenge in successfully integrating the system.....	122
Table 57 Results of the Descriptive Statistics for Which do you think should be done after integration in order for the technology to be sustainable (3 most important answers should be chosen)?	123
Table 58 Results of the Descriptive Statistics for trainings.....	124

Table 59 if the answer is yes; who planned the training and who facilitated it? Results of the Descriptive Statistics for trainings.....	125
Table 60 if the answer is yes; if the answer is yes; what were the main difficulties in the training process?	126
Table 61 in the system implementation process; what are the biggest challenges or challenges in managing change (3 most important answers should be chosen)?.....	127
Table 62 in the system implementation process system implementation process; strengths of change management (3 most important answers should be chosen)?.....	128
Table 63 Results of the Descriptive Statistics for trainings.....	129
Table 64 Results of the Descriptive Statistics for trainings.....	130
Table 65 Results of the Descriptive Statistics for trainings.....	131
Table 66 Results of the Descriptive Statistics for trainings.....	132
Table 67 Results of the Descriptive Statistics for Cumulative IT employees and Managers.....	133
Table 68 Results of the Descriptive Statistics for Cumulative Company and Healthcare Employees.....	134
Table 69 Results of the Descriptive Statistics for Cumulative Top Managers.....	135

LIST OF FIGURES

Figure 1 the Value Chain.....	24
Figure 2 Five Forces Model.....	26
Figure 3 Generic Strategy.....	27
Figure 4 Management of Technology.....	30
Figure 5 Framework for Strategic Technology Management.....	31
Figure 6 ERP System.....	34
Figure 7 Flow Chart of ERP Implementation.....	36
Figure 8 ERP Supports at All Levels of Management.....	39
Figure 9 Commonalities and Differences Across IS and TAM Models.....	48
Figure 10 Integrated Technology Implementation Model (ITIM).....	49
Figure 11 The Research Participants.....	64
Figure 12 The Research Likert-type Questions.....	66

LIST OF ABBREVIATIONS

NRC	National Research Council
MOT	Management of Engineering
CRM	Customer Relationship Management
SPSS	Statistical Package for the Social Sciences
SCM.....	Supply Chain Management
HRM	Human Resources Management
MRP.....	Material Requirements Planning
IS.....	Implementation Science
ITIM.....	Integrated Technology Implementation Model
TAM.....	Technology Adoption Models
R&D.....	Research and Development

1. INTRODUCTION

Healthcare companies select on their technologies set of specific requirements. These criteria include many factors, such as the company's efficiency, the application process, price, strategic superiority, database compatibility, and improvable modules. The most crucial factor is that technology's superiors must compete in the market. In addition, healthcare companies choose technologies that will only gain technical superiority over their competitors in the market. This situation can provide a technical advantage in the marketplace. However, this competitive technological advantage may not always be achieved within the company.

Healthcare companies face many difficulties in the process of implementing technologies. These difficulties generally involve many technical factors such as lack of technical knowledge, incompatibility of modules, bugs and software. In technology's application process, only solving technical problems is not enough for an efficient implementation process.

Healthcare technologies have been chosen their technology to obtain technically advanced and provide an advantage in the market. However, the comprehensive perspective suggests that harmonizing technology management between social and technical contexts should be suitable for implementing technology efficiently and gaining an edge in the market.

Today, many different theories have been developed which contribute to social contexts as well as technical contexts in the implementation of the technology process. All theories investigate whether the technology is being used in companies compatible with social (culture, characteristics, adaptation, others) impacts, and

company characteristics. Especially in recent years, basic models have been designed to reduce healthcare technologies' technical and social problems.

These models aim to find solutions in both technical and social contexts in the implementation of technology. In this way, models purpose to give organizations a strategic advantage. The harmonious implementation of social and technical contexts in the model enables companies to speed up their operations and processes, reduce their technical & social problems. Technology management in healthcare companies is critical to understanding the technology need of company employees and the dynamics affecting the healthcare market.

On the other hand, healthcare companies use ERP technologies in their infrastructures to manage and develop their data in a single system. ERP technologies enable companies to control data from a single system. It also helps data processing, extraction, and reporting. ERP systems are essential for healthcare companies. ERP technologies provide companies with the necessary reporting for long and short-term strategies. In this way, the company measures the efficiency of its internal and external functions.

Thus, disruptive technologies are used in the healthcare company in Turkey. The primary purpose of these technologies is to provide efficiency, security, and optimization in healthcare systems. In addition, disruptive technologies improve the cure, treatment, and operations of diseases in healthcare systems.

This study analyzes that Turkey's most prominent healthcare company that adopts disruptive and ERP technologies in its systems, employees' initial reactions to disruptive technologies and a healthcare company's attitudes in Turkey. In addition,

the companies' social and technical contexts' weaknesses and strengths in the implementation technologies are examined with the ITIM model.

Furthermore, this study aims to ensure that disruptive technologies can be applied effectively to healthcare systems. This study is also to examine companies' social and technical reactions to disruptive technologies as a whole. These results give companies that want to apply disruptive technologies to their technology structures a unique perspective and guideline handbook. Moreover, there are many social and technical challenges in disruptive technologies' implementation processes. When analyzing the literature, only the technical challenge of disruptive technologies' effects on the market has been investigated. This study also criticizes the social effects of disruptive technologies in the implementation and post-implementation process in the healthcare company. Ultimately, disruptive technologies are used in Turkey's healthcare systems recently. This study presents innovative solutions and recommendations to companies that desire to apply disruptive technologies to their systems.

The first part of the study consists of the conceptualization and development of technology in general. In addition, the second part of the study explains technology history. The third part of the study is strategic management. In the fourth part of the study, describes the basic principles of designing ERP systems. The fifth part of the study explains the concepts and models required for disruptive technologies and effective implementation processes in healthcare systems. The sixth part examines ITIM model's internal and external contexts. The seventh chapter explains methodology. Finally, the eighth chapter explains the result and limitation of the thesis.

2. TECHNOLOGY

1.1 Technology Definition

Technology defines in many ways from the past to the present. Firstly, in the pre-Greek period, the concept of technology began to be understood, and its concept discuss. After these researches, the concept of "Techne" emerged from the philosophers in the pre-Greek period. According to Skrbina (2015), in the work of pre-Socratic Greek philosophers, we first understand the idea of (divine) order from the word "Logos," meaning the principle of life expressed in the sense of "Techne."

Technology started with the first explanation of Plato and Aristo (techne) word in the philosophy of knowledge (İşman, 2001). According to Plato, real knowledge has existed since human existence. It has never been connected with the outside world. However, Aristotle mentions that the outside world affects real knowledge. The individual analyzes the real knowledge of the external world, and his existence occurs through external learning.

On the other hand, according to Aristotle, technology is defined as an imitation of nature. Aristotle's idea is that, technology's creativity and technical knowledge are applied as an imitation of nature's external knowledge. These two simple ideas will form the post-modern definition of technology in the future.

Technology has also included many different definitions and fields. Besides, Technology has also been incorporated into the concepts of other areas. This situation has led to the technology being studied by researchers in different fields. These researchers come from different fields such as economics, sociology, political science, anthropology, business, and technology management (marketing and others).

Different technology definitions are below:

According to Kumar Al (1999), technology identifies consists of two main components: (1) a physical component of goods, materials, machinery, designs, techniques, and processes; and (2) an information component of know-how in management, marketing, production, quality control, efficiency, skilled labor, and functional areas.

Carl Mitcham (1978) identifies technology as a human creation, and it uses material artifacts in all forms and aspects.

According to Alkan (1998), technology generally refers to the functional structures required to master nature using the acquired skills. Technology also creates practical ways to dominate nature, using skills acquired in the most general sense.

Mascus (2003) defines technology as the knowledge required to achieve a particular production outcome from the methods of combining or processing certain inputs, including production processes, in-house organizational structures, management techniques, financing tools, and financial instruments.

Technology is a set of systems that progress with cumulative information. It also shapes people's lives, products, societies, and machines. Technology will continue to develop in all system structures and new systems in the future. Today, organizations use technology effectively for environmental competition and the processes of the organization. Technology is defined as organizations' technical knowledge, the collection, classification, processing, distribution, and management of factual data. Technology is also one of the essential functions of reliability, right time,

convenience, efficiency, and cost, which are used in all decision mechanisms of organizations.

1.2 Technology and Organization

Organizations are synchronous, harmonic, and holistic structures separated according to the organization hierarchy's particular characteristics and qualities. These structures constitute a management function, and they cover the systems in the formation of coordination and holistic decision chains. The primary purpose of organizations is to generate a "value." This value is the totality implement of all processes from the organizations chain's first structure (input) to the end (output). Technology is one of the most influential bands in this process, and technology offers time, space, process, cost-effective, and competitive advantage in organizations' internal and external processes.

Technology affects certain groups and structures inside and outside organizations:

- Customers
- Employees
- Managers
- Management mechanisms
- Competitor analysis
- Supplier

Technology performs an essential process in companies' production processes, management functions, and decision support mechanisms. Technology helps

companies gain an objective, holistic, and strategic perspective by improving their data and information system infrastructures.

Among the development of information systems, managers actively use technology to enhance operational, short, and long-term strategies in all decision support structures. These technologies are an example of CRM, MIS, DSS, and DMS. Organizations' technologies change according to their structures, needs, qualifications, growth, and innovations. In addition, disruptive technologies in organizations that show an innovative approach are as significant as such technologies.

Common and disruptive technologies make human life more comfortable and continue to support organizations in making business, efficiency, speed, service, decision support, and cost reduction. These technologies can define in general terms: artificial intelligence, machine learning, robotic or cloud computing, smart sensor, IoT, sustainable energies and ERP. Those technologies' sustainability represents a significant role for companies in many areas, such as strategic management and competitive advance.

In addition, managers provide the leading role in the sustainability, integration, and change management of these technologies. Managers' management style and control of all technical processes in the organizational structure can adapt to technology more quickly and effectively in an organization. Consequently, the management of technology in organizations changes the managers' specific qualifications and leadership characteristics. The manager plays the most significant role in the sustainability and development of technology in organizations.

1.3 History of Technology

Technology has manifested itself since the existence of human history. The role of technology in every period of civilization cannot be neglected. Many researchers examine that one of the main reasons for the establishment and development of civilizations is the cumulative advancement of technical knowledge and its application according to need. This process, which started with the tools to collect and use consumables in antiquity, has reached disruptive technologies today. Technology is a cumulative and iterative structure. It reflects the knowledge and creativity developed in every period of human history compared to the previous one.

The growth and development of civilization technologically divide into four (4) periods:

- Paleolithic Period
- Agricultural period (Neolithic)
- Industrial Period
- Digital Age

Each era has a profound point in the acquisition and development of technical knowledge. Social, cultural, political, economic, or social reasons within the periods constituted the main problems in developing technology, whether necessary or scientific.

The development of technology divides into four (4) periods below:

Paleolithic period (Hunter-Gatherer): People are immigrant communities that make a living through hunting and gathering. The habitats of these communities are under rocks or sheltered caves. Primary sources of life were herbivorous foods and wild animals. In this period, all technologies developed for food and hunting applications

in daily life. Therefore, human technologies consisted of flint tools and other workable stones and animal bones and horns.

In addition, these tools include hand axes, stone knives, scrapers, arrows, and spearheads. In this period, the use of technology was the most primitive and developed.

Agricultural period: It is the first period of transition from nomadic life to settled life in the Neolithic period. Communities earn their living from agriculture and animal husbandry during this period. It was ensured that agricultural tools and natural elements, which are the most critical needs of settled life, were recognized for processing. The foundations of technologies for settled life were laid. Another feature of this period is that, it was the first period in which wind and water energy were used. Wind power, dams, water technologies, and others can exemplify these technologies.

The technology and technologies used in this period have formed the economic and social structures of today. Information about settled life in the Neolithic period also plays a vital role in developing agriculture and urbanization technologies. The Neolithic period's continuous development creates raw food and nature teachings and technologies produced for agriculture and nature design.

The Industrial Period: The period that begins with the search for steam and mechanical energy is called the Industrial Revolution. The industrial revolution is called the most remarkable era in the accelerating development of technology. In this age, industrial technologies produce large buildings. This period was primarily due to the change in the political and demographic structure of the period. With the collapse of the feudal structure, the party's orientation to new business lines, rapidly industrializing cities, migration waves, increasing population producer costs, and

extra expensive units emerged. Manufacturers were also insufficient in the face of the increasing costs of the labor force required in production and industrial products. This situation could not be met with the existing workforce and production lines.

With the discovery of steam and machine technology, the industrialization required for the production of products with high efficiency, time, and market demand has occurred. The world has met the mass production concept of every product on the production line. When the technology revolution first emerged, transportation by railways and industrialization developed positively. The construction of the railways facilitated transportation and access to raw materials. Manufactured products are located in a single market and spread over more expansive areas and regions.

The digital era is the period that occurs when products and services are processed with information technologies. This period's infrastructure started with the discovery of information and communication technologies, hardware & software, and the internet. It also provides speed, efficiency, unlimited communication, and information opportunities to communities and organizations.

Digitalization in production offers cost and change-based low cost, high control, easy collaboration and configuration, not experience. In addition, it allowed companies to solve their storage, data processing, and process development activities without a critical situation, without limiting the environment, time, and space.

The Digital Age is divided into four (4) different phases. These stages are described below.

The digital era is the period that occurs when products and services are processed through information technologies and data. Technology provides speed, efficiency, unlimited communication, and information opportunities. In addition, it offers low

cost, high control, easy collaboration, and configuration. Besides, it allowed companies to solve their storage, data processing, and process development activities without any critical situation, without limiting the environment, time, and space.

The Digital Age divides three (3) different processes.

The first process was the analysis and reporting of corporate information and logistics processes on a single system. The programs used in this process remained simpler and older systems than today. These computers were the only structures that could perform fixed calculations and had no connectivity features. Therefore, the systems used are the first versions of ERP (MRP) and only have stock numbers in the calculation and procurement areas. During this time, computers are only available at individual universities and workplaces.

The second process is characterized as the era of personal computers. During this period, companies wanted to expand the usage areas of computers. However, computers are the only systems that depend on the areas where they find ERP systems and more advanced than the previous step. It has been one of the most important and innovative steps of the internet age after personal computers. Personal computers play an essential role in connecting large-scale information and database systems, standard technologies, and computers.

The third process involves the development of information systems, starting with the discovery of the internet. In this process, the first communication and a heterogeneous network system are established. This communication has become accessible all over the world. Personal and business computers can be integrated into different systems on the internet. Especially with the establishment of ERP, application systems (customer relationship management, supply chain management, material requirement

planning, automation systems, and human resources management) support business processes and inter-agency activities and create interconnected systems.

1.4 Technology and Society

Society briefly; Human relationships and connections as a whole and any community of human creatures can persist. The most accurate form of social existence and social interaction is that individuals communicate and interact with themselves and their environment. With the development of information systems and technology, these interactions have become cheaper, more convenient, reliable, and faster. From a technological perspective, the information society plays an ever-expanding role in technology since information and telecommunications.

The historical process, technology has affected all structures and infrastructures of societies. However, the most critical importance of information systems and technology emerged in this period. The rapid development of technology has created techno cities, rapid integration, and innovation. It caused this age to be called the Information Society. The Information society tries to explain many different concepts in the literature. These are postmodern society, information systems society, post-industrial society, network society, information post-capitalism, network capitalism, etc. The primary purpose of these definitions and theories is how information technologies affect all aspects of society and technology shapes society in the following processes.

Economist Fritz Machlup was one of the first social scientists to develop the concept of a knowledge-based (Information society) society. He introduced the idea of the information industry in his groundbreaking work "Production and Distribution of

Information in the United States" (1962) by distinguishing five sectors of the information industry:

- Education
- Research and Development
- Mass media
- Information technologies
- Information services

Technology is part of an organic system. Technology has many benefits in communication, improving industrial life, and living acceptable standards and business conditions. Information societies do not use technology, only industrial structures. It also exists for accessibility and applicability in every aspect of societies' lives. Knowledge becomes the core and shared value of society.

1.5 Technology and Globalization

The transformation of the world into a single global market, workforce, capital, and national market brings globalization. Globalization, which started as a modern phenomenon with the emergence of post-capitalism, post-industry and technological growth, can also be defined as the international economies, individuals, economic structures, and cultures. Globalization has gained momentum, especially with the development of new technologies.

Continuously in the post-capitalist era, the technology existed only in production. These productions were generally technologies for the needs of the market and

capital. In addition, the technologies produced only had a regional dominant spillover effect.

The relationship between globalization and technology occurred with the rise of global capitalism and the rapid emergence of new information systems that came with it. These technologies are related technologies such as personal computers, internet, web applications, and satellite communication networks .In addition discovering the Internet, borderless network societies were formed, and the world saw the first dimension of globalization.

With globalization in modern capitalism, the dimensions of the economy conditions are also changing. The high availability of technology, price, and product comparisons in the market has increased the production and supply chain and led to higher competition levels. Firms or businesses with a domestic and traditional structure can compete with modern capitalism and technology. Using technology features in product promotion, supply, time, speed, and accessibility, companies went one-step ahead of the competition. However, many domestic companies could not compete in today's market because they could not use the technology's commercial structure correctly.

The competition of companies is production and product-oriented and is measured by technology and competitive advantage. Companies must develop technology to maintain their position in the international market with the market's needs and changes.

In this case, businesses need to design their strategies to equate their global competitors' costs globally. Analyzing the essence of developments in technologies,

creating technologies for the current market's needs, or producing new technologies (disruptive technologies, others) can be achieved through sales.

Besides, information technologies used with globalization benefit companies in efficiency, cost-effectiveness, accessibility, time, and space. Firms need information technologies in all processes from input to final output. In the global world, information technologies constitute one of the foundations of companies' existence.

Globalization is a dilemma concept. Many researchers examine about the pros and cons of globalization. However, globalization is the building block of today's economic system. Globalization has a rhythmic structure, and the development of technology that accelerates in global business lines and technologies has been experienced. Developments in transportation systems have enabled faster and developments in information systems have created new business lines such as electronic commerce, digital marketing, mobile banking, and financial technologies. Improvements in transportation and information system initiated new paths to existing business lines.

Technology affects every aspect of our lives, from societies to the global economy. This far-reaching impact of technology represented an essential role in the development of companies' strategies. For this reason, companies also develop technology strategies suitable for their market positions.

3. STRATEGIC MANAGEMENT

Today, organizations are more complex, competitive, and more threatening by environments. Therefore, organizations' attention is directed towards adopting new environmental conditions and challenges. In this sense, strategic management offers opportunities and solutions to companies where they can achieve this harmony. Another primary purpose of strategic management is to generate strategies that will least damage the course life cycle and develop companies according to changing processes.

Strategic management is the whole of strategies developed to achieve the environmental and organizational goals of companies. This concept has been acquired over the years with different variations. Therefore, there are many ideas in terms of strategic management in the literature.

Nevertheless, in general, strategic management is divided into two ways:

- Internal (organizational) strategic management
- External (competitive) strategic management

3.1 Internal (Organizational) Management

Companies set long-term goals to achieve their missions from the moment they are designed. Organizations have set up organizational management for people to achieve these goals. The organization plans to organize people from the least to the most comprehensive, configure, change, and control them. On the other hand, technology has recently been added to these processes of organizations. Technology is becoming one of the main parts of this process in organizations. Therefore, managers develop a

management understanding of technological change perspectives. In general, companies managed by centralized systems are less successful in change management and technology implementation. Centralization fills various solutions and solutions for how the technology reacts to transformation or offers multiple options. Management coordinates the various parts of an organization. However, companies are unlikely to be managed with centralization to achieve optimum results and efficiency in functional specialization, integration, and coordination. Thus, centralization significantly reduces the development and applicability of companies. Centralization management cannot provide the best results in managing change processes. With centralization, managers have not been able to solve the problems of intermediate layers in technology change. The management model removes the basic structuring in finding solutions to inter-layer problems and communication, hierarchy, and many problems such as efficiency, usage model, compatibility, complexity, and other existing or developed technologies. Centralization also ensures that no solution can be found on how management can avoid emergencies caused by technology change. For this reason, companies cannot choose a central management and strategy model.

In the last decades of the last century, companies have evolved from a nonfunctional orientation to a multifunctional orientation (Ansoff, 1987). This strategic multifunctional orientation was the beginning of the company's management in organizational changes such as production, marketing, purchasing, research, engineering functions, attitudes, skills, decision-making, information systems, information distribution, corporate culture, organizational structures, and logistics practices. Implementing into multifunctional structures or strategies has created a new

function for organizations to manage technology, change, and create new business opportunities (Ansoff, 1987).

On the other hand, multifunctional strategic orientation results from the combination of many different strategies or perspectives in decision-making mechanisms.

Functional strategic orientation decision-making mechanisms ensure that the management does not have a monopoly structure but that all processes are collective. Strategies are not just a point, and many different factors determine strategies. Therefore, a functional strategic orientation enables forward-looking company strategies to deliver results that are more accurate. Multifunctional strategic orientation is critical in change management.

Companies need to use such a strategy to be aware of their culture, response to change, technology use patterns, and attitudes towards change. The flow and distribution of information are fast and decisive in the multifunctional strategic orientation. In this way, multifunctional strategic orientation can provide immediate solutions to operational problems. Instead, employees in tactical and strategic areas have sufficient knowledge of the direction of change and react to it. In addition, a multifunctional strategic orientation ensures effective communication between management and employees. Therefore, planning change management and working on forward-looking strategies enables us to develop solutions to current or future problems. Multifunctional strategic orientation is one of the main perspectives of today's management approach. This model provides convenient and fast solutions in terms of company management and internal competition. Thus, Jay Barney's Resource-Based Viewing approach is the best known of this multifunctional strategic orientation. In this article, Jay Barney organized a unique forum on his Resource

Centered View (Barney, 1991). In Barney's special edition article, he examines how sustainable competitive advantage stems from the sources and capabilities of healthy, unique, imperfect imitation and unwavering firm power. These tools and capacities can be viewed as tangible and intangible packages, including a firm's management organizational processes, firm attributes, information, knowledge, technology resources.

According to Barney (2001) approach, resources (capabilities) define the technology, data, knowledge, experience, and location to generate efficiency and effectiveness; the firm must find competent and correct subjects that it deems superior. Not all sources of consensus are equal. Resources must be unique and inimitable to create sustainable competition. In addition, companies rely on their competitive advantage.

3.2 External (Competitive) Management

Firms use technology to add effective and efficiency to their services or products to gain a competitive advantage over their competitors. Here, Companies need to develop external (competitive) strategy management to manage all strategic management processes. The technology strategy accepts three essential elements.

These:

- Competitive Position
- Value Chain
- Five Forces Model

3.2.1 Competitive position

A competitive position is an analysis of product and market relationships. Each product is compared environmentally with its competitors, and a profile emerges accordingly. Thus, the main points of the steps and structures required to improve competition, costs, and marketing are determined. The most crucial point is that the company focuses on the next step and development rather than its performance.

The model developed by Michael Porter first examines the shape of trade and product. Then, competitor analysis of the needs (price, product features, quality, and others) required for competition in the market is made. With these features, the answer asks whether the firm meets the needs of the market. This process is the calculation of the company's market position and configuration. Competition analysis shows companies' differences from their competitors in the market and the areas where they can compete. Technology plays a vital role in today's trade volume and competition. Especially the development of information technologies; Expanding the availability and application of information makes technology an indispensable competitive factor for companies. According to the development process of technology, the competitive advantage is not the one with technology, but the growth and transformation of developing companies into a different structure. Organizations continually invest in the improvement and usefulness of existing technologies to gain a competitive advantage, which is a primary priority of today's competitive advantages.

Companies need to use their core capabilities in order to compete in the marketplace. Moreover, they reveal their differences in the market competition gratitude to their core capabilities. Many different theories describe the necessary competencies based on this context, but the most known of these is a core competence.

Core Competence is a term initially proposed in management theory by two company authors (Prahalad & Hamel, 1990). In their view, core competence is a specific

feature that an organization sees as fundamental to the way the company or its employees work.

There are three main criteria:

- Competitors are not easy to imitate.
- Many commodities and markets used.
- It should contribute to the conclusion that consumers experience benefits.

Core competence can take different forms, such as technical/subject knowledge, a reliable process, and close relationships with customers and suppliers. Employee engagement can also include product development or culture, such as human resources management (HRM), standard market coverage, or kaizen or continuous improvement. Core competencies are specific strengths compared to other industry organizations that provide the necessary foundation for benefit. Core competencies reflect an organization's collective learning and include coordinating various production skills and integrating multiple technology streams. In addition, Core competencies include communication, engagement, and a deep commitment to working across organizational boundaries, such as developing cross-functional teams within an organization to overcome boundaries. Core competence arises from a specific set of skills or manufacturing techniques that add value to the customer. These allow an organization to access a wide variety of markets. An article titled "The Core Competence of the Corporation" (Prahalad & Hamel, 1990) shows that core competencies lead to the development of core products that can use more to create many products for end-users. Competencies are developed through a continuous improvement process over time, rather than one significant change.

3.2.2 Value chain strategy

The factors that shape the technology strategy are integrative and productive forces inside and outside. These powers are related to nature, business, strategic decisions, and the organization's technological growth (Burgelman et al., 2001). The most fundamental combination of this interaction is Michael Porter's (1995) value chain analysis. The value chain shows the production capacity and quality of an organization. In this way, it becomes a critical component in strategic competitive analysis. According to Porter, value analysis has been examined in five (5) main activity categories:

1. "Inbound logistics. Exercises for the acceptance, removal, and distribution of the item include fabrics for storage and stock management.
2. Transactions. All the exercises are required to convert inputs into returns. Moreover, the required capabilities include dignity, such as processing, grouping, aggregation, utility, testing.
3. Outbound logistics. It should contribute to the result that consumer's experience. All exercises must collect, store, and physically distribute efficiently. This action could show that it is surprisingly necessary to generate reputation and advance segregation. As with many jobs, control over dissemination methodologies is a critical source of competitive advantage, mainly because reputation is up to 50%. It becomes close to extreme buyers done in numerous industry chains.
4. Showcase and opportunities. It is the practice of advising potential buyers virtually on the firm's products, management, and encouraging them to do so through individual offers, promotions, and promotions. The meaning of raising

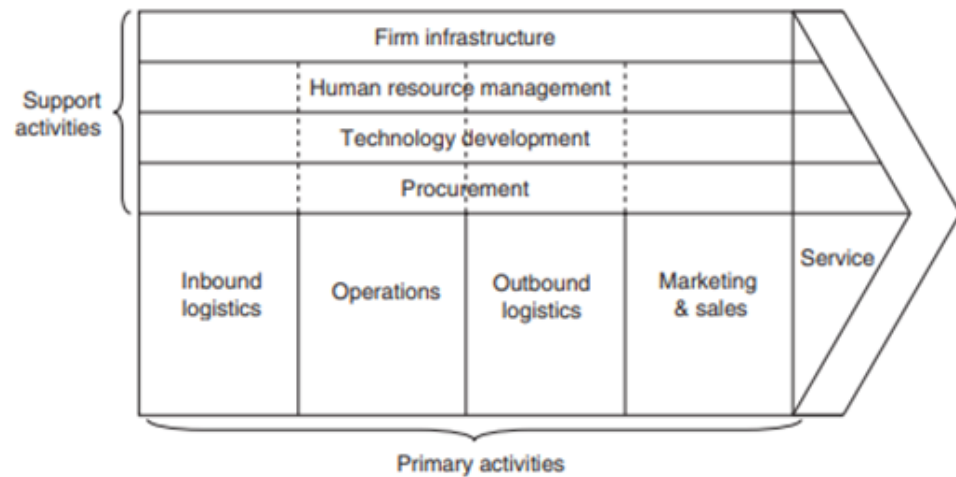
physical item highlights through aftermarket utility, installation, and repair.
 "(McGee, 2014).

Primary activities are directly related to the physical presentation or delivery of a service product and are linked to supporting processes that increase their effectiveness and impact. Primary activities directly add value to inputs and turn them into desired products and services in line with customers' demands. The second part of the value chain is the auxiliary structures (labeled support activities) that facilitate the value chain. Porter's method is further divided into procurement, human resource management, technology development, and firm infrastructure.

1. Firm infrastructure: consists of many activities that support the operational aspect of the value chain, including general management, planning, finance, law, external relations. Firm infrastructure in a non-diversified firm or divided between the parent and the firm's founding business units.
2. Human resource management: comprising all exercises, including selecting, recruiting, preparing, creating, performing, and validating its members.
3. Technology development; it is related to hardware, equipment, computer program, and special abilities. The company uses technology to convert inputs into efficiency.
4. Procurement: The concerning of inputs or assets supplied. Procurers get something within the firm, although it is usually the purchasing department's work requirement."(McGee, 2014).

Figure 1

The Value Chain



Source: Porter, M.E. (1985) *Competitive Advantage; Creating and Sustaining Superior Performance*, the Free Press, New York

The production and development of technology is an integral part of the value chain. Technology management is organizations' value chains, as technology helps organizations at every stage of production without time and location constraints. Technology management is essential part of the value chain to evaluate investment sources, differentiation, product control, quality, and feedback. In the value chain, all the links of the process are intertwined. These circles affect the whole process, from production to customer feedback. Therefore, all external and internal processes interact with each other. All these processes are aimed to manage the company correctly. In addition, full control is required to shape the value without errors and with the desired output. Technology is critical part in these controls.

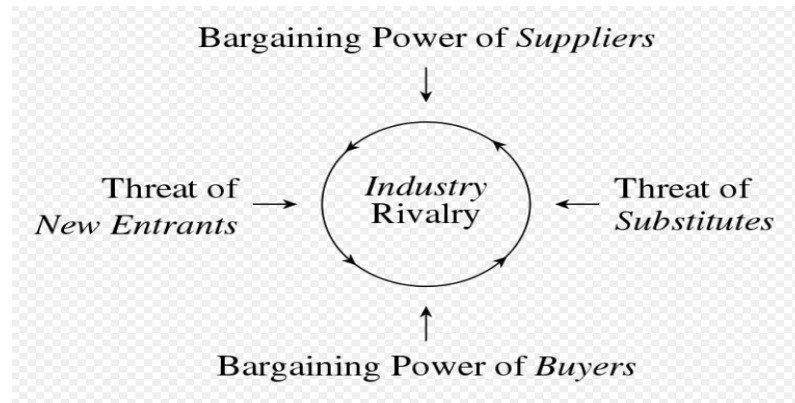
3.2.3 Five forces model

Porter defines strategy as the process of determining what point businesses should reach in the future and deciding what will lead to divergence (Porter, 1980). When businesses develop and implement these strategies correctly, strategies help gain and maintain a competitive advantage (Porter, 1985). Competitive advantage in non-profit and profit-oriented businesses is achieved by developing the right strategies and sustaining corporate success (Jiri, 2014). Strategic management's main task is to select potentially highly profitable industries by analyzing five factors, including suppliers, buyers, current competitors, alternative products, and new entrants. Businesses should choose one of the strategies as their competitive strategy based on their strength.

1. Bargaining power of suppliers
2. Bargaining power of buyers
3. The threat of new entrants
4. The threat of substitutes
5. Competition of existing competitors in the industry

Figure 2

Five Forces Model



Source: [Porter, M.E.](#) (January 2008) The Five Competitive Forces That Shape Strategy, Harvard Business Review.

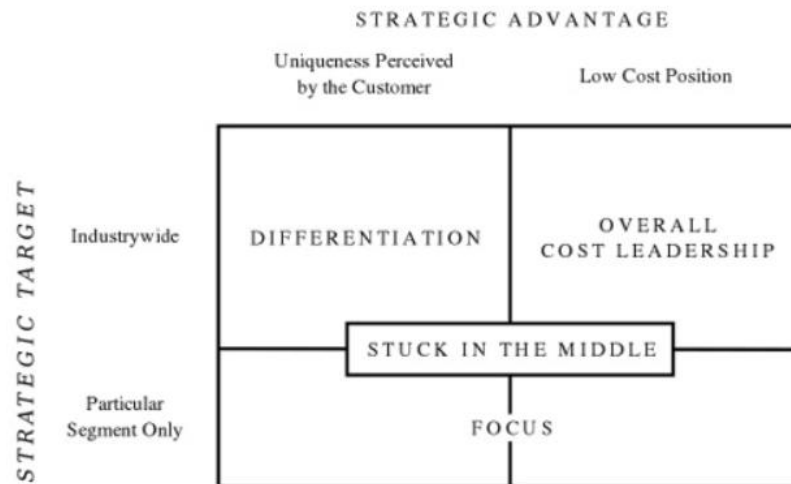
According to Michael Porter, the five forces model is a standby to potential competitors. The effects that will negatively affect the competitive power of companies should minimize. Hence, companies' bargaining power between suppliers and customers is a factor that businesses must take into account in gaining competitive advantage and the current business environment. Thus, customers buying and selling behaviors and numbers are determined (Porter, 1997).

3.2.4 Generic Strategy

Companies need to provide differentiation to increase their business performance or produce low-cost products, or maximized product lines or services. Competitive strategies and tactics have a powerful impact on company performance. According to Porter, competition strategies are focus on niche, differentiation, and cost leadership (Bordean et al., 2010). Porter examines that these three different strategies help achieve sustainable and competitive advantage in entirely different ways. Businesses who want to more successful must choose between promotional strategies (cost leadership, niche, and differentiation). Porter's strategy applies in many dimensions, such as product, market, quality, image, service, and technology (Amoako-Gyampah & Acquah, 2008). In addition, Porter's differentiation strategies develop new technologies or change existing technology in terms of size, shape, and function. Porter's general strategy has shown that the change in technology's competitive strategies is vital. Nowadays, the labor market makes conceivable to give many examples of businesses that have successfully implemented a technology strategy. For example, Wal-Mart and Air Asia proceed to cost leadership, Mercedes Benz creates brand differentiation and Dominos Pizza uses technology service differentiation and Apple technology design differentiation for technology (Baroto et al., 2012).

Figure 3

Generic Strategy



Source:15writers.(n.d.). A Review of Core Generic Strategies. 15writers.Com. Retrieved January 25, 2021, from <https://15writers.com/student-resources/porters-generic-strategies/>

Porter (1980) defines low-cost leadership as its ability to produce at the lowest cost than all other industry competitors. On the other hand, the differentiation strategy aims to gain a competitive advantage through unique products and services that businesses obtain by highlighting distinctive elements such as innovation, high technological adaptations, ease of use, prestige, quality, and trust (Porter, 1996).

Porter (1996) describes businesses' efforts to gain competitive advantage by focusing on narrow target audiences, such as a limited number of customers with specific needs (niche markets), a specific product category, or a small geographic area. It states that it can be influential on masses with both cost advantage and product/service differentiation. Porter (1985) emphasizes that businesses need to have a sustainable competitive advantage better than competitors and claims that sustainable competitive advantage can only be achieved by successfully implementing one of the general

strategies. Technological advances are happening rapidly, and a company needs to start with the latest innovations to remain competitive. Organizations determine technology investments and strategies by analyzing swot analysis, features, and values.

Today, technology element is one of the critical elements of competitive advantage. Porter's competitive analysis constitutes one of the basic structures of strategic technology management today. Technologies not only prioritize in-house productivity and development but also provide a competitive advantage in the market. In addition, Porter's competitive analysis offers primary levels for building a consensus in internal and external technology strategies. Porter (1985) mentions the internal and external factors of competition became to work holistically and harmoniously. In this way, Porter suggests that the foundations of his forward strategies are a solid structure.

Meanwhile, most critical levels go through the circle of consensus and quality. The internal integrity of the technology provides consensus. Following the compromising attitude of companies ensures the production and efficiency of technologies that provide a competitive advantage. With the development of technology and its use in companies' systems, new strategies have emerged. The necessity of technology management has emerged to illuminate these developments. This situation has revealed the concept of strategic technology management, which is a new strategy area.

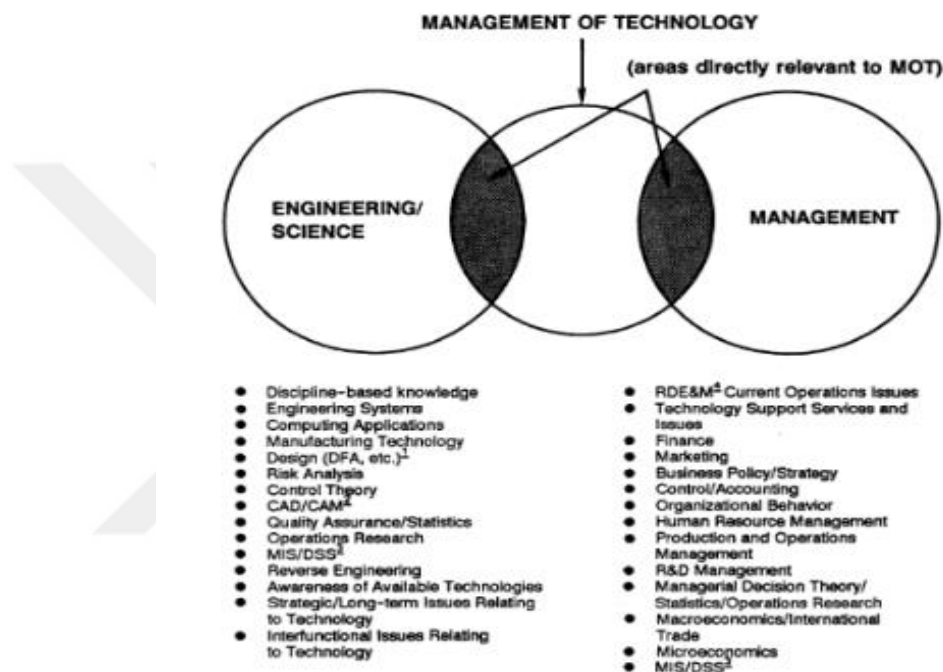
3.3 Strategic Technology Management

Technology should manage according to the business strategy of the companies. These strategies can be in various areas, such as regulating existing technologies in companies' dynamic structures or technologies that need to be developed to compete in the market. Technology management also changes future results by predicting the lifecycle of organizations' technologies and technology breakdowns that can cause significant performance or deformation without disruption. Technology strategy is one of the essential elements of strategic technology management. Technology strategy is one of the basic strategies of the same companies in developing, evaluating, planning, and maintaining technology according to their business strategies. Strategies provide information and communication flow in the operational, corporate, and management hierarchy of companies to create comprehensive management strategies for the future. Technology strategy answers companies' technologies, competencies of current or advanced technologies for competitive advantage, purchasing, marketing capabilities, and the level of technology investment that should be realized. According to the National Research Council (NRC) report, strategic technology management should consider areas where two different scientific disciplines converge. These disciplines are specified as management (management) and technical (engineering). According to the NRC, Technology must manage from a unilateral perspective and in harmony with multidisciplinary fields. MOT scopes are generally considered socio-technical in a subset of scientific fields as a whole. Instead of staying limited in the research and development (R&D) area of technology, it is necessary to develop the technology correctly in all the process functions. For this, a nutritious and comprehensive system must be established (The Hidden Competitive Advantage, 1987).

The technology management of NRC is schematized in Figure- 4

Figure 4

Management of Technology



Source : National Research Council, Management of Technology: The Hidden Competitive Advantage, Report of the Task Force on Management of Technology, National Academy of Press, Washington,1987.

Nevertheless, there are generally no common theoretical and logical frameworks for technology management (Drejer, 1997 & Phaal, 2000 & Phaal, 2004). Technology structure management in organizations; it only works with specific social controls and structures. The links are represented by the place of production, such as social and economic priorities, industrial results, and evolution - companies' structure and strategic management. (Salman, 2010).

Figure 5

Frameworks for Strategic Technology Management



Source: Salman, K. (2010). Elements of Strategic Technology Management. Oulu: Juvenes Print.

On the other hand, strategic technology management provides financing processes, decision-making, human resources; it also offers potential innovations to be managed effectively. These innovations are continuously applied to the entire structure of the organization in the short and long term.

Moreover, strategic technology management expects to provide a viable solution to overcome the confusion, uncertainty, and market dynamics generated by the technology and organization. Due to strategic technology management's fundamental role in holistic organizational strategy, deep understanding and technology, management skills are crucial to companies' decision-making and growth mechanisms. (Burgelman et al., 2001).

Competitive, economic, and social systems have become more complicated in the last century due to the increased use of information and rapid technological growth. (Salman, 2010). In addition to the complexity of structures, there has been fundamental changes in companies' mechanics and frameworks. Therefore, the patterned and energetic nature of innovation makes it impractical for companies to tackle these complex structures and adapt to developments.

Companies rely on their competencies and capabilities to quickly adjust to the rapidly changing trade and mechanical situations at the center and systematize management to tackle this complex framework. It is essential to fully control innovation and have a viable capacity in the rapidly changing competitive and commercial environment. (Ansoff, 1987).

At the same time, businesses should choose existing technologies according to their needs. Sufficiently check the selected technology's features and capabilities; the preparation, application, and training of technology should be evaluated according to the organizational structure. (Burgelman et al., 2001).

Strategic technology management is to ensure the contribution and measurability of technical areas to the company structure. For the business to compete and grow, the scope of the R&D investment determines a roadmap for how technology can be developed, and marketed. It also determines the organizational structure of the company, new technological developments, and adaptation. Technology management here is in all processes of the organization, regardless of the primary management approach.

Organizations generally implement their strategic technology management over standard technologies. In this thesis, the technologies used by the healthcare

company are divided into ERP and Disruptive technologies. In addition, Strategies give companies an advantage in the market. The internal strategic technology management of organizations affects companies' strategies in the external (macro) area. In this study, the internal impacts of the strategic technology management of the organization were examined.



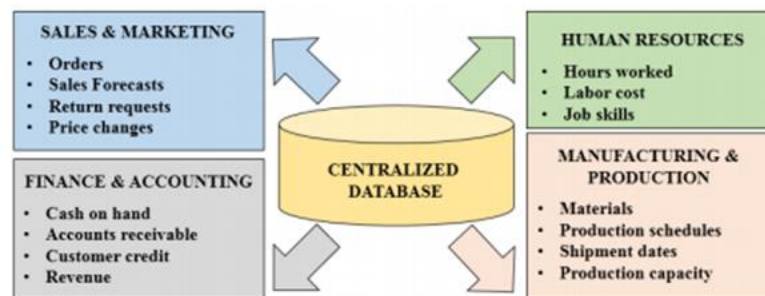
4. ERP SYSTEMS

4.1 Definition and Features of Enterprise Resource Planning

Enterprise Resource Planning, (ERP) is organizational frameworks designed to consolidate information and maintain all core organizational functions. The purpose of an ERP framework is to analyze data and increase efficiency and productivity. Figure 6 shows a single ERP with modules specified by Aldammas and Al-Mudimigh (2011). ERP is divided into four modules; (1) Sales and Marketing, (2) Human Resources, (3) Finance and Accounting, (4) Manufacturing and Production. All of these modules are coordinated by one central database.

Figure 6

ERP System



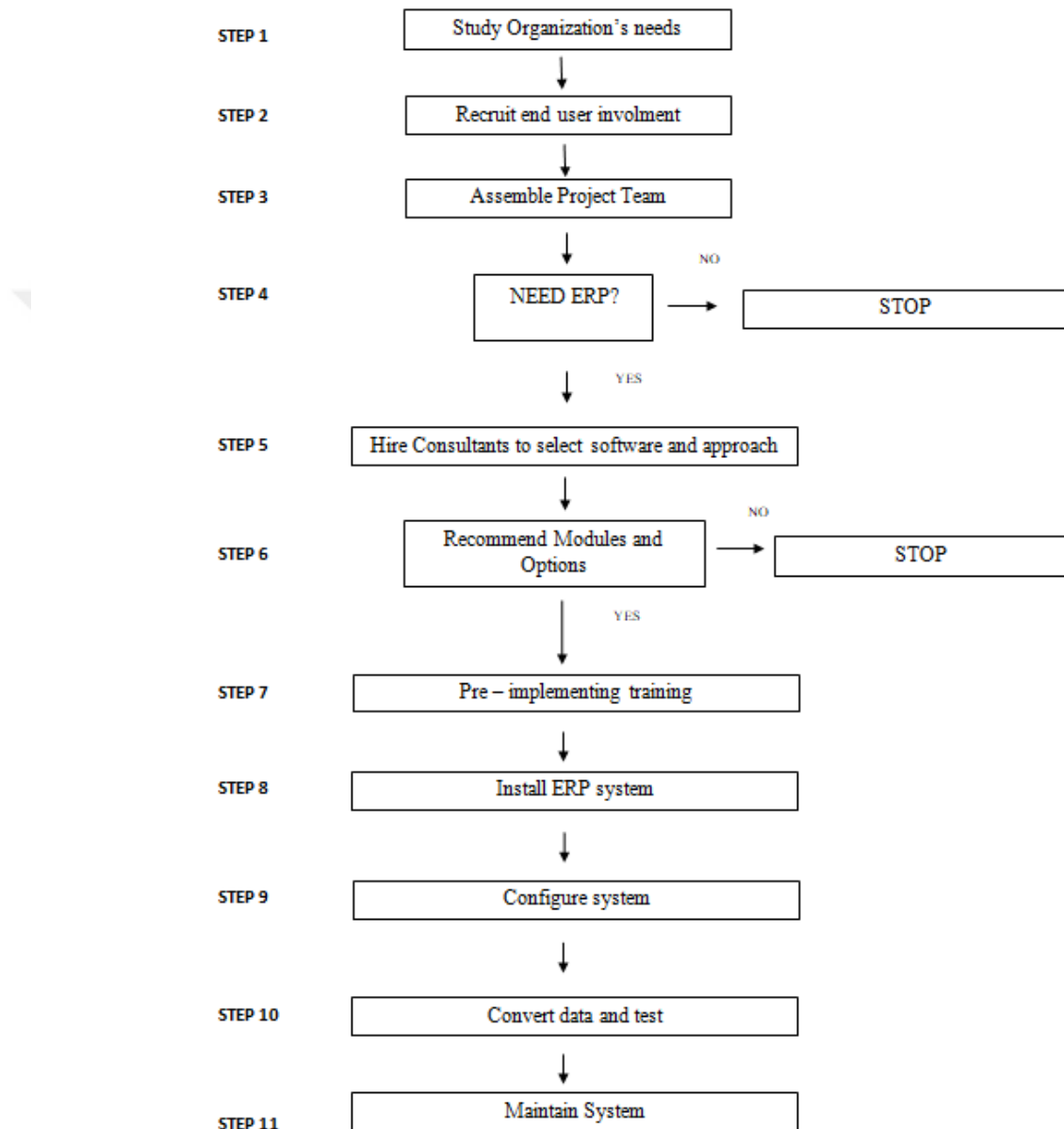
Source: Kumar, Vinod, & Bharat Maheshwari, &Uma Kumar. "An investigation of critical management issues in ERP implementation: empirical evidence from Canadian organizations." *Technovation* 23.10 (Oct 2003): 793-807.

In line with Kumar (2002), ERP is a program engineering that strengthens the flow of information between different single structure capacities. ERP strengthens information trade through organizational structures, and geographic areas make a difference. ERP selection creators also decipher the subtle elements they need in a convenient, precise, and reliable way from an enterprise-wide perspective. At the center of the ERP computer, the program initiative is a central database that transmits and feeds information to hidden applications running at the computing stage of a nascent database, then standardizes trade forms and information definitions in a single environment. Whether information technologies create value in businesses is a controversial issue today. Institutionalized companies transfer their resources to the right information technologies while allocating and planning.

On the other hand, according to Gambling (2010), has been shown that the functioning stages of an information system generate an effective ERP system while setting up information systems and helping companies make the best use of information technologies.

Figure 7

Flow chart of ERP implementation



Source : Pramod Kumar et. al. / International Journal of Engineering Science and Technology Vol. 2(7), 2010, 3218-322

4.2 ERP Types

ERP allows many different modules to function. This method divides into forms and uses. These are;

Supply Chain Management (SCM)

SCM is one of the business's most time-consuming and dynamic procedures. This module, which maintains all supply chain processes from purchase requests to stock management, from price quotes to inventory management, ensures supply chain management is smooth and effective.

Customer Relations Management (CRM)

This module intends to help companies develop better relationships with their customers. The module deals with all CRM operations, from monitoring sales and buying, sales, and revenue opportunities to customer contact.

Human Resources Management Module (HRM)

ERP system's HRM module will analyze and advance the HR management process while increasing performance. This module's functions include employee management, attendance and leave management, HR audit management, and entry/exit management.

Material Requirements Planning Module (MRP)

The module that automates the production process includes production planning, scheduling, materials billing, arranging, machine, labor management, production order, work order, inventory management, manufacturing warnings, exception handling, and MRP procedure sophistication.

Project and Costing Management Module (PCM)

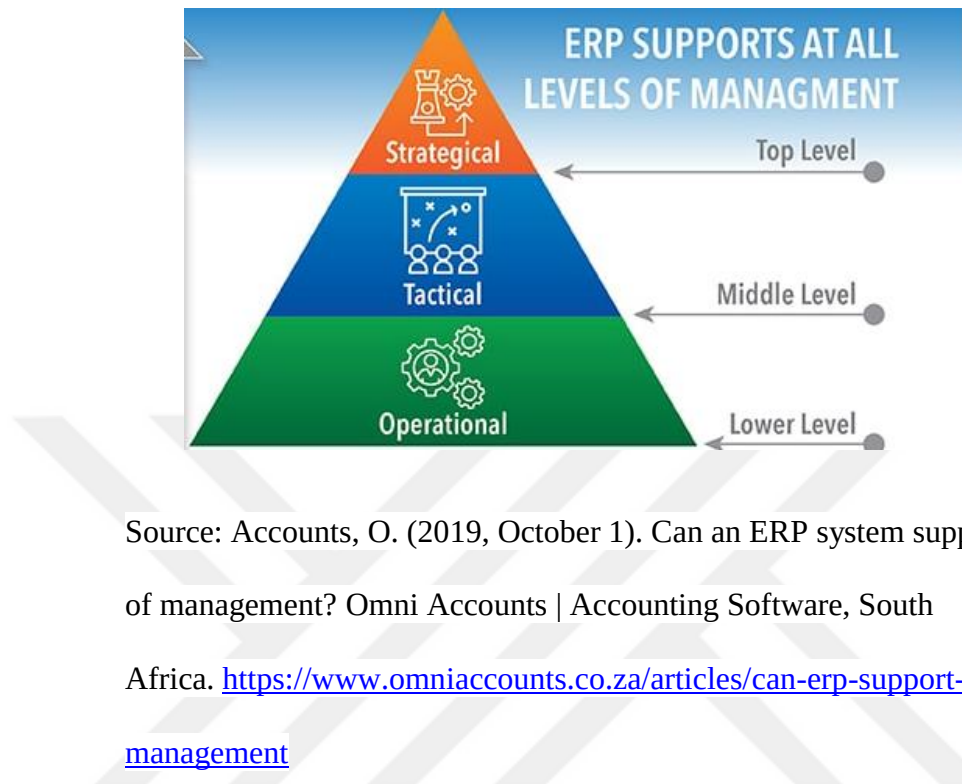
This module, which brings flexibility and cost savings to the project, help the company accelerate operations more effectively. Some of the features present with this module include project preparation, Gantt maps, team coordination, team cost control, and task management.

Inventory Management (IM)

This module, which brings flexibility and cost savings to the project, will help the company accelerate operations more effectively. Some of the features that come with this module include project preparation, Gantt maps, team coordination, team cost control, and task management.

4.3 ERP System in Management Level

Today, technology management emerges with the organizational harmony of change in business organizations. In this context, the technology application process; is a process that involves planning, managing, controlling, and coordinating the development and implementation of technological capabilities to achieve the strategic and operational goals of an enterprise. This process usually involves the use of new technologies. New technologies are a set of effective technological systems to improve business efficiency and information security by standardizing processes to preserve and classify past and future information. Technologies are divided into groups with their usage areas and structures. In addition, they are generally shaped according to the needs of companies and organizations. Business organizations are hierarchies consisting of three basic levels: senior management, middle management and operational management.

Figure 8**ERP Supports at All Levels of Management**

Source: Accounts, O. (2019, October 1). Can an ERP system support all levels of management? Omni Accounts | Accounting Software, South Africa. <https://www.omniaccounts.co.za/articles/can-erp-support-levels-of-management>

New Information systems serve each of these levels. New technologies primarily help solve daily and instant operations in operational management. At the middle management level, ERP develops companies' short-term goals and tactics. ERP is a visual and numerical based system that defines the dimensions of long-term strategies and new strategies that need to be developed at the senior management level. System data is realized by feeding each other from the bottom of the hierarchy to the top. The most common of these systems are Enterprise Resource Planning (ERP), PeopleSoft, Oracle, SAP systems. Every year businesses reveal millions of new technologies. However, generally the vast majority of enterprises are an organization. Also, these devices are implemented at twice the cost of standard technology. These conditions have reduced productivity and confidence in project time. Sometimes businesses

attribute project delays to the framework realizing that change is inevitable; these projects need to implement sustainable technologies in today's market successfully.

4.4 Benefits Expected From ERP

Many companies that create corporate data bank ERP systems aim to reduce the inconsistency between information functions. The decision of the employees reduces ERP systems such as data logging and data processing errors. Companies will have direct access to information that they can use in their processes. Therefore, ERP systems are role integration that allows information exchange within the organization to be simplified automatically. Including these features, ERP offers cost-effectiveness and improves decision-making (Poston & Grabski, 2001). Studies have shown that business efficiency will increase with ERP systems.

An especially ERP systems enterprise makes;

- Cost-saving
- Promote the mechanisms of decision making
- Making knowledge flow better and more reliable
- Increasing customer satisfaction by integrating the roles of the company
- Provides great access to information about the market and supply chain
- They expect e-commerce (Poston & Grabski, 2001; 273).

Businesses must control their resources to achieve significant efficiency both in a competitive environment and in management functions. For these structures to work effectively: the collection, processing, and distribution processes must be linear.

Management of information and resources became inevitable between the developments of the information age. During this period, production only grew part of the competition. The importance of quality, speed, efficiency, customer satisfaction, and complete service becomes even more prominent. Companies meet all these conditions in order to evolve and adapt to changing conditions rapidly.

Companies, including the development of ERP systems, felt the need to control organizational compliance and all functions from a single application. ERP systems offer healthy control from a single source and predict how the management style and formation should be. Therefore, ERP is for not only control purposes but also helps to improve the management function.

ERP systems offer the opportunity to make operational management more efficient and cost-effective, reduce shift work, standardize long-term operations, and provide complete accessibility documentation on a linear basis.

ERP systems are high-cost systems. Therefore, when these systems fail, they are costly to companies. Also, the integration of ERP systems is always carried out with the right plan.

Successful integration and optimization of ERP systems are possible with correct analysis according to the management's project support and needs. In addition, project management and change management adaptation processes cause company employees to use the product correctly and minimize errors.

As a result, successful ERP projects support successful project management, change management, and strategic management. These ERP projects should design and adapt to companies and employees' needs. In this way, the most limited step process arises in terms of efficiency and margin of error.



5. DISRUPTIVE TECHNOLOGIES

According to Clayton Christensen, current market leaders (Christensen, 1995) use disruptive technologies to describe inventions that improve a product, service, or process in entirely unexpected ways. In addition, disruptive technologies describe technologies that can rapidly replace existing technology. These technologies are artificial intelligence (AI), internet of things (IoT), and block chain, robotic technology and others. Disruptive technologies aim to use technology in the lower segment of the superstructure market in order to create a profitable investment balance in labor, time, efficiency and new technology processes.

Disruptive technologies expect to be suitable for the whole organization and respond to similar needs to other technologies. In this sense, companies' first plan must disruptive technologies in line with their needs and then implements their suppliers' structures.

On the other hand, when developing disruptive technology, it is necessary to refer to disruptive innovations. According to Christensen, disruptive technology fosters disruptive innovation and highlights the critical role of innovation in disrupting understanding. Christensen's theory suggests that there are two basic types of disruptive innovation theory. The first is that existing firms, creating a pathway to higher-end markets by allowing new competitors to enter the market and capture the lower-end market, neglect the low-end market sector. The high-tech camera industry, targeting the professional market and avoiding the low-end market, is an example that facilitates disruptive entry into the downstream market and ultimately facilitates the transition to the upstream market with technological advances (Sandström, & Magnusson, & Jörnmark, 2009). The second category of innovation, which is

recognized in Christensen's theory, is to develop a new market, which is not existed before. Wearable devices, which measure physical fitness or behavior, are an example.

Moreover, culture often reappears as a criterion that activates boards and organizations' ability to manage change. Disruptive innovation and disruptive technology are now part of business terms. Technology change has undergone many different views and changes over time. Experts predict that disruptive technology change in the next decade will overshadow the last century's technology change.

On the other hand, disruptive technologies are directly proportional to the technology innovation and culture of companies. When companies regularly innovate in technology, it ensures that disruptive technology is adapted to employers. In this way, technology innovation is taken regularly within the company's own culture, and employees can learn adaptation to technology quickly and support the dimensions of the competition. Today's competitive priority depends on business and financial structures and technology superiority, especially using technology effectively. Companies also want to use the sustainable aspects of disruptive technologies.

Disruptive technologies arise in different ways due to existing technologies or a separate component of new technological innovations. Disruptive technologies, as Christensen (1997), aimed, start as cheap and low-performance technologies. However, as this disruptive technologies progresses in a supportive way and begins to meet the current market's needs, disruptive technologies will erase the dominant technology from the market.

The development stages of technology have been increasing rapidly for the last 20 years. New technology is developing almost every day today. These technologies'

general purpose is to define customer needs, evaluate profitability, and provide quick solutions to process improvement (Bower & Christensen, January-February 1995).

The identification and advancement of disruptive technologies are not fully defined in a stable area. These technologies, which are developing and continuing to develop, have developed many of today's technologies. In addition, specific examples of disruptive technologies are generally defined as follows (Mnayika et al., 2013):

- Mobile Internet: Mobile devices production and internet access.
- Cognitive Work Automation: Intelligent software systems execute cognitive tasks automatically with unstructured and implicit instructions.
- Internet of Things: Realization of processes such as data collection, decision making, monitoring, and process improvement with networks
- Cloud Technology: Offering computer hardware and software services as a network or internet service.
- Advanced Robotics: The use of robots whose have senses creates intelligent, memory, mind in business and life.
- Autonomous and Semi-Autonomous Vehicles: These are vehicles that need small or no human intervention sequencing, advanced big data analytics, and synthetic biology studies.
- Energy storage: Applying energy-saving technologies and applications.
- 3D Printers: These are products of built-in printer layers, based on digital models.
- Advanced Materials: The materials engineer with superior properties such as longevity, weight, and conductivity.
- Advanced Oil and Gas Search: These are techniques developed to facilitate oil and gas detection.

- Green energy: Electricity generation from renewable sources reduces adverse climate effects.

Companies need to follow current trends and innovations to develop these innovations. Companies create a unit separate from the institutional structure and conduct research entirely. As current technologies change, companies' culture and their response to change are crucial in implementing disruptive technologies. In this sense, companies' perspective on disruptive technologies is a critical factor in developing these technologies. Disruptive technologies in healthcare systems often consider limiting the field of surgical robots. However, in recent studies, disruptive technologies have begun to identify diseases and treatment methods. In this sense, disruptive technologies will be one of the fundamental technologies of healthcare systems in certain areas and the future.

Furthermore, many healthcare companies plan to adopt disruptive technologies. However, only 11 percent of healthcare companies report having a proper strategy and role in managing disruptive technologies (KPMG, 2019).

The administrators in Turkey suffered from adapting to disruptive technologies (Alter, 2015). Turkey has recently started the implementation of disruptive technologies in the healthcare industry. This study aimed to investigate healthcare companies that apply disruptive technologies to their technology systems for the first time in Turkey. Therefore, this study's questions were designed by assuming that employees have an experimental process with disruptive technologies.

6. STRATEGIC TECHNOLOGY MANAGEMENT IN HEALTHCARE

Researchers recognized that only principles such as technical, development, and forward-looking applications were not useful in merely implementing the technology. They also noticed that social impacts are useful in the efficient implementation of technology. In this sense, in the article titled "A New Integrated Technology Application Model for Health Technology Application" (Schoville & Title, 2015), technology's technical and social contexts affect healthcare companies' technology implementation process.

This article details an efficient and uniform model that creates a mix of technical and social contexts. At the same time, this model is developed by combining two different models, such as Implementation science (IS) and Technology adoption model (TAM). The IS model is generally based solely on the factors of technical implementation and strategies. Rather, TAM is based on the effects of social factors in the implementation process. TAM focuses the individual's behavior, the user's perception of using the technology, relative advantage, compatibility, complexity, and experimental ability to use technology. The criticality of these models combination developed the integrated technology application model (ITIM). The new comprehensive model's benefits drive designing successful implementation strategies focusing on innovation, methods, interventions, and variables, providing a comprehensive view of sustainable long-term technology strategies.

ITIM focuses on the organization's and external factors: the individual adopting technology, organizational culture, knowledge, change, etc. However, Also ITIM revealed an external factor such as accreditation standards, economic environment,

facilitators, and vendors. These elements of the model, internal and external contexts, organize the main concepts that affect an organization as it applies technology. ITIM as the center of the process (Figure 10): (1) adoption, (2) implementation, (3) innovation / technology structure, (4) interface systems, (5) workflow, (6) users (adopters), (7) leadership, (8) communication, (9) accreditation / regulation, (10) economic environment, (11) facilitators and (12) vendors. Table 10 provided an explanatory explanation of each of these items (Schoville and Title, 2015).

Figure 9

Commonalities and Differences Across IS and TAM Models

Commonalities and Differences Across IS and TAM Models		
Comparison	IS Model	TAM
Level of analysis	Organization	Individual
Dependent variable	Adoption of EBP	Adoption of technology
Implementation interventions	Yes	No
Context	Healthcare	Information technology and other technologies
Assess for barriers	Yes	No
Patient experience	Yes	No
External factors considered	Yes	No

Source: Schoville, R. R., & Title, M. G. (2015). Guiding Healthcare Technology Implementation a New Integrated Technology Implementation Model. *Computers, Informatics, Nursing*, 99–107.

Figure 10

Integrated technology implementation model (ITIM)



Source: Schoville, R. R., & Title, M. G. (2015). Guiding Healthcare Technology Implementation A New Integrated Technology Implementation Model. *Computers, Informatics, Nursing*, 99–107.

The primary purpose of the new model of ITIM is to provide a multi-dimensional, active, strategic, and individual application principle in the adoption of healthcare technologies and techniques. The newly described model examines the individual and organizational elements that address the versatile active implementation strategies required to encourage technology adoption.

6.1 Inner Context

Organizations often start a technology selection process. In this selection process, the strategic and active application layers of the system must be determined correctly. These choices are primarily determined by user-friendly technologies according to the needs of organizations and required technology capabilities. The technology determined in the active implementation process should be updated and developed, and modules should be developed as needs change.

On the other hand, Companies must be determined which technology is correct, and the consensus must be sufficient. Active and sustainable strategies affect organizations' internal factors; technology must adopt innovation and create transition processes without a convergent structure. This way, the company can effectively acquire knowledge, culture, and change management.

Organizations are often concerned with steps towards the technical adaptation of the process during technology implementation. Companies are beginning to deal with the social and technical technology implementation process of the ITIM model to establish sustainable technology. ITIM also examined the effects of external and internal competition and the performance of healthcare companies.

6.1.1 Nature of technology /innovation

Technology in ITIM is defined as a new technology-based solution to perform a specific task or maintenance process to achieve defined results. Technologies used in healthcare systems include software and hardware that provide information to the user and the system and combinations of physical and application hardware. These technology structures are divided into two as hardware and software. In technology

innovation, it is essential not only to have these physical technologies but also to apply and improve existing technologies regularly. These technologies must also be in ergonomic structures that do not adversely affect human health and prevent physical damage. Thus, it places equipment and technologies in suitable and usable areas to facilitate current use.

Technology innovation also means providing solutions that meet all aspects of users' expectations. Among the features of technology, innovation is the user's relative advantage, complexity, compliance with norms, values, and innovation perceptions. The relative disadvantage of technology is perceived better than the previous process used to complete the maintenance requirement (Schoville & Title, 2015). This innovation occurs with the combination of individual and past technology experiences in adapting to the organization's norms. Organizations improve their technological innovations by taking advantage of users' experiences. Technology complexity occurs through semantics, simplicity, and current compatibility.

6.1.2 Implementation

Implementation is the critical phase in which plans are implemented. If this is not a followed plan, observe the changes right now. Technology needs to be "institutionalized." This institutionalization takes place in the implementation process. The implementation process is the restructuring of existing and technology used with business processes and modules according to organizational needs. An effective process implementation occurs when project and change management achieves a common denominator. Thus, the employee's participation in the processes increases the technology development activities and affects the organization. While strengthening its competitive position, it provides necessary technology activities such

as applying technology on common ground, quality assurance, and application ease. In addition, Quality control, integration test, penetration test, module development, performance, and integrity test activities are taken safely during the application process.

On the other hand, application technique, software problems, tests errors are determined the implementation costs. However, these technical errors are only based on hardware and software problems. The company's active use of technology and lack of innovation are also due to the neglect of technology's social causes. In this sense, it is the most critical factor for the effective functioning of social and technical education processes. Education is the main factor in minimizing these difficulties. Training is a new process for informing the lack of user training and using the system efficiently. Education is one-factor driving technology communication and change development and exists in learning and applying technology and within the company. These conditions can grasp the correct use of technology and efficiently coordinate IT and other company employees.

On the other hand, application errors frequently occur in healthcare companies during the implementation process. Project management, technology development, renewal, and post-process planning always cause these errors. In this sense, training is one of the most critical steps in correcting the other errors mentioned during technology implementation. This way, the missing parts of the process are identified, and employees' feedback better knows the technology. At the same time, education plays a vital role in recognizing errors in the companies' technology implementation process.

An essential part of education is that every technology, physical environment, software, educator. Companies must be necessary to allocate money and time for education. In addition, company groups should be trained regularly and frequently in changes in modules or technology structure, and feedback should be received regularly.

Even the most effective system will not work if it is not known how to use technology. For this reason, organizations make regularly training plans for performance, time, development, and competition. In addition, the managers' support training increases the employees' motivation to participate in the training and the communication of the groups. Thus, information flow between senior management and employees can continue to be used actively without interruption. Efficient use of technology by employees and early detection of errors during implementation enable the development of internal strategies. After this situation, it provides a competitive advantage in the market by developing external strategies.

6.1.3 Interfacing system

It is essential to have a primary technology solution interface with existing and future systems to ensure a higher level of maintenance coordination between providers and other facilities in achieving the strategic goals of advanced maintenance (Schoville & Title, 2015). The system has application interfaces to communicate with each other and to improve existing communication. With ITIM, these interfaces become a system that provides a one-sided system structure and provides significant coordination between other facilities such as businesses, multiple vendors, and hospitals. This system helps network information systems to work in a coordinated and inclusive way. These components may include other technology software or

devices (Schoville & Title, 2015). Interface design is another critical factor that improves the performance and ease of use of technology. Robust interface designs often relate to the group's technology locations. Hence, the interface designs to the expectations and benefits of the company. For example, healthcare professionals use a single ERP interface that mainly examines patients' structures for reporting and control purposes. However, corporate employees often use an interface that covers their daily operations. Thus, the managers repaired the internal reports and graphics periodically and annually from the ERP interface design. Interface systems depend on the benefits and expectations of healthcare companies and their employees.

6.1.4 Workflow

The workflow defined by ITIM is considered the concept of systematic steps of the process. The analysis includes identifying critical elements, potential barriers to workflow, and any structure based on technology use. The implementation of processes aims to create a safe patient journey and organizational efficiency by understanding doctors, staff, patients, and clinicians' technology flow. The design of the workflow enables organizations to be more successful in adopting the technology. It aims to reduce the abuse rate of technology and reduce the margin of error in process control.

6.1.5 Users

Users another concept of ITIM, are generally defined as specific users on social systems. These users have certain features with similar characteristics. These include greater intelligence, increased social inclusion, a more remarkable ability to cope with change, higher education, and more excellent innovation knowledge (Schoville & Title, 2015). ITIM makes these users available to doctors, managers, company

employees, healthcare professionals, pharmacists, etc. Users are an essential part of the system, and the training and preparation environment must be completed in the use of technology.

6.1.6 Leadership

The ITIM model argues that one of the most important effects of technology use and implementation is leadership. The execution of the goals, vision, long and short-term strategies, and performance expectations in organizations with the right leadership has made the company's technology implementation and execution goals a priority. All changes make managers at the organizational or management level. Senior management should manage change in the implementation process. Leadership is one of the most critical factors for developing and sustainability of technology in previous applications and practices. Leaders with a vision that guides and inspires their teams through the process play an essential role in the active use and development of technology. Leaders' active management skills in creating a process aligned with employees and IT also affects change management. In this sense, leaders have specific qualifications for the implementation process changes to take place actively. These are the organization's cultural incentives to develop social skills, establish technical and group infrastructures, provide open communication between groups and institutions, and ensure project flow during the implementation process.

On the other hand, another critical part of leadership is that visionary leaders enable competitive and applicable technologies to be identified. Visionary leaders are also qualified to find and implement technologies to take the organization to a higher level. The maximum effect of strengthening technical structures and making applications with a low margin of error is perfect for social areas and project flow. Leaders are

concerned in communicating technical groups, planning, developing, distributing project roles and other conditions.

6.1.7 Communication

According to ITIM model, communications consider about communicative training programs, written communication, communication roles, networks, and feedback that offer to share information in a targeted social system using various strategies (Schoville & Title, 2015). In addition, ITIM model support to share high communication approaches such as social media news, instead e-mails, newsletters other tools. (Schoville and Title, 2015).The communication strategy is used to obtain information and feedback about the acquisition area. Mostly, these notifications provide presentation, result quality results. Open communication, a message of support from the whole group for any writing that needs to be done such as faith and reliability in the face of difficult groups, provides both authenticity and freedom.

6.2 Outer Context

After determining the need for change, organizations determine the scope of this change. Technology changes address the real contexts of internal and external system factors. While developing the ITIM model, it examines the internal and external effects of technology implementation processes. ITIM defines external context as external processes and factors outside the organization that have a synergistic relationship with internal factors and affect successful technology implementation. Accreditation and regulations, economic environment, facilitators, and vendors rank these factors. Factors detailed in the following section: Accreditation and regulation, economic environment, facilitators, and vendors.

6.2.1 Accreditation and regulations

ITIM examines that the technology systems used must have a specific accreditation and legal context. The technologies have individual international accreditation and use these preferences by the general structure of the company.

6.2.2 Economic environment

ITIM defines the economic environment as external factors that affect the purchasing and technology capability of the organization. These structures are often for vendors, system suppliers, and technology supplies such as maintenance costs.

6.2.3 Facilitator

The facilitator is one of the core concepts of ITIM. This concept aims to make integrated technologies useful and understandable during the application of the technology. The facilitator happens from inside or outside the organization. The

facilitators will help maintain the efficient, sustainable, user-friendly, and developmental structure of the technology in the long term, according to the company's protocols. Facilitators help to implement innovation in routine practice effectively. These innovations are usually technology maintenance, security, vulnerabilities, module updates, etc. On the other hand, facilitators mainly serve as a guide for the use of technology. This manual usually provides the flow of information and processes within the organization.

6.2.4 Vendors

As the ITIM model's latest concept, vendors significantly influence the implementation and acceptance of the technology. The vendor generally describes a stable, reliable, qualified institution, or an internationally accredited vendor. Vendors have many services regarding complex technology pricing and getting quality products in practice. For example, ERP systems offer quality and sustainable technology in long-term maintenance, repair, fault, and development. ITIM defines the vendor as the entity that produces and sells technology to healthcare companies. The vendor role includes supportive functionality between products, devices, and accessories. Qualifications of vendors promoting the application include technical expertise (certifications and experiences), problem solving, the ability to communicate with technical personnel on existing systems, and upgrades. Also, the vendor's other tasks include the ability to make a detailed description of existing systems, make recommendations for upgrades, be creative in identifying solutions to achieve patient care, completing the work within the technology budget, knowledge of new and relevant technology, and the ability to make recommendations for future consideration (Schoville and Title, 2015). In this study, especially the internal context factors of the ITIM model are observed.

7. METHODOLOGY

This multidisciplinary research's main objective is to examine strategic technology management is implementing changes in the healthcare system. Organizational fit is usually achieved through changes in business operations. These changes usually involve the use of new technology. The practical implementation of the change process is succeeded by examining the benefits and challenges of technology management in decision-making. Technology management affects the effectiveness of implementing change. Thus, technology management demand is achieved through the development of an applied study. The aim is to develop a formal methodology for the effective implementation of change. Technologies used in healthcare systems increase by 8% every quarter of the year. However, there is specific management and strategic levels before these can be systems used. The most difficult of these levels demand a place in the implementation process. At this level, companies have started to be a part of technology change with its application. Simultaneously, the change management and implementation process has turned into a structure that feeds each other. Technology managers develop specific strategies for the effective implementation of these structures. In this study, the relationship between technological change and strategic management will explain the implementation of adequate healthcare technologies. The effect of the structure in healthcare companies in Turkey has improved significantly over the past decades. However, social and economic information on the healthcare system has not been adequately investigated before. The implementation of healthcare systems results in approximately 40% failed projects each year. Therefore, the healthcare company should view from a technological (engineering) perspective and management perspectives. However, there is no roadmap or handbook for this technology's implementation. Therefore, this

study is a pioneering step in creating this map for healthcare companies for a successful implementation process. On the other hand, examining the entire implementation process with the change convinces a roadmap for healthcare companies that includes technology leadership and employees. This roadmap is intended to help the company in the future strategic management of the implementation process.

This study tries to find the answers to the following research questions;

- What are the effects of organization on technology according to gender, education, age, and working experience?
- What are the central vision and developments in selecting ERP, its development, its difficulties, and its weaknesses?
- Is there an approach to communication and solution focus on IT, management, and employees using ERP technology?
- What are the technical and social factors of the successful implementation of the system in the implementation process?
- What is user needs in the technical development of the technologies used and the technology's sustainability?
- What is the positive or negative effect of the technologies used on change management during the application process?
- What are the effects of the efficiency and development of the technologies used on the organization's technical level?
- What are active training and lack of training during the application process, positive or negative aspects of these processes?
- What is the focus on the relationship between IT and corporate governance as a catalyst in the implementation process?

- What are the technology selection processes and the impact of the chosen technology on the organization?
- Will disruptive technologies affect healthcare systems and structures in the future?
- How Disruptive technologies affect healthcare systems, business processes, etc.?
- Will disruptive technologies help future healthcare and disease treatments?
- What are the positive or adverse reactions of the company to disruptive technologies? For example, do they want to receive training, organization, symposium, etc., on destructive technologies in the future?
- What are companies' perspectives on disruptive technologies?

These questions in the study investigate Turkey's largest healthcare company located in Istanbul. Questions were reshaped employees' positions at various company levels and in the company. In addition, this study aimed to investigate disruptive technologies that apply to their company healthcare system for the in Turkey. Therefore, this study's questions were designed by assuming that employees have an experimental process with disruptive technologies. Lastly, in this study, permission from hospital management and staff were obtained.

7.1 Research Method

In this research, a quantitative research method applies. In the quantitative approach, the researcher reveals the truth independently and objectively from his / her values. For this reason, researchers who have adopted the quantitative method, abstracting themselves from the research, generally carry out their studies with standard measuring tools (Borg & Gall, 1989: 23). Likert-type scale refers to scales in which multiple Likert-type problems use together. It defines as creating two or more Likert-type questions to answer a single research problem and using the average (combined) values of these questions in the analysis phase (Clason & Dormody, 1994). In each group study, at least 130 participants were attended and survey data were obtained. Interviews were held with each group at the specified time to collect the survey data. Survey research is the most fundamental tool for all quantitative results research methodologies and studies. In each group, the participants were asked questions and an online (web) survey model. In the survey questions, in general, the participants were asked how change management does, whether they are satisfied with the technology used, the effects of the managers and the technology used in IT on the delivery, the effects of disruptive technologies on healthcare systems, work processes, and the treatments of diseases.

The quantitative research method used as more appropriate than the qualitative research method. The data is broad; Likert-type scales and cross-survey analysis have decided this research should do with the previous research method.

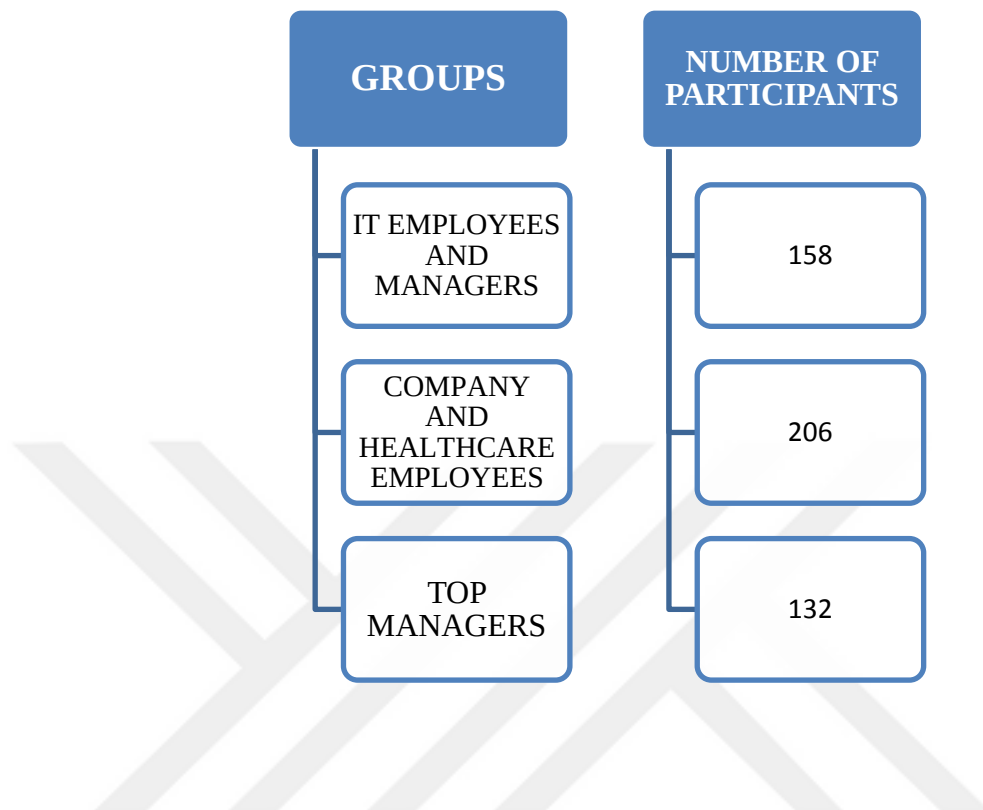
Leedy & Ormrod & Williams (2011) state that "Quantitative research involves the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute alternative knowledge claims." This research method prefers in order to digitize the data and to make accurate analyzes statistically.

7.2 Participants / Population

In this research, the participants are the company that disruptive technologies used for the first time in the healthcare sector. This company is the only company that uses the same time, Turkey's most comprehensive database module and ERP systems. Participants are selected as employees in different groups of the company. This selection is for all groups in the management and use of all technological processes. The hierarchy structure of the company is divided into three (3) different management groups. The first group is IT employees and managers working in the hospital. The second group is the company and healthcare employees. The third group consists of senior (top) managers in the headquarters, where all technology and company management processes are located. Senior (top) managers are responsible for all technology management processes of 102 hospitals. The research is carried out with the participation of these three (3) groups of the company. The first groups moved between IT employees and managers that 158 employees participated in the survey. The second survey group is the company and healthcare employees that 206 employees participated in the survey. The third group, which was conducted with technology senior (top) managers and senior employees at a top of company that 132 employees participated in the survey. The participation rate in all surveys is 496 employees in these three (3) groups.

The research participants groups are shown in Figure 11

Figure 11



7.3 Informed Consent

Candidates must be informed to participate in the research, understand the form, and obtain the candidates' consent voluntarily (see Appendix Table Survey Ethical Announcement). Before the meeting, each participant received a consent form by e-mail, phone, or one-on-one to get detailed information about the study. The consent form also prepares by the ethics committee is legal and research rules to avoid putting pressure on the participants.

7.4 Geographical Location

The study's geographical location was selected Istanbul, Turkey. Because most of the headquarters and hospitals in Istanbul, Turkey. In addition, Pre-research appointments were made for the employees to interview.

7.5 Data Collection

In each group study, survey data obtained with at least 130 participants from each group, based on the data's numerical scale accuracy. Survey data was collected within a certain period of 4 months for each group. Survey Research is the most fundamental instrument for all quantitative results research methodologies and studies. Research questions were asked to the participants using the online (web) survey model. In the survey questions, in general, the participants were asked how change management performs, whether they are satisfied with the technology used, the effects of the managers and the technology used in IT on the delivery, the effects of disruptive technologies on healthcare systems, work processes, and the treatments of diseases. Appointments were selected for the surveys within the specified periods. Survey data were obtained employees' positions at various company levels and in the company. Questions that remain constant for each group are questions for disruptive technologies. The questions determine the management, credentials, technology knowledge etc. of qualifications the groups. While preparing the surveys, the design was made according to the critical scale. While the data was being collected in the research, the surveys sent out of March, but the surveys' completion time was completed in approximately four months. During this period, interviews and incentives make for the survey. In this sense, regular interviews were done until the data was 130.

7.6 Likert -Type Question

In this study, Likert-type questions were used in more than one question. The researcher does not intend to make a general inference using the mean values of these questions. In this study, all questions were analyzed independently. In addition, Likert-type questions were analyzed using specific quantitative techniques. Table 12 gives examples of Likert-type questions.

The research Likert-type questions shown in Figure 12

Figure 12

QUESTIONS

Do you think that disruptive technologies effect healthcare sector ?

Strongly agree

Agree

Neither agree nor disagree

Disagree somewhat

Strongly disagree

The researchers who include Likert-type questions in their questionnaires generally use scales from three (3) to eighteen (18) different options as the number of options, as Likert-type does. Likert-type versions were made according to the principles of formal and linguistic integrity. Descriptions should be clear and negative statements must not exist.

7.7 Data Analysis

The data of the research were analyzed in the SPSS program. The survey data arrange on a single form, and then SPSS was used for analysis. In this research, firstly, determining hypotheses are analyzed using specific methodologies. Firstly, the data organized by classification and scaling. Afterward, descriptive analyzes of non-variable and comparative data perform. Likert-type data was the first reality tested, and the survey data's reliability measure riding to this test's results. After the reliability analysis of the data, a normality test will perform on the data. According to this test's values, the survey data will test with parametric and nonparametric test analysis methods.

8. DATA ANALYSIS AND FINDINGS FOR IT EMPLOYEES AND MANAGERS

The hypothesis testing section consists of two parts: descriptive statistics and testing hypotheses related to parametric / non-parametric research.

8.1 Descriptive Statics for IT Employees and Managers

The demographic information of the participants, such as age, gender, work experience, and education is given below.

Table 1 Result of the Descriptive Statistics for Gender

Descriptive Statistics for Gender		
	Number in Sample	% in Population
Female	70	44.6
Male	87	55.4
Total	158	100.0

According to the research, the gender distribution; (44.6%) of “women” and (55.4%) “Men” were determined. In this context, the majority of company IT employees and managers are male groups. This table explains the questions what are the effects of organization on technology according to gender, education, age, and working background.

Table 2 Results of the Descriptive Statistics for Age

Descriptive Statistics for Age		
	Number in Sample	% in Population
18-24 age	2	1.3
25-30 age	56	35.4
31-35 age	97	61.4
35 and over	3	1,9
Total	158	100.0

The IT employee's and managers' age rates show that the highest age group is “31-35” (61.4%), and the lowest in the age group “18-24”(1.3%). According to the data, the majority of the IT group is the young middle age. This table explains the questions what are the effects of organization on technology according to gender, education, age, and working background.

Table 3 Results of the Descriptive Statistics for Education

Descriptive Statistics for Education		
	Number in Sample	% in Population
Primary school	-	-
Secondary school	-	-
High school	4	2.5
Undergraduate	86	54.8
Master's degree	55	35.00
Doctorate	12	7.6
Total	158	100.0

Education status in the IT employees and managers, the highest group, is defined as the “undergraduate group” (54.8%) with the lowest “high school education” (2.5%). This table explains the questions what are the effects of organization on technology according to gender, education, age, and working background.

Table 4 Results of the Descriptive Statistics for Work Experience

Descriptive Statistics for Work Experience		
	Number in Sample	% in Population
Under 5 years	3	1.9
5-10 years	42	27.1
11-15 years	85	54.8
16-20 years	25	16.1
21 years and over	-	-
Total	155	100.0

The study's work experience shows that the highest is “11-15 years” (54.8%), and the lowest is “less than five years” (1.9%). This table explains the question what are the effects of organization on technology according to gender, education, age, and working background.

Table 5 Results of the Descriptive Statistics for the ERP Development and Implementation Goal / Vision

The ERP development and implementation goal / vision		
	Number in Sample	% in Population
Developing new products or services	110	70.1
To increase the quality of products and services	141	89.8
To consolidate competitive advantage	36	22.9
To ensure the development of healthcare technologies	14	8.9
Total	157	100.0

According to the IT employees and managers in the research, the most effective rate of the target and vision of the ERP system are to increase the quality of products and services (89.8%). Second, develop new products and services (70.1%). The lowest rate is the development of healthcare technologies (8.9%). This table explains the ERP development and implementation goal/vision question.

Table 6 Results of the Descriptive Statistics for the Criteria for Choosing an ERP System

The criteria for choosing an ERP system (3most important)		
	Number in Sample	% in Population
Compliance Needs	89	56.7
Applicability and consultancy	107	68.2
Compliance with business organizational structure	20	76.4
Openness to innovations	44	28.00
System suppliers	54	34.4
Integration with other information systems	19	12.1
Reliability	6	3.8
Total	157	100.0

The criterion for selecting ERP systems in the study was the highest data (76.4%) in compliance with business organizational structure. Applicability and consultancy (68.2%) are the second most important data. In addition, the third data is compliance needs (56.7%). The lowest data is reliability (3.8%). This table explains what the main criteria for ERP system selection question.

Table 7 Results of the Descriptive Statistics for strengths of the ERP System

Strengths of the ERP System (3most important)		
	Number in Sample	% in Population
Integration with customer information for better coordination between business processes	73	46.5
It is a single system that makes it easy to manage information technology infrastructure	95	60.5
Increasing individual and organizational efficiency	116	73.9
Having consistent application logic, consistent information and interface that facilitates understanding and working in information technology infrastructure	81	51.6
Providing an expectation of reduction in operating costs	34	21.7
Provides coordination between geographically distant units	13	8.3
Total	157	100.0

In the study, IT employees and managers were asked about the three (3) most critical ERP system features. The features increase the individual and organizational efficiency respectively (73.9%), second data is single system that facilitates the management of the information technology infrastructure (60.5%), and it has a consistent application logic, consistent information, and interface that facilitate understanding and working in the information technology infrastructure (51.6%). The lowest data provides coordination between geographically remote units (8.3%). This table explains what you think are the ERP System's strengths question.

**Table 8 Results of the Descriptive Statistics for the Weaknesses of the ERP
System**

The weaknesses of the ERP system		
	Number in Sample	% in Population
Bug	81	51.9
Not user friendly	5	3.2
Having a complex system	32	20.5
Expected reduction in operating costs is not sufficient	2	1.3
Unused modules and areas in the system	7	4.5
I don't think the ERP system has a weakness	29	18.6
Total	156	100.0

The weaknesses of the ERP system that bug is the highest (51.9%) data in the research and also second highest data is having a complex system (20.5%) and third data is I do not think the ERP system has a weakness(18.6%). The lowest data observe that the expectation for a reduction in operating costs is not enough (1.3%) This table explains what are the central vision and developments in selecting ERP, its development, its difficulties, and its weaknesses question.

Table 9 Results of the Descriptive Statistics for factor are effective in the successful integration of the system

Factors are effective in the successful integration of the system?		
	Number in Sample	% in Population
Understanding User Needs	80	51.3
Accessibility and visibility	105	67.3
Budget allocated for the project	95	60.9
Quality Information	44	28.2
Time allocated for the project	19	12.2
Total	156	100.0

The most important factor (67.3%) in the system's successful integration is accessibility and feasibility. The second data reveal as the budget allocated for the project (60.9%), third data understands the user needs (51.3%), while the lowest in the time allocated for the project (12.2%). This table explains the questions in your opinion, what factors are useful in the successful integration of the system.

Table 10 Results of the Descriptive Statistics for Training

After the integration of this system, have the necessary development, orientation (etc.) corporate trainings been carried out?		
	Number in Sample	% in Population
Yes	94	61.4
No	59	38.6
Total	153	100.0

After integrating the system, the highest rate for the necessary institutional training is YES with (61.4%) and NO with (38.6%). With this result, it will see that organization gives importance to in-company education. This table explains the questions after the integration of this system, have the necessary development, orientation (etc.) corporate training has been done.

Table 11 Results of the Descriptive Statistics for planning training

If the answer is yes; Who planned the training and who facilitated it ?		
	Number in Sample	% in Population
Project manager	47	57.0
CTO	19	20.2
Digital Transformation Director	28	29.8
Total	94	100.0

If the answer is YES, the project managers do the planning and facilitation of the training (57.0%). The lowest rate is CTO with (20.2%). This table explains the questions Active training and lack of training during the application process and positive or negative aspects of these processes. (If the answer is yes; who planned the training and who facilitated it).

Table 12 Results of the Descriptive Statistics for the Difficulty Providing Training

Did you encounter any particular difficulties while providing training?		
	Number in Sample	% in Population
Yes	23	23.0
No	77	77.0
Total	100	100.0

Participants answer YES (23%) and NO (77%) encountered difficulties while providing training. This table explains the questions the effects of the efficiency and development of the technologies used on the organization's technical level and active training and lack of training during the application process. In addition, the positive or negative aspects of these processes are investigated. These data also answer active training and lack of training during the application process, positive or negative

aspects of these processes, and active training and lack of training during the application process questions.(Did you encounter any particular difficulties while providing training?).

Table 13 Results of the Descriptive Statistics for Main Difficulties in the Training Process

If the answer is yes; What were the main difficulties in the training process?		
	Number in Sample	% in Population
Scope	2	2.4
Lack of necessary resources	19	22.6
Users have technology access difficulties	6	7.1
Not identifying users	5	6.0
Insufficient planning for training	52	61.9
Total	84	100.0

If the answer is YES, the most significant difficulty is insufficient planning of training (61.9%), and the second data is lack of necessary resources (22.6%). The lowest is the scope (2.4%). In addition, this table explains the questions active training and lack of training during the application process, positive or negative aspects of these processes and active training and lack of training during the application process. (If the answer is yes; what were the main difficulties in the training process?).

Table 14 Results of Would You Like to Receive Training on Disruptive Technologies in the Future

Would you like to receive training on disruptive technologies in the future?		
	Number in Sample	% in Population
Yes	152	98.7
No	2	1.3
Total	156	100.0

Participant answer (98.7%) YES and (2%) NO. This table explains the question the company's positive or adverse reactions to disruptive technologies. For example, do they want to receive training, organization, symposium, etc., on destructive technologies in the future question.

Table 15 Results of Would You Like to Use Disruptive Technologies in Future Healthcare Systems

Would you like to use disruptive technologies in future healthcare systems?		
	Number in Sample	% in Population
Yes	152	98.7
No	2	1.3
Total	156	100.0

IT employees and managers answered YES (98.7%) and NO (1.3%). This table explains the question explain would you like to use disruptive technologies in the future.

Table 16 Results of the Descriptive Statistics for What is the Disruptive Technology for You

What is the disruptive technology for you?		
	Number in Sample	% in Population
Internet of Things	31	20.0
Artificial intelligence	94	60.6
Data analytics	78	50.3
Robot technology	77	49.7
Cloud Computing	74	47.7
Wearable technology	52	33.5
Block chain	19	12.3
Total	155	100.0

According to the IT employees and managers, the highest data is disruptive technologies is an artificial intelligence (60.6%), second data is data analytic (50.3%), and third data is robot technology (49%). The lowest data is the block chain with (12.3%). This table explains the questions companies' perspective on disruptive technologies.

8.1.1 Descriptive statistics for disruptive technology

Descriptive statistics on disruptive technologies are below. It was analyzed using the Likert-type research method. It was measured on a five-point scale (Likert-type) (from "Strongly Disagree" to "Strongly Agree").

Table 17 Results of Descriptive Statistics Regarding Features of Disruptive Technology

Descriptive Statistics for Disruptive technology					
	N	Minimum	Maximum	Mean	Std. Deviation
Facilitating business processes	156	1,0	4,0	1,763	,8880
Ensuring the development of healthcare technologies	155	1,0	4,0	1,742	,8889
Increasing the quality of products and services	155	1,0	4,0	1,677	,8599
Developing new products or services	156	1,0	4,0	1,654	,8550
Do you think disruptive technologies will affect healthcare systems?	156	1,0	4,0	1,904	,8174
Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?	156	1,0	4,0	1,692	,8844
Valid N (list wise)	154				

Meanwhile, analyzing descriptive statistics, analysis of averages will create value. When this analyzes is examined, the data with the highest average of 1.904 are disruptive technologies that will affect healthcare systems. In this sense, there is an

average that disruptive technologies will positively affect healthcare systems. Secondly, the facilitating business processes data is 1.763. It is seen that disruptive technologies will contribute to business processes. New product and service development have the lowest average of 1,692 in this group. In this sense, IT employees and managers think that disruptive technology's effects will be less in new products and services compared to others. These analyze explain to the questions of technology selection processes and the impact of the chosen technology on the organization, the companies' perspective on disruptive technologies, the future healthcare systems of disruptive technologies, the impact of disrupted technologies on the healthcare system, and will disruptive technologies help future healthcare and disease concubines questions.

8.2 Statistical Analysis for IT Employees and Managers

8.2.1 Reliability analysis

There are two steps in the reliability analysis:

- Internal consistency of six (6) variables from the research model.
- Testing of groups of factors from the research model to understand if they selected correctly or not.

Table 18 Results of the Reliability Analysis

Reliability Statistics		
N of Cases	Cronbach's Alpha	N of Items
154	0.942	6

Table 19 Results of the Independent Variables Analysis

Six (6) of factors contain four (4) independent variables related to the research model.

Cronbach Alpha values of the groups are described in the table below.

Do you think disruptive technologies will affect healthcare systems?	-	0.949
What situations do you think the use of disruptive technologies in healthcare systems will create?	Increasing the quality of products and services	0.920
What situations do you think the use of disruptive technologies in healthcare systems will create?	Developing new products or services	0.918
What situations do you think the use of disruptive technologies in healthcare systems will create?	Ensuring the development of healthcare technologies	0.918
What situations do you think the use of disruptive technologies in healthcare systems will create?	Facilitating business processes	0.924
Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?	-	0.957

Cronbach's Alpha of all factors is more significant than 0.70. Elements will be tested with a normality test, and regression or non-parametric tests will be applied according to the result.

8.2.2 Normality test

When analyzing data, it should be distributed normally or close to normal. The validity of different statistical tests and analysis results are expected to be made on data that do not show normal distribution. Nonparametric Analysis should be performed if the data are not normally distributed.

Since N value is greater than sixty (60) in this study, Kolmogorov-Smirnov tests are used.

Table 20 Results of the Kolmogorov-Smirnov Tests

		Do you think disruptive technologies will affect health systems?	Increasing the quality of products and services	Developing new products or services	Ensuring the development of health technologies	Facilitating business processes	Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?
N		156	156	155	155	156	156
Poisson Parameter a,b	Mean	1,904	1,654	1,677	1,742	1,763	1,692
Most Extreme Difference c	Absolute	,149	,191	,187	,175	,172	,184
	Positive	,113	,076	,077	,074	,084	,081
	Negative	-,149	-,191	-,187	-,175	-,172	-,184
Kolmogorov-Smirnov Z		1,861	2,389	2,326	2,181	2,143	2,299
Asymp. Sig. (2-tailed)		,002	,000	,000	,000	,000	,000

The level of significance was obtained Kolmogorov-Smirnov test results is Asymp. Sig. (Asymptotic Significance) = 0.000 for each factor group. Therefore, as the Asymptotic Significant is lower than the 0.05 for each factor group, the data are not distributed normally and nonparametric analyzes will be applied.

Non-Parametric Analysis

The Kruskal-Wallis test is a nonparametric test that can be used to determine whether two or more sample means are significantly statistically significant from each other.

Table 21 Results of the Kruskal-Wallis Tests

	Developing new products or services	Increasing the quality of products and services	Ensuring the development of health technologies	Do you think disruptive technologies will affect health systems?	Facilitating business processes	Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?
Chi-Square	3,608	3,421	2,973	5,069	2,854	4,125
df	1	1	1	1	1	1
Asymp. Sig.	,057	,064	,085	,024	,091	,042

If the significance value is less than or equal to 0.05, it can be judged that there is a significant difference between at least two instruments compared. If this value is greater than 0.05, if there is no linear relationships between any groups' means. These groups can be considered equivalent.

At the end of the analysis, there is no significant difference between the data as the data are less than 0.05. The Cross Tables (Chi-Square) test was applied to prove the result of the Kruskal-Wallis H test.

Table 22 Crosstabs Developing New Products or Services

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	239,937 ^a	9	,000
Likelihood Ratio	99,976	9	,000
Linear-by-Linear Association	68,113	1	,000
N of Valid Cases	156		

a. 7 cells (43,8%) have expected count less than 5. The minimum expected count is ,03.

If the significance value is less than or equal to 0.05, There is a linear relationship between developing new products or services and the development of disruptive technologies.

Table 23 Crosstabs Increasing the Quality of Products and Services

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	244,997 ^a	9	,000
Likelihood Ratio	104,798	9	,000
Linear-by-Linear Association	69,162	1	,000
N of Valid Cases	155		

If the significance value is less than or equal to 0.05, There is a linear relationship between increasing the quality of products and services and the development of disruptive technologies.

Table 24 Crosstabs Facilitating Business Processes

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	181,382 ^a	9	,000
Likelihood Ratio	90,714	9	,000
Linear-by-Linear Association	54,061	1	,000
N of Valid Cases	156		

If the significance value is less than or equal to 0.05, There is a linear relationship between facilitating business processes and the development of disruptive technologies.

Table 25 Crosstabs Ensuring the Development of Healthcare Technologies

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	165,402 ^a	9	,000
Likelihood Ratio	101,315	9	,000
Linear-by-Linear Association	65,365	1	,000
N of Valid Cases	155		

If the significance value is less than or equal to 0.05, There is a linear relationship between ensuring the development of healthcare technologies and the development of disruptive technologies.

Table 26 Crosstabs Do you think Disruptive Technologies Will Affect Healthcare Systems

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	165,402 ^a	9	,000
Likelihood Ratio	101,315	9	,000
Linear-by-Linear Association	65,365	1	,000
N of Valid Cases	155		

If the significance value is less than or equal to 0.05, There is a linear relationship between disruptive technologies will affect healthcare systems and the development of disruptive technologies.

Table 27 Crosstabs Do you Believe that Disruptive Technologies Will Help Detect and Remedy Diseases in Healthcare

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39,089 ^a	3	,000
Likelihood Ratio	9,382	3	,025
Linear-by-Linear Association	7,951	1	,005
N of Valid Cases	154		

If the significance value is less than or equal to 0.05, There is a linear relationship between disruptive technologies will help detect and remedy diseases in healthcare and the development of disruptive technologies.

9. DATA ANALYSIS AND FINDINGS FOR COMPANY AND HEALTHCARE EMPLOYEES

The hypothesis testing section consists of two parts: descriptive statistics and testing hypotheses related to parametric / non-parametric research.

9.1 Descriptive Statics for Company and Healthcare Employees

The demographic information of the participants, such as age, gender, work experience, and education is given below.

Table 28 Results of the Descriptive Statistics for Gender

Descriptive Statistics for Gender		
	Number in Sample	% in Population
Female	105	51.7
Male	98	48.3
Total	205	100.0

According to the research, gender distribution of the company and employees (51.7%) are “women”, and (48.3%) are “men”. In this context, the majority of company and healthcare employees are the male group. This table explains the effects of organization on technology according to gender, education, age, and working background questions.

Table 29 Results of the Descriptive Statistics for Age

Descriptive Statistics for Age		
	Number in Sample	% in Population
18-24 age	36	17.6
25-30 age	117	51.1
31-35 age	32	15.6
35 and over	20	9.8
Total	205	100.0

The age rates in the company and healthcare employees show that the highest age group is” 25-30 “age (51.1%) and the lowest data is in the age group” 35 and over” (9.8%). According to the data, the majority of the company and healthcare employees group is a young age. This table explains the questions the effects of organization on technology according to gender, education, age, and working background.

Table 30 Results of the Descriptive Statistics for Education

Descriptive Statistics for Education		
	Number in Sample	% in Population
Primary school	-	-
Secondary school	-	-
High school	9	4.4
Undergraduate	151	73.3
Master's degree	39	19.00
Doctorate	6	2.9
Total	205	100.0

The education status in the corporate company and healthcare employees, the highest group, is defined as the undergraduate group (73.3%) and the lowest data is in “high school education” (4.4%). This table explains the questions effects of organization on technology according to gender, education, age, and working background.

Table 31 Results of the Descriptive Statistics for Work Experience

Descriptive Statistics for Work Experience		
	Number in Sample	% in Population
Under 5 years	39	19.1
5-10 years	109	53.4
11-15 years	37	18.1
16-20 years	13	6.4
21 years and over	6	2.9
Total	204	100.0

The study's work experience shows that the highest data is “11-15 years” (53.4%), and the lowest data is less than “21 years and over” (6.4%). This table explains the questions the effects of organization on technology according to gender, education, age, and working background.

Table 32 Results of the Descriptive Statistics for Job Position in the Company

Job position in the company		
	Number in Sample	% in Population
Healthcare Employee	123	60.0
Corporate Employee	76	37.1
Other	6	2.9
Total	205	100.0

According to the internal positions, healthcare professionals are the highest (60.0%). The lowest data is (2.9%) other employees. This table explains the questions effects of organization on technology according to gender, education, age, and working background.

Table 33 Results of the Descriptive Statistics for Solution of ERP System

Do you get regular information sharing and solutions from managers, upper levels such as IT, about the ERP system?		
	Number in Sample	% in Population
Yes	115	61.1
No	88	38.9
Total	203	100.0

Company and healthcare employees said YES (61.1%) and NO (38.9%).

Table 34 Results of the Descriptive Statistics for Solution of ERP System

When you encounter a problem with the ERP system, do you get quick solutions?		
	Number in Sample	% in Population
Yes	138	69.3
No	61	30.7
Total	119	100.0

Company and healthcare employees said YES with (69.3%) and NO with (30.7%). These data explain active training and lack of training during the application process, positive or negative aspects of these processes, and active training and lack of training during the application process, positive or negative aspects sides. In addition, this table explains the question when you encounter a problem with the ERP system, do you get quick solutions.

Table 35 Results of the Descriptive Statistics for Training

After the integration of this system, have the necessary development, orientation (etc.) corporate trainings been done		
	Number in Sample	% in Population
Yes	90	43.9
No	115	56.1
Total	205	100.0

Company and healthcare employees said YES (43.9%) and NO (56.1). This table explains the question the good affection to get training and orientation for technology systems.

Table 36 Results of the Descriptive Statistics for Effective Training

If the answer to the question is Yes: Do you think these trainings for this system were effective in understanding the system?		
	Number in Sample	% in Population
Yes	97	65
No	26	35
Total	123	100.0

If the answer to the question is Yes: Company and healthcare employees answer YES with (65%) and NO (35%). This table explains the questions active training and lack of training during the application process, positive or negative aspects of these processes, and active training and lack of training during the application process. In addition, the positive or negative aspects of these processes are investigated.

Table 37 Results of the Descriptive Statistics for use disruptive technologies in future healthcare systems

Would you like to use disruptive technologies in future healthcare systems?		
	Number in Sample	% in Population
Yes	167	82.3
No	36	17.7
Total	203	100.0

Company and healthcare employees said YES (82.3%) and NO (17.7%).

Table 38 Results of the Descriptive Statistics for receive training on disruptive technologies in the future

Would you like to receive training on disruptive technologies in the future?		
	Number in Sample	% in Population
Yes	160	78.0
No	45	22.0
Total	205	100.0

Company and healthcare employees said YES (78.0%) and NO (22.0%).

Table 39 Results of the Descriptive Statistics for Disruptive Technology

What is the disruptive technology for you?		
	Number in Sample	% in Population
Internet of Things	21	10.2
Artificial intelligence	155	75.6
Data analytics	79	38.5
Robot technology	111	54.1
Cloud Computing	75	36.6
Wearable technology	90	43.9
Block chain	12	5.9
Total	205	100.0

According to the company and healthcare employees, the highest data in disruptive technologies is artificial intelligence with (75.6%), second data is robot technology (54.1%), and third data is wearable technology (43.9%). The block chain is the lowest data (5.9%) This table explains the question companies' perspective on disruptive technologies.

9.1.1 Descriptive statistics for disruptive technology

Below are descriptive statistics on disruptive technologies. Data were analyzed using the Likert-type research method. It was measured on a five-point scale (Likert-type) (from "Strongly Disagree" to "Strongly Agree").

Table 40 Results of Descriptive Statistics Regarding Disruptive Technology

	N	Min	Max	Mean	Std. Dev
Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?	204	1,0	4,0	1,877	1,0266
What situations do you think the use of disruptive technologies in healthcare systems will create? [Developing new products or services]	204	1,0	5,0	2,108	,9716
What situations do you think the use of disruptive technologies in healthcare systems will create? [To increase the quality of products and services]	205	1,0	5,0	2,029	,9389
What situations do you think the use of disruptive technologies in healthcare systems will create? [To ensure the development of healthcare technologies]	205	1,0	4,0	1,966	,7694
Do you think disruptive technologies will affect healthcare systems?	203	1,0	4,0	1,739	,9626
What situations do you think the use of disruptive technologies in healthcare systems will create? [To facilitate business processes]	203	1,00	5,0 0	2,0936	,99310
Valid N (list wise)	196				

When analyzing at descriptive statistics, analysis of averages will create value. When these analyzes are examined, the data with the highest average of 2 0936 facilitate business processes. In this sense, there is an average that disruptive technologies will positively affect healthcare systems. Secondly, data is the increasing quality of

products and services 2,029. It is seen that disruptive technologies will contribute to business processes positively. In addition, using disruptive technologies in future healthcare systems has the lowest average of this group. Thus, the participants think that disruptive technology's effects will be less in disruptive technologies in future healthcare systems. These data explain questions that: Is there an approach to communication and solution focus on IT, management, and employees using ERP technology, technology selection processes and the impact of the chosen technology on the organization, disruptive technologies affect healthcare systems and structures in the future, disruptive technologies impact on healthcare systems and treatment of diseases, and disruptive technologies help future healthcare and disease concubines.

9.2 Statistical Analysis Company and Healthcare Employees

9.2.1 Reliability analysis

There are two steps in the reliability analysis:

- Internal consistency of seven (7) variables from the research model.
- Testing of groups of factors from the research model to understand if they selected correctly or not.

Table 41 Results of the Reliability Analysis

Reliability Statistics		
N of Cases	Cronbach's Alpha	N of Items
205	0.941	7

Seven (7) factors contain four (4) independent variables related to the research model.

Cronbach's Alpha values of the groups are described in the table below.

Item-Total Statistics	
	Cronbach's Alpha
Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?	,931
What situations do you think the use of disruptive technologies in healthcare systems will create? [Developing new products or services]	,924
What situations do you think the use of disruptive technologies in healthcare systems will create? [To increase the quality of products and services]	,926
What situations do you think the use of disruptive technologies in healthcare systems will create? [To facilitate business processes]	,928
What situations do you think the use of disruptive technologies in healthcare systems will create? [To ensure the development of healthcare technologies]	,936
Do you think disruptive technologies will affect healthcare systems?	,933

Cronbach's Alpha of all factors is greater than 0.70. Factors will be tested with normality test and regression or non-parametric test will be applied according to the result.

9.2.2 Normality test

When analyzing data, it should be distributed normally or close to normal. The validity of different statistical tests and analysis results are expected to be made on data that do not show normal distribution. Nonparametric Analysis should be performed if the data are not normally distributed.

Since N value is greater than sixty (60) in this study, Kolmogorov-Smirnov tests are used.

Table 42 Results of the Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test								
		What do you think about the technology (ERP) system used within the company? Is it an effective and useful system?	Do you think disruptive technologies will affect health systems?	What situations do you think the use of disruptive technologies in health systems will create? [To increase the quality of products and services]	What situations do you think the use of disruptive technologies in health systems will create? [Developing new products or services]	What situations do you think the use of disruptive technologies in health systems will create? [To ensure the development of health technologies]	What situations do you think the use of disruptive technologies in health systems will create? [To facilitate business processes]	Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?
N		204	203	205	204	205	203	204
Normal Parameters ^{a,b}	Mean	1,985	1,739	2,029	2,108	1,966	2,0936	1,877
	Std. Deviation	1,2216	,9626	,9389	,9716	,7694	,99310	1,0266
Most Extreme Differences	Absolute	,349	,350	,264	,284	,273	,252	,289
	Positive	,349	,350	,264	,284	,273	,252	,289
	Negative	-,210	-,221	-,170	-,176	-,240	-,152	-,196
Test Statistic		,349	,350	,264	,284	,273	,252	,289
Asymp. Sig. (2-tailed)		,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

The level of significance was obtained Kolmogorov-Smirnov test results is Asymp. Sig. (Asymptotic Significance) = 0.000 for each factor group. Therefore, as the Asymptotic Significant is lower than the 0.05 for each factor group, the data are not distributed normally and nonparametric analyzes will be applied

Non-Parametric Analysis

The Kruskal-Wallis test is a nonparametric test that can determine whether two or more sample means are significantly statistically significant from each other.

Table 43 Results of the Kruskal-Wallis Test

One-Sample Kolmogorov-Smirnov Test								
	What do you think about the technology (ERP) system used within the company? Is it an effective and useful system?	Do you think disruptive technologies will affect health systems?	What situations do you think the use of disruptive technologies in health systems will create? [To increase the quality of products and services]	What situations do you think the use of disruptive technologies in health systems will create? [Developing new products or services]	What situations do you think the use of disruptive technologies in health systems will create? [To ensure the development of health technologies]	What situations do you think the use of disruptive technologies in health systems will create? [To facilitate business processes]	Do you believe that disruptive technologies will help detect and remedy diseases in healthcare?	
N	204	203	205	204	205	203	204	
Normal Parameters ^{a, b}								
Mean	1,985	1,739	2,029	2,108	1,966	2,0936	1,877	
Std. Deviation	1,2216	,9626	,9389	,9716	,7694	,99310	1,0266	
Most Extreme Differences								
Absolute	,349	,350	,264	,284	,273	,252	,289	
Positive	,349	,350	,264	,284	,273	,252	,289	
Negative	-,210	-,221	-,170	-,176	-,240	-,152	-,196	
Test Statistic	,349	,350	,264	,284	,273	,252	,289	
Asymp. Sig. (2-tailed)	,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c	,000 ^c	

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

If the significance value is less than or equal to 0.05, it can be judged that there is a significant difference between at least two instruments compared. If this value is greater than 0.05, if there is no linear relationships between any groups' means. These groups can be considered equivalent.

At the end of the analysis, there is no significant difference between the data as the data are less than 0.05. The Cross Tables (Chi-Square) test was applied to prove the result of the Kruskal-Wallis H test.

Table 44 Crosstabs Do You Believe that Disruptive Technologies Will Help Detect and Remedy Diseases in Healthcare

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	122,607 ^a	4	,000
Likelihood Ratio	115,850	4	,000
Linear-by-Linear Association	82,971	1	,000
N of Valid Cases	205		
a. 3 cells (30, 0%) have expected count less than 5. The minimum expected count is, 44.			

If the significance value is less than or equal to 0.05, There is a linear relationship between disruptive technologies will help detect and remedy diseases in healthcare analysis and the development of disruptive technologies.

Table 45 Crosstabs Developing New Products or Services

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	128,883 ^a	4	,000
Likelihood Ratio	125,178	4	,000
Linear-by-Linear Association	88,554	1	,000
N of Valid Cases	204		
a. 3 cells (30, 0%) have expected count less than 5. The minimum expected count is, 66.			

If the significance value is less than or equal to 0.05, There is a linear relationship between developing new products or services in healthcare analysis and the development of disruptive technologies.

Table 46 Crosstabs to Increase the Quality of Products and Services

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	142,128 ^a	3	,000
Likelihood Ratio	135,262	3	,000
Linear-by-Linear Association	75,184	1	,000
N of Valid Cases	205		
a. 1 cells (12, 5%) have expected count less than 5. The minimum expected count is 1, 54.			

If the significance value is less than or equal to 0.05, There is a linear relationship between to increase the quality of products and services in healthcare analysis and the development of disruptive technologies.

Table 47 Crosstabs to Facilitate Business Processes

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	108,020 ^a	4	,000
Likelihood Ratio	104,317	4	,000
Linear-by-Linear Association	80,670	1	,000
N of Valid Cases	203		
a. 3 cells (30, 0%) have expected count less than 5. The minimum expected count is, 89.			

If the significance value is less than or equal to 0.05, There is a linear relationship between to facilitate business processes in healthcare analysis and the development of disruptive technologies.

Table 48 Crosstabs to Ensure the Development of Healthcare Technologies

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	79,493 ^a	4	,000
Likelihood Ratio	84,582	4	,000
Linear-by-Linear Association	75,014	1	,000
N of Valid Cases	204		
a. 3 cells (30, 0%) have expected count less than 5. The minimum expected count is ,88.			

If the significance value is less than or equal to 0.05, There is a linear relationship between to ensure the development of healthcare technologies in healthcare analysis and the development of disruptive technologies.

Table 49 Crosstabs Do You Think Disruptive Technologies Will Affect Healthcare Systems

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	144,691 ^a	3	,000
Likelihood Ratio	142,177	3	,000
Linear-by-Linear Association	118,401	1	,000
N of Valid Cases	203		
a. 1 cells (12, 5%) have expected count less than 5. The minimum expected count is 2, 38.			

If the significance value is less than or equal to 0.05, There is a linear relationship between disruptive technologies will affect healthcare systems analysis and the development of disruptive technologies.

10. DATA ANALYSIS AND FINDINGS FOR TOP MANAGERS

The hypothesis testing section consists of two parts: descriptive statistics and testing hypotheses related to parametric / non-parametric research.

10.1 Descriptive Statics for Top managers

The demographic information of the participants, such as age, gender, work experience, and education is given below.

Table 50 Results of the Descriptive Statistics for Gender

Descriptive Statistics for Gender		
	Number in Sample	% in Population
Female	42	35.6
Male	76	64.4
Total	118	100.0

According to the research, the gender distribution of the top managers is (35.6%) “Female” and (64.4%) “Male”. In this context, the majority of technology managers are a male group. This table explains the effects of organization on technology according to gender, education, age, and working background question.

Table 51 Results of the Descriptive Statistics for Age

Descriptive Statistics for Age		
	Number in Sample	% in Population
18-24 age	5	4.2
25-30 age	46	35.1
31-35 age	54	47.8
35 and over	13	6.8
Total	118	100.0

The top managers' age rates show that the highest age group is “31-35”(47.8%), and the lowest in the age group “18- 24” (4.2%). According to the data, most of the technology managers group is the young and middle young age group. This table explains the effects of organization on technology according to gender, education, age, and working background questions.

Table 52 Results of the Descriptive Statistics for Education

Descriptive Statistics for Education		
	Number in Sample	% in Population
Primary school	-	-
Secondary school	-	-
High school	4	1.4
Undergraduate	103	88.5
Master's degree	8	6.8
Doctorate	3	2.3
Total	118	100.0

Education status in top managers, the highest group, is defined as the “undergraduate group” (88.5%). Moreover, the lowest data is” doctorate education” (2.3%).This table

explains the effects of organization on technology according to gender, education, age, and working background questions.

Table 53 Results of the Descriptive Statistics for Work Experience

Descriptive Statistics for Work Experience		
	Number in Sample	% in Population
Under 5 years	3	2.5
5-10 years	39	18.1
11-15 years	62	53.4
16-20 years	13	6.4
21 years and over	6	2.9
Total	118	100.0

The work experience in the study, the highest data is “11-15 years” (53.4%) and the lowest data is “under 5 years” (2.5%). This table explains the questions the effects of organization on technology according to gender, education, age, and working background.

Table 54 Results of the Descriptive Statistics for the ERP Development and Implementation goal / vision

The ERP development and implementation goal / vision		
	Number in Sample	% in Population
Developing new products or services	50	42.4
To increase the quality of products and services	78	66.1
To consolidate competitive advantage	75	63.6
To ensure the development of healthcare technologies	32	27.1
Total	118	100.0

According to the senior executives in research, the most significant proportion of the target and vision of the ERP system are to increase the quality of products and services. (66.1%) Moreover, the second data is to consolidate competitive advantage (63.6%). The lowest rate is the developments of healthcare technologies (27.1%). This table explains the question the central vision and developments in selecting ERP, its development, its difficulties, and its weaknesses.

Table 55 Results of the Criteria for Choosing an ERP System

The criteria for choosing an ERP system		
	Number in Sample	% in Population
Compliance Needs	62	52.5
Applicability and consultancy	44	37.3
Compliance with business organizational structure	36	30.5
Openness to innovations	77	65.3
System suppliers	91	77.1
Integration with other information systems	65	55.1
Reliability	22	18.6
Total	157	100.0

The criterion for selection of ERP systems in the study is found to be the highest (77.1%) in system suppliers, second data is openness to innovations (65.3%), and third data is integration with other information systems (55.1%). The lowest data is reliability (18.6%). These data respond to the central vision and developments in ERP development, challenges, and weakness selection. In addition, this table explains the questions company's positive or adverse reactions to disruptive technologies, for example, do they want to receive training, organization, symposium, etc. on destructive technologies in future.

Table 56 Results of the Descriptive Statistics for Strengths of the ERP System

Strengths of the ERP System		
	Number in Sample	% in Population
Integration with customer information for better coordination between business processes	71	60.2
Increasing individual and organizational efficiency	77	65.3
Having consistent application logic, consistent information and interface that facilitates understanding and working in information technology infrastructure	55	46.6
Providing an expectation of reduction in operating costs	30	25.4
Provides coordination between geographically distant units	68	57.6
Total	118	100.0

The criterion for selection of ERP systems in the study was found to be the highest (65.3%) in increasing individual and organizational efficiency, second data is integration with customer information for better coordination between business processes (60.2%) and third data is provides coordination between geographically distant units (57.6%). The lowest data is providing an expectation of a reduction in operating costs (25.4%).

Table 57 Results of the Descriptive Statistics for Positive Processes during the Encounter Planning and System Integration Process

What positive processes did you encounter during the planning process and system integration process (3 most important)		
	Number in Sample	% in Population
To be done in a common denominator in planning the project flow (Workflow)	79	66.9
Technical and software needs to be transmitted to the project manager	73	61.9
The company's existing resources with which new product, process or service to determine how much could be produced in time	79	66.9
Communication with the project manager and senior units during the project planning process	38	32.2
Integrating the company's technological plan with business strategy	25	21.2
Planning regular meetings	33	28.0
Target to be reached in time	21	17.8
Total	118	100.0

The highest data's are to be done in a common denominator in planning the project flow (workflow) and the company's existing resources with which new product, process or service to determine how much could be produced in time (66.9%). The second data is technical, and software needs to be transmitted to the project manager (61.9%). The third data is communication with the project manager and senior units during the project planning process (21.2%). The lowest data is a target to be reached

in time (17.8%). This table explains the question what are the technical and social factors of the successful implementation of the system in the implementation process question.

Table 58 Results of the Descriptive Statistics for Typical Activities Occurring at Project Management levels, Functional levels

Typical activities occurring at project management levels, functional levels		
	Number in Sample	% in Population
Continuation of time and application flow actively	79	66.9
Pre-assessment of the risks that may occur during the application	82	69.5
Timely testing and reports	44	37.3
Determination correctly roles	32	27.1
Total	118	100.0

Continuation of time and application flow actively (69.9%) has taken the highest analysis, second data Pre-assessment of the risks that may occur during the application has (66.5%). The lowest is determination correctly roles (27.1%). This table explains the questions the technical and social factors of the successful implementation of the system in the implementation process and the effects of the efficiency and development of the technologies used on the organization's technical level.

Table 59 Results of the Descriptive Statistics for Most Important Factors in the Successful Integration of the System

In your opinion, what factors are effective in the successful integration of the System (3 most important)?		
	Number in Sample	% in Population
Understanding User Needs	10	8.6
Pre-assessment of the risks that may occur during the application	15	13.3
Budget allocated for the project	45	32.2
Predictable and Reusable	10	8.6
Team work	35	20.2
Cost effective	18	16.2
Total	118	100.0

The most critical factor in the successful integration of the system is the budget allocated for the project (32.2%), the second data is teamwork (20.2%), and third data is cost-effective (16.2%). The lowest factors are predictable, and reusability (8.6%), understanding user needs (8.6%). This table explains the question what are the technical and social factors of the successful implementation of the system in the implementation process.

Table 60 Results of the Descriptive Statistics for Biggest challenge in successfully Integrating the System

In your opinion, if you think there is a difficulty in successfully integrating the System, if your answer is yes (3 most important answers should be chosen)?		
	Number in Sample	% in Population
Understanding User Needs to be challenges	110	85.9
Resource allocation	13	10.1
Pre-assessment of risks that may occur during application	70	54.3
Project management failures	43	33.3
the timely administration of tests and reports	33	25.6
Total	129	100.0

According to the top managers, the biggest challenge in successfully integrating the system understands user needs to be challenging (85.9%), the second data is the pre-assessment of risk that may occur during application (54.3%) and the third data is project management failures (33.3%). This table explains the question the positive or negative effect of the technologies used on change management during the application process.

Table 61 Results of the Descriptive Statistics for the Technology to Be Sustainable

Which do you think should be done after integration in order for the technology to be sustainable (3 most important answers should be chosen)?		
	Number in Sample	% in Population
Adding new add-ons to the modules according to the needs	74	63.2
Industry-wide transformation, including IT	86	73.5
Organizing regular flow and meetings	100	85.5
Regular updating of the system and security protection	48	41
Continuous investigation for the discovery of new technologies and integration of appropriate technologies into the system	37	31.6
Total	117	100.0

According to the top managers, organizing regular flow and meetings (85.5%) the highest data, second data is industry-wide transformation, including IT (73.5%) and third data is adding new add-ons to the modules according to the needs (63.2%). This table explains the question the understanding of user needs in the technical development of the technologies used and the sustainability of the technology.

Table 62 Results of the Descriptive Statistics for Trainings

After the integration of this system, have the necessary development, orientation (etc.) corporate trainings been carried out?		
	Number in Sample	% in Population
Yes	83	72.8
No	31	27.2
Total	114	100.0

After the system's integration, the highest rate for the necessary institutional training is YES with (72.8%) and NO (27.2%). With this result, table shows that organization gives importance to in-company education. This table explains the questions active training and lack of training during the application process and active training and lack of training during the application process.

Table 63 Results of the Descriptive Statistics for Trainings

If the answer is yes; Who planned the training and who facilitated it?		
	Number in Sample	% in Population
Project manager	81	96.4
CTO	3	3.6
Digital Transformation Director	-	-
Total	118	100.0

If the answer is YES, the project managers do the planning and facilitation of the training (96.4%). The lowest rate is digital transformation director (0%). This table explains the questions active training and lack of training during the application process and active training and lack of training during the application process.

Table 64 Results of the Descriptive Statistics for Main Difficulties in the Training Process

If the answer is yes; What were the main difficulties in the training process?		
	Number in Sample	% in Population
Scope	2	2.6
Lack of necessary resources	52	67.5
Users and technology access difficulties	12	15.6
Identification of users	24	31.2
Insufficient planning for training	49	63.6
Total	77	100.0

If the answer is yes, the most significant difficulty is insufficient training planning (63.6%). The lowest data is in scope (2.4%). This table explains the question active training and lack of training during the application process and positive or negative aspects.

Table 65 Results of the Descriptive Statistics for Biggest Challenges or Challenges in Managing change

In the system implementation process; What are the biggest challenges or challenges in managing change (3 most important answers should be chosen)?		
	Number in Sample	% in Population
System complexity	73	62.4
Paradigm change / Culture change	93	79.5
Difficulty understanding the distribution of job roles	103	88.0
Interaction of the project team with all units of the company (harmony)	39	33.3
Lack of effective leadership in change management	34	29.1
Total	177	100.0

The most important three factors are difficulty understanding the work role and distribution (88.0%), paradigm change / culture change (79.5%), system complexity (62.4%). This table explains the question; is there an approach to communication and solution focus on IT, management, and employees using ERP technology.

Table 66 Results of the Descriptive Statistics for Strengths of Change Management

In the system implementation process; What are the strengths of change management (3 most important answers to be chosen)?		
	Number in Sample	% in Population
Continuous positive communication and flow with management and employees	64	54.7
Resources and support for the budget	81	69.2
improve trust and collaboration among employees	72	61.5
continuously providing the trust and confidence	56	47.9
the managers and team leaders to create synergy in project	95	81.2
Correct distribution of job roles	45	38.5
managers to solve problems in emergency situations	44	37.6
Taking positive action based on pre-planned and it will create changes in the company's project	83	70.9
Continuous change management and continuous adaptation of employees to this change	31	26.5
Total	177	100.0

There are three strengths of change management components. The managers and team leaders create synergy in the project (81.2%), taking positive action based on pre-planned. It will create changes in the company's project (70.9%) and resources and support for the budget (69.2%). This table explains the question the positive or negative effect of the technologies used on change management during the application process.

10.2 Cumulative Data and Statistical Analyses

The questions in this study explore the largest healthcare company in Istanbul, Turkey. Questions are often reshaped at various company levels and according to the positions of employees in the company. In addition, this study analyses the company employees' experimental practice with disruptive technologies and their satisfaction with the ERP system. The distribution of the questions asked in this study by groups is shown below. The questions are abbreviated with labels such as R1, R2, etc.

This study tries to find the answers following research questions;

- What are the effects on organization on technology according to gender, education, age, and working experience? **(R1)**
- What are the central vision and developments in selecting ERP, its development, its difficulties, and its weaknesses? **(R2)**
- Is there an approach to communication and solution focus on IT, management, and employees using ERP technology? **(R3)**
- What are the technical and social factors of the successful implementation of the system in the implementation process? **(R4)**
- What is user needs in the technical development of the technologies used and the technology's sustainability? **(R5)**
- What is the positive or negative effect of the technologies used on change management during the application process? **(R6)**
- What are the effects of the efficiency and development of the technologies used on the organization's technical level? **(R7)**

- What are active training and lack of training during the application process, positive or negative aspects of these processes? **(R8)**
- What is the focus on the relationship between IT and corporate governance as a catalyst in the implementation process? **(R9)**
- What are the technology selection processes and the impact of the chosen technology on the organization? **(R10)**
- Will disruptive technologies affect healthcare systems and structures in the future? **(R11)**
- How Disruptive technologies affect healthcare systems, business processes, etc.? **(R12)**
- Will disruptive technologies help future healthcare and disease treatments? **(R13)**
- What are the positive or adverse reactions of the company to disruptive technologies? For example, do they want to receive training, organization, symposium, etc., on destructive technologies in the future? **(R14)**
- What are companies' perspectives on disruptive technologies? **(R15)**

Table 67 Results of the Descriptive Statistics for Cumulative IT employees and Managers

IT EMPLOYEES AND MANAGERS		
	LABEL	RESULTS
R1	Gender, education, age, and work experience	(44.6%) of “Women” and (55.4%) “Men”, 31-35 age (61.4%), Undergraduate group (54.8%).
R2	Difficulties weaknesses effect (ERP)	ERP system’s Bug (51.9%), having a complex system (20.5%), I do not think the ERP system has a weakness (18.6%).
R3	Positive or negative effect(ERP)	The individual and organizational efficiency respectively (73.9%), It is a single system that facilitates the management of the information technology infrastructure (60.5%), and it has a consistent application logic, consistent information, and interface that facilitates understanding and working in the information technology infrastructure (51.6%).
R4	Technical and social factors of the successful implementation	In the system's successful integration is accessibility and feasibility (67.3%), the budget allocated for the project (60.9%), Understanding the user needs (51.3%).
R5	User needs in the technical development of the technologies	Accessibility and feasibility (67.3%), Budget allocated for the project (60.9%), Understanding the user needs (51.3%).
R6	Positive or negative effect change management, application process	Insufficient planning of training (61.9%), lack of necessary resources (22.6%).
R7	Efficiency and development, technical level of the organization	Accessibility and feasibility (67.3%), Budget allocated for the project (60.9%), Understanding the user needs (51.3%)
R8	Active training and lack of training during the application process	After integrating the system, the highest rate for the necessary institutional training is YES (61.4 %) and NO (38.6%). Respondents said YES (23%) and NO (77%) encountered difficulties while providing training.
R9	IT and corporate governance, the implementation process	After integrating the system, the highest rate for the necessary institutional training is YES with (61.4 %) and NO with (38.6%).
R10	Selection processes and the impact of the chosen technology	ERP systems in the study were the highest (76.4%) in compliance with the enterprise organization's structure, Applicability and consultancy (68.2%), Compliance needs (56.7%).

R11	Disruptive technologies , healthcare systems, the future	YES (98.7%) and answered NO (1.3%).
R12	Disruptive technologies on healthcare systems, business processes, and treatment of diseases	The highest average of 1.904 is disruptive technologies that will affect healthcare systems. In this sense, there is an average that disruptive technologies will positively affect healthcare systems. Secondly, with the facilitating business processes 1.763, it is seen that disruptive technologies will contribute to business processes. New product and service development have the lowest average of 1,692 in this group. In this sense, IT employees and managers think that disruptive technology's effects will be less in new products and services than others will.
R13	Disruptive technologies , healthcare and treatments	Asymptotic If the significance is less than or equal to 0.05, there is a correct hypothesis between disruptive technologies. Disruptive technologies will affect the analysis of healthcare systems positively and find a cure for treatments.
R14	Positive or adverse reactions of the company to disruptive technologies	
R15	Companies' perspective on disruptive technologies	Artificial intelligence (60.6%), data analytic (50.3%) and robot technology (49%).

Table 68 Results of the Descriptive Statistics for Cumulative Company and Healthcare Employees

COMPANY AND HEALTHCARE EMPLOYEES		
	LABEL	RESULTS
R1	Gender, education, age, and work experience, job position.	(51.7%) Women and (48.3%) Men, 25-30 age (51.1%), Undergraduate group (73.3%), 11-15 years (53.4%), Healthcare professionals (60.0%).
R2	Difficulties weaknesses effect (ERP).	YES with (69.3%) and NO with (30.7%).
R3	Positive or negative effect(ERP).	YES with (61.1%) and NO with (39.9%).
R4	Technical and social factors of the successful implementation.	
R5	User needs in the technical development of the technologies.	YES with (69.3%) and NO with (30.7%).
R6	Positive or negative effect change management , application process.	YES (65%) and NO (35%).
R7	Efficiency and development, technical level of the organization.	
R8	Active training and lack of training during the application process.	YES (43.9%) and NO (56.1%).
R9	IT and corporate governance, the implementation process.	YES with (69.3%) and NO with (30.7%).
R10	Selection processes and the impact of the chosen technology.	
R11	Disruptive technologies , healthcare systems, the future.	YES (82.3%) and answered NO (17.7%).
R12	Disruptive technologies on health systems, business processes, and treatment of diseases.	The data with the highest average of 2 in 0936 facilitate business processes. In this sense, there is an average that disruptive technologies will positively affect healthcare

		systems. Secondly, with the increasing quality of products and services 2,029, it is seen that disruptive technologies will contribute to business processes positively. In addition, using disruptive technologies in future healthcare systems has the lowest average of this group. Thus, the participants think that disruptive technology's effects will be less disruptive in future healthcare systems.
R13	Disruptive technologies , healthcare and treatments.	Asymptotic If the significance is less than or equal to 0.05, there is a correct hypothesis between disruptive technologies. Disruptive technologies will affect the analysis of healthcare systems positively and find a cure for treatments.
R14	Positive or adverse reactions of the company to disruptive technologies ,using disruptive technologies.	YES (78.0%) and answered NO (22.0%).
R15	Companies' perspective on disruptive technologies.	Artificial intelligence (75.6%), robot technology (54.1%) and wearable technology (43.9%).

Table 69 Results of the Descriptive Statistics for Cumulative Top Managers

TOP MANAGERS		
	LABEL	RESULTS
R1	Gender, education, age, and work experience.	(35.6%) female and (64.4%) male, 31-35 age (47.8%), Undergraduate group (88.5%), 11-15 years (53.4%).
R2	Development and selecting (ERP).	To increase the quality of products and services. (66.1%), To consolidate competitive advantage (%63.6), The development of healthcare technologies (27.1%), System suppliers (77.1%), Openness to innovations (65.3%), and Integration with other information systems (55.1%), Reliability (18.6%).
R3	Positive or negative effect(ERP).	The biggest challenge in successfully integrating the system understands user needs to be challenging (85.9%), The pre-assessment of risk that may occur during application (54.3%), Project management failures (33.3%).
R4	Technical and social factors of the successful implementation.	Planning the project flow (Workflow) and the company's existing resources with which new product, process or service to determine how much could be produced in time(66.9%) , Technical, and software needs to be transmitted to the project manager (61.9%), Communication with the project manager and senior units during the project planning process (21.2%), Target to be reached in time (%17.8). Pre-assessment of the risks that may occur during the application (%69.5) has taken the highest analysis, second data Pre-assessment of the risks that may occur during the application has (%66.9). The lowest is determination correctly roles (27.1%).
R5	User needs in the technical development of the technologies.	Organizing regular flow and meetings (85.5%), Industry-wide transformation, including IT (73.5%) and Adding new add-ons to the modules according to the needs (63.2%).
R6	Positive or negative effect change management , application process.	The most important three factors are difficulty understanding the work role and distribution (88.0%), Paradigm change / Culture change (79.5 %,) System complexity (62.4%). There are three strengths of change management components. The managers and team leaders create synergy in the project (81.2%), taking positive action based on pre-planned. It will create changes in the company's project (70.9%) and resources and support for the budget (69.2%).
R7	Efficiency and development, technical level of the organization.	ERP systems in the study was found to be the highest (65.3%) in increasing individual and organizational efficiency , Integration with customer information for better coordination between business processes (60.2%), Coordination between geographically distant units (57.6%),Providing an expectation of a reduction in operating costs (25.4%).
R8	Active training and lack of training during the	YES with (72.8%) and NO (27.2%). If the answer is YES, the project managers do the planning and facilitation of the training (96.4%). The

	application process.	lowest rate is Digital Transformation Director (0%). The most significant difficulty is insufficient training planning (63.6%). The lowest data is in scope (2.4%)
R9	IT and corporate governance, the implementation process.	The most critical factor in the successful integration of the system is the budget allocated for the project (32.2%), Teamwork (20.2%), Cost-effective (16.2%).
R10	Selection processes and the impact of the chosen technology.	The highest data's are to be done in a common denominator in planning the project flow (Workflow) and the company's existing resources with which new product, process or service to determine how much could be produced in time (66.9%). The second data is technical, and software needs to be transmitted to the project manager (61.9%). The third data is communication with the project manager and senior units during the project planning process (21.2%). The lowest data is a target to be reached in time (17.8%).

11. CONCLUSIONS

Implementing technologies in organizations are becoming one of the basic blocks of all organizations today. These systems cover a wide range of organizations, from engineering to management. Therefore, Technology's engineering and technical contexts and the organization's social contexts are significantly affected each other.

In today's world, organizations need advanced technology features to achieve competitive advantage and superiority in the marketplace. In this sense, organizations should develop long and short-term technology strategies in their main internal and external strategies. When organizations develop these strategies, they only considered technology's engineering and technical application developments. However, today's technology management approaches to use technology application models in which social and technical contexts exist.

In a successful technology implementation process, the technology's efficiency increases significantly when the social and technical aspects are used collectively. The organizations, which only consider the technical and engineering factors in the technology implementation process, are generally failures. However, Organizations that consider technical and social factors into the implementation process of technology have a lower margin of error than other companies do. These holistic models help organizations to consider time, cost, impact, efficient and sustainable technologies.

Organizations use many different technologies to improve their efficiency and operational processes. ERP and disruptive technologies are at the main of these technologies. Healthcare companies in Turkey use these technologies in order to achieve their productivity, increase their physical healthcare technologies and develop internal operations with software.

This study examines the most prominent healthcare company in the Turkey technology implementation process with the ITIM model's inner context. The study also investigates the effects of internal and external strategies with ERP and disruptive technologies and explains the results within. Otherwise, the study has created a model for Turkey's healthcare companies to apply their technology implementation process. This study provides a roadmap for healthcare companies to use technology actively, so healthcare organizations need to consider the new research model.

In this study, employees' who select various groups in the company, technology perspectives are examined depending on many different factors. However, this study's data results examine the company's comprehensive approach according to the data dynamics.

Healthcare companies use technology in different areas. This study reveals that age and position are essential factors when using technologies effectively and efficiently. These data prove that young group employees have higher technology acquisition and development than elderly groups. Otherwise, according to the employee's company position data, healthcare professionals, IT, and corporate employees which all groups in company desire to use new technologies. Thus, linear results cannot be found between technology usage and gender, education, and working background. In this sense, companies can easily display their technology usage processes dynamically and within different company groups.

ERP technology is one of the main technologies used by healthcare companies. The essential criteria in ERP development for all organization groups are to develop new products and services, to increase the quality of existing product and system suppliers. In this sense, employees expect to develop new systems using the primary ERP system, reliable suppliers, and technical quality.

The vital aspect of the ERP system is that can control a single system according to the organization's needs. However, The ERP system's weaknesses are integrates with other information systems inadequately and bug. As with every system, active solutions and technology applications are very important. Results reveal that employees get a quick solution in case of an ERP-related problem. In this way, active solutions are obtained in technology-related problems where communication between groups is open and robust. In this way, communication provides efficiency in in-house technology usage.

There are many different factors in the successful integration of the system in organizations. According to this study, accessibility, and visibility, understanding the user needs, budget, and cost-effectiveness are essential factors for successfully integrating the system.

Especially, understanding user needs are one of the essential factors in a successful integration process. This criterion is primary criteria for successful integration, especially the top manager's group. In this way, understanding user needs to increase the technology's efficiency and full performance in the organization. According to all participants, access to the whole budget and resources access to increase the employees' facilitates motivation in the implementation process. This situation enables the participant to reveal quality technologies. In this sense of statics, the budget has been one of the most critical criteria in system integration in this study.

Furthermore, the participants assume that the top managers need regularly get feedback from the employees and a system that can manage fewer employees. The roles and functions of the employees should be determined. At the same time, management models should be designed in which they can operate at full

performance. Employees in technology projects should be determined according to specific criteria and work full performance with a detailed plan with fewer employees. In this sense, accurate project management is one of the essential criteria for successfully integrating the system. In addition, participants reveal that managers should receive feedback from the employees. In this way, users develop technology systems' mission, excess, and necessary modules for sustainability. Otherwise thought the successful integration process in the project management and employee activities are other important factors. These activities cover a wide area, from the management of the system to its technical development. The research found that the risks must be determined beforehand during the implementation successfully integrate the project management system. In this sense, investing in risk management will help avoid future management and technical problems and find suitable solutions. Thus, another critical factor for effective project management is the determination of employees' essential roles. During project management, employees' roles were not determined correctly; thus, the employees lacked an understanding of their roles. In this sense, it is necessary to determine the employee roles correctly to avoid conflict within the company and make the proper time management in project management.

Furthermore, the other important factor is that the end users' definition should perform correctly. Project management reveals that coordinated design processes and developments are required in the process of technology implementation. System design depends on the needs of employees and the company. For this reason, employees are actively involved in all processes in system design.

Applying technology process organization should be in regular flow and meetings. All technology systems should be an Industry-wide transformation for technology sustainability. In this way, all technology systems will be more easily integrate, and a

rhythmic technology structure will emerge. On the other hand, technology modules need to be renewed regularly for sustainability.

In the process of implementing technology, companies apply specific change management processes. Although change management is actively examined in every field in this study, compelling and accessible aspects of change management are also present in this study. During change management, one of the most challenging factors in implementation technology process understands employees' roles. In this sense, employees cannot actively perform their roles in this case. This situation interrupts project management's flow and efficiency in the technology implementation process. In addition, change management cannot perform actively.

Moreover, managers do not prepare cultural change actively. The employees' adaptation to changing environments has also slowed by the organization and created a hostile environment. Especially in the Top Manager group, cultural change did not occur actively during project management, creating a hostile environment. Therefore, the technology system's complexity and the lack of a solution to this problem revealed that change management was not technically active.

The management of change has strengths sides as well as weaknesses. This study reveals that the managers' support in teamwork and generating synergy enabled the employees to adapt to project more quickly to manage change. Also, planning the active management of change before implementing technology and providing active support to the employees regarding the budget; increased the project's trust and enabled the change to be made actively.

The companies import specific training and adaptation processes in technology usage processes. The most important factor of these processes is the organization of training that will enable technology use. In this study, most of the participants declare that

they have received specific training for technology use. According to this training's satisfaction principle, most employees have encountered specific difficulties while receiving their training. The most important of these difficulties have been insufficient training planning and the lack of necessary resources. In this sense, the companies' insufficient resources and planning in a practical training process make it difficult for employees to understand the system and use the system effectively. Besides, this training generally provides by the project managers. Results show that the training planning resources provided by the project managers are insufficient. Thus, during the implementation of technology, managers understand the missing parts of the process ignore, and employees' feedback better recognizes the technology. At the same time, education plays a vital role in recognizing companies' mistakes in the technology implementation process.

In the research, the employees' perspectives in different company groups related to disruptive technologies were examined based on many factors. According to the participants, disruptive technologies are artificial intelligence, robot technology, and wearable technology. In this study, the perception of disruptive technologies in all groups has emerged mainly as artificial intelligence. The company uses artificial intelligence in organizations in different fields. In this sense, the company's studies and projects related to artificial intelligence and the rapid development of artificial intelligence have caused to be at the forefront in these groups. This study found that artificial intelligence affects the facilitating business process, improves healthcare technologies, develops new product services, and increases the quality of existing products and services. In this sense, this study observes that artificial intelligence will become one of the essential technologies that enable the development of all company processes and healthcare systems in the future.

Disruptive technologies use in different commercial areas, especially in the healthcare field, both for management and healthcare systems development. The research found that disruptive technologies would positively affect healthcare managers in the healthcare sector systems and help find recurrences of diseases in the future. The participants also stated that they wanted to receive training on disruptive technologies in the future and wanted to gain expertise in different technologies. Educating those involved in this direction will help healthcare companies to learn and develop disruptive technology. Thus, this training will significantly result in companies understanding disruptive technologies and developing new disruptive technologies. Employees' positive approach to this training has revealed that disruptive technologies can be actively implemented and easily applied in healthcare. In this sense, data reveal that the employees will not have difficulty with the changes brought about by disruptive technologies.

Besides, there are some areas for technology managers to develop. The system's integration and the employees' roles in the previous process should be determined actively, regular meetings should hold, and project and test management should perform actively. This components show the missing parts of the entire project management. Lack of project management reduces employees' adaptation to the project and prevents an efficient project from being carried out. In addition, the company's technology plan and strategic plans must resemble each other. In this sense, the independent strategies of each other negatively affect both its internal and external strategies.

This study also reveals that project management has its strengths and weaknesses. In this sense, active project management in all aspects reduces the error rate of the project. On the other hand, in the planning process, managers need to set achievable

and timely goals. The correct planning of goals usually comes about with the correct distribution of the workforce and roles. This study reveals a relationship with the distribution of the roles to achieve the goals on time.

In addition, during the implementation process, the administrators should determine the risks in advance and be prepared in advance for the situations that may occur at the last minute. These preparations should generally be made with the employees beforehand or from the beginning with feedback and debate. In this way, risk management carries out correctly, and precautions taken for adverse conditions before.

As the research shows, the properly project management comes out correctly when combined with the management's expectations and technical features and the employees' social and technical expectations. This situation also increases the correct development of the internal technology strategy and the efficiency of using it. According to data results the employees' role distribution and expertise, making the decisions together in the project management and planning processes increases the employees' satisfaction with technology.

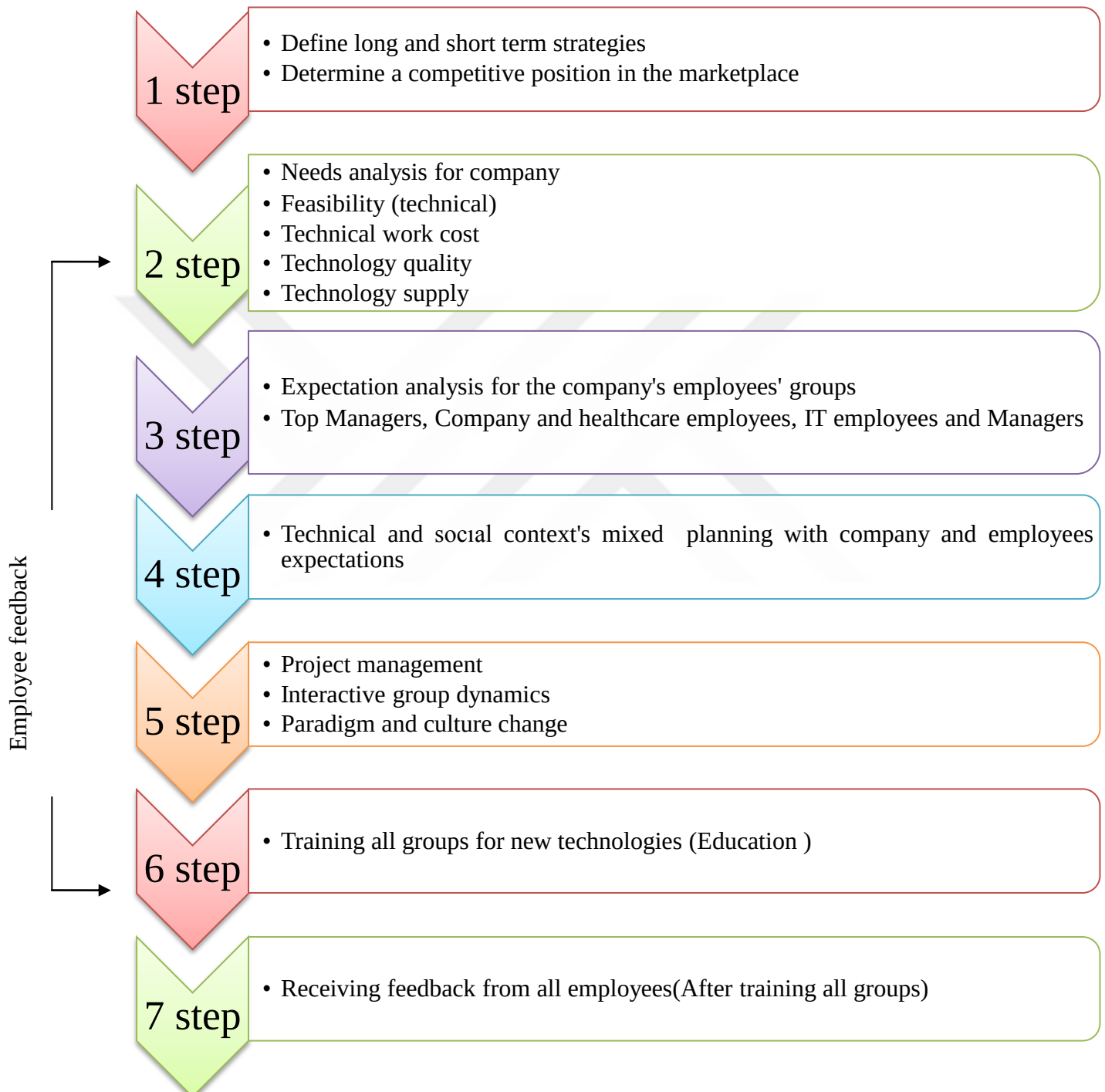
Furthermore, another essential responsibility of technology managers is to support their employees with disruptive technologies. As seen in the research, technology's use and application facilitate companies with young and middle age groups. Moreover, employees are enthusiastic about using new generation technologies. In this sense, managers should regularly train their employees on disruptive technologies and support their talented employees in developing new technologies. Moreover, disruptive technologies create disruptive innovations in the cultures of companies. These destructive situations usually have a resistance in the glaze culture. In this sense, regular change management should appear to be able to take an efficient way

of adapting the company to disruptive technologies. Active change management also eliminates the innovation problems caused by destructive technologies. Managers should hold regular meetings with employees and receive feedback so that they can actively manage the change. Furthermore, it should actively plan the change in technology strategies in the short and long term and adapt to the change in technology according to its culture and structure.

The most critical principal leaders in the management of technological change are the vision of technology. Companies are experiencing severe difficulties not only in existing technologies but also in the adaptation of new technologies. In this sense, active communication and flow from the end-user to the company manager show a favorable situation in the technologies' application and usage processes. Companies should also organize adaptations according to the prepared reports.

Disruptive technologies affect all areas of our lives. Technology managers must regularly obtain information about disruptive technologies in healthcare systems and investigate their glades' applicability to organizational structures. In this way, they create strategies that will stand out in terms of competition in the market. Healthcare companies have been using disruptive technologies and ERP systems for many years. Companies have been aware of these technologies' long-lasting effects, efficiency, and continuously develop these technologies to use them in their systems. According to Turkey's healthcare companies, these technologies appear to be incredibly disruptive. When disruptive technologies need to be pursued by healthcare companies, the results of this research are that healthcare managers actively apply disruptive technologies as a handbook. Healthcare technologies are evolving day by day. Healthcare technologies will emerge in different ways in the future. This study provides a prediction for healthcare companies on the path to follow to facilitate the

implementation of ERP and disruptive technologies in a changing competitive environment. The cumulative outcome of this research gives a comprehensive model that can be offered to healthcare companies.



LIMITATIONS, FUTURE WORK AND RECOMMENDATIONS

Limitations

Many difficulties were encountered in the research process of this study. The first difficulty is that finding articles and studies for social effects of disruptive technologies in the literature research process. Another compelling factor is the difficulty in collecting survey data. In this study, the survey data collection period varies between 3 and 6 months. However, data collection was almost not complete until eight (8) months of the dissertation. In this sense, collecting data was the most challenging point in this study.

Future Work

Few studies emerge that need to be followed without the study. According to this research, it has been observed that disruptive technologies will positively affect healthcare systems. In this study, the internal impact of the ITIM model was investigated. However, in the next research process, the external impacts of the ITIM model should be investigated. On the other hand, there is no comprehensive study in the literature regarding disruptive technologies' social effects on the organization. The social effects of disruptive technologies need to be examined.

Recommendations

The limitations of this research point to issues to be addressed in the future. During the research process, the researcher should get more guidance from the company in collecting data and keep communication robust. The company should accomplish extensively on disruptive technologies. ERP project management problems should be reassessed.

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APPENDIX

Table Survey Ethical Announcement

6698 Sayılı Kişisel Verilerin Korunması Kanunu ve Yeditepe Üniversitesi çalışanları/öğrencileri tarafından yürütülen ve insan katılımcılarından bilgi toplamayı gerektiren tüm çalışmalar, YÜ Beşeri ve Sosyal Araştırmalar Etik Kurulu incelemesine tabidir. Bu başvuru formu doldurulduktan sonra YÜ Beşeri ve Sosyal Araştırmalar Etik Kuruluna gereğince bu formda ki bütün bilgiler saklı kalacaktır. İsim , Soyisim ve Telefon numarası , Kurum adı gibi kişisel bilgiler kanun ve etik kurul gereği alınmayacaktır. ANKETE KATILDIĞINIZ İÇİN TEŞEKKÜR EDERİM

Table Survey Question

Survey questions company and healthcare employees

1. What is your gender?

- a) Female
- b) Male

2. What age group are you in?

- a) 18-24 age
- b) 25-30 age
- c) 31-35 age
- d) 35 and over

3. What is your educational background?

- a) Primary school
- b) Middle School
- c) High school
- d) License
- e) Post Graduate
- f) Doctorate

4. How many years of work experience do you have?

- a) 5 year above
- b) 5-10 years
- c) 11-15 years
- d) 16-20 years
- e) Over 21 years

5. What is the job position in the company?

- a) Healthcare employee

b) Corporate Employee

6. What do you think about the technology (ERP) system used within the company? Is it an effective and useful system?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I strongly agree

7. After the technology (ERP) system used in the company is integrated, have the necessary development, orientation (etc.) corporate trainings been carried out?

- a) Yes
- b) No

8. If the answer to the question is Yes: Do you think these trainings for the technology (ERP) used within the company were effective in understanding the system?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I strongly agree

9. When you encounter a problem with the ERP system, do you get quick solutions?

- a) Yes
- b) No

10. Do you get information sharing and solutions from your regular managers, IT, etc., about the technology (ERP) system used in the company?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I strongly agree

11. What are the disruptive technologies or technologies for you?

- a) Cloud Computers
- b) Internet of Things
- c) 3D Printer
- d) Artificial intelligence
- e) Data analytics
- f) Robot technology
- g) Virtual reality

12. Do you think disruptive technologies will affect healthcare systems?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I strongly agree

13. What situations do you think the use of disruptive technologies in healthcare systems create?

- a) To increase the quality of products and services
- b) To consolidate competitive advantage
- c) Developing new products or services

d) To ensure the development of healthcare technologies

14. Would you like to use disruptive technologies in future healthcare systems ?

a) Yes

b) No

15. The presence of diseases and disruptive technologies in the field of healthcare remedies do you believe will help?

a) I strongly disagree

b) I do not agree

c) Neither agree nor disagree

d) I agree

e) I strongly agree

16. Would you like to receive training in disruptive technologies for healthcare systems?

a) Yes

b) No

Survey questions IT employees and managers

1. What is your gender?

a) Female

b) Male

2. What age group are you in?

- a) 18-24 age
- b) 25-30 age
- c) 31-35 age
- d) 35 and over

3. What is your educational background?

- a) Primary school
- b) Middle School
- c) High school
- d) License
- e) Post Graduate
- f) Doctorate

4. How many years of work experience do you have?

- a) 5 year above
- b) 5-10 years
- c) 11-15 years
- d) 16-20 years
- e) Over 21 years

5. What are the ERP development and implementation goal / vision?

- a) To increase the quality of products and services
- b) To consolidate competitive advantage
- c) Developing new products or services
- d) To ensure the development of healthcare technologies

6. What are the criteria for ERP system selection?

- a) Compliance with the needs
- b) Support of senior management
- c) Implementation time
- d) Implementation costs
- e) Openness to innovations
- f) Applicability and consultancy
- g) System suppliers
- h) Integration with other information systems
- i) Flexibility
- j) Compliance with business organizational structure Compliance of employees with the system
- k) Reliability

7. What are the System Strengths (ERP)?

- a) Have a better coordination between the business processes for Stern to integrate them with the information

- b) Increasing the service quality level by standardizing the service process and human resources
- c) increasing individual and organizational efficiency
- d) Coordination between geographically distant units
- e) Having consistent application logic, consistent information and interface that facilitates understanding and working in information technology infrastructure
- f) The existence of a single system that makes it easier to manage information technology infrastructure,
- g) The need for easy access to data to improve strategic business decisions
- h) Expected reduction in operating costs

8. What are the weaknesses of the system?

- a) Bug
- b) Not user friendly
- c) Having a complex system
- d) Not enough expectation of reduction in operating costs
- e) Unused modules and areas in the system
- f) I don't think the ERP system has a weakness

9. In your opinion, what factors were influential in the successful integration of the System?

- a) Understanding User Needs
- b) Quality Information
- c) Accessibility and visibility
- d) Budget allocated for the project
- e) Time allocated for the project

10. Was orientation and training provided after system integration?

- a) Yes
- b) No

11. If the answer is yes; who planned the training and who facilitated it?

- a) Project manager
- b) CTO
- c) Digital Transformation Director
- d) Other.....

12. Did you encounter any particular difficulties while providing training?

- a) Yes
- b) No

13. If the answer is yes; what were the main difficulties in providing education?

- a) Scope
- b) Lack of necessary resources
- c) Technology access difficulties with users
- d) Identification of users
- e) Insufficient planning for training

14. What would you do differently, given the same set of resources (time, staff, and budget)?

(Other).....

15. What are the disruptive technologies or technologies for you?

- a) Cloud Computers
- b) Internet of Things
- c) 3D Printer
- d) Artificial intelligence
- e) Data analytics

- f) Robot technology
- g) Virtual reality

16. Do you think disruptive technologies will affect healthcare systems?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I totally agree

17. What situations do you think the use of disruptive technologies in healthcare systems create?

- a) To increase the quality of products and services
- b) To consolidate competitive advantage
- c) Developing new products or services
- d) Ensuring the development of healthcare technologies

18. Would you like to use disruptive technologies in future healthcare systems?

- a) Yes
- b) No

19. Do you believe that disruptive technologies will help find and cure diseases in healthcare?

- a) I strongly disagree
- b) I do not agree
- c) Neither agree nor disagree
- d) I agree
- e) I totally agree

20. Would you like to receive training in disruptive technologies for healthcare systems?

- a) Yes
- b) No



Survey questions top manager

1. What is your gender?

- a) Female
- b) Male

2. What age group are you in?

- a) 18-24 age
- b) 25-30 age
- c) 31-35 age
- d) 35 and over

3. What is your educational background?

- a) Primary school

- b) Middle School
- c) High school
- d) License
- e) Post Graduate
- f) Doctorate

4. How many years of work experience do you have?

- a) 5 year above
- b) 5-10 years
- c) 11-15 years
- d) 16-20 years
- e) Over 21 years

5. What are the ERP development and implementation goal / vision?

- a) To increase the quality of products and services
- b) To consolidate competitive advantage
- c) Developing new products or services
- d) Ensuring the development of healthcare technologies

6. What are or what are the criteria for ERP system selection?

- a) Compliance with the needs
- b) Support of senior management
- c) Implementation time
- d) Implementation costs
- e) Openness to innovations
- f) Applicability and consultancy

- g) System suppliers
- h) Integration with other information systems
- i) Flexibility
- j) Compliance with business organizational structure
- k) Compliance of employees with the system
- l) Reliability

7. What are the System Strengths (ERP)?

- a) Integration with customer information for better coordination between business processes
- b) Increasing individual and organizational efficiency
- c) Coordination between geographically distant units
- d) Having a consistent application logic, consistent information and interface that facilitates understanding and working in information technology infrastructure
- e) The existence of a single system that makes it easier to manage information technology infrastructure

8. What positive processes did you encounter during the planning process during system integration?

- a) To be done in a common denominator in planning the project flow (Workflow)
- b) Communication of technical and software needs to the project manager
- c) Determining which new product, process or service the company can produce with its current resources in how long
- d) Communication with the project manager and senior units during the project planning process
- e) Integrating the company's technological plan with business strategy
- f) Planning regular meetings

g) Timely achievement of goals

9. What are the typical activities that occur at planning levels, at your functional level?

- a) Active project management
- b) Time and application flow to continue actively
- c) Pre-assessment of the risks that may occur during the application
- d) Timely testing and reports

10. In your opinion, what factors were influential in the successful integration of the System?

- a) Understanding User Needs
- b) Quality Information
- c) Accessibility and visibility
- d) Budget allocated for the project
- e) Time allocated for the project
- f) Team work
- g) Cost effective
- h) No problem in going live
- i) Open communication with managers

11. In your opinion, if you think there is a difficulty in successfully integrating the System, if your answer is yes (3 most important answers should be chosen)?

- a) Difficulty Understanding User Needs
- b) Failure to pre-evaluate the risks that may occur during the application
- c) Project management disruptions
- d) Tests and reports not being done on time
- e) Resource allocation

12. Which or which do you think should be done after integration in order for the technology to be sustainable (3 most important answers should be chosen)?

- a) Making new additions to modules in line with the needs
- b) Industry-wide transformation, including IT
- c) Organizing regular flow and meetings
- d) Regular updating of the system as a whole and security protection
- e) Continuous examination for the discovery of new technologies and integration of appropriate technologies into the system

1. Was orientation and training provided after system integration?

- a) Yes
- b) No

1. If the answer is yes; who planned the training and who facilitated it?

- a) Project manager
- b) CTO
- c) Digital Transformation Director
- d) Other.....

1. Did you encounter any particular difficulties while providing training?

- a) Yes
- b) No

16. If the answer is yes; what were the main difficulties in providing education?

- a) Scope
- b) Lack of necessary resources
- c) Technology access difficulties with users
- d) Identification of users
- e) Insufficient planning for training

18. What would you do differently, given the same set of resources (time, staff, and budget)? (Other).....

19. What were some of the main change management initiatives taken to institutionalize ERP? For the organization?

- a) Contracting and management aspect
- b) The need and commitment to success felt by users
- c) Involving stakeholders in identifying needs
- d) Integration of legacy systems
- e) Experience with other technologies
- f) Established Implementation Process

19. In the system implementation process; what are the biggest challenges or challenges in managing change?

- a) Budget
- b) Scope
- c) Brand
- d) System complexity
- e) Paradigm change / Culture change
- f) Difficulty understanding the work role and distribution
- g) Harmony
- h) Organization

20. In the system implementation process; what are the strengths of change management?

- a) Continuous positive communication and flow with management and employees
- b) Resource and budget support
- c) Developing trust and cooperation among employees
- d) Providing an atmosphere of trust and trust continuously
- e) Creating synergy of managers and team leaders within the project
- f) Correct distribution of work roles

- g) Managers creating solutions to problems in the last minute situations
- h) Planning the change that the project will create in the company in advance and taking positive actions accordingly
- i) Continuous change management and therefore continuous adaptation of employees to this change

SAĞLIK VE KURUMSAL ÇALIŞANLARI ANKET SORULARI

1. Şirket içi çalışılan pozisyon nedir ?

- a) Sağlık Çalışanı
- b) Kurumsal Çalışan

2. Şirket içerisinde kullanılan teknoloji (ERP) sistemi hakkında ne düşünüyorsunuz ? Etkili ve kullanışlı bir sistem mi ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

3. Şirket içerisinde kullanılan teknoloji (ERP) sistemi entegrasyonu yapıldıktan sonra gerekli geliştirme , oryantasyon (vb) kurumsal eğitimler yapıldı mı ?

- a) Evet
- b) Hayır

4. Sorunun cevabı Evet ise : Şirket içerisinde kullanılan teknoloji (ERP) için yapılan bu eğitimler sizce sistemi anlamanız konusunda etkili oldu mu ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

5. ERP sistemi ile ilgili bir sorun ile karşılaştığınız zaman hızlı çözümler alıyormusunuz ?

- a) Evet
- b) Hayır

6. Şirket içerisinde kullanılan teknoloji (ERP) sistemi ile ilgili bir düzenli bir yöneticilerinizden , IT vb üst kademelerden bilgi paylaşımı ve çözüm alıyormusunuz ?

- a) Evet
- b) Hayır

7. Sizin için yıkıcı teknoloji veya teknolojileri nelerdir ?

- a) Cloud Bilgisayarlar.
- b) Nesnelerin İnterneti
- c) 3D Printer
- d) Yapay Zeka
- e) Veri analitiği
- f) Robot teknolojisi
- g) Sanal gerçeklik/artırılmış gerçeklik

8. Sizce yıkıcı teknolojiler sağlık sistemlerini etkileyecek mi?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum

e) Kesinlikle katılıyorum

9. Yıkıcı teknolojilerin sağlık sistemlerinde kullanılması sizce hangi durumları yaratmaktadır ?

- a) Ürün ve hizmetlerin kalitesini artırmak
- b) Rekabet üstünlüğünü pekiştirmek
- c) Yeni ürün veya hizmetler geliştirmek
- d) Sağlık teknolojilerinin gelişmesini sağlamak

10. Yıkıcı teknolojileri ileride sağlık sistemlerinde kullanmak ister misiniz ?

- a) Evet
- b) Hayır

11. Yıkıcı teknolojilerin sağlık alanında hastalıkların bulunması ve çareleri konusunda yardımcı olacağına inanıyor musunuz ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

12. Sağlık sistemleri için yıkıcı teknolojiler eğitimlerini almak ister misiniz ?

- a) Evet
- b) Hayır

13. Yıkıcı teknolojilerin çalışmalarınızın verimliliğini arttıracığına inanıyor musunuz?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum

- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

IT ÇALIŞANLARI ANKET SORULARI

1. ERP geliştirme ve uygulama hedefi / vizyonu?

- a) Ürün ve hizmetlerin kalitesini artırmak
- b) Rekabet üstünlüğünü pekiştirmek
- c) Yeni ürün veya hizmetler geliştirmek
- d) Sağlık teknolojilerinin gelişmesini sağlamak

2. ERP sistemi seçme kriterleri nedir veya nelerdir ?

- a) İhtiyaca uygunluk
- b) Üst yönetimin desteği
- c) Uygulama süresi
- d) Uygulama maliyetleri
- e) Yeniliklere açıklık
- f) Uygulanabilirlik ve danışmanlık
- g) Sistem tedarikçileri
- h) Diğer bilgi sistemleriyle entegrasyon
- i) Esneklik
- j) İşletme organizasyon yapısına uygunluk
- k) Çalışan personelin sisteme uyumu
- l) Güvenilirlik

3. Sistemin Güçlü Yönleri (ERP)?

- a) İş süreçleri arasında daha iyi bir koordinasyon için müşteri bilgileriyle bütünleştirilmesi
- b) hizmet sürecinin ve insan kaynaklarının standartlaştırılmasıyla servis kalite seviyesinin yükseltilmesi
- c) bireysel ve organizasyonel verimliliğin artırılması
- d) Coğrafi olarak birbirinden uzak birimler arasındaki koordinasyon
- e) Bilgi teknolojisi altyapısını anlamayı ve bu yapıda çalışmayı kolaylaştıran tutarlı uygulama mantığı, tutarlı bilgi ve arayüze sahip olmak
- f) Bilgi teknolojisi altyapısını yönetmeyi kolaylaştıran tek bir sistemin varlığı,
- g) Stratejik işletme kararlarının iyileştirilebilmesi için veriye kolay erişim ihtiyacı,
- h) İşletme maliyetlerinde azalma beklentisi,

4. Sistemin zayıf yönleri nelerdir ?

- a) Bug
- b) Kullanıcı dostu olmaması
- c) Karmaşık sisteme sahip olması
- d) İşletme maliyetlerinde azalma beklentisi yeterli olmaması

5. Sizce ,Sistemin başarılı bir şekilde ki entegrasyonunda hangi faktörler etkiliydi ?

- a) Kullanıcı İhtiyaçlarını Anlamak
- b) Kalite Bilgisi
- c) Erişilebilirliğin ve görünürlüğün olması
- d) Proje için ayrılan bütçe
- e) Proje için ayrılan zaman

6. Sistem entegrasyonu gerçekleştikten sonra oryantasyon ve eğitim sağlandı mı ?

- a) Evet
- b) Hayır

7. Cevap Evet ise ; Eğitimi kim planladı ve kim kolaylaştırdı?

- a) Proje Yöneticisi
- b) CTO
- c) Dijital Transformasyon Direktörü
- d) Diğer.....

8. Eğitim sağlarken belirli zorluklar ile karşılaştınız mı ?

- a) Evet
- b) Hayır

9. Cevap Evet ise ; Eğitim sağlamadaki ana zorluklar nelerdi?

- a) Scope
- b) Gerekli kaynakların sağlanmaması
- c) Kullanıcılar ile teknoloji erişimi zorluğu yaşanması
- d) Kullanıcıların tanımlanması
- e) Eğitim için planlanmanın yetersiz olması

10. Aynı kaynak seti (zaman, personel, bütçe) göz önüne alındığında, farklı olarak ne yapardınız?

(Diğer)

11. Şirket içerisinde kullanılan teknoloji (ERP) sistemi ile ilgili bir düzenli bir yöneticilerinizden , IT vb üst kademelerden bilgi paylaşımı ve çözüm alıyor musunuz ?

- a) Evet
- b) Hayır

12. Sizin için yıkıcı teknoloji veya teknolojileri nelerdir ?

- a) Cloud Bilgisayarlar.
- b) Nesnelerin İnterneti
- c) 3D Printer
- d) Yapay Zeka
- e) Veri analitiği
- f) Robot teknolojisi
- g) Sanal gerçeklik/artırılmış gerçeklik

13. Sizce yıkıcı teknolojiler sağlık sistemlerini etkileyecek mi ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

14. Yıkıcı teknolojilerin sağlık sistemlerinde kullanılması sizce hangi durumları yaratmaktadır ?

- a) Ürün ve hizmetlerin kalitesini artırmak
- b) Rekabet üstünlüğünü pekiştirmek
- c) Yeni ürün veya hizmetler geliştirmek
- d) Sağlık teknolojilerinin gelişmesini sağlamak

15. Yıkıcı teknolojileri ileride sağlık sistemlerinde kullanmak ister misiniz ?

- a) Evet
- b) Hayır

16. Yıkıcı teknolojilerin sağlık alanında hastalıkların bulunması ve çareleri konusunda yardımcı olacağına inanıyor musunuz ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

17. Sağlık sistemleri için yıkıcı teknolojiler eğitimlerini almak ister misiniz ?

- a) Evet
- b) Hayır

18. Yıkıcı teknolojilerin çalışmalarınızın verimliliğini arttıracığına inanıyor musunuz ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

IT VE TEKNOLOJİ YÖNETİCİLERİ ANKET SORULARI

1. ERP geliştirme ve uygulama hedefi / vizyonu?

- a) Rekabet üstünlüğünü pekiştirmek
- b) Yeni ürün veya hizmetler geliştirmek

- c) Sağlık teknolojilerinin gelişmesini sağlamak
- d) Ürün ve hizmetlerin kalitesini artırmak

2. ERP sistemi seçme kriterleri nedir veya nelerdir ?

- a) İhtiyaca uygunluk
- b) Üst yönetimin desteği
- c) Uygulama süresi
- d) Uygulama maliyetleri
- e) Yeniliklere açıklık
- f) Uygulanabilirlik ve danışmanlık
- g) Sistem tedarikçileri
- h) Diğer bilgi sistemleriyle entegrasyon
- i) Esneklik
- j) İşletme organizasyon yapısına uygunluk
- k) Çalışan personelin sisteme uyumu
- l) Güvenilirlik

3. Sistemin Güçlü Yönleri (ERP)?

- a) İş süreçleri arasında daha iyi bir koordinasyon için müşteri bilgileriyle bütünleştirilmesi
- b) Hizmet sürecinin ve insan kaynaklarının standartlaştırılmasıyla servis kalite seviyesinin yükseltilmesi
- c) Bireysel ve organizasyonel verimliliğin artırılması
- d) Coğrafi olarak birbirinden uzak birimler arasındaki koordinasyon

- e) Bilgi teknolojisi altyapısını anlamayı ve bu yapıda çalışmayı kolaylaştıran tutarlı uygulama mantığı, tutarlı bilgi ve arayüze sahip olmak
- f) Bilgi teknolojisi altyapısını yönetmeyi kolaylaştıran tek bir sistemin varlığı
- g) Stratejik işletme kararlarının iyileştirilebilmesi için veriye kolay erişim ihtiyacı
- h) İşletme maliyetlerinde azalma beklentisi

4. Sistemin zayıf yönleri nelerdir ?

- a) Bug
- b) Kullanıcı dostu olmaması
- c) Karmaşık sisteme sahip olması
- d) İşletme maliyetlerinde azalma beklentisi

5. Planlama seviyelerinde, fonksiyonel seviyenizde meydana gelen tipik faaliyetler?

- a) Proje yönetiminin aktif bir şekilde yapılması
- b) Zaman ve uygulama akışının aktif bir şekilde devam etmesi
- c) Uygulama sırasında oluşabilecek risklerin önceden değerlendirilmesi
- d) Testlerin ve raporların zamanında yapılması

6. Sizce ,Sistemin başarılı bir şekilde ki entegrasyonunda hangi faktörler etkiliydi ?

- a) Kullanıcı İhtiyaçlarını Anlamak
- b) Kalite Bilgisi
- c) Erişilebilirliğin ve görünürlüğün olması
- d) Proje için ayrılan bütçe
- e) Proje için ayrılan zaman

7. Sistem entegrasyonu gerçekleştikten sonra oryantasyon ve eğitim sağlandı mı ?

- a) Evet
- b) Hayır

8. Cevap Evet ise ; Eğitimi kim planladı ve kim kolaylaştırdı?

- a) Proje Yöneticisi
- b) CTO
- c) Dijital Transformasyon Direktörü
- d) Diğer.....

9. Eğitim sağlarken belirli zorluklar ile karşılaştınız mı ?

- a) Evet
- b) Hayır

10. Cevap Evet ise ; Eğitim sağlamadaki ana zorluklar nelerdi?

- a) Scope
- b) Gerekli kaynakların sağlanmaması
- c) Kullanıcılar ile teknoloji erişimi zorluğu yaşanması
- d) Kullanıcıların tanımlanması
- e) Eğitim için planlanmanın yetersiz olması

11. ERP'yi kurumsallaştırmak için gerçekleştirilen bazı temel değişim yönetimi girişimleri nelerdi? organizasyon için ?

- a) Taahhüt ve yönetim yönü
- b) Kullanıcılar tarafından hissedilen ihtiyaç ve başarı taahhüdü
- c) Paydaşların ihtiyaçların belirlenmesine dahil edilmesi
- d) Eski sistemlerin entegrasyonu
- e) Diğer teknolojiler ile deneyim

f) Kurulan Uygulama Süreci

12. Sistem uygulama sürecinde ; deęişim yönetiminde en büyük zorluk veya zorluklar nedir ?

- a) Bütçe
- b) Scope
- c) Marka
- d) Sistem karmaşıklığı
- e) Paradigma deęişimi / Kültür deęişikliği
- f) Çalışma rolünü ve dağılımını anlamada zorluklar
- g) Uyum
- h) Organizasyon

13. Sürecin zayıf yönleri?

- a) Markalar arası iletişim
- b) Boşluklar
- c) Proje evrimleşme sürecinde aksaklıklar
- d) Fonksiyonel gruplardan gelen baskı
- e) Kaynak tahsisi
- f) Proje yönetimi aksaklıkları
- g) Planlama

14. Sürecin güçlü yönleri?

- a) Öngörülebilir ve Yeniden Kullanılabilir
- b) Takım çalışması
- c) malzemeler
- d) Hızlı dağıtım
- e) Uygun Maliyetli
- f) Taahhüt

15. Proje için kurumsal destek yeterli miydi?

- a) Evet
- b) Hayır

16. Aynı kaynak seti (zaman, personel, bütçe) göz önüne alındığında, farklı olarak ne yapardınız?

(Diğer)

17. Şirket içerisinde kullanılan teknoloji (ERP) sistemi ile ilgili bir düzenli bir yöneticilerinizden , IT vb üst kademelerden bilgi paylaşımı ve çözüm alıyor musunuz ?

- a) Evet
- b) Hayır

18. Sizin için yıkıcı teknoloji veya teknolojileri nelerdir ?

- a) Cloud Bilgisayarlar.
- b) Nesnelerin İnterneti
- c) 3D Printer
- d) Yapay Zeka
- e) Veri analitiği
- f) Robot teknolojisi
- g) Sanal gerçeklik/artırılmış gerçeklik

19. Sizce yıkıcı teknolojiler sağlık sistemlerini etkileyecek mi ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

20. Yıkıcı teknolojilerin sağlık sistemlerinde kullanılması sizce hangi durumları yaratmaktadır?

- a) Ürün ve hizmetlerin kalitesini artırmak
- b) Rekabet üstünlüğünü pekiştirmek
- c) Yeni ürün veya hizmetler geliştirmek
- d) Sağlık teknolojilerinin gelişmesini sağlamak

21. Yıkıcı teknolojileri ileride sağlık sistemlerinde kullanmak ister misiniz ?

- a) Evet
- b) Hayır

22. Yıkıcı teknolojilerin sağlık alanında hastalıkların bulunması ve çareleri konusunda yardımcı olacağına inanıyor musunuz ?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum

23. Sağlık sistemleri için yıkıcı teknolojiler eğitimlerini almak ister misiniz ?

- a) Evet
- b) Hayır

24. Yıkıcı teknolojilerin çalışmalarınızın verimliliğini arttıracığına inanıyor musunuz?

- a) Kesinlikle katılmıyorum
- b) Katılmıyorum
- c) Ne katılıyorum Ne katılmıyorum
- d) Katılıyorum
- e) Kesinlikle katılıyorum