THE EFFECT OF PROJECT MANAGEMENT OFFICE ON ORGANIZATIONAL LEARNING: A CASE FROM THE DEFENSE INDUSTRY IN TURKEY

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

BAŞAK ULUTAŞ

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
DEPARTMENT OF SCIENCE AND TECHNOLOGY POLICY STUDIES

DECEMBER 2022

Approval of the thesis:

THE EFFECT OF PROJECT MANAGEMENT OFFICE ON ORGANIZATIONAL LEARNING: A CASE FROM THE DEFENSE INDUSTRY IN TURKEY

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ABSTRACT

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December 2022, 138 pages

A project management office is an organizational structure and one of the main contributors to organizational learning. This thesis aims to figure out the effect of a project management office on organizational learning by analyzing the case of a Turkish defense industry company. The thesis is based on the hypothesis that project management office structure has direct and indirect effects on organizational learning. Therefore, before an in-depth literature analysis on organizational learning and project management office, available literature in the areas of learning, knowledge, knowledge management, capabilities, and project management are reviewed. The interview part is based on the literature about the functions of a project management office that directly or indirectly affects organizational learning. Based on the literature review and field observations, the interview questions are designed considering the defense industry and the company's characteristics. To find the answer to whether a project management office affects organizational learning and how a project management office can improve organizational learning, a semi-structured interview was conducted with twenty people from two department groups: project management and project management office. According to the interview results, the project management office

has functions through which organizational learning is affected. After the analysis of the qualitative findings, strategies are suggested for enhancing organizational learning through project management office structure.

Keywords: Organizational Learning, Project Management Office, Defense Industry

ÖZ

PROJE YÖNETİM OFİSİNİN ÖRGÜTSEL ÖĞRENMEYE ETKİSİ: TÜRKİYE SAVUNMA SANAYİ ÖRNEĞİ

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Aralık 2022, 138 sayfa

Proje yönetim ofisi, örgütsel öğrenmeye katkı sağlayan temel organizasyon yapılarındandır. Bu tez, Türkiye'de bir savunma sanayi firması örneğini inceleyerek proje yönetim ofisinin örgütsel öğrenme üzerindeki etkisini belirlemeyi amaçlamaktadır. Bu tez, proje yönetim ofis yapısının örgütsel öğrenme üzerinde doğrudan ve dolaylı etkileri olduğu hipotezine dayanmaktadır. Bu nedenle, örgütsel öğrenme ve proje yönetimi ofisi hakkında literatür analizi yapılmadan önce; öğrenme, bilgi, bilgi yönetimi, yetenekler ve proje yönetimi alanlarında literatür araştırması yapılmıştır. Daha sonra mülakat tasarlanması için bir kavramsallaştırma çalışması yapılmıştır. Mülakat soruları, örgütsel öğrenmeyi doğrudan veya dolaylı olarak etkileyen proje yönetim ofisinin işlevleri hakkındaki literatüre dayanmaktadır. Mülakat soruları tasarlanırken, literatür taraması ve saha gözlemlerine dayalı olarak savunma sanayi ve şirket özellikleri dikkate alınmıştır. Proje yönetim ofisinin örgütsel öğrenmeye etkisi olup olmadığı ve proje yönetim ofisinin örgütsel öğrenmeyi nasıl iyileştirebileceğine ilişkin yanıtları bulmak için, proje yönetimi ve proje yönetim ofisi olmak üzere iki departman grubundan yirmi personel ile yarı yapılandırılmış görüşmeler yapılmıştır. Mülakat sonuçlarına göre proje yönetim ofisinin örgütsel öğrenmeyi etkileyen işlevlere sahip olduğu görülmektedir. Nitel sonuçlar analiz

edilerek, proje yönetimi ofis yapısı aracılığıyla örgütsel öğrenmeyi geliştirmek için stratejiler önerilmiştir.

Anahtar Kelimeler: Örgütsel Öğrenme, Proje Yönetim Ofisi, Savunma Sanayi

To my family

ACKNOWLEDGMENTS

First and foremost, I would like to express my deepest gratitude to my supervisor, Prof. Dr. Mehmet Teoman Pamukçu, for his invaluable guidance, patience, continuous support, and influential feedback during my thesis.

I would like to express my sincerest thanks to my thesis committee members; Prof. Dr. Erkan Erdil, for his time and invaluable suggestions, and Prof. Dr. Nesim K. Erkip for his immense knowledge and plentiful experience, which have encouraged me in all the time of my academic research.

I am also thankful to the participants of the interview studies who devoted their time to sharing their valuable experiences and ideas, which contributed significantly to this thesis. I would also like to thank the managers who permitted the study and my colleagues for their kind help and support.

Lastly, but most entirely, I am incredibly grateful to my mother, Hacer Ulutaş, for her constant encouragement; my father Mehmet Ulutaş, for his unlimited support, my brother Çağlar Ulutaş for his endless trust in me and my cat Fincan, for all the emotional support. Their belief in me has kept my spirits and motivation high to complete my study. I would also like to express my heartfelt thanks to my dear friends for their support and for always being there for me. Especially, I owe special thanks to; Batu Öztürkler for his tremendous support and for being an inspiration to my life, and Zeynep Sonkaya for her insightful motivation through this journey.

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LIST OF ABBREVIATIONS

CEO	Chief Executive Officer
EPPM	Enterprise Project Portfolio Management
ERP	Enterprise Resource Planning
GDP	Gross Domestic Product
HSEC	Human Subject Ethical Committee
IT	Information Technology
KMS	Knowledge Management System
KPI	Key Performance Indicators
R&D	Research & Development
MSB	Ministry of National Defense
PM	Project Management
PMO	Project Management Office
PMP	Project Management Professional
SSB	Presidency of the Defense Industry
TSK	Turkish Armed Forces
USD	United States Dollars

CHAPTER 1

INTRODUCTION

1.1. Aim of the Thesis

In recent times, the business environment has faced rapid change and increasing competition. Besides tangible assets, intangible assets have become crucial for companies to sustain competitive advantage in the last decades. Knowledge, brands, trademarks, and patents are examples of a company's intangible assets.

Especially in the technology sector, where the research, development, and distribution of technologically based goods and services must be provided swiftly in highly competitive situations on a global level due to continuous technological change and ever-shorter product life cycles (BolíVar-Ramos et al., 2012). When firms face increased competition, tight deadlines, and shorter product lifecycles, they must innovate continuously to guarantee their organizational survival. Therefore, it becomes essential for companies to foster “organizational learning” to exploit and explore knowledge, organizational competencies, and technology.

As a result of rapid change in the business environment, the role of organizational learning in general and learning through project teams gained significant importance (Keegan, 2001). Project management offices- also known as program management offices, are “assigned various responsibilities related to the centralized and coordinated management of those projects under its domain” and they foster learning through project teams (PMI, 2004). Project management offices might operate to reduce uncertainty in some companies as well. Some stakeholders can help to reduce the amount of uncertainty on a project, while others can raise the amount of uncertainty. Customers, senior management, project management office leaders, and program managers focus on the performance measurement of the project and its deliverables to reduce uncertainty (PMI, 2021).

Project management offices originate back to the twentieth century, as the defense industry needed to manage “large, complex contracts that include many projects for a single customer” (Julian, 2008). Due to the bulky and complex structure of the contracts in the defense industry, there are often numerous projects for a single customer. Therefore, the defense industry was the first sector to implement the project management office structure to maintain organized project management. The primary responsibility of the project management office leaders is to ensure continuous improvement in project performance through acquiring knowledge in their teams.

This thesis aims to shed light on how project management offices facilitate organizational learning and foster continuous improvement. The findings of this thesis are expected to indicate the effect of the project management office support on firm-level organizational learning and assess the effect on continuous improvement, directly and indirectly through organizational learning, in a defense company.

There exists literature about the effects of top management support on performance, suggesting that “top management support positively influences the generation of technological skills, distinctive technological competencies, and organizational learning” (BolíVar-Ramos et al., 2012). The project management office is an example of the top management support mechanisms which support project management activities. Project management offices connect numerous projects in a single platform and establish better structured communication between the project management teams and the top management. Furthermore, the influence of the leadership types and characteristics on organizational learning is emphasized in the literature suggesting that there is a broad consensus that a collaborative, participatory management style is more likely to encourage organizational learning and innovation than a non-participatory management style (Garcia Morales, 2008). Therefore, organizational structures such as project management offices provide a common ground for the top management and project management teams, encouraging organizational learning. Furthermore, the project management office provides a medium to access and share related knowledge and help deliver “the means and ends” for project management teams (Aubry et al., 2011). However, to the best of our knowledge, no current literature studies the direct and indirect effects of project management offices on organizational learning in the defense industry in Turkey.

The significance of this thesis is twofold. First, it is intended to contribute to the literature showing the effect of project management office structure on organizational learning. Second, this thesis may provide information to the project management offices about what their peers are doing to facilitate organizational learning and even foster continuous improvement of project performance in the long run. Furthermore, this thesis tries to establish a link between the existing literature and practice through a case study about the effects of project management offices on organizational learning.

1.2. Theoretical Background

Firstly, a literature review on understanding and measuring organizational learning has been conducted to observe the phases of a company's organizational learning process. Knowledge is one of the fueling entities behind the continuing growth of companies. To understand organizational learning, literature on knowledge-related definitions was reviewed as knowledge is the primary resource for organizational learning. Several definitions were examined while reviewing knowledge literature, such as learning, knowledge management, capabilities, and organizational learning, which indicate the dynamics for the continuing growth of companies (Chandler, 1992). Knowledge was found to be the core concept for numerous organizational learning studies, and most of these studies analyzed organizational learning in sub-processes. In the most general sense, organizational learning is the combined result of activities related to creating, retaining, and transferring knowledge (Argote, 2011).

A comprehensive literature analysis on knowledge management and organizational learning revealed that the difference between these concepts was not clearly defined in some previously submitted literature. However, numerous studies also clearly define knowledge management and organizational learning, which also describe the relationship between the two concepts in different manners. This thesis considers the most recognized point of view, which claims that organizational learning is an action that leads to the reaction of knowledge management. Without individual learning, followed by organizational learning, an organization would fail to acquire accumulated knowledge, which is one of the organization's assets. Consequently, an organization

cannot succeed in knowledge management without knowledge, which is why organizational learning is analyzed in this thesis.

Secondly, the link between the project management office and organizational learning was formed after a detailed literature review on project management and project management offices. Remarkably, organizational learning was found to be one of the functions of the project management offices in most studies, directly or indirectly. Therefore, the literature review on organizational learning and project management revealed that the intersection of the two concepts is worthwhile for in-depth research.

The review of the related literature is presented in Chapter 2 of this thesis.

After the literature research, the thesis was conducted in four steps.

Step 1: Motivation and Background

For the conceptualization step, the execution of the research process is designed according to the gathered information in the literature review. In Chapter 3, a general conceptualization is presented, which describes how and why a project management office affects organizational learning in an organization in Section 3.1. Additionally, the reason for selecting the defense industry (for a case study) is explained in the conceptualization and the following chapters of this thesis. Consequently, based on the literature review, an interview was designed considering the sector and the company's characteristics. Section 3.2 presents a detailed conceptualization of the semi-structured interview questions, and links between the literature analysis.

Step 2: Interviews

Semi-structured interviews were sequentially conducted in three parts. For the selection of the interview method, the disadvantages and advantages of the semi-structured interview method are investigated in depth. The semi-structured interview method is preferred because of the benefits, which align with the aim of the research part of the thesis (Newcomer et al., 2015). The first part of the interview is designed to answer the following research question for the purposes of matching the functions of the project management office of the company with the findings from the literature analyses.

Research Question 1: What are the perceptions of the company's project management office in which you are currently employed?

For the second part of the interview, understanding the perceptions of the organizational learning concept is targeted. This part of the interview is to understand whether the interviewees' answers reflect the existing stages of organizational learning in the company.

Research Question 2: What are the perceptions of organizational learning in the company that you are currently employed in?

Lastly, in the third part of the interview, the effects of the project management office structure of the company on organizational learning are investigated. This part of the interview aims at understanding these effects in accordance with the stages of organizational learning individually.

Research Question 3: How does the project management office facilitate creating, retaining, and transferring knowledge for the benefit of current and future projects?

Designing the interview is the most critical phase of this thesis, as the qualitative research is mainly based on semi-structured interviews. Therefore, elaborate attention was paid to creating the semi-structured interview questions by following a framework for developing a qualitative semi-structured interview (Kallio et al. 2016).

Step 3: Analysis

The demographic information of the participants of the interview is presented in Section 4.1. Demographic data is critical for matching the different groups of participants, which are analyzed in Section 4.2. The qualitative analysis consists of a semi-structured interview with questions listed under three main research questions. Optional questions for participants from different backgrounds were included at the end of the semi-structured interview.

For a better analysis of the answers to the interview questions, the answers were coded into shorter phrases after conducting the interview. Due to the company's confidentiality policy and to protect the authenticity of the responses given to the

questions, the answers were not recorded. Therefore, note-taking and understanding the responses without bias were critical for the research part of the thesis.

Step 4: Strategy Recommendation

The strategy recommendation part presents strategic recommendations for the project management office to contribute to organizational learning based on findings.

A Brief Introduction to the Sector and the Company

Safety and security rank second according to Maslow's Hierarchy of Needs, preceded by physiological needs (Maslow, 1943). Safety and security cover the requirements such as health, employment, property, family, and social stability. These needs are associated with the primary responsibilities of the state institution. Countries depend on the defense industry to satisfy society's safety and security needs.

To meet the current and future defense and military requirements, defense industry corporations supply military capabilities across the naval, land, aerospace, and electronic systems domains. Furthermore, defense companies collaborate closely with governments as crucial strategic partners in primary military operations worldwide. Because of the rapid advancement of technology and the enormous defense contracts to be handled and managed, the defense industry is a complex ground.

The defense industry is necessary to produce defense equipment and provide services for national security. Due to its geopolitical location, Turkey has been affected by political tension directly towards Turkey or its neighboring countries; hence, the domestic defense sector carries great importance for Turkey. The Undersecretariat for Defense Industries (SSM), which was later renamed as Presidency of Defense Industries (SSB), was founded in 1985 to determine the policies regarding the establishment of the defense industry infrastructure and establishing mechanisms with the authority and responsibility to implement these policies under the Ministry of National Defense by Law No. 3238.

The duties of SSB are listed below[1]:

- Execute the decisions adopted by the Defense Industry Executive Committee
- Arrange ordering contracts of purchases to be made extending to years on a project basis
- Reorganize and integrate the current national industry in line with defense industry needs; encourage new enterprises; seize the opportunities of foreign capital and technology contributions and arrange the participation of the state
- Set procurement agendas and financing models by considering funding resources
- Arrange the production of required modern weapons and equipment
- Support new private, public, or joint investments
- Coordinate Research & Development process of modern weaponry, devices and equipment, provide advance loans and determine long-term orders and financial incentives
- Make contracts with the specifications and standards to be determined by the Ministry of National Defense
- Coordinate defense industry exports and off-set trade
- Ensure that end products comply with the contract content through quality controls
- Procure the needs of the National Intelligence Organization and the Turkish National Police

In Turkey, the defense sector provides advanced technology development and manufactures equipment through private and public institutions to meet the needs of the Turkish Armed Forces. Turkey highly values technological independence in the defense industry. Therefore, focusing primarily on the needs of the Turkish Armed Forces, the defense sector aims to provide high-value-added, innovative, and reliable products and solutions to both local and foreign customers in electronic technologies and system integration.

[1] https://www.ssb.gov.tr/WebSite/contentlist.aspx?PageID=39&LangID=2

In 2020, Turkey was globally ranked 16th in terms of military expenditure with 17.7 billion USD, 2.8% of the country's GDP[2]. The first country in terms of military spending was the United States, with 778 billion USD, which is 3.7% of the country's GDP. Additionally, a turnover of 8.9 billion USD was generated in Turkey, while 77,566 people were employed in the defense sector. Regardless of the adverse effects of the Covid-19 pandemic, the industry was slightly above the previous year's level of employment with an increase of 5.14%. Despite the increasing trend in the export amounts and expenditure on product and technology development in recent years, these rates were affected negatively by the Covid-19 pandemic[3].

Due to strict similarities between the aerospace and defense industries, they are generally studied as "Aerospace and Defense Industry" and these two industries must be handled jointly. Consequently, the Turkish Armed Forces (TSK) Foundation was founded with the Law No. 3388; to provide material and moral support to the nation, to contribute to the increase of the war power of the Turkish Armed Forces by developing a national war industry, establishing new war industry branches, purchasing war weapons, tools, and equipment[4].

The company examined in this thesis is a manufacturing company operating in the defense sector in Turkey. The organizational structure of the company consists of a functional and divisional structure. Cabinet to the CEO, Legal Affairs, Technology & Strategy Management, R&D Management, Corporate Management, Financial Management, Supply Chain Management, and Business Development & Marketing Management are eight functional units directly reporting to the company's CEO. These units do not participate in the manufacturing process. However, managerial operations are run by these units. The organizational structure of the company is shown in Figure 1.

The company's divisional structure is a Market-Based Divisional Structure, which is based around five different operation fields whose names are classified information. The same functional structure is valid for each operation field, and they operate as

[2] SIPRI Military Expenditure Database, Apr. 2021; International Monetary Fund, World Economic Outlook Database, Oct. 2020; and International Monetary Fund, International Financial Statistics Database, Sep. 2020.
[3] SASAD- Savunma ve Havacılık Sanayii Performans Raporu-2020
[4] https://www.tskgv.org.tr/tr/hakkimizda/tskgv-hakkinda

separate companies. Also, the project management structure of each operation field is presented in Figure 2. The company structure has a particular project management office for each organization field; in other words, there are five different project management offices unique to each operation field. Each project management office reports to a single central project management office which reports to the Technology & Strategy Management Vice Presidency. Overall, the company has a multi-layered project management office structure.

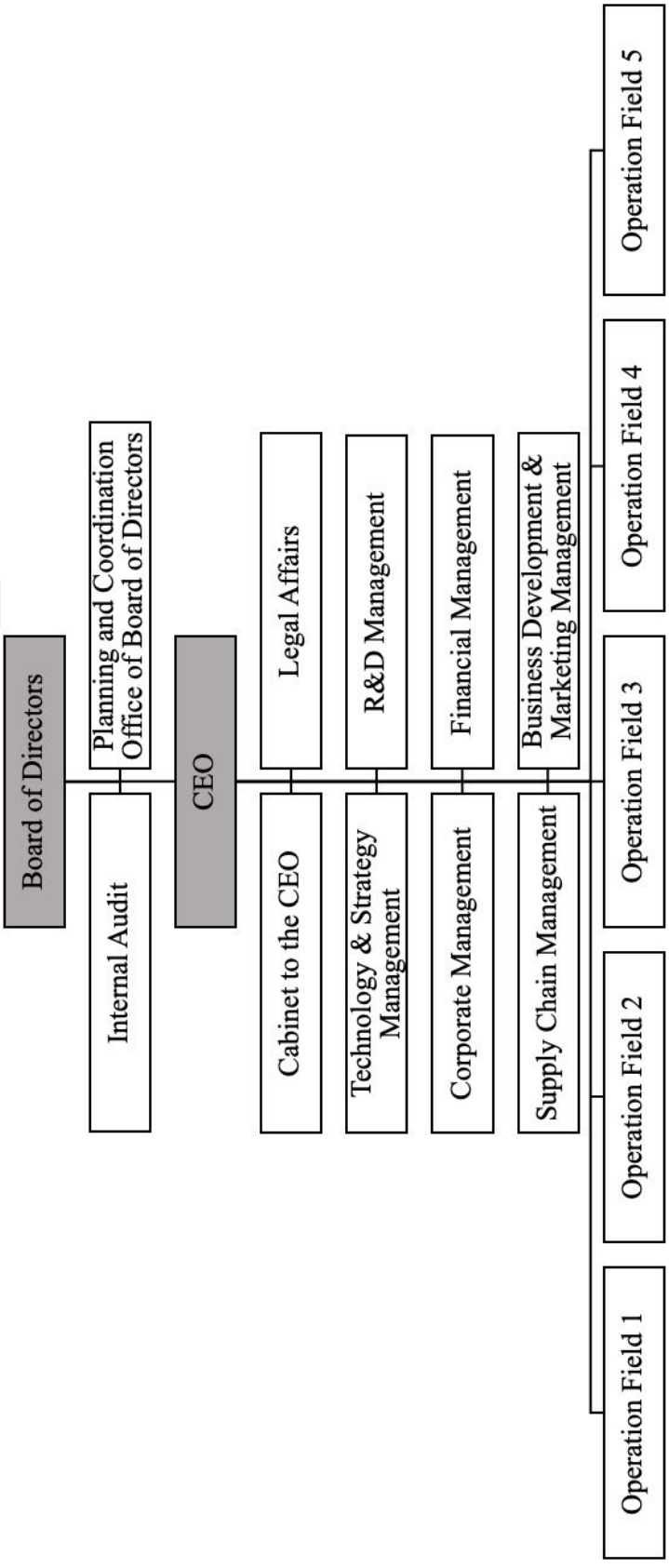


Figure 1 Organizational structure of the company

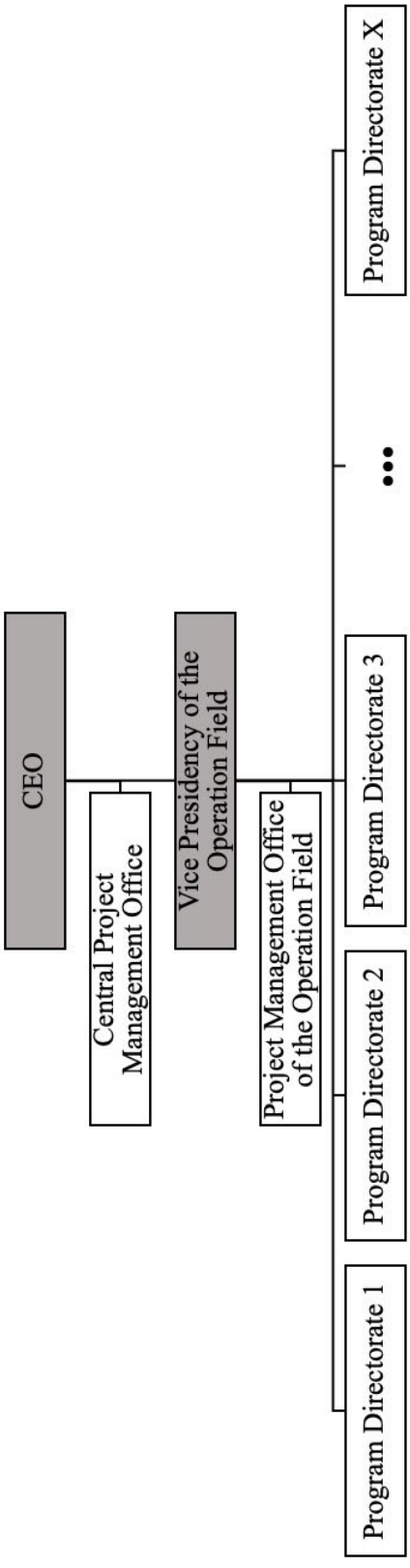


Figure 2 Project management structure of an operation field

Although the company has been operating in the defense industry for a significant amount of time, the history of the project management office structure dates to five years ago. The project management office structure is introduced by the top management's decisions related to meeting the needs associated with obtaining a single and mutual project management system, standardizing project management processes, and effective project performance reports. The project management office structure aims to provide a panorama of the company's project management practice and form a mutual base for the project management teams.

1.3. Concluding Remarks

Member of an organization are part of a learning system. For instance, each department of a company is part of the company's organizational learning network, such as production, quality, design, systems management, project management, and administrative departments. Therefore, contribution of the departments is crucial for observing the changes in organizational learning and understanding the learning dynamics in a company. This study investigates the effects of project management offices on organizational learning. Therefore, the analysis includes project management offices and project management teams as target groups to make the analysis more efficient and less biased. As project management office members and project managers are actors of a mutual relationship that consists of intensive knowledge flows. Hence, the interviews were conducted with these wo groups: project management office members and project managers.

There exist many studies which analyze organizational learning in various industries. However, the defense industry is a viable option for analyzing the relation between organizational learning and project management offices. Firstly, while most companies from various sectors focus on sales and marketing, the defense industry also focuses on technological developments and innovation, spending a generous income on research and development (R&D) activities. Therefore, learning and knowledge are important for companies operating in the defense industry. Besides, there exists a prior study about factors affecting organizational learning using the case of a Turkish defense industry company with quantitative and qualitative research methodology designs (Akar, 2020).

Secondly, the defense industry was the first to design and utilize project-based operation practices, and benefit from project management office structures. Therefore, project management practices and project management office structure are the most suitable for the defense industry, and the application of the project management practices is more vivid and observable.

This thesis contributes to the existing literature by analyzing the effect of project management offices on organizational learning in a company. Additionally, the thesis makes a significant empirical contribution to the field by conducting interviews with two focus groups that work collaboratively and cooperatively. Furthermore, this thesis contributes to the existing realm of knowledge by conducting a study in one of the defense companies operating in Turkey, despite the challenges related to confidentiality concerns in the field and hardships throughout the analysis of the study. Lastly, the thesis validates the literature analysis and results from the case study.

CHAPTER 2

THEORETICAL BACKGROUND AND LITERATURE REVIEW

Literature on knowledge-related definitions was reviewed first to obtain a well-structured understanding of organizational learning. Besides knowledge, the primary source for organizational learning, organizations focus on factors such as knowledge management and capabilities, which affect competitive advantage and organizational learning. Then, a literature analysis on project management and project management office is conducted to link the organizational learning and project management office concepts.

2.1 Knowledge

The definition of knowledge remains ambiguous to this day to day as it is an abstract concept. From early philosophers to academicians of today, knowledge has been an intriguing concept, and there are numerous definitions of knowledge. Rationalism and empiricism are two main approaches to making a universal definition of knowledge (Bolisani & Bratianu, 2018).

Plato argues that logic produces knowledge and that human senses do not affect knowledge. Plato forms the foundations of rationalism by arguing that knowledge is the product of reason and the knowing process of rational reasoning. As a result, knowledge is the reflection of the real world, and senses can mislead humans as they may create impressions and perceptions which individually differ (Russel, 2013).

Furthermore, René Descartes combined rationalism with his conceptual universe, arguing that one must doubt everything and search for certainty. He is renowned for this quote: “I can do nothing else until I have learned for certain that there is nothing in the world that is certain” (Descartes, 1997). According to Descartes, existence is proved by thinking. Thinking proves that there is existence and creates thought, a product of the mind. Additionally, one can acquire knowledge only valid for the mind

through thinking. He introduces the duality of the mind and the body and claims that only with reason one can reach knowledge and bodily sensations trick the mind and are not reliable and certain (Descartes, 1997). Rationalism remains valid and continues to be supported by many to this day.

The other approach to knowledge is empiricism. Aristotle was one of the main contributors to the empiricism approach. He argued that knowledge is not a deterministic form but a creation of bodily sensations of the real world with the mind's filter (Bolisani & Bratianu, 2018). Because of the gap between the rationalism and empiricism approaches, many philosophers tried to define knowledge so that the gap between the approaches would decrease. Based on Buddhism and Confucianism, Japanese philosophers created an integrated perspective of body and mind, contrasting with both approaches, which claim the existence of the duality of body and mind. “For the Japanese, knowledge means wisdom acquired from the perspective of the entire personality” (Nonaka & Takeuchi, 1995). This integrated view is the basis for the idea that mind and body are not two separate entities; on the contrary, they form a single reality which is named the personality of the human.

Two classes of knowledge were introduced by Polanyi (1966) as tacit and explicit. All knowledge is tacit initially, according to Michael Polanyi (1966). He defines tacit knowledge as knowing things more than one can tell; in other words, the knowledge that exists and is used by an individual, but it is hard to explain and transfer the existing knowledge. Moreover, according to Nonaka & Takeuchi (1995), the idea of tacit knowledge is parallel with Polanyi’s. It is observed that tacit knowledge and wisdom are closely related and even interchangeable. Both wisdom and tacit knowledge are hard to retain and transfer.

Austrian economist Hayek conceptualizes knowledge as a concept that can be distributed and localized; and it is often largely tacit. Knowledge is dispersed and differentiated according to him, as he characterizes exploration and exploitation of knowledge as a “discovery process” (Noteboom, 2000, p.16). Noteboom (2000) also emphasizes that the knowledge that individuals acquire is subjective and they have different knowledge even if they acquire the same information. Thus, it is understood that individuals contribute to innovation by developing a unique perspective of

knowledge. Organizations such as firms develop their own perspective of knowledge from the same information as well, which brings out the interactions between individuals, physical and social environment as well.

Knowledge can be codified and documented up to a certain point by numerous methods such as inspection, analysis, and mapping of processes of production, administration, and communication in firms (Noteboom, 2000). When knowledge is codified into a blueprint, algorithm, formula, or standard operating procedure; one can learn the knowledge declared in the codified script. The initial condition for the codification of knowledge is to become permanent. However, codified knowledge does not guarantee that there are no tacit elements. Knowledge in organizations may be tacit, not explicit, as in knowledge in the daily lives of individuals. In organizations, "one may observe what happens" but may not "understand what is going on" (Noteboom, 2000). A significant reason for this is that employees participate in various operations without observing and understanding the whole process. This implies the existence of tacit knowledge at the level of organization, just as in people. The relation between "procedural" and "declarative" knowledge is similar to the connection between "tacit" and "codified (documented)" knowledge. Regardless of the type of knowledge, there are different ways of obtaining (learning) or transferring (teaching) knowledge (Noteboom, 2000).

Tacit knowledge can be learned procedurally in an organization by imitating the master and practicing the acquired knowledge. However, formal training given by one or several masters may not be successful at transferring knowledge if not accompanied by socialization in a community of practice due to social structure and culture (Noteboom, 2000).

The knowledge the organization develops can be explicit, or it can be tacit and difficult to articulate (Kogut and Zander, 1992). The knowledge can manifest itself in various ways, including changes in cognitions, routines, and behaviors. Tacit elements of knowledge are likely to become an obstacle in the learning process, as it is often difficult to criticize or replace a tacit element of practice (Noteboom, 2000). Learning tacit elements may be challenging as the action seems so evident that it is unreasonable to question it.

Internal doings of an individual or an organization are divided into two categories: “know-how” and “know-what” (Ryle, 1945). Know-how is knowing how to do things in a certain way and know-what is knowing things that are derived from the definition of know-how and explained implicitly. Know-how and know-what categories were found to be limited for understanding knowledge and learning processes. Therefore, a taxonomy of knowledge distinguishing between know-what, know-why, know-how, and know-who were introduced to understand better how learning takes place and which types of knowledge exist in the learning system (Johnson & Lundvall, 1994). These four categories explain the type of knowledge and their significance for the company and, consequently, for the economy.

Know-what refers to knowing the facts, note that know-what is the closest type of knowledge to the information, and they are sometimes used interchangeably in the daily language (Johnson & Lundvall, 1994).

Know-why is knowing the scientific knowledge based on the laws of nature and society. Know-why is critical for technological and scientific advancements and companies that are science and technology-based. Besides the scientific open resources, companies have the confidential know-why type of knowledge such that if another company had the same knowledge, they would also utilize the know-why for their products or designs.

Know-who refers to the key persons who are part of a knowledge network. Know-who is not solely knowing the right person for the job but the person who knows, what to do and who is able to do the required task while having the necessary social relations for a specific task.

Lastly, know-how refers to the set of skills (production, managerial, research etc.) to do a particular task. Unlike know-why, know-how knowledge is unique to an organization (a company in general). If know-how is not codified, it may become unavailable through personnel transfer, knowledge can be lost entirely.

The distinction between information and know-how may be misused in daily language. According to Zander & Kogut (1995), information refers to know-what, and know-how is the capability of the organization to transform the knowledge into action.

Likewise, in daily language, know-how refers to the company's capabilities and depends on the company's ability to transfer and integrate knowledge.

The importance of know-how in small-sized companies is not as straightforward as in larger companies, as the task is generally available for vivid observation and oral explanation by its original practitioner. However, in large companies, tacit elements of knowledge are hard to transfer, and organizational learning of these elements from documented resources becomes challenging.

Although knowledge is an abstract concept, the reality is that the world is based on it. The society we live in, the world economy, and the education system are all prominent examples of knowledge-based concepts (OECD, 1996). Likewise, companies are an example of small-scale knowledge-based environments where knowledge carries great importance. Consequently, knowledge management is part of the strategic planning process of companies that aim for a long presence in the market.

2.2 Knowledge Management

Knowledge is becoming more and more valuable in today's economy, where competition is fierce and knowledge networks are more complex. Businesses that can manage the information flows and utilize the acquired knowledge have a better chance of success in the fast-changing economic environment. For example, companies increase their technological capabilities by importing new technical knowledge. To utilize the imported knowledge, a mechanism is essential to enable them to understand, adapt, store knowledge, and activate organizational capabilities. Knowledge management tries to create a meaningful resource from the flood of information as information flows faster.

Knowledge management outcomes are analyzed in three groups: individuals, teams, and organizations (King, 2007). As a result of knowledge management, individuals become more eager to search, observe and notice, forming new patterns of cognition. Also, they develop shared behaviors, actualize individual learning, and have more job satisfaction and performance as an outcome of role clarity. Another result of knowledge management is at the team level, where the degree of collaboration

increases the number of cooperative learning increases. Additionally, knowledge-sharing, team efficiency, performance effectiveness, and project success increase with effective knowledge management. Lastly, another result of knowledge management is at the organizational level, where responsiveness to change and collective learning grows. Also, innovation processes and innovation performance advances, new organizational capabilities are created, knowledge management strategy is employed, and return on investment and success of knowledge management increase.

King (2007) emphasizes that knowledge management outcomes depend on the organization's national culture, organizational culture, team culture, and climate. Therefore, the expected effects of knowledge management may vary according to the organization's characteristics.

The decisions carrying strategic importance are a process of internal selection that is partly rational, partly 'political', and somewhat fortuitous (Noteboom, 2000, p.42). However, in some cases, the decisions are random and chaotic, known as the ‘garbage-can’ view of the decision-making process (Burgelman 1996). It is expected that strategic decisions are made after a rational decision-making process which includes first, learning of an individual; second, learning of the organization and change in the environment followed by knowledge management practices.

Knowledge management is explained from the organizational capabilities point of view by many researchers. A way of explaining knowledge management is by dividing it into two essential concepts: knowledge infrastructure capability and knowledge process capability (Gold et al., 2001). According to this perspective, knowledge infrastructure capability consists of the organization's technology, structure, and culture. Furthermore, knowledge process capability consists of the acquisition, conversion, application, and protection elements.

This approach proposes a knowledge portfolio presented in Figure 3, which summarizes the strategy for advancements in the two types of capabilities according to the kind of knowledge. The “High Tech” approach is about capturing and retaining sources of knowledge, while the “High Touch” approach is about creating knowledge and enhancing organizational governance models. Knowledge portfolio contributes to

observing the processes of knowledge content creation and connecting this process with the internal processes of an organization to create knowledge capability.

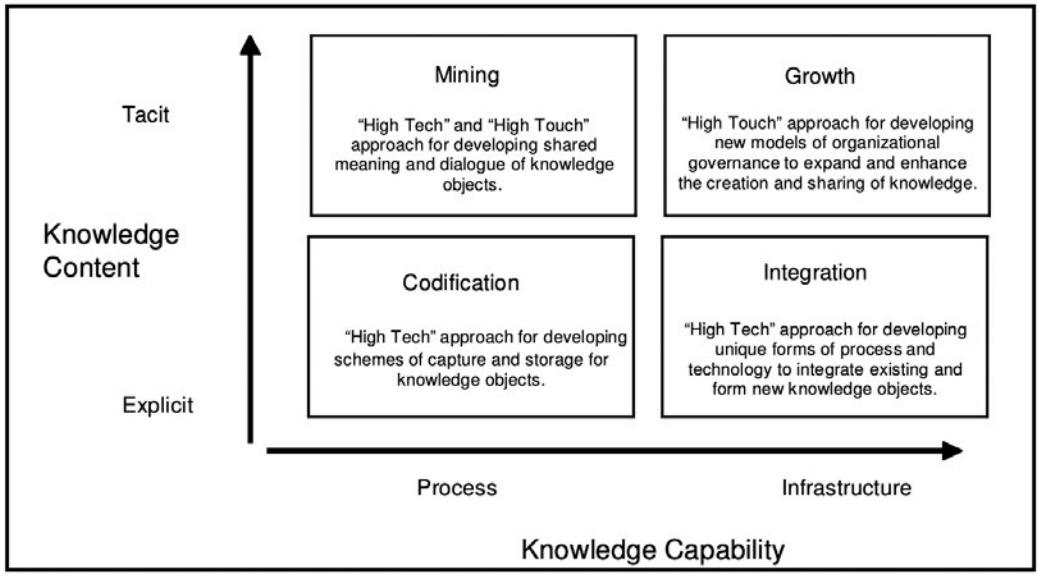


Figure 3 A Portfolio of knowledge opportunity (Gold et al. 2001)

Besides the organizational capabilities point of view, numerous researchers define the knowledge management process as a sum of smaller parts of a process. In Table 1, some of the examples from the literature are presented. Gold et al. (2001) group the previous approaches under four main processes: acquisition, conversion, application, and protection. According to the summary of the literature presented in Table 1, knowledge management process has three main steps: create/acquire, transfer and use. However, protection of the acquired knowledge is not mentioned in most of these studies as the protection process is not considered a major part of knowledge management. Cui et al. (2005) later proposed a three-step approach excluding the protection process. However, the protection process is critical for the permanence and effectiveness of knowledge management practices.

Consequently, knowledge management capabilities are the base for effective knowledge management which drives organizational development by utilizing the knowledge. Most companies claim that their organizational performance is more likely to increase with effective and efficient knowledge management. Moreover, empirical studies show that organizational learning and knowledge management are positively

correlated. Therefore, businesses operating with more practical knowledge management are better able to improve organizational learning (Liao & Wu, 2009).

Gold et al., 2001	Leonard-Barton, 1995	Splender, 1996; Skyrme, 1998	Delong, 1997	Ivers, 1998	Teece, 1998
Acquisition Process	Acquire Collaborate	Create	Capture	Create	Create
Conversion Process	Integrate	Transfer	Transfer	Process	Transfer Assemble Integrate
Application Process	Experiment	Use	Use		Exploit
Protection Process					

Table 1 Knowledge management process

The relationship between knowledge management and organizational learning can be confusing and there exist several works of literature with different explanations of this relation. This relation is generally conceptualized as cause-effect or action-reaction. The previously mentioned literature on knowledge management implicitly assumes that knowledge management is a result of organizational learning (Liao & Wu, 2009). On the contrary, there exists literature that claims that organizational learning is the result of knowledge management (Su et al., 2004). In this thesis, the action-reaction relationship is selected, where organizational learning is considered as action and knowledge management as the reaction, as the majority of the works of the literature analyzed in this thesis are in line with this view. Therefore, organizational learning is viewed as an action that leads to the reaction of knowledge management.

2.3 Organizational Capabilities

The development of organizational capabilities is a source of sustainable competitive advantage (Teece et al., 1997). Companies can acquire and retain capabilities that will enable these companies to sustain competitive advantage. The capabilities of a company are considered a critical resource for strategic management. Therefore,

fostering the development of capabilities is crucial for companies that aim to secure a competitive advantage in the long run.

The extent of the definition of capabilities may differ according to the context of the analysis, but it is not sufficient to consider scientific and technological capabilities only. Chandler (1990) provides a comprehensive description of capabilities: “The organizational capabilities were the collective physical facilities and human skills as they were organized within the enterprise. These included the physical facilities in each of the many operating units - the factories, offices, laboratories - and the skills of the employees working in such units”. Moreover, Leonard-Barton (1992) takes it a step further by identifying four aspects of organizations' capabilities, which is one of the broadest approaches. These four aspects are (1) "Employee knowledge and skills," (2) "Physical and technical systems" (which includes equipment, software, database, expert systems, etc.), (3) "Managemental Systems" (which includes organizational structure, rules, routines, decision procedures, incentive systems), and finally (4) "Values and norms" (organization culture and status, rituals of behavior, and passionate beliefs). Leonard-Barton’s definition is broader than Chandler’s, and knowledge is emphasized besides the physical capabilities. Moreover, Coombs & Hull (1998) connect three categories of elements to capabilities of a company which are technology as hardware, the knowledge base and the collection of routines that are carried out in the company for it to conduct its regular business activities. These three categories are the broader versions of the previously mentioned definitions which were explained in more detail.

When the definitions of capabilities are observed, the difference between the definitions helps understand how complex the capabilities concept may be. The capabilities of the organizations may differ according to the type of the organization, inner dynamics, accumulated knowledge, market presence, employee, and management profiles of the organization. For example, when a company that operates in the field of intellectual property rights is considered, physical technical capabilities are out of the context of the business activities of this company. Whatever the definition of the capabilities of a company, identifying the key capabilities of that company is essential for the improvement of these capabilities. In this way, the

improvement of these capabilities plays an important role in a sustainable competitive advantage of the organization.

To gain capabilities that may enable the company to catch up with their competitors, indirect experiences, in other words learning from others, carry importance as there is no time for re-inventing the wheel for companies. For example, a company can benefit from benchmarking with its successful competitors in the same sector, and learning processes may become faster. Another option would be acquiring experienced personnel from successful competitors and utilizing the indirect knowledge that personnel carries. The current study states that learning from indirect experience is more effective than learning from direct experience when it is supported by organizational learning and practice opportunities for the team (Gino et al., 2010). Indirect experiences provide teams with an easier way of accessing knowledge than direct experiences; for example, indirect experiences create learning opportunities for teams without direct experience. The reason for the significant role given to knowledge and capabilities is as follows (Weinstein & Azoulay, 1999):

- Knowledge is a unique and fundamental resource that is distinguished by various resources necessary for a company.
- All organizations and, most commonly, companies have distinctive capabilities, which makes each of these organizations unique.

For a better understanding of the capabilities of a company, the idea above indicates that organizations' ability to learn and do things could be analyzed. In general, organizational capabilities refer to; the effectiveness of problem-solving techniques in specific application areas, the capacity to use and put knowledge into practice, technological knowledge as well as production and management techniques, and market awareness which are strategic operations conducted by most companies (Weinstein & Azoulay, 1999). However, each company remains distinct by becoming prominent in one or more of these operations.

Within the organizational capabilities perspective presented above, it can be concluded that organizational capability is an organization's capability to create knowledge through organizational learning. Therefore, accumulated knowledge of an

organization is the key to developing organizational capabilities. Additionally, organizational learning of the company requires attention when assessing its capabilities.

2.4 Organizational Learning

Learning is a comprehensive concept, and there are many approaches to learning from various perspectives, such as cognitive, social constructionist, cognitive-behavioral, sociological, educational, artificial intelligence, etc. Diverse literature analyzes organizational learning concept from different points of view, such as the psychological approach (Cyert & March, 1963; Daft & Weick, 1984), sociological approach (Nelson & Winter, 1982; Levitt & March, 1988), and the Organizational Theory approach (Cangelosi & Dill, 1965; Senge, 1990; Huber, 1991). Despite being sufficiently narrowed down, organizational learning is a broad concept as well as learning itself. Therefore, the literature review on organizational learning was conducted without first analyzing learning.

Theorists claim that complete learning happens in two steps. The first step is cognitive development, and the second is action (Argyris & Schön, 1997). The foundations of initial attempts to define organizational learning date back to the 1960s. The development of organizations requires factors of both stability and change (Hedberg, 1981). Due to the multifaceted nature of the concept, there are several perspectives on the definition of organizational learning.

In an organizational learning context, cognitive change is not correlated with behavioral change (Fiol & Lyles, 1985). Cognitive and behavioral change are completely different phenomena and do not necessarily reflect one another. Cognitive change is the development of cognitive systems and memories developed by the members of the organization. Behavioral change is the change in behavioral outcomes that reflect specific patterns or cognitive associations. As information may be acquired without any accompanying change in conduct, behavioral changes can happen independently of the creation of cognitive associations. Figure 4 illustrates how behavioral changes and cognitive growth are related. In Figure 4, point A refers to strictly bureaucratic companies where no learning activities occur, and there is no

attempt for change. A company at point A is stable and predictable with little incentive for learning and change. Point B refers to companies that make structural changes, altering actions and strategies while little or no learning activities take place. A company at point B is in a unique position, taking risks with its actions, and its future is hard to predict. Point C refers to a company where learning practices are meaningful and actively used while very little change occurs. A company at point C gives great importance to innovation and is in a renewal process. Point D refers to constantly changing companies with a dynamic learning environment. A company at point D is open to change and continuously learning with little or no bureaucracy and well-defined rules and processes.

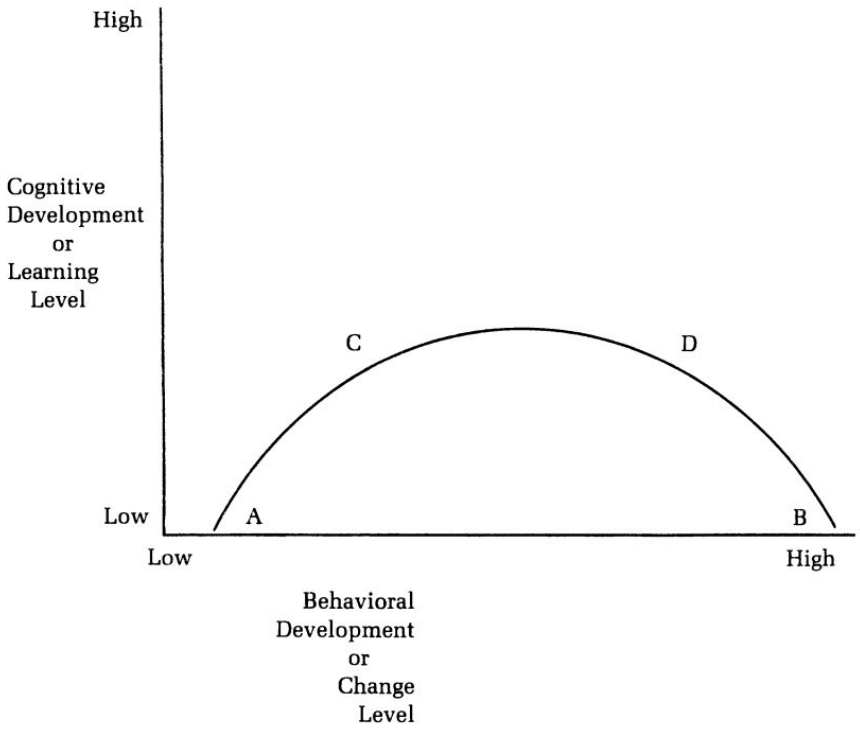


Figure 4 Learning and change (Fiol & Lyles, 1985)

Fiol and Lyles (1985) claim that four contextual factors determine the probability that organizational learning will occur: corporate culture conducive to learning, a strategy that allows flexibility, an organizational structure that allows innovation, and the environment of the company.

According to Simon (1991), learning of the individual has consequences on organizational decisions. Therefore, an organization can learn either by learning activities of its members or ingesting new members who have the knowledge that the organization did not previously have. Hence, one of the earliest definitions of organizational learning is growing insights and successful restructurings of organizational problems (Simon, 1991). However, this definition may confuse as knowledge is separated from practical and visible outcomes of new knowledge. There are several definitions of organizational learning based on whether organizational learning should be defined as a change in cognition or a change in behavior.

Due to the simultaneous nature of the two concepts, learning is referred to as new insights or knowledge in several resources. Also, the difference between "knowing" and "learning" is emphasized. The availability of knowledge depends on where the knowledge is stored or who has learned it. According to Simon (1991), individuals are the ones who learn; organizations do not learn. What is learned is stored in individuals' memory, files, or data banks; hence, the availability of knowledge depends on the transformation and permanence of the knowledge that individuals leave behind when changing positions or organizations. According to this approach to organizational learning, an organization is considered as a calculator, and the output of the calculator is the accumulated knowledge of the organization. This approach overlooks the tacit knowledge and assumes that all knowledge is codified in the individuals' brain, files, or databases.

Contrarily, Hedberg (1981), argues that organizational learning occurs through individual learning; however, it is not the sum of the cumulative results of individual learning. According to Hedberg's view of organizational learning, organizations do not have brains, but they have cognitive learning systems and memories. For example, leaders, managers, and members of the organizations may change, however, organizations' memory preserves behaviors, norms, cultural factors, and systems (Hedberg, 1981). Therefore, the protection of knowledge is as critical as creating knowledge. Unlike the literature on knowledge management presented in Figure 5, the protection of knowledge is a part of the organizational learning processes.

Likewise, Nonaka and Takeuchi (2007) argue that the company is a living organism with a purpose and an identity that affect individuals' commitment to learning and sharing knowledge. Members learn and create knowledge, then codify knowledge via organizational features such as systems, documents, and the codification of the knowledge results in the learning of the future members of the organization.

According to Nonaka's dynamic theory of knowledge creation, creating and transferring knowledge is about internalizing and externalizing the knowledge. The modes of knowledge creation according to this theory are presented in Figure 5. The internalization process means that the individual absorbs codified knowledge through lectures, reports, files, notes, and databases, and the knowledge becomes a part of the individual's tacit knowledge base. When tacit knowledge is acquired from others through socialization, teamwork, mentorship, dialogue sessions, and trial and error experiments, knowledge becomes a part of the individual's tacit knowledge base, and this is through socialization.

On the other hand, externalization is the codification of tacit knowledge through practice, stories, metaphors, images, prototype development, etc. When knowledge is codified, new explicit knowledge can be combined with existing codified knowledge to obtain a more complex level of explicit knowledge. By internalizing codified knowledge and externalizing tacit knowledge, individuals' complete knowledge creation process. In this way, individuals acquire new insights, abilities and share knowledge (Sabherwal & Becerra-Fernandez, 2003).

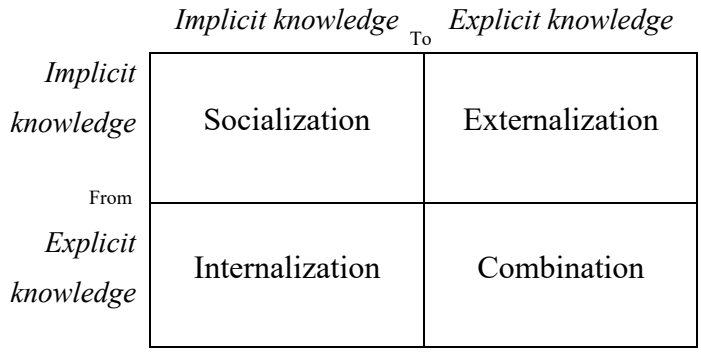


Figure 5 Modes of Knowledge Creation (Nonaka, 1994)

Although there is still debate, one of the most acknowledged definition of organizational learning is the process of improving actions because of learning and new knowledge (Fiol & Lyles, 1985). Four contextual factors affect the probability of organizational learning: corporate culture, strategy, organizational structure, and environment. Fiol and Lyles explain these factors and their relation to organizational learning in detail:

- Culture. An organization's culture consists of shared beliefs, ideologies, norms, and the way the organization reacts through the elements of company culture.
- Strategy. The goals, objectives, and range of activities that can be used to implement the strategic plan are determined by the organization's strategy. Thus, strategy affects learning by providing guidelines for decision-making processes and a context for how the environment is perceived and interpreted.
- Structure. The organization's structure shapes the learning trends depending on how centralized or decentralized the system of the company is. Organizational structures may be designed to promote learning and action-taking by creating a structure that corresponds to the cultivating structure's objective.
- Environment. The dynamics of the internal and external environment both influence organizational learning. Learning requires both change and stability in the environment of the members of an organization (Hedberg, 1981).

These factors are critical for organizational learning practices as they affect cognitive and behavioral changes in the organization.

One of the recent definitions of organizational learning is that organizational learning consists of three stages of learning which are identified based on literature: creating knowledge, retaining knowledge, and transferring knowledge (Argote, 2011). Among the three sub-processes of organizational learning, retaining knowledge and transferring knowledge are the most intriguing, and there are numerous studies on retaining and transferring knowledge. However, organizational learning research on how experience and previous knowledge affect knowledge creation is also crucial for understanding and measuring organizational learning at all sub-processes. A similar

approach is presented through a knowledge portfolio in Figure 3. “Growth” and “Codification” of knowledge content are parallel with the sub-processes of organizational learning, which are creating knowledge, retaining knowledge, and transferring knowledge.

Organizations learn by doing (on-job training, job transfer, in-house experience, etc.) and from the resources outside the company (consultancy firms, conferences, collaborations with universities, job-related trainings, etc.).

2.5 Project Management

Projects are essential methods for managing change and progress. Projects are widely used for planning, time management, cost, and quality (Munns & Bjeirmi, 1996). Moreover, projects imply that there is a long-term goal or a higher level of success which is less probable to be realized without effective project management. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) defines Project Management as: “The application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management refers to guiding the project work to deliver the intended outcomes. Project teams can achieve the outcomes using a broad range of approaches, such as predictive, hybrid, and adaptive (PMI, 2021). Predictive project management refers to the project management approach when the scope of work and requirements of the project are defined in detail and upfront in the planning process. Predictive project management is mentioned as “traditional”, “conventional”, or “waterfall” project management in some resources. Adaptive project management approach refers to the project management approach when the scope of work and requirements of the project are too complex to define in the planning process. Therefore, this type of project requires an adaptive approach due to the rapidly changing environment. Adaptive project management can also be referred to as “agile”, “responsive” or “iterative”.

Projects operate within a program or portfolio and a project governance mechanism determines who has the authority to approve changes and make other project-related business decisions (PMI, 2021).

Munns and Bjeirmi (1996) suggest that starting new projects to solve novel and complex problems requires project management techniques. Although there are many factors contributing to project success, research demonstrates that project management techniques contribute to project success (Joslin and Müller, 2015). The outcomes of project management success may be narrowed down to "project success"; however, indicators of project management success examples can be listed as; completion to budget, satisfying the project schedule, adequate quality standards, and meeting the project goal.

The following are some of the causes that may lead project management to fail to meet the project goals: insufficient preliminary project plan, unsuitable person as project manager, unsupportive top management, inadequately defined tasks, absence of project management practices, misused management techniques, unplanned project closedown, lack of commitment to project goals (Munns & Bjeirmi, 1996). These causes also imply that; commitment to complete the project on time, a well-trained project manager, sufficient level of top management support, clearly defined tasks, good use of project management practices, adaptability to change, ability to breakdown the tasks, and setting personal goals are essential for project management process to be successful.

A practical project management approach provides significant potential for increasing overall organizational performance by improving project performance prospects and reducing the risk of failure (Munns & Bjeirmi, 1996). However, because of the unique project management approaches of different project teams and project that last for years or even decades with different project teams, knowledge from previous projects may be lost due to ineffective knowledge transfer. Therefore, organizations tend to take measures to improve the transferability of past project knowledge and lessons learned documentation.

2.6 Project Management Office

There is sufficient literature showing that effective project management positively affects project performance (Munns & Bjeirmi, 1996). Project management offices are one of the foremost organizational formations enabling effective project management

practice. Organizational structures have included project management office structure since the 1960s, regardless of the name of the structure, whether it is named as project management office or not (Dai & Wells, 2004). The history of project management offices leads back to the middle of the twentieth century, and the defense industry needs such structure is the defense industry (Kerzner, 2006). The project management office is essential for coordinating large-scale projects simultaneously. The defense industry has unique characteristics, such as complex contracts that last for years, numerous projects for a single customer, and the strategic importance of the projects. Therefore, the reasons for implementing project management office structure demonstrates the main aim of project management offices. To deal with the complexity of project management, a Project Management Office (PMO) mechanism mainly aims to assist programs and projects within a portfolio in organizations such as firms and government agencies.

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) defines a Project Management Office as: "A management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques" (PMI, 2021). Project management offices are established for numerous reasons and have the crucial objective of ensuring better project management in terms of time, cost, quality, risk, and other factors. There is no single definition of project management office functions; engaging and cooperating with stakeholders, growing talent, and reaping value from project investments are all possible roles for project management offices in aligning work with strategic goals. According to the role of the project management office, the degree of control and influence it has on projects may vary. Three types of project management office are (PMI, 2021):

- Supportive: This project management office type provide consultancy to the projects by; supplying template documents, organizing training related to project management, providing mediums for accessing knowledge, and supplying best practice and lessons learned.
- Controlling: This project management office type provides support while providing a moderate level of control by requiring compliance through various means. Compliance may include adopting project management frameworks

and methodologies, compliance with governance frameworks, and using standard forms, templates, reports, and tools.

- Directive: This project management office directly controls the project by undertaking the management role. The project management office is in charge, and project managers directly report to the project management office, which assigns them to their projects.

There exist various definitions of a project management office. However, the definitions are approximately revolving around a similar understanding of a project management office as the history of the literature does not date back.

The main objective of a project management office is to provide “means and ends” to access and share related knowledge for project management teams and office members (Aubry et al., 2011).

However, each project management office has a unique role and set of responsibilities stated in the project management office charter. Companies are living organisms that have unique characteristics and systems. Correspondingly, the companies’ project management offices are unique mechanisms that reflect the company itself. Therefore, the type and number of project management offices in a company are designed according to the needs of the company. Recently, multiple project management office structures have been observed in some companies, either organized as networks or a hierarchical relationship among these project management offices (Müller et al., 2013).

An in-depth literary analysis of the functions of a project management office is presented in Table 2.

Table 2 Functions of a project management office

Dai & Wells, 2004	Hobbs & Aubry, 2007	Aubry, Müller, Hobbs& Blomquist, 2010	Aubry, Müller & Glücker, 2011	Jalal & Koosha, 2014	Lacruz, Cunha, Moura & de Oliveira, 2019	PMI, 2021
Developing and maintaining PM standards and methods	Development of PM competencies and methodologies	Developing and implementing standards and competencies	Monitoring and controlling the PM performance	**Development of PM methodologies, tools, and software**	**Development, implementation, and support of PM methodology and PM software**	Fostering delivery and outcomes-oriented capabilities
Providing PM consulting and mentoring	Monitoring and controlling project performance	Monitoring and controlling project performance	**Managing archives of project documentation**	Monitoring and controlling projects, portfolio management	Preparation of project proposals to be submitted to potential donors	Keeping the "big picture" perspective
Providing project administrative support	Strategic management	Multi-project management	**Conducting post project reviews or postmortems**	Mentoring and coaching in project management	Controlling projects and monitoring performance indicators	**Change management**
Providing human resource/staffing assistance	Multi-project management	Strategic management	Conducting project audits	Training and developing project management competency	Program and portfolio management	**Continuous improvement**
Developing and maintaining project historical archives	**Organizational learning**	**Organizational learning**	**Implementing and managing a database of lessons learned**	**Knowledge and lesson learned management**	**Sharing performance reports and documents**	**Knowledge transfer**
Providing or arranging PM training		Management of customer interfaces	**Implementing and managing a risk database**	Governance and human resource development	Development of operational process assets (e.g., workflow)	
		Recruiting, selecting, and evaluating project managers		Strategic planning		
				Management of customer, vendor, and contractor interfaces		

Table 2 presents the different definitions of a project management office chronologically. After the literature analysis, Table 2 is formed and functions that directly and indirectly refer to organizational learning are marked in bold. Organizational learning is a direct function of the project management offices (Hobbs & Aubry, 2007; Aubry et. al., 2010). Some of the project management office functions refer to sub-processes of organizational learning such as developing and maintaining project historical archives; managing archives of project documentation, risks and lessons learned: development of software for saving project management practices refer to the retaining knowledge process of organizational learning (Dai & Wells, 2004; Aubry et al., 2011; Lacruz et al., 2019). Likewise, knowledge and lessons learned management; sharing performance reports and documents, knowledge transfer; conducting post-project reviews or postmortems refer to the transferring knowledge process of organizational learning (Aubry et. al., 2011; Jalal & Koosha, 2014; Lacruz et al., 2019; PMI, 2021). Furthermore, change management and continuous improvement are correlated with organizational learning as a part of knowledge management activities (PMI, 2021).

A case study conducted with 40 companies revealed that there are six mechanisms that facilitate project learning at the organizational level, which presents an outlook on the relationship between organizational learning and project management offices. (Wiewiora et al., 2020). These mechanisms are networks, the culture of empowerment, power, and politics, coaching and mentoring, organizational initiatives, and temporality. Figure 6 illustrates the findings of the case study by providing mechanisms that enable learning. The mechanisms and actors of the learning flows are represented by feed-forward and feed-back arrows. The knowledge flows presented in Figure 6 represent the connections between project management teams, project management offices, and knowledge networks which demonstrates a positive approach to the research question of this thesis.

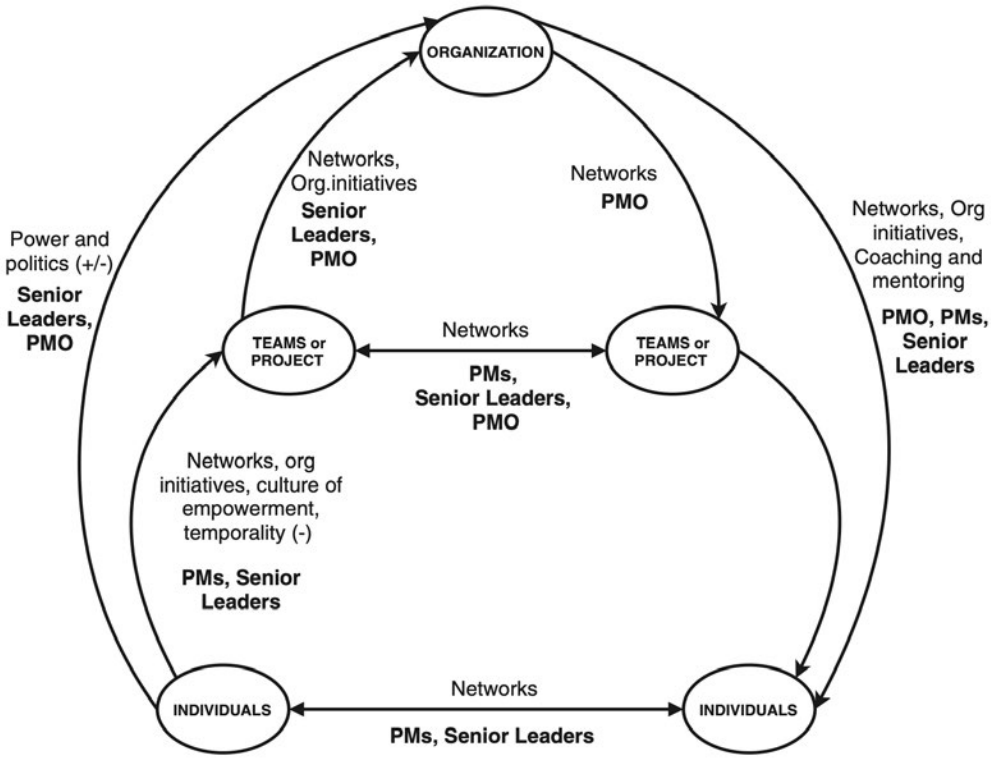


Figure 6 Knowledge flows in a project management environment (Wiewiora et al., 2020)

All the mechanisms mentioned on the arrows positively trigger learning activities unless otherwise indicated as "(-)". The six mechanisms of knowledge flows in an organization are explained below (Wiewiora et al., 2020):

- Networks. A network is a collection or system of connected individuals or entities. The feed-forward and feedback directions of learning were reportedly facilitated by this process at the individual, team, and organizational levels.
- Culture of empowerment. In a culture of empowerment, team members feel empowered to express their thoughts, put ideas into action, and share information with their team, which eventually reaches the organizational level; learning may be transferred from the individual to the team level, then, to the organizational level.
- Power and politics. Senior-level employees' positions of authority within the company and how individual ideas for organizational change are implemented have an impact on learning dynamics and the learning flows from individuals to the organization.

- Coaching and mentoring. When a senior-level team member, a coach, or a mentor, shares their organizational knowledge and experiences with more junior colleagues, it encourages the exchange of knowledge, expertise, and perspectives.
- Organizational initiatives. A variety of organizational learning initiatives, such as training, organized meetings, and lessons learned for creating, retaining, and transferring knowledge.
- Temporality. For project-based organizations, temporality is crucial since projects are frequently separated into stages that determine deliverables which determine the availability of time spent for learning and experimenting.

2.7 Concluding Remarks

Learning is critical for the project and organizational success. Through learning, organizations exploit new knowledge gained from the projects and the related experience from the problem-solving process. According to the literature, there are several ways in which organizational learning and project management offices are interconnected. For instance, organizational learning is considered a critical means to achieving strategic objectives of the organization. The project management office is a structure that plays a crucial role in tackling strategic matters (Crossan, Lane & White, 1999; Dai & Wells, 2004). Likewise, the project management office is both the topic and the object of change, according to Winch, Meunier, & Head (2010). Project management offices, in this context, are not only a question of organizational structure; they also accompany and undergo organizational changes that lead to strategic goals. Furthermore, previous research showed that project management offices facilitate organizational learning and continuous improvement of the company (Julian, 2008).

Besides the results of numerous research and case studies, the fact that companies have different characteristics and competencies can be derived from field studies and observations without a doubt. Regardless of the industry, the companies are operating in; there are differences in how and how well these companies are using. When leading companies from different sectors are compared, it is not certain that these companies apply the same or similar methods and strategies for their success. The same analogy could even be valid for companies that are successful in the same industry. One way

to explain these differences is by emphasizing that the companies can be competitive in different aspects and follow strategies based on the area they are confident about. Hence, companies have different timelines for improvement and growth; the time they require for the advancements may differ.

CHAPTER 3

METHODOLOGY AND ORGANIZATION OF THE THESIS

This thesis is based on a single case study investigating project management offices' effects on organizational learning in a defense industry firm in Turkey. In addition, the organizational learning environment, and the structure of the project management office of the company are both investigated. Questions for a semi-structured interview is prepared using the relation of the variables and concepts with the literature. This section presents the methodology and organization of the dissertation.

3.1 General Conceptualization

After detailed research in learning, capabilities, knowledge, knowledge management, organizational learning, project management, and project management office, general conceptualization is generated for finding out firm-level effects of project management office on organizational learning of the defense industry on a single case study. Previous research has clearly stated that organizational learning is critical for project success, especially in project-based organizations. According to Wenger (1998): “Communities of practice do not usually require heavy institutional infrastructures, but their members do need time and space to collaborate… they self-organize, but they flourish when their learning fits with their organizational environment”. A structure is essential for a company to provide the time and space for its employees to foster learning at the company level besides individual learning.

A project management office structure's main aim and mission revolve around project success and the sustainability of the company’s success, especially in project-based organizations. A case study in the defense industry is fitting for observing the effects of a project management office on organizational learning in the company, as defense industry companies are strictly project-based. Therefore, the conceptualization of the research was made under the assumption that the company is project-based, and the project-based structure works for the company. According to the findings of numerous

research and case studies, organizational learning, knowledge, lessons learned, and best practices are considered several of the main functions of a project management office.

For the organizational learning part, three stages of learning were identified based on literature: creating knowledge, retaining knowledge, and transferring knowledge (Argote, 2011). Firstly, the responsibilities and goals of project management offices were identified by analyzing the existing literature for the project management office. Secondly, the responsibilities and goals of the project management office which enhance and contribute to organizational learning, are selected.

Qualitative contributions were required to comprehensively analyze the firm's current state and ideas related to further improvements of the current state. Therefore, categories and variables to be assessed through the interview questions were decided, and interview questions were formed correspondingly.

In addition, the case study is conducted in a company that operates in the defense sector in Turkey. Therefore, the distinctive structure of a defense company was considered while preparing the questions, as the questions do not seek information about the company itself but rather about the relationship between the project management offices and organizational learning.

3.2 Detailed Conceptualization

In the literature review part of this thesis, organizational learning and project management office literature is reviewed in depth to investigate the effects of project management offices on firm-level learning in the defense industry. As mentioned in various research, organizational learning is a process of three main phases: Creating Knowledge, Retaining Knowledge, and Transferring Knowledge (Argote, 2011). Therefore, interview questions are based on the three phases of organizational learning, and the effects of project management office structure are observed separately for each step.

To construct a base for the interview questions, a detailed literature review in learning, capabilities, knowledge, knowledge management and project management was conducted, besides organizational learning and project management office. The

interview questions were based on three main research questions. Before the interview, the interviewees were briefly informed about the definition of organizational learning, and project management office.

Research Question 1: What are the perceptions of project management office in the company that you're currently employed in?

The first research question aims at understanding the perception of a project management office as the interviews are conducted with employees from project management departments who are project managers and project management office members. A project management office is defined as a management structure that standardizes the project-related governance processes and facilitates the transfer of knowledge, resources, methodologies, tools, and techniques. Therefore, the responses to the first research question are expected to revolve around the given definition (PMI, 2021). Therefore, understanding the relationship and observing the relationship between the two groups' perceptions is crucial as project managers and members of the project management offices work closely and cooperatively.

In this part of the interview, the interviewees' (whether they are project managers or members of the project management office) idea of a project management office and their experiences with the project management office are expected to be observed. To follow up, the importance of the project management office for the company is expected to be drawn from the interviewees' answers.

1.	What is your understanding of a project management office?
1.1	Can you briefly describe the type of activities in which the project management office in your company engages to carry out its mission and goals?
1.2	How important do you think is project management office organization to your company?

Although the interview groups are selected beforehand, the mission and goals of the departments of the interviewees are addressed in the following questions to observe

the answers of the employees from the same departments, either the project management department or the project management office.

2.	Can you briefly describe the mission of your department and the types of activities in which your department engages to carry out its mission?

Also, the relationship between the respondent and the project management office is addressed in the interview questions to understand the frequency of communication between the project management department and the project management office. The following question is included in the questions for the project management office employees, as they are also working with a central project management office. The central project management office employees were not included in the sample because they do not directly interact with the projects, as they are responsible for the general coordination between the project management offices. For respondents who work at the project management office, this question refers to their relationship with the central project management office, and it is made clear while posing the question.

2.1	What is your relationship with the project management office at your company?

These questions aim at understanding the direct or indirect ways of interacting with the project for respondents.

2.2	How often and at what stage do you interact with projects?

Also, the department the interviewees report to within the formal organization structure is inspected to understand the direct relationship between the project management office and top management. Due to the characteristics of the structure of the company, the answer to this question is pursued.

3	Where does your department report to within the formal organization structure?

Research Question 2: What are the perceptions of organizational learning in the company that you are currently employed in?

The second research question aims at understanding the perception of organizational learning, as the interview questions revolve around this concept. Organizational learning consists of three processes which are identified based on literature: creating knowledge, retaining knowledge, and transferring knowledge (Argote, 2011). Therefore, understanding the current knowledge and perception of the study group for each sub-process is crucial for analyzing each process.

Moreover, the interviewees' opinions of the organizational learning at the company they are currently employed in. In this part, there are questions for finding out the difference between individual learning activities in the company and organizational learning. The difference between the two concepts is expected to be understood by the interviewees as the questions are asked in an orderly manner.

4.	What is your understanding of organizational learning in the organization?

In this part of the interview, Question 5 and sub-questions focus on creating knowledge aspects of organizational learning.

5.	What has been your experience of "creating knowledge" aspect of organizational learning at your company?

Learning of the individual has consequences on organizational decisions (Simon, 1991). Therefore, former learning activities and their effects reflected on the organization are questioned.

5.1	Do you think your previous knowledge is exploited for creating knowledge during the time in your company?

As mentioned before, organizational learning is considered a process of three main phases: creating knowledge, retaining knowledge, and transferring knowledge which forms organizational learning (Argote, 2011). The importance of each stage of organizational learning is questioned, and a correlation between each phase is analyzed

to understand the strength and weaknesses of the current organizational learning environment. According to the response, the answer to this question is simplified as yes/no.

5.2	How important is creating knowledge to your company?

Furthermore, questions about the challenges related to creating knowledge of the staff and the company are addressed, followed by asking opinions for tackling these challenges. Hence, ideas for enhancing organizational learning are expected to be found for presenting policy proposals for the company later in the analysis.

5.3	What problems do you see with the creating knowledge aspect of organizational learning? What can be done to solve these problems?

Julian (2008) claims that the project management office's approach to lessons learned activities indicates their contribution to organizational learning. Therefore, perceptions of identifying lessons learned from one project to the next with the intention for improving project performance are addressed in the interview.

5.4	What is your expectation of identifying lessons learned from one project to the next (with respect to improving performance)?

Analyzing the company's perceptions of identifying lessons learned from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

5.5	What is your manager's expectation of identifying lessons learned from one project to the next (with respect to improving performance)?

Besides lessons learned activities, best practices also contribute to organizational memory and ensure competitive advantage (Dalkir, 2005). Also, know-how is the capability of the organization to transform knowledge to action (Zander & Kogut,

1995). Therefore, perceptions of creating know-how and/or internal best practices from one project to the next with the intention of improving project performance are addressed in the interview.

5.6	What is your expectation of creating know-how and/or internal best practices from previous project activities?

Analyzing the company's perceptions of creating know-how and/or internal best practices from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

5.7	What is your manager's expectation of creating know-how and/or internal best practices from previous project activities?

In this part of the interview, Question 6 and sub-questions focus on retaining knowledge aspects of organizational learning.

6.	What has been your experience of "retaining knowledge" aspect of organizational learning at your company?

As mentioned in Question 5.1, learning of the individual has consequences on organizational decisions (Simon, 1991). Therefore, former learning activities and their effects reflected on the organization are questioned.

6.1	Do you think your previous knowledge is exploited for retaining knowledge during the time in your company?

As mentioned before, organizational learning is considered a process of three main phases: creating knowledge, retaining knowledge, and transferring knowledge which forms organizational learning (Argote, 2011). The importance of each step of organizational learning is questioned and a correlation between the importance of each phase is expected.

6.2	How important is retaining knowledge to your company?

Furthermore, questions about the challenges related to retaining knowledge of the staff and the company are addressed, followed by asking opinions for tackling these challenges as well. Hence, ideas for enhancing organizational learning are expected to be found for presenting policy proposals for the company, later in the analysis part.

6.3	What problems do you see with the retaining knowledge aspect of organizational learning? What can be done to solve these problems?

Julian (2008) claims that the project management office's approach to lessons learned activities is an indicator of their contribution to organizational learning. Therefore, perceptions of retaining lessons learned from one project to the next with the intention of improving project performance are addressed in the interview.

6.4	What is your expectation of retaining lessons learned from one project to the next (with respect to improving performance)?

Analyzing the company's perceptions of retaining lessons learned from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

6.5	What is your manager's expectation of retaining lessons learned from one project to the next (with respect to improving performance)?

Besides lessons learned activities, best practices also contribute to organizational memory and eventually ensure competitive advantage (Dalkir, 2005). Also, know-how is the capability of the organization to transform knowledge into action (Zander & Kogut, 1995). Therefore, perceptions of retaining know-how and/or internal best practices from one project to the next with the intention of improving project performance are addressed in the interview.

6.6	What is your expectation of retaining know-how and/or spreading internal best practices from previous project activities?

Analyzing the company's perceptions of retaining know-how and/or internal best practices from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

6.7	What is your manager's expectation of retaining know-how and/or internal best practices from previous project activities?

Lastly, transferring knowledge is underlined in this section of the interview since it is a component of the organizational process, as mentioned above. Questions related to both identifying and transferring lessons learned activities are posed. The importance given to the lessons learned activities and expectations from this type of previous knowledge are investigated both from the point of view of the interviewee and the company and/or the manager of the interviewee. In this part of the interview, Question 7 and sub-questions focus on transferring knowledge aspects of organizational learning.

7.	What has been your experience of "transferring knowledge" aspect of organizational learning at your company?

As mentioned in Questions 5.1 and 6.1, learning of the individual has consequences on organizational decisions (Simon, 1991). Therefore, former learning activities and their effects reflected on the organization are questioned.

7.1	Do you think your previous knowledge is exploited for transferring knowledge during the time in your company?

Furthermore, questions about the challenges related to learning of the staff and the company are addressed, followed by asking opinions for tackling these challenges as well. Hence, ideas for enhancing company-level learning are expected to be found for presenting policy proposals for the company, later in the analysis part.

7.2	How important is transferring knowledge to your company?

Furthermore, questions about the challenges related to creating knowledge of the staff and the company are addressed, followed by asking opinions for tackling these challenges as well. Hence, ideas for enhancing organizational learning are expected to be found out for presenting policy proposals for the company, later in the analysis part.

7.3	What problems do you see with the transferring knowledge aspect of organizational learning? What can be done to solve these problems?

Julian (2008) claims that the project management office's approach to lessons learned activities is an indicator of their contribution to organizational learning. Therefore, perceptions of transferring lessons learned from one project to the next with the intention of improving project performance are addressed in the interview.

7.4	What is your expectation of transferring lessons learned from one project to the next (with respect to improving performance)?

Analyzing the company's perceptions of transferring lessons learned from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

7.5	What is your manager's expectation of transferring lessons learned from one project to the next (with respect to improving performance)?

Besides lessons learned activities, best practices also contribute to organizational memory and eventually ensure competitive advantage (Dalkir, 2005). Also, know-how is the capability of the organization to transform knowledge into action (Zander & Kogut, 1995). Therefore, perceptions of transferring know-how and/or internal best practices from one project to the next with the intention of improving project performance are addressed in the interview.

7.6	What is your expectation of transferring know-how and/or spreading internal best practices from previous project activities?

Analyzing the company's perceptions of transferring know-how and/or internal best practices from one project to the next with the intention of improving project performance is addressed in the interview to understand the correlation with the respondents' perceptions. While forming the question, it was assumed that the manager's expectations would resemble the company's expectations (Julian, 2008).

7.7	What is your manager's expectation of transferring know-how and/or spreading internal best practices from previous project activities?

Moreover, details of transfer of tacit knowledge and previous hands-on experience of the staff are investigated by mentioning the know-how practices in the company.

Research Question 3: How do project management office facilitate creating, retaining and transferring knowledge for the benefit of current and future projects?

The last research question part is designed to understand the effects of the project management office on organizational learning. The practices implemented by project management offices to enhance creating, retaining and transferring knowledge are questioned by mentioning any innovative applications initiated by the project management offices.

First, interviewees' ideas about any innovative applications to be initiated in an organization that can enhance creating knowledge are collected for the purposes of drawing policy implications. Current initiatives taken by the project management office to enhance creating knowledge are also addressed.

8.	What kind of practices and/or innovative applications can be initiated in an organization that can enhance creating knowledge?
8.1	Can you identify any example where creating knowledge is enhanced by project management office practices?

Next, interviewees' ideas about any innovative applications to be initiated in an organization that can enhance retaining knowledge are collected for the purposes of drawing policy implications. Current initiatives taken by the project management office to enhance retaining knowledge are also addressed.

9.	What kind of practices and/or innovative applications can be initiated in an organization that can enhance retaining knowledge?
9.1	Can you identify any example where retaining knowledge is enhanced by project management office practices?

Then, interviewees' ideas about any innovative applications to be initiated in an organization that can enhance transferring knowledge are collected for the purposes of drawing policy implications. Current initiatives taken by the project management office to enhance transferring knowledge is also addressed.

10.	What kind of practices and/or innovative applications can be initiated in an organization that can enhance transferring knowledge?
10.1	Can you identify any example where transferring knowledge is enhanced by project management office practices?

Moreover, managing organizational learning, which is one of the functions of the project management office, and any challenges that the project management office may face are mentioned to define obstacles for managing the knowledge creation aspect of organizational learning.

11.	Can you identify main challenges for managing the knowledge creation aspect of organizational learning?
11.1	How do you deal with these challenges as an individual and/or as a department?

11.2	Do you contact the project management office for technical/non-technical challenges?

Next, as a part of managing organizational learning, which is one of the functions of the project management office and any challenges that the project management office may face are mentioned to define obstacles for managing the knowledge retention aspect of organizational learning.

12.	Can you identify main challenges for managing the knowledge retention aspect of organizational learning?
12.1	How do you deal with these challenges as an individual and/or as a department?
12.2	Do you contact the project management office for technical/non-technical challenges?

Lastly, as a part of managing organizational learning which is one of the functions of the project management office and any challenges that the project management office may face are mentioned to define obstacles for managing transferring knowledge aspect of organizational learning.

13.	Can you identify main challenges for managing knowledge transfer aspect of organizational learning?
13.1	How do you deal with these challenges as an individual and/or as a department?
13.2	Do you contact the project management office for technical/non-technical challenges?

Lastly, the interviewees are asked which innovative applications they would initiate after addressing the current efforts of the project management office to foster learning from projects, teamwork, and sharing lessons learned with their team and others if they were given the opportunity. This question is selected as the last one as it gives

opportunity to the interviewees to draw personal policy proposals for the company (Julian, 2008).

14.	In what ways does the project management office support your efforts for enhancing organizational learning from project work and/or share your experience of learning with your department and others?
15.	If you were given the authority, which innovative applications would you initiate to foster organizational learning from projects, teamwork and sharing lessons learned with your team and others?

There are follow-up questions that are intended to be posed to employees who work as project managers. The reason for the addition of the follow-up questions is to analyze learning process during a project in detail by asking about previous situations and instants where project management office is mentioned. Also, the frequency of contact with the project management office and the credibility of the decisions that are made by the project management office teams are aimed to be shed light on.

3.3 Qualitative Analysis

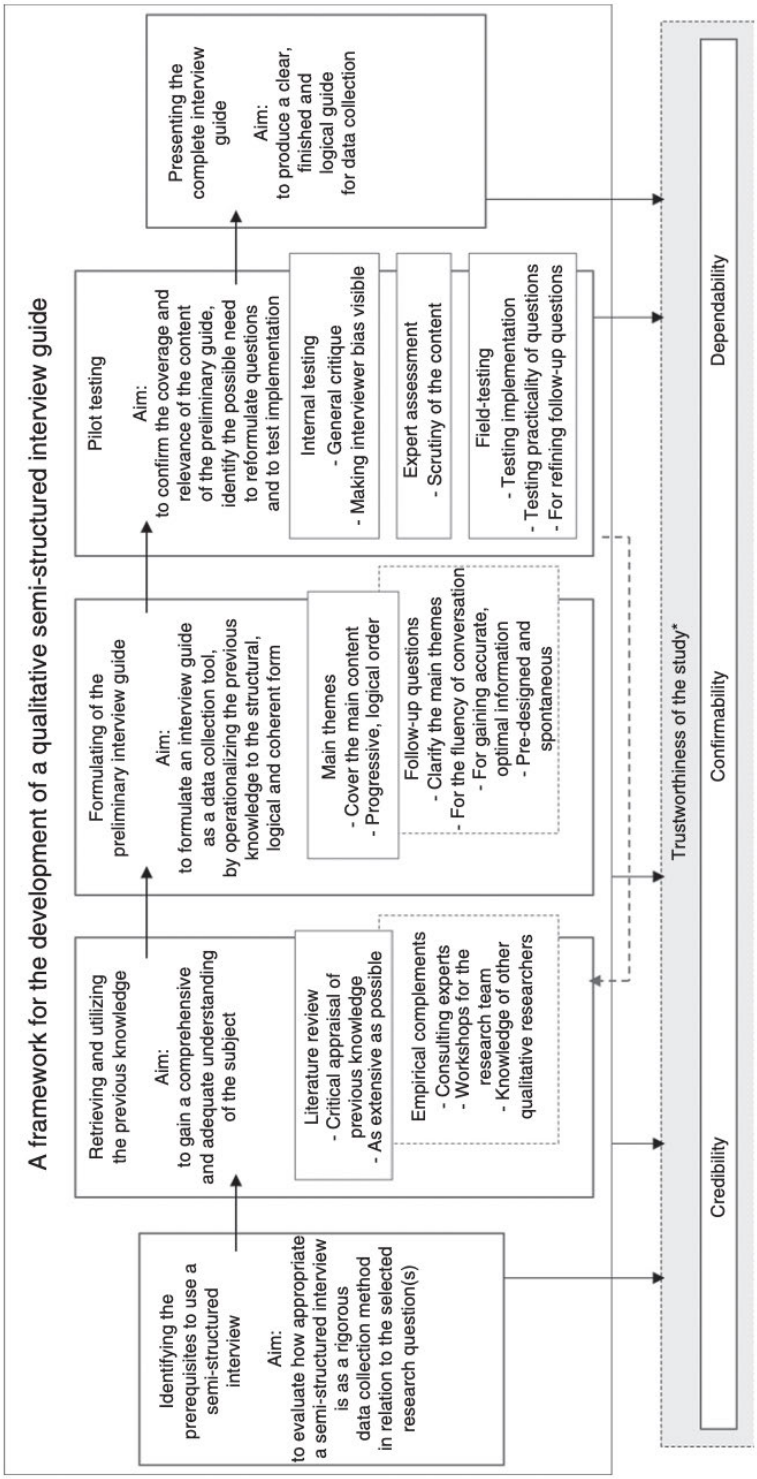
A semi-structured interview was conducted in three parts in a consecutive manner. For the selection of the interview method, the disadvantages and advantages of the semi-structured interview method are investigated in depth. The semi-structured interview method is preferred because of the advantages which are in line with the aim of the research (Newcomer et al., 2015).

The qualitative analysis consists of a semi-structured interview which was conducted with 20 respondents. The study group for the interview was selected from two groups: (1) program recipients (project managers) and (2) administration (members of the project management office). The selection of program recipients and members of the administration is a suitable interviewee group for the semi-structured interview method (Newcomer et al., 2015). Therefore, among the group of respondents, 10 of the respondents are working in a project management office and the remaining 10 of the respondents are working in a project, or program, management department. The program recipients (project managers) interact with the administration (members of the project management office) for their daily tasks and questions related to project management processes. The program recipients (project managers) are responsible for

at least one (or more) and project administration (members of the project management office) provide guidance with all the projects if the operation field.

Designing the interview is the most critical phase of this thesis, as the qualitative research is mainly based on semi-structured interviews. Therefore, elaborate attention is paid to designing the semi-structured interview questions, and the framework for developing a qualitative interview is considered (Kallio et al. 2016). The questions and three stages of the interview are designed based on the phases of the semi-structured interview guide provided in Figure 8 (Kallio, 2016).

Figure 7 The phases of the semi-structured interview guide (Kallio, 2016)



Based on the guideline, the following steps are followed.

- The interview is conducted in Turkish, which is the native language of the respondents.
- The respondents are informed about the thesis and confidentiality of the answers prior to the interview and selected on a voluntary basis.
- Expert opinion about the questions is obtained from PMP-certified personnel who has work experience in departments of interest of this thesis which are project management offices and project management departments.
- The interview questions were pilot tested with two respondents to test the comprehensibility of the questions and some questions were removed or redesigned after the pilot test.
- The respondents are given a briefing about organizational learning and project management office definitions to ensure the comprehensibility of the questions.
- The answers to the questions were moved to the right places if not given to the correct questions.
- All responses are analyzed and summarized.
- Follow-up questions are intended to be posed to employees who work as project managers in order to support answers to the previously asked interview questions.

3.4 Concluding Remarks

This chapter summarized the methodology and the organization of the analysis. Methodology of the thesis is explained in detail by supporting the methodology with the conceptualization. This chapter informs readers about the research methods of the thesis, which are based on qualitative methods.

After general conceptualization is explained in Section 3.1, detailed conceptualization is presented and explanations for the integration of interview questions are given referring to the relevant literature.

The mutually shared practices and knowledge flows between the project management office members and project managers remain unknown. For the purposes of revealing

the effects of project management offices on organizational learning, it is essential to understand the mutually shared practices and knowledge flows between the project management office members and project managers.

Confidentiality is a great concern for companies in the defense sector, as the company which is analyzed in this study. Therefore, the interview results may have been affected by the confidentiality concerns of the interviewees.

CHAPTER 4

FINDINGS

The research was conducted through a semi-structured interview was conducted in three parts in consecutive manner. The interview questions are designed to analyze the perceptions of organizational learning, project management office structure, and the effects of project management office on organizational learning in accordance with the stages of organizational learning individually.

Data collection occurred from January 2022 to August 2022 and was collected from two resources, with interviews, being the main source of data, and documents (non-confidential documents and articles about the company).

20 semi-structured interviews were conducted with respondents who are from different parts of the organization, including project management departments and project management offices. Project managers and members of the project management office were selected because of their involvement in project management.

Each interview lasted approximately one hour, and some informants were interviewed more than once as some of the interviews were interrupted by work related calls, meetings etc.

4.1 Demographic Analysis

Demographic analysis was conducted to understand the characteristics of the interview group of the case study. Demographic information questions were addressed to the respondents before the interview questions.

35% of the respondents were female, parallel with the dominant male percentage of the workforce in the sector. Only 35% of the respondents have bachelor's degrees, and the rest have pursued graduate education. The education level distribution is

remarkable in terms of the high percentage of the respondents who continue their education after graduating from bachelor's school.

50% of the respondents have studied industrial engineering for their bachelor's degree, with the highest percentage. The second highest rate was the respondents who had graduated from an electrical and electronics engineering department.

The majority of the respondents were between the ages of 25 and 34, with 65%, which shows a correlation with the titles of the respondents, 30% being experts or expert engineers (who are experienced).

Moreover, 50% of the respondents have 1 to 5 years of experience in the current company, and 25% have 16 to 20 years of experience in the current company. Correspondingly, the total work experience of 35% of the respondents is 1 to 5 years, and 25% of the respondents are 16 to 20 years, with the highest percentages.

The distribution of the respondents' departments is intentionally selected as equal percentages from each department type from various operation fields.

Lastly, 25% of the respondents own PMP (The Project Management Professional) Certificate, the world's leading project management certification (PMI, 2021).

The demographic analysis of the respondents is presented in Table 3.

Table 3 Demographic analysis of respondents of the interview

		Distribution	Percentage
Gender	Female	7	35%
	Male	13	65%
Education Level	Bachelor's Degree	7	35%
	Master's Student	2	10%
	Master's Degree	10	50%
	Ph.D. Student	1	5%
	Ph.D.	0	0%

Table 3 (continued)

		Distribution	Percentage
Age	Under 25	0	0%
	25-34	13	65%
	35-44	6	30%
	45 and Older	1	5%
Bachelor's Graduation	Industrial Engineering	11	50%
	Civil Engineering	1	4%
	Management Engineering	1	4%
	Management	2	10%
	Electrical and Electronics Engineering	6	28%
	Physics	1	4%
Title	Junior Engineer	5	25%
	Expert/ Expert Engineer	6	30%
	Senior Expert Engineer	2	10%
	Lead Engineer	5	25%
	Senior Lead Engineer	2	10%
Experience in Current Firm	1-5 years	10	50%
	6-10 years	5	25%
	11-15 years	0	0%
	16-20 years	5	25%
	More than 20 years	0	0%
Total Experience	1-5 years	7	35%
	6-10 years	4	20%
	11-15 years	3	15%
	16-20 years	5	25%
	More than 20 years	1	5%

Table 3 (continued)

		Distribution	Percentage
Department	Project Management Office	10	50%
	Project Management	10	50%
PMP Certificate	No	15	75%
	Yes	5	25%

4.2 Qualitative Analysis

The qualitative analysis consists of semi-structured interviews conducted with 20 respondents. Among the group of respondents, ten of the respondents are working in a project management office, and the remaining ten respondents are working in a project, or program, management department.

Most of the respondents are semi-experienced or experienced employees. The main reason for this is that project management offices often hire personnel with previous work experience, preferably in a project management role. When providing answers, interviewees mentioned their experience from previous work experiences and positions.

Gender diversity was paid attention to, including female and male respondents, due to the majority of male employees in the company.

The diversity of the respondents enabled comparison between project management practices and the project management office's role, which enhanced understanding of the contextual aspects affecting organizational learning processes. Interviews focused on understanding the perspectives of organizational learning, project management offices, and the effects of project management offices on organizational learning. Thus, interview questions were addressed in an order previously explained in detail in Chapter 3.

The interview includes 15 primary and related questions with follow-up questions, which are optional and addressed to the respondents depending on the department information.

The summarized answers to the interview questions are presented in this chapter. In summarized answer tables, the first ten answers are answers of the project managers from the project management departments, and the last ten are answers from the members of the project management offices.

Research Question 1: What are the perceptions of project management office in the company that you are currently employed in?

1. What is your understanding of a project management office?
   1.1 Can you briefly describe the type of activities in which the project management office in your company engages to carry out its mission and goals?
   1.2 How important do you think is project management office organization to your company?

Table 4 Summarized answers for Question 1

	Q1	Q1.1	Q1.2
1	A structure above project teams	Standardization of PM	Very critical
2	An umbrella for PM	Setting the standards of PM, guiding	important
3	PM software	Supportive, a bridge between top management and PM	necessary
4	A structure for PM	Setting the standards of PM, supportive	Quite important
5	A structure for standardization of project management	Setting the standards of PM, supportive and directing	important
6	A mechanism for measuring PM standards such as cost, customer satisfaction, project plan etc.	Making PM processes more user friendly and supportive with PM activities	Quite important

Table 4 (continued)

	Q1	Q1.1	Q1.2
7	Analyzing and reporting PM performance	Connecting PM teams and top management, knowledge transfer, informative about PM standards	Not critical at all
8	A support and control mechanism for PM	Standardization of PM methodology, providing related educational activities and guidelines	Very important
9	Analyzing and reporting PM performance and better application of PM methodology	Standardization of PM methodology, providing guidelines	Very important
10	A mechanism for setting and measuring PM standards	Making PM processes more user friendly and forming a network between PM teams and top management	Very important
11	A structure for standardization of project management processes for better customer experience	Adapting best practices to corporate culture	Yes, in absence of PMO, quality departments handle a portion of its responsibilities
12	A structure for shared and standard project management practices	Digitization of PM processes and providing the software for reporting and documentation	Very important for standardization of work
13	A structure for shaping PM processes, mostly consisting of former project managers for creating knowledge flows	Process management, project performance measurements, process performance measurements, prioritization of projects	Very important, as PMO turns data into meaningful reports
14	A structure for developing and standardizing processes and projects at world standards level	Creating a communication and feedback mechanism between top management, project managers and resource managers	Important for assessing and analyzing effective use of resources for reporting to top management

Table 4 (continued)

	Q1	Q1.1	Q1.2
15	A structure for project portfolio management	Creating shared documentation and processes for project management	Necessary for a total outlook for projects and it was formed because of a need for such structure
16	A structure formed for a total outlook of projects	Standardization of process and project practices	Yes, in absence of PMO, quality departments handle a portion of its responsibilities
17	A structure for shaping PM processes	Reporting project performance from a single unit to top management	Yes, because all project management teams use shared resources, and they need to be monitored by a single unit as well
18	A structure for designing standardized PM processes	A mechanism for better PM and preventing unexpected outcomes by making better projections	Yes, for increasing efficiency, decreasing cost
19	A standardized discipline for PM processes	Creating a common PM culture, providing necessary education and trainings	Very important for leaving static processes and updating PM methodology
20	Corporate project management team	Defining processes for PM, providing technical and non-technical trainings	Partially yes, due to accountability and performance concerns

2. Can you briefly describe the mission of your department and the types of activities in which your department engages to carry out its mission?

   2.1 What is your relationship with the project management office at your company?

   2.2 How often and at what stage do you interact with projects?

Table 5 Summarized answers for Question 2

	Q2	Q2.1	Q2.2
1	End-to-end PM process	Close relationship and in connection with PMO most of the time	At all stages and post-project stage

Table 5 (continued)

	Q2	Q2.1	Q2.2
2	Product and process development, in-house technology development, market research, customer evaluation, secondary research, customer satisfaction, PM	In communication with PMO through project design	At all stages of the project
3	Meeting turnover expectations, PM of contractual and R&D projects, in-house technology development	Weekly meetings	At all stages of the project
4	Business development activities, customer satisfaction, market research, PM activities for increasing competitiveness	Close relationship and in connection with PMO most of the time	At all stages of the project
5	In-house technology development, increasing profitability ratio, expanding customer portfolio, increased product quality	In communication with PMO through project design for the necessary information about PM processes	At all stages of the project
6	Defining the available services and meeting the needs of the customers, End to end PM process, PM of contractual and R&D projects	Monthly meetings	At all stages of the project
7	End to end PM process, customer satisfaction	Close relationship and in connection with PMO most of the time for a variety of needs	At all stages of the project
8	PM processes, customer satisfaction	Close relationship and in connection with anything related to PM	At all stages and post-project stage
9	PM of contractual and R&D projects, market expansion, customer evaluation	Close relationship and in connection with PMO especially for low performing projects	At all stages of the project

Table 5 (continued)

	Q2	Q2.1	Q2.2
10	Product and process development, PM of contractual and R&D projects, market research, customer evaluation, secondary research, customer satisfaction	Weekly meetings	At all stages and post-project stage
11	Planning, execution, monitoring, controlling of the projects	Daily meetings	After the project contract signing
12	Monitoring PM practices from the starting to closing of the projects	Daily meetings	After the project contract signing
13	Project planning and monitoring throughout the project	Daily meetings	After the project contract signing
14	Project support, project performance measurements and feedback	Daily meetings	After the project contract signing
15	Application and monitoring of the central and shared practices for PM	Daily meetings	After the project contract signing
16	PM practices throughout the projects for the operation field	Daily meetings	After the project contract signing
17	Supporting projects throughout project timeline, especially at the starting of the project	Daily meetings	After the project contract signing
18	Application and monitoring of the practices of PM, especially for low-performing projects	Daily meetings	After the project contract signing
19	In charge of the project management process	Daily meetings	After the project contract signing
20	Controlling and alignment of the central and shared practices for PM	Daily meetings	After the project contract signing

3. Where does your department report to within the formal organization structure?

The answers to Question 3 and the frequency of each answer are presented in Figure 8.

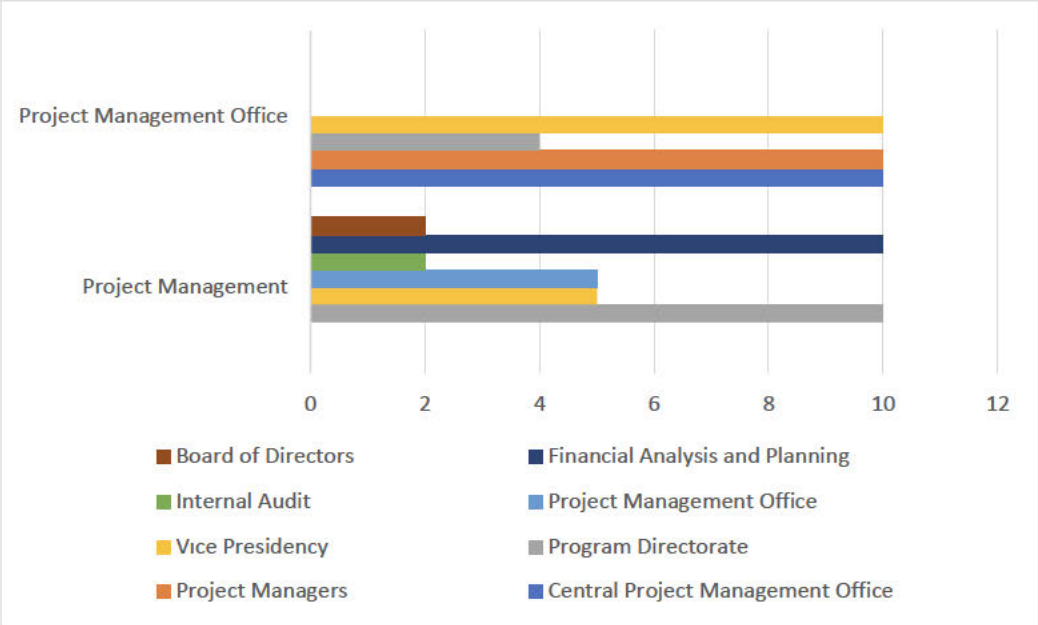


Figure 8 Reporting structure for project management and project management offices

Research Question 2: What are the perceptions of organizational learning in the company that you are currently employed in?

4. What is your understanding of organizational learning in the organization?

Table 6 Summarized answers for Question 4

	Q4
1	Knowledge flows between individuals and departments, sharing experiences
2	Corporate memory and know-how
3	Master-apprentice relationship
4	Corporate culture and accumulated knowledge
5	Technical and non-technical knowledge accumulation, lessons learned
6	Documentation of knowledge, lessons learned, master-apprentice relationship
7	Documented and undocumented knowledge flows in a company
8	Master-apprentice relationship, trial, and error
9	Knowledge accumulation and transfer
10	Knowledge creation and networks of knowledge in a company
11	Organizational adaptations to learning and change

Table 6 (continued)

	Q4
12	A wider version of learning of the individual and breaking resistance to change
13	Master-apprentice relationship
14	Standardization of the knowledge flow process
15	Learning side of knowledge management and strategic management
16	Aligning processes which include knowledge flows
17	Capability of utilizing previous knowledge and experience
18	Corporate memory, lessons-learned
19	Internalizing learning in an organization
20	Prioritization of learning of the organization before learning of the individual

5. What has been your experience of "creating knowledge" aspect of organizational learning at your company?
   5.1 Do you think your previous knowledge is exploited for creating knowledge during the time in your company?
   5.2 How important is creating knowledge to your company?
   5.3 What problems do you see with the creating knowledge aspect of organizational learning? What can be done to solve these problems?

Table 7 Summarized answers for Question 5

	Q5.1	Q5.2	Q5.3
1	In technical terms, yes; in terms of managerial skills, no	Very critical in terms of new experiences and learning activities	Knowledge creation is expected from experienced employees but new graduates' ideas and knowledge they bring to the company is also valuable and thinking outside the box should be valued
2	Mildly	Very important and valued	If the knowledge is not documented or saved in any way, the same knowledge may be created again which is a waste of time and resources

Table 7 (continued)

	Q5.1	Q5.2	Q5.3
3	Yes, ex. engineering approach	Very important and supported by seminars, educational activities, conferences etc.	Lack of motivation and investigative spirit due to heavy workload, research activities may be adopted as a part of workplan.
4	Yes, but limited ex. engineering approach	Very important because people will come and go but knowledge need to be preserved	Knowledge creation should be encouraged especially in design departments
5	Yes	Very important for renewal of technology and processes	Research activities may be adopted as a part of workplan by including knowledge creation when planning workload
6	In technical terms, yes; in terms of managerial skills, no	Very important	Due to master-apprentice way of learning, new and disruptive ideas may be lost in the process. Different point of views should be valued.
7	Yes, engineering approach	Very important especially in a technology company where R&D is highly valuable	Experience and master-apprentice relationship should be supported with educational activities such as trainings, courses etc.
8	Very limited	Important but not valued enough	Resistance to change and conventional practices could be dealt with innovative approaches to knowledge creation
9	Yes, engineering, and managerial approach	Very important	The effects of hierarchy can be reduced by giving more responsibilities to new graduates and providing opportunities for brainstorming as a team
10	Yes, engineering approach	Very important especially in a technology company where R&D is highly valuable	Knowledge creation can be supported with educational activities such as technical and non-technical trainings, courses etc.

Table 7 (continued)

	Q5.1	Q5.2	Q5.3
11	Yes, project management knowledge	Very important in terms of producing novel ideas and products	Not sparing time due to heavy workload and priorities of projects
12	Yes, project management tools	Very important, especially for forming corporate memory	Systematic trainings about recent trends in technology for the personnel
13	Yes	Very important for technology companies where technology is produced in-house	Central process management provided by PMO is critical
14	Yes, project management tools	Very important	I do not think that there are problems
15	Yes	Very important for technology companies where technology transfer occurs	A well-designed documentation process
16	Yes	Very important especially for the companies conducting R&D activities	Technical knowledge creation could be incentivized by trainings and educational activities
17	Yes	Very important especially for technology companies	Problems with the time management due to heavy workload
18	Yes	Very important, especially for forming corporate memory	I do not think that there are problems
19	Yes	Very important for long-term progress	Forming corporate memory is a lengthy process
20	Yes	Very important in terms of technical and non-technical knowledge	Non-technical knowledge creation is also as important as technical knowledge creation

5.4 What is your expectation of identifying lessons learned from one project to the next (with respect to improving performance)?

5.5 What is your manager's expectation of identifying lessons learned from one project to the next (with respect to improving performance)?

Table 8 Summarized answers for Question 5

	Q5.4	Q5.5
1	High expectations but generation Z does give importance to identifying lessons learned	Similar approach

Table 8 (continued)

	Q5.4	Q5.5
2	High expectations	Similar approach
3	High expectations	Similar approach but does not follow up
4	High expectations	Similar approach
5	High because there is no time for re-inventing the wheel	Similar approach
6	It is very important for me to identify lessons learned practices	Supports identifying lessons learned and tracks these activities
7	It is up to personal efforts according to the heaviness of the workload	Expects identifying lessons learned
8	The team's expectations may not be always high	Supports identifying lessons learned activities
9	Mistakes and lessons are good if there is learning from them because there is no time to make same mistakes again and again	Similar approach, supportive about identifying lessons learned activities
10	I try my best because re-inventing the wheel is a waste of time and resources	Supports identifying lessons learned activities
11	Using lessons learned platform	Similar approach
12	Creating lessons learned from projects	Similar approach
13	Creating lessons learned from projects is very important but needs monitoring	Supports identifying lessons learned activities
14	The quality of the lessons learned is more important than the quantity of lessons learned	Supports identifying lessons learned activities

Table 8 (continued)

	Q5.4	Q5.5
15	Using lessons learned platform more effectively	Supports identifying lessons learned and tracks these activities
16	Using lessons learned platform	Similar approach
17	Creating lessons learned is important for a project-based company	Similar approach
18	Using lessons learned platform more effectively	Supports identifying lessons learned activities
19	Using lessons learned platform more effectively	Similar approach
20	Using lessons learned platform more effectively	Similar approach

5.6 What is your expectation of creating know-how and/or internal best practices from previous project activities?

5.7 What is your manager's expectation of creating know-how and/or internal best practices from previous project activities?

Table 9 Summarized answers for Question 5

	Q5.6	Q5.7
1	Critical for the company but not for my individual work	Supports such practices
2	Critical for future project success	Supports such practices
3	Critical for future project success especially in R&D projects	Similar approach
4	Important for future project success, increases job satisfaction	Similar approach
5	Important for preventing re-discovering these practices	Supports such practices
6	Critical for future project success	Supports such practices
7	Important for preventing re-discovering these practices	Supports such practices

Table 9 (continued)

	Q5.6	Q5.7
8	Critical for future project success and not working for the same task in different project teams	Similar approach
9	Especially best-practices are very important	Supports identifying such practices
10	Important for future project success, and increases sense of belonging to the company	Similar approach
11	Awareness related to best practice is high	Supports such practices
12	The importance of best practice activities is well understood	Supports such practices and rotation between departments
13	Fostering best practices is important	Supports best practices by teamwork
14	Best practices are important for generalizing successful project outcomes	Supports best practices by teamwork by cross-project meetings
15	The company values best practices	Supports such practices
16	Identifying best practices should be part of the company culture	Expects project team members to identify best practices
17	Best practices are expected to be identified	Supports such practices
18	Best practices should be supported by the management	Supports such practices
19	Best practices are important for project success	Supports such practices
20	Best practices are critical, especially in technical fields	Supports such practices

6. What has been your experience of "retaining knowledge" aspect of organizational learning at your company?
   - 6.1 Do you think your previous knowledge is exploited for retaining knowledge during the time in your company?
   - 6.2 How important is retaining knowledge to your company?
   - 6.3 What problems do you see with the retaining knowledge aspect of organizational learning? What can be done to solve these problems?

Table 10 Summarized answers for Question 6

	Q6.1	Q6.2	Q6.3
1	Surely	Very important and more reliable than any memory as there are personnel changes	User-friendly documentation tools and a single search engine for every information such as corporate Google could be useful for better documentation and availability of knowledge
2	Yes	Very important but availability of the knowledge is also important	Teamwork may be supported and made more effective
3	Yes	Very important and there are platforms for such purposes	Lack of motivation to save knowledge due to heavy paperwork should be overcame
4	Yes	Very important and more reliable than any memory	User-friendly documentation tools and search engines such as corporate Google could be useful for better documentation and availability of knowledge
5	Surely, I have my own documentation system	Very important for accumulation of knowledge	Saving and documentation processes could be easier to avoid heavy paperwork
6	Yes	Very important as individuals' memory is not reliable and people change departments or companies	Lack of motivation to save knowledge due to heavy paperwork should be overcame
7	Yes	As the saying goes: "the palest ink is stronger than the sharpest memory"	Retaining knowledge should not be up to personal efforts, should be part of the job
8	Yes	Very important for efficiency	More effective platforms for saving and accessing knowledge should be used

Table 10 (continued)

	Q6.1	Q6.2	Q6.3
9	Surely	Very important for limited budget and time concerns, it's too expensive to forget and re-learn	Personnel turnover rate should be higher to keep knowledge in the company
10	Yes	Very important just as creating knowledge	The importance of retaining knowledge is not well understood, raising awareness could be helpful
11	Yes	Very important for long term success of the company	Knowledge loss due to personnel changes
12	Yes	Very important, especially for companies where employee turnover rate is high	Not documenting critical knowledge
13	Yes	Very important	Lack of motivation for documenting knowledge
14	Yes	Very important for forming corporate culture	Not documenting critical knowledge due to prioritization of project work
15	Yes, note taking, documentation etc.	Very important for sustainable competitive advantage	Not having sufficient platforms for retaining knowledge
16	Yes, I have a digital library system for my work	Very important, especially for multi-project companies	Lack of motivation and awareness for documenting knowledge
17	Yes	Very important and more reliable than any memory	Knowledge loss due to personnel changes
18	Yes, but I would prefer best practices rather than my previous knowledge	Very important for forming company culture	Knowledge loss due to personnel changes and lack of awareness of documenting knowledge
19	Yes	Very important especially for technology compnies	I do not think that there are problems
20	Yes	Very critical for corporate success	Not documenting critical knowledge

6.4 What is your expectation of retaining lessons learned from one project to the next (with respect to improving performance)?

6.5 What is your manager's expectation of retaining lessons learned from one project to the next (with respect to improving performance)?

Table 11 Summarized answers for Question 6

	Q6.4	Q6.5
1	High expectations but generation Z does give importance to retaining lessons learned	Similar approach
2	Mentioning them in project closing reports and meetings is critical	Expects but it's up to personal efforts
3	High expectations, so an effective platform is necessary	Similar approach but PMO also supports
4	High expectations but I am not informed well enough to save such knowledge	Similar approach
5	High because there is no time for re-inventing the wheel	Mentioning them in project closing reports and meetings is expected
6	It is very important for me to document lessons learned practices, mentioning them in project closing reports and meetings is critical	Mostly uses memory
7	It is very important for me to discuss lessons learned practices as a team before documentation and analyze	Expects retaining lessons learned activities
8	It is important for me to access these practices in the future as well	Supports documenting lessons learned activities
9	Retaining knowledge is turning knowledge into an asset but availability of documented knowledge is also critical	Similar approach, supportive about documenting lessons learned activities
10	I try my best because re-inventing the wheel is a waste of time and resources	Supports documenting lessons learned activities

Table 11 (continued)

	Q6.4	Q6.5
11	Very important and it should be a part of the company culture	Supports documenting lessons learned activities
12	Very important and there is a platform for lessons learned practices	Supports documenting lessons learned activities but it is up to personal efforts
13	Very important and there is a platform for lessons learned practices	Supports documenting lessons learned activities
14	Very important	Supports documenting lessons learned activities
15	Very important for more project teams to benefit from lessons learned practices	Supports documenting lessons learned activities
16	Using lessons learned platform	Similar approach
17	Retaining lessons learned is important for a project-based company	Similar approach
18	Using lessons learned platform more effectively	Supports retaining lessons learned activities
19	Lessons learned practices are as important as other project outcomes	Similar approach
20	Using lessons learned platform more effectively	Similar approach

6.6 What is your expectation of retaining know-how and/or internal best practices from previous project activities?

6.7 What is your manager's expectation of retaining know-how and/or internal best practices from previous project activities?

Table 12 Summarized answers for Question 6

	Q6.6	Q6.7
1	High expectations but generation Z does give importance to documenting or using such practices	Similar approach
2	Mentioning them in project closing reports and meetings is critical	Expects but it's up to personal efforts
3	High expectations, so an effective platform is necessary	Similar approach but PMO also supports
4	High expectations but I am not informed well enough to document or access such knowledge	Mostly knows who to ask what by memory

Table 12 (continued)

	Q6.6	Q6.7
5	High because there is no time for re-inventing the wheel	Mentioning them in project closing reports and meetings is expected
6	It is critical and would be beneficial especially for new graduates	Mostly knows who to ask what by memory
7	It is very important for me to access such knowledge as I am still new to the company	Expects documenting such activities such as any problems solved on a phone call
8	Such practices could be made available in a digital platform	Supports documenting such activities
9	Retaining knowledge is turning knowledge into an asset but availability of documented knowledge is also critical	Similar approach, supportive about documenting such activities
10	I try my best because accumulated knowledge is an asset	Supports documenting best-practices
11	Awareness related to best practice is high	Supports such practices
12	The importance of best practice activities is well understood	Supports such practices
13	Documenting best practices is important	Supports best practices by daily meetings
14	Best practices are important for generalizing successful project outcomes	Supports best practices by daily meetings
15	The company values best practices	Supports such practices
16	Retaining best practices should be part of the company culture	Expects project team members to identify best practices
17	Best practices are expected to be part of the job	Supports such practices
18	Best practices should be supported by the management	Supports such practices and has high expectations
19	Best practices are important for project success	Supports such practices
20	Best practices are critical, especially in technical fields	Supports such practices

7. What has been your experience of "transferring knowledge" aspect of organizational learning at your company?

   7.1 Do you think your previous knowledge is exploited for transferring knowledge during the time in your company?

   7.2 How important is transferring knowledge to your company?

7.3 What problems do you see with the transferring knowledge aspect of organizational learning? What can be done to solve these problems?

Table 13 Summarized answers for Question 7

	Q7.1	Q7.2	Q7.3
1	Yes, but only in technical terms	Very critical in terms of new experiences and renewal of knowledge	Processes and guidelines should be updated and made more user-friendly
2	Mildly	Very important and makes the first two steps meaningful	The resources and how to access these resources should be clear for everyone
3	Yes	Very important	I do not think there are problems
4	Yes, presentation skills, technical writing etc.	Very important and makes the first two steps meaningful	Best practices for transferring knowledge should be fostered instead of old and outdated solutions
5	Yes	Very important for utilizing previously learned knowledge	User-friendly platforms, applications and meetings should be in use
6	Yes	Very important but sometimes people do not want to share due to personal ambitions	Mentoring and coaching can be a part of company culture for a better transfer of knowledge
7	Yes	Very important especially inter-departmental knowledge transfer	Knowledge transfer should be fully transferring the available knowledge and accurately
8	Very limited	Very important for helping my colleagues	Knowledge transfer should be fully transferring knowledge via appropriate mediums ex. Skype meetings, e-mail etc.
9	Yes	Very important in terms of time and money to transfer the right knowledge at the right time before deadlines	Confidentiality issues sometimes become an excuse for not transferring knowledge, the line should be clear about confidentiality
10	Yes, presentation skills, technical writing etc.	Very important especially in a technology company where change is so rapid	User-friendly platforms, applications and meetings should be in use so that confidentiality becomes a minor issue
11	Yes	Very important for forming knowledge networks	Raising awareness about transferring knowledge

Table 13 (continued)

	Q7.1	Q7.2	Q7.3
12	Yes	Very important and generally flows from more experienced to less experienced personnel	Keeping employee turnover rate low in order to benefit knowledge transfer
13	Yes	The most important step of organizational learning	Fostering teamwork and rotation of personnel
14	Yes	Very important and technology companies should focus on transferring knowledge more	Forming focus groups from various project teams for sharing knowledge
15	Yes	Very important	Retaining knowledge is very important for transferring knowledge
16	Yes	Very important and should be supported by a sufficient documentation method	Confidentiality may be an excuse for not transferring knowledge
17	Yes	Very critical	Not knowing who knows what may be a problem, documentation is critical
18	Yes	Very important, there are EPPM and ERP software	Verbal communication may be an obstacle for the continuum of transferring knowledge
19	Yes	Very important, especially with fast changing business environment	Transferring knowledge should be measurable
20	Yes	Very important for technology companies	Transferring knowledge should be a part of KPI

7.4 What is your expectation of transferring lessons learned from one project to the next (with respect to improving performance)?

7.5 What is your manager's expectation of transferring lessons learned from one project to the next (with respect to improving performance)?

Table 14 Summarized answers for Question 7

	Q7.4	Q7.5
1	High expectations and raising awareness of the new generations is important	Similar approach but favors conventional methods to avoid risks

Table 14 (continued)

	Q7.4	Q7.5
2	Mentioning them in project closing reports and meetings is critical	Values experience
3	High expectations, so an effective platform is necessary	Similar approach but PMO also supports
4	High expectations but I am not informed well enough about how to transfer knowledge	Mostly knows who to address about any problem for previous experience
5	High because there is no time for re-inventing the wheel	Mentioning them in project closing reports and meetings is expected
6	It is very important for me to transfer lessons learned practices, mentioning them in meetings is critical	Expects but it's up to personal efforts and other colleagues may not know that necessary knowledge is available and documented
7	It is very important for me to discuss lessons learned practices so that it is learned once and for all	Expects transferring lessons learned activities
8	It is important for me to access these practices in the future as well	Supports transferring lessons learned activities
9	Transferring knowledge is critical for future projects	Similar approach, supportive about transferring lessons learned activities
10	I try my best to share knowledge because re-inventing the wheel is a waste of time and resources	Supports transferring lessons learned activities
11	The lessons learned platform should be used more effectively	Highly values transferring lessons learned activities
12	The lessons learned should be shared with other project teams	Supports transferring lessons learned activities
13	Important because there is no time for re-inventing the wheel	Values transferring lessons learned activities
14	Contributes to competitive advantage	High expectations
15	Lessons learned is valuable if the lesson is carried to the next projects	Supports transferring lessons learned activities
16	Lessons learned should be utilized in the future project work	Supports transferring lessons learned activities
17	The lessons learned platform should be used more effectively	Supports transferring lessons learned activities
18	The lessons learned platform should be used more effectively	Supports transferring lessons learned activities
19	The lessons learned platform should be used more effectively	Highly values transferring lessons learned activities
20	Important because there is no time for re-inventing the wheel	Supports transferring lessons learned activities

7.6 What is your expectation of transferring know-how and/or spreading internal best practices from previous project activities?

7.7 What is your manager's expectation of transferring know-how and/or spreading internal best practices from previous project activities?

Table 15 Summarized answers for Question 7

	Q7.6	Q7.7
1	High expectations and raising awareness of the new generations is important	Similar approach but favors conventional methods to avoid risks
2	Mentioning them in project closing reports and meetings is critical	Mostly knows who to address about any problem for previous experience and forms project teams accordingly
3	It happens mostly by communicating in social environments at work	Similar approach
4	It happens mostly by communicating with experienced project managers	Mostly knows who to address about any problem for previous experience
5	It happens mostly through master-apprentice relationship	Supports master-apprentice learning teams
6	It is very important for me to transfer such practices, mentioning them in meetings is critical	Values experience and transfer of knowledge
7	It is very important for me to discuss such practices during meetings so that it is learned once and for all	Expects transferring lessons learned activities
8	It is important for me to access these practices in the future as well	Supports transferring lessons learned activities, PMO can also support
9	Transferring knowledge is critical for future projects	Similar approach, supportive about transferring best practices
10	I try my best to share knowledge and benefit experiences of others because re-inventing the wheel is a waste of time and resources	Supports transferring best practices
11	Awareness related to best practice is high	Supports such practices
12	The importance of best practice activities is well understood	Supports such practices
13	Best practices should be adapted to the company culture	Supports transferring best practices by daily meetings
14	Best practices are important for generalizing successful project outcomes	Supports best practices by daily meetings

Table 15 (continued)

	Q7.6	Q7.7
15	The company values best practices	Supports such practices
16	Transferring best practices should be part of the company culture	Expects project team members to identify best practices
17	Best practices are expected to be part of the job	Supports such practices
18	Best practices should be supported by the management	Supports such practices and has high expectations
19	Best practices are important for project success	Supports such practices
20	Best practices are critical, especially in technical fields	Supports such practices

Research Question 3: How do project management office facilitate creating, retaining and transferring knowledge for the benefit of current and future projects?

8. What kind of practices and/or innovative applications can be initiated in an organization that can enhance creating knowledge?

   8.1 Can you identify any example where creating knowledge is enhanced by project management office practices?

Table 16 Summarized answers for Question 8

	Q8	Q8.1
1	Including other departments' ideas in the process besides project managers	EPPM manuals and guidelines
2	A PMO member can be in PM team	EPPM manuals and guidelines
3	EPPM trainings for inexperienced personnel	EPPM manuals and guidelines
4	PMO can monitor project management plans, project status reports	EPPM and ERP software
5	PMO can be a part of monthly project evaluation meetings	EPPM software installation process
6	PMO can be a part of monthly project evaluation meetings	EPPM software installation process
7	Trainings and courses for motivation could be organized by PMO	EPPM software installation process
8	A PMO member can be in PM team	EPPM software installation process
9	Use of ERP and EPPM software	EPPM software installation process

Table 16 (continued)

	Q8	Q8.1
10	PMO can be a part of KPI assessment	Education and trainings on PM
11	Agile project management could be utilized in suitable areas	Feedback meetings with project teams
12	PMO can follow PM process in more detail and become a part of PM	Meetings with consultant companies
13	Personnel rotation could be effective and beneficial	User-friendly platforms for lessons learned
14	More detailed and user-friendly standards and manuals for creating knowledge	User-friendly platforms for lessons learned
15	Having PM opinion when designing EPPM and ERP software	EPPM and ERP software
16	More user-friendly software applications for having a wider outlook of PM	EPPM and ERP software
17	Monitoring PM in more detail	EPPM
18	Incentivizing knowledge creation through PM work	Project Performance Measurements
19	PMO can follow PM process in more detail and become a part of PM	EPPM and ERP software
20	An effective best practice platform	Lessons learned platform

9. What kind of practices and/or innovative applications can be initiated in an organization that can enhance retaining knowledge?

   9.1 Can you identify any example where retaining knowledge is enhanced by project management office practices?

Table 17 Summarized answers for Question 9

	Q9	Q9.1
1	Applications for enhancing documentation systems	ERP and EPPM software
2	Applications for enhancing corporate memory	ERP and EPPM software
3	User-friendly documentation systems	EPPM software installation
4	A search engine for the company where knowledge can be documented	EPPM software installation
5	A well-structured documentation system and necessary applications	EPPM software installation
6	A well-structured documentation system	Lessons-learned application

Table 17 (continued)

	Q9	Q9.1
7	Education and trainings for raising awareness on retaining knowledge	General PM knowledge trainings
8	Education and trainings for raising awareness on retaining knowledge	General PM knowledge trainings were given
9	Increasing workforce to reduce heavy workload	In critical projects PMO provides support
10	Customer evaluation could be done with PMO	General PM knowledge trainings were given
11	Use of effective databases	Trainings related to the importance of corporate memory
12	Raising awareness about previous project knowledge	Lessons learned platform
13	Making a more user-friendly project management plan	Application of the project management plan
14	Digitalization of the charters	Documentation processes for contributing corporate memory
15	Keeping data history available for any period	Databases for saving PM processes
16	Use of effective databases for best practices	Trainings related to the importance of corporate memory
17	More user-friendly documentation platforms	ERP and EPPM software
18	Raising awareness about corporate memory	Lessons learned application
19	Contributing to retaining knowledge processes until it becomes a part of the company culture	Lessons learned application
20	Making documentation a part of the job description	ERP and EPPM software

10. What kind of practices and/or innovative applications can be initiated in an organization that can enhance transferring knowledge?

    10.1 Can you identify any example where transferring knowledge is enhanced by project management office practices?

Table 18 Summarized answers for Question 10

	Q10	Q10.1
1	Processes could be tailored according to the learning habits of new generation	Lessons-learned application

Table 18 (continued)

	Q10	Q10.1
2	Applications for sharing best practices and meetings where these are discussed	EPPM software, lessons-learned application
3	Applications and platforms for easier knowledge sharing	EPPM software
4	A search engine for the company	EPPM software
5	User-friendly applications for transferring knowledge	Lessons-learned application
6	A company culture which prioritizes transferring knowledge	EPPM software
7	User-friendly applications for transferring knowledge	Lessons-learned application
8	Communication tools between related departments	Lessons-learned application
9	Effectiveness of PMO in knowledge transfer practices could be evaluated and increased if profitable	Taking part in PM processes and sharing knowledge between projects
10	Organizing PM workshops	Feedback meetings with PM teams
11	Making retained knowledge accessible	Project revision meetings for low performing projects
12	Personnel rotations between PM teams	Lessons learned platform
13	Digital communication tools between related departments or focus groups	Workshops among project teams working on the same area of work
14	A user-friendly documentation system which is accessible	Lessons learned platform
15	Keeping data history available for any period	Databases for saving PM processes
16	More active monitoring for transferring knowledge	Trainings related to the importance of transferring knowledge to form corporate memory
17	More user-friendly knowledge transfer platforms	ERP and EPPM software
18	Raising awareness about corporate memory	Lessons learned application
19	Contributing to transferring knowledge processes until it becomes a part of the company culture	Lessons learned application
20	Trainings about effective ways of transferring knowledge	ERP and EPPM software

11. Can you identify main challenges for managing knowledge creation aspect of organizational learning?

11.1 How do you deal with these challenges as an individual and/or as a department?

11.2 Do you contact the project management office for technical/non-technical challenges?

Table 19 Summarized answers for Question 11

	Q11	Q11.1	Q11.2
1	Motivational challenges	By support of our manager	Sometimes
2	Managing the workload	Rotation between projects	Yes
3	Appreciation for creating knowledge	Try to see creating knowledge as a part of the job	Yes
4	Not having enough time for creating knowledge	Try staying curious regardless how routine the tasks get	Yes
5	Not having enough time for creating knowledge	By support of our manager	No
6	Not having enough time for creating knowledge	Try to see creating knowledge as a part of the job	Yes
7	Lack of experience	Teamwork	No
8	Managing the workload	By support of our manager	No
9	Lack of experience	Teamwork	Yes
10	Preventing the same knowledge to be created repetitively	Filtering the current knowledge before creating knowledge	Yes
11	Corporate culture	More active monitoring	Yes
12	Lack of sufficient IT support	Cooperating with IT department for the solution of the problems PM teams face	Yes
13	Lack of sufficient IT applications	Cooperating with the central PMO	Yes
14	Lack of motivation	More active monitoring	Yes
15	Not being able to get effective feedback about creating knowledge processes	More active monitoring	Yes
16	Lack of time for using lessons learned application	Cooperating with IT department for the solution of the problems PM teams face	Yes

Table 19 (continued)

	Q11	Q11.1	Q11.2
17	Lack of interest for producing best practices	Trainings for forming a corporate culture which values knowledge creation	Yes
18	Bureaucratic challenges	Cooperating with the central PMO	Yes
19	Being late to utilize lessons learned	More active monitoring	Yes
20	Lack of sufficient IT applications	Cooperating with the central PMO	Yes

12. Can you identify main challenges for managing knowledge retention aspect of organizational learning?

    12.1 How do you deal with these challenges as an individual and/or as a department?

    12.2 Do you contact the project management office for technical/non-technical challenges?

Table 20 Summarized answers for Question 12

	Q12	Q12.1	Q12.2
1	For the documented knowledge to be accessible	Using department documentation areas	Yes
2	For the documented knowledge to be up to date	Try to update documentations regularly	Yes
3	Appreciation for retaining knowledge	Try to see retaining knowledge as a part of the job	Yes
4	Not having enough time for retaining knowledge	At least try to document knowledge in our personal database	Yes
5	Not having enough time for documenting knowledge	Teamwork	Sometimes
6	Lack of information about how and where to document knowledge	By support of our manager and PMO	Yes
7	Documenting verbally handled situations	Teamwork	Yes
8	Ensuring knowledge is retained accurately	Help of my senior colleagues	Yes

Table 20 (continued)

	Q12	Q12.1	Q12.2
9	Lack of information about how to document knowledge	Teamwork	Yes
10	Preventing the same knowledge to be documented repetitively	Enabling access for previously documented knowledge	Yes
11	Corporate culture	More active monitoring	Yes
12	Lack of sufficient IT support	Cooperating with IT department for the solution of the problems PM teams face	Yes
13	Lack of sufficient IT applications	Cooperating with the central PMO	Yes
14	Lack of motivation	More active monitoring	Yes
15	Not being able to get effective feedback about retaining knowledge processes	More active monitoring	Yes
16	Lack of time for using lessons learned application	Cooperating with IT department for the solution of the problems PM teams face	Yes
17	Lack of interest for retaining best practices	Trainings for forming a corporate culture which values knowledge creation	Yes
18	Making retaining knowledge a part of the KPI	Cooperating with the central PMO	Yes
19	Being late to utilize lessons learned	More active monitoring, constant reminders	Yes
20	Lack of sufficient IT applications	Cooperating with the central PMO	Yes

13. Can you identify main challenges for managing knowledge transfer aspect of organizational learning?

    13.1 How do you deal with these challenges as an individual and/or as a department?

    13.2 Do you contact the project management office for technical/non-technical challenges?

Table 21 Summarized answers for Question 13

	Q13	Q13.1	Q13.2
1	Hierarchical barriers	Shaping corporate culture	Yes
2	Hiding the knowledge in a certain group	Social communication skills	Yes
3	Appreciation for transferring knowledge	Try to see transferring knowledge as a part of the job	Yes
4	Lack of communication	Contacting PMO	Yes
5	Lack of mediums for transferring knowledge	By support of our manager	Yes
6	Conflicts related to confidentiality	Shared platforms for transferring knowledge	Yes
7	Lack of information about appropriate ways for transferring knowledge	Contacting PMO	Yes
8	Lack of communication	Shared platforms and meetings for transferring knowledge	Yes
9	Lack of mediums for transferring knowledge	By support of our manager and PMO	Yes
10	Conflicts related to confidentiality	Trying to draw the line about confidentiality	Yes
11	Corporate culture	More active monitoring	Yes
12	Lack of sufficient IT support	Cooperating with IT department for the solution of the problems PM teams face	Yes
13	Lack of sufficient IT applications	Cooperating with the central PMO	Yes
14	Lack of motivation	More active monitoring	Yes
15	Not being able to get effective feedback about transferring knowledge processes	More active monitoring, daily meetings	Yes
16	Lack of time for using lessons learned application	Cooperating with IT department for the solution of the problems PM teams face	Yes
17	Lack of interest for transferring best practices	Trainings for forming a corporate culture which values knowledge creation	Yes
18	Making transferring knowledge a part of the KPI	Cooperating with the central PMO	Yes

Table 21 (continued)

	Q13	Q13.1	Q13.2
19	Personnel changes and knowledge loss due to the change	More active monitoring, constant reminders for documenting and transferring knowledge	Yes
20	Lack of sufficient IT applications	Cooperating with the central PMO	Yes

14. In what ways does the project management office support your efforts for enhancing organizational learning from project work and/or share your experience of learning with your department and others?

15. If you were given the authority, which innovative applications would you initiate to foster organizational learning from projects, teamwork and sharing lessons learned with your team and others?

Table 22 Summarized answers for Questions 14 and 15

	Q14	Q15
1	Informing about new methods or practical applications, creating bridges for knowledge flow between departments	User-friendly platforms for fostering organizational learning
2	Making organizational learning part of performance reports	Reward system for knowledge sharing practices, social gatherings for enhancing knowledge networks
3	Monitoring learning processes and projects	Trainings for new personnel about organizational learning processes, social gatherings for enhancing knowledge networks
4	Mostly trainings related to PM	Motivating teams for considering organizational learning as part of the job
5	Informing about new methods or practical applications, sharing lessons learned activities	User-friendly platforms for fostering organizational learning
6	Making organizational learning part of company culture	Inter-departmental rotations for enabling knowledge transfer
7	Trainings related to the EPPM software installation	Seminars and social gatherings for enhancing knowledge networks
8	Informing about new methods or practical applications	Inter-departmental rotations for enabling knowledge transfer

Table 22 Summarized answers for Questions 14 and 15

	Q14	Q15
9	Informing about new methods or practical ways of sharing and retaining knowledge	Blockchain software applications for organizational learning. Big data and Internet of Things (IoT) could be utilized for retaining knowledge
10	PMO provides an outlook of PM processes and finds solutions for enhancing knowledge networks	Benchmarking with other technology companies and adapt more ways of enhancing organizational learning
11	Providing universal applications and manuals for the use of project management teams from every department of the company	Providing time for PM activities from a PM outlook
12	Daily PMO meetings for enhancing organizational learning practices	Raising awareness about organizational learning concept and knowledge management
13	Centralization of the PM processes	Encouraging personnel rotations
14	Making the stages of organizational learning part of the job description	Enabling corporate communication network for a better and well-designed communication process
15	Creating social and professional environments for knowledge transfer	Increasing PM dedication and motivation for better use of PM applications
16	Meeting the expectations of the top management in terms of reporting	Providing user-friendly tools and applications for lessons learned and best practices
17	Monitoring PM teams	Including the effective use of documentation and PM tools as a KPI
18	Encouraging identifying best practices	A reward mechanism for outstanding lessons learned and best practices
19	Trainings and seminars related to the successful applications of PM	A company search engine for the corporate memory
20	Enhancing applications for a better corporate memory	Digital platforms and applications using recent technologies such as Big Data and Internet of Things (IoT)

There are follow-up questions that are intended to be asked to the employees who work as project managers. The reason for the addition of the follow-up questions is to analyze the learning process during a project in detail by asking about previous situations and instants where the project management office is mentioned. However, the summarized answers to those questions are not provided as a separate table as they are included in the summarized answer to the relevant question.

4.3 Concluding Remarks

The responses of the interviewees are summarized in this chapter and a thorough examination of the responses was conducted. Any confidential and personal information given during the interviews was eliminated in the summarizing process. After the analysis of the interview, findings are formed in the next chapter, including the literature analysis and interview outcomes.

The analysis part of the thesis is designed to reveal the effects of project management offices on organizational learning. Therefore, it is essential to understand the mutually shared practices and knowledge flows between the project management office members and project managers. The connections between the findings and literature analysis on the functions of the project management office, which affect organizational learning in Table 2, are presented throughout this chapter.

First, the first part of the interview addresses the understanding of a project management office and the relationship between the project management departments and the project management office. The answers to the first three questions revealed that the expectations of the project management are reflected in the mission of the project management offices. The first question investigates the role of the project management office and investigates the responsibilities and authority of the project management office in the company. The reason for this investigation is because of the concerns related to understanding the current project management office structure. As mentioned before, regardless of the definitions for the functions of a project management office, the role of the project management office is tailored to the company. Therefore, understanding the dynamics of the relationship between the project management office and the project teams is a prerequisite for analyzing these departments.

- **Development of project management methodologies, tools, and software**

Answers to the first question revealed that the primary perception of the project management office is that it is essential for the company, and such a structure is necessary for a well-structured and standardized project management methodology that is up to date with the global applications. Although the history of project management offices is not long, it is noted that some of the functions of the project management office were operated by other departments, such as the quality department. One of the main contributions of the project management office is found to be the standardization of project management practices (Jalal & Koosha, 2014). For example, before the project management office structure, the way of managing a project was up to the project managers only. However, project management processes and relevant documentation are now created and monitored by the project management office. In this manner, the details of the project management process are documented in standardized reports and databases.

- **Conducting post-project reviews**

In the second question, the mission of the respondents' departments is investigated to test the assumption that each project management team would have the same task and carry out the same types of activities to carry out its mission (Aubry et al., 2011). A similar analogy is also expected for the different project management offices. Furthermore, the interaction frequency of the project management office and the project management are investigated. The frequency of interaction between the project management office and the project management is similar among respondents. For the project management office personnel, the frequency of interaction with the central project management office is investigated and the answer was the same for each respondent as project management office members join meetings daily with other project management office members from the company. The project managers and project office members share experiences from projects and discuss what went wrong or right during the post-project meetings.

In the third question, the departments that project managers and project management office members directly report to are investigated to observe the relationship between the project management office and the project management department while

understanding the monitoring level (Hobbs & Aubry, 2007). As the respondents are from different departments of project management and the project management office, it was observed that the departments in which they report may differ. The reason for this could be because of the dynamics of the operation field or the management dynamics of the operation field management. The interview analysis revealed that the project management office has both supportive and controlling roles (PMI, 2021)F. The project management office has a supportive role in terms of daily tasks and problems related to the project management processes. Furthermore, the project management office determines which tools and software to use while setting the project management standards for the project teams which implies a controlling role for the project management office.

- **Creating knowledge**

In the fourth question, regardless of the definitions in the literature, the perception of organizational learning is investigated. As a result of the brief explanation of organizational learning at the beginning of the interview, the definitions made by the respondents were not far from the literature. The accuracy of the definitions of organizational learning made by the respondents presents the relevancy of the answers in the rest of the interviews respectively.

In the eighth question, innovative applications to be initiated in an organization that can enhance creating knowledge are investigated. EPPM software is the initiative started by the project management office, which is mentioned by the majority of the respondents. Respondents' ideas for enabling knowledge creation included the project management offices that take part in project management activities more intensively and contribute by creating opportunities for learning and knowledge creation, parallel with the functions of a project management office (PMI, 2021).

In the eleventh question, challenges for managing knowledge creation practices are investigated. The challenges which were mentioned the most are lack of time spared for creating knowledge due to the prioritization of the project requirements and lack of motivation. Respondents have stated that they are willing to ask for help from their managers, colleagues, and the project management office for challenges regarding knowledge creation.

- **Continuous improvement**

In the fifth question, creating knowledge aspect of organizational learning is investigated. The majority of the respondents stated that they have exploited their previous knowledge (knowledge prior to working in this company) to create knowledge mostly in technical terms. For example, it is stated by the respondents that technical and critical thinking skills were exploited from university knowledge, whereas managerial skills were obtained through experience. Also, creating knowledge is viewed as a highly critical task for a company for various reasons, such as conducting R&D, being a technology-based company, forming corporate memory, and producing novel ideas and products for competitive advantage. Master-apprentice relationship and resistance to change were mentioned as possible problems with creating knowledge.

The importance given to new ideas, especially from inexperienced employees, and training that could contribute to knowledge creation activities are underlined by the respondents. New ideas and critical thinking are very important to adapt to a fast-changing and competitive business environment. Therefore, the continuous improvement function of the project management office is a crucial aspect of change management (PMI, 2021).

In the fourteenth question, the ways in which the project management office supports efforts for enhancing organizational learning are investigated (Jalal & Koosha, 2014). Raising awareness is mentioned several times in the answers. Training and seminars emphasizing the importance of organizational learning and ways of contributing to organizational learning are stated to be beneficial solutions.

- **Implementing and managing a database of lessons learned and best practices**

Also, raising awareness activities can be supported by first analyzing the requirements for user-friendly software and implementing such software. For enhancing knowledge networks and fostering organizational learning activities, the project management office can provide a digital and user-friendly platform for a better organizational learning experience where knowledge can be stored and accessed.

- **Retaining knowledge**

In the sixth question, the retaining knowledge aspect of organizational learning is investigated (Dai & Wells, 2014). The majority of the respondents stated that they have exploited their previous knowledge (knowledge prior to working in this company) to retain knowledge. In this part of the interview, respondents emphasized the importance of retaining knowledge and stated that without retaining knowledge, the exhausting process of knowledge creation would be lost, and the same process would have had to be gone through by a different project management team or even the same personnel. To avoid "re-inventing the wheel", which was mentioned several times during the interviews, raising awareness about the importance of retaining knowledge through training or educational activities are solution suggested for enhancing knowledge retention. Also, documentation processes and user-friendly digital platforms are suggested for retaining knowledge, such as ERP and EPPM software. The importance of lessons learned, and best practices are emphasized by the respondents. One of the ideas presented by several respondents was a corporate search engine such as "Google" where any knowledge can be retained by everyone, and the process would be user-friendly. Another reason for a search engine is to ensure the retained knowledge is accessible and other project management teams would benefit by searching the topic. The accessibility of retained knowledge is emphasized as a function of the project management office by the respondents, in line with the literature (Aubry et al., 2011). According to the majority of the respondents, retaining knowledge is not useful if it is not easily accessed and the presence of retained knowledge is unknown.

- **Knowledge transfer**

In the seventh question, transferring knowledge aspect of organizational learning is investigated (Jalal & Koosha, 2014). Daily meetings of the project management office members aim at enhancing knowledge transfer between the project management teams from different operation fields through project management offices from different operation fields and the central project management office. In daily meetings, best practice applications, lessons learned, and recent updates on project management are

shared, which shows a direct contribution of the project management office to the knowledge transfer aspect of organizational learning.

In the tenth question, innovative applications initiated in an organization that can enhance the transfer of knowledge are investigated. EPPM software and lessons learned is again mentioned as the initiatives started by the project management office. User-friendly applications and updated documentation regarding the transfer of knowledge are mentioned as possible applications for enhancing knowledge transfer.

- **Managing archives of project documentation**

In the twelfth question, challenges for managing and knowledge retention practices are investigated (Dai & Wells, 2004). The challenges which were mentioned the most are lack of time spared for retaining knowledge due to the prioritization of the project requirements, and lack of motivation for retaining knowledge as it does not improve individual knowledge. Respondents have stated that they are willing to ask for help from their managers, colleagues, and the project management office for challenges regarding creating knowledge. However, they prefer retaining knowledge through memory and explaining their experiences verbally as it is an easy and practical way of retaining knowledge, according to project managers.

- **Sharing documents and project performance reports**

In the thirteenth question, challenges for managing knowledge transfer practices are investigated. As mentioned in the answers, one of the reasons for the existence of the project management office is to reduce the effects of bureaucracy on organizational learning and project management practices as much as possible. However, as the company is operating in defense sector and products of the company are associated with major weapon system programs, some of the key organizational variables of interest pertain to the bureaucratic nature of the organization due to intense bureaucracy effect in the defense industry (Dillard & Nissen, 2007). Therefore, the project management office's approach towards bureaucracy should take into account the characteristics of the defense sector. Additionally, confidentiality concerns were mentioned in the answers. The project management approach regarding the confidentiality issues could consider the motivation of sharing knowledge as well. If

the motivation for transferring knowledge is low, issues such as confidentiality may be used as an excuse for not sharing knowledge.

- **Knowledge and lessons learned management**

In the ninth question, innovative applications initiated in an organization that can enhance retaining knowledge are investigated. EPPM software is mentioned as the initiative started by the project management office (Jalal & Koosha, 2014). Also, the lessons learned platform is mentioned, but the rate of utilization of this platform is below the expectations of the project management office and project managers agree to this idea as well. Training and seminars are emphasized by the respondents for raising awareness and making retaining knowledge part of the job or even considering retaining knowledge as a part of routines in the company.

In the fifteenth question, the respondents' ideas about the innovative applications to foster organizational learning from projects, teamwork, and sharing lessons learned are investigated. Seminars, training, and social gatherings for enhancing knowledge networks were suggested for enhancing knowledge transfer which can be organized with the coordination of the project management offices (Aubry et al., 2011). Inter-departmental rotations for enabling knowledge transfer can be supported. For example, a project manager can rotate to another project management department and report about which routines could be integrated between the project management departments. Benchmarking with other technology companies and adapting more ways of enhancing organizational learning are also mentioned by the respondents.

CHAPTER 5

CONCLUSION

5.1 Research Findings and Strategy Recommendations

A project management office is an organizational structure that is one of the main contributors to organizational learning in a company. This thesis examines the instance of a Turkish defense industry corporation to determine the impact of project management offices on organizational learning. The premise of this thesis is that the project management office structure affects organizational learning either directly or indirectly. Therefore, literature in the fields of learning, knowledge management, organizational capabilities, and project management has been examined prior to an in-depth study on organizational learning and project management office.

Following the completion of the literature review, an interview conceptualization study is conducted. The interview questions were designed after determining the definition of organizational learning to be used throughout the qualitative research. For the organizational learning context, three stages of learning were identified based on literature: creating knowledge, retaining knowledge, and transferring knowledge (Argote, 2011). For the project management office part, first, the responsibilities and goals of project management offices were identified by analyzing the existing literature. Secondly, the responsibilities and goals which enhance and contribute to organizational learning were selected.

The interview questions are based on research on the functions of a project management office that have an impact on organizational learning either directly or indirectly. Based on literature research and field observations, the questions for the semi-structured interview are designed with the defense sector and the firm characteristics in mind. Twenty interviewees from the project management and project management office departments participated in a semi-structured interview to

determine whether project management offices have an impact on organizational learning and how project management offices may improve organizational learning.

According to the interviews' findings, the project management office performs tasks that have an impact on organizational learning. In this part of the thesis, strategies are suggested for improving organizational learning through project management office structure after qualitative outcomes analysis. The enablers and barriers of organizational learning are presented with strategy recommendations for the project management office as follows.

- The importance of lessons learned (practices) at all stages of organizational learning is emphasized by project managers and project management office personnel. In the current economic environment that is characterized by fast changes and shorter product lifecycles, the experiences of others are as valuable as the experience of oneself. As a famous quote by Eleanor Roosevelt goes, "Learn from the mistakes of others because you can't live long enough to make them all yourself." Learning from lessons learned, best practices, and poor practices as well. Lessons learned and best practices should be encouraged or even incentivized until they become a part of the company culture. User-friendly and modern applications can be provided for improving organizational learning through lessons learned and best practices.
- Monitoring activities that contribute to organizational learning can be included in the responsibilities of the project management office. For project management teams to adopt activities that contribute to organizational learning, the project management office can include a measurable aspect of organizational learning as a key performance indicator (KPI) for the company.
- Accessing retained knowledge is as important as retaining knowledge because if the existence of a resource is not known, it cannot be accessed regardless of however user-friendly the resource is. Hence, the two should be considered simultaneously when making improvements. A company search engine is one of the best practice examples from the technology sector which enables employees to both document knowledge and access knowledge from the same platform easily.

- User-friendly applications, platforms, software, and corresponding documentation methods can substitute outdated methods of retaining knowledge. Such applications can be provided by utilization of disruptive technologies such as Big Data, Internet of Things (IoT) and applied to every department of the company to obtain a solid knowledge network. Project management office can pioneer such an innovative way of knowledge management process by starting with the project management practices.
- Workshops, training sessions, educational activities are essential for raising awareness about the importance of organizational learning and attributes which contribute to organizational learning such as lessons learned and best practices. Besides these activities, social gatherings where interactive relations between different project management teams are also beneficial for forming knowledge networks and enhancing organizational learning.
- Lack of time and motivation for contributing to organizational learning are due to two reasons: not being aware of the importance of organizational learning for day-to-day and long-term operations in the company or not having necessary habits of organizational learning practices as a part of the company culture. Habits of organizational learning practices should be a part of corporate memory, just like any knowledge produced in the company or transferred to the company.
- Inter-departmental rotation of personnel is a vital enabler for organizational learning and should be encouraged to improve organizational learning, especially in transferring knowledge. By supporting inter-departmental rotations and rotations among different project groups employee turnover rate of the company could decrease by creating better work conditions for personnel who may leave their job.
- One of the reasons for the existence of the project management office is to reduce the effects of bureaucracy on organizational learning and project management practices as much as possible. As the company is operating in the defense sector and its products of the company are associated with significant weapon system programs, some of the critical organizational variables of interest pertain to the bureaucratic nature of the organization due to the intense bureaucracy effect in the defense industry (Dillard & Nissen, 2007). One of the

reasons for the existence of the project management office is to reduce the impact of bureaucracy on organizational learning and project management practices as much as possible.

- Confidentiality may be an inevitable barrier to organizational learning practices, especially in the defense industry. However, preventing confidentiality from becoming an excuse may be a part of the agenda of project management offices. The project teams' awareness of confidentiality can be increased to provide an environment for knowledge flows in the company. For example, training about classification of the confidential information can be a part of routine trainings for project managers. Also, private platforms for focus groups can be provided for creating safe platforms for sharing confidential knowledge with eligible colleagues and contributing to organizational learning. Furthermore, project management office may develop confidentiality standards for the project management activities which will enable more efficient knowledge transfer among project teams.

This thesis contributes to the existing realm of knowledge by conducting a study in one of the defense companies operating in Turkey, despite the challenges related to confidentiality concerns in the field and hardships throughout the analysis part of the study. Additionally, the thesis makes a significant contribution to the methodology by conducting interviews with two focus groups that work collaboratively and cooperatively. The analysis made in this thesis reveals the ways in that a project management office can contribute to organizational learning and makes strategy recommendations for becoming a "learning organization" for continuous improvement of organizational learning in a company.

5.2 Limitations of the Thesis and Suggestions for Future Research

This thesis is conducted in a defense industry company as a case study. Therefore, the result of the thesis may vary according to the company, the industry, and the country of origin of the company.

Moreover, the interviews are conducted with twenty respondents. Among the group of respondents, ten of the respondents are working in a project management office, and the remaining ten of the respondents are working in a project, or program, management

department. The ratio of the number of respondents may have affected the interview result. The members of the project management office tend to have a more optimistic view of the project management office structure compared to the project managers. Therefore, equal number of participants from project management offices and project management departments may have affected the results of the analysis of the interview.

Most of the respondents are semi-experienced or experienced employees. Therefore, the interview result represents a group of respondents from similar backgrounds and who have similar education levels. The accuracy of answers to some of the questions may be due to the characteristics of the study group. Also, most of the respondents have worked with/ have met the researcher before the interview. The factor of familiarity to the researcher may have affected the study group characteristics (the study group was selected by the researcher) and behaviors of the respondents.

Confidentiality is a major concern for defense industry companies and their employees. As the interviews were conducted in the company setting, the respondents may have filtered their answers more strictly than the confidentiality concerns of the company. Therefore, respondents may have abstained from giving comprehensive responses to the best of their knowledge.

The interview questions are designed on a single definition of organizational learning, and various functions of a project management office are taken into consideration. Before the interview the definition of a project management office and organizational learning is briefly explained to the respondents. The given definitions and brief information may have affected how the respondents answer the questions, which may have created bias.

As mentioned before, this thesis is conducted in a defense industry company as a case study. To validate the result of the thesis, additional case studies with different companies, from various industries can be conducted and a comprehensive analysis of the different cases studies may reveal a more objective result.

As a broader study, the effect of project management practices for enhancing organizational learning can be extended to other functional departments of the

company such as quality, production, design etc. Additionally, a study on the effect of company policies and top management attitude towards organizational learning can be carried out as a continuation of this thesis. Technology companies have significant potential for fostering organizational learning due to well-trained human resources.

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APPENDICES

A. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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04 AĞUSTOS 2022

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof. Dr. Mehmet Teoman PAMUKÇU

Danışmanlığını yürüttüğünüz Başak ULUTAŞ'ın "PROJE YÖNETİM OFİSİNİN ORGANİZASYONEL ÖĞRENMEYE ETKİSİ: TÜRKİYE SAVUNMA SANAYİ ÖRNEĞİ" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **0401-ODTUİAEK-2022** protokol numarası ile onaylanmıştır.

Bilgilerinize saygılarımla sunarım.

[redacted]
Başkan

[redacted]
Üye

[redacted]
Üye

[redacted]
Üye

[redacted]
Üye

[redacted]
Üye

[redacted]
Üye

B. SEMI-STRUCTURED INTERVIEW QUESTIONS (ENGLISH)

RESEARCH VOLUNTEER PARTICIPATION FORM

This research was conducted by Başak Ulutaş, a graduate student of the Department of Science and Technology Policy Studies, Middle East Technical University, under the supervision of Prof. Dr. Mehmet Teoman Pamukçu.

What is the purpose of the study?

The aim of the research is to figure the effect of project management office on organizational learning.

How do we ask you to help us?

If you agree to participate in the study, you are expected to participate in a sample group of 10 to 20 people. In the interviews, which are expected to last approximately one hour, you will be asked a series of open-ended questions and you will be asked why you gave a specific answer to these questions. During the interview, your answers will be noted to be evaluated by content analysis.

How will we use the information we collect from you?

Your participation in the research must be entirely voluntary. In the study, no identity or institution identifying information is requested from you. Your answers will be kept completely confidential and evaluated only by researchers. The information obtained from the participants will be evaluated collectively and used in scientific publications.

What you need to know about your participation:

The interview does not contain questions or practices that may cause personal discomfort.

If you would like more information about the research:

At the end of the interview, your questions about this study will be answered. Thank you in advance for your participation in this study. For more information about the research, please contact thesis supervisor Prof. Dr. Mehmet Teoman Pamukçu ([redacted]) or graduate student Başak Ulutaş ([redacted]).

Demographic Information Form

1- How many years have you been working in your current company?

2- How long have you been in your working life?

3- Gender ( )Female ( ) Male

4- Birth Year

5- Education Level

( ) Undergraduate

( ) Master Student ( ) Graduate

( ) Doctoral Student ( ) Doctorate

6- Department of Graduation/ Current Study

Undergraduate ( )

Graduate ( )

Doctorate ( )

7- Department

Project Management ( )

Project Management Office ( )

8- Position

( ) Junior Engineer ( ) Expert Engineer

( ) Sr. Expert Engineer ( ) Lead Engineer( ) Sr. Lead Eng./Manager

9- Do you own a PMP (Project Management Professional) certificate?

( )Yes ( ) No

Interview Questions

Research Question 1: What are the perceptions of project management office in the company that you are currently employed in?

1. What is your understanding of a project management office?
   1.1. Can you briefly describe the type of activities in which the project management office in your company engages to carry out its mission and goals?
   1.2. How important do you think is project management office organization to your company?
2. Can you briefly describe the mission of your department and the types of activities in which your department engages to carry out its mission?
   2.1. What is your relationship with the project management office at your company?
   2.2. How often and at what stage do you interact with projects?
3. Where does your department report to within the formal organization structure?

Research Question 2: What are the perceptions of organizational learning in the company that you are currently employed in?

4. What is your understanding of organizational learning in the organization?
5. What has been your experience of "creating knowledge" aspect of organizational learning at your company?
   5.1. Do you think your previous knowledge is exploited for creating knowledge during the time in your company?
   5.2. How important is creating knowledge to your company?
   5.3. What problems do you see with the creating knowledge aspect of organizational learning? What can be done to solve these problems?
   5.4. What is your expectation of identifying lessons learned from one project to the next (with respect to improving performance)?
   5.5. What is your manager's expectation of identifying lessons learned from one project to the next (with respect to improving performance)?
   5.6. What is your expectation of creating know-how and/or internal best practices from previous project activities?

5.7. What is your manager's expectation of creating know-how and/or internal best practices from previous project activities?

6. What has been your experience of "retaining knowledge" aspect of organizational learning at your company?
   6.1. Do you think your previous knowledge is exploited for retaining knowledge during the time in your company?
   6.2. How important is retaining knowledge to your company?
   6.3. What problems do you see with the retaining knowledge aspect of organizational learning? What can be done to solve these problems?
   6.4. What is your expectation of retaining lessons learned from one project to the next (with respect to improving performance)?
   6.5. What is your manager's expectation of retaining lessons learned from one project to the next (with respect to improving performance)?
   6.6. What is your expectation of retaining know-how and/or internal best practices from previous project activities?
   6.7. What is your manager's expectation of retaining know-how and/or internal best practices from previous project activities?
7. What has been your experience of "transferring knowledge" aspect of organizational learning at your company?
   7.1. Do you think your previous knowledge is exploited for transferring knowledge during the time in your company?
   7.2. How important is transferring knowledge to your company?
   7.3. What problems do you see with the transferring knowledge aspect of organizational learning? What can be done to solve these problems?
   7.4. What is your expectation of transferring lessons learned from one project to the next (with respect to improving performance)?
   7.5. What is your manager's expectation of transferring lessons learned from one project to the next (with respect to improving performance)?
   7.6. What is your expectation of transferring know-how and/or spreading internal best practices from previous project activities?
   7.7. What is your manager's expectation of transferring know-how and/or spreading internal best practices from previous project activities?

Research Question 3: How do Project Management Office facilitate creating, retaining and transferring knowledge for the benefit of current and future projects?

8. What kind of practices and/or innovative applications can be initiated in an organization that can enhance creating knowledge?
   8.1. Can you identify any example where creating knowledge is enhanced by project management office practices?
9. What kind of practices and/or innovative applications can be initiated in an organization that can enhance retaining knowledge?
   9.1. Can you identify any example where retaining knowledge is enhanced by project management office practices?
10. What kind of practices and/or innovative applications can be initiated in an organization that can enhance transferring knowledge?
    10.1. Can you identify any example where transferring knowledge is enhanced by project management office practices?
11. Can you identify main challenges for managing knowledge creation aspect of organizational learning?
    11.1. How do you deal with these challenges as an individual and/or as a department?
    11.2. Do you contact the project management office for technical/non-technical challenges?
12. Can you identify main challenges for managing knowledge retention aspect of organizational learning?
    12.1. How do you deal with these challenges as an individual and/or as a department?
    12.2. Do you contact the project management office for technical/non-technical challenges?
13. Can you identify main challenges for managing knowledge transfer aspect of organizational learning?
    13.1. How do you deal with these challenges as an individual and/or as a department?
    13.2. Do you contact the project management office for technical/non-technical challenges?

14. In what ways does the project management office support your efforts for enhancing organizational learning from project work and/or share your experience of learning with your department and others?
15. If you were given the authority, which innovative applications would you initiate to foster organizational learning from projects, teamwork and sharing lessons learned with your team and others?

Follow up questions (for project managers only):

- Thinking back, are there specific situations that stand out where you and/or your team attempted to ensure new lessons learned were incorporated into future projects?
    a. Can you say more about the processes, procedures, or methods that you followed to retain the lessons learned from one project to another?
    b. Can you say more about the processes, procedures, or methods that you followed to transfer the lessons learned from one project team to another?
    c. Have you considered consulting with the project management office? How did the project management office react?
- How often and at what stage do you interact with the Project Management Office?
    a. Do you agree with the project management office 's conclusions?
    b. If you do not agree with project management office's conclusions, do you still follow these decisions?

C. SEMI-STRUCTURED INTERVIEW QUESTIONS (TURKISH)

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu araştırma, ODTÜ Bilim ve Teknoloji Çalışmaları Bölümü Yüksek Lisans öğrencisi Başak Ulutaş tarafından Prof. Dr. Mehmet Teoman Pamukçu danışmanlığındaki yüksek lisans tezi kapsamında yürütülmektedir.

Çalışmanın Amacı Nedir?

Araştırmanın amacı, bir şirketteki proje yönetim ofisinin örgütsel (organizasyonel) öğrenmeye etkisini ortaya koymaktır.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz?

Araştırmaya katılmayı kabul ederseniz, sizden 10 ila 20 kişiden oluşan bir örneklem grubuna katılmanız beklenmektedir. Yaklaşık olarak bir saat sürmesi beklenen mülakatlarda sizlere bir dizi açık uçlu soru yöneltilecek ve bu sorulara neden belirli bir cevap verdiğiniz sorulacaktır. Mülakat sırasında içerik analizi ile değerlendirilmek üzere cevaplarınız not edilecektir.

Sizden Topladığımız Bilgileri Nasıl Kullanacağız?

Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Çalışmada sizden kimlik veya kurum belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır.

Katılımınızla ilgili bilmeniz gerekenler:

Mülakat, genel olarak kişisel rahatsızlık verecek sorular veya uygulamalar içermemektedir.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:

Mülakat sonunda, bu çalışmayla ilgili sorularınız cevaplanacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Bilim ve Teknoloji Çalışmaları Bölümü öğretim üyelerinden Prof. Dr. Mehmet Teoman Pamukçu ([redacted]) ya da yüksek lisans öğrencisi Başak Ulutaş ([redacted]) ile iletişim kurabilirsiniz.

Demografik Bilgi Formu

1- Mevcut şirketinizde kaç yıldır çalışıyorsunuz?

2- Ne kadar süredir çalışma hayatındasınız?

3- Cinsiyet ( )Kadın ( ) Erkek

4- Doğum tarihiniz

5- Eğitim seviyeniz

( ) Lisans

( ) Yüksek Lisans ( ) Yüksek Lisans (devam ediyor)

( ) Doktora (devam ediyor) ( ) Doktora

6- Mezun olunan/devam edilen bölüm:

( ) Lisans

( ) Yüksek Lisans

( ) Doktora

7- Mevcut şirketinizdeki bölümünüz:

( ) Proje Yönetimi

( ) Proje Yönetim Ofisi

8- Mevcut şirketinizdeki pozisyonunuz:

( ) Mühendis ( ) Uzman Mühendis

( ) Kd. Uzman Mühendis ( ) Lider Mühendis ( ) Kd. Lider Mühendis /Müdür

9- PMP (Project Management Professional) sertifikaniz var mı?

( )Evet ( ) Hayır

Mülakat Soruları

Araştırma Sorusu 1: Mevcut şirketinizde proje yönetim ofisi algıları nelerdir?

1. Proje yönetim ofisi size neyi çağrıştırıyor?
    1.1. Şirketinizdeki proje yönetim ofisinin misyon ve hedeflerine ulaşmak için gerçekleştirdiği faaliyet türlerini kısaca anlatabilir misiniz?
    1.2. Proje yönetim ofisi organizasyonunun şirketiniz için ne kadar önemli olduğunu düşünüyorsunuz?
2. Departmanınızın misyonunu gerçekleştirmek için yürüttüğü faaliyet türlerini kısaca anlatabilir misiniz?
    2.1 Şirketinizdeki proje yönetim ofisi ile ilişkiniz nedir?
    2.2 Projelerle ne sıklıkla ve hangi aşamada etkileşime giriyorsunuz?
3. Bölümünüz resmi organizasyon yapısı içinde nereye rapor veriyor?

Araştırma Sorusu 2: Mevcut şirketinizde örgütsel öğrenme algıları nelerdir?

4. Şirketinizdeki örgütsel öğrenme size neyi çağrıştırıyor?
5. Şirketinizde örgütsel öğrenmenin "bilgi üretmek" boyutuyla ilgili deneyiminiz nasıldı?
    5.1. Şirketinizde geçirdiğiniz süre boyunca bilgi üretmek için önceki bilgilerinizden faydalandığınızı düşünüyor musunuz?
    5.2. Şirketiniz için bilgi üretmek ne kadar önemli?
    5.3. Örgütsel öğrenmenin bilgi üretme boyutunda ne gibi sorunlar görüyorsunuz? Bu sorunları çözmek için neler yapılabilir?
    5.4. Bir projeden diğerine, alınan dersleri belirleme konusunda beklentiniz nedir (performansın iyileştirilmesiyle ilgili olarak)?
    5.5. Yöneticinizin bir projeden diğerine, alınan dersleri belirleme beklentisi nedir (performansın iyileştirilmesiyle ilgili olarak)?
    5.6. Bilgi birikimi oluşturma ve/veya önceki proje faaliyetlerinden şirket içi en iyi uygulamaları oluşturma beklentiniz nedir?
    5.7. Yöneticinizin bilgi birikimi oluşturma ve/veya önceki proje faaliyetlerinden şirket içi en iyi uygulamaları oluşturma beklentisi nedir?
6. Şirketinizde örgütsel öğrenmenin "bilgiyi elde tutmak" boyutuyla ilgili deneyiminiz nasıldı?

6.1. Şirketinizdeki süre boyunca bilgiyi elde tutmak için önceki bilgilerinizden faydalandığınızı düşünüyor musunuz?
6.2. Şirketiniz için bilgiyi elde tutmak ne kadar önemlidir?
6.3. Örgütsel öğrenmenin bilgiyi elde tutma yönüyle ilgili ne gibi sorunlar görüyorsunuz? Bu sorunları çözmek için neler yapılabilir?
6.4. Bir projeden alınan derslerin (performansın iyileştirilmesine ilişkin olarak) elde tutulması konusunda beklentiniz nedir?
6.5. Yöneticinizin bir projeden alınan derslerin (performansı iyileştirme açısından) elde tutulması konusunda beklentisi nedir?
6.6. Bilgi birikimini elde tutma ve/veya önceki proje faaliyetlerinden şirket içi en iyi uygulamaları ilerideki projelerde yararlanılmak üzere saklama beklentiniz nedir?
6.7. Yöneticinizin bilgi birikimini elde tutma ve/veya önceki proje faaliyetlerinden şirket içi en iyi uygulamaları ilerideki projelerde yararlanılmak üzere saklama beklentisi nedir?

7. Şirketinizde kurumsal öğrenmenin "bilgi aktarımı" boyutuyla ilgili deneyiminiz nasıldı?
    7.1. Şirketinizdeki süre boyunca bilgi aktarımı için önceki bilgilerinizden faydalandığınızı düşünüyor musunuz?
    7.2. Şirketinize bilgi aktarımı ne kadar önemlidir?
    7.3. Örgütsel öğrenmenin bilgi aktarımı boyutunda ne gibi sorunlar görüyorsunuz? Bu sorunları çözmek için neler yapılabilir?
    7.4. Bir projeden alınan derslerin diğerine aktarılması konusunda beklentiniz nedir (performansın iyileştirilmesi açısından)?
    7.5. Yöneticinizin bir projeden alınan derslerin diğerine aktarılması (performansın iyileştirilmesi açısından) konusunda beklentisi nedir?
    7.6. Daha önceki proje faaliyetlerinden elde edilen bilgi birikimini aktarma ve/veya şirket içi en iyi uygulamaları yayma konusundaki beklentiniz nedir?
    7.7. Yöneticinizin bilgi birikimi aktarımı ve/veya önceki proje faaliyetlerinden şirket içi en iyi uygulamaları yayma beklentisi nedir?

Araştırma Sorusu 3: Proje yönetim ofisi, mevcut ve gelecekteki projelerin yararına bilgi üretmeyi, saklamayı ve aktarmayı nasıl kolaylaştırır?

8. Sizce bilgi üretmeyi artırabilecek ne tür uygulamalar ve/veya yenilikler başlatılabilir?
    8.1. Bilgi üretmenin proje yönetim ofisi uygulamalarıyla geliştirildiği herhangi bir örnek verebilir misiniz?
9. Sizce bilginin kurumsal hafızadaki kalıcılığını artırabilecek ne tür uygulamalar ve/veya yenilikler başlatılabilir?
    9.1. Bilginin kurumsal hafızadaki kalıcılığını artırabilecek Proje Yönetim Ofisi uygulamalarından herhangi bir örnek verebilir misiniz?
10. Sizce bilgi aktarımını artırabilecek ne tür uygulamalar ve/veya yenilikler başlatılabilir?
    10.1. Bilgi aktarımının proje yönetim ofisi uygulamalarıyla geliştirildiği herhangi bir örnek verebilir misiniz?
11. Örgütsel öğrenmenin bilgi üretme yönünü yönetmek için temel zorlukları nelerdir?
    11.1. Birey ve/veya departman olarak bu zorluklarla nasıl başa çıkıyorsunuz?
    11.2. Teknik/teknik olmayan zorluklar için proje yönetim ofisi ile iletişime geçiyor musunuz?
12. Örgütsel öğrenmenin bilgiyi elde tutma yönünü yönetmek için temel zorluklar nelerdir?
    12.1. Birey ve/veya departman olarak bu zorluklarla nasıl başa çıkıyorsunuz?
    12.2. Teknik/teknik olmayan zorluklar için proje yönetim ofisi ile iletişime geçiyor musunuz?
13. Örgütsel öğrenmenin bilgi aktarımı yönünü yönetmek için temel zorlukları nelerdir?
    13.1. Birey ve/veya departman olarak bu zorluklarla nasıl başa çıkıyorsunuz?
    13.2. Teknik/teknik olmayan zorluklar için proje yönetim ofisi ile iletişime geçiyor musunuz?
14. Proje Yönetim Ofisi hangi yollarla örgütsel öğrenmeyi geliştirme çabalarınızı destekliyor ve/veya proje çalışmasından öğrenme deneyiminizi bölümünüz ve diğerleriyle paylaşıyor?

15. Size yetki verilseydi, projelerden ve ekip çalışmasından alınan dersleri ekibinizle ve başkalarıyla paylaşmak, böylece örgütsel öğrenmeyi teşvik etmek için hangi yenilikçi uygulamaları başlatırdınız?

Ek sorular (yalnızca proje yöneticileri için):

- Geriye dönüp düşününce, sizin ve/veya ekibinizin alınan derslerin gelecekteki projelere dahil edilmesini sağlamaya çalıştığınızda öne çıkan belirli durumlar var mı?
    - Bir projeden öğrendiğiniz dersleri başka bir projeye aktarmak için izlediğiniz süreçler, prosedürler veya yöntemler hakkında daha fazla bilgi verebilir misiniz?
    - Öğrendiğiniz dersleri bir proje ekibinden diğerine aktarmak için izlediğiniz süreçler, prosedürler veya yöntemler hakkında daha fazla bilgi verebilir misiniz?
    - Proje yönetim ofisine danışmayı düşündünüz mü? Proje yönetim ofisi nasıl tepki verdi?
- Proje Yönetim Ofisi ile ne sıklıkla ve hangi aşamada etkileşim kuruyorsunuz?
    - Proje yönetim ofisinin vardığı sonuçlara katılıyor musunuz?
    - Proje yönetim ofisinin vardığı sonuçlara katılmıyorsanız, yine de bu kararları uyguluyor musunuz?

D. TURKISH SUMMARY / TÜRKÇE ÖZET

Son yıllarda, iş ortamı hızlı bir değişim ve artan rekabet ile karşı karşıya kalmıştır. Maddi varlıkların yanı sıra, maddi olmayan varlıklar da son yıllarda şirketlerin rekabet avantajını sürdürebilmeleri için çok önemli hale gelmiştir. Bilgi, markalar, ticari markalar ve patentler bir şirketin maddi olmayan varlıklarına örnektir.

Özellikle teknoloji sektöründe, teknolojik değişim ve giderek kısalan ürün yaşam döngüleri nedeniyle küresel düzeyde oldukça rekabetçi koşullarda teknolojik temelli mal ve hizmetlerin araştırma, geliştirme ve dağıtımının hızlı bir şekilde sağlanması gerekmektedir (BolíVar-Ramos vd., 2012). Firmalar artan rekabet, sıkı teslim tarihleri ve daha kısa ürün yaşam döngüleri ile karşı karşıya kaldıklarında, iş dünyasında hayatta kalmalarını garanti altına almak için sürekli yenilik yapmak zorundadırlar. Bu nedenle, şirketler için bilgiyi, örgütsel yeterlilikleri, teknolojiyi kullanmak ve keşfetmek için "örgütsel öğrenmeyi" teşvik etmek kritik önem taşımaktadır.

İş dünyasındaki hızlı değişimin bir sonucu olarak, genel olarak örgütsel öğrenmenin ve proje ekipleri aracılığıyla öğrenmenin rolü büyük önem kazanmıştır (Keegan, 2001). Program yönetim ofisleri olarak da bilinen proje yönetim ofisleri, projelerin merkezi ve koordineli yönetimi ile ilgili çeşitli sorumluluklar üstlenir ve proje ekipleri aracılığıyla öğrenmeyi teşvik ederler (PMI, 2004). Proje yönetim ofisleri, bazı şirketlerde belirsizliği azaltmak için de faaliyet gösterebilir. Müşteriler, üst düzey yönetim, proje yönetim ofisi liderleri ve program yöneticileri, belirsizliği azaltmak için projenin ve çıktılarının performans ölçümüne odaklanır (PMI, 2021).

Proje yönetim ofislerinin tarihi, savunma sanayisinin "tek bir müşteri için birçok projeyi içeren büyük, karmaşık sözleşmeleri" yönetmesi gerektiği için yirminci yüzyıla kadar uzanmaktadır (Julian, 2008). Savunma sanayinde, sözleşmelerin karmaşık yapısından dolayı, genellikle tek bir müşteri için çok sayıda proje yapılmaktadır. Bu nedenle proje yönetimini sürdürmek için proje yönetim ofisi yapısını ilk uygulayan sektör savunma sanayi olmuştur. Proje yönetim ofisi

liderlerinin öncelikli sorumluluğu, proje ekiplerinden edindikleri bilgilerle proje performansında sürekli iyileştirme sağlamaktır.

Bu tez, proje yönetim ofislerinin örgütsel öğrenmeyi nasıl kolaylaştırdığına ve sürekli gelişimi nasıl desteklediğine ışık tutmayı amaçlamaktadır. Bu tezin bulgularının, bir savunma şirketinde proje yönetim ofisi desteğinin firma düzeyinde örgütsel öğrenme üzerindeki etkisini göstermesi ve örgütsel öğrenme yoluyla doğrudan ve dolaylı olarak sürekli iyileştirme üzerindeki etkisini değerlendirmesi beklenmektedir.

Proje yönetim ofisleri, çok sayıda projeyi tek bir platformda birbirine bağlar ve proje yönetim ekipleri ile üst yönetim arasında daha iyi yapılandırılmış bir iletişim kurar. Ayrıca, literatürde liderlik türlerinin ve özelliklerinin örgütsel öğrenme üzerindeki etkisi vurgulanmakta ve işbirlikçi, katılımcı bir yönetim tarzının örgütsel öğrenmeyi ve yeniliği teşvik etme olasılığının katılımcı olmayan bir yönetim tarzına göre daha yüksek olduğu konusunda geniş bir fikir birliği olduğu öne sürülmektedir (Garcia & Morales, 2008). Ayrıca, proje yönetim ofisi, bilgiye erişmek ve paylaşmak için bir ortam sağlar ve proje yönetimi ekipleri için "araçları ve amaçları" sunmaya yardımcı olur (Aubry vd., 2011). Ancak, bildiğimiz kadarıyla, Türkiye'de savunma sanayinde proje yönetim ofislerinin örgütsel öğrenme üzerindeki doğrudan ve dolaylı etkilerini inceleyen güncel bir literatür araştırması bulunmamaktadır.

Bu tez iki yönden önem taşımaktadır. İlk olarak, proje yönetim ofisi yapısının örgütsel öğrenme üzerindeki etkisini gösteren literatüre katkı sağlanması amaçlanmaktadır. İkinci olarak bu tezde, proje yönetim ofislerine, örgütsel öğrenmeyi kolaylaştırmak ve hatta uzun vadede proje performansının gelişimini teşvik etmek için neler yapılabileceği hakkında bilgi sağlaması amaçlanmaktadır. Ayrıca, bu tez, proje yönetim ofislerinin örgütsel öğrenmeye etkileri hakkında bir vaka çalışması aracılığıyla mevcut literatür ve uygulama arasında bir bağlantı kurmaya çalışmaktadır. Teorik arka planı oluşturmak için ilk olarak, bir şirketin örgütsel öğrenme sürecinin aşamalarını gözlemlemek için örgütsel öğrenmeyi anlama ve ölçme üzerine bir literatür taraması yapılmıştır. Örgütsel öğrenmeyi anlamak için, örgütsel öğrenmenin birincil kaynağı olan bilgiyle ilgili literatür gözden geçirilmiştir. Ayrıca, şirketlerin sürekli büyümesi için dinamikleri gösteren öğrenme, bilgi yönetimi, örgütsel yetenekler ve örgütsel öğrenme gibi çeşitli tanımlar incelenmiştir (Chandler, 1992).

Bilgi, çok sayıda örgütsel öğrenme çalışması için temel kavram olarak bulunmuş olup çalışmaların çoğu örgütsel öğrenmeyi alt süreçlere ayırarak analiz etmektedir. En genel anlamda örgütsel öğrenme, bilgiyi yaratma, elde tutma ve aktarma ile ilgili faaliyetlerin birleşik sonucudur (Argote, 2011).

İkinci olarak, proje yönetim ofisi ve örgütsel öğrenme arasındaki bağlantı, proje yönetimi ve proje yönetim ofisleri ile ilgili detaylı bir literatür taraması sonucunda oluşturulmuştur. Literatüre göre örgütsel öğrenme doğrudan veya dolaylı olarak çoğu çalışmada proje yönetim ofislerinin işlevlerinden biri olarak bulunmuştur. Bu nedenle, örgütsel öğrenme ve proje yönetimi ile ilgili literatür taraması, iki kavramın kesişiminin derinlemesine araştırma için değerli olduğunu ortaya koymuştur.

Savunma Sanayi Vaka Çalışması

Maslow'un ihtiyaçlar hiyerarşisine göre emniyet ve güvenlik ikinci sırada yer alır, ardından fizyolojik ihtiyaçlar gelir (Maslow, 1943). Güvenlik ve güvenlik, sağlık, istihdam, mülk, aile ve sosyal istikrar gibi ihtiyaçlar, devlet kurumunun asli sorumlulukları ile ilişkilendirilmektedir. Ülkeler, toplumun emniyet ve güvenlik ihtiyaçlarını karşılamak için savunma sanayisine bağımlıdır.

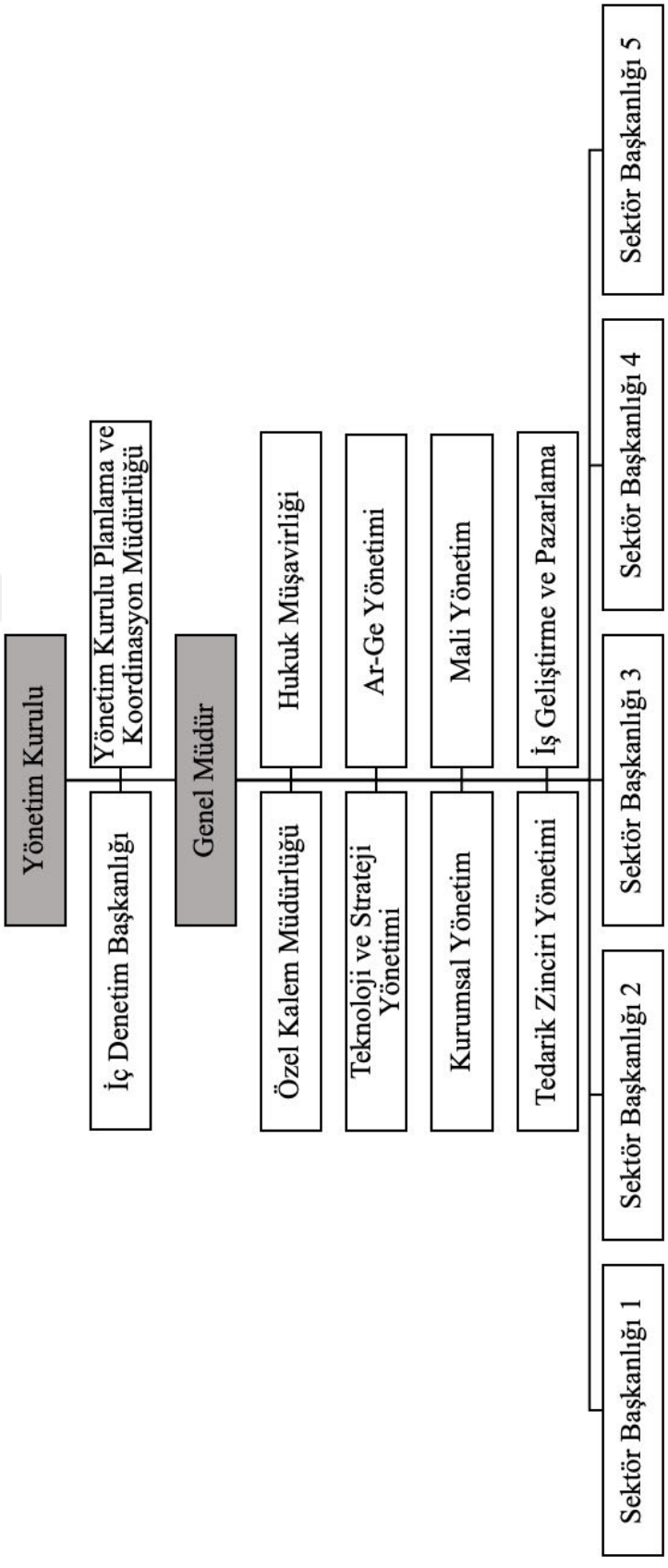
Savunma sanayi şirketleri, mevcut ve gelecekteki savunma ve askeri gereksinimleri karşılamak için deniz, kara, havacılık ve elektronik sistemler alanlarında askeri yetenekler sağlamayı amaçlamaktadır. Teknolojinin hızla gelişmesi ve ele alınması ve yönetilmesi gereken geniş kapsamlı savunma sözleşmeleri nedeniyle savunma sanayi karmaşık bir zemindir.

Savunma sanayi, savunma teçhizatı üretmek ve ulusal güvenlik için hizmet sunmak için gereklidir. Türkiye, jeopolitik konumu nedeniyle doğrudan Türkiye'ye veya komşu ülkelere yönelik siyasi gerilimlerden etkilenmektedir; dolayısıyla yerli savunma sektörü Türkiye için büyük önem taşımaktadır. Daha sonra adı Savunma Sanayi Başkanlığı (SSB) olarak değiştirilen Savunma Sanayi Müsteşarlığı (SSM), savunma sanayi altyapısının kurulmasına ilişkin politikaları belirlemek ve bu politikaları uygulama yetki ve sorumluluğuna sahip mekanizmaları oluşturmak üzere 1985 yılında kurulmuş olup 3238 Sayılı Kanun'la Millî Savunma Bakanlığına bağlanmıştır.

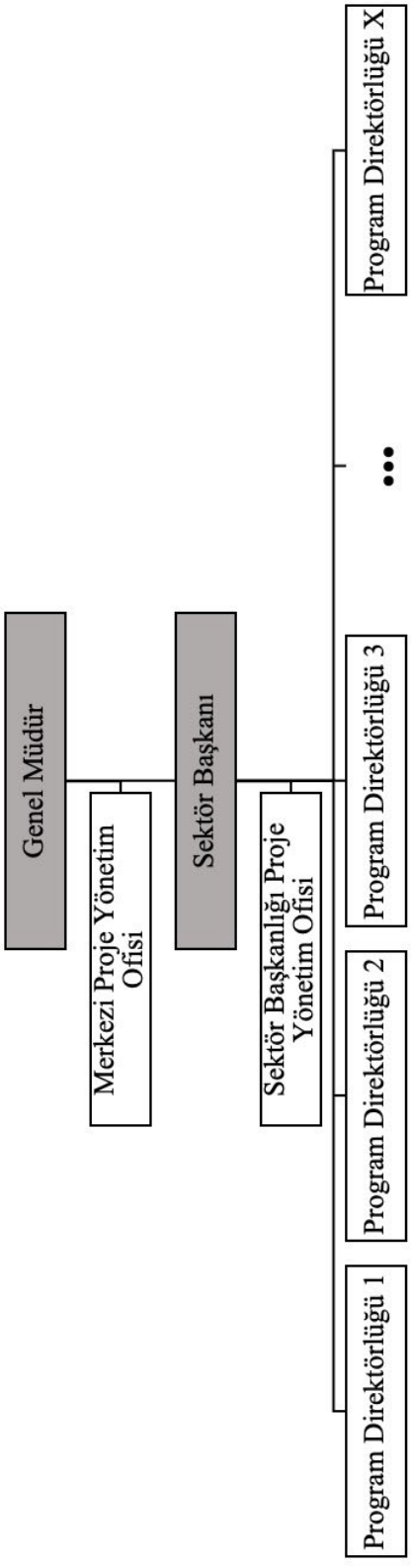
Öncelikle Türk Silahlı Kuvvetlerinin ihtiyaçlarına odaklanan savunma sektörü, elektronik teknolojileri ve sistem entegrasyonu konularında yerli ve yabancı müşterilerine katma değeri yüksek, yenilikçi ve güvenilir ürün ve çözümler sunmayı hedeflemektedir.

2020 yılında Türkiye, ülke GSYİH'sının %2,8'i olan 17,7 milyar ABD Doları ile askeri harcamalar açısından dünyada 16. sırada yer almıştır. Askeri harcamalar açısından ilk ülke, ülkenin GSYİH'sının %3,7'sine tekabül eden 778 milyar ABD Doları ile ABD olmuştur. Ayrıca Türkiye'de 8,9 milyar USD ciro elde edilirken, savunma sektöründe 77.566 kişiye istihdam sağlanmıştır. Covid-19 pandemisinin olumsuz etkilerinden bağımsız olarak sektör, %5,14'lük artışla bir önceki yılın istihdam seviyesinin biraz üzerinde gerçekleşmiştir. Son yıllarda ihracat miktarları ile ürün ve teknoloji geliştirme harcamalarındaki artış eğilimine rağmen, bu oranlar Covid-19 pandemisinden olumsuz etkilenmiştir.

Bu tezde vaka analiziyle incelenen şirketin organizasyon yapısı Şekil 1'de gösterilmektedir. Şirket, önemli bir süredir savunma sanayinde faaliyet göstermekle birlikte, proje yönetim ofisi yapısının geçmişi beş yıl öncesine dayanmaktadır. Proje yönetim ofisi yapısı, üst yönetimin tek ve ortak bir proje yönetim sisteminin elde edilmesi, proje yönetim süreçlerinin standartlaştırılması ve etkin proje performans raporları ile ilgili ihtiyaçların karşılanmasına ilişkin kararı ile ortaya çıkmıştır. Proje yönetim ofisi yapısı, şirketin proje yönetimi pratiğinin bir panoramasını sunmayı ve proje yönetim ekipleri için ortak bir zemin oluşturmayı amaçlamaktadır. Şirketin proje yönetimi organizasyon yapısı Şekil 2'de gösterilmektedir.



Şekil 1 Şirketin Organizasyon Yapısı



Şekil 2 Sektör Başkanlıkları için Proje Yönetim Yapısı

Literatür araştırmasının ardından tez çalışması dört aşamada gerçekleştirilmiştir.

1. Adım: Amaç

Kavramsallaştırma adımı için, literatür taramasında elde edilen bilgilere göre araştırma sürecinin yürütülmesi tasarlanır. Proje yönetim ofisinin bir kurumda örgütsel öğrenmeyi nasıl ve neden etkilediğini açıklamayı amaçlayan bir kavramsal çalışma yapılmıştır. Ek olarak, savunma sanayisinin (bir vaka çalışması için) seçilme nedeni açıklanmıştır. Sonuç olarak, literatür taramasından yola çıkılarak sektör ve firma özellikleri dikkate alınarak bir mülakat tasarlanmıştır.

2. Adım: Mülakat

Yarı-yapılandırılmış mülakatlar, sırayla üç bölümde gerçekleştirilmiştir. Mülakat yönteminin seçimi için yarı-yapılandırılmış mülakat yönteminin dezavantajları ve avantajları derinlemesine araştırılmıştır. Yarı-yapılandırılmış mülakat yöntemi, tezin araştırma kısmının amacı ile örtüşmesi sebebiyle tercih edilmiştir (Newcomer vd., 2015). Röportajın ilk bölümü, şirketin proje yönetim ofisinin fonksiyonlarını literatür analizlerinden elde edilen bulgularla karşılaştırmak amacıyla aşağıdaki araştırma sorusuna cevap vermek üzere tasarlanmıştır.

Araştırma Sorusu 1: Şu anda çalışmakta olduğunuz şirketin proje yönetim ofisi hakkındaki algılarınız nelerdir?

Mülakatın ikinci bölümünde örgütsel öğrenme kavramına yönelik algıların anlaşılması hedeflenmektedir. Mülakatın bu kısmı, görüşülen kişilerin yanıtlarının şirketteki mevcut örgütsel öğrenme aşamalarını yansıtıp yansıtmadığını anlamak içindir.

Araştırma Sorusu 2: Şu anda çalışmakta olduğunuz şirkette örgütsel öğrenme algıları nelerdir?

Mülakatın üçüncü bölümünde ise şirketin proje yönetim ofisi yapısının örgütsel öğrenmeye etkisi araştırmakta olup bireysel olarak örgütsel öğrenmenin aşamalarına göre bu etkileri anlamayı amaçlamaktadır.

Araştırma Sorusu 3: Proje yönetim ofisi, mevcut ve gelecekteki projelerin yararına bilginin oluşturulmasını, saklanmasını ve aktarılmasını nasıl kolaylaştırır?
Nitel araştırma ağırlıklı olarak yarı-yapılandırılmış mülakatlara dayandığından, mülakat sorularını hazırlamak bu tezin en kritik aşamasıdır. Bu nedenle, nitel bir yarı-yapılandırılmış mülakat geliştirmek için literatur araştırmasına dayalı bir yol izlenerek yarı-yapılandırılmış görüşme sorularının oluşturulmasına özen gösterilmiştir (Kallio vd. 2016).

Adım 3: Analiz

Mülakata katılanların demografik bilgileri farklı katılımcı gruplarını eşleştirmek için kritik öneme sahiptir. Nitel analiz, üç ana araştırma sorusu altında listelenen sorularla yarı-yapılandırılmış bir mülakatlardan oluşur.
Görüşme sorularına verilen yanıtların daha iyi analiz edilebilmesi için, görüşme gerçekleştirildikten sonra yanıtlar daha kısa ifadeler halinde kodlanmıştır.
Şirketin gizlilik politikası gereği ve sorulara verilen cevapların gerçekliğini korumak amacıyla cevaplar kayıt altına alınmamıştır. Bu nedenle, not almak ve yanıtları önyargısız bir şekilde anlamak, tezin araştırma kısmı için kritik önem taşımıştır.

- **Proje yönetimi metodolojilerinin, araçlarının ve yazılımlarının geliştirilmesi**

Proje yönetim ofisi ile ilgili öncelikli algının şirket için gerekli olduğu ve böyle bir yapının iyi yapılandırılmış ve küresel uygulamalarla güncel, standartlaştırılmış bir proje yönetimi metodolojisi için gerekli olduğu yönündedir. Proje yönetim ofisinin ana katkılarından birinin proje yönetimi uygulamalarının standardizasyonu olduğu tespit edilmiştir (Jalal & Koosha, 2014). Örneğin proje yönetim ofisi yapısından önce bir projeyi yönetmenin yolu sadece proje yöneticilerinin kararına bağlı olabilmektedir. Ancak, mevcut durumda proje yönetim süreçleri ve ilgili belgeler proje yönetim ofisi tarafından oluşturulmakta ve izlenmektedir. Bu şekilde, proje yönetimi sürecinin detayları standartlaştırılmış raporlar ve veri tabanlarında belgelenmesi için imkân sağlanmıştır.

- **Proje sonrası incelemelerin yürütülmesi**

Her bir proje yönetim ekibinin misyonunu gerçekleştirmek için aynı görevi üstlenerek ve aynı türde faaliyetleri yürüttüğü varsayımını test etmek için yanıt verenlerin

departmanlarının misyonu araştırılmıştır (Aubry vd., 2011). Ayrıca proje yönetim ofisi ile proje yönetiminin etkileşim sıklığı araştırılmıştır. Proje yönetim ofisi ile proje yönetimi arasındaki etkileşim sıklığı katılımcılar arasında benzerdir. Analiz sonuçlarına göre proje yöneticileri ve proje ofisi üyeleri, proje sonrası toplantılarda proje deneyimlerini ve iyi uygulama örneklerini paylaşıyor olduğu anlaşılmaktadır. Bununla birlikte tüm şirket genelindeki proje yönetim ofisi çalışanlarının günlük toplantılarda bir araya gelere farklı sektör başkanlıklarında yürütülen projelerle ilgili bilgi paylaşımı yaptıkları anlaşılmaktadır.

Analizler sırasında proje yönetim ofisi ile proje yönetim departmanı arasındaki ilişkiyi izleme düzeyi anlaşılırken gözlemlemek için proje yöneticileri ve proje yönetim ofisi üyelerinin doğrudan bağlı olduğu departmanlar araştırılmaktadır (Hobbs & Aubry, 2007). Ankete katılanların proje yönetimi ve proje yönetim ofisi departmanları farklı olduğu için raporlama yaptıkları departmanların farklılık gösterebileceği görülmüştür. Bunun nedeni sektör başkanlığı yönetim dinamiklerinden kaynaklanabilir olduğu sonucuna varılmıştır. Mülakat analizi, proje yönetim ofisinin hem destekleyici hem de kontrol edici rollere sahip olduğunu ortaya koymaktadır (PMI, 2021). Proje yönetim ofisi, proje yönetimi süreçlerine ilişkin günlük işler ve sorunlar açısından destekleyici bir role sahip olmakla beraber proje ekipleri için proje yönetim standartlarını, hangi araç ve yazılımların kullanılacağını belirleyerek kontrol rolü de üstlenebilmektedir.

- **Bilgi yaratmak**

Literatürdeki tanımlardan bağımsız olarak katılımcıların örgütsel öğrenme algısı da analiz edilmiştir. Mülakatın başında örgütsel öğrenmenin kısa tanımı verilmiş olup katılımcıların yaptıkları tanımların literatürden uzak olmadığı görülmüştür. Katılımcılar tarafından yapılan örgütsel öğrenme tanımlarının doğruluğu, sırasıyla görüşmelerin geri kalanındaki cevapların uygunluğunu göstermektedir.

EPPM yazılımı, katılımcıların çoğunluğu tarafından bahsedilen proje yönetim ofisi tarafından başlatılan bilgi üretmeye yönelik bir girişimdir. Bilgi üretiminin sağlanmasına yönelik katılımcıların fikirleri, proje yönetim ofislerinin işlevlerine paralel olarak; proje yönetimi faaliyetlerinde daha yoğun yer alan, öğrenme ve bilgi yaratma fırsatları yaratarak bilgi üretimine katkıda bulunan proje yönetim ofislerini içermektedir (PMI, 2021).

Bilgi yaratma uygulamalarını yönetmenin zorlukları da analiz aşamasında araştırılmaktadır. En çok gündeme getirilen zorluklar, proje gereksinimlerinin önceliklendirilmesi ve motivasyon eksikliği nedeniyle bilgi oluşturmaya ayrılan zamanın olmamasıdır. Katılımcılar, bilgi yaratma ile ilgili zorluklar için yöneticilerinden, meslektaşlarından ve proje yönetim ofisinden yardım istemeye istekli olduklarını belirtmişlerdir.

- **Sürekli gelişme**

Katılımcıların çoğunluğu, teknik terimlerle bilgi yaratmak için önceki bilgilerini (bu şirkette çalışmadan önceki bilgiler) kullandıklarını belirtmiştir. Örneğin, teknik ve eleştirel düşünme becerilerinin üniversitede edinilen bilgilerden yönetsel becerilerin ise deneyim yoluyla kazanılan bilgiler olduğu katılımcılar tarafından ifade edilmiştir. Ayrıca bilgi yaratmak, Ar-Ge yapmak, teknoloji tabanlı bir şirket olmak, kurumsal hafıza oluşturmak, rekabet avantajı için yeni fikir ve ürünler üretmek gibi çeşitli nedenlerle oldukça kritik bir sorumluluk olarak görülmektedir. Usta-çırak ilişkisi ve değişime karşı direnç, bilgi yaratmada olası sorunlar olarak dile getirilmiştir.
Özellikle kariyerinin başlangıcında olan çalışanlardan gelen yeni fikirlere ve bilgi yaratma faaliyetlerine katkı sağlayabilecek eğitimlere verilen önem katılımcılar tarafından vurgulanmıştır. Yeni fikirler ve eleştirel düşünme, hızla değişen ve rekabetçi iş ortamına uyum sağlamak için önemli olduğu ve bu nedenle, proje yönetim ofisinin sürekli iyileştirme işlevi, değişim yönetiminin çok önemli bir parçası olduğu vurgulanmıştır (PMI, 2021).

- **Öğrenilen dersler ve en iyi uygulamalardan oluşan bir veri tabanının uygulanması ve yönetilmesi**

Kullanıcı dostu yazılım gereksinimlerinin analiz edilmesi ve bu tür yazılımların hayata geçirilmesi ile bilgiyi elde tutma farkındalık yaratma faaliyetleri desteklenebileceği anlaşılmaktadır. Bilgi ağlarını geliştirmek ve kurumsal öğrenme aktivitelerini teşvik etmek için proje yönetim ofisi, bilginin depolanabileceği ve erişilebileceği daha iyi bir örgütsel öğrenme deneyimi için dijital ve kullanıcı dostu bir platform sağlayabileceği katılımcılar tarafından belirtilmiştir.

- **Bilgiyi elde tutma**

Mülakat aşamasında örgütsel öğrenmenin bilgiyi tutma boyutu araştırılmıştır (Dai & Wells, 2014). Ankete katılanların çoğunluğu, bilgiyi elde tutmak için önceki bilgilerini (bu şirkette çalışmadan önceki bilgilerini) kullandıklarını belirtmiştir. Görüşmenin bu bölümünde katılımcılar bilgiyi elde tutmanın önemine vurgu yapmışlar ve bilgiyi elde tutulamazsa kaybedileceğini ve benzer bilgi üretme süreçlerinin başka bir proje yönetim ekibi tarafından tekrarlanması gerekebileceğini belirtmişlerdir. Mülakat analizleri sonucunda "tekerleği yeniden icat etmekten" kaçınmak için, bilgiyi kalıcı hale getirmenin önemi konusunda eğitim faaliyetleri yoluyla farkındalık yaratmak, bilginin kalıcılığını artırmak için önerilen çözümlerden olmuştur. Ayrıca, ERP ve EPPM yazılımları gibi bilgi birikimi için dokümantasyon süreçleri ve kullanıcı dostu dijital platformların kullanımı önerilmiştir. Öğrenilen derslerin ve en iyi uygulamaların önemi katılımcılar tarafından vurgulanmıştır. Kaydedilen bilginin erişilebilirliği, literatürle uyumlu olarak, proje yönetim ofisinin bir işlevi olarak katılımcılar tarafından vurgulanmıştır (Aubry vd., 2011). Ankete katılanların çoğuna göre, kolayca erişilemiyorsa veya elde tutulan bilginin varlığı bilinmiyorsa, bilgiyi elde tutmak anlamlı olmadığı sonucuna varılmıştır.

- **Bilgi aktarımı**

Mülakat aşamasında örgütsel öğrenmenin bilgi aktarma boyutu incelenmiştir (Jalal ve Koosha, 2014). Proje yönetim ofisi üyelerinin günlük toplantıları, farklı operasyon alanlarından proje yönetim ekipleri arasındaki bilgi aktarımını artırmayı amaçlamaktadır. Günlük toplantılarda en iyi uygulama örnekleri, öğrenilen dersler ve proje yönetimi ile ilgili son güncellemeler paylaşıldığı anlaşılmakta olup proje yönetim ofisinin örgütsel öğrenmenin bilgi aktarımı yönüne doğrudan katkısını gözlenmiştir.

Ayrıca, EPPM yazılımı ve öğrenilen dersler yine proje yönetim ofisi tarafından başlatılan girişimlere örnek gösterilmiş olup bilgi aktarımını artırmaya yönelik uygulamalar olarak belirtilmiştir.

- **Bilgi paylaşımı**

Bilgi aktarımı uygulamalarını yönetmenin zorluklarıyla başa çıkma amacıyla proje yönetim ofisinin sorumluluklarından biri de bürokrasinin örgütsel öğrenme ve proje yönetimi uygulamaları üzerindeki etkilerini mümkün olduğunca azaltmaktır. Savunma sanayisindeki yoğun bürokrasi etkisi ile şirket süreçlerini etkileyen bürokratik yapının yakından ilişkili olduğu düşünülmektedir (Dillard & Nissen, 2007). Bu nedenle proje yönetim ofisinin bürokrasiye yaklaşımı savunma sektörününe özgü dinamikleri dikkate almalıdır. Ayrıca verilen cevaplarda gizlilikle ilgili endişelere değinilmiştir. Gizlilik konularıyla ilgili proje yönetimi yaklaşımı, bilgi paylaşma motivasyonunu da dikkate almalıdır. Örneğin, bilgi aktarma motivasyonu düşükse, gizlilik gibi konular bilgi paylaşmamak için bahane olarak kullanılabildiği anlaşılmaktadır.

- **Bilgi ve alınan dersler yönetimi**

Katılımcılar tarafından EPPM yazılımından proje yönetim ofisi tarafından başlatılan ve bilgiyi kalıcı hale getirebilecek yenilikçi bir girişim olarak bahsedilmektedir (Jalal & Koosha, 2014). Ayrıca öğrenilen dersler platformuna da değinilmektedir. Ancak bu platformun kullanım oranı hem proje yönetim ofisi hem de proje yöneticilerinin beklentilerinin altındadır. Eğitim ve seminerlerin önemi, katılımcılar tarafından farkındalığı artırmak ve bilgiyi elde tutmayı işin bir parçası haline getirmek, hatta bilgiyi elde tutmayı şirketteki rutinlerin bir parçası olarak görmek açısından vurgulanmaktadır.

Ayrıca, katılımcıların takım çalışmasından ve öğrenilen derslerin paylaşılmasından kurumsal öğrenmeyi teşvik eden yenilikçi uygulamalar hakkındaki fikirleri araştırılmaktadır. Proje yönetim ofislerinin koordinasyonu ile organize edilebilecek bilgi transferini artırmak için bilgi ağlarını geliştirmeye yönelik seminerler, eğitimler ve sosyal toplantılar önerilmiştir (Aubry vd., 2011). Bilgi aktarımını sağlamak için bölümler arası rotasyonlar desteklenebileceği belirtilmiştir. Diğer teknoloji şirketleriyle karşılaştırmalı değerlendirme yapılması ve örgütsel öğrenmeyi geliştirmenin daha fazla yolunun benimsenmesi de katılımcılar tarafından belirtilmiştir.

Adım 4: Strateji Önerileri

Strateji önerisi bölümünde, proje yönetim ofisi için bulgulara dayalı olarak örgütsel öğrenmeye katkıda bulunmaya yönelik strateji önerileri sunulmuştur.

Bir organizasyonun üyeleri, öğrenme sisteminin parçasıdır. Örneğin, bir şirketin üretim, kalite, tasarım, sistem yönetimi, proje yönetimi gibi her departmanı şirketin örgütsel öğrenme ağının bir parçasıdır. Bu nedenle, örgütsel öğrenmedeki değişimleri gözlemlemek ve şirketteki öğrenme dinamiklerini anlamak için departmanların katkısı çok önemlidir. Bu çalışma, proje yönetim ofislerinin örgütsel öğrenme üzerindeki etkilerini incelemektedir. Bu nedenle, analizi daha verimli ve objektif hale getirmek için proje yönetim ofisleri ve proje yönetim ekipleri iki ayrı hedef grup halinde analize dahil edilmiştir. Proje yönetim ofisi üyeleri ve proje yöneticileri, yoğun bilgi akışı içeren karşılıklı bir iletişim ağının parçasıdır, bu nedenle, görüşmeler bu iki grupla gerçekleştirilmiştir.

Bu tez, proje yönetim ofislerinin bir şirkette örgütsel öğrenme üzerindeki etkisini analiz ederek mevcut literatüre katkıda bulunmaktadır. Ek olarak, tez, işbirlikçi ve iş birliği içinde çalışan iki odak grupla görüşmeler yaparak literatür analizi ve vaka çalışmasından elde edilen sonuçları doğrulamaktadır.

Proje yönetim ofisi, bir şirkette örgütsel öğrenmeye katkı sağlayan bir organizasyon yapısıdır. Bu tez, proje yönetim ofislerinin örgütsel öğrenme üzerindeki etkisini belirlemek için bir Türk savunma sanayi kuruluşu örneğini incelemektedir. Tezin önermesi, proje yönetim ofisi yapısının örgütsel öğrenmeyi doğrudan veya dolaylı olarak etkilemesidir. Bu nedenle, örgütsel öğrenme ve proje yönetimi ofisi üzerine derinlemesine bir çalışma yapılmadan önce öğrenme, bilgi yönetimi, örgütsel yetenekler ve proje yönetimi alanlarındaki literatür incelenmiştir.

Tezin mülakat aşaması proje yönetim ofisinin örgütsel öğrenme üzerinde doğrudan veya dolaylı olarak etkisi olan işlevleri üzerine yapılan araştırmaya dayanmaktadır. Literatür araştırması ve saha gözlemlerine dayalı olarak, yarı yapılandırılmış görüşme soruları, savunma sektörü ve şirket özellikleri göz önünde bulundurularak tasarlanmıştır. Proje yönetimi ve proje yönetim ofisi departmanlarından yirmi kişi ile, proje yönetim ofislerinin örgütsel öğrenme üzerinde bir etkisinin olup olmadığını ve

proje yönetim ofislerinin örgütsel öğrenmeyi nasıl geliştirebileceğini belirlemek için mülakatlar tamamlanmıştır.

Analizler sonucu elde edilen bulgulara göre, proje yönetim ofisi örgütsel öğrenme üzerinde etkisi olan sorumlulukları yerine getirmektedir. Tezin son bölümünde, nitel analizden sonra, proje yönetim ofisi yapısı aracılığıyla örgütsel öğrenmeyi geliştirmeye yönelik strateji önerileri sunulmuştur. Örgütsel öğrenmeyi sağlayan unsurlar, proje yönetim ofisi için strateji önerileriyle birlikte aşağıda listelenmiştir.

- Örgütsel öğrenmenin tüm aşamalarında öğrenilen derslerin (uygulamaların) önemi, proje yöneticileri ve proje yönetim ofisi personeli tarafından vurgulanmıştır. Hızlı değişimler ve kısalan ürün yaşam döngüleri ile karakterize edilen mevcut ekonomik ortamda, farklı şirketlerin deneyimleri, şirketlerin kendi deneyimleri kadar değerlidir. Alınan dersler ve en iyi uygulamalar, şirket kültürünün bir parçası haline gelene kadar teşvik edilmeli ve hatta teşvik edilmelidir. Öğrenilen dersler ve en iyi uygulamalarla örgütsel öğrenmenin iyileştirilmesi kullanıcı dostu ve modern uygulamaların kullanımı ile sağlanabilir.
- Örgütsel öğrenmeye katkı sağlayan izleme faaliyetleri, proje yönetim ofisinin sorumlulukları arasına dahil edilebilir. Proje yönetimi ekiplerinin örgütsel öğrenmeye katkıda bulunan faaliyetleri benimsemesi için, proje yönetim ofisi örgütsel öğrenmenin ölçülebilir bir yönünü şirket için temel performans göstergeleri (KPI) arasına dahil edebilir.
- Elde olan bilgiye erişmek, bilgiyi muhafaza etmek kadar önemlidir çünkü bir kaynağın varlığı bilinmiyorsa, kaynak ne kadar kullanıcı dostu olursa olsun, o kaynağa erişilemez. Bu nedenle, iyileştirmeler yapılırken bu iki faktör birlikte değerlendirilmelidir. Teknoloji sektöründeki en iyi uygulama örneklerinden biri olan şirket arama motoru, çalışanların hem bilgiyi belgelemesini hem de bilgiye tek bir platformdan kolayca erişmesini sağlayabilmektedir.

  Kullanıcı dostu uygulamalar, platformlar, yazılımlar ve bunlara karşılık gelen dokümantasyon yöntemleri, bilgiyi elde tutmanın güncel olmayan yöntemlerinin yerini alabilir. Bu tür uygulamalar, Büyük Veri, Nesnelerin İnterneti (IoT) gibi çığır açan teknolojilerden yararlanılarak sağlanabilmekte ve sağlam bir bilgi ağı elde etmek için şirketin her departmanına

uygulanabilmektedir. Proje yönetim ofisi, proje yönetimi uygulamalarından başlayarak böylesine yenilikçi bir bilgi yönetimi sürecine öncülük edebilir.

- Çalıştaylar ve eğitim faaliyetleri; örgütsel öğrenmenin önemi, öğrenilen dersler ve en iyi uygulamalar gibi örgütsel öğrenmeye katkıda bulunan nitelikler hakkında farkındalık yaratmak için gereklidir. Bu faaliyetlerin yanı sıra, farklı proje yönetim ekipleri arasındaki etkileşimli ilişkilerin olduğu sosyal toplantılar da bilgi ağları oluşturmak ve örgütsel öğrenmeyi geliştirmek için fayda sağlayabilir.
- Örgütsel öğrenmeye katkıda bulunacak zaman ve motivasyon eksikliğinin iki nedeni vardır: örgütsel öğrenmenin şirketteki günlük ve uzun vadeli operasyonlar için öneminin farkında olmama ve örgütsel öğrenme uygulamaları konusunda gerekli alışkanlıklara sahip olmama. Örgütsel öğrenme uygulamalarının alışkanlıkları, tıpkı şirkette üretilen veya şirkete aktarılan her bilgi gibi kurumsal hafızanın bir parçası olmalıdır.
- Departmanlar arası personel rotasyonu, kurumsal öğrenme için önemli bir kolaylaştırıcıdır ve özellikle bilgi aktarımında olmak üzere kurumsal öğrenmeyi geliştirmek için teşvik edilmelidir. Departmanlar arası rotasyonlar ve farklı proje grupları arasında rotasyonlar desteklenerek, çalışanlar için daha iyi çalışma koşulları yaratılarak şirketin çalışan devir hızı azaltılabilir.
- Proje yönetim ofisinin sorumluluklarından biri de bürokrasinin örgütsel öğrenme ve proje yönetimi uygulamaları üzerindeki etkilerini mümkün olduğunca azaltmak olmalıdır.
- Gizlilik, özellikle savunma sanayinde örgütsel öğrenme uygulamalarına kaçınılmaz bir engel olabilir. Proje ekiplerinin gizlilik bilinci artırılarak şirkette bilgi akışına ortam sağlanabilir. Örneğin, gizli bilgilerin sınıflandırılması ile ilgili eğitimler, proje yöneticileri için rutin eğitimlerin bir parçası olabilir. Ayrıca, gizli bilgileri uygun ekiplerle paylaşmak ve örgütsel öğrenmeye katkıda bulunmak için güvenli platformlar sağlanabilir. Ayrıca, proje yönetim ofisi, proje ekipleri arasında daha verimli bilgi aktarımını sağlayacak proje yönetimi faaliyetleri için gizlilik standartları geliştirebilir.

Bu tez, sahadaki gizlilik kaygıları ve çalışmanın analiz kısmındaki zorluklara rağmen, Türkiye'de faaliyet gösteren savunma şirketlerinden birinde bir çalışma yaparak

mevcut literatüre katkıda bulunmaktadır. Analizler sonucunda şirkette örgütsel öğrenmeyi destekleyen ve gelişimine katkıda bulunan faaliyetler incelenmiş ve şirketin "öğrenen organizasyon" olma yolunda atabileceği adımlar konusunda destekleyici strateji önerileri geliştirilmiştir.

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