Provide a model for acquisition and recording of organizational lessons learned in the framework of the knowledge handbook with emphasis on effective components

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ABSTRACT

Although there is extensive literature on knowledge management and its new domains and methods, there is still room to discuss the mechanism of how knowledge is disseminated and experts acquire tacit knowledge in organizations; Especially project-oriented organizations that have a different and distinct nature from routine organizations. The main purpose of this study is to provide a model of organizational requirements for the development of a knowledge handbook and also a model for the development of a knowledge handbook based on lessons learned and with emphasis on key factors in the organization. The experts are 45 managers and researchers in the field of Lessons learned and knowledge management in prominent and reputable Iranian organizations. The present study is qualitative-quantitative in terms of applied purpose and terms of the data collection method. This research has been done in two steps: the requirements for implementing the handbook and the model for compiling the handbook. Finally, both models were evaluated based on the structural equation approach with PLS software. The organization knowledge handbook implementation requirements model includes 5 main components of organizational leadership, Staff culture, technology, Staff learning, and system process, which are explained by 53 items; Also, the model of compiling the knowledge handbook of the organization includes approaches of recognizing and selecting the appropriate expert, organizing discourse sessions, reasoning the results, localization of knowledge and the phase of suggestions.

Keywords: *Knowledge handbook, acquisition pattern, lessons learned, knowledge management, requirements.*

INTRODUCTION

In today's organizations, lessons learned are tools to identify the reasons for progress and innovation. The PMBOK also divides project output into two main parts: 1. The project and its final product; 2. Experiences and lessons learned from project management(Paranagamage, Carrillo, Ruikar,

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and Fuller, 2012). Research in project-based organizations shows that organizational memory, data recording, and recording are also among the methods of counting lessons learned. Continuing research in reviewing the processes of the lessons learned shows that the steps of this process include: collecting experiences, verifying, storing and disseminating, and reusing experiences. Research shows that the learning process in a project-oriented organization can include the collection of experiences, the validation of lessons learned, their specialized domain, the storage and dissemination of lessons learned, and the feedback of members for reuse. Lessons are also taught in three areas: experience review, learning analysis, and development for the future. In addition, in some cases, the use of a specific standard for each operation or process as well as the use of updated instructions is called a lesson learned[1]. A knowledge handbook is a practical tool in the discussion of learning statistics. This tool is completed solely based on experts' tacit knowledge, and what is recorded in this tool is applied knowledge, given the cycle, it takes to turn tacit knowledge into explicit; It has very high validity and reliability and as a valuable treasure and an important achievement in the field of knowledge management, it is possible to avoid wasting time and money by referring to it and use it as a comprehensive document in the organization[2]. What distinguishes the knowledge handbook from other knowledge management tools; is the Existence and expression of key points and solutions to a problem after reviewing the theoretical issues related to projects are deeply gained from the valuable experiences of experts in dealing with project issues and challenges and recording these points in the knowledge handbook according to the cycle for which taken; It is fully and explicitly stated. A knowledge handbook, like other handbooks, can quickly and easily provide key points about a topic; But what distinguishes this handbook is the combination of experts' tacit knowledge with relevant discussions and environmental parameters about the problem in the real world, and what may not be noticeable until the project is done.

Milton's Research (2005) shows that if an organization was able to learn from its experiences, it can eliminate the repetition of mistakes and recreate its past successes. In the same way, continuous improvement in the performance of the organization is achieved, as a result of which costs are reduced and activities are performed better[3,4].

Continued research suggests that by not implementing the lessons learned in projects, knowledge assets are lost and eventually lead to the disintegration and dispersion of organizational knowledge and organizational forgetfulness[5,6,7]. Goffin et al., (2010) research shows that activities such as acquiring and sharing knowledge are among the lessons learned[8,26]. Krezner believes that the reasons for organizations' desire to record and manage what can be learned can be due to the valuable experience gained by project people while working, the separation of some professionals by transferring experiences, preventing similar problems, and avoiding duplication and trial and error. Accelerate the decision-making process, increasing the quality of decisions. It can be stated that avoiding waste of resources, continuing the survival of the organization, and developing scientific and experimental knowledge are the reasons for using the lessons learned[7,9,24,26,37].

According to Milton (1999), the main challenge of the lessons learned can be considered in the thinking and attitude of the knowledge capital of the organization in acquiring knowledge and using experiences[10]. He also summarizes the learning process in three stages: the learning process before the project, during the project, and after it. In many cases, it is observed that the learned system is only focused on mistakes, and not much importance is given to successes. Implementation of the learning process usually begins with the occurrence of catastrophic disasters, ideas, and solutions that are rejected, or products and projects that fail[11,12].

To acquire the lessons learned, it is first necessary to record information related to individual experiences. The first way to do this is to keep learning memories. Every complete knowledge management system or lesson learned needs to use a combination of explicit and implicit systems in parallel. These two methods need to interact with each other and be connected [13]. In cases where there is a geographical development organization, a web-based system is used to record the lessons learned[14]. This facilitates the sharing of information between headquarters, contractors, and subcontractors. This system is used to improve performance when planning and reducing risk[15].

The variety of lessons learned in different parts of each organization causes you to think of a different scenario for each type of lesson learned. The solution helps to manage the lessons learned to identify and prioritize the types of lessons learned in the organization[16,68].

Given that in project-based organizations, especially project-based organizations; There are knowledgeable and elite people, and since the presence of these people is temporary and they leave the organization after a while, a model should be provided that enumerates these lessons learned[17,67]. Therefore, according to what was mentioned, the purpose of this study is to provide a model for compiling a knowledge handbook with emphasis on lessons learned in project-based organizations, and the specific objectives are:

- Identify the optimal model for developing a knowledge handbook in an industrial organization
- Identify the necessary steps to develop a knowledge handbook in the industrial organization

RELATED STUDIES
KNOWLEDGE AND ORGANIZATION MANAGEMENT

The term "knowledge" is used interchangeably in the literature and practice with other concepts such as intangible assets, capabilities, and skills[18,67]. Adjei and Dei Explain that the part of knowledge that is easier to define is the collection and integration of different information[19].

Ramohlale (2014) defines knowledge as a mixed flow of experience, credibility, textual information, and expert insights that provide a framework for estimating and sharing new experiences and information. Knowledge is associated with understanding, and this understanding helps to distinguish between tacit and explicit knowledge[20,54]. Tacit knowledge is based on the axis of action that is obtained through personal experience, often its nature is subjective and is the manifestation of beliefs and values[28,30]. This knowledge can be transmitted through community and interaction between individuals[21]. Explicit knowledge is encrypted knowledge and academic knowledge that is obtained through information systems, copying, coding, and recording and sorting information by organizations[22].

The increasing complexity of the compact parts of knowledge and the fact that expertise is distributed in organizations require organizations to participate in shared knowledge development processes[56]. To be successful, tacit and specific knowledge must also be shared. Potential barriers to coordination costs and a reluctance to share tacit knowledge, although more partners can increase knowledge, but coordination costs are likely to outweigh these benefits. Sharing tacit knowledge is not something that organizations want to do[23,24,25,33]. However, it is possible that they do not necessarily need to disclose all of their tacit knowledge to their partners, but rather transfer a limited portion of the project[26].

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knowledge, coordination costs are likely to outweigh these benefits. Sharing tacit knowledge is not something that organizations want to do[26,27,28,29]. However, it is possible that they do not necessarily need to disclose all of their tacit knowledge to their partners, but rather transfer a limited portion of the project[30].

The current business environment is defined by the short life cycle of the product[31]. Therefore, organizations that want to continue to succeed in an ever-changing market need to revise existing business models and emphasize innovation toward sustainability[58]. In addition, not only to address current challenges but also future challenges, organizations are required to regularly monitor developments in the market and society[32,33]. Knowledge management can help identify, acquire, apply, and disseminate critical knowledge, which in turn can be beneficial to the sustainability of the organization. For example, knowledge management can support organizations in developing business models of cyclical economies that can be used to achieve sustainable organizational performance[34]. In addition, knowledge exchange between organizations can enhance social change and thus help organizations to better achieve a sustainable approach[35].

Knowledge sharing is the process by which knowledge is exchanged between two or more people. This knowledge can be encrypted or implicit. Encrypted knowledge is the knowledge that can be formally written and expressed, but tacit knowledge includes the experiences and skills developed by individuals[36]. Tacit knowledge allows companies to compete profitably because it is difficult to copy, write and put together. Another distinction that can be made is between general and specific knowledge. General knowledge is the knowledge that constitutes most products and services in a particular sector[37]. While specific knowledge is the knowledge that enables organizations to offer products or services that are different from their competitors, this is part of the core capabilities of companies[38,44].

ORGANIZATIONAL KNOWLEDGE AND LESSONS

Knowledge is a mental concept and depends on one's understanding and social context; Therefore, it can be assumed that the organizational knowledge contained in the company documents such as rules, policies, records of actions and decisions, and plans, depends on the understanding of the individual or team during the process of knowledge formation and updating[39].

Today, within the framework of the organization, the discovery of knowledge is attributed to researchers such as Draker (1993) who express knowledge as the source and power of management[40]. Wiig (1997) has explained that knowledge is a kind of belief and Polanye (1958; 2009) has examined the distinction between tacit and explicit knowledge[41]. Davenport and Prusak (2000) have explained knowledge in organizations not only in documents and knowledge repositories but also in organizational procedures, processes, procedures, and norms[16]. Polanye's (1958) study formed the basis of the authors of Nonaka and Takeuchi's (2007) theory, who stated that although explicit or coded knowledge is objective, it can be easily communicated without deep experience[17,41,42]. Polanye (2009) claims that "... we can know more than we can say". Man creates knowledge by engaging himself with objects through a process. Thus, tacit knowledge is composed of cognitive and technical elements[43,44].

Projects fail due to lack of learning in the project team or lack of knowledge sharing. Therefore, knowledge management tools and techniques can be used for communication risks between project team members[45,46]. It is important for the organization to manage knowledge risk, which requires the identification, dissemination and application of knowledge related to potential organizational and project risks to help predict risk management and response analysis[47].

In short, organizational knowledge is the knowledge of how to respond to the business environment, behaviors, and actions that are embedded and distributed in previous organizational works,

systems, processes, and cultural customs[28,48]. They are network elements that together create a specific organizational response[49]. The institutionalized literature on learned processes offers many changes to the three main stages of the process. Identification (registration), dissemination (transfer) and application (implementation)[50].

Identification: Techniques for identifying and recording common lessons are: Reflecting the lessons learned from the lesson. O'Dell and Hubert (2011) point out that there are common questions that focus on this: "What was supposed to happen? What really happened?" Why was there a difference or change? And who else should know this information? "These are identification methods and tools that are often confused with fully learned processes[50,58].

Dissemination: Dissemination and transfer often refer to programming, authentication, storage, search, retrieval, sharing, and knowledge training[62].

Application: The application of knowledge often requires considerable effort, commitment, and understanding of the behavior of individuals for the organization and individuals, because this is where the learned application process is typically broken down[59,61].

Nakashima and Krupnik (2018) emphasize the need to understand cognitive psychology when examining the effectiveness of tacit knowledge in the learning process. Another challenge of organizational learning is that each person has a distinct learning technique, and this learning depends on the individual's ability to acquire and use it effectively and promptly[46]. Utilization is seen as the last piece of the puzzle learned in the lesson. "... The implementation of any [learned] system must be driven by a strategic business need (e.g. learning) that adopts a holistic view that takes into account the consequences of project processes, tools, and people"[47].

The application is also in the form of a project learning roadmap, consisting of three main components: The main elements, which include the various processes that make a difference in the methods learned in the lesson, are conceptualized. Actions that include the actions required by both the company and the project team in that company An executive guide that is a kind of checklist to ensure the completion of steps and actions[12].

This literature offers countless technology solutions for storing, recording, and accessing lessons learned. It is important to determine what works for an organization and is constantly monitored and updated to keep it current and relevant[63,44].

2.3 Project-based organizations and lessons learned

Management maturity is when a company manages the previous steps and uses its knowledge effectively. In other words, the level of knowledge management maturity shows the organization when managing its knowledge and what it can improve to be able to compete in the existing market. Project knowledge management has become a common topic in project management studies[45,72].

Project-oriented organization is a dynamic environment for knowledge. When this knowledge is maintained and studied as individual characteristics, it may be lost when that person leaves the organization. Because each person contributes to informal practices, the knowledge generated within the organization must be recorded[22]. Learning systems in the field of project-based organizations should identify individual characteristics in order to formalize the informal learning process if possible. These individual characteristics of skill and experience are considered as tacit knowledge, and without it, explicit knowledge loses its meaning. This approach is rooted in the individual's practice and experience, as well as in the ideals, values, or feelings that are accepted by them. Nonaka and Takeuchi (1995) refer to two dimensions of tacit knowledge that include skills or experience along with the cognitive dimension of mental schemas and models and perception. The Japanese refer to new ideas as created knowledge that transforms tacit knowledge into explicit knowledge[44,56].

Organizations that can be seen as a collection of people with specific goals can use it to achieve goals. Typically, only a portion of the organization's members participate directly in a pilot project and want to draw on the knowledge of their colleagues, while the relevant organizational expertise and knowledge is likely to be more widespread among other colleagues[3]. The communication dash produced in the project for the organization and its members decides to participate in such a project; Successful sharing of project knowledge therefore increases the benefits that organizations derive from their participation. Internal organizational settings facilitate frequent interactions and provide a platform for company members to share their tacit knowledge. This approach is concerned with limited competition for specific knowledge sharing[64,65,66].

Project management research describes project learning as a complex and multifaceted process[67]. Project learning can be influenced by individuals, teams, and organizations, and can occur in projects, between projects, and from projects to the wider organization. Ideally, learning occurs when project teams can gain knowledge while implementing a project and share that knowledge with other projects or parts of the organization for plans. However, unlike permanent work methods, project-specific temporary methods do not have the same support structures and procedures, and learning is challenged in building organizational memory[68,69]. Despite the efforts made, progress in improving the lessons learned from the projects seems small[70]. A review of the previous literature has identified several barriers to learning, which were divided into nine main groups:

1. Lack of resources

2. Lack of motivation

3. Lack of perceived value

4. Rejection of a culture where people do not want to learn from others and there is a culture of criticism

5. Lack of managerial support

6. The process learned does not include project work

7. The project environment in these projects is often unique and quite special so it is difficult to compare

8. Poor IT system that is difficult to access

9. Poor quality and therefore not usable in the data.

However, most studies have focused on the main reasons for the difficulty of sharing explicit knowledge rather than the nature of established knowledge[26,70]. The temporary nature of projects, which focuses on the short-term goals of the project, impedes learning in the organization and disrupts the flow of knowledge[9]. The project team distributes project knowledge without creating an organizational routine[40,71]. An approach has been taken to prevent the project from failing to identify the knowledge created by taking corrective action[13]. However, project risk and elements of uncertainty create a difficult environment to identify early warning signs, and cultural barriers such as high

levels of optimism, lack of open culture to discuss project problems, and political issues affect their discussion[65]. Similar research has shown that both organizations and individuals tend to learn more from failures than from success[38]. These failures contain valuable information. However, the ability of organizations to learn from them is different[19]. Learning from failure is likely to create a different approach to analysis and a different type of research outcome than learning from success. Much of the literature is about learning from success or failure based on a non-project environment[26]. Researchers have shown that the acquisition of tacit knowledge is essential, and refers to people who are capable of taking and disseminating lessons and promoting social aspects of sharing. Organizational social issues can become barriers to learning. Especially in cases where separate parts of an organization are considered projects[9].

Duffield and Whitty's (2015) research focuses on the organizational issue of individuals and systems needed to use and implement lessons. Examining the theoretical literature, it was found that lessons are often identified and recorded, and most information is transferred successfully. Supporting the six elements of learning, culture, social activities, technology, process, and infrastructure is essential to benefit from what has been learned. While their study identifies the need of a successful learning process, it does not address the specific problems faced by project-oriented organizations[2015].

Hartmann and Dorée (2015) compared the formal process of recording and applying organizational lessons learned against a social process through five case studies in a project-based organization. They concluded that what they had learned should be connected through participatory activities and projects and that separating them from the project would significantly reduce their value. They believed that it was the formal process of sending/receiving that created many barriers to the effective use of what was learned. However, the predicted process is very simple because of the style of sending and receiving Hartmann and the process is the process of using the learned database to transfer and extract knowledge, and by using appropriate methods, can provide useful information for project discussion. Problems identified with the practical operation of a knowledge database are now resolved[30].

Jabbour et al. (2019) used a language model to structure lessons learned in terms of topics, textual communication, forces, solution, new context, and information. Each template received a text name (for example, role clarity or integration of design teams). Their study recommends the use of experts and consultants to help create an initial database of lessons already gathered, which removes a large portion of repetitions from post-project reports[34]. However, research on the transfer of knowledge between concurrent projects has shown that it is not the transmitter and receiver that communicate, but the recipients' ability to absorb relevant information[70].

Bakker et al. (2011) also determined that it is the responsibility of the parent organization, not the project manager, to ensure that knowledge is valuable and usable and that a high level of absorbing capacity is required for success[8].

According to the study conducted, the studies and research are mainly focused on issues and challenges, but achieving a practical model and step by-step in accordance with the criteria of knowledge management and its applicability in use in related industries and sectors is a goal. which we are looking for in this article.

PROPOSED METHOD

The statistical population of the research in this phase of experts available in the field of knowledge management consists of 45 people who are familiar with the concepts and principles of knowledge management and specialized areas in project-based organizations.

The present study is an expert interview in terms of practical purpose and method of collecting qualitative information. This research was carried out in two steps, the first step is to develop a model for the requirements of the knowledge handbook that provides the necessary basis for the manuscript. The second step is the knowledge handbook model, which describes the executive and scientific process of developing a knowledge handbook in industrial organizations. To calculate the requirements for compiling a knowledge handbook, considering that some factors were not present in the literature, an expert interview was conducted and effective factors were counted. Next, the included factors were combined from the literature interview, and after compiling the initial list, the experts were asked to comment again and identify the main area of each of the factors. In the process, some deletions, some mergers, and some additions were added. Finally, the finalized cases were identified based on Table (1). To evaluate the validity of

the model structure, considering that the number of statistical samples was 45 experts, the PLS method was used. The research tool in this section is a questionnaire consisting of 5 main dimensions and 53 components that have been approved by experts and its reliability is estimated at 89% by Cronbach's alpha.

For the second step, the initial model was first designed and provided to knowledge experts. Again, they were asked to comment on the model steps and the process of doing it. After forming an expert panel and making corrections, the final model in three steps (Figure 4). Was approved by the expert group. In order to validate, the final model of the knowledge handbook was reviewed in a selected project-based organization and its content validity was confirmed.

An expert was selected for the field of expertise and he was asked to introduce informants and technical experts. Their number was estimated at 10 people. The experts were then asked to come up with a list that could help people specialize in handbook content. 70 people were identified in the initial list and after holding an expert meeting with the expert team, 45 people were identified and finalized in two stages as experts in the field of expertise and the basics of knowledge management. Criteria were identification, experience and skills, work experience, degree, field of work.

After coding the second stage and combining the categories with the components extracted from the background, the final categories and components are presented in Table (1).

Table 1. Final components of knowledge handbook development requirements in a project-based organization

Row	Variable	Component	Source
x1		Mentoring	Background
x2	**Staff learning**	Hold small workshops to develop skills	Background / Interview
x3		Tendency to share and learn from each other	Background
x4		Tendency to listen and accept ideas	Background
x5		Holding internal symposiums	interview
x6		Employee motivation to participate	Background / Interview
x7		Value participation	Background / Interview
x8	**Staff culture**	Provide the necessary support for employees who are looking to improve their knowledge	Background / Interview
x9		Systematic updating based on organizational focus	Background
x10		Develop a culture of change	interview
x11		Clarify staff on the nature of the learning record	interview
x12		Development of sharing culture	interview
x13		Developing a culture of liquidity	interview
x14		Matching the achieved goals for the organization with the learned technology	Background
x15	**Technology**	Knowledge Dashboard	Background
x16		Proper infrastructure	interview
x17		Integrated information system	interview
x18		System security lesson learned	interview
x19		Guide for processes to access sustainable approaches	Background / Interview
x20		Take advantage of the best successful examples	Background
x21		Involve stakeholders	Background
x22		Written statement to prescribe the steps of creating documents	Background / Interview

x23		Identify the needs of the lesson learned	Background / Interview
x24		A mechanism to monitor adherence to the prescribed process	Background
x25		Allocate enough time to perform the prescribed steps	Background
x26		Materials or training classes on the prescribed process	Background
x27	**System process**	Utilization of external capacity	interview
x28		Accurate modeling of knowledge transfer process	interview
x29		Document quality monitoring mechanism	Background
x30		Document update mechanism	Background
x31		Ability to track documents	Background
x32		A mechanism for obtaining user feedback on the usefulness of the created documents	Background
x33		Checking the validity of documents	Background
x34		Check the background of the documentation	Background
x35		Prioritize resources in documents	interview
x36		A set of actions related to the usefulness of documents	Background
x37		Follow up on document errors and report problems to provide solutions	Background
x38		Record document documentation data	Background
x39		Record document documentation error statistics	Background
x40		Analysis of document error data and main causes	Background
x41		Create profiles to use documents	Background
x42		Explain the role of learners	interview
x43		A mechanism for improving feedback on performance or documentation standards	Background
x44		The process of reusing acquired knowledge	interview
x45		Technology integration mechanism for process documentation	Background
x46		Mechanism of combining feedback on the usefulness of documents	Background
x47		Written statement or policy about the importance of the documents	Background / Interview
x48	**Leadership of the organization**	A written statement or policy indicating what documents should be created for each stage of development	Background
x49		Written statement or policy describing the content of the documents to be created for each stage of development	Background
x50		Agile regulations in the field of knowledge registration	interview
x51		Develop effective strategies	interview
x52		A mechanism to verify that the required documentation has been completed	Background
x53		Control compliance with policy or document standards	Background

ANALYSIS OF RESULTS

Kolmogorov–Smirnov test was used to check the normality of the data. The results showed that due to the smaller significance level of 0.05, the distribution in all items is abnormal. To investigate the research model, the structural equation approach with PLS software has been used.

CONFIRMATORY FACTOR ANALYSIS

In this section, the factor loads of the extracted items are examined. Factor loads are calculated by calculating the correlation value of the characteristics of a structure with that structure. If this value is equal to or greater than 0.4, it confirms that the variance between the structure and its characteristics is greater than the variance of the measurement error of that structure. That measurement model is acceptable. Also, the proposed model, which shows the significance level of the paths, is the most basic criterion for measuring the relationship between structures in the model, which reports a significant number t. If the value of this criterion is more than 1.96, it is clear that the relationship between structures is significant. Figure (1) shows the modified model with the factor load.
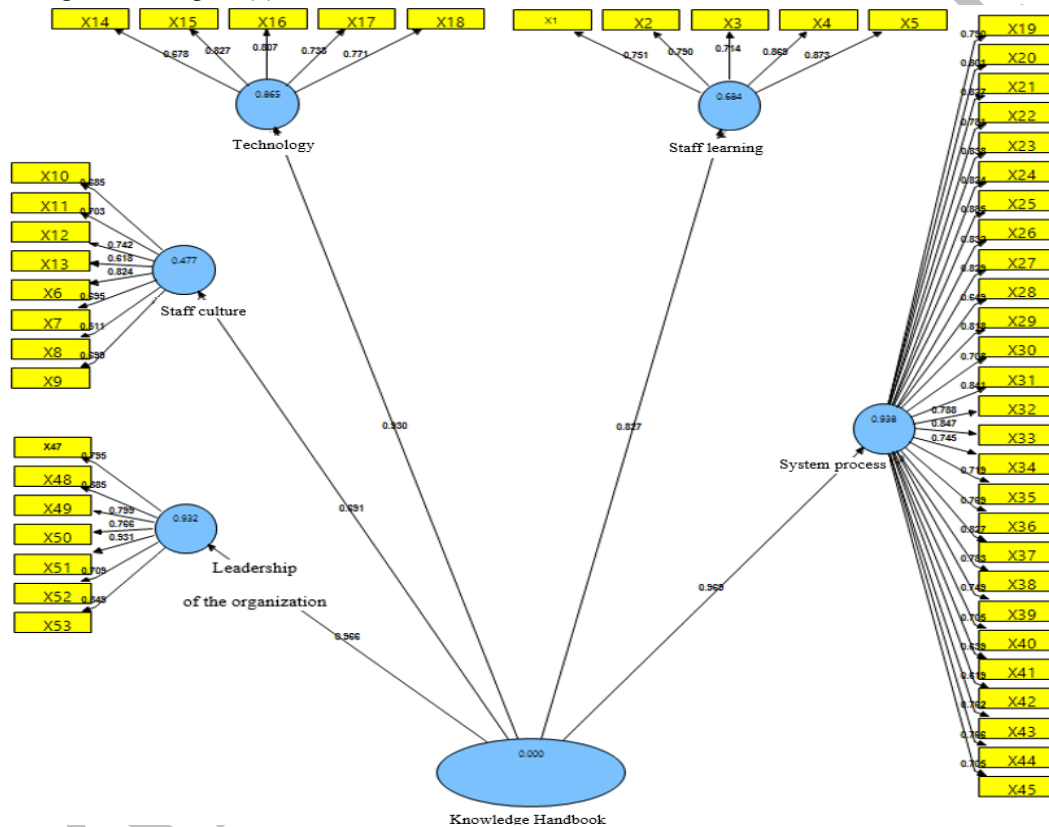
Figure 1. Research model with factor load

The results of confirmatory factor analysis of the research variables showed that all the observed variables, due to the larger factor load of 0.4 and the significance level of t of 1.96, significantly explain and measure the hidden variables.

FITTING THE MEASUREMENT MODEL

After measuring the factor loads, Cronbach's alpha coefficients and the combined reliability of the structures are investigated, which is presented in Table (2).

Table 2. Cronbach's alpha and combined reliability

Variable	Combined reliability coefficient > 0.7	Cronbach's alpha coefficients > 0.7
Leadership of the organization	0.9355	0.9185
System process	0.9758	0.974
Staff culture	0.8774	0.842
Technology	0.8761	0.824
Staff learning	0.8995	0.8601

The final research model consists of 5 main components namely organizational leadership, employee culture, technology, employee learning and system process and is presented in Figure (2).

- *Employee motivation to participate*
- *Value participation*
- *Provide the necessary support for employees who are looking to improve their knowledge*
- *Systematic updating based on organizational focus*
- *Develop a culture of change*
- *Clarify staff on the nature of the learning record*
- *Development of sharing culture*
- *Developing a culture of liquidity*

- *Mentoring*
- *Hold small workshops to develop skills*
- *Tendency to share and learn from each other*
- *Tendency to listen and accept ideas*
- *Holding internal symposiums*

- *Written statement or policy about the importance of the documents*
- *A written statement or policy indicating what documents should be created for each stage of development*
- *Written statement or policy describing the content of the documents to be created for each stage of development*
- *Agile regulations in the field of knowledge registration*
- *Develop effective strategies*
- *A mechanism to verify that the required documentation has been completed*
- *Control compliance with policy or document standards*

Staff culture

Staff learning

- *Matching the achieved goals for the organization with the learned technology*
- *Knowledge Dashboard*
- *Proper infrastructure*
- *Integrated information system*
- *System security lesson learned*

Technology

Leadership of the organization

System process

- *Guide for processes to access sustainable approaches*
- *Take advantage of the best successful examples*
- *Involve stakeholders*
- *Written statement to prescribe the steps of creating documents*
- *Identify the needs of the lesson learned*
- *A mechanism to monitor adherence to the prescribed process*
- *Allocate enough time to perform the prescribed steps*
- *Materials or training classes on the prescribed process*
- *Utilization of external capacity*
- *Accurate modeling of knowledge transfer process*
- *Document quality monitoring mechanism*
- *Document update mechanism*
- *Ability to track documents*
- *A mechanism for obtaining user feedback on the usefulness of the created documents*
- *Checking the validity of documents*
- *Check the background of the documentation*
- *Prioritize resources in documents*
- *A set of actions related to the usefulness of documents*
- *Follow up on document errors and report problems to provide solutions*
- *Record document documentation data*
- *Record document documentation error statistics*
- *Analysis of document error data and main causes*
- *Create profiles to use documents*
- *Explain the role of learners*
- *A mechanism for improving feedback on performance or documentation standards*
- *The process of reusing acquired knowledge*
- *Technology integration mechanism for process documentation*
- *Mechanism of combining feedback on the usefulness of documents*
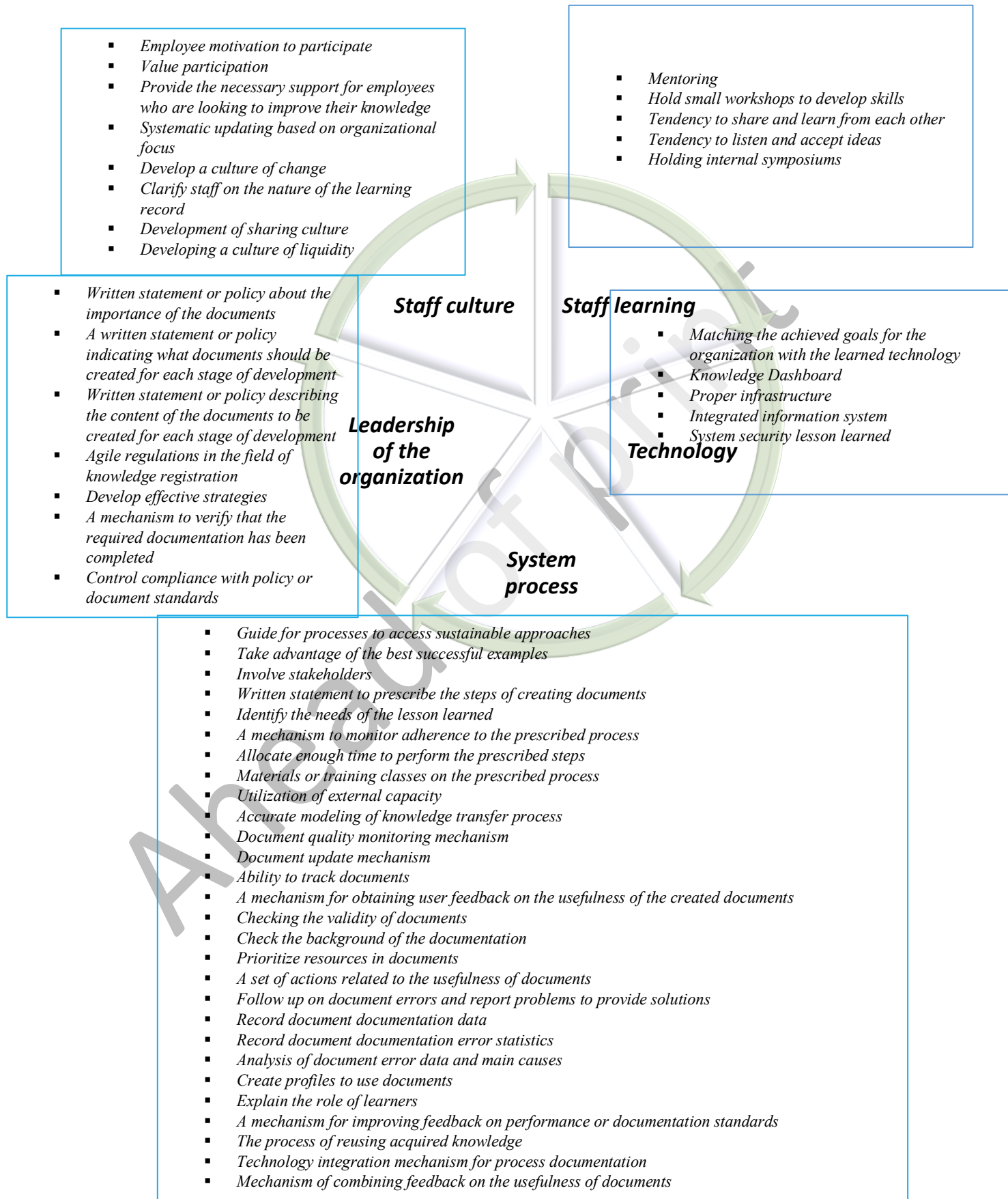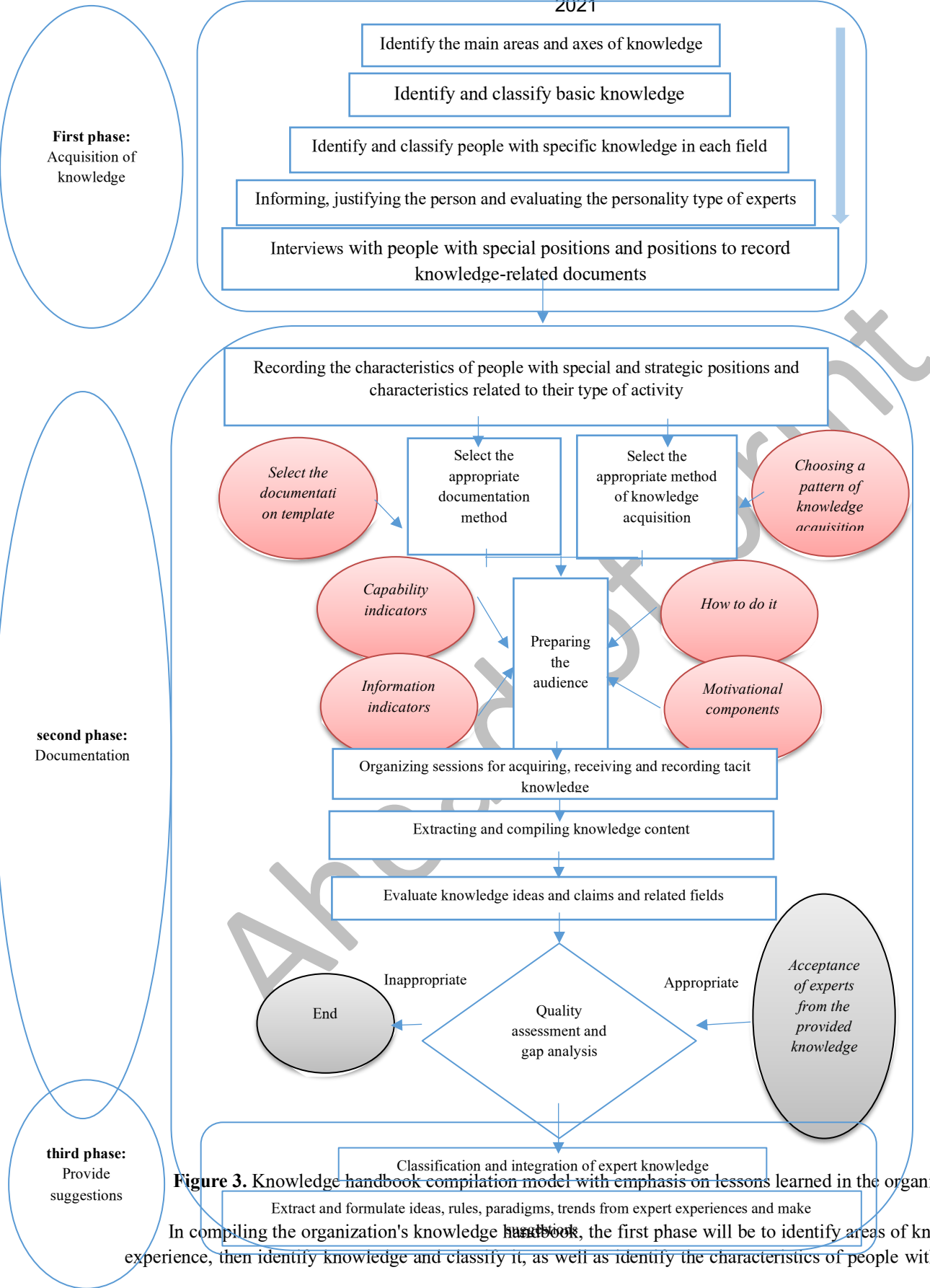
Figure (2): Model of knowledge handbook development requirements in the organization

CONCLUSION

Developing a knowledge handbook with emphasis on lessons learned requires descriptions of perceptions, inferences, analysis of actions and activities performed in the pre-decision, decision and post-decision periods and also explaining the knowledge of decision making in four groups of influential factors: internal organizational factors, external organizational factors, decision makers And the factors affecting it are the general characteristics of decision makers based on the chronological order and logic of cause and effect. Understanding and explaining the values, beliefs and perspectives, the key factors of any decision, is a fundamental and decisive necessity in documenting the experiences of managers.

Develop a knowledge handbook that includes expert selection approaches (recording expert experiences; participating in seminars; press conferences; inviting experts; creating a database), forum, communication; Sharing knowledge; question and answer; Thought sessions; Skill development; Learning; Cognition of perspectives), case-based reasoning, (acquisition of perspectives; case study; similarity analysis), storytelling (observations; information; perspectives; personal experiences; knowledge transfer; events and topics and suggestion system (review of experiences to improve staff attitudes; Expansion of activities, motivation, transfer of employees' knowledge, which are presented as five desirable methods for documenting the strategic experiences of managers. A variety of experiences with the use of tools, considering the rules and regulations governing the industrial organization, as general policies in the localization of documentation methods in the development of knowledge handbook should be considered.

The pattern of compiling a knowledge handbook with emphasis on the lessons learned in the organization is drawn as shown in Figure (3):

First phase:
Acquisition of knowledge

Identify the main areas and axes of knowledge

Identify and classify basic knowledge

Identify and classify people with specific knowledge in each field

Informing, justifying the person and evaluating the personality type of experts

Interviews with people with special positions and positions to record knowledge-related documents

second phase:
Documentation

Recording the characteristics of people with special and strategic positions and characteristics related to their type of activity

Select the documentation template

Select the appropriate documentation method

Select the appropriate method of knowledge acquisition

Choosing a pattern of knowledge acquisition

Capability indicators

Preparing the audience

How to do it

Information indicators

Motivational components

Organizing sessions for acquiring, receiving and recording tacit knowledge

Extracting and compiling knowledge content

Evaluate knowledge ideas and claims and related fields

Inappropriate

End

Quality assessment and gap analysis

Appropriate

Acceptance of experts from the provided knowledge

third phase:
Provide suggestions

Classification and integration of expert knowledge

Figure 3. Knowledge handbook compilation model with emphasis on lessons learned in the organization

Extract and formulate ideas, rules, paradigms, trends from expert experiences and make suggestions

In compiling the organization's knowledge handbook, the first phase will be to identify areas of knowledge and experience, then identify knowledge and classify it, as well as identify the characteristics of people with knowledge

and interview them in areas of experience is part of the preliminary stage or acquisition of this model. In general, at this stage, researchers make the necessary preparations to identify areas of knowledge and people related to these areas. In the second phase, which is called the documentation stage, the researcher collects tacit knowledge and experiences of experts by considering various methods of compiling experiences, documentation patterns, patterns of knowledge acquisition and selecting the best method appropriate to the research area and its managers. Then the preparation process of the researched experts includes motivation, empowerment, familiarity with the methods of compiling his experiences, considering the information components. This stage is the operational stage of developing experiences and as a stage of collecting valuable information and data and must be done with high accuracy and sensitivity. Any mistake in recording information and gathering knowledge and experience of experts causes unrealistic results in the next stage, which is the output stage; Therefore, the sessions of acquiring, receiving and recording information continue frequently and taking into account the feedback after the preliminary compilation. After compiling the experiences and knowledge of managers, it is necessary to study the collected information based on evaluation models, ideas and knowledge claims, and to comment on their conceptual relationships with the field under study.

LIMITATIONS

• Due to the nature of project-oriented organizations, some components in the presented model may have different multipliers in organizations with a diverse nature.
• The experts of this research have worked in project-oriented organizations, and due to the nature of this field, the interview process took time.
• The basis of this research was the lessons learned in project-oriented organizations, and similar research in this field was very limited.

SUGGESTION

In this section, based on the extracted components, suggestions are provided for the evaluation of lessons learned in project-oriented organizations:
• It seems that what is necessary in project-oriented organizations in the first step is the development of a culture of knowledge sharing, therefore it is suggested that briefing sessions be held regarding the importance of discussing the lessons learned in the organization and sharing its goals and advantages. It is also necessary to use motivational factors to develop participation in this matter. It is necessary to provide a mechanism to provide the necessary support for employees who want to improve their knowledge.
• The second driver in the process of counting the lessons learned is the leadership component of the organization. The support of senior managers is essential in this area. This support includes presenting a statement regarding the necessity of using the lessons learned, formulating efficient strategies and communicating the necessary standards in this regard.
• In the field of technology, it is suggested to provide the necessary mechanism for their implementation while systematically studying emerging technologies to take advantage of new platforms in the field of lessons learned. What is certain is that it is necessary to comply with security protocols in this regard due to the sensitivity of military organizations. Therefore, it is suggested to use native systems for this field. Also, due to the lack of security in cloud servers, solutions other than this section should be used. A user-friendly interface should be used in using the lessons learned platform and the user experience should be evaluated in this regard. It is necessary to consider the integration solution of the system with other organizational systems. What can help the attractiveness of platforms in this field is to use the capacity of gamification to improve the level of motivation of employees to share knowledge and to improve the creativity of this field.
• In the area of the process, it is necessary to consider systematic mechanisms based on the process of counting the lessons learned. Therefore, it is suggested to develop a guide for recording the lessons learned and present the process of recording the lessons learned while introducing the platform for sharing the lessons learned. What should be considered in the field of the process is the use of the opinions of the stakeholders of this field, therefore, in the

design and modeling of the processes, the scenarios of using the opinions of the organizational stakeholders should be considered. In connection with the process design, what is necessary is the design of processes for the needs assessment of the subject area. Therefore, the mechanism of needs assessment and explanation of operational indicators for feedback in this field is suggested. In the area of the explanation process, it is necessary to explain the methods to ensure the quality of the documents, therefore, it is suggested to consider monitoring scenarios to check the quality of the documents and formulate the feedback processes in such a way that the traceability of the documents is provided. This tracking can be tagged based on the topics of the lesson learned and written based on the knowledge map. Also, since the essence of knowledge is based on agility, the mechanism of updating lessons learned should be on the agenda. In order to enrich the system of lessons learned, the process of validating knowledge components should be developed and based on the methods of evaluating the validity of knowledge, indicators should be developed for each field of knowledge and the validity of each learned lesson should be measured based on the score obtained. What is important in the field of lessons learned is to take advantage of the lessons learned recorded in the system and put them into practice. This work, in addition to the prosperity of the system, causes the integration of the registered knowledge with the commercialization of the product or idea. In this regard, it is suggested that in addition to registering each type of lesson learned, the relevant unit will get information about that knowledge, it is necessary to provide a mechanism to measure the effectiveness of the lesson learned in the operation. The last suggestion in the field of process is the modeling of processes to record the lessons learned from the process of crowdsourcing and open innovation in the organization.

• In the field of learning, there are suggestions about mentoring. Therefore, it is suggested to provide a mechanism for mentoring in order to create a committed and active participation of mentor and mentee. This program requires the willingness and tendency of mentors to spend time to provide continuous guidance, it also requires the commitment of people who need guidance to actively identify their special development goals and spend time and energy to achieve them. A mentoring program should help new employees acquire the key competencies needed to be successful. Mentoring relationships should develop over time and may be focused on one or more factors required for career success depending on the mentee's career stage, realized career goals, level of guidance needed, and the nature of the mentors' input. As a result, they may be stable, long-term relationships that evolve over time into collaborative rather than mentoring relationships, or they may be short-term relationships that focus on specific areas of mentoring at critical career junctures.

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