Petroleum Business Review

Research Article-Oil & Gas Economics and Management

Petroleum Business Review, Vol. 5, No. 1, pp. 13–25, Winter 2021

Identifying and Prioritizing Appropriate Tools of Knowledge Acquisition and Transfer in National Iranian Oil Company: A Benchmarking of Leading Oil Companies in the World Using Group AHP

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ARTICLE INFO

Keywords:
Knowledge management (KM)
Knowledge acquisition
Knowledge transfer
Oil and gas companies
National Iranian Oil Company (NIOC)

Received: 19 December 2020
Revised: 14 February 2021
Accepted: 23 February 2021

DOI: 10.22050/PBR.2021.262679.1153

ABSTRACT

Nowadays, knowledge and information are the largest asset of organizations and human beings and can lead to a robust and certainly valuable organization. The purpose of this study is to identify the suitable knowledge acquisition and transfer tools in National Iranian Oil Company (NIOC). This study is applied in terms of purpose and case study from the view point of strategy. Given the economic conditions of NIOC, as well as the need for the maximum use of the knowledge, experience, and skills, it is essential to identify the more effective ways of transferring knowledge, especially to the new entrances. The appropriate tools for NIOC were determined using the mixed method; the qualitative section identified the tools of knowledge acquisition and transfer by studying oil companies in the world leading in knowledge management and using the expert panel. Knowledge acquisition and transfer tools were prioritized in the quantitative research using questionnaire tools and group analytical hierarchical process (AHP) method. The findings demonstrate that NIOC can effectively organize the available knowledge by focusing on the community of practice, peer assist, the community of learning, and lessons learned.

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1. Introduction

Nowadays, knowledge is considered the most important strategic resource for leading companies and one of the tools to gain a competitive advantage in the turbulent world of business. Studies conducted among the top 200 companies in the world show that more than 88% of the managers of large and successful companies have mentioned knowledge management (KM) as their second main priority (Vakili and Iranmanesh, 2014).

KM tools and processes (mainly acquisition, creation, storage, sharing, and application), tacit knowledge, and explicit knowledge in an organization become crucial for the organization's success (Raudeliuniene et al., 2020). KM is a route, even an approach that focuses on knowledge initiatives by collecting, storing, and applying knowledge. KM has helped many companies or organizations develop their organizations, especially for the oil and gas industry (Ramadhan et al., 2020).

In the early 21st century, BP, Royal Dutch Shell, Schlumberger, and Chevron were recognized as KM leaders among oil companies (Grant, 2013). Also, Haliburton and Schlumberger gained a considerable reputation for their KM program (Edwards, 2009). The application of KM is emphasized to face some of the most critical issues in the oil and gas industry due to the exceptional circumstances of these companies. Society for Petroleum Engineers (SPE) estimated that between 2000 and 2010, 231,000 years of knowledge and experience would be lost over the next 10 years due to the retirement of petroleum engineers and other technical staff (Grant, 2013). A similar challenge has existed for National Iranian Oil Company (NIOC).

KM in the modern age has made dramatic changes in management disciplines. KM (by KM processes and acquisitions tools) seeks to capture employees' knowledge, wisdom, and value-added experiences and implement, retrieve, and maintain knowledge as an organization's assets. Implementing a KM system is one of the crucial ways to record, refine, and share the experiences of individuals in the organization (Mirzaei, 2020). Researchers' field of study shows that there are capable people in NIOC. However, because of the lack of a KM system and acquisitions tools, it is not possible to acquire, transfer, and apply their knowledge, skills, and experience; this knowledge can solve many problems and challenges of the company. It is essential to pay attention to the current situation of NIOC and reduce the participation of international oil and gas companies, relying on domestic capacity. Using the knowledge, creativity, and innovation of employees can reveal many advantages to overcome the challenges. Here, what is important is to identify the tools for acquiring and transferring knowledge to share knowledge in NIOC.

Therefore, the best ways to acquire and transfer knowledge in NIOC were discovered and studied, which can provide effective solutions for large companies and organizations in the country. The preliminary investigations of researchers in NIOC showed that the KM activities performed have been partially recording the knowledge of experienced and retired employees. In other words, no effective action has been taken in acquiring and disseminating knowledge as well as designing mechanisms for transferring and sharing knowledge, especially in plans and projects.

On the other hand, studies show that an organization puts much effort into keeping it innovative and acquiring sustainable competitive advantages if it does not store and disseminate its critical knowledge appropriately (Abbas et al., 2020). Literature related to knowledge mentions that KM via KM tools acquisition and sharing as well as KM processes affects an enterprise's performance (Van Aswegan and Retief, 2020; Andreeva and Kianto, 2011). Many research works demonstrate the benefits of KM in achieving sustainable innovation in organizations. They confirm that KM and organizational innovation processes are an integral part of the progress and survival of the enterprises (Abbas et al., 2020). Further, those organizations that do not have a KM system cannot develop individual and organizational learning skills and abilities (Cabeza-Pulles et al., 2019). Some studies stated that employees who share knowledge across the company help the organization bring sustainability through innovative and new products (Cegarra-Navarro et al., 2019).

Furthermore, digital transformation threatens the stability of organizational knowledge flows. Rifts may emerge as companies shift to new technologies and ways of working, and critical knowledge is often lost when systems, roles, and corporate structures change. KM teams with an emphasis on knowledge acquisition and transfer have much work to do in this fast-paced and high-risk environment (APQC, 2019).

Therefore, the main question in this study is what the more suitable knowledge acquisition and transfer tools in NIOC are.

In this study, firstly, in the qualitative section, after reviewing the literature, the experiences of the world's leading oil and gas companies on KM focused on tools and methods of knowledge acquisition and the transfer

were investigated. In this section, benchmarking and the expert panel will be used. Then, the designed research questionnaire takes into account the analytic hierarchy process (AHP) so that respondents can provide their views on the effectiveness of each method of knowledge acquisition and transfer. The research method and steps of doing this research are expressed in detail in Section 2.2.

2. Materials and methods

2.1. Materials

Knowledge is an intellectual asset owned by each organization that dramatically influences the performance of the organization (Ramadhan et al., 2020). KM is considered a tool to increase intangible assets, which guarantees tangible assets and financial success. To fully implement KM in an organization, different topics such as the human aspects of knowledge workers directing, improving interactions to create and share knowledge, the processes of acquiring knowledge, using customer knowledge, and measuring an organization's performance for increasing the intellectual capital were considered. The culmination of this journey is the new application of existing knowledge, the creation of new knowledge, and management's role in promoting innovation (Pasher and Ronen, 2011).

Knowledge management is how organizations create value through their knowledge-based assets (Hartley and Rowley, 2008). Although KM has been raised for a long time, its application, especially in the oil and gas industry, has not been remarkable or has failed. Moreover, no significant studies have been conducted on KM, its processes, and its systems in the oil and gas industry of developing countries (Badpa et al., 2018).

Asian Productivity Organization (APO), in its report entitled "Knowledge Management Tools and Techniques Manual", has divided the methods and tools of KM, especially with an emphasis on acquisition and transfer (sharing), into IT-based and non-IT tools and methods. Peer assistance, after-action review, communities of practice, storytelling, and knowledge café are some of the most important non-IT tools and methods. Also, knowledge base, social network services, building knowledge clusters, and expertise locator are some of the most widely used IT tools and methods (APO, 2010). Studies in oil and gas companies demonstrate that some of these tools are used. In addition, other applicable tools in the oil and gas industry will also be introduced in the result section of this study (Section 1.3).

The stress of KM tools and techniques has been maneuvered to share knowledge through communication and collaboration tools which specify the shift from process to practice. KM is not one single discipline. Instead, it is an integration of numerous endeavors and fields of study (Ghani, 2009). On the other hand, knowledge sharing is critical to the acquisition/creation and application of organizational knowledge, which are essential processes in organizational knowledge management (Castaneda and Cuellar, 2020). Sharing knowledge, which is claimed to be one of the most important topics of management research (Serenko and Bontis, 2016), is the act of making knowledge available to others. In the broader sense, knowledge sharing is the transference of experience and organizational knowledge to business processes through communication channels between individuals (Oyemomi et al., 2016).

Studies, especially in the field of oil and gas, indicate the positive effect of applying knowledge management on organizational performance (Badpa et al., 2018; Li et al., 2016; Elizabeth et al., 2015; Moffat and Crichton, 2015; Tanaka, 2014; Gardiner, 2014; Akeel, 2013). On the other hand, NIOC also has a significant role in the economic growth of Iran. However, in a knowledge-based economy, knowledge is considered a source of competitive advantage (Alvesson and Benner, 2016).

Acquisition and sharing knowledge and information in organizations is increasingly vital for business success. Easy access to knowledge and information is beneficial for employees. KM is defined as the process of identifying, acquiring, organizing, and disseminating intellectual capital critical to an organization's long-term performance (Debowski, 2006).

Knowledge and information are essential for decision making, problem-solving, interpersonal communication, and relationships, improving the effectiveness of the business, performance, and success (Hartley and Rowley, 2008). Today, organizations growing very fast are companies that have a better understanding of the role of KM in the organization. In a knowledge-based economy, what you know is at least as important as who knows you (Bontis, 2002). It means the tools and methods of knowledge acquisition and transfer play a vital role in a firm's competitive advantage.

Although many studies show the positive effect of KM on the performance and success of the organization, KM must continue to prove its worth. Moreover,

knowledge acquisition and transfer as primary stages of KM take time, but they also save time (APQC, 2019).

Knowledge tends to flow in the organization, and people can access knowledge more than they use it. Organizations seek to know what they know, and they start from this point; what employees know plays a key role in the organization's success. Although IT and innovation are essential, the most critical factor is the organizational culture. Investment in technology requires a thorough and accurate understanding of the needs of the end-users and customers (Banjoko, 2010). In other words, although the tools and methods of acquiring and disseminating knowledge based on technology facilitate the sharing of knowledge in the organization, the vital role of organizational culture, which has been emphasized by researchers in the quantitative stage of this research and the completion of the questionnaires, should not be overlooked.

2.2. Methodology

This study is descriptive–exploratory research that has used a mixed method (qualitative and quantitative) to find the answer to which tools and methods are more suitable for knowledge transfer at the level of NIOC. First, in the qualitative section, after reviewing the literature, the experiences of the world's leading oil and gas companies on KM focused on tools and methods of knowledge acquisition, and transfer were investigated. At this stage, by benchmarking these companies and using the qualitative method of the expert panel, the tools and methods of acquiring, disseminating, and transferring knowledge were identified. Seven experts in this study have been selected from the perspective of mastering the subject of KM and company activities.

The experts met face to face at relatively regular intervals. These sessions lasted about eight hours for about three months with the facilitation of the researchers. During this time, the research problem was explained, and the literature review findings were provided. Then, with the help of an expert panel, qualified people were determined from all over the company to answer the questionnaire (judgmental sampling method).

The research questionnaire was designed while taking into account the analytic hierarchy process so that respondents can provide their views on the effectiveness of each method of knowledge acquisition and transfer. In this questionnaire considering the structure and cultural conditions of NIOC to express their opinions was emphasized. The gathered data were further enriched by conducting face-to-face interviews, telephone, or online applications, and thus appropriate tools for acquiring and disseminating knowledge were identified. The steps of doing this research are illustrated in Figure 1.

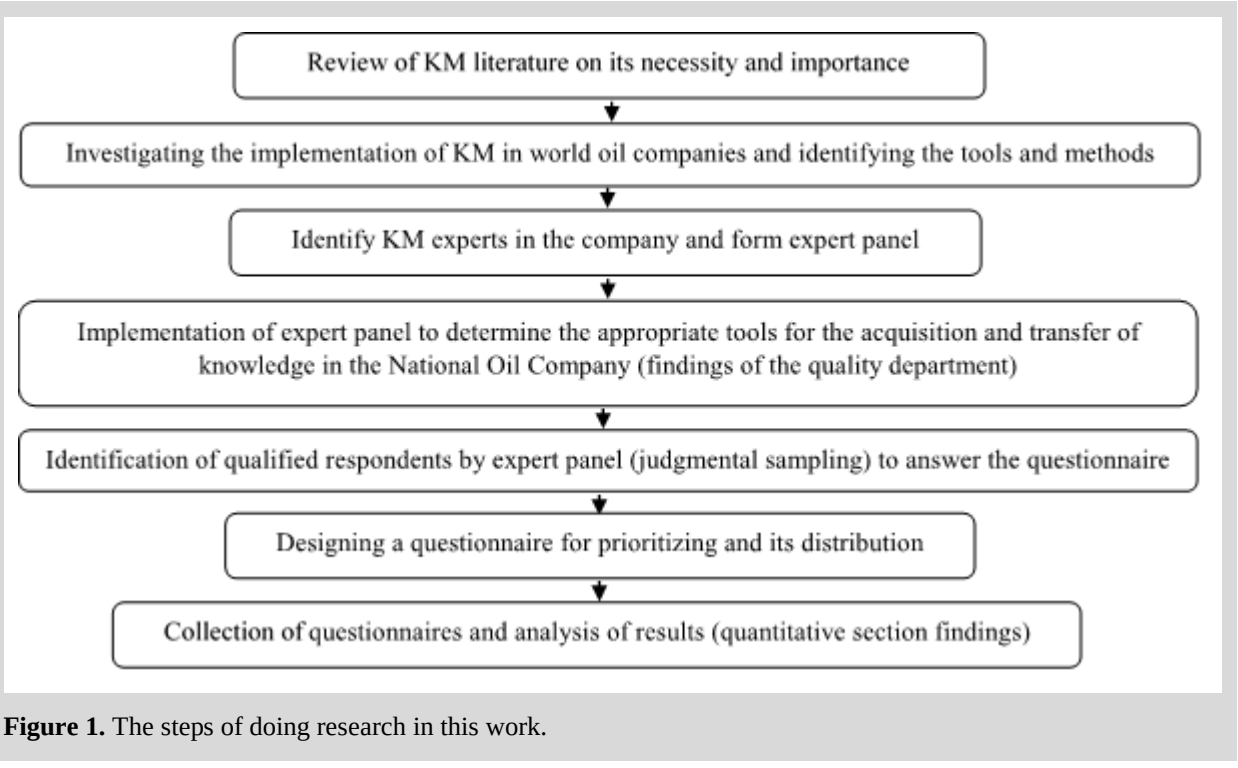

Figure 1. The steps of doing research in this work.

Random sampling was not performed due to using the opinion of all people familiar with the conditions of NIOC to implement KM and dissemination of knowledge and questionnaire sent to the entire identified community. The whole community includes individuals from all subsidiaries and the headquarters of NIOC selected by a judgmental sampling method. This community is the dominant part of Iran's oil and gas industry regarding the number of employees and scope of work. The validity and reliability of investigation tools in the two stages of the research are presented in Table 2.

Table 2. The validity and reliability of investigation tools.

Stage of research	Investigation tool	Validity method	Reliability method
Qualitative section	Review of studies, expert panel	Face and content validity: by expert opinion	Consensus
Quantitative section	Group AHP questionnaire	Face and content validity: by expert opinion as well as CVR index=1 upon Lawshe method	CR index =0.057 in AHP method

3. Results

3.1. Findings from the qualitative part of the research

In this section, while presenting a brief description of KM in the world oil and gas industry and its conditions, various knowledge acquisition and transfer methods in oil companies identified using the expert pane are introduced.

a. The starting point and motivation of KM in the oil and gas industry

Studies show that each oil and gas company has a starting point for using KM tools in their company. Some of them are mentioned in Table 3.

Table 3. The start point of KM in the oil and gas companies (Grant, 2013).

Company	Year of acceptance of KM	Starting point of KM
Royal Dutch Shell	1995	Organizational learning initiatives through corporate planning (e.g,. scenario analysis and cognitive maps)
British Petroleum (BP)	1996	Organizational learning and transfer of best practices to upstream
Chevron	1996	Transfer best practices and cost savings to Chevron's downstream businesses
Schlumberger	1997	Application of IT in drilling
Halliburton	1998	Application of IT in drilling and seismic analysis
Exxon Mobil	2003	In Exxon: Application of IT in exploration and production; in Mobil: Transfer the best practices to the downstream

In most of these companies, senior managers are persuaded to understand the importance of KM in the company's management system and as a critical factor in improving and enhancing the company's performance. Chevron's former chief executive officer (CEO) says:

We learned that we could learn and improve the company through knowledge. Instead of inventing everything ourselves, we emphasize that knowledge can be acquired or purchased from outside the organization. Every day that better ideas are left unused, an opportunity is lost. We need to share knowledge more and faster.

Also, the former CEO of BP recognizes a similar role for knowledge and believes that all companies face a common challenge: the more effective use of knowledge compared to competitors (Grant, 2013).

Although oil and gas companies had relatively common reasons for adopting KM in the late 1990s, their circumstances were different, which had a significant effect on the accepted strategies for KM in each company. Some companies, such as Schlumberger, emphasize IT and information coding to achieve their KM goals, while others, such as Shell and BP, emphasize more human-centered approaches to KM. Nevertheless, no matter what approach each company takes, IT is an essential facilitator for many technology-oriented and human-centered activities that contribute to the success of KM. Some of these tools include databases, software, portals, and groupware (Grant, 2013).

For more than two decades, the issue of KM and its application in the oil and gas industry has received serious attention. The growing importance of environmental issues, the rapid growth, and development of petroleum technologies, the expansion of offshore exploration and drilling, the rapid and numerous changes in the integration of oil companies, the growing dependence of countries on oil and gas resources, and other cases have led to the importance of KM in the oil and gas industry.

b. Identify and introduce KM tools used in oil and gas companies

Here, some of the most important and widely used tools and methods of knowledge management are introduced, focusing on the acquisition and dissemination of knowledge in oil and gas companies. After studying these methods, the results were prepared and provided to KM experts in NIOC, especially those known in KM in the company and have done significant activities in this field to implement and establish KM.

c. Community of knowledge

Communities of knowledge are virtual teams that communicate through the corporate network and within organizational boundaries. Their goal is to flow and spread knowledge to different locations and situations. In this regard, we can refer to “knowledge, research, and the best practices of the company”, “expertise and personal experiences of individuals”, “recommendations, suggestions, and ideas obtained from the company network”, and “content acquired from outside the company”. Communities of knowledge in some companies, such as Shell, form and introduce three different types of forums:

- The forum has the highest level of coding and structure, which are considered the best practice forums and are maintained and validated by the community of practice.
- The lowest level of coding is a discussion forum, which are voluntary communities of people who have a common interest in a particular topic (for example, knowledge management or seismic modeling).
- Task forums are the middle ground between the two species above, and in this case, the members of a community work together to solve a problem or make suggestions about a particular challenge. In this case, members of a community may be working directly on an issue.

Each forum uses a manager or moderator whose job is to identify community members, refer people with questions to people with possible answers, evaluate and adjust the content, and maintain the forum. Such a person must know who knows as much as what knowledge exists (Grant, 2013).

d. Community of practice

Among all the tools used for KM in the oil and gas industry, communities of practice are widely accepted and welcomed (Wenger, 2002). Shell defines the community of practice as groups of geographically dispersed people who share information, insights, and suggestions on a common theme, interest, or action. Schlumberger also defines them as a group of people who share a common field of expertise and need similar solutions to common problems. Despite some differences between the definition and naming of this tool in different companies, their approach to forming and operating a community of practice is very similar. The main differences between companies in using the community of practice are related to the degree of formality, the processes through which they are formed,

and the degree of support by each company (Grant, 2013; APO, 2010).

Communities of practice in different organizations are known by different titles. For example, they are known in Chevron as the "best practice team", in Texaco as the "people network (PeopleNet)", and in BP as the "connect" (Rao, 2005).

e. Community of learning

Most learning communities form around a field of work or study, such as geology or topics that address new challenges. These topics are primary topics related to people's education, genuine interest, or skills. Most learning communities hold regular problem-solving meetings that are facilitated by a coordinator (McDermott, 1999).

f. Peer assist

Peer assist is a technique used by the project team that seeks the assistance of collaborators regarding an important issue they have encountered. It is part of a process that BP calls pre-action learning such as gathering the necessary knowledge and information before starting a project. Peer assist meetings usually last for from half a day to two full days. In these meetings, the project team gains the necessary insight and information about the project from their colleagues, and the colleagues learn about the project and each other (Young, 2010, APO, 2010).

g. Virtual team

The opportunities created by information technology for communication, collaboration, and new thinking due to knowledge management have led to practical actions among companies. Particularly at BP, KM was less about creating a parallel structure for knowledge sharing management and more about making teams work more effectively. BP's virtual teams started in the drilling sector, where separate drilling teams make vital decisions with little time for analysis or consultation and benefit from closer contact with co-workers in other workplaces (Grant, 2013; Egbu and Katherine, 2002).

h. Best practice groups

Some oil and gas companies have teams or groups that record and share the company's best practices throughout the organization. In Schlumberger, identifying and validating the best practices are one of the leading roles of communities of practice. Each member of the community is encouraged to identify best practices. Once the community has validated the practice, it is stored in the "knowledge hub". The role of the "knowledge champion" in each community is to persuade and encourage to propose the best practices, to validate these, and to integrate new practices in the "knowledge repository" of the community (Grant, 2013).

Due to the similarity of the best practice groups with the communities of practice in many companies, the expert panel of this study decided to define this method as a "community of practice".

i. Lesson learned

One of the most powerful KM tools for project-based organizations is the "lessons learned" that were first used in the US military (Slabodkin, 2006). ConocoPhillips introduced group meetings where the staff from recently completed projects meet and record lessons learned from their experiences in that project. In these meetings, with the presence of an individual as a facilitator, the lessons and studies recorded in the project reports are made available to other groups (Grant, 2013).

It is clear that many of these tools have similarities, and because of their use in different companies, they have different names. Table 4 shows the KM tools that are mostly used in the studied companies.

Chevron emphasizes that KM is not just about people-to-people communication and IT, but redesigning work processes is essential. Chevron needed to find a simple and effective way to access the company's data and information. However, many existing software tools did not work together in the same database. It was decided to create a central data repository and use a set of tools that can connect work processes and redesign them so as to increase the efficiency of the staff (Smith et al., 2001).

Like other large oil companies, Statoil was decentralized and needed to find a way to transfer experience, share best practices, and create a network. Many projects were also underway, and it was necessary that most of the time of the people in the projects not be spent on collecting information.

The ability of BP to leverage knowledge is at the heart of its competitive strategy. Instead of relying on its fundamental research, BP learns from its partners and disseminates the knowledge gained rapidly at the company. BP does this not by creating an extensive

electronic library of the best practices but by connecting people to think together.

Table 4. KM tools in the studied oil and gas companies.

Company	KM tools
British Petroleum (BP)	Community of practice, peer assist, virtual teams, connect (yellow page), the daily community of practice, the formal community of specialists, the community of informal network, the community of problem-solving, emails, public folders, discussion groups, joint documentation, after-action studies, good practice record, on the job experiences and agreed learning, and video conference
Royal Dutch Shell	The community of knowledge, the community of practice, scenario planning, the community of learning, best practice forum, discussion forum, functional forum, global network (worldwide), local or regional networks, and the community of problem-solving based on software from IBM
Chevron	The community of practice, best practices dissemination, the senior bee of knowledge, internal/external benchmarking, technology brokers, networking, intranet network, video conference, classifying knowledge and documents as good ideas, good practices, teaching classes, technical and skill coaching, knowledge coaching, the acquisition of knowledge from specialists, peer assist, the best local practices, and the best industry practices
Schlumberger	The community of practice and best practice groups
Aramco	The community of practice, best practice groups, idea management system, lessons learned, best technological practices, external knowledge, determination of challenges, specialists finding, virtual teams in the form of Shark program, and repository knowledge management tool named SMARTS

3.2. Findings of the quantitative part of the research (data collection and analysis)

At the beginning of the section, it is necessary to point out that the expert panel decided to consider the various methods and tools mentioned in Table 3 and the different naming them in different companies. In the AHP questionnaire, six tools or methods for priority should be used. Numerous discussions were held in the expert panel to select these six methods; some of the most important discussions are as follows:

a. As mentioned earlier, it was decided to "best practice groups" method as "community of practice" in the AHP questionnaire.
b. Since IT tools and networking and messaging software could be used as a platform for each method, the expert panel decided to remove the "virtual teams" method in the questionnaire and provide the respondents with all methods and tools to acquire and transfer knowledge virtually.
c. The expert panel decided to introduce "discussion forum" as "community of knowledge" according to the different levels of "community of knowledge forum" and considering the use of "functional forum" (problem-solving groups) and mention this group of tools for acquiring and disseminating knowledge as an independent method in the AHP questionnaire.

With these explanations, six methods were included in the research questionnaire. At the end of the questionnaire, an open-ended question was assigned regarding the opinion of experts to introduce their methods.

With the cooperation of the expert panel, 24 people were identified and introduced as experts at the company to answer the questions, and according to the seven members of the expert panel, finally, 31 people answered the research questionnaire. The questionnaires were designed to allow pairwise comparisons between the six selected and main tools of KM. In the designed questionnaire, six knowledge acquisition tools and dissemination used in oil and gas companies were explained, and individuals were asked to determine the importance of each method in pair comparison with other

methods. Due to researcher follow-up, all the questionnaires were returned, and the return rate of the questionnaires was 100%. The questionnaire emphasized that the answers should be according to the organizational structure and culture of NIOC. The group AHP method was used to analyze the data.

In using AHP for decision-making or prioritization, the opinions and judgments of only one expert in forming the matrix of pairwise comparisons, which is the basis of decision-making, may not be accurate. The group AHP method seeks to combine experts' opinions without making useless pairwise comparisons or influencing the opinions of individuals towards each other. The solution to this problem is to use a geometric mean. The geometric mean provides the best average mathematically while taking into account the judgment of each person since the pairwise comparisons are made as a "ratio". If $a_{ij}^{(k)}$ is a component of person k to compare factor i to j, the geometric mean is calculated as follows (Habibirad, 2007):

$$a_{ij} = \left[\prod_{k=1}^{N} a_{ij}^{(k)} \right]^{\frac{1}{N}}$$

Moreover, since almost all calculations related to AHP are based on the initial decision of the decision-maker in the form of a matrix of pairwise comparisons, any errors, and inconsistencies in the comparison and determination of the importance between the options will distort the final result. Compatibility ratio (CR) is an indicator that determines the consistency of judgments and shows the extent to which the priorities of comparisons can be trusted. Ensuring the consistency of the components of the pairwise comparison matrix increases the reliability of the results. The consistency ratio is obtained by dividing the consistency index (CI) by a random index (RI) as follows (Habibirad, 2007):

$$CR = \frac{CI}{RI}$$

Experience has shown that if CR is less than 0.1, the compatibility of the comparisons is acceptable; otherwise, the comparisons must be repeated (Habibirad, 2007). Since the calculated CR for prioritizing the six tools of knowledge acquisition and transfer (dissemination) was 0.057 and less than 0.1, it can be concluded that the components of the pairwise comparison matrix in this study have the necessary compatibility.

Data analysis was performed after collecting the answers using the group AHP method, as shown in Table 5.

As shown in Table 4, according to experts of NIOC, the tools of the community of practice, peer assist, the community of learning (problem-solving meeting), lessons learned, the community of knowledge (task or problem-solving forum), and discussion forums were identified respectively as the best solutions to acquiring and transferring knowledge.

After collecting data and analysis through the AHP method, telephone, face-to-face, and online interviews were conducted with the respondents to receive additional explanations that enrich the results of quantitative analysis. Perhaps, it can be accepted that there is not much difference between four or even five methods according to experts' opinions. According to the respondents, all of these methods in different circumstances can be suitable tools for acquiring and transferring knowledge in NIOC.

Table 5. The results of the analysis of questionnaires using the group AHP method.

Rank	Methods/tools for acquiring and transferring knowledge	Weight/importance/priority
1	Community of practice (also includes the best practice groups/forum)	0.217
2	Peer assist	0.204
3	Community of learning (problem-solving meeting/forum)	0.186
4	Lesson learned	0.179
5	Community of knowledge (task or problem-solving forum)	0.162
6	Discussion forum	0.042
Sum of priorities		1

4. Discussion

Findings and the investigation of studies and researches show that due to the geographical distribution of NIOC, the community of practice is a suitable tool. In connection with this method, according to the mentioned examples in two companies, Shell and BP, two crucial factors can be deduced. First, such communities are very likely to be used where there is a process of socialization and networking. Shell and BP are very famous for this. Second, these communities are as many technology-oriented networks as social networks, and the need for a manager or moderator as the human hub and network switch is equal (Earl, 2001).

The method of peer assist and lessons learned were also emphasized due to the importance of advancing projects. Studies show that many managers can quickly get rid of the ambiguities with the help of peer assist (peer groups). The group members have a different level of commitment to cooperation. In addition, peer groups are usually informal and lack the power to force members to participate and cooperate. These meetings may become more of a friendly gathering than a real impact on business performance over time (Young, 2010).

Peer groups in BP had unusual characteristics; Instead of being informal networks, they were known as formal parts of the organizational design. Instead of focusing on functional managers, they focused on line managers and identified the responsibility for the profitability of each business unit. Instead of vague goals and objectives, they specified clear deliverables, and instead of a simple meeting to meet and discuss, they were able to make decisions (Goold, 2005).

Two main goals are pursued in connection with the community of learning meetings. First, by daily solving real problems, community members help each other, building trust between individuals. Second, a common understanding of tools, approaches, and solutions is formed (McDermott, 1999).

Subsequent deep interviews with experts (respondents) showed that knowledge coaching, because of leading to the transfer of knowledge and experience to younger people, is a good way to record experiences as it is often less possible to transfer the tacit knowledge of experienced people.

Many experts also believe that the formation of virtual teams and networking is a platform for the best performance of these tools, and it is better not to be considered a tool. In BP Company, through the groupware and video communications, online communications have been established between drilling teams in different situations, suppliers, and contractors (Grant, 2013; Egbu and Katherine, 2002). However, the majority of experts emphasized that organizational culture and management support are essential for the establishment of KM and the use of these tools. It is clear that the managers will play a key role.

However, KM must become an integral part of the organization's culture, work processes, and information systems, and of course, this will be the result of the successful and accurate implementation of KM. It should be noted that KM tools, especially knowledge acquisition and transfer methods, are not used simultaneously as the critical point is to start with small and successful steps (Pasher and Ronen, 2011). Digital transformation presents exciting opportunities for KM to play an even more strategic and vital role. The opportunity start with knowledge acquisition and transfer (APQC, 2019).

Most experts in this study believe that although NIOC has not been able to achieve new technologies in cooperation with foreign companies, because of special economic conditions and sanctions in recent years, efforts to achieve the company's goals, knowledge, experiences, and skills have been nurtured in the company, which can be considered a competitive advantage of the company's knowledge and experience. Moreover, in the field of technology, many requirements have been met by domestic knowledge-based companies. The critical point is that these capabilities are recorded using the methods of acquisition and dissemination (transfer) of knowledge in this study and transferred to the next generations of the company so that they are not lost or evolved.

5. Conclusions

In NIOC, as a significant company in the country's economy, the need to transfer knowledge, experience, and skills from the staff, especially managers, to the next generation on the one hand and the importance of this knowledge dissemination in the sanctions, on the other hand, raised the question of what solutions can lead the company to that goal more productively. This study first studied various methods of knowledge acquisition and transfer in the world's leading oil and gas companies, and an expert panel determined the final methods. Then, by designing a researcher-made questionnaire, the

opinion of the company's KM experts about these methods was obtained. In face-to-face, telephone, and online interviews with experts, the reasons for choosing their proposed solutions were identified, and the research results were enriched. The respondent community studied and cared about KM at the company and even had the experience of partially implementing the KM process in the company. In the end, it was determined that, according to the conditions of the company, the tools of the community of practice, the peer assist, the community of learning (problem-solving meeting), the lessons learned, the community of knowledge (task forum or problem-solving), and the discussion forums will have the most significant impact on the effective transfer of knowledge respectively, especially in the current economic conditions of the country. Although most experts believe that it can be accepted that in terms of technology, NIOC is moving significantly more slowly compared with global oil companies, the results confirm that it has experiences and skills, such as the experiences gained in the complex economic and technological constraints of the company, that can be considered its competitive advantage.

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