Acta Globalis Humanitatis et Linguarum
ISSN: 3030-1718
Vol. 2, No. 2 (2025): Specialis Editio 2025

Study and Role of The Impact of Information Technology Tools on Knowledge Management Performance in Commercial Banks

[1] **Sameulhaq Amany**
https://doi.org/10.69760/aghel.025002116

Keywords	Abstract
Information Technology Tools Tejarat Bank Information Technology Knowledge Management	Objective: The purpose of the study is to evaluate the impact of information technology tools on the implementation of knowledge management in Tejarat Bank. Method: The research method was a correlational survey and applied in terms of purpose, which was conducted based on the opinions of 75 experts from Tejarat Bank. The data collection tool was a 34-question questionnaire that was analyzed with SPSS20 statistical software. For data analysis, descriptive-inferential statistics with one-sample T-test were used. Findings: There is a significant relationship between information technology tools in knowledge production and acquisition, storage and processing, sharing and application of knowledge. Conclusion: The use of information technology tools such as office automation, the Internet, suggestion systems, e-mail and video conferencing, and others, is effective in better implementation of the knowledge management process.

Introduction

Knowledge management is a set of activities related to production, compilation, and transfer of knowledge. The purpose of knowledge management tools is to assist in the process of gathering and forming group knowledge in order to make it available in a shared manner in the organization.

These tools can influence the flow of knowledge through network communications, technological transfer to a path, and the transformation of knowledge into cognition. The impact of information technology on knowledge management is an important issue for organizations that intend to utilize technologies to manage their intellectual capital.

Many organizations use information technology in a specific or different form for knowledge management. Knowledge management can achieve very positive and important results with the appropriate use of information technology. (Azadi and Azadi, 2009: 56)

[1] Sameulhaq Amany Master's student in Administration and Economics, Sabahattin Zaim University, Türkiye, sameulhaq.amany01@gmail.com, https://orcid.org/0009-0009-4681-2761

What seems necessary first is to explain the difference between information and knowledge. Information is processed data available in computers, which is increasingly accessible to everyone due to the widespread impact of information technology; however, there are many interpretations of the concept of information, and experts have used this term as a process, a commodity, an attribute, and so on.

Blacker (1995) defines information as: “something with which we can make a choice among the set of possibilities about which we know nothing”; but knowledge is an understanding, awareness, or cognition that is obtained during study, research, observation, or experience and over time and is one step after information, that is, data (raw information) is converted into information by processing in a computer.

This information or output is the same for everyone, and in the next step, by understanding and using it, knowledge is produced; knowledge that relies on information and today If more attention is paid to knowledge, it is due to the extensive production of information. So knowledge can be defined as: "Knowledge is the understanding, awareness or cognition that is created in an individual through study, research, observation or experience regarding the external world." In Figure 1, to understand the difference between data, information and knowledge and to recognize their place in the thinking process, the model of the knowledge production process is presented:

Figure 1. Knowledge production process model (Fattahi, 2002)

According to McDermott (1999), the six characteristics of knowledge are:

(1) Knowledge is the result of human activity;

(2) Knowledge is the result of thinking;

(3) Knowledge is created spontaneously;

(4) Knowledge is the result of collective wisdom;

(5) Knowledge is disseminated among individuals in society in various ways.

(6) New knowledge is created based on old knowledge.

In an organization, knowledge is defined as what individuals know about their customers, products, processes, errors, and organizational successes (Brown, 1998).

Knowledge can exist in databases, administrative departments, or other internal and external sources of the organization. Organizational knowledge is acquired over time and causes the organization to achieve a deeper understanding and lead its organizational structure with the intelligence and intelligence that are characteristics of wisdom.

Wisdom is achieved when new knowledge is applied along with developments, experiences, and group expertise and the knowledge created is used to apply the necessary technology in the organization. And to achieve the planned goals with the joint efforts of all sectors. (Mokhtari,2004:92) Experts believe in two types of knowledge: objective and tacit. Objective knowledge is clearly formulated and defined, expressed simply and unambiguously, and coded and stored in a database. Tacit knowledge is not obvious, exists within the person, and in most cases is difficult to describe and transfer. Tacit knowledge includes course learning, awareness, judgment, general rules, and inspiration. (Brown, 1998)

It can be said that tacit knowledge is the specific or unique information that is embedded in the knowledge process model after information. Knowledge is intangible and difficult to measure, and often has a long life, and it is commonly present in organizations and has a significant impact on the organization.

Knowledge is an asset that must be managed, and the basis of knowledge management is finding strategies that make the right knowledge available to the right people in the right way and at the right time. (Milton, 1999)

Knowledge management, like communication, is best viewed as a method or organizational practice; it is a way of identifying, acquiring, organizing, and processing information to create knowledge; after the information is distributed, in other words, it is made available to others to be used to create more knowledge. (Rading, 2017)

Knowledge management is a new initiative to transform information system models from a data processing and information presentation approach to an approach to collecting and using knowledge in organizations, which involves using the expertise and skills accumulated in the mind and angles of It includes the transformation of individuals' hidden knowledge into written and codified resources (Mokhtari and Yaminifar, 2004). In fact, knowledge management is related to the exploitation and development of knowledge belonging to organizations in line with their goals. (Davenport et al. 1998). Among the objectives of knowledge management in organizations are:

(1) Using explicit and implicit knowledge to achieve organizational goals.

(2) Providing the means to transform information into knowledge and produce new knowledge.

(3) Connecting people to each other.

(4) Connecting people to information.

(5) Optimizing and using available resources economically.

Several benefits can be anticipated for knowledge management. Employees will spend less time searching for information and acquiring skills. Experts will focus on their favorite subject areas. The knowledge management process will help employees improve their job skills and performance, and the available resources will help them make smart decisions.

The knowledge management process will also reduce the anxiety of employees who are trying to do more with fewer resources and facilities. Knowledge management helps organizations to become more competitive by using new knowledge to reduce costs, increase speed, and meet customer needs. Miles (1998) stated two advantages for knowledge management:

(1) It enables organizations to act intelligently, so that their efficiency and success are certain;

(2) It enables the organization to realize the value of advancing the organization's goals and continuing to compete in the new global market.

According to Carvalho and Ferreira (2001), knowledge management tools are divided into 8 groups:

1. Network-based tools: The Internet is a suitable environment for sharing dynamic and relevant information and the hypertext structure of the internal network facilitates information browsing. The philosophy of the Internet is to create a virtual space in which information is classified and accessible. The low cost of web technologies is also a factor of attraction for many organizations.

2. Electronic document management: Electronic document management systems or content management tools are important treasures of shared documents.

These systems seek to manage content regardless of information carriers such as: fax, e-mail, HTML formats, computer reports, paper, video or spreadsheets.

3. Groupware: Groupware is a type of software to help people communicate remotely (Bock & Marca, 1995:75). Since the hierarchical structure of an organization often "prevents rapid decision-making in a competitive market, people are free to exchange ideas and collaborate with each other through this groupware, regardless of this structure.

4. Workflow: A workflow is a system that supports standard business processes and regulates the flow of information from person to person, from place to place, and from task to task. The purpose of this system is to track the steps of the work and each activity combined with this process and to reveal the knowledge contained in it.

5. Knowledge-based systems: Intelligent systems and neural networks use artificial intelligence. An expert system includes a knowledge base in a limited domain, an inference mechanism for changing this base, and an interface for allowing new data to be entered and for user interaction.

6. Business intelligence: A set of tools used to manipulate large volumes of application data and find business information is the basis. Database management systems are the building blocks of a business intelligence solution.

7. Knowledge mapping systems: This group includes software specifically designed for knowledge management. Knowledge mapping provides an intelligent search engine that helps users find experts who can solve problems.

8. Innovation support tools: Innovation support tools are defined as the application of new ideas for products or services. These tools are software that collaborate with the product design process to generate knowledge and simulate insights by creating a virtual environment. (Carvalho and Ferreira, 2001)

Table 1: Summary of Ranking of Knowledge Management Software.

Group	Knowledge Tepe	Scope of Influence
Intranet-based tools	Implcit	Computer Networks
Electronic Document Management	Explicit	Information Science
Groupware	Implicit & Explicit	Computer-Supported Collaborative Work
Workflow	Implicit & Explicit	Organization and Methods
Knowledge Base Systems	Implicit & Explicit	Artificial Intelligence
Commecial Intilligence	Explicit	Database
Knowledge Map	Implicit & Explicit	Information Science and Knowledge Management
Tools for Innovation Support	Implicit & Explicit	Product Engineering

In knowledge management, the acquisition, creation, organization, storage, transfer, and dissemination of knowledge are all highly dependent on the use of information technology, and its growth is greatly influenced by technology and business development, information and communication needs. Another aspect is the cooperation and participation of the IT department in the organization, in which it is essential to determine the role of IT in the development of the knowledge management group.

Duffy (2000) showed that IT is responsible for the administration and management of storage and access to documents. Information technology can provide effective and efficient tools for all aspects of knowledge management, including the capture, sharing, storage, and application of knowledge. The ability of IT to explore; index; and integrate, archive, and transfer information can create a revolution in the collection, organization, classification, and dissemination of information.

Technologies such as relational database management systems, document management systems, the Internet, intranets, search engines, workflow tools, executive support systems, decision support systems, data mining, data warehousing, e-mail, video conferencing, bulletin boards, newsgroups, and discussion boards can play a key role in facilitating knowledge management. The greatest value of information

technology in knowledge management is its ability to expand the scope of an organization's knowledge and to increase the speed of knowledge transfer.

In addition, information technology plays an important role in the process of integrating existing knowledge and creating new knowledge. (Akiyoshi, 2008). Few studies have been conducted on the use of modern technology tools to provide appropriate services to customers without considering time and space dimensions.

For example, in Iran, Rezaian (2007) showed that, because of the use of information technology in the organization of libraries, museums and the Astan Quds Razavi Document Center, the speed of providing services to users has increased and the time for accessing and retrieving information has decreased, which indicates an increase in the effectiveness of the organization.

Tarakh et al. (2011), in "Investigating the role of information technology tools in the effective implementation of knowledge management systems using the gap analysis technique (Case study: Iran Khodro Company"), showed that Iran Khodro Company uses information technology well and there is an opportunity to benefit from its maximum available capacity with proper planning and proper implementation of the knowledge management system in the company.

Sobhani et al. (2013) showed that the sports federations of the Islamic Republic of Iran, In the field of using information technology, they are far from being at a very good level. In their opinion, today information technology is beyond creating direct communication between people through applications such as e-mail, chat rooms, video conferences, etc. and can be a database by storing and sharing knowledge, the best way to maintain intellectual capital in the organization.

Tseng (2008) confirmed the existence of a positive and significant relationship between information technology and management by examining the relationship between information technology and knowledge management in companies in Taiwan & Johnson, (2010) concluded in examining the status of knowledge management in the South African industrial sector that information technology is effective in strengthening and promoting the position of knowledge management.

A review of the literature shows that no research has been conducted on the use of information technology tools in implementing knowledge management in banks, and since banks, as organizations involved with new information technologies, need to implement knowledge management to improve customer service. The results of this study can be made available to bank managers and planners for the exploitation of information technology in the implementation of knowledge management. In this study, to assess the impact of information technology tools in the implementation of knowledge management in Tejarat Bank, the following four hypotheses were tested and analyzed:

1. There is a significant relationship between information technology and the production and acquisition of knowledge in Tejarat Bank.

2. There is a significant relationship between information technology and the storage and processing of knowledge in Tejarat Bank.

3. There is a significant relationship between information technology and knowledge sharing in Tejarat Bank.

4. There is a significant relationship between information technology and the application of knowledge in Tejarat Bank.

The method of the present study is a correlational survey and is applied in terms of purpose, based on which 75 experts of Tejarat Bank were surveyed. The research tool was a researcher-made questionnaire with 34 questions that were scored based on a 5-point Likert scale and the maximum score obtained was 5.

Also, in order to ensure the feasibility of the questionnaires and in fact determine their validity, 3 management professors were consulted, and their opinions were applied in preparing and modifying the aforementioned questionnaire. After resolving the ambiguous points, the final questionnaire was provided to the statistical sample. To measure the reliability of the questionnaires, a preliminary questionnaire was administered to 20 people in the statistical population.

According to the results, Cronbach's alpha value in this study for the questionnaire in question was 0.82, and thus its reliability was also confirmed. To determine the research population, 110 people were selected as a sample through random sampling. After sending the questionnaires to them, 80 questionnaires were returned, of which 75 questionnaires (40 men and 35 women) were used for statistical analysis.

Findings

Tables 2 and 3 are drawn to determine the significance of the relationship between information technology and knowledge production and acquisition in Tejarat Bank.

Table 2: Mean and Standard Deviation between Information Technology and Knowledge Production and Acquisition.

No	Median	Standard Deviation
75	4/1s7s	0/24108

Table 3: Results of the T-test for the Relationship Between Information Technology and Knowledge Production and Acquisition.

Test T	Freedom Degree	Mediam Deviation	Sig
41/944	74	1/1s7s2	0/05

Based on the data in Table 2, the average utilization of technological tools in the process of knowledge production and acquisition was 1.4, which indicates a high level. In Table 3, the relationship between information technology and knowledge production and acquisition was tested, as a result of which the test statistic value was calculated as 9.41, for which sig<0.05 was obtained, and therefore it can be said that there is a significant and positive relationship between the use of tools such as the Internet, communication networks, office automation, e-mail, suggestion system, think tank, advisory council and information systems; with knowledge production and acquisition. In fact, in the bank introduced above, knowledge production and acquisition, a lot of tools are used in the field of business. Tables 4 and 5 are related to

examining the relationship between information technology and knowledge storage and processing in Tejarat Bank.

Table 4: Mean and Standard Deviation of the Relationship Between Information Technology and Knowledge Production and Processing.

No	Median	Standart Deviation
75	3/3289	0/23s85

Table 5: Results of the T-test for the Relationship Between Information Technology and Knowledge Production and Processing.

Test T	Freedom Degree	Median Deviation	Sig
12/02s	74	0/32889	0/05

Based on the data in Table 4, the average level of utilization of technological tools in the process of knowledge production and processing is 3.3, which indicates a relatively high level. Based on the calculations, the value of the test statistic (presented in Table 5) was 12.02, which, based on sig<0.05, there is no reason to reject the hypothesis of a relationship between these two variables. It can be said that there is a significant and positive relationship between the possibility of searching for information, the process of entering knowledge into information repositories, collecting and organizing knowledge in databases, systematically recording and maintaining knowledge and experience of employees, updating documents and evidence, documenting with electronic knowledge archive software, storing knowledge in application software, and the existence of a structured information storage system in different areas of knowledge storage and processing. Tables s and 7 are drawn to determine the relationship between information technology and knowledge sharing in Tejarat Bank.

Table 6: Mean and Standard Deviation between Information Technology and Knowledge Sharing.

	No	Median	Standard Deviation
3rd Hypothesis	75	2/9733	0/31522

Table 7: Results of the T-test for the Relationship Between Information Technology and Knowledge Sharing

Test T	Freedom Degree	Two-Tailed Significance	Median Deviation	Sig
-0/733	74	0/4ss	-0/02ss7	0/4

Based on the data in Table 6, the average of this component is 2.9, which indicates the average level for this relationship above. Considering that the value of the test statistic presented in Table 7 is negative and according to sig<0.05, it can be said that there is a significant and positive relationship between informing about successful experiences, automatic awareness of the individual about the topics of interest, use of tools such as video conferencing, organization communication networks (groupware), email, organizational portal, idea management systems and web-based software, and knowledge sharing.

It is important to note that the intensity of this relationship is not as strong as the previous two variables, but in any case, it is clear that technological tools exist in this way and have been proven to be effective in the relationship between information in the field of "knowledge sharing" of the knowledge management process in Tejarat Bank. Tables 8 and 9 are related to the existence of a relationship between information technology and knowledge application in Tejarat Bank.

Table 8: Mean and Standard Deviation between Information Technology and Knowledge Application.

	No	Median	Standard Deviation
4th Hypothesis	75	0/3981	0/3179s

Table 9: Results of the T-test for the Relationship Between Information Technology and Knowledge Application

Test T	Freedom Degree	Median Deviation	Sig
10/843	74	0/39810	0/05

Based on the data in Table 8, the average level of utilization of technological tools in the process of "knowledge application" is 3.3, which indicates a high level. Considering the value of the test statistic (10.84) performed with the T-test and shown in Table 9 and based on sig<0.05, it can be claimed that: There is a significant and positive relationship between improving employee efficiency, using documented knowledge in future work, confidence in information technology tools, using experts in the field of information technology, easy access to information at the right time, the ability to search and evaluate information, and knowledge application. In fact, technological tools have been effective in the "knowledge application" section of the knowledge management process in Tejarat Bank. (Jafari,2007)

Discussion and Conclusion

Today, in the transition from an industrial society to a knowledge-based society, there is a great focus on knowledge as one of the most important resources of organizations. This has led to increasing attention to information technology as one of the most important sources of competitive advantage. (Mirzaei et al., 2009)

Information technology plays a key role in the success or failure of a knowledge management system. Because each of the knowledge management processes is dependent on information technology. Knowledge is a valuable and strategic resource for organizations, including banks.

If knowledge can be produced, acquired, recorded, and maintained with proper and efficient management and by using the Internet, communication networks, office automation, information systems, and by updating it in electronic archives, documents and records can be stored and shared through groupware, organizational portals, and proposal management systems; it will improve employee efficiency and the application of documented knowledge in future work.

In this way, the tacit knowledge in the bank becomes a valuable asset through collaboration and social relations, and an effective step will be taken in confronting competitors and approaching the bank's goals. This research was conducted with the aim of evaluating the impact of information technology tools on the implementation of knowledge management in Tejarat Bank. The results indicated that the average The obtained score for the level of utilization of technological tools in the process of "knowledge production and acquisition" was 1.4, a high score.

The level of utilization of technological tools in the field of "knowledge production and processing" was 3.3 on average; the level of utilization of technological tools in the "knowledge sharing" section was 2.9 on average, and the level of utilization of technological tools in the "knowledge application" section was 3.3. Thus, the highest level of utilization of tools related to information technology occurred in the "knowledge production and acquisition" section, then jointly in the areas of "knowledge application" and "knowledge production and processing" and finally in the "knowledge sharing" section. In general, the status of the use of information technology in the application of knowledge management in Tejarat Bank can be assessed as appropriate and positive.

The research conducted is consistent with the findings of Taghizadeh's (2006) study, which showed that the use of information technology in the organization of libraries, museums, and the Astan Quds Razavi Document Center has increased the effectiveness of the organization; Tseng's (2008) study, which confirmed the relationship between information technology and knowledge management in companies in Taiwan, and the existence of a positive and significant relationship between information technology and management; and Neels ' (2010) study, which concluded that information technology was effective in strengthening and promoting the position of knowledge management in the South African industrial sector. This is inconsistent with the research of Sobhani et al. (2013), which stated that Afghan sports federations are far from using information technology to a very good level.

According to the findings of this study, it is recommended that: a combination of existing information technology tools be used to improve the flow of knowledge management in Tejarat Bank; appropriate planning be carried out to adapt information technology tools in accordance with the expected knowledge management processes; and technology infrastructure be strengthened to play a more effective role of information technology tools in the "knowledge sharing" section of the knowledge management process. It

is also suggested that research be conducted on this topic, with an emphasis on the differences in the tools used and the performance of knowledge management in different units of this bank.(Rviz and Merono,2006)

References

Akiyoshi, M. (2008). Knowledge sharing over the network, thin solid film. Proceedings of 2nd International symposium on the manipulation of advanced smart Materials, 517(4) pp. 1512-1514.

Azadi Ahmadabadi Qasem; Azadi Ahmadabadi, Akram. (2009) Information Technology in Knowledge Management: Applications and Effects. Publisher. Tadbir Monthly, No. 211, 55-60. For access: https://tinyurl.com/3azepdtd

Blacker, F. (1995). Knowledge, Knowledge work and organization.Organization studies, 16, pp.1021-1046.

Bock, G. & Marca, D. (1995). Designing Groupware. New York: McGraw- Hill.

Brown, J.S. (1998). Organizing knowledge.California management review.40(3), pp. 90- 111.

Carvalho, Rodrigo Baroni de & Ferreira, Marta Ara ˚jo Tavares. (2001). A Proposal of Taxonomy for Knowledge Management Tools. Online availablein:

Davenport, T.H. Delong, D.W. Beers, M.C. (1998). Successful knowledge management projects. Sloan knowledge review, winter, 32(2), pp. 43-57.

Fattahi, Rahmatullah. (2002) From Information to Knowledge: A New Approach to Library Functions in the Age of New Technology. In the collection of papers of the Sixth Conference of Librarians of the National Management and Planning Organization (Yazd Publisher: February 18, 2002). 342-15 . Tehran: Management and Planning Organization. For access: https://tinyurl.com/2p9we5vr

Jafari Moghadam, (2007) Book, Documenting Managers' Experiences (From a Knowledge Management Perspective). Publisher: Tehran: Institute for Management Research and Education, Second Edition. For access: https://tinyurl.com/ycx6f66x

McDermott, R. (1999). Why Information Technology inspired. California Management Review. 41, pp. 103-117.

Miles,G. (1998). Some Conceptual and Research Barriers to the Utilization of knowledge. California management Review. 4(3), pp. 281-288.

Milton, N. et al. (1999). Towards a knowledge technology for knowledge management. International Journal of Human-Computer Studies, 51, pp. 615-641.

Mirzaei, R. et al. (2009). Information Technology as a Critical Factor in Knowledge Management system. 4th international e-commerce conference in developing countries.

Mokhtari, Haidar; Yaminifar, Musa. (2004), From Data to Knowledge and from Data Management to Knowledge Management: A Review of the Literature. Publisher of Library Studies and

Information Organization, Fall 2004 - Issue 59, Scientific-Promotional (Ministry of Science/ISC (13 pages - from 11 to 23). For access: https://tinyurl.com/48bjcyry

Neels, C.J. & Johnson, D. (2010). Information management as an enabler of knowledge management maturity: a sough African perspective. International journal of information management. 30, PP. 57-67.

Rading, Ellen. (2017) Book, Knowledge Management: Success in the Global Information Economy. Translated by Mohammad Hossein Latifi, Publisher. Tehran: Samt. For access: https://tinyurl.com/2p9we5vr

Rezaian, Ali; Taghizadeh, Ebrahim; (2007) Investigating the impact of information technology system on the effectiveness of the organization of libraries, museums and the document center of Astan Quds Razavi. Publisher: Library and Information Science, Winter 2007 - No. 40, Ministry of Science/ISC (13 pages - from 170 to 182). For access: https://tinyurl.com/n5e86xyd

Rviz, J. Merono, A. (2006). Information Technology and Learning: Their Relationship and Impact on Organizational performance in small Business. International Journal of information management, 26(1), pp. 16-29.

Sobhani, Yazdan; Henry, Habib; Shahlaei, Javad; Ahmadi, Alireza. (2013) The relationship between information technology and knowledge management in a sports federation. Publisher. Sports Quarterly, 55, 17 -.73. For access: https://tinyurl.com/y4b4j2e6

Tarakh, Mohammad Jafar; Mirzaei, Rahmat; Alvandi, Naghmeh. (2011) Investigating the role of information technology tools in the effective implementation of knowledge management systems using gap analysis technique (Case study: Iran Khodro Company). (Publisher. International Journal of Industrial Engineering and Production Management, 22. (4). For access: https://civilica.com/doc/281095/

Tseng, S. M. (2008). The effects of information technology on knowledge management systems. Expert systems with applications, 35, PP. 150-160.

www.iamot.org/conference/index.php/ocs/7/paper/viewFile/860/309

Received: 03.06.2025
Revised: 03.12.2025
Accepted: 03.14.2025
Published: 03.18.2025