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EFFECT OF TOTAL QUALITY MANAGEMENT AND KNOWLEDGE MANAGEMENT ON PROVIDING SERVICES AT THE MANUFACTURING AND SERVICE COMPANIES

The aim of this study is to investigate the effect of total quality management (TQM) and knowledge management on providing services at manufacturing and service companies. In this regard, a model that includes the components of TQM, knowledge management, and performance of services was designed. The study results showed that the dimensions of organizational leadership, strategic planning, process management and human resource management have direct and positive impact on three pillars of knowledge management i. e. knowledge acquisition, applying knowledge and knowledge distribution. In addition, the results revealed that TQM has positive and significant impact on the performance of services. However no positive results were obtained on the impact of knowledge management on the performance of services.

Keywords: total quality management, knowledge management, providing of services, customer, strategic planning.

Formulation of the problem generally. Total quality management (TQM) is one of the newest theories raised by management scientists in the 80s and 90s from which manufacturing and service organizations have benefited from and accomplished great successes. Nowadays, out of various methods of management, TQM is a method that could practically gain results and significant achievements. With an emphasis on the continuity of improvement of quality, participative management, service quality, goods and achievements with an authentic and global movement, this system will follow customer satisfaction who is the recipients of goods and services [1]. On the other hand, in today's knowledge-based economy, competitive advantage is increasingly found in facilitating information processes of working rather than access to certain markets and resources. To achieve sustainable competitive advantage, considering existing knowledge, how to effectively use it and establishing a structure for the use of new information and knowledge is an essential and vital issue to which organizations should pay special attention [3]. Identification of what the organization needs requires special insight and vision which is possible through knowledge management [2]. Given what was said on the importance of two key components of the organization and management that is total quality management and knowledge management at organizations, we decided to examine the impact of total quality management and knowledge management on services providing at manufacturing and service companies.

Analysis of recent researches and publications. *Services and service quality.* In the first step, to understand service quality, a clear understanding of the concepts of quality and service is required. Quality is the degree of meeting the needs of customers that is associated with organizational culture [1]. Quality is the set of activities, processes, functions and interactions

that are presented to customers in order to resolve customers' problems. A product is qualitative when it is coincident with the wishes and needs of customers [7]. Service is a result that customers demand. Service is an activity or benefit that one party offers to the other party and is essentially intangible and does not involve the ownership of anything. Today service organizations understand that in order to maintain their customers and gain competitive advantage, one of the key issues that should always be considered is to improve the quality of their services. Customer's satisfaction with received services and improvement of the quality of services by the organization are considered as two important indices in assessing the performance of the organization [6].

Total Quality Management. Waks and Moti [8] recognize TQM as management philosophy that focuses on the continuous improvement of process through prevention of problems and errors and requires continuous control of process, performance and quality, the principle of putting the customer-orientation and partnership of management, personals and suppliers. Sahaney et al [9] divide total quality management into three parts whereby, total refers to everyone involving in the process (including customers and suppliers), quality – to specific needs of customer and management – to committed senior managers.

In fact, TQM is a customer-oriented process that seeks to continuously improvement and meeting of customer's needs. Hellsten and Klefsjo have defined TQM as a constant evolving management system including values, practices and tools with the aim of increasing internal and external customer satisfaction with small amounts of resources [4]. Total quality management is generally a process that focused on the customer, based on statistical methods and depending on the group that seeks to achieve organization's strategic objectives through the continuous improvement of processes and is led by senior management. According to the desired industry, six principles of strategic planning, organization leadership, customer-base concentration, process management, human resource management and data analysis have been considered as the principle of total quality management.

Knowledge management. Knowledge management is the process of discovering, acquiring, developing and creating, sharing, storing, evaluating and applying appropriate knowledge at the right time by the appropriate person at the organization which is done through the creation of link between human resources, information and communication technology and the creation of an appropriate structure to achieve the organization's objectives. This definition is based on human, structure and technology. As Gupta and Govindarajan [10; 14] stated knowledge accumulation is combined of creation, acquisition and maintenance of knowledge. The creation of knowledge refers basically to the interaction between implicit and explicit knowledge rather than a separate activity of implicit and explicit knowledge [5]. Organizations obtain knowledge through personal learning, exploration of internal and external environment and employing new employees or purchasing organizations with acquired knowledge from outside sources [5]. Sharing of knowledge involves sharing information, ideas, suggestions and professional judgments related to the organization among its employees. This exchange can happen both informally in places such as halls and formally – at meetings, seminars and presentations. The application of knowledge is an effective use of knowledge. If the recipient of the knowledge is informed, she/he recognize the received knowledge and are able to apply it [12; 13].

Aims of the article:

- to investigate the effect of TQM and knowledge management on providing of services at manufacturing and service companies;
- to design a model that will include the components of TQM, knowledge management

and performance of services;

– to examine the impact of TQM and knowledge management on providing of services at manufacturing and service companies.

Basic material. This is an applied study in terms of the objective which was conducted in the form of a descriptive design and in a survey method using structural equation method. In this study, a questionnaire was used for data collection. The questionnaire includes questions on six areas of quality management and three areas of knowledge management. Then using statistical analysis the hypotheses raised in the study were tested.

The study population included companies which have implemented knowledge management and quality management systems at their organization. In this regard, 188 companies were randomly selected for Tehran Stock Exchange. To calculate the sample size, Cochran formula was run. In this study, all questions were raised as 7-point Likert. In the current study, in order to evaluate the validity of the questionnaire, face validity was used so that the prepared questionnaire was given to experts and was approved after examining by them. To investigate the reliability of the questionnaire, the Cronbach's alpha coefficient was used. Cronbach's alpha is 0,86 for the whole questionnaire which represents a high reliability. Principles of TQM will be presented as the independent variables of the study and knowledge management dependent variable.

The conceptual model shows the effect of total quality management and knowledge management on providing of services. In this model, TQM consists of six components: organizational leadership, customer-based concentration, strategic planning, human resource management, process management and analysis of information and knowledge management includes three components: knowledge acquisition, applying knowledge and knowledge distribution. The above-mentioned model can be seen in Figure 1.

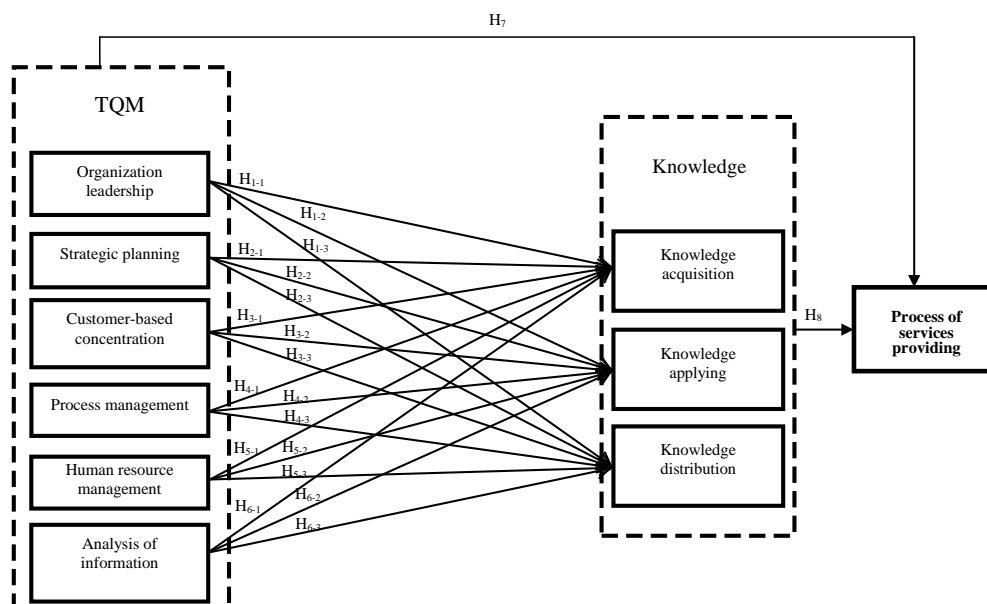


Figure 1 – The conceptual model of the study

The method used in this study is structural equation method for data analyzing. Structural equation modeling is a comprehensive approach for testing hypotheses about relationships between observed and hidden variables. SPSS and LISREL software were used for data analysis.

Table 1 – Results of the structural equations and fitting indices of the model

Indices	Recommended value	Model value	Result
Normed of Fit Index: NFI	> 0,9	0,92	appropriate
Goodness of Fit Index: GFI	> 0,9	0,92	appropriate
Non-Normed Fit Index: NNFI	> 0,9	0,94	desirable
Adjusted Goodness of Fit Index: AGFI	1 <	0,88	desirable
Root Mean Square Residuals index: RMR	< 0,5	0,18	desirable
Root Mean Square Error of Approximation: RMSEA	< 0,05	0,03	desirable

Table 1 indices represent goodness of the fit of a model. As a result, it can be argued that the presented model can define relationships among variables as well. Thus, the results of t-test can be trusted to test the hypotheses.

Results of testing the hypotheses. In this part, the results of testing the hypotheses have been expressed with regard to t-test. Values of more than 1,96 at the 95% level of confidence results in the acceptance of the hypotheses, while values of less than it results in their rejection [11].

In the analysis of the results of Table 2 , it can be explained that some fields of TQM such as organizational leadership, strategic planning, process management and human resource management have a direct and positive impact on the process of knowledge management, while customer-base concentration has no impact on the process of knowledge management due to little attention of Iranian organizations on collecting customers' voices and to the use of them for redefinition and modification of products. In fact, most Iranian organizations do not redesign and re-engineer the products according to customers' opinion, as a result, customers' voice is not considered as a source for knowledge management because most business fields in Iran are exclusive which makes manufacturers of services and products enrich for innovative according to customers' needs.

The implementation of the process of TQM at organizations has a direct and positive impact on their performance, whereas knowledge management is less likely to influence the performance of the organization which pertains to the comprehensiveness and pervasiveness of the TQM at the organization. TQM indeed influences all aspects of the organization and its accuracy and correct implementation leads to improvement the performance and increases the efficiency of organizations; however, knowledge management is less universal and popular at Iranian organizations. As a result, its impact is not still significant in organizations.

In this study, the relationship between TQM and knowledge management was addressed. The main objective of profit organizations is to obtain profit. Their performance has an effect on their profitability in all areas. The more the services in organizations are provided better, the more the rate of their profitability will be. It should be noted that this is affected by the quality. In organizations, for taking advantage of the quality in all components of the organization, TQM system is used. Quality management pays much attention to attracting of

customer's satisfaction. Thus, it has much effect on the provision of services at manufacturing and service companies.

Table 2 – Results of the hypotheses

Hypotheses	Hypothesе	Test statistics	Result
H1-1	Leadership has a positive effect on knowledge acquisition at organizations.	7,69	Accepted
H1-2	Leadership has a positive effect of applying knowledge at organizations.	3,66	Accepted
H1-3	Leadership has a positive effect on knowledge distribution at organizations.	8320	Accepted
H2-1	Strategic planning has a positive effect on knowledge acquisition.	7357	Accepted
H2-2	Strategic planning has a positive effect of applying knowledge.	11320	Accepted
H2-3	Strategic planning has a positive effect on knowledge distribution.	9,93	Accepted
H3-1	Customer-base concentration has a positive effect on knowledge acquisition.	1,43	Rejected
H3-2	Customer-base concentration has a positive effect on applying knowledge.	5,17	Accepted
H3-3	Customer-base concentration has a positive effect on knowledge distribution.	0,05	Rejected
H4-1	Process management has a positive effect on knowledge acquisition.	3,66	Accepted
H4-2	Process management has a positive effect on applying knowledge.	10,33	Accepted
H4-3	Process management has a positive effect on knowledge distribution.	6,26	Accepted
H5-1	Human resources management has a positive effect on knowledge acquisition.	2,80	Accepted
H5-2	Human resources management has a positive effect on applying knowledge.	11,30	Accepted
H5-3	Human resources management has a positive effect on knowledge distribution.	3,94	Accepted
H6-1	Data analysis has a positive effect on knowledge acquisition.	2,07	Accepted
H6-2	Data analysis has a positive effect of applying knowledge.	1,31	Rejected
H6-3	Data analysis has a positive effect on knowledge distribution.	6,13	Accepted
H7	Quality management has a positive and significant on the performance of providing services at organization.	6,973	Accepted
H8	Knowledge management has a positive and significant on the performance of providing services at organization	1,391	Rejected

Another investigated factor is knowledge management. Knowledge management includes series of strategies and solutions to identify, create, represent, distribute and adjust the visions and experiences of the organization.

Most organizations are looking for customer's satisfaction and converting them into loyal

customers. This depends heavily on the provision of appropriate services which in turn depend on a variety of issues. From a different perspective, using of TQM system can be added to the quality of services, while using knowledge management, the available knowledge at the organization can be applied to improve the provision of services.

Conclusions and directions of feather researches. The results of the study can be summarized in a way that organizes leadership, strategic planning, process management and human resource management have direct and positive effect on three pillars of knowledge management that is knowledge acquisition, applying knowledge and knowledge distribution. The results also indicated that the component of customer-base concentration has an effect of applying knowledge and data analysis on knowledge acquisition and distribution, while there were no positive results on the effect of customer-base concentration of knowledge acquisition and distribution as well as the impact of data analysis on applying knowledge. The results of the study revealed that TQM has positive and significant impact on the performance of services, while no positive results were obtained on the impact of knowledge management on the performance of services.

Using some of these results can be useful at macro-scale and even at micro-scale organizations. At the macro level, if the market goes towards more competition, the organizations using needs of customers to redesign products, services and knowledge management are more superior. Through diminishing the sanctions and the possibility of importing similar foreign goods into the country, organizations which examine less knowledge management will be poor in the development of innovation and the possibility of less competition with international products. Data analysis, which is necessary for the development of knowledge management has been considered less at Iranian organizations and thus, if the market becomes more competitive, organizations that less consider this important issue will have no possibility of correct recognition of the market and competitors and as a result, there will be lower competitive advantage for such organizations.

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Ефект загального управління якістю та управління знаннями при наданні послуг у виробничих і сервісних компаніях

Метою цього дослідження є вивчення впливу загального управління якістю (TQM) і управління знаннями на надання послуг у виробничих і сервісних компаніях. Відповідно до цього була розроблена модель, що включає такі компоненти як TQM, управління знаннями та надання послуг. Результати дослідження показали, що такі аспекти діяльності компанії як її керівництво, стратегічне планування, управління процесами і управління людськими ресурсами чинять прямий вплив на три основних напрямки управління знаннями, тобто придбання, застосування і поширення знань. Крім того, результати показали, що загальне управління якістю чинить істотний позитивний вплив на процес надання послуг. Проте, при дослідженні впливу управління знаннями на процес надання послуг позитивних результатів отримано не було.

Ключові слова: загальне управління якістю (TQM), управління знаннями, надання послуг, клієнт, стратегічне планування.

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Эффект общего управления качеством и управления знаниями при предоставлении услуг в производственных и сервисных компаниях

Целью настоящего исследования является изучение влияния всеобщего управления качеством (TQM) и управление знаниями на предоставление услуг в производственных и сервисных компаниях. В соответствии с этим была разработана модель, включающая такие компоненты как TQM, управление знаниями и предоставление услуг. Результаты исследования показали, что такие аспекты деятельности компании как ее руководство, стратегическое планирование, управление процессами и управление человеческими ресурсами оказывают прямое влияние на три основных направления управления знаниями, то есть приобретение, применение и распространение знаний. Кроме того, результаты показали, что общее управление качеством оказывает существенное положительное влияние на процесс предоставления услуг. Однако, при исследовании влияния управления знаниями на процесс предоставления услуг положительных результатов получено не было.

Ключевые слова: всеобщее управление качеством (TQM), управление знаниями, предоставление услуг, клиент, стратегическое планирование.

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