

## Effects of Customer Knowledge Management's Eight Factors in E-Commerce

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### Abstract

In the new context, two major factors determine the future survival or success of organizations: electronic commerce and the knowledge from customers. In order to survive and reach the future success of the organization, acceptance of E-commerce and using the internet as a policy and incentive to access and gather important information from the customers is stated. Thus, the goals of the research were figured out, and investigating the relationship and application of customer's knowledge management in gaining competitive advantages of organizations in E-commerce and also the 8 followings factors were investigated: knowledge from customers, knowledge for the customers, knowledge about customers, recording and spreading customers' knowledge, quality of the products and services, pace of providing the products and services, reasonable prices and satisfaction as the output and result of using customers' knowledge management on organizations competitive advantage variable in E-commerce. The statistic tests used were: Kolmogorov-Smirnov, simple linear and multiple regressions; the results extracted from the above tests stated the linear relationship and correlation between independent and dependent variables. The results of this study had shown the application of the customers' knowledge management would lead into gaining competitive advantage for the organizations in e-commerce.

**Key words:** Customer knowledge management (CKM); Competitive advantage; E-commerce; Satisfaction; Customer knowledge

### INTRODUCTION

Considering the complicated and vibrant conditions of today's world, today and login to the age of communication and information that has changed the world to a tiny village and wondrous progress of knowledge and diverse technology of humans' and consequently raising the level of living and expectations of men and also fast speeding cultural changes in traditional societies, one can conclude that no longer can organizations that are an aspect of society be run regardless of the dynamic conditions of internal and external environments (Smaeli, 2004).

Entering the new millennium, capital, raw materials and land which were considered to be critical for the formation and growth of the organization in the past, have lost their former importance. Countries and organizations need to survive in conditions that are associated with rapid and significant, changes which are based on knowledge (Akhavan & Heydari, 2007).

The range of science is increasingly becoming broader and more complete day by day. Among the significant developments in the field of management science there is a manifestation of phenomena such as knowledge management, organizational learning and organizational innovation (Duffy, 1998).

Organizations that are grappling with the new challenges of science era will understand that knowledge is the most strategic source of organization and the base of competition and survival in competitive and non-competitive environments. Because of this reason, they

are considered the necessity for the management of these strategic resources (Akhavan & Heydari, 2007).

In modern organizations and institutions, knowledge has been proposed as the source of competition and information technology as an essential and basic source to manage knowledge (Zack, 1999; Ofek & Sarvary, 2001).

In this new context, two important factors are determining the survival and future success of the organization are: a) e-commerce, b) the acquisition of knowledge and information from customers and consumers (Gupta & Walter, 2004; Tsai & Shih, 2004).

The success of e-commerce is substantially dependent on knowledge management (Borges et al., 2007).

In this regard, managing the use of consumers' knowledge presents the specific tools and techniques of knowledge management used in order to support the exchange of knowledge between a business and its customers, and thereby, allowing the company to make appropriate business and strategic decisions (Kolbe & Geib, 2005; Rowley, 2002).

Customer Knowledge Management (CKM) leads to many improvements in the delivery of new products and services, improving customer service, customer respect, providing customer satisfaction, discovering serious needs of the customer, better response and respect to the customers and for the organization to increase profit and competitive advantage (Poorabas & Borhany Yazdani, 2008).

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## 1. LITERATURE REVIEW

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Research literature includes topics on CKM, competitive advantage and e-commerce which will be explained in the rest of the article.

### 1.1 Customer Knowledge Management (CKM)

In order to maintain a good relationship with customers, it is essential for company to communicate with their customers in a fully satisfactory way and thereby, through providing appropriate proposals continually meet the changing needs of the customers. This requires a conscious management of our customer's knowledge (Davenport et al., 2001).

In order to have good communication with their customers, companies that focus on their customers, especially dotcoms, have to establish a good relationship with customers through a satisfying method and continuously meet the changing needs of their customers. This requires CKM (Ogunde et al., 2010).

By definition, CKM is to describe the use of tools and techniques to support the process of exchange between the business and the customers. Thus, it is possible for the company to make the right business decisions (Bose, 2000).

CKM forms a continuous and stable strategic process, through which companies provide the opportunity for their customers to change from Passive recipients of

information to the state of becoming strong partners with sufficient knowledge (Du Plessis & Boon, 2004).

Customer knowledge is increasingly associated with marketing as a significant source which can lead us to managing the support for research and development (Gibbert et al., 2002).

With this knowledge is emerging in order to achieve the goal of developing solutions and customer relationship management process and facilitate understanding of the market opportunity. According to Guaspari (1998) "Customer knowledge refers to the understanding of customers" (Darroch & McNaughton, 2003; Guaspari, 1998).

On the other hand, Paquette (2006) went one step further and "suggests that customer knowledge can be a combination of customer knowledge and knowledge of supply chain of collaboration and so on". This knowledge is formed by two streams of knowledge that creates value for both the buyer and the supplier. From this information one can achieve beyond the identifying information and the categories of customers. It creates an organization outside working-industry environment. An important aspect of customer knowledge is not the knowledge that is owned by the company, but it belongs to those who desire to give the knowledge or not. In addition to achieving the design and development of products (services) can be effective in reaching a new stage of the customer knowledge (Paquette, 2006).

CKM is creating the maximum value of knowledge and knowledge management at a strategic level (Gebert et al., 2003; Sparks, 2005).

Ability to design and develop new products is also affected by levels of customer knowledge currents (Paquette, 2006).

The most important point in defining the customer knowledge management is that CKM is involved in the promotion of three types of knowledge: knowledge for the customer, the knowledge from customer and knowledge about customer (Desouza & Awazu, 2005).

In the following section we describe the three types of customer knowledge.

#### 1.1.1 Knowledge for Customers

To support customers in their purchasing cycle, a steady stream of knowledge given to customers by the company. Knowledge for customers includes information about products, markets and suppliers. This knowledge also effects on the customer's perception of service quality (Desouza & Awazu, 2005).

Knowledge for customer deals with fulfilling the basic needs of customers with knowledge about products, markets and other items of interest (Wiig, 1999).

#### 1.1.2 Knowledge From Customers

It is the knowledge, the customer has about products, suppliers and markets in order to interact mutually with the customer, this knowledge can be collected to stable

a continuous improvement. For example, development of new products and services, are included in the improvements. At the same time, knowledge from customer should be joined service and product innovation in order to create innovation in products and services and generate ideas and continuous improvement of products and services by the organizations. Capturing customer knowledge and involving customers in the innovation process can be achieved in several ways. For example, customer knowledge about products, and suppliers can market trends through a feedback mechanism can be used to provide systematic improvement and innovating products (Desouza & Awazu, 2005).

Knowledge gained through customers leads to the understanding the patterns of customer needs or experiencing current products or services by customers (Wiig, 1999).

### 1.1.3 Knowledge About Customers

This knowledge is collected in order to understand customer motivations and support giving services in a personalized way and includes backgrounds of the customer, communicating with him, his needs and expectations of a purchase. Collecting and analyzing knowledge about customer is certainly one of the oldest forms of knowledge management in the field of customer relationship management. In addition to the raw data of customers and past transactions, knowledge about the customer, also considers the customer's current needs, future aspirations, relationships, shopping activities and financial capabilities. Knowledge about the customer is gathered through the support and service process of customer relationship management and in the analysis process, the customer relationship management is being analyzed (Desouza & Awazu, 2005).

## 1.2 Competitive Advantage

Among the definitions offered by experts with competitive advantages is as follows:

- increasing attractiveness of the company's offer compared to its competitors in terms of customer proposals.
- Differences in the characteristics or dimensions of any company that enable it to provide customers with better service worth than its competitors.
- Values that can be provided for the firm's clients so that these values are higher than the cost of the customer.
- Value offered by an organization to its clients in a way that at the time, this value is not supplied by the actual or potential competitors.

Considering these definitions and other definitions of the competitive advantage shows that direct relation of customer's desired values, companies supplied values and values supplied by the company's competitors will determine requirements and dimensions of competitive advantage. From the perspective of the customer's values offered by the company with values supplied by

competitors are more consistent and closer to his desired values, comparing it can be said that in one or more fields the company having a competitive advantage against its competitors, so that the advantage causes the company to be superior in relation than its competitors in the market, in getting closer to the customer and capturing his heart. The concept of competitive advantage is directly related to the value of the customer So that in a comparable range Whatever the values supplied to a customer by an organization are closer to his desired values or more consistent with it, it can be said that the organization against its competitors owns the competitive advantage in one or more competitive criteria; In other words, competitive advantage is a value that the organization provides to its customers, so that by the time, it is not offered by the actual and potential competitors (Mehri & Hoseini, 2004).

Competitive advantage is a factor or combination of factors that In a highly competitive environment, make the organization more successful than any other organizations and its competitors cannot easily imitate that two important points should be considered in the creation of competitive advantage: First, the path is a continuing process that will lead to higher performance and competitiveness of the organization. This means that if an organization due to its competence, can create a sustainable competitive advantage which is valuable to customers, and will always be superior than competitors, it has actually left a proper function and brought competitiveness. Second, because of the increasing complexity of the environment and competition severity, the competitive advantage is easily imitated by competitors or paled in customers' view and should soon be replaced with new advantages. Accordingly, organizations should be thinking about finding its competitive advantage (Sadri & Lees, 2001; Barney, 1999).

Creating and maintaining a sustainable competitive advantage requires competencies that are relying on the abilities of the organization to create value for customers. Company resources include all assets, capabilities, organizational processes, information, knowledge and etc. which Company controls them so that it can develop and implement strategies for value creation. These resources can be viewed in three categories of tangible and intangible and organizational capabilities (Appelbaum, 2003).

Capabilities of the company, is a combination of skills, knowledge and behaviors that exist across time and reflected in the people, systems, processes and structures. In other words, skills that the company uses to change input data into output data so that in the form of organizational processes, from the combination of tangible and intangible resources uses to achieve desired goals such as: customer service, superior product development capabilities, innovative services and products. Qualifications as the perfect combination of

assets, resources and processes allow the company to respond to customer needs. Those competencies are of strategic value that can create value for the customers. As already noted, the primary goal of the organization is creating a competitive advantage based on resources and capabilities it possesses, the competitiveness and achieving a prominent position in the market in terms of performance based on customer satisfaction (Anton, 2002).

### 1.3 E-commerce

Nowadays, information and communication technology has been the base of economic, social and cultural development of various countries. E-commerce is an objective aspect of ICT, IT revolutions in all economic fields. The advent of the Internet and its commercialization in recent decades have transformed traditional methods of trading. Electronic commerce is revolutionizing the business practices and procedures and work-speed and cost-saving have been fulfilled in the best way. Geographical distances and time and place restrictions have been vanished and commercial exchanges have been done on the basis of electronic information. E-commerce will remove international trade barriers and accelerate the process of global trade (Schneider, 2006).

Nowadays, information and communication technology have led to dramatic changes in business conditions, So that entering the world of e-commerce and e-business has become a pre requisite to sustain in the global competitive environment, and at the same time, the rapid advent of new competitors, globalized competition, intense competition in standards, new opportunities for alternative businesses, creating new jobs and employment opportunities in various fields, all are considered as the benefits of e-commerce. Different definitions have been presented for e-commerce that in the simplest ones e-commerce is considered as evaluation, negotiation, order placement, delivery, payment and support services done electronically. Also on the aspect of communication, e-commerce is viewed as delivery of information, products and services, or payments via telephone lines, computer networks, or in any other way. All in all, e-commerce consist of all issues of new and modified form of business, including electronic money and account, e-mail marketing, online stores, internet promotions, auctions and tenders in a variety of ways. Electronic commerce has increased the speed and volume of trade and significantly reduced the costs of the buyer and producer, saving time, eliminating unnecessary middlemen and ultimately produced more profit and increased more social welfare (Quaddus & Achjari, 2005).

E-commerce owns benefits and important economic consequences such as the expansion of the market, reducing the cost of production resources, improving productivity, reducing transaction costs, creating jobs and reducing inflation and has a pivot role in endogenous economic growth. Because of its speed, efficiency,

reducing costs and exploiting fleeting opportunities, e-commerce has opened up a new realm of the competition to the extent it is said that being left behind this evolutionary trend will lead to isolation in the world's economy. The huge advantages of electronic commerce have caused not only the developed countries but also the developing countries to use e-commerce as a means to compete in domestic and international fields. Commercial transactions of people with each other's, corporations with each other or other businesses and governments has rapidly moved out from their traditional mode, which were based mainly on the exchange of paper documents, and gone toward Transactions which are carried out through the use systems using electronic information (Sanayehe, 2001; Khani Jazani, 2007).

E-commerce is defined as improving the key business processes using the Internet. Today, most companies realize the importance of this type of trade and have begun to transform traditional commerce into e-commerce and many have been successful in this way. These leading organizations, to provide customer service, distribution and delivery of products, maintain existing customers and attract new customers have set up their business processes based on the Internet networks. Public access to the Internet networks has increased, customer expectations in terms of support services and meeting their needs. Increasing accuracy and boarding services are among these expectations. Responding to these expectations, demands, comprehensive of flexible supports based on a powerful infrastructure. To be able in that framework, to provide customers with the global consulting services belong to experts who have specific knowledge of the industry (Khani Jazani, 2007).

Increasing volume of e-commerce in the world, applying it by economic institutions and its gradual acceptance by consumers indicate potential benefits of e-commerce in economic and commercial fields. So there should be a continuous effort to use it in economic activities. Empirical research shows that the success of e-commerce in developed countries and leading developing countries is because of the appropriate electronic infrastructure. Electronic infrastructure, include Internet-based opportunities, quality of IT infrastructures, government activities and the degree of trade facilitation. Communication tools available to individuals and businesses with higher quality and lower cost, is one of the important contexts for e-commerce (Dejpasand, 2003; Dejpasand, 2005).

### 1.4 CKM and E-commerce

Through the development of the Internet and the emerging Internet companies, the knowledge management trend has become increasingly important in the area of electronic commerce. In other words, the success of e-commerce field depends heavily on the knowledge management process (Nysveen & Pedersen, 2004; Saeed et al., 2010).

The main motto of this e-commerce relies on client's identification opportunities in the new economy. Electronic commerce is a rich channel in which there is a close connection between current service and product experience and gathering information about customer (Gupta & Walter, 2004).

The relevance of e-commerce and Internet technologies not only leads to the formation of new approaches to knowledge creation in different companies but also provides the opportunity to enhance the ability of these companies to integrated knowledge management (Nah et al., 2002).

In general knowledge of the customer is considered as an important source of feedback which can influence the innovation, design and development of offering products in electronic commerce field. This of knowledge forms the center of different principles, some cases such as Internet sites, service quality, marketing research, increasing the efficiency of marketing relationship factor, direct marketing, categorizing the market, business and marketing and performance strategy so the CKM plays an important and essential part in electronic commerce (Rowley, 2002).

Although the CKM in various cycles has been widely discussed, few of the current research in the area of electronic commerce have focused on CKM. Also, so far, in literature and previous research little attention has been paid to identify the full set of CKM mechanisms in e-commerce websites, therefore, future research needs to be done in this area (Zanjani et al., 2008).

### 1.5 Gaining Competitive Advantage in E-commerce

Porter (2001) states that "due to the impact of the Internet on profitability, organizations need to gain competitive advantage". In terms of Porter's competitive advantage can be achieved in two ways:

- 1) reduced operating costs (increasing efficiency)
- 2) to achieve the best price

It seems Possible and practical to combine the two ways in order to achieve competitive advantage. Through facilitating and expediting a timely exchange of information, internet causes improvement across the value chain of organization. On the other hand, because the Internet is seen as a free and open context and possesses public standards, it requires less investment than other technologies. Among the benefits that the Internet possesses which causes lower operating costs, there are:

- Lower cost of communications
- Lower inventory levels
- Lower transaction cost
- Reducing human errors
- Reducing procurement cycle time
- Reducing transportation costs
- Reducing the use of paper and...

Another way to gain a competitive advantage is strategic positioning. Regarding the difficulties to sustain operational

advantages, strategic positioning becomes more critical. If the company fails to achieve a competitive advantage in terms of operational efficiency, we can achieve the competitive advantage by accessing price superiority. Most companies have set the base of their competitive advantage in e-commerce, operational effectiveness. While considering issues such as customization of products extended after sales service and customer relationship management via the Internet, better results will be achieved. The Fraser et al. (2000) state, "competitive Advantage in e-commerce, can be gained from four sources through which an organization will be able to achieve competitive advantage" these four sources are:

a) Reducing the cost of intermediate wholesalers and retailers. Using Internet technology, the process of removing intermediate person has been formed and without going through traditional wholesalers and retailers, and with reference to the site of the original seller (manufacturer) customers can buy the required products are required to buy. This greatly reduces costs;

b) The ability to reduce the costs associated with the purchase through reducing the time and activities needed in logistics and supply operations;

c) Improving the collection and processing of data that makes it possible to improve the supply chain management;

d) Expanding market share and creating new markets by reducing the cost of collecting and processing information about the needs and aspirations of current and potential customers (Azizi, 2012).

Vail (1992) maintains, "The benefits of investing in information technology and expresses that that the benefits of information technology lead to improve customer relations with organization and create a competitive advantage". The advantages of IT are categorized in three general groups of data. The advantages of IT are categorized in three general groups of data benefits, benefits of exchange and strategic advantages. Each of these categories has also some sub-categories. The benefits of data quality, and flexibility and accessing information, communication efficiency, efficiency of systems development and effectiveness of business cause to improve the relationship with customers and respond to them and lead to the strategic advantage. In e-commerce, in order to gain competitive position and competitive advantage, organizations can no longer focus solely on the physical dimensions of their products, but they need to combine the two factors of services and information with their products. The shift from focusing on product to focusing on services which is associated with the products causes separation of the traditional economy from the digital economy. Business value of IT in general and e-commerce in particular have helped the organization in combining services and information with products in digital economy. It helps companies to be active in designing and delivering services that distinguish their products from their competitors (Azizi, 2012).

## 1.6 History and Background of Research

The following table summarizes the research background categorized based on publication years in an ascending order.

**Table1**  
**Record of Research Background**

Researchers name	Publication years	Results of the study
Annabi et al.	2002	Presenting a model, considering customer knowledge as a part of company's knowledge, creating a process of interaction between customers and organizations from which both sides can benefit (Garcia-Murillo & Annabi, 2002).
Rowley	2002	To address the richness of knowledge in the field of electronic commerce, to display a wide range of topics in the field of e-commerce on the CKM, to display knowledge and tools, severe need to maintain the knowledge about clients and the knowledge customers possesses in order to gain benefits (Rowley, 2002).
Rollins et al.	2005	Presenting a framework of CKM competence, providing knowledge of the CKM as an integrated management approach, focusing on organizational capabilities and competencies in the CKM process the proposed framework based on relationship marketing and market orientation which includes five main elements (Rollins & Halinen, 2005).
Akhavan et al.	2007	They presented a conceptual model, which is a combination of principles of customer relationship management and knowledge management, to gain the competitive advantage (Akhavan & Heydari, 2007).
Lopez et al.	2008	Investigating the literature and the relationship between CKM and e-commerce based on several consumer properties, addressing the role of risk perception and risk by the client (Lopez et al., 2008).
Zanjani et al.	2008	The two conceptual models, a model describing the process of forming customer knowledge and other models on the classification of the customer, through conscious communication between different entities and the customer's one can form the customer knowledge (Zanjani et al., 2008).
Ogunde et al.	2010	Presenting a model, the need to develop competence in all aspects of CKM in the organizations that are dealing with e-commerce, This model helps the existing commercial areas to successfully detect and integrate different types of customer knowledge (Ogunde et al., 2010).
Hashemi et al.	2011	To provide a framework and model for describing CKM in e-commerce (Hashemi & Hajiheydari, 2011).

Given the above, the use of CKM in e-commerce to gain competitive advantage for organizations is

necessary and inevitable, therefore, the goals of the research are figure out, and investigating the relationship and application of customer's knowledge management in gaining competitive advantages of organizations in e-commerce and also the eight followings factors are investigate: knowledge from customers, knowledge for the customers, knowledge about customers, recording and spreading customers' knowledge, quality of the products and services, pace of providing the products and services, reasonable prices and satisfaction as the output and result of using customers' knowledge management on organizations competitive advantage variable in e-commerce and the impact of these factors on the dependent variable will be investigated.

## 2. RESEARCH METHODOLOGY

For practical purposes and from the point of view of the nature and methods, the present study is a kind of descriptive, survey and correlational research, and using the data collection tools, the data collected and the following analysis methods have been used to examine the relationship between CKM as the main independent variable and competitive advantage in e-commerce as the dependent variable and also the influence of eight above-listed factors. In this study, a questionnaire measuring instruments was used to collect data. After proving the validity and reliability of the questionnaire, in order to analyze data statically the following tests have been run:

- Kolmogorov-Smirnov Test
- Simple Linear Regression Analysis
- Multiple Regression Analysis

The results of statistical computations and their descriptions gained by the software SPSS20.

### 2.1 Population, Sample, Sampling Method and Sample Size Determination

The population of this study consists of all the experts, scholars and experts in the department of Market Development at Mellat Bank who are 90 people according to the obtained data. It is suitable to note that according to various types of projects depending on the needs, of professionals and experts from other Bank offices will be added to the department of Market Development and they will work with them so the figure above stated on an average.

The sample is a small collection of the target population which exemplifies the main qualities of the community and by studying it; the researcher will be able to generalize the results to the general population (Delavar, 2008).

The sampling method of the research is simple random sampling. Due to the limited study sample of the present research, Krejcie and Morgan table has been used to determine the sample size. Thus, the total population of 90 subjects (N = 90), in the table of Krejcie and Morgan sample size has been estimated as, 73 patients (S = 73),

respectively. Therefore, 73 questionnaires sent to market development department of Mellat Bank and later, they were collected.

### 2.1.1 Mellat Bank

Mellat Bank was established on 20/12/1979 by virtue of the resolution dated 29/9/1979 adopted by the general assembly of banks and pursuant to the provision of article 17 of the bill on administering the banks, with a paid up capital of Rls 33.5 bn as a merger of ten pre-revolution private banks comprising: Tehran, Dariush, Pars, Etebarat Taavoni & Tozie, Iran & Arab, Bein-al-melalie-Iran, Omran, Bimeh Iran, Tejarat Khareji Iran and Farhangian. Currently, the bank's capital amounts to Rls 33100 bn and is one of the largest commercial banks in the Islamic Republic of Iran, ranking among the top 1000 banks of the world. Mellat Bank is the most successful Iranian banks in e-banking and e-commerce. Market development department of the bank has pivotal role of enjoying experience of experts in this field.

As stated earlier, among the most important the bank's objectives and strategies are: managing customer relationships, improving service quality, providing good service to customers, understanding customer needs and classifying customers; the most important values of the bank include customers' confidence, innovativeness, and customer loyalty and excellency which all need CKM and achieve customer knowledge levels to gain the competitive advantage and keep its position in the competitive environment among banks. Among other features and advantages of the bank and market development department, is the form of electronic banking and e-commerce initiatives aimed at being customer-oriented. And therefore, they have been able to maintain good relationships with customers and to attract new customers and continuously, to meet their changing need.

### 2.2 Tools for Data Collection

This data collection method is comprised of two parts: the library studies and field research. To review the research literature some sources were used which were mainly from books, articles, and the web, Latin and Persian resources, banks, libraries and information sources. In order to collect the desired information and evaluate the variables, a questionnaire was used. Indicators measured in the study, before surveyed in the questionnaire; they were evaluated and judged by Several experts and university professors and professionals in market development department of the Mellat Bank and finally the agreed questionnaire was used as data collection tools, The questionnaire consisted of 24 questions that are designed based on the range of 5-choice Likert-scale questions were designed in two main CKM and competitive advantage in e-commerce and based on eight dimensions of knowledge from customers, knowledge for the customers, knowledge about customers, recording and spreading customers' knowledge, quality of

the products and services, pace of providing the products and services, reasonable prices and satisfaction.

### 2.3 Validity and Reliability of the Questionnaire

The purpose of the validity is that the measurement tool can measure the properties and characteristics desired to measure. Validity is a term that refers to achieving the desired goals. The purpose in the validity test is to deal with the potential problems and ambiguities in the questions and structure of the questionnaire and etc (Khaki, 2003).

After preliminary design of the questionnaire, the questions have been studied in several stages and in relation to intelligibility of questions, relatedness of the purpose of the test to the questions and removing irrelevant questions, a number of experts and specialists, including experts from the office of market development, Iranian electronic commerce association, university professors and experts were surveyed and finally by applying their comment, required changes have made in questions of the questionnaire. Therefore, the content validity of the questionnaire is achieved.

The reliability of a measurement tool refers primarily to the accuracy of its results. Reliability, points out the accuracy, trust ability, stability, or repeatability of test results (Momeni & Ghayomi, 2012).

In this study, Cronbach's alpha coefficient of reliability has been used since it is used as the basis of measuring reliability in most researches. Cronbach's alpha coefficient method is a method to determine the reliability of the test based on internal consistency.

Cronbach's alpha coefficient for the 24 questions of questionnaire is obtained as 0.837 which represents that the reliability of the questionnaire is acceptable.

## 3. FINDINGS FROM THE DATA ANALYSIS

### 3.1 Kolmogorov-Smirnov Test

Before determining the type of test used, especially in the case of comparative test, it is required to ensure the normality of the distribution of variables. If the variables are normal, parametric tests are recommended otherwise equivalent non-parametric test will be considered. Kolmogorov-Smirnov test for determining the normality of distribution of variables is the best option is. The results of the Kolmogorov-Smirnov test are given in Table 2.

**Table 2**  
**Results of Kolmogorov-Smirnov Test of Study Variables**

Variables	Kolmogorov-Smirnov Z	Sig
CKM	0.466	0.645
Competitive advantage in e-commerce	0.870	0.457

As it is clear from the above table, the significance level (sig) for all the variables is higher than 0.05, which

shows the variables under consideration in this study are normally distributed.

### 3.2 Simple Linear Regression Analysis and Multiple Regression Analysis

To investigate the relationship between two variables of CKM, and competitive advantage in e-commerce as well as the components of knowledge from customer, knowledge for Customer, knowledge about customer, recording and spreading customers' knowledge, quality of the products and services, pace of providing the products and services, reasonable prices and satisfaction which is the output result of applying knowledge management on competitive advantage in e-commerce, the simple linear regression and multiple regression were used. Listed in the following, are the tables of statistical computations gained by the software SPSS20 and their descriptions.

#### 3.2.1 Simple Linear Regressions Analysis

In regression analysis we are to estimate a mathematical equation and its analysis so that it can help to quantify an unknown variable using evident variable or variables. Assuming that there is a causal relationship between two variables and the relationship is linear ( $y = a + bx$ ) (Momeni and Ghayomi 2012).

A simple regression analysis is used to examine the main independent and dependent variables of the research. The R Square represents the percentage of change in the dependent variable is affected by the independent variable. ANOVA table contains regression analysis of variance to assess the certainty of the existence of a linear relationship between two variables. If the significance is less than 0.05 the regression equation linear and if it is more than 0.05,

the regression equation is not linear. Regression analysis can be done through coefficients table. In column B of this table the constant independent variable in the regression and its coefficients are presented respectively. The output tables obtained from the regression test by SPSS software are presented in the Tables 3 and 4.

**Table 3**  
**Results of Simple Linear Regression Analysis of CKM and Competitive Advantage in E-Commerce**

Independent variable	Dependent variable	R Square	ANOVA (sig)	Coefficients
				B
CKM	Competitive Advantage in E-commerce	0.646	0.000	Constant 0.907
				CKM 0.804

Regression analysis of variance table confirms the linear relationship between dependent and independent variables since the significance level is less than 0.05. According to regression test theory, the determining coefficient between the components of CKM and competitive advantage in e-commerce is 64.6% which shows 64.6% of changes in the competitive advantage in e-commerce are affected by customer knowledge management. For a unit change in CKM component 0.804 unit change is created in the component of competitive advantage in e-commerce. The regression line equation can be written as follows:

$$\text{Competitive Advantage in E-commerce} = 0.907 + 0.804 \text{ CKM}$$

**Table 4**  
**Results of Simple Linear Regression Analysis of Eight Factors as the Output and Result of Using Customers' Knowledge Management and Competitive Advantage in E-Commerce**

Independent variable (X)	Dependent variable (Y)	R square	ANOVA (sig)	The regression line equation
Knowledge from customers	Competitive Advantage in E-commerce	0.294	0.000	$Y = 3.319 + 0.230 X$
Knowledge for customer	Competitive Advantage in E-commerce	0.218	0.000	$Y = 2.546 + 0.409 X$
Knowledge about customer	Competitive Advantage in E-commerce	0.368	0.000	$Y = 2.175 + 0.482 X$
Recording and spreading customers' knowledge	Competitive Advantage in E-commerce	0.273	0.000	$Y = 2.918 + 0.283 X$
Quality of the products and services	Competitive Advantage in E-commerce	0.116	0.003	$Y = 3.541 + 0.158 X$
Pace of providing the products and services	Competitive Advantage in E-commerce	0.065	0.029	$Y = 3.747 + 0.113 X$
Reasonable prices	Competitive Advantage in E-commerce	0.411	0.000	$Y = 3.156 + 0.276 X$
Satisfaction	Competitive Advantage in E-commerce	0.096	0.000	$Y = 3.651 + 0.134 X$

Regression analysis of variance table confirms the linear relationship between dependent and independent variables since the significance level is less than 0.05. According to regression test theory:

- The determining coefficient between the components of knowledge from customer and competitive advantage

in e-commerce is 29.4%. Which shows 29.4% of changes in the competitive advantage in e-commerce is influenced by knowledge from customer. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 3.319 + 0.230 \text{ Knowledge from customers}$$

- The determining coefficient between the components of knowledge for customer and competitive advantage in e-commerce is 21.8%. Which shows 21.8% of changes in the competitive advantage in e-commerce is influenced by knowledge for customer. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 2.546 + 0.409 \text{ Knowledge for customers}$$

- The determining coefficient between the components of knowledge about customer and competitive advantage in e-commerce is 36.8%. Which shows 36.8% of changes in the competitive advantage in e-commerce is influenced by knowledge about customer. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 2.175 + 0.482 \text{ Knowledge about customer}$$

- The determining coefficient between the components of recording and spreading customers' knowledge and competitive advantage in e-commerce is 27.3%. Which shows 27.3% of changes in the competitive advantage in e-commerce is influenced by recording and spreading customers' knowledge. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 2.918 + 0.283 \text{ Recording and spreading customers' knowledge}$$

- The determining coefficient between the components of quality of the products and services and competitive advantage in e-commerce is 11.6%. Which shows 11.6% of changes in the competitive advantage in e-commerce is influenced by quality of the products and services. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 3.541 + 0.158 \text{ Quality of the products and services}$$

- The determining coefficient between the components of pace of providing the products and services and competitive advantage in e-commerce is 6.5%. Which shows 6.5% of changes in the competitive advantage in e-commerce is influenced by pace of providing the products and services. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 3.747 + 0.113 \text{ Pace of providing the products and services}$$

- The determining coefficient between the components of reasonable prices and competitive advantage in e-commerce is 41.1%. Which shows 41.1% of changes in the competitive advantage in e-commerce is influenced by reasonable prices. Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 3.156 + 0.276 \text{ Reasonable prices}$$

- The determining coefficient between the components of satisfaction and competitive advantage in e-commerce is 9.6%. Which shows 9.6% of changes in the competitive advantage in e-commerce is influenced by satisfaction.

Summary of the obtained results and the regression line equation are as follows:

$$\text{Competitive Advantage in E-commerce} = 3.651 + 0.134 \text{ Satisfaction}$$

### 3.2.2 Multiple Regression Analysis

Sometimes two or more variables have a major impact on the dependent variable. In this situation, the dependent variable multiple regression is used. The linearity assumption in multiple regressions of relationships between variables is also confirmed and thus the regression equation is defined as follows:

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 + \dots \text{ (Momeni \& Ghayomi, 2012).}$$

The output tables obtained from the regression test by SPSS software are presented in the Table 5.

**Table 5**  
**Results of Multiple Regression Analysis of Eight Factors as The Output and Result of Using Customers' Knowledge Management and Competitive Advantage in E-Commerce**

Independent variable	Dependent variable	ANOVA (sig)	Coefficients	
			B Constant 0.846	R square
Knowledge from customers		0.992	–	
Knowledge for customer		0.002	0.196	
Knowledge about customer		0.000	0.226	
Recording and spreading customers' knowledge	Competitive advantage in e-commerce	0.001	0.141	0.740
Quality of the products and services		0.641	–	
Pace of providing the products and services		0.485	–	
Reasonable prices		0.002	0.186	
Satisfaction		0.260	–	

The significance level (sig) for the components of knowledge from customer, quality of the products and services, pace of providing the products and services and satisfaction is more than 0.05, which indicates no linear relationship exists between the above factors and competitive advantage in e-commerce. On the other hand, the significance level (sig) of components of knowledge for customer, customer, knowledge about customer, recording and spreading customers' knowledge and reasonable prices is less than 0.05, which indicates a linear relationship exists between the above factors and competitive advantage in e-commerce. The determining coefficient is 74% between the above components and the

competitive advantage in e-commerce and this indicates that 74% of the change in component of competitive advantage in e-commerce is affected by the components of the knowledge for customer, knowledge about customer, recording and spreading customers' knowledge and reasonable prices. Multiple regression line equation and the obtained results are summarized, as follows:

Competitive Advantage in E-commerce = 0.846 + 0.196 Knowledge for customer + 0.226 Knowledge about customer + 0.141 Recording and spreading customers' knowledge + 0.186 Reasonable prices

## CONCLUSION

In today's competitive market characterized by its uncertainty, the companies have the ability to compete which Create and disseminate the new knowledge in their organization, and change it into goods and services. Thus, knowledge for the organization provides a competitive advantage and the ability to solve problems and seize new opportunities. So the knowledge will not only be a source of competitive advantage, but in fact it is the only source of that. Researchers believe that when customers use a service or a product, they gain a great deal of knowledge and experience. This knowledge has become an important resource for organizations and obtaining that has become a competitive advantage in enterprises especially in the age of information in which technologies such as web and computer networks have been developed, the organization environment has been more dynamic and with the advent of e-commerce the importance of competitive advantage has increased and ensured better performance than the competitors and led to profitability in the short term, and survival and growth in the long term for the organization. Nowadays, information and communication technology has led to dramatic changes in business conditions so that, entering the world of e-commerce and e-business is essentially required to persist in the global competitive environment. Results of simple and multiple linear regression tests indicate that applying CKM causes to gain competitive advantage for organizations in e-commerce. Significant relationship existed between the independent and the dependent variables of the research shows that by increasing capabilities related to independent variable, the achievement of competitive advantage grows. CKM includes knowledge from customer, knowledge for customer and knowledge about customer that by recording and spreading customers' knowledge, and its use, application and management lead to enhancing the quality of products and services and their pace of providing the products and services as well as the acquisition of reasonable prices and thus increasing customer satisfaction and loyalty, and reducing complaints, it ultimately leads to the achievement of the organizations that deal with e-commerce and e-business to a sustains a competitive advantage in electronic commerce. Therefore,

it is recommended that organizations and companies that deal with e-commerce and e-business, provide the customer with opportunity to change from a passive mode information sources and passive recipients of products and services and turn into powerful knowledge partners, also by careful planning of managers and planners the companies and organizations are to design organizational strategies for managing and applying customer knowledge in order to achieve a sustainable competitive advantage in e-commerce and by this means, through a more efficient and effective use of customer knowledge they can produce and offer products and services with higher quality and in the shortest possible time and in accordance with the costumers' wishes and opinions in order to achieve satisfaction, loyalty and maintain this competitive advantage in e-commerce.

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