

## THE IMPORTANCE OF KNOWLEDGE MANAGEMENT and ITS EVALUATION FROM THE TURKEY'S POINT OF VIEW

*BİLGİ YÖNETİMİNİN ÖNEMİ VE TÜRKİYE AÇISINDAN DEĞERLENDİRİLMESİ*

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### **ABSTRACT**

Due to the accelerated world change, organizations have to cope with many conditions as a result of the industry revolution. In our days organizations and businesses have been developing and implementing various methods in order to compete, sustain and becoming more powerful in their sectors. This condition contributes to continual change and lifelong learning. Since the globalizing begins all restrictions and barriers are being removed between the countries and organizations that's why transferring of information is being the more important fact. It is observed with this result that there are big differences between classical companies and newly emerging popular and strong companies. Some companies actually have limited capitals though their knowledge is of greater importance. Because companies and organizations have learned the importance of knowledge in the last decade, many research and knowledge management applications have been launched. Nevertheless, the word sharing information continues to expand. With the advancement of information, such concepts as content marketing, cognitive property and development of knowledge have developed. These concepts related to the management of knowledge will be represented in this research. In Turkey, as in the world, it has been understood that Knowledge Accumulation (Knowledge Management), which is defined as "invisible value" in companies, and its management (Information Management) and intellectual capital are the power that provides basic "competitive advantage". As the importance of information management is understood, its applications will increase. In this study on Knowledge Management (KM), what the KM is, how it has emerged, its development and its current status and importance are explained. In addition, this research involves a view about the structure of knowledge systems, system analysis of information and sustainability of information management systems. Application examples are given from the companies that apply KM. The application of this study supports to identify and categorize the requirements of the priorities for Improving Knowledge Management System with Multi Criteria Decision Making method. KM is highlighted the implementation of a company in the conclusions regarding the management or the importance for Turkey claimed that the solutions to become more efficient are highlighted. In the resulting part of this study, expected outcomes from the Knowledge Management implementations, are grouped into three categories, assessments are made for political, economic and social aspects. With this classification, it is pointed out that Knowledge has the biggest share in generating added value. Especially having been possessed considerable youth population, if Turkey fully embraces the Knowledge management sincerely, it will integrate the vast and most updated knowledge in the business processes of wider range of industrial sector and hence it will maximize the intended profits. Since Turkey is remaining in the first 15 countries among the industrial countries, and striving to climb higher positions, it is more likely that Turkey could find itself a good rank in Knowledge management implementations provided that sincere efforts are sustained in this regard.

**Key Words:** Information, Knowledge Management, Multi Criteria Decision Making Method, System

### **ÖZET**

Sanayi devriminin bir sonucu olarak, organizasyonlar dünyadaki hızlanan değişim nedeniyle birçok zorlayıcı şartla karşı karşıya kalmaktadır. Günümüzde kuruluşlar ve şirketler rekabet edebilmek, hayatı kalmak ve sektörlerinde daha güçlü olmak için çeşitli yöntemler geliştirmek, hayatta kalmak ve sürekli gelişmeye ve öğrenmeye neden olur. Küreselleşme başladığından itibaren ülkeler ve organizasyonlar arasındaki tüm kısıtlamalar ve engeller kalkmaktadır, bundan dolayı bilgi aktarımı daha önem arden kavramdır. Orta ölçekli firmalar ile güçlü firmalar arasındaki karşılaşmalar sonucunda aralarında büyük farklılıklar olduğunu tespit edilmiştir. Günümüzde, bazı kuruluşların bilgi birikiminde daha yüksek değerlere

sahipken çok az sermayeleri vardır. Şirketler ve kuruluşlar son on yılda bilginin önemini fark ettikleri için, bilgi ve bilgi yönetimi üzerine birçok araştırma ve program başlatmışlardır. Ancak, halen bilgi paylaşımını içeren bir terim geliştirmektedir. Bilgiyi sürdürürken içerik yönetimi, entelektüel sermaye ve dokümantasyon yönetimi gibi terimler de arttı. Bu çalışmada, bilgi yönetimi ile ilgili terimler tanımlanmıştır. Dünyada olduğu gibi Türkiye'de de görünmez değer olarak tanımlanan Bilgi Birikimi'nin (Bilgi Yönetimi), yönetiminin (Bilgi Yönetimi) ve entelektüel sermayesinin temel rekabet avantajı sağlayan güç olduğu anlaşılmıştır. Bilgi yönetiminin önemi anlaşıldığı için uygulamaları artacaktır. Bilgi Yönetimi ile ilgili bu çalışma, Bilgi Yönetiminin ne olduğunu, nasıl ortaya çıktığini, gelişimini, mevcut durumunu ve önemini açıklamaktadır. Ayrıca, bu araştırma bilgi sistemlerinin yapısı, bilginin sistem analizi ve bilgi yönetim sistemlerinin sürdürülebilirliği hakkında bir görüş içermektedir. Uygulama örnekleri Bilgi Yönetimi uygulayan şirketlerden verilmektedir. Bu çalışmanın uygulanması, Çok Kriterli Karar Verme yöntemiyle 'Bilgi Yönetim Sistemi'nin geliştirilmesine yönelik önceliklerin ve gerekliliklerinin belirlenmesini ve sınıflandırılmasını desteklemektedir. Çalışmada, Bilgi Yönetimi konusunun uygulanması ile ilgili çıkan sonuçlarda bir firmanın yönetimi ve Türkiye için önemi vurgulanarak çözümlerin daha verimli hale geldiği vurgulanmaktadır. Çalışma sonucu Bilgi Yönetimi'nin uygulamada sağlayacağı faydalara konusunda elde edilen bulgular üç kategoride gruplandırılmış, politik, ekonomik ve sosyal boyutlarla ilgili değerlendirmeler yapılmıştır. Bu sınıflamalarla bilginin günümüzde katma değer oluşturmada en yüksek paya sahip olduğu vurgulamıştır.. Özellikle önemli oranda genç nüfusa sahip Türkiye Bilgi Yönetimi'ni tam olarak benimseyip endüstriyel sektörün geniş yelpazesindeki iş süreçlerinde son teknolojik bilgiyi etkin olarak işleyerek elde edeceği kazançları maksimize edecektir. Sanayileşen ülkeler arasında onbeşinci pozisyondan yukarılara tırmanma sürecinde Türkiye'nin Bilgi Yönetimi uygulamalarında lider ülkeler arasına girebilecek pozisyonu ısrarlı gayretlerle gerçekleştirilebilecektir.

**Anahtar Kelimeler:** Bilgi, Bilgi Yönetimi, Çok Kriterli Karar Verme Yöntemi, Sistem

## **1. Introduction**

Knowledge management (KM) is the systematic, transparent and deliberate refresh and implementation of information to optimize the knowledge-related effectiveness of an organization and the returns on its information properties. Although the topic of knowledge management is a poorly understood term as it generally encapsulates a broad range of issues. A concept put forth by Liebowitz and Wilcox is that information management is the clear monitoring and management of an organization's awareness directed at achieving the objectives of the business. Simply put, this may mean that KM is about executing organizational knowledge-based initiatives. Such interventions include the structured way in which companies extract and exchange intellectual knowledge, with the purpose of growing efficiency and creativity, eventually contributing to a more informed and efficient enterprise (Girard, 2020; Knowledge Management, 2020; Gonzalez and Martins, 2014).

### **1.1. Purpose of Knowledge Management**

Knowledge management (KM) is a mechanism that lets organisations leverage valuable knowledge that is part of the history of the company, typically in an unstructured format. Knowledge is historical, appropriate, and actionable material; material in action. The broad aim of knowledge management could be stated as the deliberate strategy of getting the right knowledge to the right place, at the right time, using knowledge workers. Knowledge workers are those employees who will utilize knowledge to achieve their work goals. The following goals of knowledge management can aid in delivering an organization's knowledge to its knowledge employees. Building or introducing new information that can be accomplished by producing fresh concepts, discovering phenomena that were previously unsensed, or designing new processes. Some of these are presented as below (Girard, 2020; Knowledge Management FAQ, 2020; Asgar, 2015; Gonzalez and Martins, 2014; Bierly and Daly, 2002; Figall and Rhine, 2002) :

- \* Selection or discovery of information that is reliable, present, important and useful to the numerous sections of the organization:
- \* Taking information both formal and tacit:
- \* Organizing knowledge through the creation of activities to classify, categorize and maintain it for storage and recovery purposes:

\* Accessing knowledge and sharing and providing the means and incentives to do so.

Use of knowledge by implementing it to work activities, decisions, training and This latter objective is iterative in that it provides feedback that influences the other activities that can be fed into the aspects of knowledge management through any of the other four components;

-Identification of key competences, competitive procurement and information domains;

-Adapting to the developments put about by modern awareness.

It is suggested, instead, that an organisation will need to be involved in each of these eight fields in order to leverage information capital effectively.

In this study on Knowledge Management (KM), what the KM is, how it has emerged, its development and its current status and importance are explained. In addition, this research involves a view about the structure of knowledge systems, system analysis of information and sustainability of information management systems. Application examples are given from the companies that apply KM. The application of this study supports to identify and categorize the requirements of the Priorities for Improving Knowledge Management System with Multi Criteria Decision Making method. KM is highlighted the implementation of a company in the conclusions regarding the management or the importance for Turkey claimed that the solutions to become more efficient.

## **1.2. Benefits of Knowledge Management**

When the three technology assets: records, information and expertise are not combined, an enterprise can not expand, as they are the business sources. Knowledge Management (KM) offers the chance to take advantage of information resources aggregation. Because the effects of complex, fluid case chains are not well known, KM advantages are also called intangibles. Many organizations, in order to organize or validate KM operations, focus on convictions or contextual research. To identify and assess expected effects and benefits from undertaking KM efforts and align them with different parts of the business process, the framework of three value disciplines is used. These are pursuit of (i) operational excellence; (ii) pursuit of product leadership, and (iii) pursuit of customer intimacy. Typical KM benefits for these value disciplines include these as below (Kasten, 2007; Cohen, 2006; Pablos, 2002; Figall and Rhine, 2002; Joseph, 2002; Bartlett, 1996).

(i) *Operational Excellence Benefits:* By implementing information management, businesses achieve benefit, as the goods and services they sell are getting stronger. Awareness of an current good or service can be added to the money of the firms. For starters, Ernst & Young offers online access to their expertise independently from conventional consulting firms by providing a case-based analysis platform on a consumer support web site with a tech business.

(ii) *Product Leadership Benefits:* Knowledge management tends to make an industry-wide implementation of an essential but common strategic approach effectively. Of starters, businesses often compete on the pace and efficiency of innovative technologies in product creation. In Turkey, for example, Siemens has a department for information management to handle the expertise safely and effectively. This results in goods of better quality, as they develop their expertise more easily and make it accessible all the time.

(iii) *Customer Familiarity Benefits:* Organizations research to preserve strong consumer connections by recognizing and respecting their interests, and evaluating their constructive and negative reviews. Right KM approach will put the difference between the expected product / service and the real product / service closer together.

## **2. Elements of Knowledge Management Solutions**

Every company has different business concerns and requires a well-defined array of information tools to address the problems. Hence, each Knowledge Management (KM) solution is unique to the business it is planned for. There are three key factors that need to be addressed in the development of real world KM approaches, namely the market cycle, operational structure and technology problem. They are the (i) *Business Process*, (ii) *Organisational Dynamics and* (iii) *Technology Issues*. KM not only deals with cultural, strategy, process and technological issues, but also guarantees that workers are equipped with ample resources and opportunities to enable them to utilize and exchange information applications. Through

concentrating preparation and implementation on the three key elements below, companies will insure their critical real-world objectives are addressed through goal-oriented KM (Gonzalez and Martins, 2014; Krishna et al., 2003; Figall and Rhine, 2002; Bartlett, 1996).

(i) *Business Process*: The goal is to ensure compatibility of the KM approach with relevant business processes. First of all, defining the competitive capabilities, vulnerabilities and goals of the company is important. This should include a better description of where KM's effect would be greater. In fact, KM strategies must be capable of providing unique, tangible results in four vital areas of an enterprise.

(ii) *Dynamics of organization*: Organizational culture is often the main problem for the management of information. The efficient implementation of KM also puts significant emphasis on this aspect. The cultural divide can usually be divided into two principal regions. Sharing of knowledge; Anxiety & lack of creativity.

(iii) *Technology* : Technology is the fundamental basis for KM solutions which systematically allow and centralize knowledge sharing. In addition, with the rapid technological growth, companies can utilize the related technology-enabled applications to facilitate the deployment of KM. There are a couple of major issues to address when implementing the technology-enabled KM solutions.

## **2.1. Employees Management and Development**

Workforce is one of a firm's most important properties. Successful Knowledge Management (KM) programs can monitor abilities and competencies of workers, provide current organization records, administer wages, evaluate the success of employees and increase employee understanding and morale. The nature of change in the business world means the employees have to be able to up-to-date skills and information. KM systems therefore should identify skill gaps, as well as provide mechanisms for training employees in new skills. It is also important that individuals who outperform the others are willing to share and help the others. This situation is an ideal target for KM focus. The success measures include training participation, skill alignments and education levels. The technology enablers are content management, tracking and collaboration (Gonzalez and Martins, 2014; Bierly, P. and Daly, 2002; Bhatt, 2002; Hansen et al. 1999).

## **2.2. Product and Service Design - Development**

The performance metrics include sales levels for the company, cycle time and low rework size. The enablers of the system are research, communication, and monitoring. It is important to work through communities of different backgrounds and insure that goods and services are developed and satisfy consumer needs. Knowledge Management (KM) systems need to obtain feedback from finance, communications, product development, and other categories. In addition, KM also offers a way to exchange the information. Through taking together the thoughts and knowledge of each community, the project moves quickly and more effectively as each section recognizes its assigned tasks (evitating conflicting tasks) and the overall success of the research (Gonzalez and Martins, 2014; Bierly and Daly, 2002; Bhatt, 2002).

## **2.3. Customer and Issue Analysis**

Satisfied consumers are the foundation of continued performance for a business. Watching the ongoing interaction with those customers-problems, purchasing habits and preferences are important to the growth and strengthening of those useful ties. Through providing a more sensitive service network and evaluating the satisfaction level of the customers, Knowledge Management (KM) Technologies will significantly accelerate the cycle. The indicators of performance would involve consumer loyalty; client demands identified, and market availability. Collaboration and mapping should be the enabler of development. Technology is the framework for KM solutions that enable and centralize information exchange in a systemic way. First of all, the chosen technology should be well incorporated (be user friendly) into KM solutions. In other terms, the KM strategies must be customized to fit the information workers' needs. That is to insure that users don't have to waste a lot of time only getting to know the software, or that users don't have to adjust their working patterns entirely. Whether not, the preparation expenses would be high, so there would be little incentive for a participant to invest in the program. The KM strategies are meant to support the consumers, i.e. the consumers are the core, not the other way around. Ultimately, the effectiveness of a KM approach is measured at the stage when people engage with the knowledge regarding the organisation (Cohen, 2006; Chen et al., 2004; Krishna et al., 2003; Pablos, 2002; Bierly and Daly, 2002).

Rapid technological advancement greatly improves a network's ability, i.e. it may hold more data or knowledge. Some organizations simply harvest as much information as possible, without taking into account the utility of the Data. The gathered information is most likely not to be used and only consuming the available space. Besides, a large amount of information will significantly slow the searching of relevant or useful information. Hence, it is vital to ensure that the employed technology delivers only the relevant business information to users from every possible source (Cohen, 2006; Chen et al., 2004; Krishna et al., 2003; Pablos, 2002).

### **3. Content Management**

Content management determines what knowledge assets are selected, and then published in the knowledge management information base. To handle the complexity of the knowledge management information base and help the knowledge workers to stay focused on solving business problems, a sophisticated KM taxonomy needs to be built. Content management is a major component of knowledge management and is characterized as a method for delivering relevant and timely information to end users by developing processes for defining, gathering, categorizing and updating material utilizing a specific organizational taxonomy. A content management framework requires staff, procedures, technologies and the information itself, the most critical of all. Content management helps users to share information and knowledge over the Internet or intranet with their peers. Managing the information getting into the information base is one of the functions of content management. If the goal is to exchange and use information , it is important to develop a group environment, not just construct massive submission and posting structures where users are not acknowledged or rewarded. This would deter them from offering their expertise, thereby stopping the organization or entity from developing a knowledge management community. Content management usually covers these issues (Gonzalez and Martins, 2014; Chen et al., 2004; Bierly and Daly, 2002; Bhatt, 2002; Hansen et al. 1999);

1. Content creation: Academic personnel or student creates material for public.
2. Input to Infrastructure for content management: Report generated is submitted to CMS. The material is handled by predefined prototype functions that can be personalized. In this process the material is designed for the site, i.e. the format of the text, the architecture, the interface and the delivery.
3. Content review process: Material is submitted for examination to the parties concerned. Workflows allow creators and approvers to monitor content from being created to being delivered.
4. Approval: After receiving the input from concerned people, the creator of the document is ready to send out the fully approved content.
5. Distribution and Notification: The content owner assigns the content to appear in the related web places, based on course, department, student group or etc. And the system notifies the members of that group, that a new document is published.
6. Ongoing Management: The content owner can ensure that content is always current by assigning retirement dates to each item. The owner can also use user friendly forms to update or edit.

*Objectives of Knowledge Management System:* There are some prior objectives while others are considered as benefits. Some of them are listed as below (Cohen, 2006; Chen et al., 2004; Pablos, 2002);

- To increase the efficiency of the information system
- To organize the content and increase its usefulness
- To create a user-friendly communication interface for the users and easy-to-use system
- To realize easy and secure upload and download of know-how of research-developments
- To create forums, groups and mail-account system to maximize knowledge share among customers
- To increase the effectiveness of database management system.

### **4. Importance of Knowledge Management System (KMs)**

It is not enough to implement the knowledge management even its importance realized by the management of a company, furthermore even the company seeks to implement information management. Because the company is a whole with its employees, and in fact, the employees of the company are the source of corporate information that actually creates the knowledge within the organization. What is the main concern is that the knowledge created by the employees of the company, whether they are aware or not, can be transformed and managed. Since the knowledge that is formed in the company every day, even on the

computers of the employees or even the most recently used information is not evaluated, it loses its value at a significant rate. Specific knowledge about the customers, products and strategies etc. that can be used continuously, will constitute the main corporate knowledge. An effective knowledge-data base should strengthen employee interaction and increase the speed of responding to change. Leaders within the firm should learn how to motivate employees who enter information into the corporate information management system to ensure that they use their potential to the fullest. Since the motivation is an emotional state, leaders need to figure out how to connect employees with their hearts and souls. Achieving this way is to ensure that employees know that they are valued and that they are an integral part of the organization, and further to create a sound mutual trust environment (Kasten, 2007; Cohen, 2006; Chen et al., 2004; Bhatt, 2002; Pablos, 2002; Hansen et al., 1999).

Department managers and employees should work together to determine what kind of information is important to them and can be used continuously before moving to the use of a new knowledge technology. Implementation of the value-time analysis can reveal how much people want to pay for the information of today or last month or last year. Another point related to the application of knowledge management is the cost that this application will bring to the company. Current human resources are very important when transforming knowledge into intellectual capital. Because creative power is in human (Kasten, 2007; Pablos, 2002; Hansen et al., 1999).

*Importance of Knowledge management for Turkey:* Knowledge management (KM)practice will vary for each company. Because every company has a unique structure and culture. For this reason, the duties in the company can be called unusual. The knowledge puzzle can be solved in many ways, and project leadership can be assumed by people from all levels of the company. In Turkey, as in the world, it has been understood that Knowledge Accumulation (Knowledge), which is defined as "invisible value" in companies, and its management (KM) and intellectual capital is the power that provides basic competitive advantage (Wibow, 2014; opinion of authors, 2020). As the importance of knowledge management is understood, its applications will also increase. To meet the challenges that lie ahead in this knowledge-based economy, the organization must work hard to provide a suitable environment for knowledge discovery and learning.

## **5. Swot- Strengths, Weaknesses, Opportunities And Threats Analysis**

The management takes a general image of the world outside the enterprise from raw knowledge gathered regarding the company itself, the market and the macro ecosystems. However, external variables needs to be regularly analyzed in order to be able to perceive the conditions of the company to appreciate what they mean about the enterprise. Therefore, it is important to recognize and control the climate of the organization. A way to do this is the SWOT study (Dinçer, 2004; Ülgen and Mirze, 2004). Throughout this sense, SWOT analysis can be characterized as the study of an organization

Systematic self-assessment through knowledge collected to comprehend and control the world in which it works. Personal judgements and understanding often influence these assessments (Ülgen ve Mirze, 2004; Dinçer, 2004).

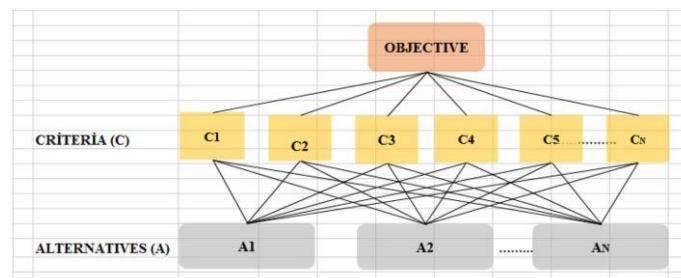
As an illustration, several other managers may find the lowering of customs walls as a hazard, yet also as an opportunity. The SWOT analysis contains detailed knowledge regarding the context of the organization. Whether managers perceive this material is linked to their interpretation of management (Kajanus et al., 2004; Kurtila et al., 2000; Leskinen et al., 2004; Masozera et al., 2004; Shresta et al., 2004). SWOT identifies the strengths, weaknesses, opportunities and threats. An company will determine its strengths and vulnerabilities using a SWOT analysis throughout itself, as well as incentives and risks from beyond it environment. That means the most important issues affecting the company will be established (Hill and Westbrook, 1997).

*The Purpose Of Swot Analysis:* SWOT analysis helps managers to identify the variables which have a direct effect on the success of the company. This also lets us decide whether to handle us. Eventually, such considerations should be named competitive problems. A strategic concern is every aspect that influences the organisation's achievement of its objectives. It is difficult to ensure that strategic issues reach the desk of top management after they have been fully sorted out (Seker and Özgürler, 2012). It is understandable that not

every strategic question is of similar significance for every organization. Some organizations, than others, are more sensitive to certain issues. Senior management is confronted with a significant challenge in deciding which issue is more important to the company than others, which is a determinant of performance. Various managers put forward differing views (Lee et al., 2008). SWOT analysis reveals the weakness and strengths of the business as well as possible threats and opportunities for the enterprise. The goal is to insure that the company gets the greatest gain from opportunities and by taking into consideration the vulnerabilities and risks progresses capabilities (Stewart et al., 2005). Consequently; it poses risks current and potential when taking counter-measures. The company vulnerabilities should be established and strengthened approaches and action plans will also be built to optimize the benefits of incentives by placing market strengths at the forefront (Masozera et al., 2004).

## 6. Applied Methodology: Analytic Hierarchy Process

Analytic Hierarchy Process (AHP) is an effective tool for multi-criteria structuring and modelling problems. It has been used successfully for the structuring of different management applications. The AHP divides the problem into pieces and ultimately combines all the solutions associated with those parts. AHP shows all the factors driving a decision by bringing together intuitions, feelings, reasoning and intellect and promoting decision-making (Saaty, 1980). In AHP, the problem is hierarchically ordered. Priority framework Method shows the hierarchical structuring of these questions as Figure 1.



**Figure 1.** Three-level AHP model (modified by author)

Binary comparisons are the second fundamental step of the AHP. A quantitative contrast is a distinction of two variables or parameters, which is focused on the opinion of a decision maker. The aim is to evaluate, through quantitative distinction, the relative value of the items in the hierarchy compared to an item at a higher point. Hence, a binary distinction is structured to determine priority distributions of the parameters and alternatives for decision taking. If there are n number of elements to be evaluated at hierarchy level,  $n(n-1)/2$  comparisons need to be done. Each comparison is to be ordered in matrix form. Saaty established the 1-9 scale for assigning binary comparative values, as seen in Table 1. In addition this system is used in AHP (Saaty, 1980).

**Table 1.** Relative importance scale (Modified by Author from Thomas L. Saaty & Mariya Sodenkamp, 2008)

Importance Level	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance	Experience and judgement slightly favour one activity over another
5	Strong importance	Experience and judgement strongly favour one activity over another
7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice
9	Extreme importance	The evidence favouring one activity over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values	It is used when you need to give a middle value between two options.

**Table 2.** Binary comparison matrix

$A = \begin{matrix} A_1 \\ \vdots \\ A_n \end{matrix}$	<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th><th style="width: 10%;">A<sub>1</sub></th><th style="width: 10%;">.</th><th style="width: 10%;">.</th><th style="width: 10%;">.</th><th style="width: 10%;">.</th><th style="width: 10%;">A<sub>n</sub></th></tr> </thead> <tbody> <tr> <td style="text-align: right; vertical-align: middle;">w<sub>1</sub>/w<sub>1</sub></td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">:</td><td style="text-align: center;">.</td><td style="text-align: center;">w<sub>1</sub>/w<sub>n</sub></td><td></td></tr> <tr> <td></td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">.</td></tr> <tr> <td></td><td style="text-align: center;">w<sub>n</sub>/w<sub>1</sub></td><td style="text-align: center;">.</td><td style="text-align: center;">.</td><td style="text-align: center;">:</td><td style="text-align: center;">.</td><td style="text-align: center;">w<sub>n</sub>/w<sub>n</sub></td></tr> </tbody> </table>		A <sub>1</sub>	.	.	.	.	A <sub>n</sub>	w <sub>1</sub> /w <sub>1</sub>	.	.	:	.	w <sub>1</sub> /w <sub>n</sub>			.	.	.	.	.	.		w <sub>n</sub> /w <sub>1</sub>	.	.	:	.	w <sub>n</sub> /w <sub>n</sub>
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The matrix A to be generated with n parameters for a target has a size of  $n \times n$ . The matrix for binary comparison is constructed in the same way as in table 2. The Priority Vector Matrix is the matrix generated by the priority values. In order to obtain the weighted total matrix, the priority value for each criterion / alternative in the priority vector matrix is multiplied by all elements in the column of the binary comparison matrix for that criterion / alternative. The cumulative values of the rows inside the weighted total matrix are determined by the preference function matrix row values. In the last matrix, the numerical mean of the variables allows for the estimation of the own value. The Consistency Index and Consistency Rate should be determined after these measures. The following formulas (1); (2) are used for determining matrix A's accuracy ratio.

$$CR = CI / RI \quad (1)$$

$$CI = (\lambda_{\max} - n) / (n - 1) \quad (2)$$

CI: Consistency Index

RI: Random Index

CR: Consistency Ratio

The matrix is usually considered stable where the accuracy ratio (CR). It's around 10 per cent or fewer. Actually, if the maximum own value is equal to the size of the matrix ( $\lambda_{\max} = n$ ), the matrix of reference is assumed to be true (Saaty, 1991).

## 7. Integrated of SWOT and AHP In Determining the Requirements of Priorities

### 7.1. Priorities of Requirements for Improving Knowledge Management System of Business via SWOT Analysis Integrated with Multi Criteria Decision Making – AHP

The usage of AHP with SWOT offers decided analytics priorities for the factors involved in the SWOT analysis and ensures that those factors are proportionate. This is easier to discuss the AHP and SWOT analyzes than doing a SWOT analysis per se. SWOT analysis does not clarify the significance of the variables in assessing the effect of each aspect on the program or approach proposed. Users can not completely classify the most relevant category when relying only on the weighting of SWOT factors. By having a bilateral distinction, AHP helps decision-makers to give equal importance to each element. One of the possible advantages of utilizing AHP in SWOT research is the systematic evaluation of SWOT considerations and also the decisions taken by decision-makers. The decision-maker should provide fresh theoretical knowledge on the condition which will be determined after collectively discussing AHP and SWOT review (Shrestha et al., 2004). The literature shows research in which, albeit not often, AHP and ANP (Analytic Network Process) approaches are used together. Examples of such experiments include the usage of AHP / ANP methods in the output assessment program by Yang et al. (2009), the use of the AHP / ANP methods in time-dependent decision-making by Saaty (2007), and the analysis by Garuti and Spencer (2007) of the correlation between these two approaches. The research that provides a basis for the study is the one that Kahraman and others (2007) have performed using SWOT analysis and AHP approach together in prioritizing e-government strategies.

### 7.2. Priorities for Improving Knowledge Management System of Business with SWOT

As a part of this research, Multiple-Criteria Decision-Making (MCDM) -AHP was implemented in general knowledge management system of business for IT sectors in Turkey.

A survey was prepared for learning the perspectives, AHP analysis integrated with SWOT Strategy of users, employee about the sustainability of KMS systems of business.

The application of this study supports to identify and categorize the requirements of the Priorities for Improving Knowledge Management System with Multi Criteria Decision Making method. KM is highlighted the implementation of a company in the conclusions regarding the management or the importance for Turkey claimed that the solutions to become more efficient are highlighted.

This study process was very critical in collecting data and also in developing the system for carrying out the analysis. This questionnaire was sent by e-post, with the assistance of the Group, the information management and system development departments of institutions and software programming organisations, to approximately 83 IT sector companies in Turkey.

The study centered on a quantitative perspective through a survey describing the evaluation of the growth of the information technology management for this sector with Turkish businesses. The sample size was 55, with a answer rate of 66 percent returning the survey from the apparel companies in Turkey. Alternate methods were established according to the conditions, since assessing the SWOT variables. Looking at the development of the general strategy, the framework below is seen such as Table 3.

**Table 3.** Requirements of Priorities via SWOT Analysis for Improving Knowledge Management System

STRENGTHS	OPPORTUNITIES
*(S1)Builds Talent-Information about new technologies and techniques now shared more effectively *(S2) Essential Business Asset (Improved internal and external services and effectiveness). *(S3) Combining of Tacit and Explicit knowledge *(S4) Real time Knowledge sharing	*(O1) Quality Maximization and Cost Minimization (Helps to reduce investment in time and money to find solutions) *(O2) Application of unique knowledge to obtain market advantage *(O3) Provides a value addition for customer by delivering faster and better *(O4) Ensures higher efficiency, better insights and improvement in products and services
WEAKNESS	THREATS
*(W1) Knowledge is abstract ( It must be Co-operation of management, customers and employees) *(W2) Knowledge cannot be measured (The infrastructure of the system depends on the portal-module system so modules meet the new requirements). *(W3) Difficult to evaluate *(W4) Usability should be easy	*(T1) Creation of shield to protect knowledge database *(T2) Improvisation on techniques to share information *(T3) knowledge Security (The system needs to handle unusual situations such as authorizing or security). *(T4) A wide messaging system is essential.

At the end of the quantitative analysis for each factor or technique, the local weights given in the table were identified, and the general weights are the values reflecting the shares of the SWOT category factors in the overall mass. Such values, i.e. local and general weights, were calculated after problem solving by the Expert Choice system-Software program. The local weights of the sub-factors in the Opportunities group are as follows, according to the tables integrated implementing SWOT and AHP.

**Table 4.** Normalization of main criteria: Dual comparison matrix of SWOT group factors

STRENGTHS					STRENGTHS									
	S1	S2	S3	S4		S1	S2	S3	S4	WEIGHT	RANKING			
<b>S1</b>	1	1	3	0,33	<b>S1</b>	0,188	0,125	0,300	0,192	<b>0,201</b>	2			
<b>S2</b>	1	1	1	0,20	<b>S2</b>	0,188	0,125	0,100	0,115	<b>0,132</b>	3			
<b>S3</b>	0,33	1	1	0,20	<b>S3</b>	0,062	0,125	0,100	0,115	<b>0,101</b>	4			
<b>S4</b>	3	5	5	1	<b>S4</b>	0,563	0,625	0,500	0,577	<b>0,566</b>	1			
<b>TOTAL</b>	5,333	8	10	1,733	NORMALIZATION									
WEAKNESS					WEAKNESS									
	W1	W2	W3	W4		W1	W2	W3	W4	WEIGHT	RANKING			
<b>W1</b>	1	0,333	0,333	0,200	<b>W1</b>	0,083	0,025	0,179	0,046	<b>0,083</b>	4			
<b>W2</b>	3	1	0,200	0,143	<b>W2</b>	0,250	0,075	0,107	0,033	<b>0,116</b>	3			
<b>W3</b>	3	5	1	3	<b>W3</b>	0,250	0,375	0,536	0,691	<b>0,463</b>	1			
<b>W4</b>	5	7	0,333	1	<b>W4</b>	0,417	0,525	0,179	0,230	<b>0,338</b>	2			
<b>TOTAL</b>	12	13,333	1,87	4,34	NORMALIZATION									
OPPORTUNITIES					OPPORTUNITIES									
	O1	O2	O3	O4		O1	O2	O3	O4	WEIGHT	RANKING			
<b>O1</b>	1	3	0,200	0,143	<b>O1</b>	0,075	0,417	0,027	0,054	<b>0,143</b>	4			
<b>O2</b>	0	1	5	1	<b>O2</b>	0,025	0,139	0,664	0,378	<b>0,301</b>	2			
<b>O3</b>	5	0,200	0,333	0,500	<b>O3</b>	0,375	0,028	0,044	0,189	<b>0,159</b>	3			
<b>O4</b>	7	3	2	1	<b>O4</b>	0,525	0,417	0,265	0,378	<b>0,396</b>	1			
<b>TOTAL</b>	13,33	7,2	7,53	2,64	NORMALIZATION									
THREATS					THREATS									
	T1	T2	T3	T4		T1	T2	T3	T4	WEIGHT	RANKING			
<b>T1</b>	1	3	5	3	<b>T1</b>	0,536	0,662	0,500	0,300	<b>0,499</b>	1			
<b>T2</b>	0,333	1	3	5	<b>T2</b>	0,179	0,221	0,300	0,500	<b>0,300</b>	2			
<b>T3</b>	0,200	0,333	1	1	<b>T3</b>	0,107	0,074	0,100	0,100	<b>0,095</b>	4			
<b>T4</b>	0,333	0,200	1	1	<b>T4</b>	0,179	0,044	0,100	0,100	<b>0,106</b>	3			
<b>TOTAL</b>	1,867	4,533	10	10	NORMALIZATION									

According to the Table 4, the local weights of the sub-factors (the weight of sub-factor of Strengths Criteria) in the Strengths group are as follows: It was calculated as 20.1% for S1- Builds Talent-Information about new technologies and techniques now shared more effectively; It was calculated as 13.2 % for S2- Essential Business Asset (Improved internal and external services and effectiveness); It was calculated as 10.1% for S3- Combining of Tacit and Explicit knowledge; It was calculated as 56.6% for S4- Real time knowledge sharing. In this case, the most important sub factor in the Strengths group is S4-Real time knowledge sharing In this case.

The local weights of the sub-factors (the weight of sub-factor of Weakness Criteria, see Table 4) in the Weakness group are as follows: It was calculated as 8.3% for W1- Knowledge is abstract (It must be Co-operation of management, customers and employees); It was calculated as 11.6 % for W2-Knowledge cannot be measured (The infrastructure of the system depends on the portal-module system so modules meet the new requirements); It was calculated as 46.3% for W3-Difficult to evaluate; It was calculated as 33.8% for W4- Usability should be easy. In this case, the most important sub factor in the Weakness group is W3-Difficult to evaluate.

The local weights of the sub-factors (the weight of sub-factor of Opportunities Criteria, see Table 4) in the Opportunities group are as follows: It was calculated as 14.3% for O1- Quality Maximization and Cost Minimization (Helps to reduce investment in time and money to find solutions); It was calculated as 30.1 % for O2-Application of unique knowledge to obtain market advantage; It was calculated as 15.9% for O3- Provides a value addition for customer by delivering faster and better; It was calculated as 39.6% for O4- Ensures higher efficiency, better insights and improvement in products and services, the most important sub factor in the Opportunities group is O4- Ensures higher efficiency, better insights and improvement in products and services.

The local weights of the sub-factors (the weight of sub-factor of Threats group Criteria, see Table 3) in the Threats group are as follows: It was calculated as 49.9% for T1- Creation of shield to protect knowledge database; It was calculated as 30% for T2- Improvisation on techniques to share information; It was calculated as 9.5% for T3-knowledge Security (The system needs to handle unusual situations such as

authorizing or security); It was calculated as 10.6 % for T4 A wide messaging system is essential, the most important sub factor in the Opportunities group is T1- Creation of shield to protect knowledge database.

In this research, we have highlighted about the usefulness of the SWOT analysis from knowledge point of view in the changing environment. We discussed various related topics and presented the integration framework.

## **8. Conclusion and Evaluations**

Knowledge Management System (KMS) enables the knowledge workers to organize and browse the informational objects efficiently, as the objects are stored based on knowledge groups. This new module, communities, teams and experts add the next level of sharing knowledge and turning it to results. Communities are mostly driven by interests in the same area and are more loosely coupled. Communities are especially useful for building knowledge to higher levels, often by getting successive levels of input from the system. Technology is the foundation for Knowledge Management (KM) solutions that enable and centralize the sharing of knowledge in a systematic way. Also, with the rapid development in technology, organizations should utilize the relevant technology-enabled applications to speed up the implementation of KM. There are a few important issues that should be considered when adopting the technology-enabled KM solutions.

KMS has these important properties for three categories. The first category is Political dimension. This dimension comprises these properties as orderly: Sustenance of knowledge in different formats, Scalability, Real time knowledge sharing and Usability should be easy. The second category is Economic dimension. This dimension comprises two properties as orderly: Monetary value attached to knowledge by customer and Knowledge is a valued asset. The last category is Social dimension. This dimension comprises these properties as orderly: Co-operation of management, customers and employees, and change in outlook to use KMS. If Turkey may comprehend the importance of this issue of knowledge management at its early development stages, and strives to implement effectively, and promotes the existing efforts, might have gained a forefront position in this regard in the world. Turkey has a huge young population. Therefore, intellectual capital is of great importance. The value of Turkey is among the first fifteen countries in the world. In the new economy, western companies combine creative intelligence with people money and opportunities and achieve incredible success. It is time to take action to transform this magnificent human mind source into structural capital with all the institutions of our country. KMS implementation bridged gaps of knowledge in organization at account and individual project level. Information about new technologies and techniques now shared more effectively. Not full blown implementation, but current KMS implementation is already successful.

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