

# **E-management: Barriers and challenges in Iran**

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## **Abstract**

E-business success will be much higher for those organizations that consume their time and resources to address the area of E-management. E-management will be critical for ensuring that e-business applications are available for customers. The aim of this paper is to review and analyze the barriers for E-management in Iran. This research is applied using descriptive and survey method. The findings of this paper show that among 25 factors, classified in 6 main factors: managerial, humanistic, cultural-social, organizational-structural, technical-technological and environmental factors, main factors that are preventing the implementation of E-management in Iran are cultural, environmental and organizational factors.

**Keywords:** Electronic-management, electronic-business, Barriers, Iran

## **1. Introduction**

In this era, information is regarded as a strategic critical resource for generating value-added products and services; therefore, the third millennium is nominated by scholars as the era of knowledge and information technology. The shift of societies towards the information society has had deep effects on numerous aspects of human life such as economical, social and cultural aspects. (Dibrell, Miller 2002)

It is considered that powerful forces are reshaping the business world and are calling for a fundamental shift in organizational processes. The prime forces of change include globalization, higher degree of complexity, new technology, increasing competition, changing client demands and changing economical and political structures (Martensson, 2000). This challenge has forced business executives to recognize that they must move in a timely manner to implement an effective e-business strategy that enhances customer satisfaction while improving enterprise efficiency and effectiveness (Oppong, Yen & Merhout, 2005).

The application of information technology can provide a competitive edge, increase customer service and create a flexible production environment. (Sharma, 2004)

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In fact, information technology is a highway which leads to newly emergent domains of technological capabilities and innovations. Today, IT development is regarded as an inseparable part of economic, social and cultural policies therefore every country seeks to identify the most appropriate strategy in order to adjust to new types of technological innovations.

The impact of information technology on human societies is not less than that of industrial revolution, therefore the information technology developments and its application is regarded as the fourth industrial revolution (Granville, Manning 2001).

In fact, World Wide Web is bringing a tsunami wave of change that affects all aspects of society. Markets of products and services have been radically changed by our Internet-connected world.

Given commitment, information and communication technologies can facilitate the provision of basic services for the whole community, irrespective of geographical location and at affordable prices. In the race to implement ICT and e-business solutions, a critical success factor is often overlooked, the area of e-management.

The authors of this article have reviewed much e-management literature but it seems that there is not sufficient number of research works done in this field. This paper provides information on the challenges and barriers of e- management in Iran.

## **2. Literature review**

Markets of products and services have been radically changed by the internet-connected world. Therefore most corporations are embarking on e-business initiatives to help them compete effectively in their existing or new marketplaces.

Many companies face extinction if they cannot transform themselves into an e-business. At the Center for Research in Electronic Commerce in the University of Texas at Austin (2000) a large-scale study to assess e-business value in small, medium and large companies across the US and Europe was conducted. Results showed that to maximize benefits, a company should invest in and commit resources to all eight drivers; system integration; customer orientation of IT; supplier orientation to IT, informational (quality, supply continuity and relationship management) and transactional; internal orientation to IT; customer-related processes; supplier-related processes; customer e-business readiness; and supplier e-business readiness (Barua et al, 2000). Another research about e-business and e-commerce in developing countries showed that lack of awareness and understanding of the value of e-business, lack of ICT knowledge and skills, financial costs, insufficient infrastructures and security are main barriers for increased uptake of information technology and e-commerce (Ruth B. Andam, 2003).

The revolution in information technology has exploded into the new knowledge economy and new information technologies are changing the ground rules for information flow in societies. The importance of using new technologies to provide information access is of great significance in the global economy. (Thomson, 2005)

In other words, information technology is the focal point of electronics, data processing and telecommunication. This convergence has two aspects:

1. The elimination of distances through providing linkage among separate computers in the world-wide web.
2. The computerization of systems and telecommunication which result in new capacities to transfer sounds and images.

This mutual convergence has provided human being with a new tool to collect, store, process, organize, transfer and represent information.

Computer has facilitated the collection, processing and transfer of information and therefore has resulted in cost reduction, productivity, quality and efficiency improvement in all industries. (Samuelson, Varian, 2002)

Information technology has numerous applications ranging from tax collection to bank organization, from oil excavation to creating energy systems, from document management to the analysis of complex scientific problems and etc.

A survey conducted in Europe by the KITE consortium (1999), noted some critical success factors related to small-business e-commerce strategies. Some of the most significant strategies are: content, convenience, control, interaction, community, price sensitivity, brand image, commitment and partnership (Bianchia & Bivona, 2002).

In the competition to effectively implement ICT and e-business solutions and to conduct research about these fields, a critical success factor is often overlooked, the area of e-management.

E-management is an umbrella name for several e-business modules. It includes tools for transparent information exchange and on-line collaboration between different players in the supply chain. E-management encompasses the processes that will ensure that business and IT departments are aligned with each other and are able to deliver the level of service, availability, security and performance required for e-business success.

E-management refers to the behind-the-scene information systems that support the management including data and information management, maintaining electronic records and using electronic tools to communicate and work together (Gonthier, Aigrain, 2006).

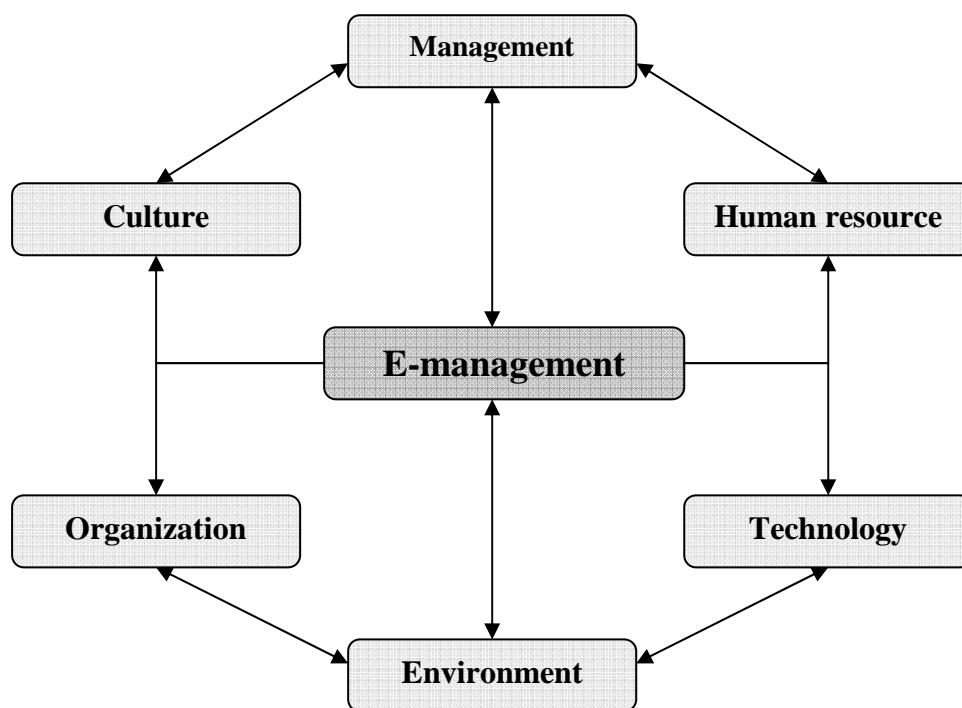
The advent of e-management during the latter half of 1990s has witnessed the rise of co-operation among trading partners in integrating activities, as well as structuring and managing their organizations. New issues and problems have arisen as a result of

this innovation that requires uniquely different approaches to problem solving (Chandra et al, 2002).

### 3. Research Model

Based on the literature review and interviewing with some scholars in this field, the following model was presented by authors. (fig.1)

According to this model, six factors including managerial, humanistic, corporate culture, organizational, environmental and technological factors with corporate culture all affect the implementation of e-management both positively and negatively. In this paper, authors have focused on the hampering aspect of these factors.



*Fig.1. E-management model  
(Ref: Authors, 2007)*

Based on the literature review, the hypothesis of this research paper is discussed below. The introduction of IT has brought dramatic changes in the management issues. In fact, the adoption of IT for management is essentially an administrative innovation. However, many studies find that managers in organizations find change difficult to be carried out (Chu, Chen, Pou, 2007). Therefore it is assumed that

1. Managerial factors hinder the utilization of e-management in Iran. In most situations, managerial practices tend to facilitate organizational activities but

unconsciously they might provide the context for the failure of many organizational initiatives. In this regard, many managerial practices such as insufficient motivation, inappropriate awareness, short life cycle of management and etc. do prevent the effective utilization of e-management.

## 2. Humanistic factors hinder the utilization of e-management in Iran.

At the present, human–computer interaction (HCI) is undergoing a paradigm change from desktop-bound interaction towards contextually adapted interaction taking places beyond the desktop (Oulasvirta, 2004).

The new kind of interaction has been proposed to be more physical, engaging, and tangible, but at the same time more natural and implicit. (Schmidt, 2000) In this paper it is assumed that the interaction of e-management initiatives with human-beings might be hampered due to humanistic factors such as human`s orientation towards resistance to changing factors, insufficient number of specialists, lack of interest, motivation and etc.

## 3. Socio-cultural factors hinder the utilization of e-management in Iran.

Culture is a complex whole that includes knowledge, beliefs, arts, morals, laws, customs and any other capability and habit by a human being as a member of the society that may hinder the easy assimilation of ICT by many developing countries. (Salih Usun, 2004)

## 4. Organizational-structural factors hinder the utilization of e-management in Iran.

Management of knowledge, employees and internal communication are all identified in current business management literature as being instrumental in terms of organizational success and survival. (Kitchen, 2002)

Furthermore the e-government processes are complicated and complex information systems with monolithic architectures are currently handling them. This complexity is transferred to the users each time they transact electronically with such a system.

(Votis, Alexakos, Vassiliadis, 2006) therefore,

## 5. Technical-technological factors hinder the utilization of e-management in Iran.

## 6. Environmental factors hinder the application of e-management in Iran.

In this paper, environmental factors include integrated IT network in the country, the existence of necessary rules and regulations and clarity in policy-making in the field

of IT. Policy is the product of a group struggle between contending factions who constantly strive to weight policy creation and decision making in their favor. (Berman et al, 2007, 22) In this sense, IT policies are not exceptions.

In table 1, 6 main hypothesis and sub-hypothesis relevant to each one is presented. It is clear that questions number 1-6 are relevant to managerial obstacles, questions 7-10, humanistic obstacles, questions 11-13 to socio-cultural, 14-16 to organizational-structural, 17 - 21 to technical-technological and 22 - 25 to environmental factors.

**Table 1: Six main hypothesis and sub-hypothesis relevant to each other**

<p><b>Managerial Factors</b></p> <ol style="list-style-type: none"> <li>1. Lack of technological awareness among managers</li> <li>2. Lack of computer-relevant knowledge and experiences of managers</li> <li>3. Lack of awareness among managers about the advantages of IT</li> <li>4. Lack of motivation and support for managers</li> <li>5. Insufficient commitment of top managers in IT implementation</li> <li>6. Short life-cycle of management</li> </ol>	<p><b>Humanistic Factors</b></p> <ol style="list-style-type: none"> <li>7. Lack of IT specialists in organizations</li> <li>8. Employees` lack of interest and motivation to apply new techniques</li> <li>9. Lack of relevant training for employees</li> <li>10. Employees` resistance to change</li> </ol>
<p><b>Cultural-Social Factors</b></p> <ol style="list-style-type: none"> <li>11. The non-developed culture for proper application of IT</li> <li>12. Unfamiliarity of users with IT</li> <li>13. Unfamiliarity of citizens and authorities with IT performance</li> </ol>	<p><b>Organizational-Structural Factors</b></p> <ol style="list-style-type: none"> <li>14. Weakness of communication channels in organizations</li> <li>15. Lack of financial resources to equip software and hardware</li> <li>16. Insufficient financial capability of units to apply IT</li> </ol>
<p><b>Technical-Technological Factors</b></p> <ol style="list-style-type: none"> <li>17. Lack of sufficient software facilities</li> <li>18. Incongruity between systems and users</li> <li>19. Lack of sufficient band-width for internet</li> <li>20. Existence of network and telecommunication problems</li> <li>21. Difficulties in IT application</li> </ol>	<p><b>Environmental Factors</b></p> <ol style="list-style-type: none"> <li>22. No integrated network in country</li> <li>23. Lack of necessary rules and regulations in country</li> <li>24. Lack of clarity in policy-making in IT</li> <li>25. Lack of coordination and cooperation between different units and divisions in industries and organizations</li> </ol>

#### **4. Research method**

In the first stage of research, after reviewing the previous research and documents related to this area in Iran and different parts of the world, the obstacles on e-management were identified and were classified in 45 categories. These categories were presented to experts and scholars. They were classified in 25 subcategories and 6 obstacles including managerial, humanistic, cultural-social, organizational-structural, technological-technical, and environmental obstacles. The obstacles were measured with scales: fully agreed, agreed, disagreed, and fully disagreed. The research was conducted in 45 organizations including public, private, business etc. and the questionnaires were distributed among 200 experts, scholars and managers. The questionnaires were distributed directly (personally) or electronically and 150 questionnaires finally returned. So the return rate was about 0.75% which is acceptable. The reliability of questionnaires was accredited by some scholars in the relevant field and its validity was tested by Chronbach's coefficient alpha to be 89% which demonstrates its high validity. In order to analyze the data represented in questionnaires, referential statistics was also applied.

#### **5. Data analysis**

In order to analyze the data collected by the questionnaires, inferential statistics and proportion significance test with confidence coefficient of 95% was applied. The findings indicate that all factors except the following are among the obstacles of e-management in Iran:

- Lack of sufficient software facilities (17);
- Incongruity between systems and users (18);
- Lack of IT specialists in organizations (7);
- Difficulty in IT application (21);
- Lack of awareness among mangers about the advantages of IT (3);
- Lack of relevant training for employees (9).

Also, assigning weights to four options of fully agreed, agreed, fully disagreed and disagreed; proportion significance test has been used in order to define the test statistics and the quantity of p-value for each hypothesis. Thus the results are presented in table 3:

**Table 3: Ranking of the research hypothesis**

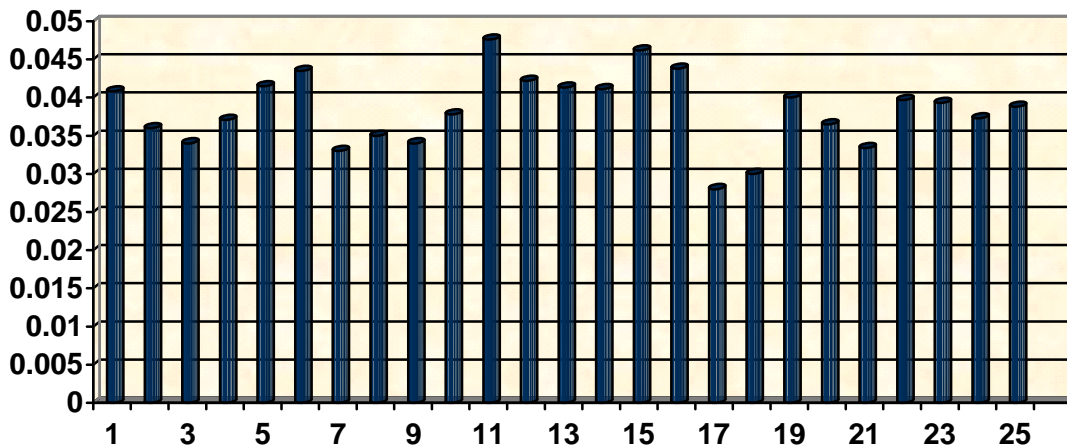
Barriers Factors	%	Z	P-value
Managerial	63	3.25	0.006
Humanistic	57.2	1.8	0.03
Cultural-Social	69.4	4.87	0.000
Organizational	64.5	3.62	0.000
Technological	55	1.25	0.10
Environmental	61	2.75	0.003

According to the results of the hypothesis test, all of the hypotheses are verified except the hypothesis regarding the technological factor. In the rest of the paper in order to identify the most critical barriers, they are weighed and ranked according to the following formula (Fahimi Azad, 2002):

$$W_i = \frac{\sum_j X_{ij}}{\sum_i \sum_j X_{ij}}$$

$W_i$  is the weight of variable  $i$ ;  $\sum_j X_{ij}$  the sum of scores of responds to question  $i$  and  $\sum_i \sum_j X_{ij}$ , sum of scores of responds to all questions.

According to the results, all hypotheses are verified. The results of rankings are presented in figure 2. Barriers 11, 15 and 16 are considered as the most important and barriers 17, 18 and 7 as the least significant by managers and specialists.

**Fig. 2: Weights and ranks of the subcategories of barriers**



Also, ranking of the main categories based on the views of specialists and managers are presented in figure 3:

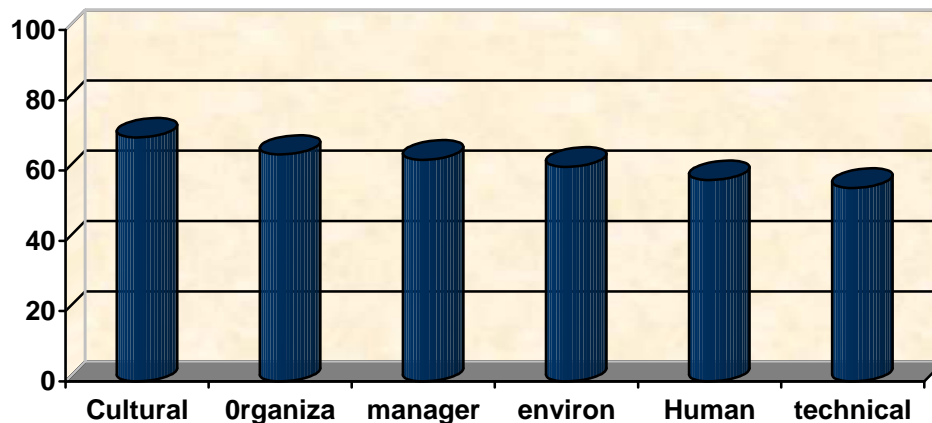


Fig.3: Ranking of main categories based on the views of respondents' views

## 6. Conclusion

Based on the findings of this paper, socio-cultural factors are among the most preventive obstacles in the application of e-management whereas technical and humanistic factors are amongst the least important ones. It is obvious that cultural and organizational factors should be emphasized in order to resolve the obstacles.

Development of cultural awareness to apply IT, enhancement of people's and authorities' awareness of the structure, performance and advantages of IT adoption and application, development of sufficient network and communication infrastructures, development of the application of E-services such as E-banking and E-insurance, motivating and training employees and managers for effective application of e-management are among the most important factors that should be noticed in order to improve the current situation of e-management in Iran.

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