

# The Role of Information Technology in Increasing Productivity of Human Resources and IT Development Problems

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## ABSTRACT

Almost all the economic and management science scholars agree that high – quality human resources form the basis of economic development at the micro and macro levels. In this article, we first examine the development of human resources and its literature and the new and basic related issues such as the impact of organizational learning on the human resources development. Then, we will consider the Information Technology (IT) and the Internet in a broader sense and its role in the development of human resources. Next, we will discuss how the development of human resources, especially through the application of the information technology, may develop the competitive advantage of organizations. Using the IT promises fundamental changes in all aspects of an organization. It helps the organization to keep the human resources information more secure, more accessible and more thorough; it also helps managers to have a better analysis of human resources and decide more properly. IT, in organizations, improves the quality of human resources management, too. Ultimately, we will examine the problems that IT faces when developing the productivity of human resources management and, eventually, will offer solutions to the problem.

**KEYWORDS:** human resources development, information technology (IT), the Internet, organizational learning, productivity.

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## 1- INTRODUCTION

Today, all the organizations agree that human resources are their most valuable asset and everybody knows that man is the main source of development. The process of development and growth without the human involvement is of no use; that is because man is both an objective and the means to that objective. In the era in which, a small neglect will cause our competitors to outperform us and while the clients' expectations are so diverse and complex, the development of human resources turns into one of the most significant competitive advantages[1].

Without, therefore, the growth and development of human resources' talents and capabilities in all aspects of the society, progress and the creation of better conditions for living a life with dignity is almost impossible. So, in this study, we will first examine the concept of the development of human resources more comprehensively; and then, we will touch upon the issue of IT and the Internet. IT and the Internet in particular have altered the way we live, learn, work and spend our free time. Generally speaking, the Internet has, by and large, changed all the aspects of human life. We will have a more comprehensive discussion on the impact of the Internet and IT on the development of human resources; and will try to study the major innovations and the possible alterations of the staff, their motivations and the management [2].

Next, we will talk about the competitive advantage and how to achieve it. Undoubtedly, the human resources of an organization are considered to be the most vital factor in achieving the competitive advantage. Securing the competitive advantage in a group paves the way for the development and supremacy of an organization. Competing and observing the principles of morality mean that through scientific methods and effective planning, we can embark on strengthening the organization. What is of most significance here is the development of human resources. Human resources of the organizations, thanks to their ability to perpetually improve their knowledge, expertise and capabilities, play a major role in competition between organizations.

## 2. The concept of human resources development

In the new concept of human resources development, it is stipulated that humans in the organization should be of such a quality that nothing disastrous would happen; and as a result, with compassion, commitment and knowledge, they employ all their abilities, energy, expertise and thoughts to further the ambitions of the organization. They are expected to constantly promote the intellectual and qualitative values of the organization.

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### **3. The role of information technology in the development of human resources**

#### **3.1. Definition of Information Technology**

Information technology is any technology used to collect, store and process information. Modern technologies include computers, fax, microelectronics, telecommunications, as well as older technologies such as document filing systems and mechanical computing machines used in printing and engraving. Conceptually, the term dates back to the ancient human desire to communicate. Owing to the skyrocketing increase of information, its organization, record and storage has become more complex. The development of digital technologies and supercomputers and the amazing speed of data processing and the high capacity of computers have solved this problem. Thus, the science of computing, storage and the retrieval of huge amounts of human knowledge has become intertwined and given birth to the information technology [3].

#### **3.2 Nature of Information Technology**

The Internet has changed our lives and the way we communicate with others. Basically, the Internet has more or less changed all aspects of the human society. In recent years, the importance of the Internet and information technology in both the commercial sector and the private sector has increased considerably (especially with the increase of the Internet users and Internet services). Since in today's business, people and their knowledge are considered to be of great importance and value, there is no doubt that businesses need to be aware of them and be ready for new changes. Awareness and understanding of the new orientations is necessary not only for IT professionals but for the managers. Managers who intend to develop the human resources in their organizations should pay much more attention to this issue. If the Industrial Revolution in the early 1800, compared to the era of animal husbandry and farming, replaced human with machinery and brought about an increase in quantity, quality, speed and accuracy of production and facilitated communication; at the end of the 20<sup>th</sup> century and the beginning of the 3<sup>rd</sup> millennium, the electronic revolution has removed the borders between the organizations and has greatly speeded up the communication and the data transfer.

In the age of electronic communication and information, all sections of the world, while riding on the third wave of Alvin Toffler in economical, social and world market arena, are trying to have a big share of the world resources. In this age, everything has taken on a new nature. People around the world instantly communicate and transact with others; citizens in a second and via electronic means get in touch with their governments and talk of their needs and get their responses; organizations and institutions contact with their citizens and customers and exchange information. To sum up, since in this era and due to the electronic revolution, all divisions and sections can instantly get connected and exchange information, it would be fair if we assert that we can add the prefix "e" or the word "electronic" to every word.

The number of the Internet users in the year 2011 was more than 31 million; and now it is more than one billion. One third of the US economic growth between 1996 and 1999 is directly related to the spread of the Internet. At present there are more than two billion "web" pages and over 17 million registered (DAMAIN). Above all, these facts show that the Internet has had a significant impact on how, why, when and where people are working.

The Internet and the IT have had the biggest impact on the people who are educated, skilled and interested in success, especially those who are regularly dealing with the communication and IT technology. Since these people are busy working at the highest levels of their organization; and as a result, have the greatest impact on its success, we have to pay specific attention to the Internet and its impact on this group of people.

#### **3-3.The use of the Internet in the new ways of working**

Thanks to the development of the Internet and, in a broader sense, the information and communication technology (ICT) and their fluctuation in the last two decades, newer and more diverse facilities have become available to do the job and put the organization in order. Obviously, this development will continue in the future and will include all the staff [4].

- Virtual work
- Project work[5]
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#### **3-4.The use of the Internet to develop staff capabilities and human resources**

The completion of the existing knowledge and acquisition of new one is one of the strongest motivating factors for someone who has addressed his basic needs. Therefore, the acquisition of new knowledge is a key factor for the success of an individual; it is also of importance to the success of the organization. Technology that is based on the Internet provides a great many opportunities for the acquisition of new knowledge and skills. First, within the company itself, the Internet paves the way for a quicker access to the new scientific and technological innovations. Second, at the individual level, the Internet presents itself as a vast and searchable database containing a set of traits such as the web pages, newsgroups, online mailing lists, information network trends and the like[6].

#### **4. The impact of ICT on the organization's personnel**

The ICT and the Internet have affected not only the IT experts and the personnel who regularly use information technology in their offices but also the environment of the organization, the organization itself and the social environment on the whole. Managers should be aware of these changes and try to understand and adapt themselves. Especially at the level of employees' motivation, we can expect major changes to happen. In addition to the work of the social evaluators who predict fundamental and profound changes in the society, the first and the most important task of the managers in such circumstances is to maintain the employees' motivation. According to the findings of the research by the IT professionals, it is found that most of the IT professionals expect their companies to let them work at home; to the extent that they less care about their salaries and their chance of progress. The findings of this research can be compared to that conducted in Slovenia. About 51 companies and more than 5111 employees who were often in the position of middle managers participated in this study. The most interesting finding of this project is that individualism among the personnel is on the rise; that is, each employee will have specific needs and these needs will be different from employee to employee.

All the above shows that at present, the major challenge facing the companies is to ensure whether the best employee (or at least a good employee) or a minor contractor can do the job or not. Since the people in a research community are considered to be valuable, it is clear that only the companies that think both about their survival and their progress can properly address such a challenge. The same as Drucker, "we need an economic theory that puts the knowledge of people at the center of the process of capital production"[7]

#### **5- Changes in the management and utilization of knowledge**

Effective management of the organizational knowledge and applying it in the labor market is the ultimate goal of those who are seeking competitive advantage in the market. The use of the individual knowledge of the workers is far more easier than taking advantage of all the knowledge in the minds of everyone in the organization. The findings of the research

conducted in the US shows that companies used only 20% of the knowledge of their employees. Information and communication technologies offer countless opportunities for improving the management of information in organizations. With this opportunity, the possibility of a better use of the workers' knowledge is provided. One of these cases (opportunities) is the internal network communication system (Intranet) for companies that comply with the Internet-based services and agreements. These inter-organizational networks provide the opportunity for simple and rather economical storing, organizing, processing, preserving and sharing information between the members of the organization. All these are essential for the proper management of information. At the same time, it ensures that this information (information on the intranet) wouldn't leak out. Besides intranet, there are a great many other ways to use the stored knowledge inside the organization and to process a piece of information out of the massive amount of data that exist in data storage facilities, retrieving devices, intelligent systems, etc. The hardware and software solution to this problem is the employment of knowledge. The main obstacle here has two sides: One is the definition of the knowledge and the other is the individuals and the way to preserve the existing knowledge via the information technology; and how to better share, store and transfer this knowledge within these organizations. According to the findings of a 28-month long research in which 1111 chief managers were taking part, successful business functioning is possible not only through the application of IT but the proper management of information and the people in the organization[3].

To sum up, it should be stated that our purpose here is to introduce parts of the changes occurred in the development of human resources, the new ways of working, project work in association with minor contractors and virtual employees that is made possible through the information and communication technology. Although the scope of this paper is very large and the subject is very important, however, the Internet and information and communication technology are not the only factors influencing the personnel management and the labor market discussed here. Therefore, some of the most important innovations in this area and the possible methods of creating compatibility between these changes and the structure of the organization, the leadership style, the employees' motivation, improved management of information and the exploitation of knowledge are discussed here. Each of these cases is in line with a special organization and its own specifications. In any case, it is clear that no company can avoid these changes and necessarily would adapt itself. As the data within the report on the use of the Internet and virtual work shows, these changes are so important that senior company managers can not and should not ignore them.

#### **6-The organizational learning and the role of IT in the development of human resources**

The organizational knowledge-oriented perspective provides a unique basis for the strategic development of human resources; because the existing knowledge and skills put the ordinary affairs of the organization at the center of the competitive advantage. The theoretical concept of the learner's organization and the process of organizational learning lie at the center of understanding how knowledge is formed and how it gets

established in the organization. Because most companies' competitive power in the emerging global markets is on the decline and the need for a change in the form of the organization is felt, organizational learning has gained more momentum. The ability of an organization to learn is regarded as an organization-oriented capability and the sole source of permanent competitive advantage, especially in knowledge-oriented businesses. To survive in an insecure environment, companies need to use the existing knowledge and, therefore, create new knowledge. There are numerous definitions for organizational knowledge.

According to what was already mentioned, organizational learning is effective for a comprehensive development of individuals in an organization (both managers and personnel) and the experience of related organizations prove its effectiveness. What should be emphasized here is that: information technology and the Internet in particular facilitate organizational learning through facilitating and developing the communication between the staff, enhancing the effectiveness of the learning process, making available the data whenever and wherever they are needed, informing the managers of the amount of the skills and abilities of people in the organization and the on-time recognition of their weaknesses. Organizations seeking to quickly develop their employees' skills and capabilities so as not to fall behind the competition in the volatile market and industry and in today's dynamic arena, have to start designing smart systems; and through the Internet and without wasting any time, help their employees to learn and accomplish their ambitions.

### **7. IT development problems in Iran**

This is one of the most important topics in information technology. These problems can be divided into two categories:

Group I: the problems that are directly related to organizations, programs and departments dealing with IT. For example, problems of the research and development department (R & D)

Group II: General problems in the IT field, such as the structural problems in the economy that affect the development of information technology. Now, we will examine some of the most important problems in the field of Information Technology:

#### **7-1- lack of proper understanding of the nature and importance of information technology**

The first and most important problem facing the development of information technology in our country is the lack of a proper understanding of the concept and its importance and the lack of determination to implement the IT development programs.

#### **7-2- The lack of a comprehensive system for IT development in our country**

Lack of a thorough awareness of the world economic development and its future has caused the IT development to lose its significance; and therefore, the authorities not to adopt appropriate policies.

#### **7-3- some missing links in the chain of information technology**

Given the crucial role of information in the development of technology, perhaps the most important problem here is the constraints arising from the weakness of information that exacerbate problems such as budget planning and the employment of the work force. This problem is not limited to data banks but goes beyond that; that is, it relates to the lack of a coordinated and intertwined network of information especially one with a central command at the national level with the least equipment and capabilities.

#### **7-4- lack of funding for research and development**

Another index reflecting the difficulties in the development of information technology in our country is the lack of research spending in the GDP.

#### **7-5- educational shortcomings of our country**

This index suggests that education in our country, as compared to that of the developing countries, is good in terms of quantity; however, we are far behind the developed countries in quality. To check the quality of higher education, we should take a look at the hidden unemployment of employees with higher education by means of the labor productivity level. It is necessary to examine the higher education system in Iran because the information technology is of great importance in all majors and expertise. Therefore, a better understanding of the situation of higher education in our country can contribute to the development of information technology.

## **8. Offering practical solutions to overcome barriers in the development of IT and increase employment**

Considering the existing problems in the way of IT and to increase employment, two kinds of solutions are proposed:

### **8-1- programs that promote IT in different levels of society**

The first programs create a good platform for further growth in the information technology in our society and will indirectly increase employment. These programs produce an economic perspective in the individuals in our society and will consequently result in creativity. Programs that can be useful in the development of information technology in our country are

1. extension of the use of computers
2. the development and extension of networks and information systems among people in various fields .
3. the training of human resources for the design and implementation and development of IT-based application systems
4. creating a national network capable of transferring texts and images around the country.
5. opening the possibility of using international information networks
6. the production and use of Farsi standards for the development and transfer of information in various Persian networks
7. expanding the scope and depth of topics related to information technology in schools, universities and organizations
8. supporting the involvement and investment by private sector in the field of IT training
9. expanding the quantity and depth of topics related to information technology through the mass media
10. quantitative and qualitative expansion of academic disciplines in the field of electronic software.

### **8-2- Programs that expand employment in this sector are**

1. development and expansion of hardware services by supporting relevant institutions and companies.
2. creation of the required platforms for rendering new services that come into existence through IT .
3. guidance and encouragement of the private sector in the development of information systems and the creation of added value in production and distribution of information.
4. protection of individuals and companies that produce software packages .(Implementation of copyright law in the country).
5. encouraging and supporting the formation of units of research and development for basic and applied research in the field of IT production .
6. providing credit to manufacturers of equipment and products used in information technology.
7. supporting the producers of products and equipment related to IT by reducing tariffs, taxes and customs duties and government duties .
8. supporting the companies and institutions involved in exporting the produced services and equipment by rendering credit services .
9. development and production of software and hardware products to increase the share of GDP with an emphasis on continuous improvement of quality and observing the existing standards.
10. supporting the creation of professional organizations to increase the quality and competitiveness of products in the foreign market.

## **9- CONCLUSION**

Information technology, as a set of produced thoughts offered to the people and organizations through a hardware mechanism, plays an important role in developing human resources; and is a key factor in gaining competitive advantage for an organization. Today, giving the required information to the people in an organization and changing and orienting it by means of information technology happens with ease; and allows the organization's personnel or the society on the whole to make progress. Information technology helps us with the establishment of change and innovation, strengthens cognitive skills, enhances decision-making skills, creates the spirit of research in personnel and helps to form standard thinking; besides, it results in a balanced and multi-faceted human development. In the age of information, the only organizations that have the power to survive are: first, those that have proficient and knowledgeable personnel that are able to take the organization forward; and second, those that are able to preserve these personnel by giving them the attention they require

and updating their knowledge and skills. In this case, the factor that is of importance is that every organization should have in mind the information and communication technology.

Organizations should remember that the long-term use of information technology will be followed with a high competitive advantage. They should not insist on short-term productivity. The experience of a large number of companies in this area is considerable. The majority claim that, in today's dynamic business environment, what has helped them to survive and gives rise to their promotion is the information and communication technology and its association with human resources development and the involvement of the management and personnel.

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