

INFORMATION TECHNOLOGY'S ROLE IN ORGANIZATIONS' PERFORMANCE

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Abstract

In this article, models and functional levels of information technology (IT) has been concerned by studying its concept and features, and recently it has been considered as one of the production sources in the efficacy function and its role has been examined in the economic performance of institutions, countries and other industries. Today, the significance and necessity of information systems is understood, since most organizations need such systems for their success. Its purposes include: decrease of costs, competitive intelligence, and quick response to the environment and competitors we are dealing with.

Keywords: Information technology (IT), organizational performance, managers.

1. Introduction:

Today, the world is enduring evolutions in universal economies and they are going forward quickly. These evolutions are due to the change of manufacturing-based economy into information-based one. On the other hand, business globalization among countries is expanding quickly. National markets have been influenced by foreign and international (multinational) companies. Trading companies trying to survive and maintain competition with other countries and companies must globalize their commercial thoughts and instruments. One of these competitions arenas is using the information technology.

Undoubtedly, managers have a fundamental role in organizations' and companies' destiny and information has a great impact on the success of managers' affairs and organizations' performance; information which is correct, timely and updated and is provided by the universal expansion of Internet which uses this technology for information collection and dissemination. However, it is clear that IT by creating a wide web for information which records the smallest events and information helps decision maker managers to make decisions and plan by analyzing the updated data in the web to make a bright future for themselves and their organization. IT enables managers to quickly control and coordinate the organization's performance with the management with a quick feedback and solidarity using the quick process of information.

2. Information Technology and Organizations' Performance:

Generally, correct and precise achievement of information technology seems to be difficult. Until 1980, computer was the only technology which was covered as the information technology. Currently, IT has become like an umbrella which includes a group of equipment, services, functions

and basic technologies. Examples of IT are generally classified into three groups of computer, multimedia devices and telecommunication tools [2].

Information technology as defined by U.S. Information Technology Association (ITA) is “*a technology which studies, designs, develops, implements, supports or manages computer-based information systems, especially computer software and hardware programs*”. In sum, IT deals with issues such as using electronic computers and software to turn, store, protect, process, transfer and retrieve information securely. IT is a device among many other devices which managers can use to solve problems [8].

IT is a branch of technology which makes the study, usage and process of data possible in the areas of storage, manipulation, transfer, management, control and automated data preparation using hardware, software and NetWare [7]. Three axes considered in using IT in organizations include infrastructure, function and human resources. The network and technical equipment are rules and regulations of the infrastructure axis, and electronic training, paperless system, teleconference, E-government, E-commerce, etc. are used in the function axis of IT. Human resources include all the company personnel who work in the area of storage, process and information distribution, and work with hardware and software. Training, increase of skills and culturization are the substantial axes of human resources. Many researchers have searched the influence of using IT in companies. In the meantime, the influence of IT in the financial performance of companies had an important role.

A research named “information technology (IT) and companies’ performance in U.S” was done by Mining Fang Lin and Richard E. They have studied the role of environmental dynamics and company’s strategy. Lin and E. have concluded that when environmental changes are greater, the company’s strategy is more active and the relationship between CEO and CIO is closer, investment in IT has a stronger effect on the company’s financial performance. The model presented in this research includes:

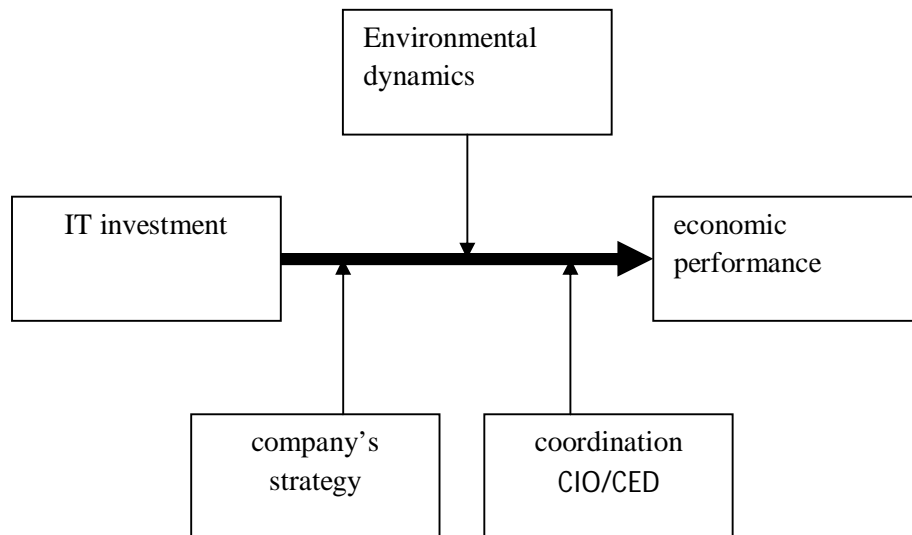


Figure 1- The presented model in Mining Fang’s and Richard E.’s research

Investment in IT is measured by software and hardware costs and information systems, and the company's economic performance is determined by Return On Assets (ROA) and Return On Sales (ROS). The environment is also divided into costumers, competitors and the government. The environmental dynamics includes the degree of instability in the environment. The more complicated the environment is, the more information and consistent study are needed [9].

-A research named "the leveraging impact of strategic coordination on investment in IT" has been done by Bruce Lewis and Anthony Byrd. These researchers have considered the strategic arrangement as a mediating variable in the relationship between the commercial performance and investment in IT. They believed that arrangement and coordination of commercial strategies and information systems strategy have a very important impact on the relationship between investment in IT and companies' commercial performance. In order to show the type and degree of cohesion between commercial strategies and information systems, a questionnaire was designed and distributed among managers and information department managers. The presented model in this research includes:

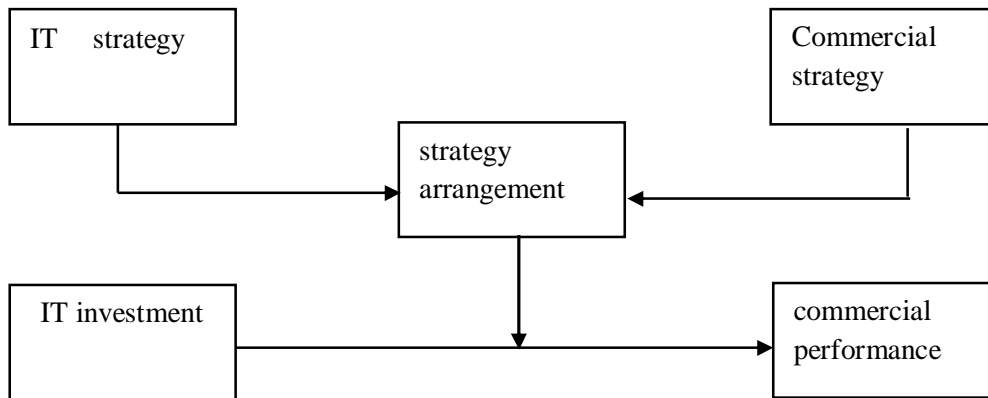


Figure 2- The overall model in Bruce Lewis and Antony's research

The research results have shown that arrangement and coordination between commercial strategies and IT have a very important role in the relationship between investment in IT and Companies' commercial performance. In fact, if commercial strategies and IT have a more coordination in formulation and implementation, the effect of investment in IT on the company's performance is stronger [3].

3-Information Technology's (IT) Advantages:

IT has many capabilities in solving organizations' problems. Some of IT's advantages are mentioned below: [5]

Improving the organization's performance, ability to do computations which were not possible before, decreasing activities and paperwork, improving the quality and accuracy of tasks, Improving the decision making, more relationship and coordination in the institution level, improving costumers' services, making a linkage between costumers and goods suppliers, decreasing the time of work processes, supporting the organizations' strategies, improving the competition, and improving

the redesign of work process. From another point of view, IT's advantages can be mentioned as follows: [4]

Eliminating geographical boundaries in the study, business and relationships, economic, scientific and political connections, increasing the communicational ability, achievement, processing and implementing financial affairs in the universal business, dramatic improvement and development of equipment, functions and technology systems, increasing the information and creating advanced industries, and decreasing human error in processes and performance.

4) The basic points of view in implementing IT:

There are two basic points of view in implementing IT in the organization which are necessary and correlative and organization's management and IT management should consider it:

A) Engineering and Technical Point of View: In the engineering and technical point of view, there are 5 dimensions which should be considered: Software (computer programs in order to achieve, process and produce information), hardware (process, storage and retrieval of information), human resource training (training involved forces and technological products' consumers), raw data and information (data is the raw material of IT which should be reliable, precise and new), and communication systems (creating a connection among computers). In this section, prioritization of successful components from time and selection of cases points of view are the most important elements in the IT structure. [10]

B) Managing Point of view: In managing point of view, designing and implementing information systems including DBMS, EIS, OA, DSS, MIS, ... are considered which are implemented and performed. Erl mentions five different views in planning IS/IT which indicate the maturity and process time. Diagram 2-2 shows that in training, "first" organization's maturity proportional to planning in IS/IT increases. According to his belief, in the first stage (circuit technology), organizations do not have a clear planning in using IS/IT. Progressive establishment of systems and information technologies in the organization are done with the aim of managerial cognition and the main actors in establishing these systems are IT specialists. In the second stage (circuit method), it is recognized that using IS/IT should be done through analyzing business procedures and recognition of business needs. Diagram 3 shows the organizational maturity according to planning .

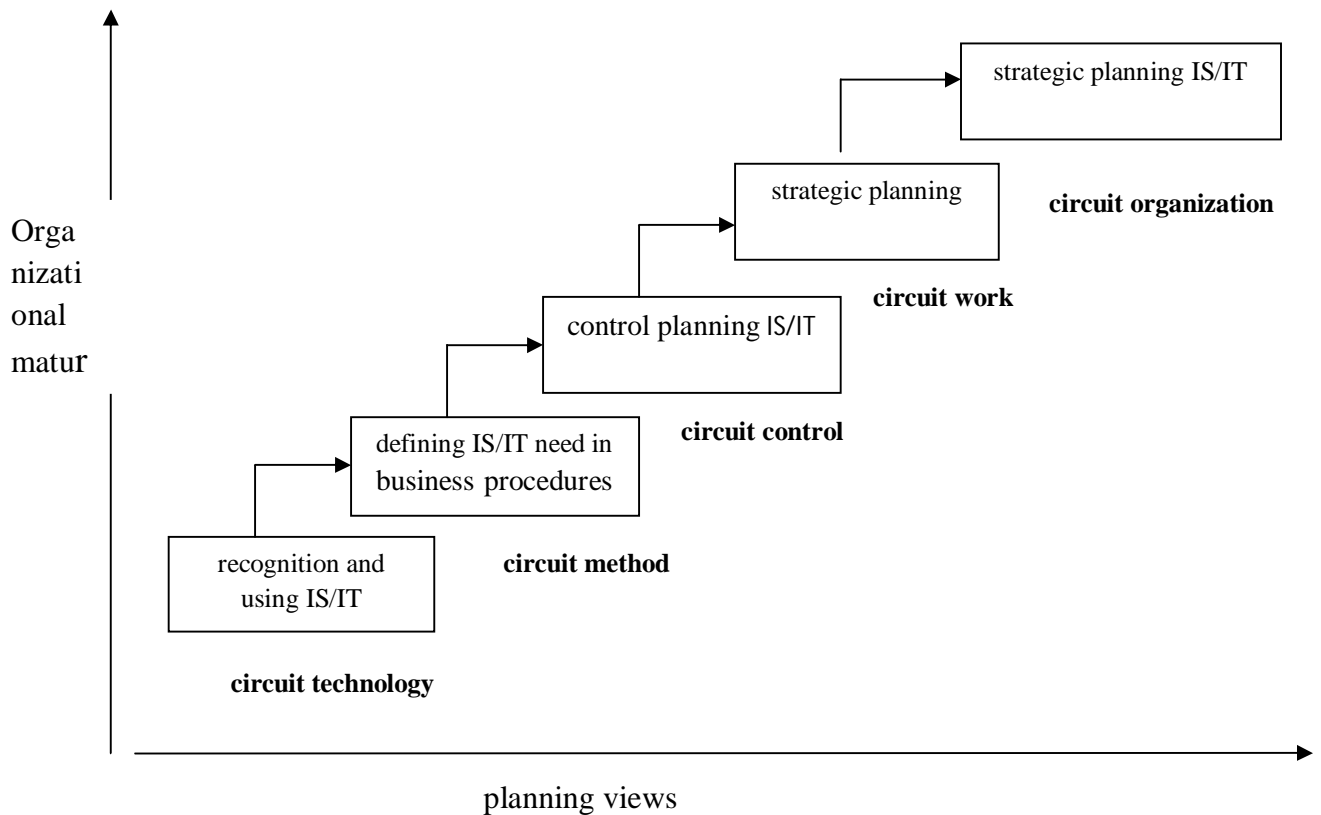


Figure 3- The organizational maturity according to planning

In the third stage (circuit control), there is a serious need for IS/IT detailed planning and in addition to control costs, organizations attempt to reach potential advantages of information technology and systems by preparing cost and capital budget. This planning is mainly done in the organization with the key purpose of multifunctional creating and balancing IS/IT.

In the fourth stage (circuit business), business plans are analyzed according to the functional level in order to determine where IS/IT is considered as a key factor in meeting short-term and medium-term needs. In other words, organizations resort to IS/IT instruments in order to reach competitive advantages. Investments of information systems based on key factors of success in a specific work field will lead to detection of high potential opportunities and sometimes to strategic investments.

In the fifth stage (circuit organization), an agreement is reached that IS/IT can help meeting the organization's objectives and thus it is attempted to make the required adjustment between organizational and business strategies, and systems and IT strategies in different levels. If public level is considered, there should be an adjustment between public policies and organizational strategies. [6]

5- Information Technology's (IT) policies in Iran:

Strategic policies and operational programs of IT are a written title that is sent to headquarters of the third program after passing by Council for Science and Technology Secretariat. Informatics Society of Iran has codified this written title in the framework of two directives, including: [1]

-the public use of IT is facilitated by increasing facilities, improving services, providing facilities, public education, standards, improvement of information networks' development and information exchange culture in order to increase the national results maintenance and present cultural, scientific and Islamic heritages.

-For the effective and comprehensive presence in universal scenes, IT is necessary in public and non-profit organizations to establish the national information system, and create and increase scientific aspects and economic and social development of basic and applied researches in this area and reinforce the software and hardware.

The overview of the country's background of ICT activities during 37 years ago has shown the current situation with chronic difficulties as a past heritage from one hand and clear and promising from the other hand. [1]

6) Conclusions and Suggestions:

The studies conducted in Iranian organizations and companies have shown that IT is not used widely in some companies and different organizational areas, and it is proposed to be expanded by personnel of IT in order to improve organizations' performance and decrease human error and increase the speed and accuracy of doing tasks. Nowadays, managers who understand the necessities of organization correctly and dare improving their management are successful managers. Because in the current difficult economic situation, they are more responsible for directing the limited resources in order to achieve the highest results and their mission for realizing the country's advancement programs is great. Information technology (IT) as a factor in creating competitive superiority can overshadow the company's objectives and changing of business procedure.

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