

Impact of Information Technology on Organizational Agility

Anis Khaleghi

Department of Management, Master of Arts, Rafsanjan Branch, Islamic Azad University, Rafsanjan, Iran

Abstract

A well-versed motivated man seeking in some way to facilitate, conduct and accelerate the prediction and reaction of/to changes is an essential and indispensable part of organizational agility. Those technologies that serve an organization have to support their relevant tasks and activities within the organization so that the emerging needs of the clients are continuously provided. One of the microsystems that is used for agility in the modern world is telecommunication network. Network is a composition of software and hardware that connect the computers so that they could share their data and processing potentialities. In general, a network connects individuals, groups, organizations and machines so that they could all support extra-and-intra-organizational information exchange and fundamental business processes. Information systems is one of the most important issues affecting organizational agility and has attracted the scholar's views. Considering the necessity of attention to information technologies and their impact on organizational agility, knowing various effective factors affecting it is also of paramount importance. Moreover, the lack of sufficient research in this regard adds to the significance of this issue.

Key words: Information Technology, Agility, Organization

INTRODUCTION

Today information has changed the world's face and is regarded as one of the great forces that shape the future. Information with all of its potential and actual capacities should be used for the improvement of life quality and more importantly for the growth and advancement of bureaucratic system of the countries. Ever-increasing development of information and communication technologies and particularly the emergence of internet has left an impressive influence on people's lives and their social behaviors and relations. Today the organizations are struggling to change their methods relying on modern information technologies in order to offer the best services in shortest time and reduce costs. Internet is the best solution to this situation. One of the positive outcomes of information technologies in organizations is organizational agility. Agility as a term implies speed and

power in one's reaction to the events inside and outside the organization. Agile organizations are always ready for learning every new thing that could increase the profit and offer new opportunities (Alvansaz, 2010: 39). The goal of an agile organization is satisfaction of both customers and employees. Agility promotes the organization's ability for providing high quality products and services and as a result it is an effective factor in organization's effectiveness. Information explosion should be considered the most important industrial event in twentieth century that has overshadowed various fields of industry. In today's competitive world, information is regarded as one of the production factors along with capital and human resources and as such constitutes a comparative advantage for businesses (Nematbakhsh et al, 2001: 124).

Today information technology industry is one of the most dynamic industries in world economy. Information technology in industrial countries has been continuously taken into account by the managers in recent years. Information technology not only facilitates and guarantees the validity of operation via elimination of repetitive operations in various units rather it supports top managers in their planning and appropriate and timely decision making via providing them with classified and analytical information (Nematbakhsh et al, 2001: 124). Speed might

Access this article online



www.ijss-sn.com

Month of Submission : 06-2017
Month of Peer Review : 06-2017
Month of Acceptance : 07-2017
Month of Publishing : 07-2017

Corresponding Author: Anis Khaleghi, Department of Management, Master of Arts, Rafsanjan Branch, Islamic Azad University, Rafsanjan, Iranpower.

be the most important wealth in third millennium and modern age that is known as information age. To reduce response time and improve flexibility a totally new form of organizations should be worked out (Azizi, 2004). Today competition is of various aspects like the speed of delivering the ordered or purchased product to the customer, enhancing product or service quality and reducing the prices. To this end, organizations should be focused on fast movement in different affairs (Sarafizadeh, 2004). To reach agility, an organization should be able and competent to make profitable operations and activities in ever-changing and unpredictable competitive environment with utmost speed (Goldman et al, 1995: 85).

BACKGROUND OF INFORMATION TECHNOLOGIES

History of modern human life is the story of technology based innovations. Telephone, radio, TV, computer and so on and so forth, are the major manifestation of these technologies that besides paving the ground for growth and communication have brought considerable changes into human life. The most striking examples of these changes can be seen in the domain of information and communication technology (Feizi and Moqadasi, 2005: 5). In the domain of information and communication technologies major changes are happening across the world. These changes that have revolutionized human life, his work habits, learning methods, business processes and human mutual relations. But one can assuredly argue that the impact of these changes cannot be felt as more as the structure of organizations. The impact of information technology and new communications on the management of administrative affairs began in early twentieth century with the prevalence of the use of telephone technology in the structure of organizations. Although one can trace its roots and origin back to eighteenth century and the emergence of telegraph that used Morse alphabet or code for communication. Then in 70s computers and their application for bureaucratic purposes became quite popular and this paved the way for digitalization of organizations in that time. This newly emerged movement was slow at the outset but in the early 1980s it turned faster. Insofar as in past twenty years we have been witness to a revolutionary growth of information technologies as well as a remarkable fall in the prices of computer hardware (Feizi and Moqadasi, 2005: 5).

CONCEPTS OF INFORMATION SYSTEMS

In the early years of invention of computer, the specialists did not pay enough attention to the information needs of

managers and used the computers just for data processing in accounting. During this era that lasted till 60s the emphasis was laid mostly on the calculative and processing power of the computer. Today this use of computers is known as data processing and it should be taken into consideration that data processing systems also produce themselves a determinate amount of new data. In early 1960s and after the invention of new computers that could process more information and data with lower cost new methods have been developed for introduction of new appliances; i.e. information systems of management. After one decade and due to the emergence of new information needs, a new information system called decision support system (D. S. S.) emerged (Alvani, 2002: 25). Information system is a means for decision making. Decision making is the essence of management, on the one hand, and management is meaningful when a decision is made, on the other. To put it differently, management is tantamount to decision making. Since information is the basis of decision making, those aspects of organization that explain the process of information is taken into serious account. A good instruction for decision making is consisted of 90 percent information and 10 percent inspiration and vision. Accordingly, one can feasibly argue that the basis of a good decision is information. If a decision is not grounded in information, it is taken based on personal taste and this surely cause the organization to lose the sight of its goals (SeyedJavadin, 2007: 1053). An information system is a system that receives the data from various unites and reproduce them in new form and provide the managers with classified information that can be used for making due and exact decisions. Information systems have the following attributes (SeyedJavadin, 2007: 1055).

CLASSIFICATION OF INFORMATION SYSTEMS BASED ON IMPLEMENTATION METHODS

According to development approaches and information system technologies, implementation can be deemed in the following forms:

- Officiality: official information systems vs. unofficial information systems. Official information systems act based on the previously drawn procedures. Unofficial information systems do not have any predesigned procedure and act based on the users' relations and complicated behavioral patterns.
- Mechanizedness: manual information systems vs. computer information systems. Computer information systems are those systems that use computer technologies for handling part or whole of assigned jobs.

- Data saving: information systems with database vs. information systems with no database. Those systems that have special database use a special panel for saving and managing the data. These systems are based on a model of data. Information systems without database include those systems that work on cases and set of documents. The latter systems are not usually based on a standard model and do not have normally a language for search.
- Architecture: a personal computer vs. a distributed or network based information system.
- Processing method: disconnected vs. connected or interactive; group processing vs. processing in real time.

Although this classification offers a useful vision of information systems, it is not as important as the three previous classifications because today most of information systems are official, computer based, with data base, network based, and act in real time (SeyedJavadin, 2007: 1055).

THE COURSE OF EMERGENCE OF THE CONCEPT OF AGILITY

Contemporary organizations are faced with such issues as fast and unpredictable changes, special orders, high expectations of the costumers. Then, to sustain themselves in such conditions these organizations take various forms. One of the newest organizational forms is agile organization. Agile organizations think beyond the mere adaptation with changes and harmonize the procedures and personnel of organization with the developed technology and accordingly provide the customers with quality products within the shortest time limit (Hormozi, 2001: 132). Then one can argue that in an insecure and changing environment where our organizations are working agility is one of the major factors of survival and growth. The basic attribute of this environment is its change and insecurity. Agility proves as a key to organizational success in such an environment. Success in such an environment is itself a comparative advantage that is sustained via fame, innovation and quality services and products. This helps the organizations to take strong steps in their path and can rapidly harmonize themselves with the changes (Khoshshima, 2003: 41).

From late 1980s to mid-1990s numerous efforts were made for knowing the roots and effective factors involved in the global business systems following the vast economic and political developments across the world. In 1991 a group of industrial specialists saw that the rate of changes in business environment is faster than the ability of traditional production organizations in harmonizing themselves

with the changes. These organizations was unable to be benefited from the existing opportunities and this inability of tuning itself with the changing environmental conditions could lead to bankruptcy and failure in long term (Hormozi, 2001: 132). In fact, the observation of this fast rate of change in business environment convinced Defense Department to gather a group of professionals in a university in Pennsylvania to discuss the best strategies and systems for success in industries and promotion of production industries in US. The result of this group work was a two-volume report entitled *Strategy of Production Businesses of 21st Century* that was published in fall 1991 by Yakuka Institute in Li Hi University and it was called agile and introduced to all. Right after the publication of this report the term agile production became current in the public (Gunaskaran et al, 2001: 25).

MAJOR SKILLS OF AGILITY IN ORGANIZATION

Agile institutes and organizations are always concerned with change, lack of confidence and unpredictability of business environment. These institutes develop a number of skills that allow them to cope with the changing and unreliable business conditions. These skills include 4 basic elements that are the basis of maintenance and development of agility:

- 1- Responsiveness that refers to one's ability of recognition of changes and fast reaction to them.
- 2- Competence that represents one's ability of achieving the ends and objectives of an organization.
- 3- Flexibility and compatibility that consists of being able to mobilize various processes for achieving different ends by means of same possibilities.
- 4- Speed that refers to the ability of making the most in the shortest time (Hassani and Hadavi, 2010).

FORMING CONSTITUENTS OF AN AGILE PRODUCTION

To make the organization agile one needs to take appropriate actions in the fields of organizational structure, employees and human resources, technology, information technology and finally innovation and creativity (Shahaei, 2009).

- 1- Organizational Structure: An organization's structure should be flexible and dynamic. The following actions have to be taken as to the organization:
 - A) Partnerships with other organizations
 - B) Improvement of flexibility via decentralization and adopting flexible structures.

- C) Promotion of culture of development and modernity (Zargar, 2003: 98).
- 2- Employees: In an agile organization that is face with continuous changes, ability and flexibility of human resource plays an important role (Fathian and Golchinparvar, 2005: 25). In this regard, the following actions have to be taken:
- Focusing on group activities and participation culture.
 - Trusting the personnel with various duties.
 - Relying on education as an important means.
 - Training the personnel in various skills (Zargar, 2003: 98).
- 3- Technology: An agile production system is able to face unpredicted changes. These changes can be in the model of products or services. Thus, an agile organization should be able to produce new products (Fathian and Golchinparvar, 2005: 25). The following actions are of vital significance in this regard:
- Investing on modern and appropriate hardware technologies.
 - Using flexible production systems in order to accommodate itself with the changes in composition and order types.
 - Using flexible support systems in order to accommodate with the changing conditions of orders.
 - Founding a virtual production system (Zargar, 2003: 98).
- 4- Information Technology: One of the differences of an agile organization with other types of organizations is the richness of the information content of the agile organization. Moreover, the interchanged data volume between the cooperating firms is considerably high and reveals the necessity of protection of key information. Then agile organizations require developed and flexible information and communication systems in order to secure the fluid information exchange and also be able to cope with the changing conditions (Fathian and Golchinparvar, 2005: 25). Accordingly, the following actions are recommended to be taken in this regard:
- Using appropriate standards and protocols in interorganizational information exchange.
 - Using modern information systems and communication technology for building good relations between the cooperating organizations.
 - Unification of scattered elements including customers, suppliers and colleagues in virtual organizations (Zargar, 2003: 98).
- 5- Innovation and creativity: an agile organization should offer its solutions to the customers instead of selling

its products. In fact the final end of agile production is the true realization of customization and providing every single needs of individual customers (Fathian and Golchinparvar, 2005: 25).

The following actions can be taken in this regard:

- Institution of thinking and modernity culture in organization.
- Investing on new ideas and encouraging the creative minds.
- Founding close relations with the customers and continuous collection of their ideas.
- Providing the necessary hardware structure for better supporting the notion of customization (Zargar, 2003: 98).

DISCUSSION AND CONCLUSION

In the age of network, the official structures that were designed for nineteenth century technology have seemingly lost their validity. Information technology in particular, but not exclusively, using computers, has changed management and even the hierarchy. The managers are no longer forced to wait for information that might be handed down to them through the hierarchy rather the information is immediately available on their own PC. Moreover, investment on information technology has helped the employees to avoid the ordinary affairs and save their times for important issues (Hughes, Persian translation, 2008: 363). Agile organizations think differently as to the satisfaction of their customers. Most writers are convinced that internet technology plays a major indispensable role in making the firms and organizations more agile (Fathian et al, 2005: 28). Speed might be the most important wealth in the third Millenia that is known as the information age. To reduce the reaction time and improve the flexibility a wholly new form of organization should be developed. Today competition is of various aspects, e.g. speed in product or service delivery, promotion of product quality and reducing the costs. Thus, organizations have to be focused on the fast exchange of information in the field of montage, distribution, presenting and the like. The faster this movement is the faster will be the organizations in providing the market needs. Technology and work changes threaten the organizations' survival. Although the most of organizations have been conscious of the changing conditions of the market, they have never been designed in a way to be able to deal with this condition. Every organization must redesign itself in an agile fashion for being more responsive to the inside and outside forces. Virtual organizations are the paragons of agile organizations that are increasingly taking form today and can be a response to the newly emerged needs (Yaqubi, 2006: prelude).

REFERENCES

- Alvansaz, A., 2010, A Study of the Relation between Organizational Culture and Organizational Agility in State Offices of Yazd Province, Master's Thesis, Azad Islamic University of Rafsanjan.
- Khoshsima, Gh., 2003, An Introduction into Organizational Agility, Tadbir Journal, No. 134.
- Zargar, M., 2003, Principles and Concepts of Information Technology, First Impression, Behineh Publication.
- SeyedJavadin, R., Esfandiani, M., Aqazadeh, H., 2007, A Study of Marketing Strategies in Electronic Markets: Case Study of Chosen Production Firms in Iran, Commercial Investigations Journal, no. 42.
- Shahaei, B., 2009, Human Aspect of Organizational Agility, Tadbir Journal, no. 17, p. 45.
- Hassani, M., Hadavi, A., 2010, Information Technology Approach, Second International Conference on Information Technology Management, Tehran.
- Sarafzadeh, A., 2004, Information Technology in Organization: Concepts and Applications, First Edition, Mir Publication, Tehran.
- Fathian, M., Golchinpur, M., 2007, Strategies of Agility in Productive Organizations, Tadbir Journal, Year 17, No. 15, p. 56.
- Feizi, K., Moqadasi, A., 2005, Electronic State, Restructuring State in Information Age, First Edition, Tehran.
- Nematbakhsh, M., Jamshidian, Fatemi, 2001, A Study of Success of Information Systems in Management of Industrial and Service Organizations of Isfahan Province, University of Isfahan Peer Reviewed Journal, No. 1-2, pp. 132-140.
- Hughes, A., 2008, Modern Administrative Management, translated by Mahdi Alvani, Morvarid Publication, Tehran.
- Yaqubi, N., 2006, Electronic State: Management Approach, First Edition, Afkar Publication, Tehran.
- Goldman, S; Nagel, R; Preiss, K, 2005: Agile competitors and virtual organizations, Kenneth: van No strand Reinhold.
- Gunasekaran, A; Mcgaughey, R and Wolstencra, V(2001): Agile Manufacturing: Concepts and framework, Elsevier Science, 25-49.
- Hormozi, A.S, 2001: Agile Manufacturing: the next Logical Step Benchmarking an Internaonal Journal, 8(2), 2001,132-143.

How to cite this article: Khaleghi A. Impact of Information Technology on Organizational Agility. Int J Sci Stud 2017;5(4):89-93.

Source of Support: Nil, **Conflict of Interest:** None declared.