Evaluating the Effect of IT Application on Organizational Agility
(Case Study: Regional Water Corporation of Sistan & Baluchestan Province)

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ABSTRACT

Agility is one of new paradigms in managing organizations and a conscious and comprehensive reply to ever changing demands in competitive markets and gaining success in obtaining organizational opportunities. The aim of this study is evaluating the impact of IT on organizational agility. Therefore, a questionnaire containing the indexes of quadruplet competencies of organizational agility including competency, quickness, responsiveness and flexibility was distributed among 40 employees of regional water corporation of Sistan & Baluchestan Province. Collected data were analyzed by SPSS 17 software. Finally, the results showed a significant impact of IT regarding the dimensions of competency, quickness, responsiveness and flexibility on organizational agility.

KEYWORDS: IT, Organizational Agility, Dimensions.

INTRODUCTION

Today's situation has changed dramatically in compare with fifteen to twenty years ago. In this period of time, technology, market conditions and customer demands have changed rapidly and in different directions [1]. Organizations are dealing with issues such as rapid technical development, increasing access to technology and growing competition on technology development, increasing the risk, changes in wages and job skills, global markets and fierce competition, social and environmental responsibilities, resource constraints and increasing customer expectations [2,3], which have been considered less before. This critical situation has caused a significant revision in business priorities, strategic views and continue or discontinue the common models and even recent. In such increasingly competitive environment, improve organizational flexibility and responsiveness is an essential need. In the past decades, most organizations used to choose restructuring and reengineering strategies in response to environmental challenges and changes, but today, these approaches and solutions have lost their abilities to face organizational and environmental challenges and they should be replaced with modern viewpoints and approaches [4,5,6]. In this regard, the organizations are shaped differently among which one of the best and most modern forms is «an agile organization». The base of an agile organization includes integration of system of information technology, people (employees), business processes and facilities within a coordinated and flexible organization to react quickly to events and changes in the environment. Agility has almost disqualified the old methods of doing jobs that are suitable for static traditional operations, and is considered as a successful paradigm in current era. Agility is a reaction to the challenges in a work environment that is dominated on the environment by change and uncertainty. Agility is dynamic, change-grabber, aggressive, growth-oriented and seeking for success in profitability, market share and attracting customers in competitive markets entering which many organizations are scared because of their turbulence and uncertainty. Agility continuously considers the performance of staff and organization, value of products and services and permanent changes in order to achieve the opportunities of attracting customer. Agility promotes the competency of organizational competitiveness and causes lower production costs, increasing market share, customer demand satisfaction, facilitating rapid new product introduction and eliminating the activities without value-added [3,4,7,8].

The definitions on agility are much outspread. The term «agility» in the dictionary, means «Move fast, prompt, active», and «agility» is «the ability to move fast» and «being able to think quickly and with a clever method» [10]. Agility is derived from agile production which is a concept that has been common in recent years and has been accepted as a successful strategy by producers who have made themselves ready to increase performance significantly. The word «agile» describes the quickness and power of responsiveness when faced with external and internal organizational events. Agile organizations should not only be responsible for the changes, but should also be able to gain competitive advantages with a proper arrangement. As agility is a new issue, there is no definition widely accepted by everyone. For the first time, agility was officially published and introduced to everyone in 1991 by the Iacocca research Institute at Lehigh University, in a report entitled «Strategy of manufacturing enterprise in the twenty-first century: viewpoints of industrial experts». Then, for the first time, Peter Drucker introduced the conception of agile organization to business world to explain the

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necessity of increase in flexibility and responsiveness of modern organizations [11]. Many researchers studied on this issue after him, each one showed a certain aspect of this concept which led to create many definitions of agility, some of which are as following:

- ➢ Organization's ability to feel, understand and predict changes in the workplace [5],
- ➢ Ability to respond quickly and appropriately to sudden and unpredictable changes [12,13,14,15,16],
- ➢ Ability to profit from environment [1,16,17],
- ➢ A business unit's ability to survive and thrive in a competitive environment where changes are permanent and unpredictable [18,19],
- ➢ Agile organizations are flexible and fast in responding to changing market conditions [20],
- ➢ Agility is the ability to establish a balance between flexibility and stability. Flexibility is a response to planned changes, while agility, perceives the restrictions of changes in the least position and considers any changes (unpredictable and unplanned) possible [21].

For agility in the organization, usually some key features are considered. Capabilities of agility are the ones that provide the required strong point so that the organization would be able to respond appropriately to changes happened. These capabilities are counted as a basis for conservation and development of agility [4,6,14]. These competencies include: responsiveness, which is the ability to identify changes, react quickly to them and profiting from them; competency which refers to the ability to achieve goals and objectives of the organization in an effective and efficient manner; flexibility, which is the ability to flow various processes and achieve purposes using the same facilities; and quickness, whichmeans the ability to perform activities in the least possible time [4]. So, if an organization pursues agility, it is required to have such abilities and competencies and develop them as much as possible. Lin *et al* (2006), considered the most important capabilities of agility as, quality of information systems, communications links and networks increase, the use of information technology, accessibility of customers to information and communication technology application and scalability and synchronization of technologies. Yusuf *et al* (1999) believe that technology has an important role in the organizational agility and can affect different aspects of agility. They have mentioned knowledge of technology, skills and knowledge of taking advantage of new technologies and promotion of technology as the necessities of an agile organization. Sharifi and Zhang (1999) also considered hardware and software advanced technology and internal networks (intranets) as the key concepts of organizational agility [22].

It includes ingredients and dimensions which facilitate the business processes and leads to simplification of group work and information flow, increase in controlling the processes, improvement of design and implication process of maintain system and prevention repairs, implementing quality systems, etc [23]. Therefore, IT provides the ways to make it easier for technical, professional and financial services by creating new communication styles in organizations. IT is known as one of the most efficient technologies and the most important leverage of creating agility, without using which, making agile organization would not be possible. Hence, according to the advantages of IT in all organizational processes, in this study the impact of IT on organizational agility will be studied. In this regard, the main question of this research is whether applying IT has increased organizational agility of the dimensions of competency, quickness, responsiveness and flexibility or not?

METHODOLOGY OF RESEARCH

The main purpose of this study is evaluating the effect of IT application on organizational agility. In this regard, the impact of IT on organizational agility of the dimensions of competency, quickness, responsiveness and flexibility must be examined. This research is an applied descriptive analytical survey. The required data was collected using both direct methods (such as observation, interviews, questionnaires, etc.) and indirect (as the documentation). The statistical method to analyze data was t-test of dependent variable with Pearson correlation coefficient and all statistical operations have been conducted using SPSS17 software. Since this research has been conducted in a certain period of time, in 4 months (September 2010 to January 2011), it is cross sectional. The population comprised all employees of Regional Water Corporation of Sistan & Baluchestan Province. The judgment sampling method was used since the respondents must have been in both different periods of organization regarding IT application (before and after application). The sample volume was estimated about 40 people based on tables of Kerjsy and Morgan (1970) and Cohen (1969). Information Technology (IT) was considered as independent variable and organizational agility as the dependent variable. According to the nature of the research, researchers' made questionnaire was used which has been divided into two parts (before and after IT application). In the questionnaire, 21 indicators of the capabilities of organizational agility were included with five options (Likert scale: very low, low, medium, high and very high) for quantitative analysis of the data. Validity of the questionnaire was evaluated by the method of content and face validity and it was confirmed after the reformations needed. In order to test the reliability of the questionnaire, Cranach' Alpha was used, which measured 0.849 that shows high reliability of this questionnaire.

Hypotheses of Research:
According to the purpose of research, the following hypotheses have been considered:
Main Hypothesis:
- IT application has led to increase in organizational agility.

Subsidiary Hypotheses:
- ❖ IT application has led to increase in organizational agility of the competency dimension.
- ❖ IT application has led to increase in organizational agility of the quickness dimension.
- ❖ IT application has led to increase in organizational agility of the responsiveness dimension.
- ❖ IT application has led to increase in organizational agility of the flexibility dimension.

Conceptual model of Research:
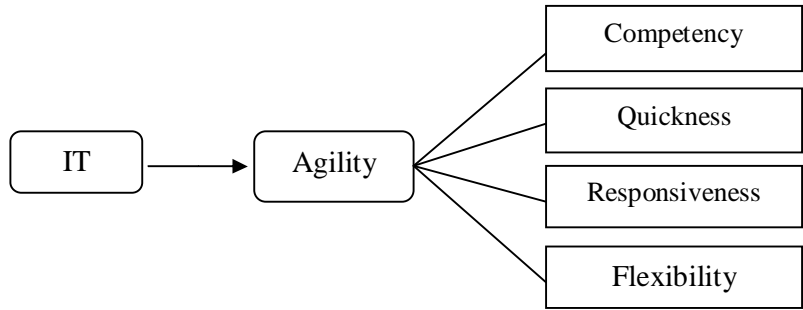
Results:

1st *Hypothesis:*
H0: IT application has not led to increase in organizational agility of competency dimension.
H1: IT application has led to increase in organizational agility competency dimension.

$$\begin{cases} \mathbf{H_o:} \ \mu_1 = \mu_2 \\ \\ \mathbf{H_1:} \ \mu_1 \neq \mu_2 \end{cases}$$

Table 1: Results of t-test of dependent variables for H1

Competency	N	M	SD	t	df	sig
Before IT Application	38	13.58	2.834			
After IT Application	38	23.16	3.184	-14.251	37	0.000

According to table above and calculated *t* with the significance level of 0.000 (less than 0.05), it can be resulted that the average difference have been significant and H1 was confirmed, i.e. IT application has led to increase in organizational agility of competency dimension.

2nd *Hypothesis:*
H0: IT application has not led to increase in organizational agility of quickness dimension.
H1: IT application has led to increase in organizational agility quickness dimension.

$$\begin{cases} \mathbf{H_o:} \ \mu_1 = \mu_2 \\ \\ \mathbf{H_1:} \ \mu_1 \neq \mu_2 \end{cases}$$

According to table above it is observed that the significance level of calculated t has been less than 0.05, it can be resulted that the average difference have been significant and H1 was confirmed, i.e. IT application has led to increase in organizational agility of quickness dimension.

3rd *Hypothesis:*
H0: IT application has not led to increase in organizational agility of responsiveness dimension.
H1: IT application has led to increase in organizational agility responsiveness dimension.

$$\begin{cases} \mathbf{H_o:} \ \mu_1 = \mu_2 \\ \\ \mathbf{H_1:} \ \mu_1 \neq \mu_2 \end{cases}$$

According to table above it is observed that the significance level of calculated t has been less than 0.05, it can be resulted that H1 was confirmed and the difference of calculated means before and after IT application have been significant, i.e. IT application has led to increase in organizational agility of responsiveness dimension.

4th Hypothesis:
H0: IT application has not led to increase in organizational agility of flexibility dimension.
H1: IT application has led to increase in organizational agility flexibility dimension.

$$H_o: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

According to table above it is observed that the significance level of calculated t has been less than 0.05, it can be resulted that the average difference have been significant and H1 was confirmed, i.e. IT application has led to increase in organizational agility of flexibility dimension.

Conclusion

In this turbulent world, the only thing which does not change is the change itself. In the business world which is directed increasingly under the three terms of customer, competition and change, organizations are trying to find the solutions for their problems. In such modern situation, most organizations are faced with changes inside and outside their environment in a 3 to 6 month period or 1 year at most. Though in the past, most organizations were aware of the importance of rapid reaction to the unstable market condition, but they were never able to do so. On the other hand, it is no more effective using traditional methods to deal with environmental changes. Therefore, organizations are searching new and suitable solutions about it. The best and newest way of survival and success of the organizations is focusing on their organizational agility. The organizational agility is a wisely and complete response to the rapidly changing requirements in competitive markets and succeeding by the opportunities the organization obtains. An agile organization is a rapid, compatible and aware business which has the competency to adapt rapidly in response to the unexpected happenings and changes, market opportunities and customer demands. In such business, there exist the processes and structures which facilitate the quickness, conformity and stability. The agile organization is a coordinated and ordered system that is able to reach the competitive performance in a dynamic, unpredictable business environment and this environment is not, of course, disproportionate to the current organizational performance which organization has never experienced.

The aim of this study is evaluating the impact of IT on organizational agility. The results showed that IT application has been effective on organizational agility regarding the four dimensions of competency, quickness, responsiveness and flexibility. Furthermore, improvement and development of top managers and executive managers' views on modern technologies including IT, is a key factor which some researchers have stated to achieve organizational agility. In this regard, support from top managers is very important and essential. When managers decide using modern technologies, they will be able to obtain information that is critical for them in turbulent condition. Accessing such information is very difficult and time-consuming without using IT. Hence, if IT is used in a proper way in organization, it can play a very important role in obtaining advantageous features of change flows and gaining competency, high quickness, responsiveness and flexibility and in one word, organizational agility.

<div align="center">REFERENCES</div>

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