Designing an Organizational Agility Model for Iranian State-run Organizations with Emphasis on the Information and Communications Technology (ICT)

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Abstract

Today's corporate world is replete with competition and change; and only those organizations using knowledge-based human resources and more advanced information technologies will survive these turbulent waves of increasing changes. Application of ICT has created new challenges for large organizations. Thus an organization has to be able to get the best out of ICT to complete, accelerate and facilitate its works towards reaching its goals. Given the fast-growing trend of ICT, competition for participating in various markets has become closer, forcing the organizations to adopt new solutions. Having been titled "Designing an Organizational Agility Model for Iranian State-run Organizations With Emphasis on the Information and Communications Technology (ICT)" this study is to present a model through an examination of agility components and prioritizing them, as well as a study of the grounds and executive problems of information technology. From among 2 main and 5 secondary hypotheses, the subsequent data analysis rejected one main and one secondary hypothesis and the rest were confirmed. Data collection tool for this investigation was a questionnaire with good validity and reliability. This paper concludes that the reason of non-agility has been the purchase of improper hard- and software, negligence towards formulation of a strategic IT plan, insufficient staff training and so on. Therefore it is suggested that organization's managers should accurately identify the opportunities and threats facing IT implementation and create necessary matrices for modern technology implementation by the help of

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experienced and knowledgeable experts. The paper ends with a presentation of state-run organizations agility model with an emphasis on ICT, considering the research hypotheses, related literature and comments of scholars, professionals and experts.

Keywords: Organizational Agility, Information And Communications Technology (Ict), State-Run Organization.

Introduction

Do we need agile organizations in today's world? First, let's see what is an agile organization. Is our organization an agile one? Given the characteristics of agile organizations, the answer is 'yes'. Evidence and documents show that it is not. How could an organization be 'agilized'? Previous research suggests that one way to agilize an organization is to use ICT. Thus the research question is: Is it possible to agilize an organization by the use of ICT.

Currently, the proper application of ICT has created a new challenge for large organizations. Thus, an organization has to take the most advantages from ICT towards successful performance; and to accelerate and facilitate its courses of action, if it wants to achieve its objectives. Any organization may identify its needs and find solutions to its own problems through ICT implementation. Since traditional executive processes in state-run organizations are costly and attritional, those problems must be overcome by taking appropriate measures.

Statement of the Problem

Currently, state-run organizations are losing many opportunities in providing desirable and timely service to customers as they do not use new technologies and have not completely implemented ICT projects. Today, ICT is known as the main factor of change towards achieving inter-organizational goals (Jafarnejad, 2007). By appropriate information provided by ICT, it will be possible to formulate organizational strategic processes. Managers have realized that in order to achieve an acceptable level of information and communications they have to go beyond their geographical and cultural borders (Rezaei, 2010). Using ICT, organizational structures would transform into horizontal from hierarchical and vertical ones, leading to more inconspicuous organizational borders. Tasks would be assigned based on ICT networks and employees would not be required to be physically present to perform certain tasks (Rezai, 2009). Within such an organization, knowledge-based employees would always be learning and training; and creativity and innovation would become their major tasks. Decision-making process would become decentralized and, also, decision will be made with higher quality. ICT consists of a set of tools, equipment, knowledge and expertise used to collect, store, retrieve and transmit data. Such technologies have numerous applications in information management (Behbahani, 2005). Applying IT would lead to some kind of changes with different effects on the organizations, including organizational agility. This requires an appropriate organizational structure to be able to get the best out of IT. Also, the huge flow of information has made it a requirement for managers to correctly use and be completely familiar with IT.

Activities such as receiving customers' requests, processing them, and so on, make it necessary to develop systems capable of correct and immediate processing of these kinds of data, providing useful information towards achieving the managers' goals. While it is expected that novel methods of ICT application would seek to extend and promote quality throughout organizational goals, organizations have some problems in successful planning and implementation of organizational processes, requiring them to take some measures towards moving from status quo to a desirable one. Existing classic methods have some

problems in creating an agile organization due to their inherent features including, but not limited to, the following:

- Generating an enormous mass of data.
- Improper use of knowledge-based management.
- Lack of creativity and innovation among the staff; pursuing some prefabricated procedures; and adherence to bureaucracy to the highest level.
- Time-consuming phases and cycles for systems and equipment optimization.
- Elongated duration of effective and revolutionary systems development and appropriate technical/engineering services provision.
- Presence of incompatible individuals within design teams and other operational groups.
- Improper telecommunication matrices.
- Longer time period for removal of failure.
- Lack of proper flexibility (improper cultural and organizational structures), (Khosh Sima, 2002).

Now the question is: which components are essential when creating an agile organization? And what is ICT's role as the most important component? With this in mind, what are the factors affecting ICT implementation project and agility components in terms of priority for the purpose of move from status quo to a desirable one? The problem is that organizational processes are slow, attritional and time-consuming which, in many cases, do not produce the desired result, i.e. customer satisfaction. One of major reasons for slowness and attritional nature of organizational processes is continued, extensive and unforeseeable changes in the domain of ICT and organization's missions. However, when investigating the possibility of ICT deployment within these organizations it must be noted that factors that are relevant in implementing this project must be completely interconnected. That is, if any segment of this mechanism is weak, it will considerably reduce the positive effects and advantages of ICT application. Therefore, the status quo must be characterized and success factors (speed, flexibility, innovation, service provision quality, shorter time period for removal of failure, appropriate telecommunication matrices) be identified in order to facilitate the transition from a traditional to an agile state. Some major problems such as time-consuming steps and cycles for systems' improvement, elongated periods of failure-removal, lack of proper flexibility in realizing state-run organizations' goals towards development, launch, repair and maintenance of communication matrices, rise because a comprehensive ICT project has not been implemented within such organizations. The main axes of such problems within organizations are informatics revolutions; and their propelling engine is the continuous technological changes and variation of its related equipment. Also, humans' access to computers and, along with it, the expansion of connections within telecommunication networks has created another revolution, namely ICT, which has resulted in broad application of computer networks or Internet. Thus, the main question is: whether the state-run organizations are agile in terms of ICT or not?

Research Importance and Significance
Traditional definitions of organization used to consider it as a closed system, isolated from outer environment, and consisting of individuals with constant and simple identities. Organizations not only are not closed, isolated systems, but they are open and depend on

staff, resources and environment. Indeed, communications with external elements could be more critical than those with internal elements and, in many major tasks, the distinction between environment and organization could be variable, imprecise and conventional (Anzari-Rostami, 2006).

State-run organizations, due to their high inflexibility, would not be able to improve; to develop safe and immediate communications; and to provide useful, efficient telecommunication and technology-based services. Thus, they need to transform into agile organizations by appreciating the foundations of success (speed, flexibility, innovation, quality) and through coherent resources and good practices within the organizational knowledge environment. Agile organizations require advanced and flexible information and communication systems which ensure a smooth and secure flow of information, and at the same time, create the capability to adapt to variable conditions. Hence it is needed to characterize and prioritize all internal and external factors influencing this process and their implementation settings (Karimi, 2002).

Without correct and sufficient information, organizations would submerge into a sea of uncertainty. The more complex the environment and faster the changes are, the higher will be the uncertainty; and the only thing that may alleviate this uncertainty is the correct and timely processing of information .

Facing these uncertainties, the Information and Communications Technology (ICT) is exactly what organizations need. ICT is able to overcome the constraints in this area by its characteristics of information storage, processing, retrieval and transmission (Hemmat-Abadi, 2003). ICT has a great influence on organizational design and agility; and an organization, for the sake of its survival, has to use it more frequently. Through implementation of ICT, an organization will be able to identify various processes and to move from a static to a dynamic state [and] towards facilitating and accelerating such processes; and since ICT is an intersectoral issue, different agencies would remain in a state of confusion.

Thus, for the purpose of the present study, it is necessary to identify and prioritize the factors influencing ICT implementation to make it possible to analyze the transition process from an extant traditional organization into an agile one capable of balancing between flexibility, constancy and stability. Afterwards it will be feasible to propose [the formation] of one single organization designated to ICT management (Mahdavi, 2010).

Without conducting such a study, the process of transforming a static organization into a dynamic one would remain incomplete. In other words, if the factors affecting ICT implementation (as the most important component in creating an agile organization) and other organizational agility components remain unidentified, the organization's extant processes will maintain their attritional and decelerated trends; and the resulting improper speed of action, poor flexibility, undesirable quality of services, and inappropriate customer responsiveness will lead to increased costs.

Finally, a traditional organization has to transform into an agile one through complete implementation of ICT. Therefore, in order to fulfill such a transformation, one has to identify organizational agility components and theirs influences in creating an agile organization first, while identifying and prioritizing the factors affecting ICT [implementation]. Therefore, it is necessary to identify the challenges of ICT implementation, which will make it possible to create an organic and dynamic organization while employing ICT and paying attention to organizational agility components. Hence the main objective of the present paper is to design an agility model for Iranian state-run organizations.

Research Hypotheses
Main hypotheses
H1. Internal factors influencing the implementation of ICT within the Iranian state-run organizations have a greater role than external ones in transforming them into agile organizations.

H2. ICT implementation leads to increased agility of Iranian state-run organizations.

Secondary Hypotheses
H1. There is a significant relationship between effective internal factors of ICT implementation within Iranian state-run organizations.

H2. There is a significant relationship between effective external factors of ICT implementation within Iranian state-run organizations.

H3. There is a significant relationship between agility components within Iranian state-run organizations.

H4. Implementation of ICT within Iranian state-run organizations leads to reduced equipment maintenance and repair costs.

H5. Application of ICT within Iranian state-run organizations leads to a higher level of automation (virtualization) of organizations' physical processes.

Research Method
As the present investigation aims at identification of challenges, barriers and factors affecting the implementation of ICT project to create an agile Iranian state-run organization and leads to the development of applied knowledge in a specific area, it is a functional investigation. This research is functional because it studies the factors affecting implementation of ICT by using cognitive foundations and matrix. The statistic population for this investigation includes all directors/managers of Iranian state-run organizations selected by classified sampling. But it is very costly and time-consuming to collect data from the whole population. This means that the required data could not be provided to decision makers in a timely fashion (Rezaeinejad, 2008). Also, in many cases it is not logical to gather data from the whole population. There are numerous sampling methods. The classified random sampling method classifies the population first, and then selects a random sample from each class. One of reasons for sampling from classes instead of the whole population is that it is possible to ensure that samples with sufficient elements of each class have been selected. Another reason for application of classified sampling method in this research has been to obtain better estimations for population's parameters. Samples are often classified based on characteristics such as age, education, sex, income levels, and geographical area. In this research, the random classified sampling was applied as well (Hafeznia, 2001). The following formula was used to determine the sample size:

$$n = \frac{N\left(Z_{\frac{\alpha}{2}}\right)^2 . pq}{\varepsilon^2(N-1) + \left(Z_{\frac{\alpha}{2}}\right)^2 . pq} = \frac{252(1.96)^2 . 0.5 \times 0.5}{(0.05)^2(251) + (1.96)^2 . 0.5 \times 0.5} = 152$$

An inventory of internal and external factors influencing the agility was prepared by performing field and library studies and was used as an analysis foundation. Previous research indicates 14 factors (variables) including: *hardware technology, telecommunication technology, knowledge engineering technology, human-machine interface technology, management, software technology, network development technology, service receivers, costs, flexibility, speed, quality, process automation, and organizational responsiveness.* By using theoretical foundations and the aforesaid background, these variables are covered by intervening variables including: *educational level, organizational unit, occupation, age, organizational position, personal position and background* (Jafarnejad, 2007; Sepehri, 2002).

Data Collection Tools and Method:

Following tools were used:
- Questionnaire
- Documents available at the National Iranian South Oil Company-Ahvaz, Iran

Collection of various ICT-related data requires library reference. For this purpose, libraries at different organizations have been used. Also, in order to obtain the records of previous research, references were made to ICT-related databases such as the Scientific Information and Documents Center – an affiliate of the Ministry of ICT- , the Ministry of Petroleum, websites of ICT Center, and conferences held on ICT in the last few years. By questionnaire's validity, one verifies if the measurement tool being used is really measuring the characteristic in question rather than another variable (Lewis, 1995). A test is used to determine the measurement validity of this research. Thus the content validity depends on the referees' judgments. In order to determine the measurement validity of this investigation, the preliminary questionnaire was formulated by using the comments from scholars, professionals and experts; and after several modifications steps, when the required certainty was obtained, the final scheme was prepared and was made available to 10 experts, whose comments on 14 variables relating to 3 subgroups are presented in the table below. Therefore, after obtaining expert comments, as seen in the tables below, the reliability coefficient of the questionnaire was about 0.863 by using SPSS software, which is acceptable because it is higher than 70%.

Table 1: Cronbach's Alpha

Coefficient size	Number of items
0.863	14

Description and analysis of the data of the research model is as depicted in table below:

Table 2: Distribution of subjects differentiated by internal and external effective factors and agility components

Category	Variables	Number of Questions	Frequency	Respondents' Comments					Average
				Very low	Low	Medium	High	Very High	
Internal Factors	Hardware Technology	5	Number	4	15	105	307	329	4.24
			Percent	0.5	2	13.8	40.1	43.3	
	Telecommunications Technology	6	Number	10	21	119	378	384	4.24
			Percent	1	2.3	13	41.4	42.1	
	Knowledge Engineering	5	Number	1	19	131	338	271	4.13
				0.1	2.5	17.2	44.5	35.7	
	Human-machine Interface Technology	3	Percent	0	4	47	188	217	4.3
				0	0.8	10.3	41.2	47.6	
External Factors	Management	7	Number	0	10	150	490	406	4.2
			Percent	0.8	0.9	14.1	46.1	38.1	
	Customers	5	Number	1	18	101	339	301	4.21
			Percent	0.1	2.3	13.3	44.6	39.6	
	Software Technology	6	Number	5	17	134	415	341	4.17
			Percent	0.5	1.9	14.7	45.5	37.4	
	Networking Technology	5	Number	1	14	85	329	331	4.28
			Percent	0.1	1.8	11.2	43.3	34.5	
Agility Components	Responsiveness	5	Number	2	20	92	374	273	4.18
			Percent	0.2	2.6	12.1	49.2	35.9	
	Quality	5	Number	5	9	12	326	318	4.24
			Percent	0.6	1.2	13.4	42.9	41.8	
	Speed	5	Number	6	31	110	396	307	4.15
			Percent	0.7	4	14.5	40.2	40.4	
	Automation	8	Number	9	41	168	569	429	4.13
			Percent	0.7	3.4	13.8	46.8	35.2	
	Reduced Costs	7	Number	5	26	162	462	409	4.17
			Percent	0.4	2.4	15.2	43.4	38.4	

Flexibility	5	Number	**10**	**20**	**162**	**362**	**206**	3.97
		Percent	**1.3**	**2.6**	**21.3**	**47.6**	**27.1**	

Hypotheses Test

Main Hypotheses

H1. Internal factors influencing the implementation of ICT within Iranian state-run organizations have a greater role than external ones in transforming them into agile organizations.

Table 3: t-test for comparison of internal and external effective factors

Factors	Average	Standard Deviation	Freedom Degree	t	Significance Level (p)	Result
Internal External	4.2168	0.42402	151	0.152	0.88	Main hypothesis rejected

H2. ICT implementation leads to increased agility of Iranian state-run organizations.

Table 4: Regression and correlation analysis of agility components
on internal and external factors variables

Benchmark Variable	Predictor Variable	Multivariate Correlation Coefficient R	Coefficient of Determination R²	Calculated Probability of F-ratio	Regression Coefficients	
					Internal Factors	External Factors
Agility components	Internal factors and external factors	0.727	0.528	83.281 P=0.000	B=0.236 Beta=0.239 t=1.869 p=0.051	Second main hypothesis accepted

Secondary Hypotheses

H1. There is a significant relationship between effective internal factors of agilizing the Iranian state-run organizations.

Table 7: Pearson correlation coefficient for internal effective factors

Correlation	Significant Level	Error	Test Result
Data as shown in the table below	0.000	0.05	Hypothesis accepted

	Hardware Technology	Telecommunications Technology	Knowledge Engineering	Human-machine Interface Technology
Hardware Technology	1	0.700 *	0.681 *	0.567 *
Telecommunications Technology	0.700 *	1	0.635 *	0.579 *
Knowledge Technology	0.681 *	0.635 *	1	0.548 *
Human-machine Technology	0.567 *	0.579 *	0.548 *	1

H2. There is a significant relationship between effective external factors of ICT implementation within Iranian state-run organizations.

Table 8: Pearson correlation coefficient for internal effective factors

Correlation	Significant Level	Error	Test Result
Data as shown in the table below	0.000	0.05	Hypothesis accepted

	Management	Customers	Software Technology	Networking Technology
Management	1	0.663 *	0.577 *	0.616 *
Customers	0.663	1	0.623 *	0.669 *
Software Technology	0.577	0.623 *	1	0.556 *
Networking Technology	0.616	0.669 *	0.556 *	1

Significance level : P=0.05

H3. There is a significant relationship between agility components within Iranian state-run organizations.

Table 9: Pearson correlation coefficient for organizational agility components

Correlation	Significant Level	Error	Test Result
Data as shown in the table below	0.000	0.05	H_0 rejected

	Responsiveness	Quality	Speed	Automation	Reduced Costs	Flexibility
Responsiveness	1	0.648 *	0.583 *	0.676 *	0.635 *	0.629 *
Quality	0.648	1	0.598 *	0.585 *	0.570 *	0.642 *
Speed	0.583	0.598 *	1	0.738 *	0.714 *	0.578 *
Automation	0.676	0.585 *	0.585 *	1	0.774 *	0.619 *
Reduced Costs	0.635	0.570 *	0.570 *	0.774 *	1	0.634 *
Flexibility	0.629	0.642 *	0.642 *	0.619 *	0.634 *	1

H4. Implementation of ICT within Iranian state-run organizations leads to reduced equipment maintenance and repair costs.

Table 10: Regression analysis and correlation of costs with internal and external effective factors variables

Benchmark Variable	Predictor Variable	Multivariate Correlation Coefficient R	Coefficient of Determination R^2	Calculated Probability of F-ratio	Regression Coefficients		Result
					Internal Factors	External Factors	
Cost	Internal factors and external factors	0.545	0.297	31.526 P=0.000	B=0.144 Beta=0.124 T=0.838 P=0.403	B=0.522 Beta=0.432 t=2.913 p=0.004	Hypothesis accepted

H5. Application of ICT within Iranian state-run organizations leads to a higher level of automation (virtualization) of organizations' physical processes.

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Table 11: Regression and correlation analysis of automation and internal and external effective factors variables

Benchmark Variable	Predictor Variable	Multivariate Correlation Coefficient R	Coefficient of Determination R^2	Calculated Probability of F-ratio	Regression Coefficients		Result
					Internal Factors	External Factors	
Automation	Internal factors and external factors	0.625	0.391	47.877 P=0.000	B=0.277 Beta=0.246 T=1.779 P=0.077	B=0.467 Beta=0.397 T=2.877 P=0.05	Hypothesis accepted

Results

Main Hypotheses

H1. *Internal factors influencing the implementation of ICT within Iranian state-run organizations have a greater role than external ones in transforming them into agile organizations.*
Analyses did not support this hypothesis. Although it could be said that there was a significant relationship (p=0.05) between internal and external factors affecting ICT implementation, the performed independent t-test has shown equal roles for both sets of factors while there are differences between averages. Therefore it is not possible to say which factors (internal or external) play a greater role in ICT implementation.

H2. *ICT implementation leads to increased agility of Iranian state-run organizations.*
In order to verify this hypothesis, ICT was evaluated by using 8 variables in two groups of internal and external effective factors; and organizational agility, by using 6 components describing the results of ICT implementation.
Since multiple variables were involved, the hypothesis was analyzed by using multivariable regression in order to verify any possible significant relationship between ICT implementation and organizational agility. With considering the resulting multivariable correlation coefficient and F ratio (27.76) in significance level of 0.05 it could be said that ICT implementation leads to increased organizational agility.

Secondary Hypotheses

***H1.** There is a significant relationship between effective internal factors of ICT implementation within Iranian state-run organizations.*
Internal effective factors included four variables (Hardware Technology, Telecommunication Technology, Knowledge Engineering and Human-Machine Interface). Considering Pearson correlation actors at significance level of 0.05 it was concluded that there was a significant relationship between internal effective factors. That is, the four internal factors are in defined and meaningful interrelations.

***H2.** There is a significant relationship between effective external factors of ICT implementation within Iranian state-run organizations.*
Pearson correlation coefficients at significance level of 0.05 revealed a significant relationship between external effective factors. That is, the four external factors influencing ICT implementation are in defined and meaningful interrelations.

***H3.** There is a significant relationship between agility components within Iranian state-run organizations.*
Pearson correlation coefficients with a significance level of 0.05 illustrated a meaningful relationship between organizational agility components. That is, the six organizational agility components are in defined and meaningful interrelations.

***H4.** Implementation of ICT within Iranian state-run organizations leads to reduced equipment maintenance and repair costs.*
While multivariable regression and obtained correlation coefficients showed a significant relationship between the predictor variables (the eight variables of internal and external factors affecting ICT implementation) and the benchmark variable (costs), the positive correlation coefficient (+0.0545) indicated that ICT implementation would not necessarily lead to the expected reduced costs (though it was expected that the costs are reduced by the ICT implementation). The interviews revealed that there was not a decrease in the costs because ICT implementation was already in its primary steps and that there was not enough preparation in the existing technical, engineering, cultural and regulatory infrastructures.

***H5.** Application of ICT within Iranian state-run organizations leads to a higher level of automation (virtualization) of organizations' physical processes.*
Multivariable regression and the obtained correlation coefficient showed a significant relationship between the benchmark variable (Automation) and the predictor ones (the eight internal and external factors). As illustrated by the correlation coefficient, the implementation of ICT leads to an ascending trend in the automation of an organization's physical processes.

Overall Conclusion
In order to have an agile organization, it is necessary to employ the advantages of ICT in any level. An examination of factors influencing ICT implementation within Iranian state-run organization has led the researcher to draw the following conclusions.
The first main hypothesis speculated a greater role for internal factors than external ones but the obtained result (rejection of the main hypothesis 1) showed that it was impossible to prioritize among internal and external factors for ICT implementation.
The second main hypothesis was supported as expected; proving that implementation of ICT would leads to a higher organizational agility.

Analyzing the first, second and third secondary hypotheses, significant relationships between any of internal and external factors (as inputs to ICT) and agility components (as outputs of ICT) were revealed.

While it was expected that implementing ICT would lead to lower costs – as speculated by the fourth secondary hypothesis- the interviews proved the contrary, surfacing various arguments such as "currently, we are at the beginning of the plan implementing" and "there are not technical, cultural, legal, social and regulatory infrastructures supporting such a plan". In other words, at least in this phase of plan implementation it could not be claimed that it will lead to decreased costs. A closer look into this issue would draw the attention towards the following:

- Hard-and-software is not purchased in a scheduled and pre-defined manner (Gunasekaran, 1999).
- Networks are launched with capacities that have not been calculated based on organizational needs (Markus,1998).
- Attention is not paid to the formulation of strategic plans for ICT application within organizations.
- Employees are not sufficiently trained towards proper application of ICT (Palaniswamy, 2000).
- The entire existing equipment and software is not used towards fulfillment of organizational goals (Tracy, 1994).

The fifth secondary hypothesis, speculating that implementation of ICT would lead to a faster automation (one of agility components), was supported as expected.

While rating the variables and verifying the roles of intervening variables it was revealed that the 14 variables could be prioritized individually, observing significant differences between the intervening variables and the research model variables.

Suggestions Based on Research Results

As the first main and the fourth secondary hypotheses were rejected, some solutions are suggested here to improve the conditions of ICT implementation towards enhancement of organizational agility within the statistic population.

1. Given the result of the first main hypothesis (H1) concerning ICT implementation, it is suggested that state-run organizations should provide for accurate identification of ICT implementation obstacles and challenges; appropriate matrices such as hardware, communication systems; sufficient training; improved user interface; awareness of mangers and consumers; network matrices; and software. As internal and external factors both have similar roles in ICT implementation, providing for the said matrices an organization would be able to comprehensively implement the ICT plan and enjoy its benefit that is, organizational agility.

2. With considering the confirmation of the second main hypothesis (H2) it is suggested that a strategic plan for ICT implementation should be formulated. Such a planning activity was not often considered as an important issue by the current research statistical population. A reason for this was "the absence of primary planning" or negligence towards it. Thus, it is suggested that before getting involved in the process of ICT implementation strategic planning, some time should be spent thinking about it and documentation of stages necessary to the plan's success. In the first step, the purpose of planning is outlined. Then a schedule is developed which is followed by an identification of the plan's limitations and key success factors. In the next step, the process of ground preparation is specified in which the whole

organization has to collaborate; and finally, technological infrastructures are taken into account as an essential part of planning process.

3. Given that the secondary hypothesis speculating a significant relationship between the 14 variables of the present research has been supported by the results, it is suggested that such a meaningful relationship among all variables (hardware-telecommunications technologies, knowledge engineering, human-machine interface technology, management, customers, software technology, networking technology) should be considered when creating the matrices required for ICT implementation. It has been demonstrated that purchase of additional hardware, spending money on new software, employing knowledge engineering, attracting the managers and satisfying the customers, and developing the telecommunications matrices, are all interrelated. Reasons of inappropriate development of ICT within studied organizations included intra-organizational individualism, improper knowledge of networks (such as Internet), unidentified independent authority in charge of ICT technologies, unawareness of ICT importance and neglecting its values. It is suggested that ICT should be correctly and fully implemented considering the priorities of research variables if organizational agility is to be achieved.

4. With considering the rejection of the fourth secondary hypothesis concerning no decreased costs through the implementation of ICT, no correct use is made towards the organizational objectives as a result of spending much money on the commissioning of internet and intranet networks, telecommunications matrices, strong databank and scattered trainings at organizations level. Therefore, it is suggested that an accurate analysis of costs and benefits should be done by experienced experts; and expenditures should be allocated appropriately if ICT is to be implemented in a desirable manner.

5. As shown by the results supporting H5, a dramatic change would be brought into the process executive practices (process automation) following ICT implementation which could make the staff, especially the most experienced personnel, concerned. For instance, they would be worried about labor cut-offs. Therefore, it is suggested that they should be provided with necessary training in order to eliminate their concerns which in turn would reduce the resistance against ICT implementation.

6. Given the clarification of intervening variables' roles on the subjects' behavior in this research, it is necessary to take into account the aforesaid significant relationship between the intervening variables (education levels, job category, organizational unit) and the 14 research model variables in order to create an agile organization and to implement ICT in a desirable fashion. Such a consideration would lead to paying more attention to more important factors in cases of financial and physical limitations. Also, the expectations of ICT tools users at the state organizations' level will become more realistic.

Conceptual Model Designed & Developed Based on Research Literature and Hypotheses Results:

The following conceptual model is proposed with taking into consideration the hypotheses results, research literature and expert and professional opinions for agilizing the organization on the basis of ICT. In this model, the ICT infrastructures will agilize Iranian state-run organizations emphasizing agility components which include: quality, costs, speed of action, automation and flexibility.
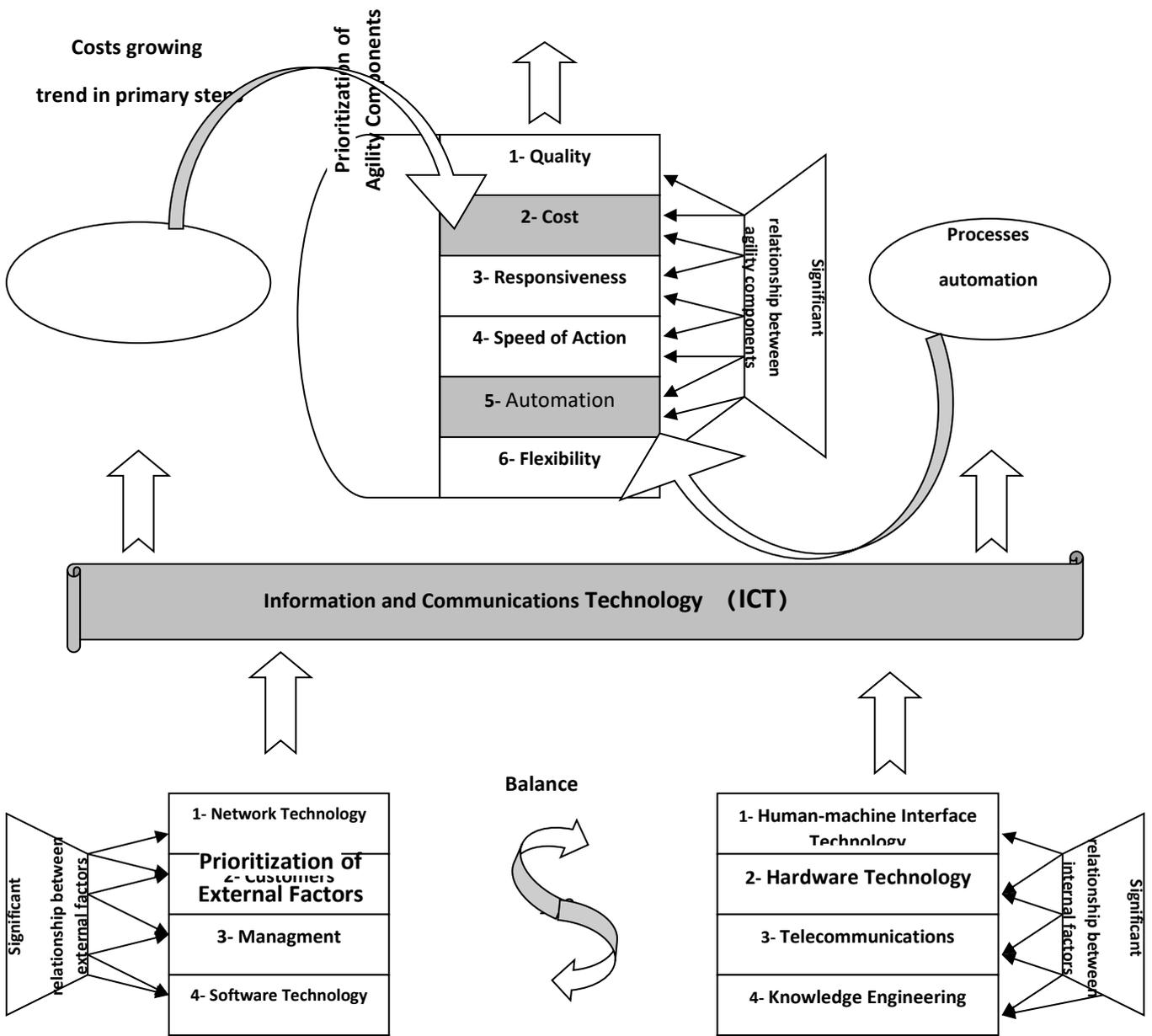
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