Vol.12No.1(2021)

Research Article

PURPOSEFUL MODELING OF ORGANIZATIONAL FACTORS WITH EMPHASIS ON CREATIVITY AND INNOVATION

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Article History: Received: 14 July 2020; Accepted: 2 January 2021; Published online: 5 February 2021

Abstract: Creativity and organizational innovation is one of the most crucial issues in the business administration and is one of the factors which affects the productivity. On the other hand, the results of the international reports demonstrate a lack of creativity and innovation in the country and consequently, in Iranian organizations, which reveals the necessity for paying more attention to this issue. The purpose of this research is designing a model which consists of factors which affect the organizational innovation and creativity as well as the discovery of structural relationships between those factors and it is achieved by using a descriptive-survey research method. The statistical population of the present study includes all employees of the Iranian government institutions and 384 individuals were reviewed by using Cochran formula and stratified random sampling.Research tool included the creativity and innovation questionnaire of the staff from the Ran sip's creativity Scale (1979). The validity of the questionnaires was confirmed by using the item analysis and its reliability was calculated by using Cronbach's alpha method. Moreover, the reliability for the creativity questionnaire was 0.81 and it was 0.80 for the employees' creativity. The designed model contains 11 factors of trust, optimism, job satisfaction, economic and job security, obvious and common job goals, organizational commitment, organizational learning, feeling justice, honesty and interest in the job and considering it as a meaningful activity, which is categorized in 8 floor levels. Findings demonstrate that among all these factors, the factor of specific and common job goals has been identified as an underlying factor in the formation of creativity and organizational innovation of employees, which has led to a sense of justice in the structure and consequently, it will lead to honesty, economic security, job security and optimism.

Keywords: purposeful modeling, Organizational factors, Creativity and innovation, Iran

Introduction

Organizations need to recognize their capacities and their inner abilities, repair their weaknesses and increase their strengths in order to deal with the environmental threats and seize potential opportunities. Issues and problems in organizations are so complex and intertwined and recognizing the problem is not easy and the human nature of organizations and the complexity of employees' behaviors has increased this complexity. Therefore, organizations should not wait for the wave, but they should be the source of the wave and change in order to improve. Therefore, since many of the achievements and progress of the humans are due to their creative thinking, the need to pay attention to this issue and provide the basis for growth and development of creativity in organizations is quite obvious (Ahmadi et al., 2016, 22).

In the contemporary period, due to the rapid growth and fundamental changes that occurred in various dimensions of organizations, a new horizon for analyzing them is opened in terms of management and behavior and that is organizational culture (aboulghasemi, 2017, 45).

Culture in an organization is like a personality in a human being. Culture defines the do's and don'ts and shapes the behavioral format of the organization (Safizadeh, 11, 2019). On the other hand, culture defines the boundaries of the organization and injects a sense of identity in the members of the organization and ultimately creates a kind of commitment in people to something that is more than personal interests.

Every organization has an unwritten culture that sets acceptable standards and limits of the unacceptable behavior. After a few months, most employees become familiar with and understand organizational culture. The culture that governs the organization shows what values are and which one is more important. In today's world, the ability to adapt and manage change is the key to the success and survival of any organization and the acquisition of these capabilities requires the organization to pay attention to the creativity of individuals. Today, one of the facets of strength and distinction of organizations is to have a desirable organizational culture. Organizational culture of each collection is the full-length mirror which reflects the features, characteristics, strengths and weaknesses of that organization and it shows its internal and external figures in terms of employees' adherence to values, principles, beliefs, attitudes and other related beliefs (Safdarian, 2017, 49).In the meantime, today's complex life is being renewed at every moment, and creativity is a necessity for the continuation of an active life. Man takes initiative on order to create joy in life. Today the slogan "Destruction awaits you unless

you are creative" is related to the managers of all organizations. Culture plays a role as a platform for innovation. However, if the current culture does not value ideas and ideation, every creativity will be suffocated before it appears in the seed (Maleki, 2019, 19). Employees help the organization survive so that when employees are creative in their work, they will be able to come up with new ideas about the products, performance, services or the procedures of the organization (Ahmadi, 2017, 26).

In the meantime, the importance and necessity of creativity and its growing process in the present age, has attracted the attention of researchers to analyze and study

The creativity from the perspective of organizations and companies. In addition, the organizational culture as a characteristic of all organizations which could affect various variables, is also reviewed. This chapter examines the introduction and expression of the problem about the impacts of organizational culture variables on the employee creativity and the need for this research has been emphasized. The main and special purposes and hypotheses are also mentioned. Furthermore, the conceptual definitions of research variables are explained and operational definitions are mentioned.

The necessity of the research

In recent years, a wave of utilization of systems in order to improve the administrative process of our country has been spread and many organizations show a great desire for using these systems. However, it should be examined to what extent such systems have been able to help managers in organizations in order to improve decision-making and whether such systems have been able to meet the expectations of managers in decision-making. The main purpose of this study is to investigate the impacts of goal-oriented modeling of organizational processes with the approach of division and overcoming the improvement of manager' decisions and it analyzes the effects and results from the administrative process modeling on managers' decisions, examines and identifies the factors affecting the success of the administrative process modeling in terms of supply

appropriate information such as accuracy, precision, timeliness and economy, examines the effects of administrative process modeling on the improvement of the managers' decision-making process and provides a solution to improve performance for exploitation.

Theoretical foundations

Process management

Process management is a combination of activities and laws which aim to achieve (complete) coordination and uniformity of the product which is obtained from the consecutive iterations of the process and it ensures that all products are the same. The process is a set of consecutive and related activities which creates a particular product and for creating this product, it requires specific data which provides the context which ensures that it works properly. Anyone who is involved in at least one stage of the process is considered as the owner of the process. The existing processes in each organization are designed for achieving the mission of the organization in order to satisfy the people's vital needs with a better performance. Existing processes must have the necessary efficiency and effectiveness in order to meet the needs of customers. A process will have the necessary efficiency when it is done correctly and it is effective when has been chosen and designed properly. The efficiency of each process demonstrates the doing the right thing and the effectiveness of the correct work (Ramezanian, 2015, 14).



Figure 1. Process typology

Changes in the environment have caused dramatic changes in the structure of organizations, so that other traditional structures are not responding to the environmental changes, and many large organizations in the past have perished due to their inability to adapt to the environment. An important factor which is accelerating these changes and increasing the complexity of the environment, is globalization. The category of globalization forces organizations to utilize the advantages of different regions of the world for achieving a competitive advantage and staying on the competition. One of the new approaches in the way of competition is the process-oriented and process-based management approach Tucker, 2016, 28).

Unified Modeling Language (UML)

UML is a third generation modeling language and is an open way to describe the features, graphics, build and document components of an evolving software system. UML is used in

order to understand, design, browse, configure, maintain and control the information of the software systems. The variables in this plan are:

Description	Symbol	Variable types	The name of the variable
The tools which are used such as software or hardware	res	independent	resources
The staff and the individuals who are involved in the process	rol	independent	roles
the restrictive rules in the organization	rul	independent	rules
Goals about changes	GOLD	dependent	goals
PROC=GOLD+ROL+RUL+R ES	PROC	dependent	optimal process
Minimum waiting time to get things done	TIME	dependent	The working time
The cost of getting a process done: COST=TIME+ROL+RES	COST	dependent	cost

The general approach in modeling this research is a top-down approach and division and dominance. Therefore, the modeling organizational goals, leads to graph creation of goals. In the goals node, each node represents a goal. Nodes with a lower level show the general and more comprehensive goals and higher level nodes represent more detailed goals. The purpose of creating this graph is to find inconsistency and conflicting goals and finding goals which intensify the achievement of the organization's vision.

The organizational structure in the process-oriented organizations

As mentioned, process work requires the formation of appropriate teams, but the following question arises: where are these teams in the traditional structure? In a process-oriented system, employees must have extensive information and decision-making authority and this view is an unforgivable sin in the traditional structure that considers the need for the administration to be the law of nature. Therefore, the traditional structure, its employees, management method, organizational culture and its evaluation and reward methods will not be able to implement process orientation unless we see changes in them. Organizational structure is one of the most important parts in which we see fundamental changes (Soltani, 2011, 23).

In the new structure, the duties of the managers and what they do, were mentioned, and now it is necessary to refer to the groups and individuals who are in charge of the main training. We should mention that these groups are not teams because the team is a group that owns the process or the manager and this section could be called a center of expertise. Expertise center refers to a group of employees of the organization who have skills and have a special profession. To clarify the matter, it should be noted that the central process of the previous duty offices is divided into two parts: the process team is where the work is done and the expert center is where the people are trained and skilled and its efficiency is the engineers who create the engineering plans and designs themselves and do a lot of innovative work in the process teams (Pourbakhsh, 2013, 36).

The Expertise Center strives to develop and complement skills to the highest and best quality as possible. One or more instructor is assigned to the center to develop the skills of the members and always make sure that the latest achievements in the field of work have been paid attention to themselves. Expertise centers are often virtual organizations with minimal appearance, that is, even there may be no room or location for these centers. The set of people and the mechanism by which they relate to each other (e.g. electronic communication) is the center of expertise. By visualizing the structure, we will reach at the independent process teams led by the manager or the support of the coach are occupied (Soltani, 2016, 53).

Success factors of process-oriented management

The crucial success factors for the transition from task management to process-oriented management are:

Changing the mental environment: One of the pervasive problems in organizations is partisanship. It means that the managers and employees of each department to

instead of focusing on the interests of the whole organization, they consider only their own interests. For example, the production sector produces to the maximum in order to reduce the cost of production of each unit, regardless of the fact that this action may lead to the accumulation of inventory and the organization may have difficulty selling it. The organization should promote the mindset that all managers and employees consider the impact of their work and decision on the entire organization. Process map design: Process understanding is facilitated through process map design. Careful design of the process map turns processes into measurable activities and determines responsibilities and performance based on them is measured according to them. Applying process-oriented management methods (process measurement): process measurement, creates common language which enables the organization to translate strategic goals into effective operations at the operational level. In other words, it reduces goals and strategies to tangible metrics by which individuals and teams could evaluate their performance (Rezaie et al., 2013, 34).

The most important process-oriented management methods in the organization

The most important process-based management methods in an organization are:

Re-allocation of decision-making rights: The implementation of a process-based management system requires a transition from a hierarchical command structure and controlling the past to a decentralized approach which empowers the employees. In this approach, the employee authority will be increased and the control over them will be decreased. Proportional organizational structure: Organizations must create a structure that facilitates process managementand retains the benefits of task specializations. Forming interdisciplinary teams by giving sufficient decision-making power is one of the best ways to combine these two approaches. Performance measurement system: Every organization should design a system which measures the performance in order to motivate employees to work towards the goals of the organization. To evaluate the staff in their current jobs, require a systematic approach for measuring their performance. The purpose of the performance measurement system is to establish communication between the participation of each employee and the overall success of the organization. In fact, this system should be able to calculate the

share of each employee in the success of the organization. The performance of each organization could be seen in the performance of its processes by identifying and controlling those processes, so the whole organization could be controlled, but each process could be examined and monitored from different angles. Each set consist of particular processes and the interaction and the performance of processes ultimately leads to an output in the organization. Now, if the processes in the organization are properly identified and managed by careful review, we could hope to achieve results and improve the organization. Effectiveness in a process is created when it could be properly managed. Actually with proper process management, the demands of a successful process will therefore have the necessary effectiveness. Because management is the optimal use of resources in order to achieve goals. Therefore, if the process management in a set is available, resources and inputs will be used optimally to achieve the goals of the process (expected outputs); This in turn will increase the effectiveness of the process and ultimately the organization. To achieve this, first

all the processes of the organization should be properly and completely identified and then each of the processes (according to the approaches that mentioned below), should be examined (Hamidizadeh, 2013, 44).

Eight-section approach in managing creativity and innovation

Each set consists of particular processes and the interaction and performance of the processes ultimately leads to the creation of an output in the organization. Now, if the processes in the organization are properly identified and managed by conducting an accurate study, we could hope to achieve results and improve the organization. Effectiveness in a process is created when it could be properly managed. In fact, with proper process management, the demands of a completed process will therefore have the necessary effectiveness. Because management is the optimal use of resources to achieve goals. So if there is a management process in an organization, resources and inputs will be used optimally in order to achieve the goals of the process (expected outputs) and this leads to an increase in the effectiveness of the process and eventually the organization (Rezaei et al., 2013).

Interactions of one process with other processes

One of the things that could affect the success or failure of an organization is the interactions between the processes of that organization. In this regard, process management will be appropriate and acceptable when it could first have a correct understanding of these interactions and secondly, it could identify the most effective or dominant process.

Process adjustment

Another thing that should be considered in process management is that the process specifications after identification and extraction should be related and regulated according to the existing standards and therefore the appropriateness of the process, according to the necessary settings, should be determined. Obviously, particular characteristics must be provided for each of the processes in order to have proper performance and the status of each of the mentioned characteristics should be examined in different time periods.

Matching the process with customer requirements

Paying attention to the customer and estimating his needs is one of the main pillars in improving the quality of products and services in the organization and if in the process management discussion, the process is not looked at with special attention and accuracy on the customer, maybe management process will not be done properly. Furthermore, we should mention that paying attention to the customer and estimating his needs, requires other methods. It should be noted that in the process management process, customer orientation in processes is important in this regard and each of the customer needs is considered in all related organizational processes. In fact, paying attention to the customer needs in the process is a necessary condition for moving towards customer orientation.

Matching the process with the strategic plans of the organization

just as the lack of a comprehensive strategic plan in the organization reduces the performance of the collection and ultimately reduces the effectiveness of the collection, so the lack of proper implementation of the strategic plan throughout the organization has devastating effects on the organization. Also in the organization's processes, as one of the main components of the organization, the strategic plans should be properly understood and streamlined in order to ensure that the process is consistent with strategic goals and plans and the organization is under control.

Process efficiency

Another factor that indicates proper management of organizational processes is the existence of productivity in processes, in a way that appropriate and reasonable outputs will be achieved as a result of using resources in processes. To examine the processes in this regard, it is appropriate to evaluate the efficiency, effectiveness and productivity of processes through the development of productivity indicators.

Control of possible failures in processes

Another factor which could be effective in managing processes and involved in its proper execution is identification possible failures and failures in the processes and controlling each of them.

Process audit

Every organization that thinks of excellence and improvement, by having a way to continuously control its current situation, could walk this route easily and therefore the existence of such a method will help the organization to improve its situation. In the audit, the process requires all the information which is related to the process (mentioned above), and it should be reviewed and analyzed certain times and continuously.

Re-engineering the processes

With a process approach to the organization and reviewing the processes from different approaches after the process audit, certainly some processes do not have proper performance and therefore it needs attention in order to improve their performance. In any case after identification process and Accuracy in each of the nine committees mentioned above, the structural nature of some processes may require some changes, so by studying each of the processes more carefully, changes could be made in some of the processes (Hamidi Zadeh, 2013, 49).

Modeling

Modeling is one of the human mental techniques which is used not only for scientific purposes, but also for daily human affairs which is used many times. Modeling in general means simulating an environment of different sizes from the real environment and possibly materials which are different from the materials of the modeled environment. In modeling, the components of the real environment are selected first and in proportion to the intended purpose of modeling, properties are abstracted from each of the real components and it means that for each component, the real environment creates an abstract entity and by establishing a connection similar to that of the real components, within the entity abstract, the real environment is modeled. For example, in making such a model, no attention is paid to the strength of the components or the beauty of the model, because the study of such features is beyond the scope of this particular modeling. The example above, illustrates one aspect of modeling and that aspect is the exploration. It means that in similar modeling of the above modeling is specification. It means that sometimes a model is presented to introduce and present the characteristics of a real entity. Geographic map is a good example of this aspect of modeling.

Therefore, we could conclude that the reasons for modeling are two goals:

- 1) Exploration
- 2) Specification

According to the problem definition, the modeling considers one or both of the goals. The other point that we should notice in the modeling process, is the creation methodology of the modeling. In some cases, the model is a simple thing and it will be created easily but in some cases the model is so complex.

Methodology

This research is applied in terms of purpose and in terms of data collection, it is descriptive and analytical and the method of data collection is field research. The purpose of this research is to design a model which consists of factors affecting organizational innovation and creativity and also to discover the structural relationships between those factors by using a descriptive survey research method. The statistical population of the study includes all employees of the Iranian government institutions. 483 people were reviewed by using Cochran's formula and stratified random sampling. The research instrument included a questionnaire on employee creativity and innovation from the Ran Sip's creativity scale (1979).

The validity of the questionnaires was confirmed by using the item analysis and its reliability was calculated by using Cronbach's alpha method. The reliability was reported, 0.81 and the designed model was reported 0.80. the designed model included 11 factors of trust, optimism, job satisfaction, economic and job security, obvious and common job goals, organizational commitment, organizational learning, feeling justice, honesty and interest in the job and considering it as a meaningful activity which is classified into 8 levels.

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Figure 2. Structured and leveled model of creativity and innovation in the organization

Purposeful modeling of organizational factors with emphasis on creativity and innovation of this model in order to identify the resources which are needed in the implementation of the organization process. We use class diagrams in order to model the resources. Advantages of using class diagrams for modeling

references are:

1) Resource classification and abstraction

2) Finding the connection of resources with each other

3) Defining the operations which may be performed on the resource and defining the resource properties



Figure 3. Schematic of modeling in the alternative of creativity and innovation

Findings

The second question of the research is:

Is modeling the processes in accordance with the goals of the organization, effective in achieving creativity and innovation, according to the opinion of managers of the organization?

Hypothesis H0: According to opinion of the managers of the organization, modeling processes in accordance with the goals of the organization is not effective in achieving creativity and innovation.

Hypothesis H1: According to the opinion of the managers of the organization, modeling processes in accordance with the goals of the organization is effective in achieving creativity and innovation.

The t test based on the opinion of 15 experts shows that the average of the responses is 3.866. The calculated t value of the 1.79 statistic is greater than the t of the figure $(t(\alpha=5\%)=1.761)$. In other words, the significance level of Sig = 0.095 is more than 5%. Therefore, with at least 95% confidence, we could say that according to experts, this performance is effective in achieving creativity and innovation.

	The error of the standard Deviation	The standard deviation	Average	Number
95% confidence interval	0/3824	1.868	3.866	15
	The difference of the average	Level of significance	Degrees of freedom	t
High limit Low limit	0.868	0.095	14	1.79

The second question of the research is:

2) According to the organization managers, how much could the process modeling based on the organizational goals be realistic and be implemented with the existing resources and be effective?

Hypothesis H0: From the managers' point of view, modeling processes in accordance with the goals of the organization could not be realistic and could not be implemented with available resource and it could not be effective.

Hypothesis H1: According to the managers' point of view, modeling processes in accordance with the goals of the organization could be realistic and could be implemented with available resources and it could be effective.

Out of 21 questions of the questionnaire, 8 of them are related to the second question of the research. The one-sample t-test based on the opinions of 15 experts

Shows that the average of the responses is 3.756. the value of the calculated t statistic of 1.91 is greater than the t of the figure (t(α =5%)=1.761). In other words, the significance level of Sig = 0.076 is greater than 5%. Therefore, with at least 95% confidence, we could say that from the point of view of the managers of the organization, modeling the processes in accordance with the goals of the organization could be realistic and could be implemented with the available resource and it could be effective. Table 2 shows the statistics of this test.

	The error of the standard Deviation	The standard deviation	Average	Number
95% confidence interval	0/3947	1.529	3.756	15
	The difference of the average	Level of significance	Degrees of freedom	t
High limit Low limit	0.756	0.076	14	1.91
2.3 3.69				

Table 3. One-sample t-test statistics of the second hypothesis

The third question of the research is:

3) According to the managers of the organization, to what extent is the modeling of processes in accordance with the goals of the organization understandable and unambiguous and helps to implement the prescribed rules and policies?

Hypothesis H0: From the managers' point of view, modeling processes in accordance with the goals of the organization is not understandable and unambiguous and it does not contribute to achieve the policies and rules. **Hypothesis H1**: From the managers' point of view, modeling processes in accordance with the goals of the organization is understandable and unambiguous and it contributes to achieve the policies and rules.

Out of 21 questions of the questionnaire, 6 questions are related to the third question of the research. The one-sample t-test based on the opinions of 15 experts shows the average of the responses is 3.734. the value of the calculated t statistic of 1.901 is greater than the t of the figure (t(α =5%)=1.761). In other words, the significance level of Sig = 0.078 is greater than 5%, so according to the opinions of the organization managers, we could say with confidence of at least 95% Managers, modeling processes in accordance with the goals of the organization is understandable and unambiguous and it contributes to achieve the policies and rules. Table 4 shows the statistics of this test.

	The error of the standard Deviation	The standard deviation	Average	Number
95% confidence interval	0/3860	1.495	3.734	15
	The difference of the average	Level of significance	Degrees of freedom	t
High limit Low limit	0.734	0.078	14	1.901

Table 4. One-sample t-test statistics of the third hypothesis

2.325 3.678

In order to be competitive and stay competitive, it is essential to turn to processes. It is enough to see the organization from the horizontal perspective instead of vertical, wide and long organizational charts. That is when the processes emerge and show themselves. In order to move towards a process-oriented and implement process-based management in the organization, we must first identify the processes accurately and completely. Then the importance of these processes should be known to all the stakeholders and communications, their names, and their inputs and outputs should be tangible to all. To ensure the proper functioning of processes, their progress must be measured by precise criteria and finally the process-oriented management in all organization should be operated at that moment. Processoriented management is not only responsible for performing the tasks of an office, but also during the overall implementation of the constructive of one process, it will bring value to the customer. In process-oriented organizations, the manager has a negative connotation of managing and dominating people has been abandoned and replaced by sincere leadership. The leader gives the individuals view, motivation and progress context and on the other hand, everyone is responsible.



Figure 4. The final structural model of organizational creativity and innovation

Conclusion

The designed model contains 11 factors of trust, optimism, job satisfaction, economic and job security, obvious and common job goals, organizational commitment, organizational learning, feeling justice, honesty and interest in the job and considering it as a meaningful activity, which is categorized in 8 floor levels. Findings demonstrate that among all these factors, the obvious and common job goals is considered as the foundation of the formation of creativity and organizational innovation of employees and it create a sense of justice in people in the mentioned structure and as a result of that it will lead to honesty, job and economic security and optimism. In determining the movement strategy of education, we must look for ways to create executive structures by engaging the public by using all the capabilities and the facilities of the society and increasing these capacities in order to provide a foundation for all the intellectual elites, thinkers and experts to share their culture and politics in the field of education and in the educational system of the country. In such a system, all the influential elements in the community are working to create a motivating and growing environment for achieving the goals and programs of education and they have an active participation in order toget better and provide superior quality educational services. Education in terms of type of work and its mechanism of influence on the basis of society, its planning and decisions, is very quickly judged by public opinion, reviewed by society and analysis of elites and thinkers. Therefore, decision-makers in education must identify and explain the existing organic relationships between factors, conditions and areas influencing cultural and educational planning and effective control programs should be accurate about the feedback of their activities and decisions and they should evaluate all of the plans and programs based on the views of thinkers. As long as policies and planning do not rely on systematic evaluation and evaluation programs are not reviewed at a rapid pace and the quality of planning is not controlled, not only it does not lead to progress, but also it resists against many existing realities in society and even scientific and technical innovations and new beliefs.

Research recommendations

In the field of research, recommendations could be mentioned as follows:

- 1) Commitment and support of senior management for the methodology which is used in this research in order to achieve the desired quality in service delivery
- 2) Using the modeling for all organizational activities, because the organization does not feel the need to change the method and it ignores the new methods, so the activities will be neutralized and undone.
- 3) Perform modeling in the education organization by examining more details

and provide effective training to make decisions about the upgrading systems

- 4)Reform of the management system, in this regard, the goals and structure of the system should be adjusted with a process attitude and the horizontal and the general expansion of the organization should be prevented. It must also integrate all the independent and specialized systems into a comprehensive and it is necessary to pay special attention to the integrated system with a process approach, data quality and the quality of the change process and the necessary connection should be made between the critical stages of change.
- 5) The increase in the employees' participation, so for this reason the manager should inform the employees about the details of their tasks and the managers should support them in order to enhance the processes.

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