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Factors affecting the implementation of business process reengineering: taking into account the moderating role of organizational culture(Case Study: Iran Air)

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Abstract

Business process reengineering (BPR) has been proposed as an effective managerial tool to deal with technological changes as well as the marketing changes in today's competitive markets, which minimizes activities costing across the processes or the entire organization by analyzing and redesigning workflow and processes inside and outside the organization. Unfortunately, the advantages of business process reengineering and how to implement and monitor it have not been known in the Iranian airlines and even taking into account the strategic and important role of this industry in the country's economy, no basic and effective research has been conducted on the use of this process in such companies. The main objective of this study is to investigate the effect of technical factors, human factors as well as the moderating effect of organizational culture on implementing business process reengineering in Iran Air. Research method of this study is applied in terms of its objective and it is descriptive-survey in terms of its method. The statistical population of the study included senior managers, middle managers, operational managers and supervisors and their total number was 312. The results of the analysis of statistical data show that human factors and technical factors affect the implementation of business process reengineering in Iran Air. Organizational culture also moderates the effect of human factors on the implementation of business process reengineering in Iran Air.

Keywords: business process reengineering; human factors; technical factors; organizational culture

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1. Statement of the problem

Unfortunately, the current lack of attention to the commercial processes of aviation industry has led the industry to be faced with many problems and challenges the industry. Reza Nakhjavani, aviation industry expert and former head of the Civil Aviation Authority, in an interview with cultural heritage news agency in July 2014, severely criticized the performance airline organizations and affiliated companies, including various airlines. He said that these days, all eyes have turned to the government and say that if the government does not pay attention to this industry, not only one of the major factors in the development of our country is destroyed but it was also we should await the unpleasant consequences. One of the unpleasant consequences is reduced profitability and absolute loss-making of the industry (Zarrabi, Mohammadi and Saghaei, 2006).

However, based on the opinion of Hamid Ghavabesh, Secretary of the association of Iranina airlines, in an interview with ISNA in July 2014, underdevelopment and the current problems of Iran's airline industry are not just due to sanctions and most of these problems are internal and thus, internal problems that lead to underdevelopment should be first solved. The researcher believes that by the implementation of business process reengineering in the airline industry, significant results can be achieved. This is because there are financial problems in the management of airlines and airports that with a little care and re-engineering their business processes, the ratio between costs and benefits can be reduced.

Given the nature of business process re-engineering in creating fundamental changes in all aspects of strategy, processes, technologies and human resources, it can be said that this process has a high level of risk and usually about 70 percent of reengineering projects fail in action (Mir-Ghaderi, 2011; Nauman Habib, 2013).

Unfortunately, despite the significant growth of business process re-engineering concepts, all of the organizations that have begun its implementation have not achieved a scientific model that can help them achieve their desired results. Accordingly, organizations need a scientific and basic model to meet their needs based on the existing conditions; however, there is no proper model in the literature. Unfortunately, despite the efforts of the research literature to identify successful models, many researchers have addressed BPR models that have been failed and thus, are not used in this study. So after extensive study of the research literature, the following model is proposed.(Fig 1)
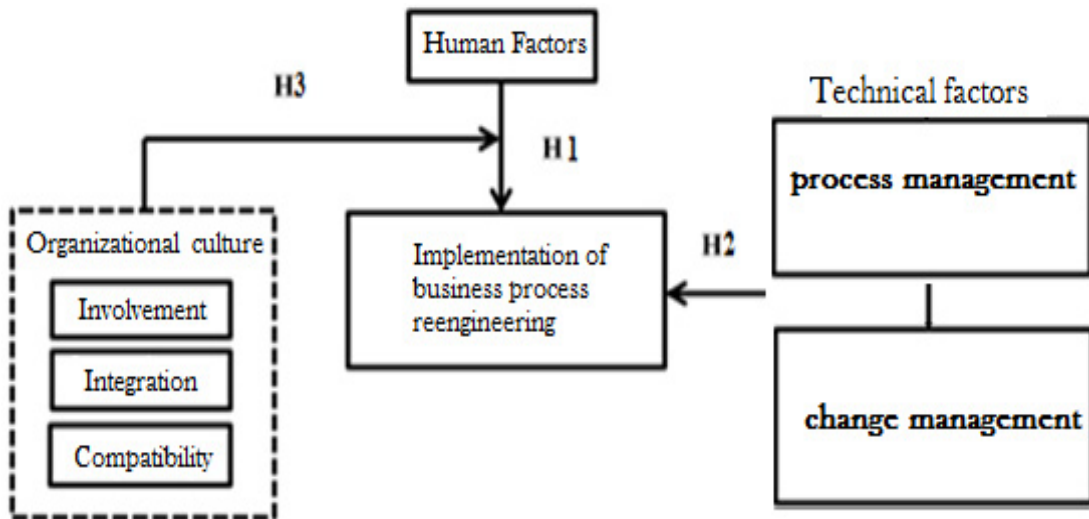

Fig 1.suggested model

2. Hypotheses

The research hypotheses consisted of three main hypotheses and 6 sub-hypotheses as follows:

Hypothesis 1: Human factors affect the implementation of business process reengineering in Iran Air airline.

Hypothesis 2: Technical factors affect the implementation of business process reengineering in Iran Air airline.

2a: Process management affects BPR implementation.

2b: Change management affects BPR implementation.

Hypothesis 3: organizational culture moderates the effect of human factors on the implementation of business process reengineering in Iran Air airline.

3a: Individuals' involvement moderates the effect of human factors on the implementation of business process reengineering in Iran Air airline.

3b: Integration moderates the effect of human factors on the implementation of business process reengineering in Iran Air airline.

3c: Compatibility moderates the effect of human factors on the implementation of business process reengineering in Iran Air airline.

3. Research literature

3.1. Definitions of business process reengineering

Reengineering was for the first time introduced to the world by Hammer and Chmpy with the following definition: "the fundamental rethinking and radical new design of processes to achieve amazing improvements in critical contemporary measures, such as price, quality, service and speed". In fact, business processes re-engineering require simultaneous redesign of processes, organization and support of information systems to achieve major improvements in time, cost, quality and customer attention to products and services.

"BPR" is a process that is used for radical changes in organization and puts a large emphasis on changes in the organizational process, labor and behavioral components of the organization. For the successful implementation of this process, there is a need for fundamental change in a way that it is ensured that this change is appropriately conceptualized, the company's workforce has been justified by the Board of Directors and its implementation culture is established in the organization (Isakhani and Mir-Ghaderi, 2011).

3.2. Human factors

Human factors mean measures necessary for the implementation of the tasks that are directly dependent on the activity of staff (Numan Habib, 2013). These factors can be both negative and positive. Negatives factors can be workers' fear of job loss, uncertainty of project outcome and a sense of discomfort and anxiety in the workplace and positive factors can be collaborative work environment, top management commitment and changes in the management system.

3.3. Technical factors

"Technical factors" are a management idea which asserts that there are techniques, methods, processes or activities that are more effective than the rest of the techniques, methods, processes or activities in creating output (Siavash and Mohammadi, 2009). The idea is based on the belief that through appropriate processing, reviewing and testing, the generated outputs have fewer problems and will result in more limited complaints. "BPR" is also looking for ways to minimize error and maximize achievements. The results of best practices (technical factors) in re-engineering include process management and change management.

- Process Management

In most organizations, business processes are invisible. Staffs usually define mental models, old assumptions, work generalizations and their understanding of the way things work as process. The first step in creating a process-oriented business is creating a new view of the organization, with a magnifying glass for processes. This is what can be called a process view. Creating a shared process vision should include all personnel.

- Change management

It is defined as the application of management styles and leadership to keep and encourage employees to learn and continuous growth and acceptance of change and to create conditions and opportunities to make organizational changes. Preparation for accepting changes and synchronization with the process of changes requires effective management of change process. One of the major barriers to successful implementation of business process reengineering is resistance of different aspects that occurs in the organization. Many business process reengineering projects create major changes of the organizational main processes and structures, but they may not achieve all the expected results (Isakhani and Mirghaderi, 2011).

4. Organizational Culture

Organizational culture is the common beliefs in an organization. The deeper and more the common beliefs are, the more powerful culture will be and the more different and less common the beliefs are, the weaker the organizational culture will be. In general, culture in the organization determines the intellectual and ethical boundaries of the organization and creates a sense of identity among members. The dimensions of organizational culture can be:

- Involvement: means high involvement that is to complete subjective involvement with the work.
- Integration: means stability and behavior of staff originating from fundamental values. This means that staff, leaders and followers' behavior is coordinated and continuous even when they have opposite views.
- Compatibility: Compatible organizations are guided, take risk, are mindful of their mistakes by the customers and have the capacity and experience for change. They are continually improving the organization's ability to value customers (Bakhtae, 2006). This property is evaluated by three criteria: creating change, customer orientation and organizational learning.

5. Research background

According to Nauman Habib (2013), Mahabadi and Mostofi (2013), Habib and Vazir (2012) and the results of previous research in general, the effect of factors such as: information and communication improvement, improvement of performance and the quality of relationships, organizational change management and management change, cross-organizational management, identification of strengths and weaknesses of the current situation, the promotion of managers' knowledge, development of general framework, considering various organizational aspects, quality and support of system and management as well as reduction of paperwork (bureaucracy), is more effective in the implementation of business process reengineering. By considering the research question, other factors such as human factors and technical factors (process management and change management) as well as organizational culture (involvement, integration and compatibility) have been studied in the present study. Taking into consideration the variables that have not been addressed in the literature, the present study aimed to develop a relatively comprehensive model that can be considered among rare and innovative researches in this context.

6. Research method and the study population

The research method is applied in terms of its objective and is descriptive-survey in term of its method. The study population included senior managers, middle managers, operational managers and supervisors and their total number was 312. A total of 312 questionnaires were distributed, of which 288 were returned and just 276 of them were usable and analyzed. The reliability of each component of the questionnaire was investigated using Cronbach's alpha and all were confirmed in a good level. Correlation tests and structural equation modeling were used for data analysis. SPSS and AMOS software were used for data analysis.

7. Descriptive statistics

Since no suggestions have been made for improving the situation based on the results of descriptive statistics, the results of descriptive statistics have been removed.

8. Inferential statistics

The ways through which small groups' properties are inferred based on large groups' properties based on measurements of the properties is called inferential statistics (Kiamanesh, 2004). In the present study, due to its small population size, no sampling has been done and the results are generalizable to the entire population.

The following table shows the results of data analysis in AMOS software to test the hypotheses. According to the values presented in this table, when the significance number is more than 1.96 or less than -1.96, and the amount of error (P-Value) is more than 0.05, the hypothesis is confirmed. The results show that all the hypotheses have been confirmed based on the implemented structural models.

Table 1. standard coefficient and significance numbers for the hypotheses

Hypothesis	standard coefficient	significance numbers	result
1	4.784	0.0063	confirmed
2	3.66	0.0079	confirmed
2a	3.93	0.0067	confirmed
2b	4.14	0.011	confirmed
3	3.47	0.019	confirmed
3a	3.05	0.024	confirmed
3b	2.57	0.014	confirmed
3c	5.11	0.047	confirmed

9. The results of hypotheses testing and comparing them with previous studies

In this section, the results of hypotheses testing and their comparison with previous researches are explained in detail.

The first hypothesis is not confirmed and this means that all the human factors discussed in this study are affective when implementing business process re-engineering in Iran Air. This is in line with the results of the study of Nauman Habib (2013) and Mahabadi, Mostofi and Rasolian (2013) and also Isakhani Mir-Ghaderi (2011), but it is not consistent with the results of Monavarian (2001).

The second hypothesis is confirmed and this means that all the technical factors discussed in this study are affective when implementing business process re-engineering in Iran Air and is one of the challenges that managers should consider. This is in line with the results of the study of Siavash and Mohammadi (2009), but it is not consistent with the results of Azadi, Tavakoli and Harandi (2006).

Confirmation of this hypothesis means that when implementing business process re-engineering in Iran Air, definition of process-oriented organization with the concept of a set of processes that add value for customers and make money for job owners, cause the creation of a good relationship and discussion and converts personal perceptions to customers' model and understanding of work processes. This is in line with the results of the study of Bostanchi (2010), but it is not consistent with the results of Bahreini (2007).

Confirmation of this hypothesis means that when implementing business process re-engineering in Iran Air, stimulating individuals to accept changes, culture-making, training, empowerment, employees' involvement, appropriate mechanisms to encourage and reward, strengthening the spirit of innovation and establishing effective communication can facilitate the process of change. This is in line with the study of Mahmoudi and Bodaghi (2012), but it is inconsistent with the study of Bahreini (2007).

Confirmation of the third hypothesis means that when implementing business process reengineering in Iran Air, understanding organizational culture is of great importance to create an innovative company and to enjoy the creativity of staff. This is in line with the study of the Supreme Council of Culture (2012), but it is inconsistent with the results of Lari and Hosseini (2013).

Confirmation of hypothesis 3a means that when implementing business process reengineering in Iran Air, involvement has a positive effect on accepting and implementing reengineering by employees and it shows that empowering individuals and forming team groups and developing capabilities are important in creating a sense of commitment and having role in decisions by staff. This is consistent with the results of Saeedi (2010), but it is inconsistent with the results of Mahabadi and Mostofi (2013).

Confirmation of hypothesis 3b means that when implementing business process reengineering in Iran Air, integrity has a positive effect on basic values and achieving agreements among managers in accepting and implementing reengineering by employees and it shows that coordination and integrity among organizational units is important. This is consistent with the results of Monavarian and Bakhtae (2006), but it is inconsistent with the results of Mahmoudi and Bodaghi (2012).

Confirmation of hypothesis 3c means that when implementing business process reengineering in Iran Air, compatibility continuously promotes company's ability and it always aims at valuation of customers. This is consistent with the results of Bahreini (2007), but it is inconsistent with the results of Davenport and Short (2014).

10. Recommendations based on research findings

The first main hypothesis: According to the first hypothesis which states that human factors are affective when implementing business process re-engineering, the suggestion in this section to senior executives of Iran Air airline is to feel the need for change in order to strengthen staff's morale and motivation for acceptance and lack of fear of job loss and creating job security and then support the implementation of reengineering by commitment, spending time, allocating the best people and providing the necessary resources (time and budget) in order to make changes to the processes, technology and business role of culture in the workplace. Accordingly employees should be encouraged for multi-skill trainings such as problem solving, communication, team work and customer orientation and specialized training in various occupations. Since employees have a sufficient knowledge of practices of doing works in the company and have touched problems closely, managers should encourage them in new design of processes and decisions and practices of doing work. Because this will cause them not to resist against changes and motivate them and create a sense of being important in decision-making and consequently, create commitment and motivation for creativity and innovation so that employees will cooperate in the process of accepting business process reengineering and its implementation.

The second main hypothesis: According to the second hypothesis which states that technical factors are important when implementing business process re-engineering, the suggestion in this section to middle and operational managers of Iran Air airline is to use certain methods like process management and change management (by supporting IT) in order to take actions to solve existing challenges in the organization, through processing, reviewing and testing in accordance with generated outputs that have fewer problems and limited complaints.

- Hypothesis 2a: According to hypothesis 2a, which indicates the positive effect of process management on implementing business process re-engineering, the mid-level managers are suggested to prevent the possible failure when implementing business process re-engineering in the organization by creating process-oriented nosiness and its precise implementation and optimal management of these processes.
- According to hypothesis 2b, which states that change management is important and effective when implementing business process re-engineering, the suggestion in this section to operational managers of Iran Air airline is to set the stage for accepting future changes and alignment with processes by stimulating employees to accept change, culture-making, training, mechanisms for encouragement and reward, effective communication, strengthening creative spirit and empowering individuals through leadership, effective and sincere communication that are the main components of change management.

The third main hypothesis: According to the third hypothesis, which indicates the importance of organizational culture when implementing business process re-engineering being influenced by human factors, the suggestion to managers and executives of Iran Air airline is study organizational culture in order to find out the reasons of organization's success or failure and also they can use organizational culture as an important and effective factor in

controlling the company, because it has an important effect on the behavior of people working in the organization and also it include a large part of values and these values affect the attitude and behavior of people in the workplace.

- According to hypothesis 3a, which states that involvement has a controlling role in the effect of human factors on implementing business process re-engineering, the suggestion to supervisors of Iran Air airline is to attempt to empower individuals, form teams and develop their capabilities so as to create a sense of ownership and responsibility among employees so that they feel that they have authority and can express themselves and their innovation. By forming teams in line with the objectives of the company, employees will be values and will feel that, like managers, they are responsible of what has been done and thus, the company will make greater progress in the implementation of business process reengineering.
- According to hypothesis 3b, which states that integrity has a coordinating role in the effect of human factors on implementing business process re-engineering, the mid-level managers of Iran Air airline are suggested to integrate fundamental values, create agreement among members and coordinate units so that employees feel that they are involved in the values constituting their identity and expectations. They are also suggested to reach an agreement in the disputes in different levels of the organization and work together very well with various functions to achieve the common goals so as to take steps to better implement BPR for sublimation of Iran air and its goals.
- According to hypothesis 3c, which states that compatibility has a moderating role in the effect of human factors on implementing business process re-engineering, the operational managers of Iran Air airline are suggested to know more about and respond to the internal and external environment of the company and also translate and interpret the environmental signs they get and create opportunities to encourage creativity, knowledge gaining and development of capabilities so that all successful factors affect the successful implementation of business process reengineering.

11. Conclusion

According to the investigated hypotheses, it was noted that the more the staff establish better relationship with their job, and on the other hand, the more the employers have a sense of trust to their subordinates and there is a proper delegation of authority, individuals will be involved more and thus, their capability will be increased and the company will move toward growth and development. Stimulating organization and individuals to accept created changes is possible through communicating with each other, training and strengthening the spirit of innovation is possible through the creation of a suitable environment and encouraging providing new ideas and lack of resistance to new changes.

Employees' involvement and participation in various activities of the company can increase their empowerment. Studies show that, employees' involvement and participation and encouraging them to so, creates a sense of ownership and responsibility in them and this sense of ownership leads to the creation of more commitment to the company and increases independence among employees. This independence also can cause a person to feel empowered in the company. Thus, according to the explanations provided, the results of this study seem logical.

References

Azade, M.A., Tavakoli Moghaddam, R., and Jafari Harandi, S. (2006), "Modeling and Evaluating reengineering in the management of purchasing a manufacturing company – studies by simulating business processes", Engineering faculty press, Volume 40, Issue 4, Page 457 to 468

Bahreini, S. (2007), "Analysis of the implementation of Business Process Reengineering in higher education", specialized scientific articles of Administration, No. 138

Bostanchi, M. (2010), "appropriate ways of re-engineering in Iran", Tadbir monthly journal, No. 183

Davenport, Short.(1993).Process Innovation: Reengineering Work through Information Technology, . Boston: MA: Harvard Business School Press.

Habib, N. M., & Wazir, I. M. (2012). Role of Education and Training in the Successful Implementation of Business Process Reengineering: A case of Public Sector of Khyber Pakhtun Khwa (KPK). [Research Paper]. World Journal of Social Sciences, 2(2), 172-185.

Isakhani A., Mir-Ghaderi H. (2011), "re-engineering of business processes: analytical-executive model", Tadbir monthly journal, No. 165

Kiamanesh, Statistical Reasoning in the Behavioral Sciences, Tehran, SID (2004), vol. I, p. 35

Lari, A., Hosseini, M. (2013), "Classification of Web 2.0 business models and their relationship with Web 2.0 properties", Information Technology Management, Volume 5, Number 3, pp. 169 to 190

Mahabadi A., Mostofi, MR. and Rasulian M. (2013), "investigating the feasibility of establishing re-engineering Iran's banking industry with a strategic approach to improve the business climate", Quarterly Journal of Accounting, Vol. VI, No. 19

Mahmoudi, J. and Bodaghi, Gh. (2012), "process re-engineering with simulation approach", Information Technology Management, Volume 4, Number 10, pp. 139 to 158

Monavarian A. (2001), "Total Quality Management or Business Process Reengineering: providing an integrated model", public administration, No. (52)

Monavarian, A., Bakhtae A. (2006), "Understanding organizational culture based Denison's model; case study: Industrial Management Institute." The fourth International Management Conference

Nauman Habib Muhammad. (2013). Understanding Critical Success and Failure Factors of Business Process Reengineering, international review of management and business research.

Saeedi, P. (2010), "The identification of organizational culture based on Quinn and Garrett Model", Journal of Educational Psychology, Vol. I, No. 2, pp. 49 to 59

Siavash M., Mohammadi, M. (2009), "Investigating the challenges of the implementation of BPR (Business Process Reengineering) in governmental organizations", Journal of Development and Transformation Management, 65-73

The Supreme Council of the Cultural Revolution (2012), "providing a methodology for Iran's cultural management process reengineering", multi-media meeting of publications, researches, papers and books, first page

Zarrabi A., Mohammadi, J., Saghaei M. (2006), "The challenges of the Iranian aviation industry", geography and environmental planning, the twentieth year, No. 33, pp. 23 to 42