

MANAGEMENT ISSUES IN ORGANIZATION'S INFORMATION TECHNOLOGY AND BUSINESS PROCESSES RE-ENGINEERING

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ABSTRACT

Business Process Reengineering (BPR) is the best approach for organizations seeking competitive advantages and basic improvements in all aspects of their organizational performance. Information Technology (IT) is considered as one of the potential suppliers of business process re-engineering. Therefore, it is incumbent upon the organizations to be fully familiar with IT and institutionalize it in their organizations before implementing business process reengineering. Many organizations and companies have carried out business process reengineering; however, those ones who made information technology an integral part of the business process reengineering implementation have succeeded. In this paper, the role of information technology in BPR and the design of processes are described. Then, appropriate ways of re- business process reengineering in Iran, factors involved in successful BPR projects, appropriate and special methods of Iranian organizations and the most important concerns of IT organizations are investigated. To achieve the objectives, a descriptive-analytical research method was used and the data was collected through secondary data collection as well as note taking methods.

Keywords: *Re-Engineering, IT, Management*

INTRODUCTION

Business Process Re-engineering has gained the attention of many organizations due to its role and significance in increasing efficiency, customer-oriented behaviors, and universal competitions. Nowadays, any organization attempts to create and provide the most appropriate conditions for re-engineering. The achievement of expected results is dependent upon a series of factors and conditions which support the design and implementation of re-engineering. Organizations should consider re-engineering and information technology as an integrated and unified strategy. Business Process Reengineering is a process through which significant progress can be achieved.

This process requires a change or even an increase in practices, tasks, knowledge, and organization values. Hence, IT, as a business facilitator, can contribute to important improvements in variables such as cost, quality, and delivery time.

BPR eliminates dead spaces and reduces the time between workflows, brings about fundamental changes in the structure and culture as well as information technology, and improves the overall performance (Attaran, 2004). What has happened in the last decades of business is changing the nature of trade due to the impact of information technology. At the present time, supply chain management, as one of the foundations of the world of e-business implementation infrastructure, is of interest.

In the present era of global competition, various products should be available to customers according to their request. The customer's request for high quality and fast services has created pressure which previously did not exist. As a result, companies can no longer afford this scope of the tasks. In order to respond to these concerns and create competitive advantages, we need a fundamental review of business processes, especially of our entire supply chain.

Comprehensive BPR is a process-oriented approach which aims at enabling the radical improvement of supply chain processes using information technology. The domain of radical improvement of BPR is concerned with internal processes in which IT can play a vital role.

While a comprehensive BPR studies and develops radical improvement of organizational processes, no improvement would be possible without information technology (Sanjay and Vicki, 2008).

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E-Commerce and the Internet affect the economic efficiency of supply chain using Comprehensive BPR, as its executive ground, in following ways:

- Reducing distribution and transaction costs
- Increasing the speed of product development
- Providing more information for purchasers and sellers
- Increasing consumer choices and their access to suppliers
- Reducing the distance and time dimensions (Spewak, 1993).

BPR plays a prime role in the electronic supply chain through eliminating waiting time, rework, inspection, transportation and waste processes and simplification of forms, procedures, communications and technology and the integration of professions, customers, suppliers and teams, as well as automating the control, transfer, analysis of goods and services, and tedious process. Organizations obtain a competitive advantage increase, information sharing, uncertainty reduction through strategic planning, cycle time reduction, business processes, competitiveness, product development speed through creating a virtual environment, cost reduction, increasing product quality, organization flexibility, and the profitability, and increasing choices through the development of information technology infrastructure, customer service enhancement, performance increase and improved supply chain performance, and increased suppliers' performance through the knowledge of information technology (Turbans *et al.*, 2002).

Definition of Business Process Re-Engineering (BPR):

There is no consensus among experts on the definition of BPR so that various definitions have been put forth. The followings are examples of these definition

BPR was first introduced by Hammer and Champy as “ a fundamental rethinking and radical new design of processes to achieve amazing improvements in critical contemporary measures, such as price, quality, service, and speed”.

Manganly and Klein defined the term as “ a quick and radical redesign of business strategic and increasing value of systems, policies, and their support organizational structures in order to optimize the work low and increase productivity in a organization" (Hammer, 2006) .

Bolnesky has also recognized BPR as a “a set of works an organization can do for changing its internal processes and controls in order to move from the traditional vertical and hierarchical structure toward a horizontal, intra-activity, team-based and flat structure in which all processing's are done to accomplish Customers' satisfaction."

Peprad and Roland: "BPR is a philosophy that aims to improve the process of achieving improvements in performance through redesigning processes. In the process of redesigning, the organization seeks to increase the maximum value of activities and decrease other activities to a minimum. This approach can be used in a sole process or in the whole organization" (Stadler and Kilger, 2003).

Appropriate Method of BPR Iran:

One of the features of the new business world is increased levels of competition. Organizations that want to increase their market share or even survive in such an environment must adapt to the changing environment. The very changes in business processes are being formed. One of them is BPR which Michael Hammer defined it as a revolutionary redesign of business processes to achieve dramatic improvements. Since the re-engineering theory is relatively new to the business, its methods and approaches are still developing and since the application of engineering concepts can take many forms, its methods also differ, as the emphasis on certain factors will vary across reengineering projects(Champy, 2005). BPR is a process through which the current duties of organization are replaced with business processes. Therefore, the organization moves away from a task-oriented status toward a process-oriented one. This helps to accelerate business processes and reduce costs and thereby become a more competitive organization. Different approaches to BPR have been proposed by researchers. Those methods proposed by Champy, Hammer, and Davenport are used more extensively than others. In this paper, there has been an attempt to evaluate the implementation of the BPR methods appropriate to the cultural environment and attitude of Iranian organizations and introduce the best method.

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Types of BPR Methodologies: Different approaches and methodologies have been developed by researchers. Various categories can be specified for each of them. A classification method for BPR projects considers how these methodologies focus on factors such as information technology, strategy, management, operations, and human resources. Another technique regards how these methodologies view the innovative and intrinsic nature of BPR. For example, Champy and Hammer claim that the degree of BPR dependence on creativity, innovation, and new thinking is much higher than its dependence on current and past experiences so that they believe that the organization should have a fresh start with a blank page in BPR. Defining a structured approach for BPR is impossible with such a view. On the other hand, people like Davenport, Short, Harrison and Furry believe in defining a specified framework for BPR and having experiences for it. They also add that it is required for BPR projects to be accompanied with plans and programs as well as training and motivation. In this step, we have attempted to briefly describe some structured methodologies. The most distinguishing BPR methodologies include:

klein's Re-Engineering Methodology:

Preparation: In this step, the project members will be re-organized and activated.

Diagnosis: The development of customer-oriented models for business processes

Selection: The process selection for re-engineering and necessary adjustments for redesigning

Solution: Defining the technical requirements for new processes and developing detailed action plans

Transmission: Re-engineering performance

Furry's Re-Engineering Methodology:

Identifying customer needs and setting goals

Measuring and planning the current processes

Analyzing current Processes

Benchmarking the best practice

Development of new processes

Performing open-engineered processes

Gaha's Re-Engineering Methodology:

Perspective: Portraying the re-engineering project through management commitment, identifying re-engineering opportunities

Alignment with business strategies and definitions for the application of information technology

Initial Steps: Organizing the re-engineering team and setting performance objectives

Diagnosis: Documenting existing processes and identifying gaps of the performance

Replacement: Defining alternatives and prototypes and selecting IT infrastructure

Rehabilitation and modernization: Re-engineering, implementation and installation of IT components and the diagnosis of other business components

Observation: The detection of performance measurement and continuous improvements

Johansen's Re-Engineering Methodology:

Discovery: Setting business strategies and prospects

Redesigning: Redesign of all activities, skills, and processes

Realization: Change management techniques, organizing re-engineering team, communication, change management and performance measurement

Stepper and Petrozo's Re-Engineering Methodology:

Exploration: Identifying problems, setting aims, identifying processes for shaping redesigning and re-engineering

Search and Collection: Process analysis documentation, diagnosis and benchmarking IT needs

Innovation: Re-thinking of the processes

Reorganization, retraining and Re-Instrumentalizing: Implementation of new processes and training new technologies

Harrison and Pratt's Re-Engineering Methodology:

Procedure Selection: Procedure selection and arrangement for re-engineering efforts

Benchmarking: Analyzing and evaluating current processes for clients and benchmarking

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The Prospects of Process: Creating a prospect for future processes

Problem Solving: Detecting explosive improvements and identifying various solutions for different scenarios of change

Planning: Comprehensive planning for improving processes

Implementation: The implementation of re-engineering planning

Continuous Improvements: continuous improvement of processes and reflecting performance measurements

Barrett's Re-Engineering Methodology:

The Incubation Period: Choosing team members, identifying best practices and defining IT requirements

Targeted Thinking: Identifying improvement opportunities and alternatives approaches for redesigning process

Truth Seeking: Procedure selection, Increasing team motivation and commitment

Testing and Learning: Commencing the experiments with prototypes of the proposed processes

Kattinger's Re-Engineering Methodology:

Perspective: The establishment of management commitment and perspective, exploring opportunities for re-engineering, IT levers diagnosis, selecting processes for redesigning

Initial Steps: Informing the members of organization, organizing reengineering team, project planning, recognizing the foreign clients of the process, needs assessments, setting performance goals

Diagnosis: documenting existing processes, analysis of current processes

Redesigning: The detection and analysis of new processes, preparing prototypes and designing the details of the new design and processes, designing human resources, the design and analysis of information systems

Renovation and Rehabilitation: reorganization of the rules relating to human resources, implementation of information systems' components, user training

Evaluation: Performance evaluation processes, continuous improvement programs

Coopers and Lybrand's Re-Engineering Methodology:

Diagnosis: Current processes are characterized.

Modeling Current Processes: Strengths and weaknesses of current processes are identified through their modeling.

Selection: Selecting the best alternatives available to be designed and tested.

Implementation: Designed processes are implemented.

Texas Instrument's Re-Engineering Methodology:

Preparations

Understanding and recognition

Redesigning

Implementation

Rasman's Re-Engineering Methodology:

Defining the problem and organizing it

Process analysis, diagnosis and redesigning

Implementation of new designed processes

Condor's Re-Engineering Methodology:

Developing the business perspectives and process objectives

Understanding existing processes

Identifying processes for redesigning

Identifying the levers of change (IT)

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Introducing new processes

Implementation of new processes

Evaluation of new processes

Continuous improvement

Obolensky's Re-Engineering Methodology:

Know what you want: Understanding and changing needs, analysis of key stakeholders and their needs, a framework for success

Plan: The plan outlines for the proposed planning process

Run: technical techniques, cultural techniques

Evaluation of Transformation Plans: Control and recovery operations, controlling the results

Achieving Continuous Transformation: Transformation in transformation, control results

Davenport and Short's Re-Engineering Methodology:

Perspectives: The development of business perspectives and process objectives

Diagnosis: Diagnosing processes which need to be redesigned

Understanding: Understanding and measuring the current processes

Diagnosis: Diagnosis and assessment of IT capabilities

Prototype Design: Designing the prototype of new processes (Cheng *et al.*, 2009)

Failure of re-Engineering Projects:

There are many negative factors which will be the reason for further failures of reengineering projects, if they are not taken into consideration. Some of these factors include the followings:

Ignoring the Process.

Disregarding staff's values and beliefs.

Being consent to a few results, experience has shown that reforms are ineffective or even harmful in a long-term period.

Being an Early Surrender.

The current organizational culture and management trends are barriers for starting re-engineering.

Expecting re-engineering to be run from the lowest levels of an organization; This is not possible due to

Two Reasons: First, the pressure required to re-engineer the organization should be established from the highest levels because the staffs in lower levels of the organization do not possess a comprehensive understanding about the organization and its processes problems. Second, middle managers do not initiate these kinds of changes due to their fear of jeopardizing the power and influence.

Employing a Leader who does not know Re-Engineering

Being narrow-minded in resource allocation; the allocation of limited resources for staffs reinforces this idea that re-engineering is a passing phase.

Trying to Satisfy Everyone: Many units discarded while implementing re-engineering, and some of its staff may lose their jobs.

Stop attempts against development opponents.

prolongation of the program: Re-engineering is associated with anxiety for all employees. Experience shows that organizations should maximally spend about 12 months for developing and implementing a new plan (Sury, 2007).

The Success of the Re-Engineering Projects

The support and custodian of top managers (with strong and stable partnership)

Strategic prioritization or ranking (in the direction and consistent with strategic objectives of the company)

Conditioning businesses to a constant change (along with measurable goals)

Proven methodology (which includes prospects for the processes?)

Effective transformation management (with a subtly transforming culture)

The property (ownership and response)

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Re-engineering group composition (both in being sympathetic and honest together with knowledge) (Ward and Peppark, 2002).

What are the Appropriate Methods for Iranian Organizations?

Examining a variety of reasons for the failure and success of re-engineering methodologies and the atmosphere of Iranian companies, due to the presence of non-competitive atmosphere and properties related to this factor, it can be concluded that those methodologies which have a special attention to establishing, improving or creating a perspective are of interest. Gaha, Davenport and Short, Harrison and Pratt, Kattinger and Condor's are among the methodologies which have a special attention to the prospects of the organization. However, the important thing is that those methodologies should be dominantly used which examine the determination, improvement, or creation of prospects in the whole organization. Most Iranian organizations are lack such a perspective. Hence, it is Davenport, Short, and Condor's methodologies can contribute more in the implementation of reengineering in situations like this (Niyaki, 2001).

Due to the tensions intensified even among senior managers in the projects which are defined depending on economic conditions, another important point is that continuous improvement factor is among the fundamental elements in the final phase of the re-engineering processes. Therefore, it seems that Condor's reengineering methodology has better conditions to be implemented in Iranian organizations. It is noteworthy that the lack or shortage of Iranian organization staff's familiarity with improvement projects would cause confusion.

Thus, a factor which can make a significant contribution to the performance space is a short-improvement project after perspective phase and simultaneous with data collection since the introduction of the necessary actions and improving attitudes provide next coordination and cooperation. Hence, re-engineering may be extended in such a way.

Development of Business Perspectives and Process Objectives

Understanding existing processes

Improved Recovery: short improved recovery period with little change Identification of redesigning processes

Identification of the change levers (IT)

Introduction of new processes

Implementation of new processes

Evaluation of new processes

Continuous Improvement: Continuous improvement of processes and the reflection of performance measurement. Furthermore, by investigating the usual methods of implementing re-engineering, and with regard to the special form of Iran's economy (closed economy), and also the specific structure of the labor laws and social affairs that are fundamentally different from the world's standardized forms in the enterprise resources planning systems, it can be concluded that if the requirement for reengineering of business processes as a prerequisite for the implementation of the enterprise resources planning systems, concerns a compliance approach with a software product, it can by no means cause a competitive advantage to be created for the organization, since;

Firstly, the rules existing inside and outside of the organization would not necessarily be flexible enough to meet the specific form of enterprise resource planning systems. Secondly, assuming full compliance of organization concepts with format of a specific software, since the creation of the context is based on standard methods of a particular product, (even by assuming that such a change method is announced as reengineering) it cannot create a distinct competitive advantage for the organization. The free re-engineering would be more appropriate for the implementation of a transformation project in Iran (Ahmadi, 2005).

The Most Important Concerns for Organizations in the Field of Information Technology:

Surveys conducted among 200 leading companies ciao have shown the 10 following priorities as the most important concerns of the organizations in the field of IT in 2002:

1. reduction / cost consolidations;

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2. The alignments of IT-related costs and purchases with business;
3. Excellent servicing in IT sector;
4. Contracting (supply from outside the company);
5. Resource Management;
6. Security;
7. The development and maintenance of enterprise architecture (the basic structural of systems, components and internal/external communications and principles governing the design and development);
8. Issues related to system integration;
9. Increasing the value of IT services;
10. Developing a formal planning process for investment in information technology;

What seems to be interesting with regard to these comments is that firstly: enterprise architecture is listed as one of the top 10 CIO priorities. Secondly, the enterprise architecture is one of the few subjects that is explicitly emphasized in this list, while others subjects are general and vague. Above all, the enterprise architecture is a supportive mechanism for and almost includes all the listed cases on the aforementioned list.

In addition, other statistics also indicate a comprehensive development in the approach to enterprise architecture in the private and public institutions. According to the report by "META Group", dated October, 2000: "By the end of 2005, the enterprise architecture teams will be key players in the field of business strategies regarding planning for change and integrations." (Milani *et al.*, 2005).

RESULTS AND DISCUSSION

Results

At this time, organizations use re-engineering for creating transformation and innovation in order to provide the conditions for surviving in today's competitive environment. Furthermore, it was mentioned that the consequences of such action include providing quality services and products for customers, reducing costs, accelerating and improving organization performance. Despite the afore-mentioned advantages, it should be stated that the re-engineering process is not easy and causes concerns and problems for organizations in its early stages. As a result, choosing an appropriate method for implementation with regard to organization conditions would increase the success of the re-engineering projects.

Business process reengineering is a method by which important improvements (developments) would be obtained; however, it requires major changes in organization and business. This method requires a change or even an increase in work practices, tasks, knowledge, and organization values. Thus, reengineering requires a long time, resources, and effort and is simplified through using elements called facilitators.

This article researched the vital role of IT as a facilitator. IT allows organizations to change the process not only by increasing cooperation but also by decreasing mediations through using common data bases and communication technologies. Hence, IT leads to significant improvements in variables such as cost, quality, and delivery time. Although these are the only prominent components, structural changes, organization culture, and human resources should also be considered.

A new approach is enterprise architecture approach in which all activities and technologies are developed as a hierarchy in pyramidal layers of business information systems, applications and infrastructures. It is beyond the scope of the information system creation methodology and includes all business processes and organization's information resources. This approach has been used in large organizations with legacy systems and aims to organize all the organization information resources in line with the strategies and goals. In the new era, IT applications and the capabilities and benefits of enterprise architecture offer a broader and more comprehensive perspective.

REFERENCES

Akhavan Niyaki (2001). A Methodology for the Development of Information Systems. IzIran Institute of Tehran.

Research Article

- Turbans A, McLean J and Wetherbe (2002).** Information Technology for Management. *Transforming Business in the Digital Economy*, 3rd Ed.
- Zamen Milani F, Fathi Moghadam A and Eisazadeh A (2005).** Using DSS Systems in Optimization and Automatic Updating of E-Commerce Systems. *Second National Conference on Information Technology Processing*, Department of Computing, University of Tabriz.
- Sanjay G and Vicki C (No Date).** Integrating the Global Enterprise Using Six Sigma: Business Process Re-Engineering at General Electric Wind Energy. *International Journal of Production Economics*.
- Ahmadi H (2005).** *Supply Chain Management*. 1st edition, Tehran, Iran Industrial Research and Training Center.
- Suri H (2007).** *Re-Engineering of the Iranian Organizations*. 1st edition, (Rasa Publication Center) Tehran.
- Champy J (2005).** *A Comprehensive Re-Engineering*. Translated by A. Rezaei-Nejad, (Fra Publication Center) Tehran.
- Ward and Peppark J (2002).** *Strategic Planning for Information Systems*. Third Edition. (John Wiley & Sons).
- Attaran M (2004).** Exploring The Relationship Between Information Technology and Business Process Re-Engineering. *Journal of Information & Management* **41**(95) 14-16.
- Hammer M (2006).** *Beyond Re-Engineering*. Translated by A. Rezaei-Nejad; Fourth Edition, (Rasa Cultural Institute) Tehran.
- Min-Yuan Cheng, Hsing-Chih Tsai and Yun-Yan Lai (2009).** Construction Management Process Re-Engineering Performance Measurements. *Automation in Construction Journal* **18**(2) 184-193.
- Spewak SH (1993).** *Enterprise Architecture Planning. Developing a Blueprint for Data, Application and Technology*, (John Wiley & sons).
- Stadler Hartmut and Kilger Christopher (2003).** *Supply Chain Management of Advanced Planning*, Translated by R. Zanjirany Farahani and N. Asgari, (Termeh Publication Center) Tehran, **113**(2) 914-927.