Impact of peculiar features of construction of transport infrastructure on the choice of tools for reengineering of business processes

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Abstract. In the present article we study the issues of organizational resistance to reengineering of business processes in construction of transport infrastructure. Reengineering in a company of transport sector is, first and foremost, an innovative component of business strategy. We analyze the choice of forward and reverse reengineering tools and terms of their application in connection with organizational resistance. Reengineering is defined taking into account four aspects: fundamentality, radicality, abruptness, business process. We describe the stages of reengineering and analyze key requirements to newly created business processes.

1. Introduction
Implementation of process-based management method goes hand in hand with resistance of organizational environment; in most cases such resistance manifests itself in the form of practically absent methodological identity, deformation of the areas of responsibility and the system of interactions between process and its participants [1]. First and foremost, organizational resistance leads to various and, in most cases, considerable deviations from the designed outcomes in the course of implementation of process-based management method [2].

We would like to make several comments on the nature of organizational environment. There are many theories regarding the origin and dynamics of organizational resistance [3]. In the present article we adhere to the psychoanalytical viewpoint according to which the nature of organizational resistance is defined by the quality of object relations in the given organizational environment and its unique features.

The system of interactions in organizational environment affecting creation and promotion of the process-based management method can be split into two levels, i.e. the level of communications and the level of organizational actions (or reactions). In its turn, the level of communications is an aggregation of formal and informal communications. Similar classification can be applied to the level of organizational actions [4]. Formal and informal levels include both intended (or conscious) and hidden (or latent) content of communications and actions. Intended destructive trends can be corrected using administrative and psychological methods of managerial influence. Unlike them, unconscious latent destructive trends manifest themselves when the company faces staffing errors or failure to implement managerial decisions at various administrative levels. As for implementation of process-based management method, these trends manifest themselves in the form of distortions, ambiguous terms, process contents and results. Root causes of these event are far from evident and their identification...
takes time. Efficiency of actions often leaves much to be desired [5]. Psychoanalytical method has considerable potential when it comes to identification of hidden trends in organizational behavior. Psychoanalytical interpretation allows reconstructing destructive trends, moving them to conscious level and defining actions to fine-tune organizational behavior and improve efficiency of management decisions [6].

There is another important factor that shall be considered when reviewing the range of issues associated with implementation of process management, i.e. considerable changes in the nature of market relationships. Consumers have achieved the dominant position. Adaptation to consumer needs and changing information technologies impact the state of organizational environment: its resources are now focused on implementation of client-oriented approach [7].

Construction entities do not always react to the changing situation on time. Overwhelming majority of incumbents with stable market position maintain old leadership style until accumulated distortions become evident, i.e. lead to considerable drop in operational efficiency [8].

2. Methods
Analysis of organizational activity shall form the basis for the design of new system of organizational interactions. Reengineering is a rethinking of engineering achievements, redesign of process-based management system in order to achieve new business goals.

We would like to point out that the redesigned business environment will perceive reengineering as innovation. One might see this as a contradiction, since reengineering can be compared to reconstruction of business processes. Still, in real life reconstruction is accompanied with elimination of business processes whose performance cannot be improved. E.g. when fundamentally new IT technologies are implemented, old processes can be eliminated and replaced by the new ones. Still, the most important thing is that reconstruction of business processes leads to their update, but that organizational environment perceives the changes as a new style of interaction [9].

Thus, reengineering in organizational environment shall be considered from the standpoint of two aspects. On the one hand, reengineering is a tool to manage organizational environment and business entity as a whole, with innovative activity as one of its components; on the other hand, reengineering is a tool to implement innovations into organizational environment and a method of their development.

Management aspect of reengineering includes two types of processes. Analysis of existing strategy and status of business processes ensures successful changes; in management practice, analysis of existing system is called reverse reengineering. Thus, building new system of processes or reconstruction of existing processes is called forward reengineering.

Reverse reengineering is impossible without analysis of business entity as a whole. At the same time, existing business processes shall be diagnosed as parts of the system. The analysis allows identification of organizational resistance patterns that indicate regress of existing business processes. Since the quality of object relations in organizational environment is less prone to changes, organizational resistance will be of the same quality when the system is updated via subsequent forward reengineering. Diagnostics of the resistance of business environment not only helps to simplify implementation of innovations, but, which is more important, it also helps to decrease the amount of distortions in organizational behavior caused by organizational resistance.

Strategic modeling shall be made via forward reengineering. Of course, efficiency of the system of business processes designed for the given business environment depends on the adequacy of strategic goal. Strategic planning made in respect to the business entity shall be innovative in nature. It is necessary to create a framework of key business processes while developing the new strategy, as well as tools and mechanisms required to ensure functioning of the system of business processes (funding, technologies, staffing decisions, counterparties etc.). Adequate definition of strategic goals leads to enhancement of company's knowledge base and increase in innovative potential, which, in their turn, reinforce reengineering efficiency and create synergies for implementation of process-based management system.
It is evident that forward and reverse reengineering processes are a single whole. Still, one should distinguish the areas of forward and reverse tools implementation. Reverse reengineering is nothing more but data collection and preparation for strategic design. Forward reengineering is a methodology to create new innovative strategy and tools for its implementation.

The essence of reengineering can be illustrated using four key definitions: fundamentality, radicality, abruptness, business process.

Let us start with fundamentality. The intent to perform reengineering shall be based on the analysis of reasons for strategy review. In other words, one should answer the following questions:
- Why does the business entity apply current strategy, tactics and operations?
- Why shall the innovative strategic design be carried out using reengineering tools?
- What are the desired outcomes and why?

Answering these and other questions that might arise while considering the notion of reengineering might help to reconsider business rules and methods, identify problem areas and define potential of the company [10].

Radicality is a full scale reform of the whole interaction and management system of the company. Reengineering has nothing to do with superficial or partial changes in organizational structure and management system. Old business methods are replaced with fundamentally new ones. Radical approach is not about superficial or partial amendments; it is a full-scale transformation of the whole management system.

Abruptness means that the business has no time for waiting. Fundamental and radical changes shall be implemented quickly, since the company must maintain its current performance during such large scale transformation. Besides, reengineering makes sense if considerable improvement of key business indicators is required.

Standard indicators defining urgency and the need for reengineering are as follows:
1. The company is on a verge of bankruptcy.
2. Market analysis shows that the company will soon lose its market position because of the old way of management.
3. The company is a market leader and carries out assertive marketing policy. Still, company performance is unsatisfactory.

Thus, a company might require reengineering irrespective of its market position; crucial consideration here is possible performance decrease or insufficient performance level.

Business processes within reengineering are a dynamic combination of business fragments, which reminds of the steps taken to create goods or services. The aim of each business process is to ensure that the client gets the required products and is satisfied with their cost and quality. Thus, in fact these are the actions taken to achieve strategic goal of the company. It should be noted that the design of new business processes shall be accompanied with the design of new organizational structure or amendment of the existing one.

Reengineering shall be designed in four stages.
1. First, company vision is defined. A list of works to be performed in order to achieve the goal is created and resources required for project execution are defined.
2. Current state of the entity is analyzed. Business mechanisms are reviewed in detail. Problem areas are identified and analyzed, ways to solve business problems are defined.
3. New system of business processes is developed. New information system is developed in parallel with the design of new business processes in order to ensure that the new system is fully functional.
4. New system is implemented.

From psychoanalytical standpoint the culture of the organization can have symbiotic, separation or triad quality of object relations. We have made several assumptions. The type of organizational environment depends on the quality of object relations in organizational communications and defense mechanisms used in the given organizational environment [11]. Characteristic feature of symbiotic organizational structure is undifferentiated interfaces in the system of interactions between employees.
and the organizational environment. In this case organizational environment uses specific defense mechanisms. One of the most striking and representative is daydreaming. Daydreaming (mostly dreams about future) prevails over comprehension of real life at various communication levels. In most cases it goes hand in hand with total control over information flows and activities. Discussions of innovations are accompanied with primitive idealization and depreciation. Many situations are solved by responding, i.e. with impetuous unanalyzed and unprepared appointments and dismissals, reorganizations and similar actions. It is easy to see here the desire to obtain immediate results via impetuous and radical problem-solving. In separation cultures we can see diffused interfaces between employees and the organization; object relations manifest themselves via insufficient integration and diffusion of the areas of responsibility. Internal and external objects are perceived as either absolutely 'good' or 'bad'. Projection becomes the first and foremost defense mechanism.

The mechanism can be seen in interaction between various departments; organizational actions of the staff are unstable and unpredictable. Organizational environments with triad quality of object relations have mature defense mechanisms and organizational environment has integrated identity [12]. In most cases managerial decisions are well-considered and are broadly discussed. Conflicts of interest become complicated and involve multiple participants; these can exist in hidden form for quite a long time.

3. Results
Survey of construction company CEOs indicated that 85% of respondents believe that the most efficient way to overcome organizational resistance is to develop a single model adaptable to any company. From psychoanalytical standpoint, this solution – the development of a universal transformable model that could be adapted to the characteristics of organizational environment – is a form of organizational resistance. Clichéd solution undermines unique qualities of organizational environment and leaves them out of consideration. Destructive trends that destroy or deform process management due to clichéd modeling escape the attention of researchers, and possibility to exercise management influence over these trends is close to zero. Distortions can be considerably diminished by analyzing quality of object relations in organizational behavior at the stage of diagnostics and subsequently taking into consideration their impact on organizational dynamics of reengineering. Benchmark study of the results of implementation of process-based management method in a federal construction company with multiple branches shows that good financial performance can be achieved, if the system of business processes is setup and functions taking into account the diagnostics of the quality of object relations in organizational environment. Financial indicators of federal autonomous subdivisions with similar operating conditions were benchmarked; in such subdivisions reengineering was performed both with the survey and subsequent analysis of the quality of object relations and without it. The difference amounted at 37.5%.

4. Discussion
Let us consider a possibility to develop a universal model of business processes that would minimize organizational resistance.

It is evident that such model shall be based upon universal processes and shall contain standard solutions. It should be based on a classification of business processes acceptable in the given industry. Still, efficiency of such solution causes doubts, if we look at the issues associated with implementation of process-based management method and inevitable resistance of organizational environment. Organizational structures of the companies performing similar types of activities can have significant differences in the quality of object relations that structure organizational behavior [9]. Besides the differences in the quality of object relations, organizational cultures have unique organizational communications, unique ways to execute managerial functions, settle conflict interactions, implement innovations etc. [1].

Let us consider key requirements to newly created business processes.
First requirement is horizontal compression. Horizontal compression means that the new business process will require significantly smaller number of participants; thus, the number of administrative levels can also be decreased. Horizontal compression leads to smaller number of errors, both on the part of the performer and on the part of the manager. Reengineering practice shows that horizontal compression enables tenfold increase in the speed of business processes. Of course, this depends on specific reengineering conditions. Cutting expenses and defining specific areas of responsibility makes the company much more manageable.

Second requirement is business processes integration. Complex processes do not always undergo horizontal compression. In this case efficient reengineering solution would be to unify several business processes into single area of responsibility. Results of such actions are less impressive than the results of compression, although performance becomes much better than before.

Third requirement is vertical compression of business processes. It is mostly aimed at re-arrangement of management functions and is a tool to decentralize responsibility. Efficiency improvement is achieved by creating specific areas of responsibility for the performers and enabling the performers to independently make decisions within their competence. Vertical compression saves time for implementation of management decisions, and it often becomes the key success factor.

Fourth requirement is changes in the logic of business processes. In the majority of cases business activity is a step by step execution of works. Processes are run in sequence. Changes in the logic of business processes aim at running the processes in parallel (if possible), thus allowing the company to save time and resources.

Fifth requirement is improvement of administrative influence. This means optimizing control procedure in accordance with the principle of economic and organizational feasibility.

Sixth requirement is allocating a duly authorized manager. High complexity or considerable distribution of business processes may make their integration or compression unfeasible or simply impossible. The authorized manager shall play the role of business processes integrator or coordinator. The whole process shall fall within the authorized manager's area of responsibility. Such role requires well-developed professional and leadership competencies.

5. Conclusions

1. Issues associated with organizational resistance can be successfully solved with the help of business processes engineering, introduction of process-based management method and psychoanalytical analysis of organizational environment. Thus, reengineering of business processes will be relevant if significant distortions occur while implementing the process-based management method and if such distortions have significant impact on performance. In fact, reengineering is a reconstruction of the system of business processes that became inefficient.

2. Organizational environment perceives the changes resulting from reengineering as a new style of interaction, which is inevitably supported by the desire to keep the old style. Understanding the quality of relations that existed in the framework of organizational interactions prior to engineering allows to define actions to prevent distortions induced by conflicts between the old and the new styles of interaction.

3. New style of interaction will take hold if it uses the advanced form of previous interaction pattern as a basis for unique organizational manifestations.

4. After studying the meaning of business processes reengineering the following conclusion can be made: engineering starts when clichéd reproduction of old inefficient control patterns ends and the whole organizational system is reconsidered; at the same time changes in the patterns of organizational behavior is evolutionary, and not revolutionary, in nature.

5. Activity of individual subdivisions or the company as a whole shall be rearranged in order to maintain or improve market position of the business entity. In current conditions stable position or development of business entity depends on successful organizational restructuring, amendment of communications and data connections, and innovations. In the framework of process-based management organizational environment evolves via reengineering of business processes.
6. If reengineering stages have no specific boundaries and new strategy is designed in parallel with the analysis of the existing one, the results will contain significant distortions and will not comply with the realities of organizational environment.

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