

IT-Subsystem of Construction Company Reengineering Project: Choice of Models

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The relevance of reengineering processes of construction companies is determined. Defined the place of the IT reengineering project in the activity of improving processes. The typical IT systems of a construction company requiring reengineering are highlighted. The necessary elements of the content of the IT reengineering project are determined. The model of IT reengineering project in the form an "input-output" is developed. The proposed principles of building the "As Need" models for describing the business processes of a construction company. These researches will promote the development of managerial efficiency of construction companies. Perspectives of further research in the chosen direction are outlined.

Keywords: *IT project, project management, reengineering, construction company.*

Introductory part. Management systems for companies and organizations require continuous updating and improvement of processes. This improvement was called reengineering and is actively developing in scientific literature [1], in particular in recent studies by Ukrainian scientists [2, 3]. The construction industry is capable of providing the foundation for the sustainable development of the Ukrainian economy, and thus improving the management processes in construction companies through the implementation of relevant projects is relevant.

The open question remains which management processes can be selected as benchmarks for management systems of construction companies (both operational and project processes). For making this choice, one can take into account, in particular, the standards in the field of project and program management [4-6].

However, the issue of developing and improving the IT subsystem of construction companies, which can be carried out in reengineering projects, is still underdeveloped, why this publication is devoted.

Main part. We will allocate IT-systems of the construction company that will be the subject of the project of reengineering. That is, those used by the construction company and as a result of the project should be changed.

- 1) IT resource management system of the company;
- 2) IT management system for logistics (deliveries);
- 3) IT support system for conducting electronic trading;
- 4) CRM system;
- 5) IT system of document circulation in the company;
- 6) IT support project management system in the construction company.

Obviously, the project of re-engineering a construction company in this case can be considered as a multi-project, one of which parts will be an IT-project to improve the IT subsystems of the construction company (IT-reengineering project). The content of such a project will be the implementation of models developed in the multi-project reengineering, in the IT tools (systems) of the construction company.

It is known that in the reengineering project, the construction of "As Is" business processes models, the analysis of these models and the discovery of discontinuities (duplication of functions and missing functions) are carried out, after which the creation of "As Need" models and their implementation is taking place.

Determine the necessary elements of the content of the IT reengineering project:

- Database of notations (standards) describing business processes;
- Rules for choosing notations (standards) for describing business processes for a project;
- A set of software products for describing business processes in the selected notation;
- Rules for selecting a software product for describing business processes in a construction company reengineering project;
- The base of models "As is" that will be built as a result of the project;
- The base of models "As Need", which is made up of a standard set of solutions;
- "As Need" models that are not standard but will be developed within the IT reengineering project;
- Rules for constructing models "As Need";
- Limitations and exclusions from the rules of constructing models "As Need";
- Rules of changing the rules of constructing models "As Need";
- Description of Business Processes «As Need»;
- Official duties of the personnel, provisions on the construction company's departments, roles responsibilities of the participants in the project activity of the construction company.

The model of the IT reengineering project in the form an "input-output" is presented in Figure 1. The model includes the inputs (necessary information and systems) for the project, the content of the main processes of the IT reengineering project, the necessary information resources and outputs (results) of the project.

Particularly important element of the content of the project is, in our opinion, the rules for building models "As Need". The development of such rules requires taking into account the specifics of the construction company in which the project is being implemented. However, we can formulate the general principles that will form the basis of such rules.

Principle of reasonable detail of processes. The number of hierarchical levels that will describe the processes should be expedient. It should not be large enough to not complicate the understanding of the process, and not small enough to reveal the depth of the processes sufficiently. Consequently, a reasonable compromise must be found. Typically, the number of hierarchical levels should be 3-4 levels.

The principle of reasonable coverage of processes for reengineering. It is inappropriate to immediately improve all processes in the company. And so it is necessary to choose some critical set of processes. They should be enough to start effective reengineering. If they are not enough, this will not allow a breakthrough in efficiency. If there are many, the company may not be able to make the transition to new processes, and roll back. However, the image of reengineering will suffer, and the corresponding projects in the future will be doomed to failure. Consequently, it is also necessary to find a compromise in the number of processes. As a general rule, it is recommended to select several main and several auxiliary business processes.

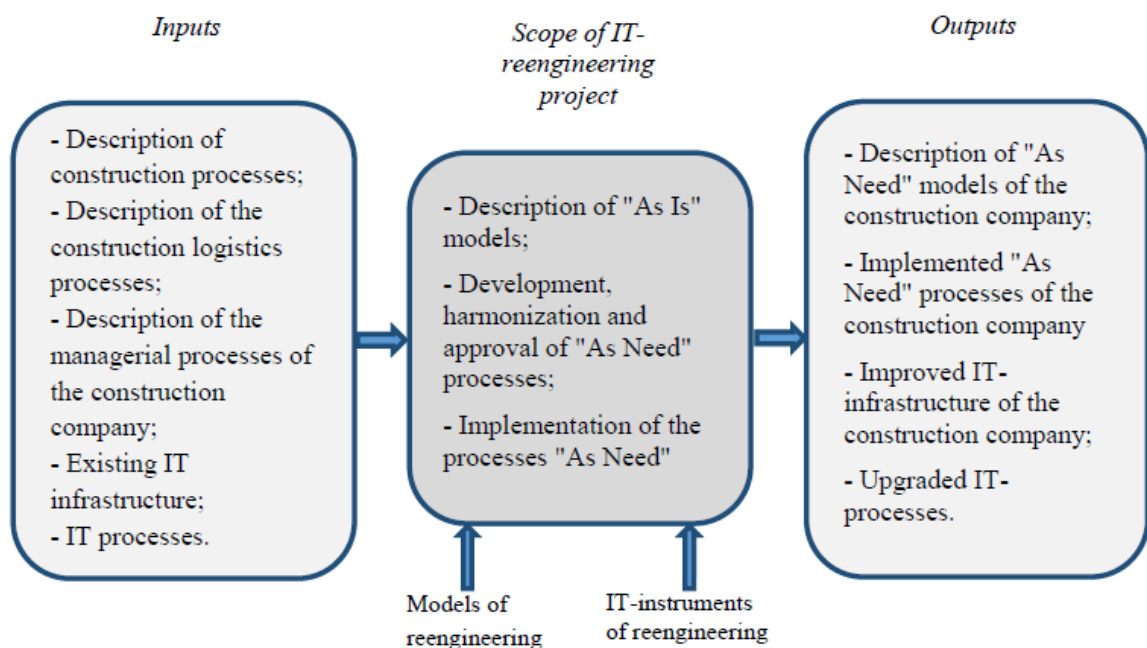


Fig. 1. IT-reengineering project of a construction company in the form of an "input-output" model

Principle of permanent development of reengineering. The reengineering project, which involves improving some of the company's processes, should start a permanent improvement. That is, the project should provide the basis for the implementation of such projects in the future, or transfer of reengineering activities to the operating activities. This is possible provided that a unit in the construction company is set up, whose responsibilities include reengineering processes.

The principle of conformity of standards and IT tools to describe business processes to the level of competence of construction company personnel. Any development is possible only in an environment that is ready for development. The complexity of models and reengineering tools should be such that it can be mastered by the company's staff. Therefore, it is necessary to correlate the complexity of models and the level of competence of staff when choosing reengineering tools.

Conclusions. The processes of management of construction companies need constant improvement. You can start this upgrade by implementing a company reengineering project. In this project, improvement the IT subsystem of the company's management is important. Therefore, it is possible to isolate a separate project of IT reengineering. This article highlights the typical IT systems of a construction company that needs to be reengineered, identifies the necessary elements of the content of the IT reengineering project, develops a model of the IT reengineering project in the form of "input-output", proposes the principles of constructing "As Need" models for describing the business processes of a construction company. These results will promote the development of managerial efficiency of construction companies. Further research may be aimed at developing models and methods for conducting proactive reengineering, with the perspective of constructing such models and methods with use value-oriented approach.

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