

## BUSINESS RISK AND PROJECT MANAGEMENT IN CIVIL CONSTRUCTION BRANCH

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**Abstract:** Project management is general planning, coordination and inspection of the project, from the initial stage all the way to final phase, its purpose is an accomplishment of the accepted task and creation of the functional final effect, without exceeding established costs, time-frames and fulfillment of required standards of the quality. The present article was devoted to the issue of the project management in the construction sector in order to reduce the business risk. The study is based on literature examinations with an own methodological solution for project management in the construction industry. After introducing a set of definitions of the project and describing the concept of project management, a characterization of the project management in the construction industry and its effects in the economic space were described

**Keywords:** project management, construction project, project phases, business risk

### 1. INTRODUCTION

In the context of transformations in the world economy, so as the regionalization or the globalization of markets and products, the flow of information and capital, incessantly changing environmental conditions and needs or expectations of customers, enterprises are faced with a challenge in what way to reduce the risk of own activity (Kisefáková et al., 2015; Ključnikov, et al., 2016; Rajnoha and Lesníková, 2016; Kozubíková et al., 2017; Mentel and Brożyna, 2015; Spitsin et al., 2018; Hudáková & Dvorský, 2018) It next forces enterprises into conducting preventive or adaptive changes in their activity (Idzikowski and Perechuda, 2018). For that purpose, they can use the tool which is project management, which can influence for reducing the risk of functioning of the enterprise. Using this method causes that implementing amendments to the enterprise becomes straighter and more effective.

Project management is quite new field of knowledge, and the first project which was simultaneously carried out and managed, was project "Manhattan" in frames of which

the United States created the nuclear bomb (Knapp, 2006). It is been assumed that this project was the first one carried out in frames of the field of the project management. The project itself most often means the set of partial works, defined as the set of actions taken in order to fulfil the defined objective along with getting specific or notable effect (Lock, 2009). According to K. Kukuła, project is an action included in the set time interval, having a clearly defined beginning and end (Kukuła, 2000). On the basis of above definitions, it is possible to underline a few elements, thanks to which it is possible to determine a taken undertaking as the project. Among them it is possible to rank (Trocki, 2009; Taraba et al., 2016):

- uniqueness of the implemented undertaking,
- appropriateness of taken actions,
- separateness from routine activities,
- presence of temporary limiting of the undertaking,
- structural separateness of the undertaking.

The last, but equally important project element is its complexity, causing the need to divide the project into the sequence of isolated operations, which should be appropriately manager. It is exactly a complexity i.e. contributed to the creation of the field, which project management is.

## **2. LITERTURE REVIEW IN THE CONTEXT OF PROJECT MANAGEMENT**

According to M. Pawlak project management is the completion of basic management functions (planning, organising, deciding, motivating and controlling) with reference to determined undertakings i.e. projects (Pawlak, 2006). Project management is also a process of the decision making, essential for the correct execution of tasks design. These are also all activities, which concern the preparation and the implementation of these decisions (Haberfellner, 1992; Vveinhardt and Kuklyté 2016). It is also possible to define project management as the decision-making system, which purpose is drawing up economic, research and other projects (Oliński, 2016; Balcerzak, 2016). Distinctive features of project management are uniqueness, transitory organizational structure, complexity of performed tasks, long lead time, large expenditures and costs, a high level of risk, high competences of project participant, low standardization and high innovation (Trocki et al., 2003).

Project management includes three main types of actions: managerial, implemental and supporting. Managerial actions consist in fixing purposes, planning, organising, motivating, coordinating and controlling, implemental are in the form of tasks being included in the project, and supporting are i.e. accounting-financial, legal and personnel service or administrative-office activities (Małyszczek, 2011).

Project management includes a lot of phases, differing between oneself as for the duration, the level of employing stores or methods of their realization, planning or control. The number of these phases can also differ in terms of the subject matter and the scope of the project, however in the general way four main phases are distinguished (Field and Keller, 1998):

1. The first phase is starting the project (initiation), during which possibilities and needs of the realization of the project are recognised and taking decisions about the beginning of it,
2. The second phase is planning, constituting often the most important phase, its purpose is i.a. to define accurate expectations the project is supposed to fulfil

which, purposes, planning an appropriate time-frames or appropriate allocation of stores,

3. The third phase is realization, consisting in coordinating action of people being members of a team of designers and consuming resources this way so that actions are carried out according to the accepted schedule,
4. The fourth phase is closing the project, being a formal presentation of the results of projects, next archiving documentation and making a formal completion of the project.

These phases create so-called project life cycle which describes what type of actions should be conducted in the given phase as well as who should carry them out. Moreover, every project should have specifically defined and precisely defined main objective, which achievement confirms effectiveness of taken action. The general objective constitutes starting point for determining so-called fragmentary purposes, which are characterized by high accuracy, what causes that the achievement of these objective conditions reaching the general objective. Hereby, the success of project is also significant. In the last couple of decades, there has been exponential rise in numbers of project and due to it even the implementation of tools and methods has been a challenge to ensure inclined project success rate (Ika, 2009; Spaleks, 2014). Hence, inclined number of projects led to difficulty in managing it (Spaleks, 2014). Further, driving the organizations to operate in a complex multi-project environment, hence, generating new challenges (Spaleks, 2014). Often the organization adapt flexible strategies to ensure projects are completed successfully (Zehra and Faizan, 2017).

At present projects management is a field carried out by enterprises operating in various economic sectors: automotive, electrotechnical, aerial, pharmaceutical, chemical whether construction, which this is devoted to.

### **3. PROJECT MANAGEMENT IN CONSTRUCTION COMPANY**

Building projects are being carried out since immemorial Times. In ancient times housing construction, constituted a simple building scheme from the present-day perspective. But even a long time ago, building projects like Egyptian pyramids, the Great Wall of China or the Panama Canal were carried out, which are respectable and admirable till today. Gained experience and abilities in construction cause that the position of the construction industry in the national economy is exceptional. The result of its activity is always original, unique product, which thanks to effort, time and stores, can achieve the maximum value. But this unique product (building) is not an aim of the project, but only a mean of reaching it. The aim of the building project it to satisfy human interests (private, group or the society as a whole). Building projects include integration of a lot many materials, raw materials and semi-finished products. Transformation of which needs a lot of different technologies, operated by many specialists and employees applying diverse tools, machines and devices. The building project implies also large financial, material and personal expenses, what causes that almost every building project is characterized by a very high complexity.

As it turned out, construction sector universally applies principles of the project management. And systematic application of design methods, fast information technologies, new materials and both modern machines and devices can bring the efficiency improvement and the acceleration of the completion of these projects. Moreover, the popularization of computers, specialized programs and electronic

communication (Internet) contributed to the subsequent development of building projects management.

Aims of building project are usually determined on three levels - cost (price), time (dates) and implementation (standards, quality). The same structure is also used for planning, realization and evaluation of construction works. Effective management of all these actions contributes to the division of the interval of the project - from creating the idea through planning, realization and using for the potential liquidation. These phases are characterized by joint actions, which are being done within them and partial aims, realization of which constitutes essential condition of achieving the main objective of the building project.

The construction industry is one of the most important sectors of Polish economy (Kowalczyk, 2016). Since 2017 Polish construction industry is characterized by a big investment boom and growing demand for construction services. Within five first months of 2018 building-assembly production rose by 24% in comparison to the last year. This boom regards above all infrastructure projects being characterized by a maximum value, which drive the value of entire building sector. Moreover, infrastructure projects are characterized also by high complexity, what results that investors should plan and manage them appropriately.

Unlike "traditional" of projects, building projects consist of five phases, from which the first, often determined as zero phase, regard conducting an analysis of needs, next phases are: feasibility study, planning, realization and potential liquidation. In addition to these phases, the inspection process, checking the compliance of taken actions with estimated aims of the project, is also being carried out (Fig. 1).

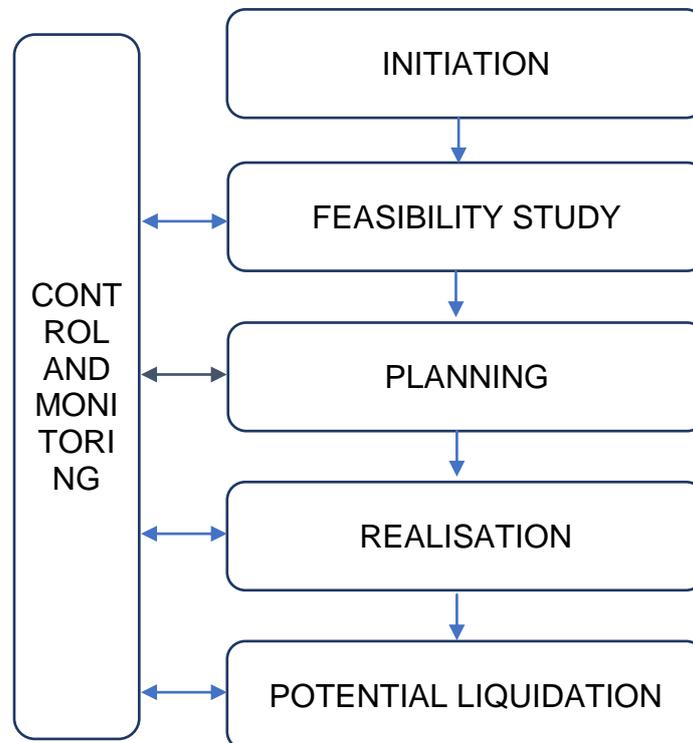


Fig. 1. Phases of implementation of the building project. (Authors' elaboration)

Pre-investment phase is the most important part of the entire building project. An investor responsible for it is represented by the highest executive committee. He

defines aims, scope, specifications and measurable criteria determining, what should be reached and the method, which aim is the achievement of goals. In this phase a schedule of the project is prepared. It includes hierarchical structure of actions. A feasibility study of the project is also prepared, and investor decides, whether proposed objectives are possible to achieve at assumed conditions.

Investment phase, which effect is a functional structure, is the most laborious and expensive part of a project building. It is about developing the plan of the building site and managing its accomplishment. The plan is a description of the future optimum process of construction taking into account all known conditions and effects. The realization is a real process of construction conducted according to plan with reference to all circumstances, even unscheduled. Documents of this phase are a finding of research, of documentation of territorial and building procedures and the occupancy, including documentation of actual accomplishment of the structure.

Operating phase is the longest part of a building project. It starts by putting the structure into operation. Planned and achieved results are being assessed, and particularly carried and planned costs, resulting from the fact of the need for the conservation, repairs or renovation of the created structure.

Liquidation phase means finishing using the structure, its knocking down with late recycling or environmentally friendly liquidation of building materials and the recultivation of building plots. Knocking down can be replaced by the reconstruction with the change of the purpose of construction, what results in preparation of new construction project. Fig. 2 presents a model worksheet and documents accompanying them, carried out in frames of individual phases of the building project.

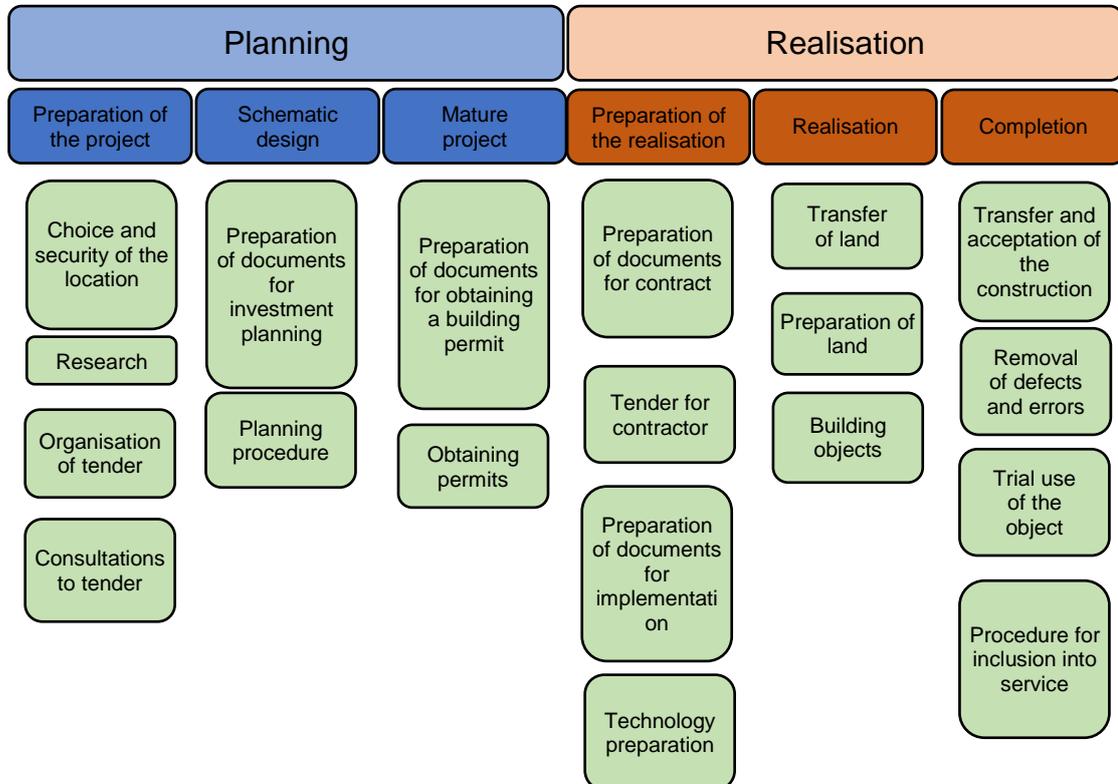


Fig. 2. Phases, actions and tasks implemented in building project (Authors' elaboration)

Every action shown in picture 2 is being accompanied by a number of documents, without which the completion of these phases would not be possible. These documents include: decision on investment along with the contract for the purchase or the lease of the area constituting the location of the construction works, documentation from conducted analysis, the contract with the designer or the organization performing the project of investment, decision on the location of the object, documentation associated with planning, documents essential to obtain a permit to begin the construction and document of the permission, main documentation of the project implementation (e.g. documents concerning applied technology), the contract with the contractor for the project, the building diary, financial documents, reports of the building site, the permission for using the object and documents concerning completing the project implementation.

#### 4. CONCLUSION

Building project management is a sequence of such actions as planning, organising, human resources management, operational management, controlling and monitoring, decision making, informing or documenting – which aim is an appropriate project management. Project management is proven and widely spread management method with the aim of reducing risk. Being a system of proven abilities of procedures, it influences processes associated with the implementation of building projects. But due to the complexity of projects of this type, project management in this area is still imperfect in some areas, e.g. communication and the flow of information or the risk associated with the implementation of building projects. Moreover, having in mind that construction industry is subjected from outside environmental conditions, in the building projects management one should also pay attention to such factors as: situation on markets, the condition of the national economy, the economic situation in a given region and available human resources as employees, recruitment of which is nowadays a very serious problem for the construction industry. That's all causes that very often preliminary assumptions of the building project are not working during its realization and such situation generates high financial costs as well as the delay in the completion of a given project. Therefore having in mind specificity of the Polish construction industry, it is worthwhile to conduct further research. These research should enable to obtain the reply to a question, how effectively the building project should be manager to avoid these negative effects.

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