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**ORGANIZATIONAL STRUCTURE OF CONSTRUCTION COMPANIES  
IN THE FUNCTION OF THEIR EFFICIENT OPERATION**

***Abstract***

The organizational structure of the construction company represents the structure and the management of the project team, goods and project resources. It is a fundamental aspect of project management that defines how activities are coordinated and controlled in order to achieve the planned project and company goals.

Companies that are in construction business have organizational structures that are based on project management. Construction projects are usually complex, capital, unique and unrepeatable. Project management is the application of knowledge, tools, techniques, and systems to define, execute, measure, control, report and improve processes.

This paper explains several aspects that should be considered when choosing the organizational structure of the construction company. Nine case studies of medium and large construction companies were analysed, where special emphasis is placed on the types of organizational structure used, their complexity, adaptability, integrative processes, control during work, description of processes and procedures, etc. The results of conducted analysis showed that 56% of the analysed companies use a composite organizational structure, while the remaining 44% use a functional organizational structure. Although the analysed companies implement "Projects", they very rarely use a project organizational structure, and when they do it is mostly for some large and complex projects that are being implemented outside our country.

By understanding the importance of the organizational structure, when the right one is chosen, high management and project managers can improve the overall project outcomes and increase the likelihood of success.

***Keywords:*** *construction project, organizational structure, project, management*

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## **1. INTRODUCTION**

All organizations, including the construction companies, have their own organizational structure that designates their internal connections and relations, the way the internal division of labour and the formation of lower organizational units at all levels in the company. The organizational structure provides the basis on which the operational procedures are based and determines which individuals participate in the process of making certain decisions, and thus to what extent they shape the goals of the organization [1].

The importance of the organizational structure for the companies is so great that it is often identified with the organization.

The construction companies in the country are structured in many ways, but the goal of all organizational structures is to enable distribution of different management functions and processes, as well as organizational unit responsibilities, such as branch, sector, department, working group etc.

The organizational structure integrates different details that are specific by themselves, yet so different so that a general organizational structure cannot be adopted that is applicable to all construction companies. In the same context, for every construction company to perform its work at a certain time and with a certain budget, it must act on certain procedures or hierarchical subordinates. Therefore, every participant in the work processes should know his place in the hierarchy, his own authorizations, and duties. Therefore, the organizational structure is a dynamic element that needs to be changed depending on the change in the organization's influential factors.

All construction companies face the problem of modelling the organizational structure, regardless of their size, occupation, and the field of work. Often, they have a certain organizational structure that they have inherited or created without a thorough research regarding the requirements of the processes or individuals participating in them. Although the adapted organizational structure changes depending on the need, the change happens without respecting the specifics of a particular project. Such situations can lead to inefficient completion of work, mainly due to poorly defined obligations and responsibilities of each organizational unit. Also, individuals who participate in the processes become either too responsible and in charge or remain without active work that would contribute to the realization of the processes [2].

There are no universal principles on how to model the organization, i.e., there is no best way of its structuring. Different approaches for structuring and/or modelling the organization of the construction company start from the fact that companies differ from each other and that the factors affecting the organization influence each company differently. Therefore, shaping or modelling the organization of the company and the selection of the most appropriate organizational structure is one of the most important decisions in the company, so the decision is usually the task of the highest management of the company, which should pay particular attention to that task [3].

## **2. PURPOSE OF THE RESEARCH**

The paper explains several aspects of the complex issue of choosing the organizational structure for construction companies in Republic North Macedonia. The starting point is the assumption that the efficiency of the execution of the works by the construction company is closely related to the formal organizational structure of the same. For this purpose, several types of

organizational structures that are applied and used by construction companies in the country are firstly analysed. Special emphasis is placed on the factors that influence the modelling and setting of the organizational structures, with an emphasis on the situation in the country (based on the analysis of applied organizational structures of several construction companies in the country). Based on that, guidelines are given for modelling of the organizational structures for construction companies, in accordance with the specifics of the company's activities and the construction process, all that, depending on the needs of the market and the organizational culture of the companies.

### **3. RESEARCH METHODOLOGY**

During the research, starting point was to analyse the available professional and scientific literature and available relevant documentation. The valid legislation was considered, and personal experiences were used for the research problem. Applied organizational structures of construction companies were also analysed (based on interviews of relevant personnel).

The findings of the conducted research and analysis resulted in establishing of the actual situation in Republic of North Macedonia, in relation to the placement of the formal organizational structure of the analysed company, the respect, and its implementation, as well as the rights and responsibilities of the individual and/or the organizational unit depending on the activity and organizational culture of the company.

The results of the research were the basis for understanding the influence factors that are important for a proper choice of the organizational structure of construction companies in Republic of North Macedonia, and for modelling of the organizational structures of the construction companies with respect to their main activities.

### **4. ORGANIZATIONAL STRUCTURES OF CONSTRUCTION COMPANIES**

#### **4.1. GENERAL**

The brief description of the term “project” is worldwide similar with meaning that each project refers to some temporary engagement aimed at creating a unique product or service. The term project management implies the application of certain knowledge, skills, tools, and techniques to the assigned project activities, in which the project requirements should be met. Project management can be achieved through the initiation, planning, execution, control, and closure of project activities in the project process [4]. Company refers to a legal entity in which one or more individuals invest money, valuables, or property rights that they use for joint operations and jointly share the profit or loss from the operation. The company independently permanently carries out activity for the purpose of realizing a certain profit [5]. Companies can be small, medium, or large.

Organization represents a social unit of individuals that are intentionally structured and managed by other superior individuals to respond to certain needs or fulfil collective goals. Also, organizations can be defined as formal groups of people who have one or more common goals and have certain means and resources [6, 7].

Historically speaking, the organization is constantly evolving [3, 8, and 9]. It creates an atmosphere of continuous progress and development in operations and continuous use of new scientific achievements, which would be the only way to achieve greater productivity and

profitability in operations. According to the modern theory, the organization represents a complex and dynamic system of mutual relations and influences on the one hand and the work environment on the other hand. It is constantly changing and adapting to new conditions.

According to the applicable literature, the organizational structure consists of activities such as: task allocation, coordination and supervision, which are directly aimed at fulfilling of the main organization's goals [10].

#### **4.2. ORGANISATIONAL STRUCTURES OF CONSTRUCTION COMPANIES**

There are several types of organizational structures that can be applied in organization of construction companies: functional organizational structure, matrix organizational structure, project organizational structure and composite organizational structure [4].

The organizational structure is closely connected to implementation of the quality systems ISO. A review of the organizational structure of the construction company and quality systems has been performed, as well as the planning of the organizational structure of a construction company which shows a connectivity and intertwined benefits that implement eight principles such as: direct customer focus, leadership, employee inclusion, process approach, system management approach, continuous improvement of the performances, factual approach to decision making and mutually beneficial relationships with subcontractors, suppliers, financiers and others [11].

Reviewing the PMBOK - Project Management Body of Knowledge [12, 13] it is concluded that project management includes several processes such as integrative management, scope management, time management, cost management, quality management, human resource management, communications management, procurement management and risk management. When planning the organizational structure of a construction company, it is highly recommended to carefully review and establish the inputs such as the needs and requirements of the construction projects and their connection, as well as human resource needs and requirements while respecting the previously defined restrictions (if there are any). Project connections refer to organizational connection either formal or informal, technical connections and the interpersonal connections. Human resource needs and requirements define the type and the competencies for individuals or groups in specific situations or in general operations and the restrains are analysed as factors which restrain the options and the possibilities of the project team. When planning techniques and tools are being applied (samples, templates, usual practices in human resources, lessons learned, organizational theory analysis of the stakeholders, PEST [14, 15], SWOT analysis and the problem/goal three). Usually when planning, SWOT [16], analysis is closely connected to mission and vision of the company. The outputs are defining the roles and responsibilities of each organizational unit and individual of the company, human resource plan, organizational structure, defined details with processes and procedures etc. The benefits of the organizational structure planning are the data bases, process, and procedures definition.

### **4.3. ANALYSIS OF ORGANISATIONAL STRUCTURES OF CONSTRUCTION COMPANIES IN REPUBLIC OF NORTH MACEDONIA**

Analysis of the organizational structures of nine construction companies in the Republic of North Macedonia has been performed according to the basic organizational elements and several specific criteria.

The following criteria were used in the analysis: type of the company (micro, small, medium or large), type of organizational structure (functional, matrix, project or composite), layout of the structure (simple or complex structure), adaptability/flexibility of the structure when external factors change, horizontal and /or vertical integration, type of decision-making (centralized or decentralized), authority (single or multiple), response to requests (slow or fast response to requests), coordination across functions (high or low coordination), work control, description of processes, and procedures and communication plan.

Relevant participants in the construction processes were consulted/interviewed, i.e., managers at different levels and other employees in construction companies in order to capture a more realistic picture of all the factors that influence on the type of the organizational structure and their implementation and flexibility.

Furthermore, the positive and negative aspects of the applied organizational structures in the analysed construction companies were perceived. The analysis is mainly connected to the positive effects of implementation of ISO (integrated management system) which is generally required in the Macedonian construction practice, and the influence of the applied organizational structure on the operation of the company, the requirements arising from the construction projects, the processes performed by the involved participants and their responsibilities, etc.

### **4.4. DISCUSSION OF THE RESULTS**

Based on the research results the discussion is mainly focused on the factors that influence the modelling of the organizational structure for a construction company depending on the registered activity, depending on the project processes for certain projects and depending on the connection of the processes.

The conducted analyses of nine construction companies in Republic of North Macedonia showed that the small and micro companies almost do not have established organizational structures, nor they implement quality systems. The representation of quality systems and organizational structuring is especially visible in medium and large construction companies.

The analysis and oral interviews with project managers and high-level managers showed that medium-sized and large construction companies most often use a composite or matrix organizational structure while the use of a project organizational structure is not clearly visible. Used organizational structures are adaptable structures, the companies are ready to change their organizational structure and in certain cases also their activity, to survive in the unpredictable market in the country and abroad.

It is visible that the attention is paid to the complexity of the organizational structure, the layout of the general processes and the connection of departments and individuals with a pronounced vertical porosity in the structure that results in poor communication. Insufficient attention is paid when setting authoritativeness as a negative trait and there is quite a high control of work as well as a high coordination across functions which contributes to the reduction of errors during the realization of the project/s but also increase in the time necessary to complete the processes.

The analysis of specific cases of construction companies showed that no company has a detailed description of processes, procedures as well as a job description in their quality systems and there is also no description or communication plan at all. Summary of the results obtained from the performed analysis is shown in Table 1.

The analysed construction companies implement "Projects", but they very rarely use a project organizational structure, and when they use such structure it is mainly for large and very complex projects or projects that are being implemented outside our country. The use of a project structure is not implemented or reflected in their organizational structures, which leads to the opinion that although the companies are project oriented, they are not organized with their own project subunits.

*Table 1. Summary of the analysed organizational structures of large and medium-sized construction companies in Republic of North Macedonia*

Analysed criteria	Type of company (large and medium construction companies)	
	Type of organizational structure	56 % composite org. str.
Layout of the structure	56 % complex str.	44% simple str.
Adaptability when external factors change	100% adaptable str.	0% not adaptable str.
Integration	89% only vertical	11% weak horizontal
Type of decision-making	56% decentralized	44% centralized
Authority	67% single	33% multiple
Response to requests	67% fast response	33% slow response
Coordination across functions	56% high	44% low
Work control	67% good control	33% inappropriate control
Description of processes and procedures	44% complete	56% incomplete
Communication plan	0% there is	100% there is not

## 5. CONCLUSIONS

The organizational structure of the construction company is introduced in the earliest stages of the company's development. It sets the basic parameters for the division of responsibilities and activities, and with the development of the company, the number of processes increases, and the organizational structure must undergo changes to increase the efficiency of the company's operations.

There are no universal principles of organization, there is no best way of structuring the organization. The different approaches to structuring and modelling for the organization of the company originate from the fact that companies differ from each other and that the factors that affect the organization affect different companies differently.

The organizational structure of the construction companies is a dynamic element that should change depending on the change of the influencing factors of the company. The shaping or modelling of the organization of the company and the selection of the most appropriate organizational structure is one of the most important decisions in the company, so it follows that the choice of the organizational structure of the construction company is usually the task of the highest management in the company.

The companies that are engaged in construction base their organizational structures on project management. There is no doubt that there is a close connection between the organizational structure of the company and the projects. Construction projects are unique and unrepeatable in themselves and require a large commitment of resources, whether those resources are personnel, finance, goods, etc. Such projects are for capital facilities because of their public importance and costs.

For a construction project to be successful enough for the company, it must satisfy the following requirements: to provide profit, to deliver a service that fulfils the contractual obligations, to meet time goals, completion of the project in a certain financial capacity, i.e., budget, managing the risks arising during project implementation and responding appropriately to changes and to consider the needs of employees and other stakeholders who will be affected by the changes caused by the project.

Performed interviews showed that the organizational structures of medium and large construction companies in the country are directed at implementing the ISO Integrated Management System (which implements ISO 9001, ISO 14001 and ISO 45001). To meet the requirements in the standards, construction companies present an organizational structure that is applicable to the basic presentation of departments, processes, procedures, etc.

The interviews indicated that many construction companies, although legally, have a large gross income with many concluded contracts for capital projects and meet the condition to move to a larger category (from small to medium company / medium to large company), but due to the unpredictable market in the country and outside, they choose a smaller category that satisfies the employment of a smaller number of employees and the engagement of external co-operators, which gives them greater adaptability and lower costs for survival in the unpredictable market.

Construction projects are quite different from other projects because they have specific goals. Such projects create services for other companies, public institutions, influence or are influenced by the economy of a specific country or area, can introduce significant changes in the business climate, enable results that improve the business climate, have their own temporary management structure, are subject to risks that are not encountered in the day-to-day operation of the organization, include a wide range of interested parties and use methods that are new or even unknown to the day-to-day operation.

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