



## ЗАРУБІЖНИЙ ДОСВІД СУЧАСНИХ ОРГАНІЗАЦІЙНИХ СТРУКТУР БУДІВЕЛЬНИХ ПІДПРИЄМСТВ

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**Анотація.** У статті розглянуто міжнародний досвід організації підприємств будівельної сфери. Визначено, що організаційна структура будівельного підприємства повинна сприяти досягненню кінцевої мети його колективу з найбільшим ефектом та найменшими втратами. Проаналізовано, що науковцями визначаються два головних види організаційних структур: механістичні та органістичні, які перш за все вирізняються великою гнучкістю у взаємодії із зовнішнім середовищем. В роботі було досліджено переваги та недоліки наступних організаційних структур будівельних підприємств, які використовуються за кордоном, а саме: лінійна, функціональна, матрична, організаційна структура «будівництво під ключ», проектна організаційна структура, картель. Були визначені особливості проаналізованих організаційних структур та їх можливості використання в Україні.

**Ключові слова:** будівництво, організаційна структура, механістична, органістична, будівельне підприємство, лінійна організаційна структура, функціональна організаційна структура, матрична організаційна структура, організаційна структура «будівництво під ключ», проектна організаційна структура.

## ЗАРУБЕЖНЫЙ ОПЫТ СОВРЕМЕННЫХ ОРГАНИЗАЦИОННЫХ СТРУКТУР СТРОИТЕЛЬНЫХ ПРЕДПРИЯТИЙ

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**Аннотация.** В статье рассмотрен международный опыт организации предприятий строительной сферы. Определено, что организационная структура строительного предприятия должна способствовать достижению конечной цели его коллектива максимально эффективно и с наименьшими потерями. Проанализировано, что учеными определено два главных типа организационных структур: механистические и органистические, которые прежде всего отличаются большей гибкостью во взаимодействии с внешней средой. В работе были исследованы преимущества и недостатки следующих организационных структур строительных предприятий, которые используются за рубежом, а именно: линейная, функциональная, матричная, организационная структура «строительство под ключ», проектная организационная структура, картель. Были определены особенности проанализированных организационных структур и их возможности использования в Украине.

**Ключевые слова:** строительство, организационная структура, механистическая, органистическая, строительное предприятие, линейная организационная структура, функциональная организационная структура, матричная организационная структура, организационная структура «строительство под ключ», проектная организационная структура.

## INTERNATIONAL EXPERIENCE OF MODERN ORGANIZATIONAL STRUCTURES OF CONSTRUCTION ENTERPRISES

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**Abstract.** The article defines the international experience of the organization of enterprises in the construction sector. It's determined that the organizational structure of a construction company should contribute to the ultimate goal of its team efficiently and with minimal losses. It's analyzed that the scientists determined two main types of organizational structures: mechanistic and organistic which primarily differs from a great flexibility in the interaction with the external environment. The advantages and disadvantages of the following organizational structures of construction companies which are used abroad were investigated in this paper. Namely they are: linear, functional, matrix organizational structure, «turnkey» project organizational structure, the cartel. The peculiarities of these organizational structures were identified and their possible use in Ukraine was defined also.

**Keywords:** construction, organizational structure, mechanistic, organistic, construction company, linear organizational structure, functional organizational structure, matrix organizational structure, organizational structure «turnkey», project organizational structure.

### Introduction

Construction is one of the most important branches of industry all over the world. It defines the level of economic development of the country and the level of the international cooperation. Nowadays construction in Ukraine is in a very hard condition and has a lot of different administrative, financial and economical barriers for the future development. However, it creates the platform for changing the principles and strategy of its development. Because of it the significance of the investigation of modern theory and practical experience of construction companies structures in developed countries and its using in Ukraine increases strictly.

The scientific papers and works of such scientist as: C. Adestam, M. Hatch, J. Lohrey, S. Robbins etc. are devoted to the questions concerned the analysis of different foreign organizational structures of construction companies.

The main goal of the article is to analyze the main advantages and disadvantages of different organizational structures of construction companies abroad.

### The body of text

Construction companies are built around project management goals. Organizational structure is the

management framework adopted to oversee the various activities of a construction project or other activities of an organization. A suitable organizational structure assists the project management team to achieve high performance in the project through gains in efficiency and effectiveness [1].

To this end, the organizational structure of a construction company often branches off into several vice presidents, each responsible for a different facet of the business, from satisfying contractual obligations to drumming up new business. A variety of roles and responsibilities – including marketing, purchasing, human resources, finance, pre-construction tasks and construction operations – most often make such a corporate structure organized according to departments, functions or areas of responsibilities most appropriate to organizational design.

There are a lot of different organizational structures of construction companies throughout the world. Almost all scientists divide the types of organizational structures in two large groups: mechanic and organic. The mechanic structure is characterized by authority and control, where decision-making is made at higher levels, indicating a centralized organization. Written rules and regulations are common, as the formalization in a mechanical organization is stressed. There are also clear role-descrip-

tions including authority, responsibilities and prestige associated to each specific role. Each employee commonly answers to the person seated one level higher in the hierarchal pyramid. The work processes are usually much standardised and the employees working in such structure knows exactly their individual well-delimited task, what they are expected to do and how it should be done.

An organic structure has the same decision-making process as a decentralized organization where the ones possessing the right knowledge and experience regarding the decision at hand make the decisions. Expertise is how prestige is acquired as authority is based on knowledge and competences rather than level in the hierarchy. In an organic structure problem solving and interaction allow for redefinition of tasks and work methods. The responsibilities and roles are redefined over time depending on situation, it thereby enables for the use of personal expertise and creativity. An organic structure uses formalization to a smaller extent than a more mechanic structure, and uses horizontal communication and consulting between departments rather than vertical instructions. In an organic structure employees rather seek advice from each other than give instructions. The organic structure allows for innovation and is thus more suitable and beneficial when used in a changing environment with high requirement on adapting to the surroundings [2].

The tab. 1 includes the main features of these groups of the organizational structures.

From the above observations, researchers theorized that the change in the organizational structure, through its shape in terms of width and height, would affect organizational performance, and even

vice versa. Theoretically, researchers and theorists presented two extremes for possible models of structures. They are the organic structure and mechanistic structure. The model of an organic structure would be a flat and cross-functional team, with low formalization, possessing comprehensive information and relying on participative decision making. The model of mechanistic structure would be the opposite and would be characterized by extensive departmentalization, high formalization, limited information and centralization [4].

Relatively the organization of construction industry in well-developed countries, it's necessary to examine and to use positive advantages of some, the most widespread and effective organizational structures. Firstly, there is such organizational structure as a functional departmentalization which is an example of a traditional, hierarchical organizational structure. Defining characteristics include horizontal separation of the various departments and functions, well-defined lines of control and top-down communications. The size of a construction company determines the degree of horizontal separation. Although the business owner assumes a general management role regardless of the size of the business, the business owner's roles and responsibilities are often greater in a small construction company. In addition, while larger construction companies most often include a higher degree of horizontal separation, smaller companies may combine similar roles.

A main disadvantage of a departmentalized organizational structure is that it can lead to situations in which department goals, such as risk management and construction operations, become more

**Table 1.** Summary of the two structures and their characteristics [3]

Mechanic structure	Organic structure
High degree of formalization	Low degree of formalization
Centralized decision-making	Decentralized decision-making
Standardization according to work process	Standardization according to work knowledge and end result
Vertical differentiation rather than horizontal differentiation	Horizontal differentiation rather than vertical differentiation
Integration in the form of vertical instructions and regulation	Integration in the form direct informal communication

important than overall strategic company objectives. In addition, coordination of work efforts across departmental boundaries may become more difficult or confusing the larger a construction company becomes. Directional communication patterns characteristic of a departmentalized organizational structure may contribute to the development of these situations [5].

It should be noted that the foreign systems of construction organization have their own specific features. One of them is the combination between different building companies engaged in construction activities which can significantly reduce the project costs because of their interest in joint activities. In this case many costs are reduced due to lower advertising costs mutual discounts for services and deliverables. These associations usually called cartels. They exist by combining design, research and construction companies [6].

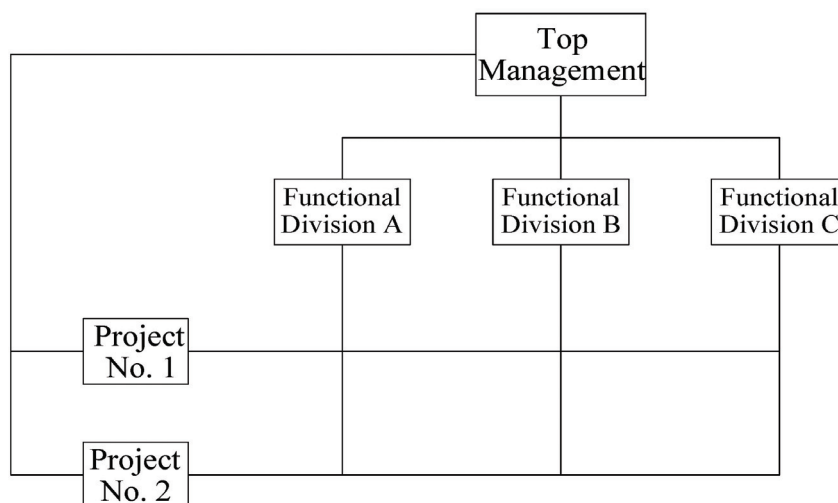
The next important point is the role of the construction management is the building owner and the one who performs its function. There are architects who often represent the interests of building owner in England, Finland and Sweden. He picks up necessary professionals who determine the preliminary construction cost, perform subcontracting works and collect other relevant data for construction. The architect together with these specialists prepares documents for the contract, the work plan and economic methods of work production and issues of reduction of the construction duration.

There were have been taken some steps forward to this direction in Japan. Construction companies try to organize large research laboratories and even institutions, scientists are actively involved in the company staff. Thus, instead of the concept of «building owner» it's common used the term «developer», whose functions include platform acquisition, financing, construction and sale of housing. The developer can attract contractors and subcontracted parties.

In Germany general contractor receives the order for the work, which in turn distributes it to specialized firms and is responsible for deadlines and construction quality [7].

Organizational structure is defined as the way of dividing labour according to different tasks and coordinating it. Six basic mechanisms of coordination are: mutual adjustment, direct control, standardization of work processes, standardization of performance, standardization of knowledge and standardization of norms. As construction organizations go through own development stages they undergo structural changes as well – from entrepreneurial to bureaucratic and from hierarchical to those with matrix structure [8].

Since construction projects may be managed by a spectrum of participants in a variety of combinations, the organization for the management of such projects may vary from case to case. On one extreme, each project may be staffed by existing personnel in the functional divisions of the organization on an ad-hoc basis as shown in fig. 1. until the project is completed.



**Figure 1.** A matrix organization.

This arrangement is referred to as the matrix organization as each project manager must negotiate all resources for the project from the existing organizational framework.

The concept of matrix structure is built on a balance between the two (or more) basis for the grouping of personnel, such as production and marketing. This structural change reflects both the internal needs and requirements of business environment. Although complex, matrix structure is the most suitable for the project nature of construction work where teams are often moved around from place to place.

On the other hand, the organization may consist of a small central functional staff for the exclusive purpose of supporting various projects, each of which has its functional divisions as shown in fig. 2.

This decentralized set-up is referred to as the project oriented organization as each project manager has autonomy in managing the project. There are many variations of management style between these two extremes, depending on the objectives of the organization and the nature of the construction project. For example, a large chemical company with in-house staff for planning, design and construction of facilities for new product lines will naturally adopt the matrix organization. On the other hand, a construction company whose existence depends entirely on the management of certain types of construction projects may find the project-oriented organization particularly attractive. While organizations may differ, the same basic principles of management structure are applicable to most situations [9].

Another one is project organizational structure refers to the creation of an independent project team, the team's management is separated from the parent organization's other units, have their own technical staff and management, enterprise assigns certain resources to project team, and grant project manager of the largest free implementation of the project. The advantages of this structure: focus on this project team, project manager is solely responsible for the project, the only task for project members is to complete the project, and they only report to the project manager, avoiding the multiple leadership; the project team's decision is developed within the project, the reaction time is short; in this project, members work with strong power, high cohesion, participants shared the common goal of the project, and individual has clear responsibilities.

The disadvantage of this organizational structure: when a company has several projects, each project has its own separate team, which will lead to duplication of efforts and the loss of scalable economies; second, the project team itself is an independent entity, prone to a condition known as «Project inflammatory» disease, that is, there is a clear dividing line between the project team and the parent organization, weakening the effective integration between project team and the parent organization; third, the project team members lack of a business continuity and security, once the project ended, return to their original functions may be more difficult.

Another one is design-build («turnkey») which has such main features as (fig. 3):

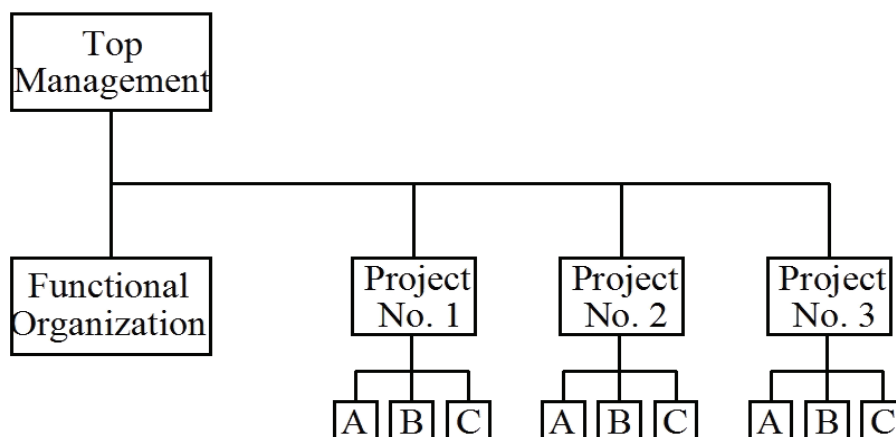


Figure 2. A project-oriented organization.

1. The owner selects a single contractor to both (detailed) design and building of the project.
2. Parts of the design may be sub-contracted to specialist consultants.
3. Most of the design and construction risks are carried by the contractor.
4. Upon completion of construction, the owner assumes responsibility for its operation and maintenance.
5. The use of a turnkey contract should be considered for work of a standard or repetitive nature, or when contractors offer specialized design/construction expertise for the particular type of work, or when design is strongly influenced by the method of construction.

It's necessary to admit some advantages of design-build («turnkey») organizational construction structures, such as: melding the two functions of design and construction, and injecting contractor expertise and advice into the design process offers the possibility of achieving both time and cost savings for the owner; because phased construction (also known as fast-tracking), refers to the overlapping accomplishment of project design and construction, can be utilized under a design-construct contract, design-construct time can be reduced.

So, the peculiarities of these organizational structures are:

- single firm responsible for both design and construction;
- specialty subcontractors;
- fixed price, guaranteed maximum price, or cost plus a fee design-construction contract [10].

Analysis of Ukrainian building companies it can be concluded that these organizations can conclude that

most of the modern organizational structures, but rather – the linear structure, when the head of the organization is a leader who is endowed with all the powers of direct influence on an object, it controls. Thus, unfortunately, the advantages and prospective of others organizational structures are not open for the majority of national building companies, which in turn «closes» for them international market, decreases their effectiveness and income.

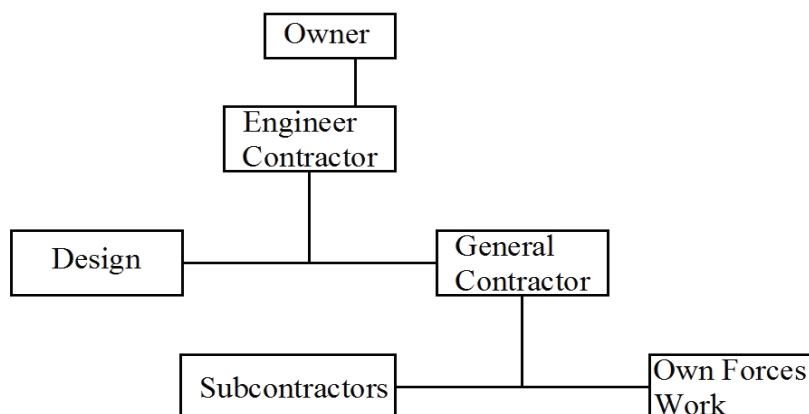
### Conclusions

Building complex in well developed countries is one of the leading positions in the national economy. Analysis of the organizational structures of foreign construction companies showed that the organizational structure is very flexible element which is being constantly analyzed and deliberately varied to achieve maximum coherence, efficiency and effectiveness of production.

The dynamic nature of construction organizations and instability conditions of their functioning determine the need to find and implement the most effective organizational structure. An organizational structure of construction company can take on various forms with each form having its own advantages and disadvantages.

Our Ukrainian managers and entrepreneurs can use the most popular organizational structures of building companies abroad, such as:

- programmatic based, in which project managers have authority only within the program focus or area;
- matrix based, in which the project manager shares responsibility with other program unit managers;



**Figure 3.** A design-build («turnkey») structure.

- project based, in which project managers have total authority.

Effective organizational structure of construction enterprise should correspond with its main goals, should be flexible and encourage growth of its coop-

eration, profitability and effectiveness. Unfortunately, currently the international experience is used unessential in Ukraine, but the analysis and implementation of foreign positive practice can be very favourable for the building industry of Ukraine in future.

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