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## FROM A LINEAR TO A MATRIX STRUCTURE - CASE STUDY

### Abstract

Many manufacturing companies existing on the Polish market, not only from the textile sector, including, for example, the food industry, operate on the basis of a linear organizational structure. The article is based on the thesis that many of them could introduce a matrix structure, which would improve the functioning of the company. Making an attempt to justify such a thesis, a case study is used as illustrative. Consequently, this article became a theoretical-empirical study.

### Key words

Organizational structure, linear, matrix, "multidimensional" analysis.

### Introduction

In recent years, the issue of organizational structures has been neglected or even omitted. When talking about task teams, process approaches, matrix structures and networks, their evolutionary and revolutionary predecessors are disparaged. It is recognized that the evolution of organizational structures is no longer possible, that there is a revolution, [4] or even that structures in organizations change so rapidly that organizational structures in the former sense cannot be talked about at all [3]. Hierarchical structures are considered superfluous, both in academic teaching and in business practice. And yet, as if in spite of the progress measured by the internationalization of the world, and the modern tendencies in management associated with it, there are still organizations whose structures are linear or functional (e.g. the Tax Office or the Polish Post). And still the organization - regardless of the nature of its activities - has an organizational structure, because without it, it would not be able to function. This structure can be turbulent over time, or remain the same over the years. In this context, the question is where to look for innovation in an organizational structure. In the case of this study, innovation is found in two aspects. The paper identifies a specific organization, existing and functioning on the Polish market, for which an innovative structural solution is indicated. Thus, a change in the structure of an enterprise is in itself an innovation for the company itself, but it is also an innovative proposition that can function well in the textile industry. This is a proposal that has a chance to be accepted in the industry and be diffused to others.

Many manufacturing companies existing on the Polish market - not only from the textile sector, but including, for example, the food industry - operate on the basis of a linear organizational structure. This article is based on the thesis that many of these could introduce a matrix structure, which would improve the functioning of the company. Taking the attempt to justify such a thesis, a case study is used, which is illustrative: the presentation of a truly multidimensional analysis of organizational structure according to Marcin Bielski [1; 2] in company X, with recommendations resulting from this analysis (it is worth mentioning here that these recommendations were successfully carried out in the company). Consequently, this article became a theoretical-empirical study.

The study used the case study method<sup>2</sup>. The interest of the researcher was subject, in principle, to both the value of the variables and the relationship between them. The search was conducted without initial hypotheses, with the intention of thoroughly investigating the phenomenon in its real context.

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<sup>2</sup> The case study method is considered to be one of the primary research methods. This is the most accurate and multifaceted picture of the rare cases of a given phenomenon, in order to obtain empirical conclusions. In-depth,

At this point it is necessary to draw attention to the perception of the case study method as a preliminary phase of the study, the results of which are to be confirmed by, for example, experiments, performed on a representative sample and generalized to the population. However, this is the simplified approach, because if the case method were less valid, it would not have so many uses in traditional scientific disciplines, such as psychology, sociology, political science, anthropology, history and economics, as well as more practically oriented disciplines such as spatial planning, public administration, management science and pedagogy [12]. Moreover, if the case method were a lesser method, it would not employ so many excellent scholars with a recognized research reputation. [12] The considerations in this case study are based on qualitative interviews conducted in June 2014 using unstructured interviews, questionnaires and document analysis.

#### **A multidimensional approach to the linear and matrix organizational structures**

The concept of organizational structure is commonly used for organizations. There are many definitions (e.g. Mreła, Przybyła, Lachiewicz). An organizational structure can be determined as the totality of relations between its elements, i.e. human beings and material elements; it is also possible to say that this is a way of organizing the elements of an organization [5]. For this study, a multidimensional approach was chosen for the analysis of organizational structures, according to Marcin Bielski [1]. Among the characteristics that characterize the structure, Bielski lists six elements, namely size, degree of specialization, grouping, structure accumulation, centralization and formalization. The size of the structure is determined by the size of the organization, the degree of specialization expressed by a particular way of dividing the work - the depth of division and the diversity of tasks arising therefrom, and by indicating the extent to which the knowledge and skills of workers are used. Grouping includes criteria and method of grouping posts. The degree of build-up of the organizational structure is measured by the number of hierarchical levels and the span of leadership. Centralization determines the distribution of decision-making powers and responsibilities at each level of the hierarchy. The degree of formalization indicates the extent and degree of detail of the regulation covered by the formal structure. [1]. In addition, Bielski is devoted to the achievements of the Astana school and complements the above catalog with the dimension of configuration, and also extends the dimension of formalization. The configuration is the characteristic shape of the organizational structure, the way the elements are separated and grouped, the number of hierarchical levels, and finally the proportions of the components. Formalization, however, now covers the scope of the organization's standards of conduct and communication. [1, p. 106]. Communicating, in this case, is a factor that improves the efficiency and effectiveness of your business. [10]

The structures indicated can be described by both linear and matrix structures. At every level of the linear structure there is a service link. It is also possible to have a functional link, but they overlap with the service links, as shown in Figure 1. As you can see, the commands come from one person (there is so-called unity of control), full centralization, which can deprive leaders of the lower level of initiative. Responsibility is strictly defined and individual. Decisions are made quickly because they depend on only one person, but unfortunately they cannot be correct every time, since they are taken alone: there are no competent advisers [2].

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penetrative and multifaceted analysis is intended to replace large amounts of data that may form the basis for statistical analysis. Sometimes it can replace a statistical method or an experimental method. [7]

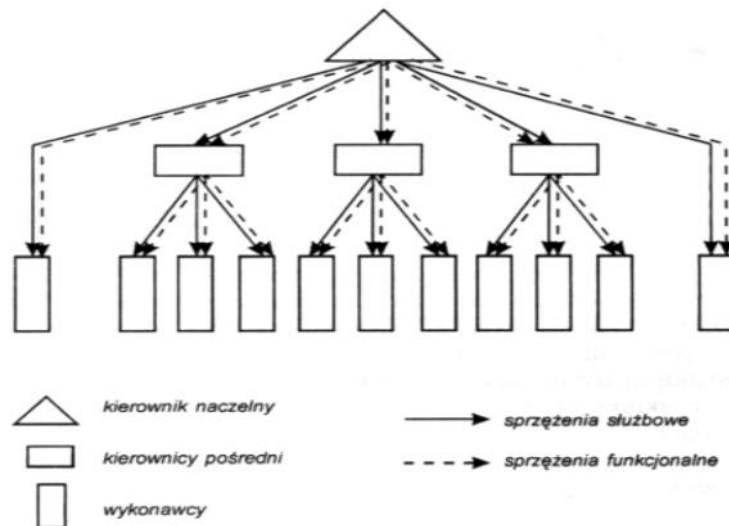


Fig. 1. Linear structure

Source: Zieleniewski J. *Organizacja zespołów ludzkich*, PWN, Warsaw 1976, p. 387

The matrix structure is a structure classified as an intermediate between hierarchical and organic types of structure. The diagram (Figure 2) of this structure is represented in the form of a matrix, in which the columns show functional-hierarchical links, and the lines are technically hierarchical. Therefore, this structure is also called functional-technical. Executive cells are functionally subordinated to functional superiors, vertically drawn in the diagram, while process coordination appears horizontally. This structure has the disadvantages of a classical hierarchical functional structure, i.e. dual subordination (horizontal and vertical), which can cause conflicts between functional managers and coordinators. [1] The structure is unbroken, decentralized with a low degree of formalization.

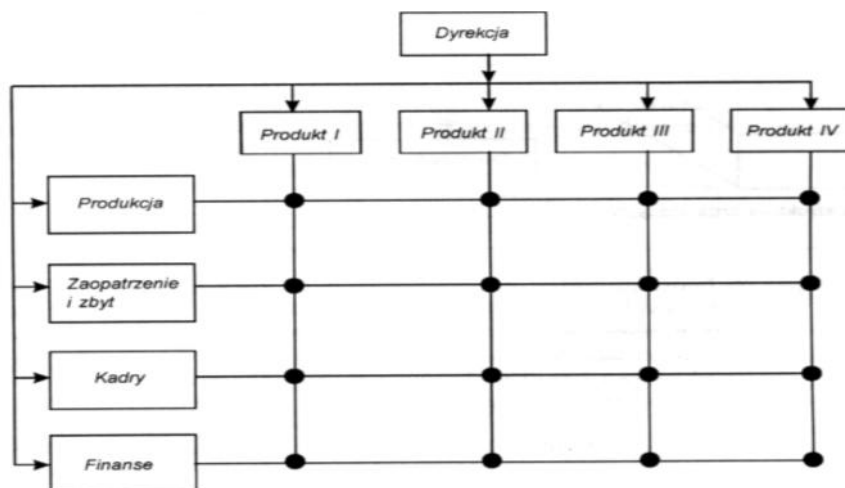


Fig. 1. Matrix structure diagram

Source: Steinmann H., Schreyogg G., *Zarządzanie. Podstawy kierowania przedsiębiorstwem. Konceptje funkcje, przykłady*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 1998, p. 49

### Organizational structure of X in multidimensional terms

For the case study, company X was selected, which operates in the textile industry. The consulting process in this company was conducted in June 2014. For reasons of confidentiality, the name of the company cannot be disclosed. The company has existed for over 30 years on the Polish market. It manufactures cotton, polyester, blended and organic knitwear. The company also owns a dye house, which it uses to meet its own needs, and also sells its services commercially to other companies. Organization X is also a manufacturer of clothing - polo shirts, t-shirts, tracksuits, sweatshirts, advertising clothing. The knitwear and finished goods produced are Oeko-Tex Standard 100 certified.

Company X conducted empirical research, which included an analysis of documents, and in-depth interviews with the owners and management of the company. Survey data was also collected from employees in each department. The analysis showed that the company did not create obligations and responsibilities for any job. The lack of organizational alignment - which is the essence of the organizational structure - hinders business. The general chaos in the enterprise and the lack of ability to enforce the tasks entrusted to employees caused difficulties in the daily work. In the above-mentioned Bielski classification, covering seven dimensions, the size of the structure was determined by the size of the organization. The organization had over 250 employees, making it a medium-sized enterprise. Company X has identified a grouping of elements by function, based on the identity of the activities performed. People with similar qualifications and using similar items in the organization - equipment and resources - are grouped into different departments. In this way, the activity of separate departments was conducted within the same company - knitting, dyeing, sewing and trading<sup>3</sup>.

The analyzed organization was marked as a company with a very low degree of formalization, i.e. the range of details of regulation included in the formal structure and limiting the participants' freedom of behavior was low. In company X the conduct of employees was based on discretionary operating principles, not written and not previously codified. As a result, there were no standards of conduct and communication.

The degree of specialization, another feature of organization in multivariate analysis, expressed by the diversity of tasks, the depth of division of labor, the degree of use of knowledge and professional skills of employees was inconsistent. At company X, the employees at the production sites were specialists in narrow fields, with restricted and specific skills and expertise, such as a dyer or knitter. However, these criteria were not used in the recruitment process. Admissions were made in a discretionary manner and the requirements for positions in the form of documents were not formalized. It is difficult to estimate the build-up of structure: the number of hierarchical levels and the span of management, as not even an approximate organizational structure was created. All assumptions about subordinate management in organization X were informal.

The organization analyzed was characterized by a very high degree of centralization. The distribution of decision-making and responsibility was at the highest hierarchical level. The division of power between individual hierarchical levels of the organization did not exist in principle. All the decisions of the company, without exception, were taken by two co-owners - from the strategic, to the repair of machines and equipment, or purchase of spare parts.

In conclusion, the above results of analyses and considering the configuration criterion, the organizational structure of X should be defined as a defective hierarchical-linear structure. The term "defective" was used because it did not meet all the criteria characterizing a linear structure, with lack of formalization and build-up. For this reason, company X cannot be called linear. This structure was not adequate for the size of the organization, the complex manufacturing process, and the apparent need to identify roles and responsibilities for individual positions.

#### **Proposal to change the type of organizational structure**

Based on the above analyses, restructuring was recommended to company X in the form of a reorganization of the organizational structure from the "defective" linear to the matrix. The first and primary task was to create a range of responsibilities for all employees. It was to improve the organization of work, to give it order, to improve the flow of information and means of production, and to facilitate the search for error sources. The recommendation included a list of activities performed in the posts by all employees. The adviser, along with the heads of the various departments, was to create responsibilities for positions at company X, using information received from employees, and also based on their own knowledge and experience of department heads. The advantage of such an action was to take into account all the activities and obligations in the newly created documents. The use of information directly obtained from employees was to - at least partially - prevent or diminish the natural resistance to change in this situation and shorten their adaptation period [more about this, cf. 6]. The consequence of defining responsibilities for posts is the allocation of adequate powers to

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<sup>3</sup> The name "sales department" is the result of many years of company activity on the market. Probably, if the company were founded today, it would carry the name, for example, "marketing and sales information system." The task of the department, apart from sales, is to provide the orderly flow of relevant information from internal and external sources and external decision-making for the company's development strategy (SIM marketing information system); it is also responsible for planning, collecting, storing and analyzing data.

decide and control them. It involves defining the distribution of powers for decision-making and responsibility, and the division of power between hierarchical levels of an organization. The owners of the company had to determine in this case how much they were able to resign from power<sup>4</sup> for the sake of other participants in the organization and commit to respecting the new findings. With regard to the power to decide and control the basic and current activities, the owners of the business will take control of their immediate subordinates, leaving themselves the opportunity to decide on the company's strategy and direction of its development policy. This will ensure shorter decision-making time for the company's current operations, compared with the pre-change option, and it will also be easier to find errors and shortfalls. In this scenario, however, there is no guarantee that the owners will want to transfer their rights. If owners do not share decision-making powers, then reorganization will fail. The well-being of the owners, as the only decision-makers in the company, will not improve the quality of the final product or reduce the number of complaints, and will not influence the determination of mistakes.

In the organization it was recommended to indicate separate divisions in the company, with the designation of managers of these divisions. Dividing the whole and grouping its elements into sections and the criteria used for division and merging will help organize the production process and control the tasks performed. Departmentalization should therefore be carried out. It was recommended in this case to introduce settlements between departments, which would take place through internal clearance documents - issuing orders - or other documents, preferably electronic, integrated with CRM. This solution will let an organization know the actual level of income from each production process, determine the actual cost of production, and also track the execution of orders. The introduction of this solution can be long-lasting. In order to achieve a more positive economic result faster, you can divide an organization into separate divisions without separate settlements between them. The advantage of such a solution would be a shorter time to implement a change, compared with the variant, but the actual profits from the individual processes would be unknown, due to difficulty in determining the actual production costs and tracking the execution of the orders.

After determining the divisions within an organization, the number of hierarchical levels and the spread of targeting should be determined; these depend on the assignment of duties at individual workstations and departments and decentralization - delegation of powers. It was recommended that the organization should strictly define the number of hierarchical levels and the span of leadership, which will help to identify the business route (who is someone else's subordinate, who is responsible for what and who and for whom, and for how many subordinates the superior is responsible).

The next stage in the company's reorganization was to determine the degree of specialization for each post. It is expressed in the variety of tasks in positions and in the depth of division of labor, the degree of use of knowledge and professional skills of employees. The recommendations focused on specifying the specialized skills and knowledge needed for each job. This identification will help during the recruitment process as it will provide information on the competencies and skills needed for each job at company X.

Even an enterprise with a matrix structure needs a certain degree of formalization. It was recommended to define the rules of communication, i.e. to define the scope of details of regulations included in the formal structure and limit the freedom of conduct of the participants. In the organization it was recommended to specify how to exchange information (who, with whom, how to communicate and in what situation). These principles were to be a consequence of a specific range of responsibilities, and the hierarchical and departmental level held. It was also proposed to define the rules for documenting events so that they were linked to CRM as a result of departmentalization. This makes it easier to identify mistakes and the people responsible for them. However, this change can take a long time for employees to adapt to it - from the writing system, to typing information into the CRM system.

As a result of the above analyses and recommendations, the recommendation was to create a matrix organizational structure for company X. The characteristics of the analyzed organization X in a "textbook" manner correspond to the matrix structure, hence the choice of this structure. In company X the work has a clear start

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<sup>4</sup> This is a partial separation of ownership from management [9]. In linear structures, control is a function implemented for the help of a separate department. In the matrix structure - by definition - control is, in a sense, "embedded" in the position. However, this does not mean that there is no possibility of making final decisions, including control, by management in crisis or in conflict situations.

and end, short product series are created. If a matrix structure is introduced to company X, the benefits will be apparent immediately, in accordance with the guidelines and literature references [cf. 1; 2; also 8]. The abandonment of the principle of uniformity of coordination will provide the possibility of two-way control of orders: the team leader will decide what is to be done, and the functional manager will decide how it is to be done. Other features that determine the choice of the matrix structure as best reflecting the needs of X's organizational structure are: good coordination of activities, professional supervision of functional cells and good use of staff. The unsustainable nature of the teams and the instability of the tasks carried out, for example in a dyeing plant, can help in the future in the further development of the company X. This structure gives two co-owners the opportunity to decide in crisis situations, because they are common superiors of both team and functional managers. Difficulties may arise with double subordination, as employees may not know which command to execute first. Conflicts between managers may arise, but it is a problem that can be solved on a cooperative basis. It is important to keep in mind that employees may feel unsettled because many things will change in the organization [6].

To conclude, the result of the analysis was the selection of an organizational structure tailored to the needs of X's business. As a result, the overall relationship between elements was defined: human and material elements, so that the elements of the organization were defined. It is recommended that changes made in the analyzed company be confirmed in the documents and a visualization of the organizational chart is made, provided that this is not a final structure, and that X may undergo changes during its development. In addition, it is recommended to include in the company documentation the applicable duties, powers and responsibilities and communication rules as well as the principles for documenting events. Any changes resulting from the reorganization of the organizational structure must be consistently included in the rules and instructions.

### **Conclusion**

Companies have different needs in the scope of organization, i.e. to create an organizational structure. Its creation is crucial to the functioning of the company. The purpose of business imposes the type of structure used. There are also other premises that help in assessing which organizational structure should be applied in a given case. Company X is also subject to such rules.

If an organization qualifies as a medium or large enterprise, the use of linear structure is difficult. Concentration of decision-making powers at the highest level causes decision and communication bottlenecks. The company does not function well, and employees waste time while waiting for the decisions of the top management. In this situation, changing the organizational structure to suit the needs of the company should be considered. If a company offers a variety of products or services made through several production lines and processes, it is proposed to introduce a matrix structure. If the organization consists of several production departments or one production department in which differentiated product ranges are being prepared then the matrix structure should also be considered.

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