



Position of Logistics in Organizational Structures - Trends

Jan Jakeš

Faculty of Economics, VŠB – Technical University of Ostrava, Sokolská třída 33
701 21 Ostrava, Czech Republic

Abstract: The article aims to describe different types of organizational structures in the companies, their strengths and weaknesses, and trends in the organizational structures. Then, the position of logistics in organizational structures, different logistic systems in organizational structures from practice have been described. The next section describes the structure of logistics centrally managed for manufacturing companies and types of information flows across the logistical structure of production. In conclusion, the latest trends in the structures of business logistics and the potential contribution of this work have been stated.

Keywords: Organizational structures, Logistics, Centrally controlled logistics, Information flows, Globalization, Trends, Materials and components, Production planning, Business logistics

1. Introduction

The aim of this paper is to describe the various organizational structures and the latest trends, the position of Logistics in the organization chart, different types of organizations of logistics. From our perspective, this is an interesting topic, which almost did not occur in professional publications of organizational structures in general and in scientific publications about logistics. Position of logistics in the organizational structures were mentioned rarely. We drew mainly from our twelve-year experience in the logistics of various manufacturing companies concerning the current organizational structures in logistics. Status of logistics in the organizational structures of enterprises is a current topic, while other departments within the organization chart regularly appear in various forms. Logistics services begin to appear in the last 30 years. Professional literature about the status of procurement and logistics is chary and any information in this area as it is in IT and marketing is quickly becoming obsolete. The organizational structures of individual firms mentioned in specialized publications such as Lambert, Stock, Ellram (2005) are likely to change in real time.

2. Types of Organizational Structures

The corporate organizational structure should be designed to create the best possible environment to achieve business objectives. Therefore, there is no universally usable optimal organizational structure. For each company, there should be "tailored" structure according to its needs and it primarily should support the implementation of corporate strategy. Classical organizational structures have undergone a long evolution. They achieved some stability and transparency in the functioning of the company and created important preconditions for high discipline in fulfilling tasks. However, these organizational structures are complex and difficult to control, and they often are not very flexible and adaptable. Present time is full of turbulent change, and it requires companies to cope continuously with these changing conditions. Quality requirements are constantly increasing with the development of information and communication technologies. Current trends in the management of the organization are ensuring the availability, flexibility, ability to adapt to the changes that occur in the market by competition and in the global environment. The main trend is to reduce organizational levels because this direction enables highly efficient and flexible management.

2.1 Methods for generating organizational structure

The aim of the work is not to exhaustively describe all known types of organizational structures and their combinations, but the basic types and trends in the structure of enterprises. As indicated by Cejthamr and Dědina (2010), the nature of pyramidal organizational structures has undergone long evolution, but it was always influenced by specific economic, technological and social conditions of the place. Classification of organizational structure is fully possible, because, there developed and created hybrid organizational structures which are hard to describe.

The basic organizational structures based on the division of powers are:

- line (linear);
- staff;
- combined.

Organizational structures based on activities or their results are:

- functional;
- hybrid;
- centers;
- project;
- matrix;
- product;
- divisional;
- strategic business units.

2.1.1 Line (linear) organizational structures

These structures were the first stage of development of the organizations that were small in scale and in which there was only one management level, which was usually a business owner. Another development starts to create more levels of management, which also brings new problems with demands on the expertise of leadership and to fulfill supported tasks. All these lead to the formation of other types of organizational structures (e.g. linear - staff or functional). Linear structures include the direct command authority. Cejthamr and Dědina (2010) reported that linear structure is typical stage of development of small enterprise to about fifty employees. Beyond a certain size range, a leader is no longer able to manage all subordinates. Then, it creates a specialized staff and talk about linear - staff organizational structure.

2.1.2 Staff organizational structures

Staff services are primarily designed to ensure a qualified decision-making of line managers in their departmental units. Staff group consists of specialists in various fields and can be divided into personal staff line managers and professional staff that perform an indirect professional management. Employee organizational structure cannot exist independently in this sense but it only exists in combination with linear, functional or other organizational structure. Smaller companies that are trying to implement logistics systems, and have not a necessary experience with modern logistics and cannot afford to implement the entire logistics department often approach the establishment of logistics staff. It has mostly advisory role, drawing up the strategy, but does not participate directly in the implementation and operation of logistics activities and chains.

2.1.3 Linear - staff organizational structures

These structures may be linear, but much more frequent are multiline structures. They arise at the moment when the unit with direct competence delegates a part of their decision-making powers to a staff organizational unit. From that it becomes an organizational unit with some linear and some staff responsibilities. Often companies are facing difficulties in growth by adding more specialists and then creating complex hybrid structures with three or more levels of management. If the operation of the logistics staff mentioned above settles into the form, which permanently manages all logistics processes, it becomes a solid component within the linear staff structure.

2.1.4 Functional organizational structures

Functional organizational structures are structured by grouping workers into sections based on the similarity of tasks, skills, and activities. The most common application of this structure can be found in mid-size businesses that achieve top performance in the production of a small number of products that require a high level of specialization. One section

head, then, manages the entire section, which contains grouped tasks and competences. Cejthamr and Dědina (2010) mentioned that, although, the functional organizational structure is considered as traditional and classic, its modification until recently has used or still uses the tech leaders such as IBM or Apple. Regarding logistics, the higher a share of logistics costs in total costs and the more the risk of losses increases from bad logistics decisions, the more confidently the company will aim to create central forms of logistical organization. Whether a company chooses hierarchically lower form a central logistics unit in the form of logistics department, or whether a higher form such as a division, it is primarily influenced by a range of logistics activities in the company.

2.1.5 Hybrid organizational structures

The hybrid organizational structure combines functional and divisional structures. It logically strengthens the pros of both structures and suppresses the shortcomings. This structure consists of divisional units, but also includes functional sections centralized in top management.

2.1.6 The organizational structure of the centers

To simplify bloated and complicated organizational structures, economic centers in the linear - staff cultures are also used. They occur in the partial or complete decentralization of decision-making powers. Head of such economic center may be considered to some extent as "independent entrepreneur" within the whole company. Centers are most often used as cost, profit, investment, and revenue and expenditure centers.

2.1.7 Project organizational structures

They are increasingly difficult and complex tasks that require a systematic approach and at the same time grouping of nontraditional collectives. These groups are called organizational project teams. There are concentrated specialists from different professions. In principle, there is a temporary type of secondary structure about the existing organizational structure.

2.1.8 Matrix organizational structures

This group tries to combine the functional structures and the above-mentioned project structures. It is characterized by a dual subordination because the workers involved in the project receive tasks from project manager and their functional executives.

2.1.9 Product organizational structures

Those structures are designed for large diversified companies. They are in one organizational unit that is responsible for one product type associated all the management activities. Ceithamr and Dědina (2010) state that this product structure utilizes holding company, Unilever. At the same time, it uses a competitive holding company, Procter & Gamble.

2.1.10 Divisional organizational structures

Divisional structure is included to modifications of product organizational structures. Generally it is stated that divisional organizational structures are selected in the case that the functional organization grows, operates in a dynamic environment and it is no longer capable of the required performance. The division is divided into relatively independent units broken down by kind of product or service, geographic location or type of customer.

2.1.11 Strategic business units (SBU)

Where there is required specific knowledge, production, sales, and environments are created by some large companies strategic business units from approximately 70 years of the 20th century. They are largely independent of management, and inherently they carry out business within the company. The advantage is the combination of independence and a direct link to the management.

2.2 Trends and developments in the organizational structures

As mentioned earlier, today's ever-accelerating environment requires innovations as well as in the area of the organizational structure. It is necessary to cope continuously with rapidly changing market conditions, competition, the rising quality requirements, the rapid development of information technology, extended periods of low growth and the persisting crisis. Traditional approaches are no longer sufficient and require modification. These classical approaches emphasize only one superior, on the precise definition of the role of the individual in the organization and its precise

definition of competencies. A significant trend, however, becomes a release of hierarchical organization. Organizational levels are lower, and organizational pyramids are flatter. Priority is given to two or three-stage management. A top manager is no longer dealing with the details but delegates the authority and responsibility to lower levels. All this leads companies to experiment with unconventional organizational structures.

Among the traditional organizational structures includes:

- Process structures;
- Network organizations;
- Amoebas;
- slender structures;
- fractalization;
- Virtual organizations.

2.2.1 Process structures

Process management is looking at the organization as a set of processes. It establishes responsibilities for individual processes. Process owners can efficiently manage processes to maximize the value added by the customer and then figuratively achieve profitable growth. Process management introduces a flat organizational structure, which utilizes an autonomous organizational unit which is linked by strong horizontal linkages. The aim is to create an organization with few levels, which offers companies greater flexibility to meet specific customer needs.

2.2.2 Network Organizations

Network organizations are formed by cooperation agreements between small and middle companies. Participants in the network are connected to each other by agreement, which brings benefits regarding cost reduction, access to new technologies, access to new markets and faster innovation. In a sense, this group of companies is controlled spontaneously; there is no top management that would define the direction of the group.

2.2.3 Amoebas

Amoebas are loosely bounded, organizational network structure without hierarchical arrangement. They function like separated and independent companies, which have full responsibility as independent entrepreneurs. Most amoebas are sales or production units, which can buy and sell both inside and outside the company. If a company develops a new product, create a new amoeba, after completion of the production program may disappear. For bigger flexibility amoebas lend to each other employees. The structure of the organization is flat.

2.2.4 Lean organizations

Lean organizations are based on creating teams with many tasks and powers, which in trying to perfect the implementation of all activities often utilize Kaizen methods. Production structure is very simple, hierarchical management levels and competencies are suppressed, and organizational structure is maximally flat. As indicated Dědina and Malý (2005), the introduction of flat structures characteristic of a small number of organizational levels of the organizational pyramid is one of the main conditions for implementation of lean structures. As mentioned earlier, many companies striving for maximum lean manufacture to be able to deal with increasingly frequent changes in the market, the competition on a global scale. In the past ten years, we can notice that the company has demanded on the labor market a position "lean manager" that is looking for someone who is in the organizational structure reported directly to the CEO and is responsible for general implementation of lean manufacturing, lean operations and inventory levels and lean organizational structure. On the other hand, very frequent changes and fluctuations in customer demand mean a higher risk in the organization with slim structure. Macurová (2011) mentions that organizations seeking to slim operations and lower stock levels are more vulnerable to unforeseen events and even relatively short delays in traffic can cause disruption of manufacturing operations.

2.2.5 Fractalisation

Fractalisation is an organizational structure consisting of several production units (fractals) which independently perform subtasks of main company objectives, and thereby they reduce transaction costs. Each fractal represents, in fact, a supplier for following units; himself is a customer for previous units. A part of fractalisation may also be an integration of suppliers.

2.2.6 Virtual organization

As the title implies this structure is linked with new technologies which some companies try to use to gain competitive advantage. The essence of the virtual organization is a combination of some number of smaller organizations that agree on the use of common information channels as the main communications medium. These are mostly a temporary established network of companies that are trying to take advantage of this grouping of certain business opportunities. They operate independently; each contributes its particular ability and gains what would otherwise be unable to obtain him. Grouping therefore neither has no central leadership, no hierarchy nor is vertically integrated. Virtual organization ceases to exist at the moment when the opportunity was already used or it expires.

3. Logistics in Organizational Structures

3.1 Defining logistics

The expression Logistics can be defined by many definitions. From simple to have everything at the right time at the right place to clarification of logistics as a system that includes planning, controlling the flow and storage of goods, services, and information from the point of origin to the point of production to satisfy the customer. In this work is dialed primarily with business logistics, there are also shipping logistics, the sector logistics, which includes agricultural enterprises, administrative institutions, and others. Business Logistics was also sometimes previously called internal logistics, but in connection with the merger into larger units and logistic chains, this designation is no longer accurate. Business logistics includes primarily a distribution, an order processing, a product management, a purchasing, and storage. From the above definitions, it is evident that logistics is inherently contained in almost every organizational structure in the form of either a separate section or department of logistics or logistics processes are assigned to one of the other sections.

3.2 Linkages and relationships between purchasing and logistics

Relationship of purchasing and logistics takes many forms. There are four basic systems linking procurement and logistics in organizational structures mainly manufacturing companies and related modifications.

The first organizational structure is a classic functional organization structure, in which major segments are a production, purchase, sales, human resources, and finance. A logistics is not centrally managed; logistics processes are controlled by single major sections. All input logistics (ordering, shipping, warehousing of components and input material) is controlled by purchase, see fig. 1. This type of organizational structure can be found in some traditional industrial companies primarily in engineering, for example, the company Tawesco Ltd.

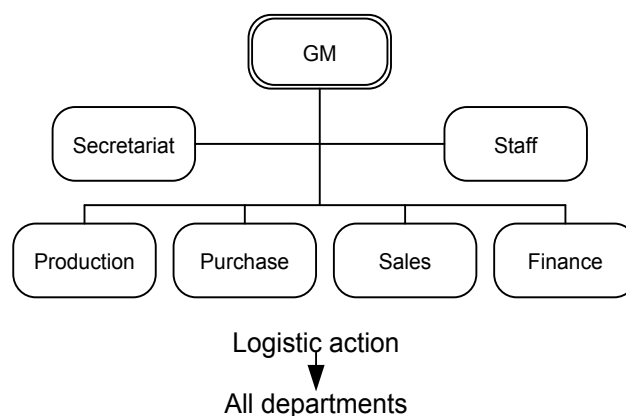


Figure 1: Classic organizational structure

Source: Dědina, J., Malý M. (2005). Decentralize. Moderní organizační architektura. Praha: Alfa Publishing. pp. 55-87

The second case, which is not very common, it is the opposite of the first. Logistics department is placed in the main section of the frontline under the direct leadership, and a purchase is incorporated in logistics. An example of such an arrangement can be found at the company ŽĎAS.

The third case linking procurement and logistics is located in a functionally oriented matrix arrangement. Purchase Department is located between the vertically actuated implementing sections of the main functions and logistics segment is classified as horizontally positioned interlocking sections to service function. Everything is shown in fig. 2. In this case purchasing and logistics overlap and cooperate together on an equal basis.

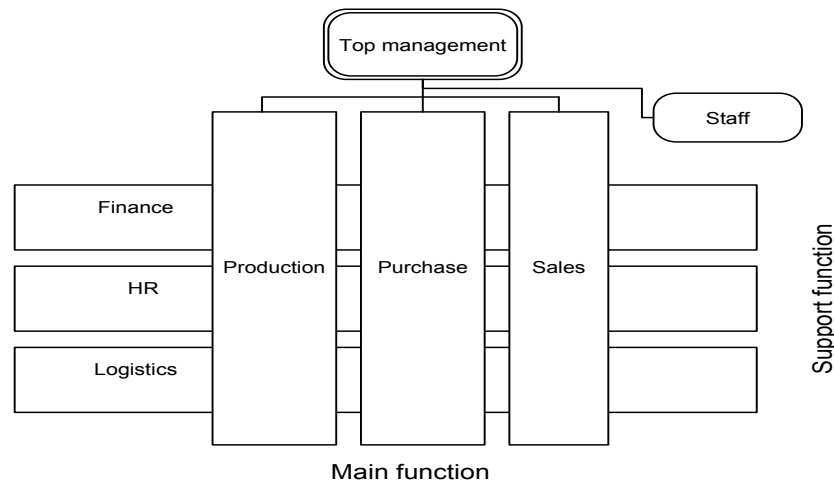


Figure 2: Functionally oriented matrix arrangement of Purchasing and Logistics

Source: Author

In the fourth case is a situation where on the first organizational level represented both sections. Regarding the activities section of the purchase is in charge of strategic and non-manufacturing purchasing, logistics operative then solves the purchase of materials and components for production. This model is widely used by mid-sized manufacturing companies in the automotive industry. Such an arrangement of logistics and purchasing is for example in a company AGC Automotive Czech Inc.

3.3 Logistics of manufacturing company in the organizational structure

What role of Logistics in organizational structures of companies compared to other sectors is very variable? Almost each company has a different concept of logistics. Exceptions are companies operating in the automotive industry where logistics sections are similar in structure due to involvement in the united supply chain. Trends in the status of logistics in organizational structures are clear. In the past mainly manufacturing companies did not have separate sections of logistics and logistics were provided by other sections. The purchasing department provided orders, transport and components storage, manufacturing division ensured the production planning and internal logistics and sales department was in charge of the warehouse finished goods and transportation of finished goods to customers. This organizational structure, when the logistics are not centrally managed, belongs among functional organizational structures and some companies still, use it. At present increasing companies where logistics is centralized (Fig. 3), the logistics division reports directly to CEO.

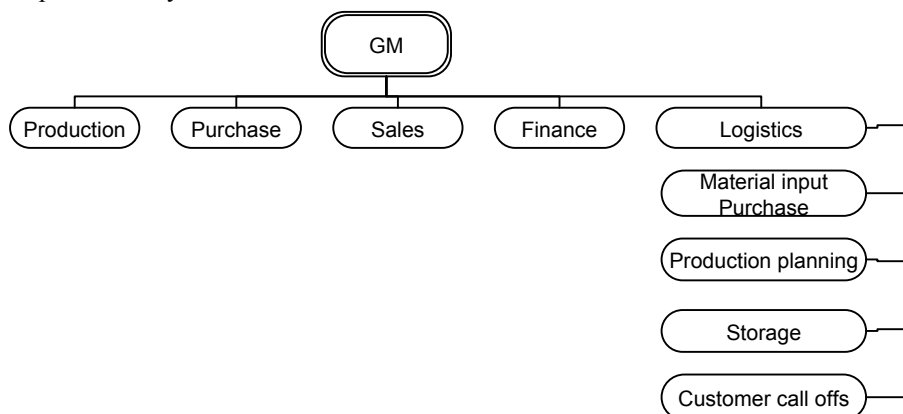


Figure 3: Centrally managed logistics

Source: Author

It is because logistics costs about total costs rise, companies are involved in the supply chain, and ever-evolving information technologies unite logistical flows. It can say that along with marketing logistics are among the areas that are increasingly perceived in the organizational structures and management companies. Centralized Logistics manages the flow of materials throughout the whole company. Logistics workers take customer orders, enter requests into the production plan, order components based on production plan, they manage the input material stores and final production warehouses.

3.4 Competences in centralized logistics

As regards, the distribution of competences at the output of the company, logistics is in touch with the customer regarding operational requirements. Then sales department resolves a long-term customer requirements and agreements with them. Logistics cooperates with the purchase at the input in the company. Logistics sends contractors operational requirements arising as input material needed for the production plan, a purchase searches for suppliers, conclude contracts and bargains with suppliers in case of disputes and delivery problems. One of the topics is the in-house logistics, unambiguous definition of competencies between logistics and production handling, but it is not the subject of this paper. An interesting issue is the location of the production planning department within the organizational structure. While in the past a production planning in most cases situated in the manufacturing sector, current trends allocating a production planning as a separate unit or it classified in the logistics sector. In traditional sense, customer requirements were fit on longest batches compliant to production facilities. Production planning included in logistics takes into account not only the requirements of the customer and production, but it can work in a wider context, to consider supplier possibilities, to take into account emerging information technologies and to corporate involvement in logistics chains.

3.5 Types of information flow in logistics sector

Two types of information flow in logistics sector exist:

- Information flows through projects,
- Information flows through departments.

3.5.1 Logistics divided by projects

Information flows and responsibilities at the centrally managed production logistics can operate in two ways. Especially small and medium-sized businesses that do not have a portfolio of hundreds of finished products and also purchased items, and the flow of production is not very difficult; they have logistics divided by projects. This means that the logistic section has several logistic specialists. Each logistic specialist cares for several customers. The logistic specialist takes orders from customers, requests; he enters requests into the production plan and orders components for their projects from suppliers (Fig. 4). The advantage of this competence distribution is operational approach and lean logistics. In the event of an economic crisis and decline in orders from the customer is responsible logistic specialist able to respond quickly and immediately to decrease supplier orders.

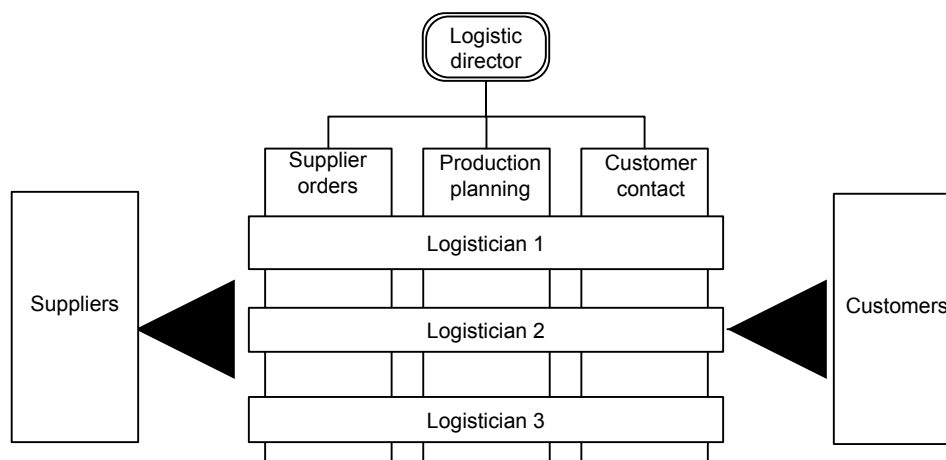


Figure 4: Logistics dividend by projects

Source: Author

The disadvantage may be that some contractors supplying components for multiple projects and they can receive orders from one customer from multiple sources from different logistic specialists, which can be confusing.

3.5.2 Information flow through departments

Larger companies with a diverse portfolio of finished goods or input components prefer logistics flows through departments. Business logistics department receives requests from all customers, forwards them to the production planning department that creates a plan which transmits information to input logistics department, and it orders and controls inputs of materials and components (Fig. 5). In this case, it is extremely important the proper flow of information, data and control mechanisms to prevent any inaccuracies and loss of information in the logistics flow.

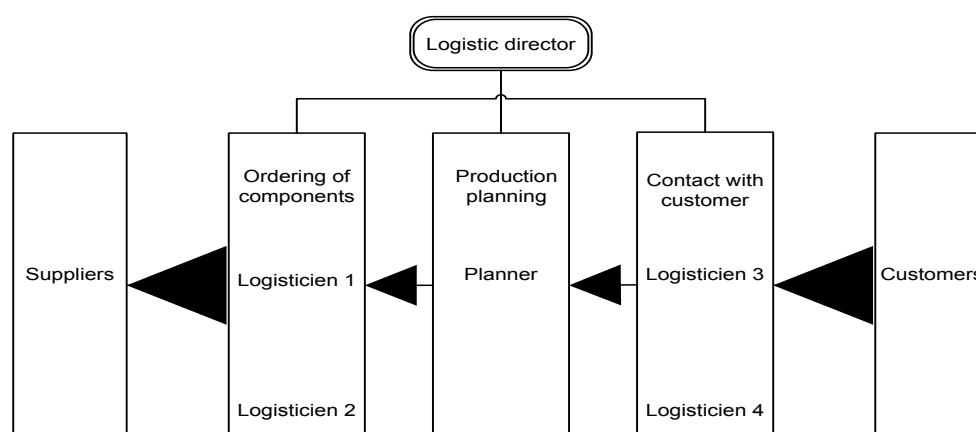


Figure 5: Information flow through departments

Source: Author

4. Conclusion

The role of Logistics in the organizational structures of companies takes many forms. The position of Logistics continues to grow in importance and is driven by the organizational structures of enterprises, especially in the context of globalization, development of new technologies and the growing importance of logistics chains. Long term crisis and accelerating development in all areas also have an effect on logistics systems. Finally, logistics processes in companies will be significantly influenced by new trends. An example might be "Industry 4.0". It is an initiative of the German government, which is called the "fourth industrial revolution" and aims in the coming years, largely to support automation, digitization and robotics production and logistics processes of large manufacturing firms to strengthen the competitiveness of German companies. Given the interconnectedness of German economy (at the initiative of participating companies such as Siemens, Bosch, and Volkswagen, which have branches in the Czech Republic), these trends will also apply to companies operating in our territory.

The contributions of this work I can see that I tried in the second part to describe the position of logistics in organizational structures of mainly manufacturing companies and various types of logistics systems. As already mentioned at the outset, the issue in the literature is too absent and because of this; work may provide some new insights from practice. Contribution for actual practice, among others, in finding the importance of logistics and its position in the organizational structure of manufacturing companies continues to grow. In the modern conception are a comprehensive service and maintenance, which mainly provides logistics for the customer, at least as important as the product itself. I met with one senior manager's view that a logistics has a more important position than the production itself including all activities in a company.

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