

## Supply Problems of Construction Companies

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**Abstract.** The aim of this paper is to highlight the problems in the supply to a group of construction companies operating on the territory of Bulgaria and to suggest guidelines for overcoming these problems. Based on the objectives set, the scope of this study are construction companies operating on the territory of Bulgaria. The data for the study are collected during the period November 2022 – December 2022. 3 types of companies are covered by the study – a small, a medium-sized and a large enterprise. The companies implement group I, II and III constructions, which includes residential construction, public service construction, industrial construction and the relevant adjoining infrastructure, electronic communications and facilities. This paper summarises the nature, scope and purpose of supply to construction companies. Problems in this field have been highlighted based on information about a group of construction companies operating on the territory of Bulgaria and an attempt has been made to suggest guidelines for mitigating the adverse effects resulting from the current crisis and the weakness in the operation of supply that have been identified. Based on the difficulties and weaknesses we have identified in the supply to the studied companies, we believe that it is essential to undertake measures to increase the awareness on the need to become familiar with the concept of logistics and apply it, especially in one of the enterprises that lags significantly behind in this regard.

**Key words:** crisis, supply, logistics, construction companies, suppliers.

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### 1. Introduction

Over the past few years, the construction sector in Bulgaria has been facing certain difficulties. According to data from the National Statistical Institute (NSI), the construction products manufactured over the first quarter of 2022 has decreased by 14.1 percent. In 2021, the building construction products manufactured amounted to BGN 9043 million. This is a 37.7 percent decrease, as compared to 2020, while the decrease in the engineering infrastructure segment was 29.4 percent.

Decline has been observed in both the engineering and building construction segment. In the context of the rising prices of construction materials, serious financial difficulties faced by the companies, lack of funding from the state and municipalities, inter-company indebtedness and other factors, mitigating the effect from these problems in the supply of construction companies is among the main factors for their competitiveness and earning capacity. Over the past few years, because of the reinforcement of the importance of supply (Genov, G & Raychev, T. 2008), significance of the effective management of supply for ensuring the necessary level of customer service and achieving minimum costs for logistics was realised. In the context of the political, economic and social crisis, the need of research in this field is also predetermined by several unresolved problems and competition among the supply chains. The objective of this report is to highlight the problems in the supply to a group of construction companies operating on the territory of Bulgaria and to suggest guidelines for overcoming these problems.

## 2. Literature review

Supply is a basic process carried out as part of the supply chain management (Blagoeva, S., Kehayova-Stoycheva, M. 2008), which is characterised by the provision of the products necessary for each company (Dybskaya et al. 2008) (Anikin et al. 2011). The scope of management is the material inflow, which is accompanied by an information, financial and service inflow. There is a wide variety of definitions of supply and of formulations of the scope of management in specialised literature. The authors (Afanasenko & Borisova 2010) and (Korbankoleva 2010) have restricted their studies to the scope of supply, which only includes: material resources and services; material flows, service flows and the related information flows; the necessary items, the material flow and the accompanying information and financial flow (Milusheva 2022). According to Friemuth and Stich (1998), supply includes the provision of plant and equipment, workforce, materials, capital, rights, services and external information to the enterprises. From the distance of time, we believe it is inappropriate to include the workforce and rights in the scope of supply, because these do not accompany the inflow of materials. There are many authors of specialised literature (Bowersox, 2002) (Waters, 2003) (Terminology in Logistics, 2005) (Lysons & Gillingham, 2005) (Afanasenko & Borisova 2010) (Blagoev et al. 2009) (Dimitrov et al. 2010) that have tried to formulate a full and accurate definition of supply, however, there is no generally accepted definition adopted by all experts. Therefore, we believe that supply is a key function of logistics, which focuses, on the one hand, on the integrated management of the material, information, financial and service flows within the process of supplying the companies with the necessary material resources and, on the other hand, on the close interaction with the other functional areas of the enterprise (Milusheva 2022). The organisation's specialisation is crucial for the nature of the scope of supply. In construction companies, different scopes of supply can be observed, particularly: management of the input, raw materials, details, etc. from the supplier to:

- the warehouse and their storage until they are needed;
- the warehouse and then, to the construction site;
- directly to the construction site.

Construction companies provide themselves with the necessary material resources in order to fulfil their manufacturing programme. The purpose of supply is to ensure reliable delivery of the necessary quantities at the necessary time and at the expected quality. This purpose can be achieved by competent decisions based on in-depth analyses and up-to-date information. Some key strategic decisions in the management of supply, accompanied by a high level of uncertainty and risk, are related to the choice of suppliers and the relationships with them (Milusheva 2022).

## 3. Results from the study

The questionnaire survey approach was used for the study, where the information was received through an interview and observations. Based on the objectives set, the scope of this study are construction companies operating on the territory of Bulgaria. The data for the study were collected during the period November 2022 – December 2022. 3 companies were covered by the study – a small, a medium-sized and a large enterprise. The companies implement group I, II and III constructions, which includes residential construction, public service construction, industrial construction and the relevant adjoining infrastructure, electronic communications and facilities. The conclusions drawn are valid for the surveyed construction companies.

An indicator of problems in the supply of the three construction companies is the deficit of materials during the construction process. Some of the main reasons for this phenomenon are:

- Delay in the fulfilment of orders by the suppliers. It was concluded that there is no dependence between delays from manufacturing suppliers and intermediary suppliers. Among the most common reasons for the suppliers' delays were problems along the supply chain they were part of. A number of cases were identified in the small and medium-sized company, where the delays in supply were caused by the suppliers' incapability to fulfil orders without prepayment (due to the lack of reserves or maintaining insufficient quantities for the client), which could be as high as 80% of the price for the order. These financial difficulties are largely the result of non-payment or delays in payment (Nikolaev, R., Milkova, T., Miryanov, R. 2017) both between a large part of the construction companies and the suppliers and between the construction companies and the state (municipalities). Another reason for the delays in the fulfilment of orders is the late submission of accurate information by one of the companies studied. In contrast to the suppliers of the large and the medium-sized company, which received a schedule for supply and updates thereto in a timely manner, the suppliers of the small company only received tentative information about the time and

quantities of the needed materials, which were of large quantities. No information about future plans was submitted for resources used periodically and in small quantities.

- Delays when using rented transport vehicles and supplier's transportation.
- Lack of own production. No deficits during the construction were observed with respect to materials that two of the companies produced themselves.
- Inconsistencies between the material resources ordered and the ones supplied, both with respect to the quantities and with respect to the type of material. There were often situations, especially with the small and the medium-sized company, where a supplier delivered substitutes with no advance notice and at their discretion due to the lack of the material ordered, without notifying the clients first.
- Poor quality at the fault of the suppliers.
- Telephone communication with suppliers when submitting orders which causes lack of traceability of the information. This method of work was most commonly observed in the small company and resulted in inaccuracies in the information submitted and accepted.
- Lack of or inaccuracies in the documents accompanying the materials. This problem is most common for the large and the medium-sized company, most often in the case of import of materials.

A factor for the difficulties in the supply to companies described above, which is related to the operations with the suppliers, is the choice of relationships with them. It was concluded that for two of the companies (the small and the medium-sized company), the most important criteria for selection of suppliers was the price, followed by the quality, the reliability of the materials and the possibility for deferred payment. This is explained by the difficult financial situation of the enterprises.

The significant increase in the prices of materials, which is expected to continue, is another challenge faced by the analysed companies. This is the reason why one of the companies purchases part of the materials in advance, however, the other two companies do not have the necessary financial resources for that and rely on the rapid response of the suppliers. As a result of the overstocking of the large company, it was faced with increased costs for warehousing for the materials that cannot be stored at the supplier's premises.

The fact that the small company does not use information technologies for supply management is alarming. Nevertheless, we believe that the integration of the supply operations and the other logistics operation is achieved because of the organisational structure, particularly, the manager and the construction engineer, whose competences include all decisions related to logistics.

Based on the difficulties and weaknesses we have identified in the supply to the studied companies, we believe that it is essential to undertake measures to increase the awareness on the need to become familiar with the concept of logistics and apply it (Milusheva 2022), especially in one of the enterprises that lags significantly behind in this regard. The problems with suppliers identified lead to the conclusion that changes are needed with respect to:

- The planning and management of the material inflow of the organisations by experienced and competent experts.
- The criteria for the decision about the supplier(s) of materials companies will work with. We believe that in the current context the importance of the criterion related to the price of the materials and the transport services needs to give way to the following essential criteria in the choice of suppliers, particularly: potential, reputation and financial stability, especially with respect to the materials important for the organisation's operations.
- The management of the relationships with the suppliers after realising the need of successful integration with the suppliers, which will require stable and long-term relationships based on active exchange of timely and accurate information (Vasilev, J. & Cristescu, M. 2019), knowledge and mutual support.

#### **4. Conclusion**

After a short theoretical overview of the nature, scope and purpose of supply in construction companies and a subsequent analysis focusing on the current problems with the supply to three companies, we believe we have achieved the objective mentioned above. In the context of the crisis that gives rise to a number of difficulties in the operations of construction companies (part of which were presented here), the role of competent management is becoming increasingly important.

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