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Optimization of the procurement process for the bakery production company in RF

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Abstract

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The aim of the study is to determine the procurement challenges of the case company and to improve the efficiency of procurement activities on the basis of the proposed measures. The author of this research took into account the theoretical data on the international approaches to the procurement procedures management and conducted a review of existing trends of development implemented to the case company.

As part of the research, the efficiency of a process-oriented approach to a procurement management was considered. The qualitative method of research was used to determine the main opportunities and threats of the company to provide recommendations for the procurement activities improvement. The quantitative method of research was used to analyze raw materials and suppliers' matrixes with the purpose to provide optimization recommendations.

The results of this research were the detailed analysis of the organization of the procurement management process in the studied enterprise and the proposal of a set of practical measures to improve the efficiency of procurement management.

Keywords: efficiency of procurement, supplier's selection, practical measures for improving the efficiency, cost reduction, purchase turnover, procurement management.

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1 Introduction

The production of one's own products is one of the most promising and rapidly developing sectors of Russia's economy; its efficient functioning constitutes one of the sources for achieving sustainable socio-economic development of the country and a necessary condition for the life support of the population and for improving the standard of living. (Afanasenko 2011.)

In its essence, the production of one's own products is already becoming an independent sector of the market economy that is constantly adapting itself to the specific needs of its consumers and is looking for ways of reducing its costs. Solving this kind of tasks presupposes a steady increase of the effectiveness of primary business branches, regardless of the form of ownership and type of business, which in the current conditions of the development of domestic economy makes it necessary to improve the management of manufacturing enterprises, to continuously search for tools and methods of efficient economic performance, taking into account the rapidly changing market conditions. (Afanasenko 2011.)

Procurement is the basis of production, since it is the initial step of any business. In order to sell goods to the purchaser and make profit, you need to have the product. And in order to have the product, you need to make it. Therefore, procurement of raw materials and supplies, of packaging materials and other products related to the business represents the basis of manufacturing activities. (Druker 2011.)

The commercial activity of a manufacturing enterprise derives from the relationship existing between suppliers and intermediaries. Business and commercial activity of an enterprise can be summarized as follows: acquisition of supplies, raw materials and goods necessary for running the business, providing services to the intermediaries in matters of the sale of the manufactured goods and selling them to retailers, satisfying their needs as for the required standards of quality and quantity. (Druker 2011.)

As a result of such operations, profit is generated; its amount will depend on the amount of markup and the volume of the goods being sold. Besides, profit will depend on the quality of the provided services - that is, orders should be executed thoroughly and promptly - and on the settlement procedure (trade credit or payment upon delivery of goods). (Druker 2011.)

1.1 Case company

The research object consists of procurement procedures of a manufacturing enterprise in the field of food production.

The subject matter of the research is Bushe manufacturing company. The company was founded in 1999 in an extremely difficult period for the Russian market, when the country's economy was completely devastated. It was a period of the so called "post-soviet zone", when planned economy had already turned into a historic anachronism though domestic companies were not ready yet for thriving in market conditions. The company started by opening a café in downtown Saint Petersburg, as part of a joint Russian-Swiss venture; its main purpose and distinctive feature was the company's creator's desire to run an honest and conscientious business, focused not only on making profit but also on the consumer itself: the guest. It took a lot of time and effort to learn the best baking traditions, design the company's own recipes for bread and confectionary, taking into account the experience of Western experts in this field, and most importantly, create the atmosphere not just of a café in the center of the city, but of a quiet, cozy place and a quality product that would not be inferior in taste to its best European equivalents. In times of instability, criminal abuses and rampant desire of the overwhelming, impoverished and confused, part of the population to earn money by any means in order to survive, this café became a true enclave of European coziness and quality. Bushe became one of the first precursors of a conscientious approach to business that was not even emerging in Russia at that time, when companies do not only strive to gain profit, but also look upon their activity as responsibility towards their clients, the state, the environment and the future generations. To date, the company has opened 42 cafés-bakeries in different places, including Moscow; a project is under way to open a café in Amsterdam; the Bushe manufacturing is now one of the biggest in the region, while the Bushe brand has become one of the most recognized and replicated in the segment within the North-Western market. The company does not stand still; it is constantly looking for new ideas for business and development, that is why issues of increasing business effectiveness are crucial for the company, while procurement, as one of the key processes of manufacturing, deserves a detailed study and a continuous improvement of processes.

1.2 Objectives of the study

The purpose of the thesis is to issue recommendations to the Bushe company, aimed at improving business processes of procurement management in the field of bakery and confectionary manufacturing. The foundation of the study is to understand the procurement challenges that the case company is currently confronting with and to provide options for improvement in this direction.

The legal and empirical information that constitutes the basis of the study consists of scientific works of the leading domestic and foreign scientists dedicated to the problems of theory of organizations, administration and management in the procurement and logistic spheres. As information base for the study, financial statements and reporting data of the Bushe manufacturing company are used.

The practical value of the study lies in the fact that the improved procurement management business processes in the field of manufacturing bakery products can be put into practice in any manufacturing industry.

Research question: how to improve the efficiency of procurement activities on the basis of the proposed measures.

Sub-questions:

- Algorithm of supplier choosing
- Assessment of the procurement management system
- Evaluation and selection of suppliers
- Analyzing of supplier and nomenclature matrixes

1.3 Definition of the main subject of the research

The main subject of the research of this study is the procurement activities of the case company. That is the reason why it is necessary to provide the definition of the procurement at the beginning of the study.

Procurement refers to the participation in the development of requirements and their specifications; managing value analysis activities; conducting supply market research; managing supplier negotiations; conducting traditional buying activities; administering purchase contracts; managing supplier quality; buying inbound transportation. (Dobler &

Burt 1995.)

Purchasing is another term used in the Supply Chain Management and quite often considered as interchangeable with Procurement. The main difference between these terms is the fact that Purchasing focuses on short-term planning while Procurement focuses on long term or strategic planning. (Quayle 2005.)

Purchasing refers to the process by which a company contracts with third parties to obtain goods and services required to fulfill its business objectives in the most timely and cost-effective manner. (Quayle 2005.)

1.4 Phenomenon of the study

The topic of improvement of procurement process in the companies is widely studied and described in many books and researches. The information from these sources can be used for the following study. Most of the sources have scientific nature without illustrative examples of application in practice and results of application of theories for activity of the concrete enterprises. The peculiarity of this study is to implement theoretical approaches to the study company and to demonstrate a clear example of increasing the efficiency of procurement activities through the use of selected methods described in the theoretical part of the study.

The bakery market is currently one of the fastest growing industries in Russia, but the theoretical and research sources related to this market are still presented in limited version. Moreover, the selected company is the flagship and innovator in its industry and the interest in studying the success factors of this company in the market is extremely high.

1.5 Delimitations of the study

The study will include the following parts:

- The theoretical part includes theoretical approaches to the management of procurement procedures, defines the main objectives and the main stages of procurements activities, considers the essence of the procurement management and provides direction for improving procurement logistics in the enterprise.
- The empirical part consists of an analysis of the procurement system management

of the company, provides general characteristics of the case enterprise and evaluates procurement procedures.

The inventory replenishment system is an essential component of the successful functioning of the entire procurement process in the company. There are a lot of books and other sources detail covering this topic. Moreover, for the case study company this issue is not in the focus of attention as all processes are sufficiently debugged and do not require optimization. That is why such an essential part of procurement management as inventory replenishment system will not be considered in this study.

1.6 Structure of the thesis

The structure of the presented work consists of an introduction, three main chapters, a discussion and results chapter, a conclusion and a list of references.

In the Introduction, the relevance of the study is indicated, the purpose and objectives are defined, the theses submitted for defense are formulated and the base of the study is determined.

In the Second Chapter, a study of theoretical material on the main business processes of enterprises engaged in production activities is provided, the features of procurement management in this field are studied. The essence of the procurement management and the definition of the procurement process are considered. The direction for improving procurement activities based on the theoretical study of a contractual work, algorithm of suppliers choosing, purchasing methods and the main approaches to procurements system, SWOT and ABC analysis are presented.

The Third Chapter consists of the empirical study analyzing the characteristics of the production enterprise, procurement department structure and provides researches based on suppliers' evaluation and selection methods.

The Chapter Four considers the measures development for improving the procurement management system applying different research methods in analyzing of supplier and nomenclature matrix of the case company and SWOT analysis of the procurement system.

The Last chapters present the results and conclusions of the provided study, the list of

references and the list of figures and tables.

2 Theoretical approaches to the procurement logistics

2.1 Essence of the procurement management system of an enterprise

Procurement logistics is the management of material flows in the process of providing the enterprise with material resources. An important element of the micro logistic system is the procurement subsystem, which organizes the input of material flow into the logistics system. Management of material flows at this stage has a certain specificity, which explains the need to allocate procurement logistics in a separate section of the discipline. (Vuzlit 2018.)

In this chapter the essence of procurement logistics is going to be considered with the purpose to develop directions for improving procurement activities of the enterprise.

2.1.1 The definition of the procurement business process

A manufacturing enterprise represents a separate specialized unit with workers at its core, who make products and goods required by consumers, with the help of automated software and equipment. (Dubrovina 2017.)

The production process represents a continuous activity of all the enterprise, being its final result the products and consumer goods. The entire production process is based on raw materials and supplies that the enterprise purchases for the manufacture. The quality of the manufactured products and consumer goods will depend on the quality of the purchased raw materials and supplies, that is, on material resources. (Klochkov & Gusev 2011.).

In order to begin studying business processes of procurement procedures of an enterprise, it will be necessary to comprehend the meaning of the concept itself. One of the possible definitions could be the following: a business process is interrelated with different factors and a set of actions; within the system, it begins with the client's needs and ends with the satisfaction of these needs. (Konoplitsky 2013.)

The definition proposed by authors of the concept of business processes reengineering, reads as follows: a business process is an organized set of interrelated activities that

together produce a result that is valued by the client. A. Björn in his work defines a business process as “a chain of logically related repeated actions that lead to the enterprise’s resources being used for processing the object with the purpose of achieving certain results, in order to satisfy internal or external consumers”. These definitions give an idea of the business process only as a combination of certain activities that lead to a certain result, but they leave out some very important components: the interfaces of the business process. (Konoplitsky 2013, p. 57.)

Based on these and other views by scientists, a business process can be defined, as a systemic closed process that has a beginning (“input”) and the obtained result (“output”), consisting of a chain of logically related actions that as a result satisfy internal and external consumers. (Hammer & Champy 2007.)

There are many classifications of business activities. Different authors use different approaches. For example, Porter in his theory of value chain classifies activities into primary, support and development. In this classification, primary activities are basic activities that create added value to the enterprise. These activities permeate the entire company, starting with the consumer and ending with the supplier; support (auxiliary) activities do not create the added value directly, but they are necessary to assist the primary activities. Development activities are those that make it possible to enhance the effectiveness of business processes of an enterprise, elevate the indicators of the value chain in the primary and support activities to a new level. (Kondrashov & Pashuta 2011).

Other authors classify business processes depending on their relation with respect to the clients into:

- external
- internal, and depending on the level of detail into:
 - large-scale;
 - detailed;
 - elementary (operations that do not require a more detailed description).

Additionally, we can single out development processes that are directly involved in managing the development of other business processes in an enterprise and constitute the development activities according to Porter. (Kondrashov & Pashuta 2011, p. 52.)

To describe any business process, you need to define:

- process name;
- exercised function or sequence of functions;
- roles of process participants;
- responsible party: process owner;
- process boundaries; input and output flows and their consumers;
- required resources (manufacturing, technical, material, informational);
- process goals;
- process metrics, process monitoring points and procedures;
- possible risks and impact of the process on its subjects.

Most often, in scientific literature the process owner is defined as follows: a person that bears full responsibility for the process and has the competence to make decisions on it. For him, it is important to effectively implement the whole process, and above all satisfy the efficiency criteria that have been established for this specific process. The owner is responsible for all the process, from the input of resources to the output of finished products. Moreover, the scope of his responsibilities should be clearly established and documented. At the same time, the client of the process is an entity that obtains the result of the business process. It can be: internal, located inside the enterprise and using in the course of its activities the output of the previous business process, or external: located outside the enterprise and using or consuming the output products of the organization. (Druker 2011.)

A business process can be divided into several sub-processes that possess their own characteristics, but they are also aimed at achieving the goal of the main business process. The level of detail of such a breakdown will depend on the process itself and on the organizational structure of the enterprise. (Druker 2011.)

In earlier literature, the following were specified as principle characteristics of the quality of business processes of an enterprise:

- effectiveness
- efficiency
- adaptability

- cost of the process.

In the modern sense, this list is complemented by other characteristics.

- clarity: it reflects the degree to which the actual process corresponds to its description;
- manageability: it characterizes the degree to which the management of the production process of the required products/services possessing certain target specifications is managed;
- repeatability: it describes the ability of the process to create output flows with the same specifications in repeated implementation attempts;
- duration: it determines the period of time necessary for implementing the process;
- effectiveness: it determines the yield of the products (Druker 2011, p.97.)

An important category of business processes management in an enterprise is effectiveness. In economic literature, effectiveness reflects the degree of effect and can be described by the following formula (1):

$$E = R / C$$

where E = effectiveness

R = result

C = costs that provide the result (1)

Moreover, effectiveness can be compared both with business processes before the change and with similar processes that are under way in enterprises of the same business area. Quite often a competent manager begins to think about the degree of effectiveness of the business processes of the enterprise, and, consequently, about creating a management system that will ensure a better result. Which in turn results in the awareness of the need to implement an automated resource management system. (Bashnyanin & Tretyakov 2012, p. 244.)

The system of effectiveness management will allow to evaluate the efficiency of all business processes of an enterprise. The process owner is responsible for the achievement of planned performance and effectiveness indicators by the process. He is

responsible for compiling indicators for the assessment of the effectiveness of a business process, comparing the results with standard indicators, for the course of the process and the results of his activities. One of the management tools is the development and implementation of comprehensive indicators for the assessment of the effectiveness of business processes of an enterprise that describe the entire scope of activities. This variety of indicators increases the level of complexity of calculations on the one hand, while on the other hand keeps the management better informed. (Druker 2011.)

Conventionally, factors that affect the effectiveness of business processes can be divided into four groups:

- those measured in terms of value (for example, process cost)
- quality indicators (for example, the percentage of defects)
- time indicators (for example, the sub-process execution time)
- indicators of the complexity and consistency of processes

Cost indicators make it possible to assess the resources that are required for implementing a business process, such as: supplies, cost of workforce, electricity and other costs. In this case, the ABC method (Activity Based Costing) can be applied, which refers to a cost analysis according to the type of activity, allowing to calculate the cost of each process. (Druker 2011.)

Quality indicators of the final result of a business process are enterprise-specific. For a manufacturing company, these can be as follows: degree of compliance of the finished product to the project (draught), number of complaints or defects detected during production and storage, degree of the clients' satisfaction and so on. (Druker 2011, p.111.)

The main indicator related to the duration of business processes is the effectiveness of the production or operational cycle (MCE, Manufacturing Cycle Effectiveness)(2), that is calculated as ratio of the total execution time of all process operations to the duration of the overall cycle of the business process (3):

$$MCE = \frac{prT}{cycleT}$$

where prT = production time

cycleT = overall duration of the business cycle. (2)

$$prT = \sum_{i=1}^N (top)i$$

where (top)i = i-operation execution time

N - number of operations in the process.

$$cycleT = prT + QcT + tT + w/sT$$

where QcT = time of quality control

Tm = time spent on transportation and handling of products

$$W/sT = \text{waiting/storage time} \quad (3)$$

Since temporary breaks occur in processes, this indicator is always lower than one, and in most cases it falls between 0,05 and 0,2. The closer MCE to one, the higher the effectiveness of the production cycle; therefore, this indicator should tend to one. (Kondrashov & Pashuta 2011, p.52.)

Complexity or fragmentation indicator characterizes the organizational complexity of a business process that is determined by the number of different structural units and employees participating in them. The less fragmented the process, the higher the process quality and the shorter the time needed to go through it. In turn, the compactness and consistency of the process scheme is assessed on the basis of the following criteria: the smaller the number of inputs and outputs, the more effective the process; number of procedures; number of possible exceptions. Each exception is a threat to the process manageability. (Prigozhin 2010.)

Table 1. Indicators of effectiveness of business processes

Group of indicators	Indicators of effectiveness of business processes
Performance	Production volume
	Sales volume
Quality	Quantity of defective pieces

	Number of complaints from clients
Duration	Duration of the production cycle
	Storage time of finished goods in the warehouse
Cost	Production cost
	Cost of goods

In the course of analysis of scientific literature, a system of indicators of the effectiveness of business processes was determined for a manufacturing enterprise (Table 1). It consists of four groups of indicators: performance, quality, duration and cost. As described above, the quantitative indicator of the effectiveness of business processes can be calculated based on indicators of the process cost and the volume of the process output. The key performance indicators of a manufacturing enterprise are the volume of the output and of the sold manufactured goods. On the other hand, cost indicators related to the above ones are determined by the production cost and the price of goods. Another important criterion for assessing the effectiveness of a business process is duration. In this group, the most significant ones for a manufacturing enterprise are the duration of a production cycle and the storage time of finished goods in the warehouse. Both of these indicators affect the turnover of funds. (Prigozhin 2010.)

Besides quantitative indicators, special attention is paid to qualitative ones. For this reason, two indicators are selected: number of defective pieces identified on the territory of the enterprise and number of complaints received from the clients. These criteria can be compared with the overall volume of the output and of the sold manufactured goods for the “Production” and “Sale” business processes, as well as among themselves, in the quality of criterion for the assessment of the “Quality control” process. (Prigozhin 2010.)

The system of effectiveness of business processes described above is sufficient to assess the processes under way in a manufacturing enterprise, including procurement procedures, and is not too complicated. Indicators can be easily obtained from the general information system of the enterprise or from the accounting department, which means no additional costs will be required for such assessment. After identifying the factors that

influence business processes and indicators that measure them, it will be necessary to develop methods and approaches for optimizing business processes. (Prigozhin 2010.)

The procurement process represents a chain of interrelated actions. It begins with the preparation of orders and ends with the effective arrival of the required number of quality goods in due time, and most importantly, on acceptable terms (this could be a limiting factor). (Lainos 2015, p. 25.)

The procurement process ends with the execution of the order made on the basis of existing orders to a specific supplier. Therefore, it is necessary that purchase orders be timely submitted, that suppliers be carefully chosen and the delivery orders and contracts signed with suppliers be properly and timely drawn up and executed (Bessonov 2015.)

2.1.2 Objectives and main issues of procurement logistic

Procurement logistics represents the management of the flows of materials in the process of providing the enterprise with material resources. The procurement subsystem provides for the entrance of the flow of materials into the logistics system. It is this entrance that is the most important step in the micro-logistics system. (Linders & Firon 2006.)

Any enterprise with flows of materials has a supply service in its organizational structure. The activities of the supply service can be viewed at three different levels:

- ensures the achievement of the goals of the macro-logistics system that the enterprise is part of;
- ensures the goals of the enterprise itself are reached;
- it is an independent system that has its constitutive elements, structure and own goals. (Abrosimov 2011, pp. 5-9).

The objectives of the supply service at each level:

1. Establishment of economic relations with suppliers, agreement on technical, technological, economic and methodological issues related to the supply of goods, all of this represents an element of the macro-logistics system. By means of comprehensive measures of economic, technological, technical and methodological nature, logistics relationships with suppliers are built. (Buzukova 2015.)

Principles of logistics relationship between suppliers and the enterprise:

- suppliers are the company's clients;
- reaffirmation of common interests;
- bring the task to the supplier and stay informed on its business operations;
- providing professional support to the supplier in case of problems;
- complying with contractual obligations;
- taking into account the supplier's interests. (Buzukova 2015).

2. Ensuring a high degree of coordination of activities aimed at managing flows of materials between the supply service and the manufacturing and sale services.

For a better functioning of the chain "supply - manufacturing - sale", it is necessary to develop a sale strategy first, then to develop a manufacturing development strategy, and only then a supply strategy for the manufacturing.

On the organization of the supply service depends the functioning of all of the above mentioned goals, both at the enterprise level and the macro-logistics level.

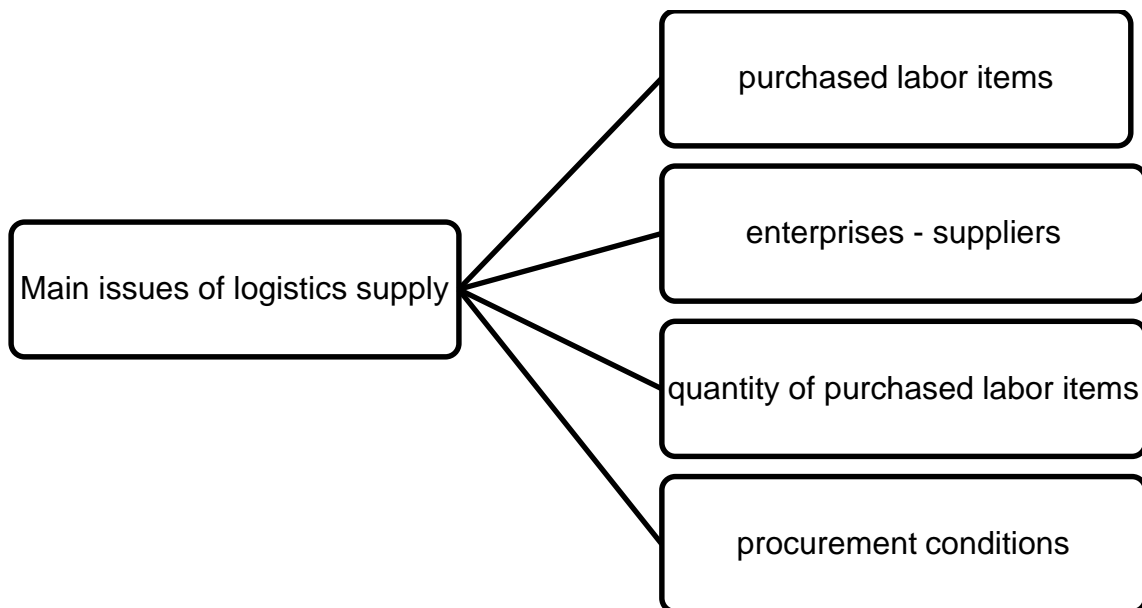


Figure 1. Main issues of logistics supply (Rudzki 2014).

To determine the needs for material resources, it will be necessary to:

- identify consumers of resources;
- calculate the need for material resources (taking into account weight, size and other parameters);
- develop a plan (schedule) and specification for each item (item group). (Rudzki 2014).

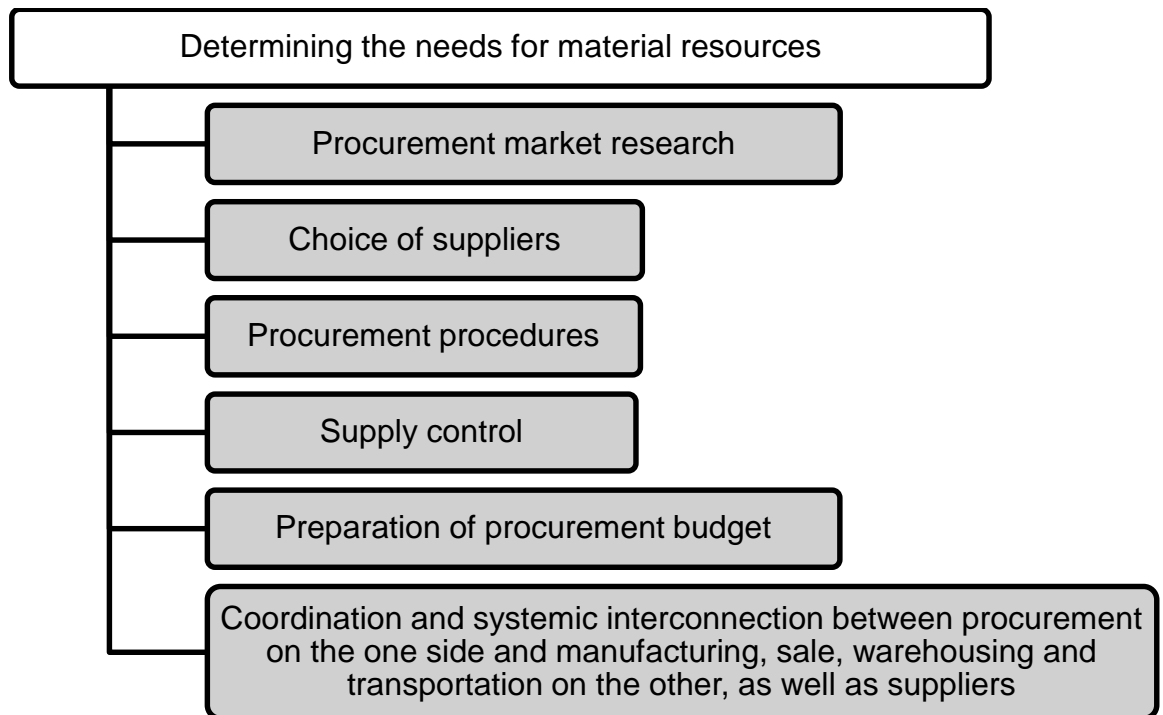


Figure 2. Tasks and kinds of work related to procurement logistics (Sergeyev 2011.)

1. Procurement market research consists of:

- analysis of the supplier market;
- evaluation of an explicitly chosen supplier;
- risk analysis;

2. The choice of a supplier consists of:

- search for information about suppliers;
- selection of optimal suppliers;
- evaluation of suppliers;

3. Procurement procedures consist of the following:

- negotiations with a supplier (including signing a contract);
- selection of a procurement method;
- discussion of the terms of delivery and payment;
- providing for the transportation of material resources (scheduling of delivery, getting ready for customs procedures, exercising preliminary quality control of the components);

4. Supply control includes monitoring of:

- delivery dates;
- term of order processing;
- transportation;
- control of the conditions of the material stock

5. Preparation of procurement budget consists of calculating:

- costs of executing the order, according to the main types of material resources;
- costs of transportation, freight forwarding and insurance;
- costs of freight processing;
- costs of monitoring compliance with the terms of the supply contract;
- costs of acceptance and verification of material resources;
- costs of information search for potential suppliers;

6. Coordination and systemic interconnection between procurement on the one side and manufacturing, sale, warehousing and transportation on the other, as well as suppliers. (Sergeyev 2011.)

Big enterprises and manufacturing associations that use different materials create special procurement departments: different kinds of raw materials, groups of materials and so on. In this regard, three forms of procurement are used: decentralized, centralized and partially centralized. (Brodetsky 2012.)

Conditions for creating a centralized system:

- concentrating the main functions on the parent company;
- homogeneity of manufactured products;
- territorial proximity of enterprises. (Brodetsky 2012.)

Partially centralized systems are used in case the association includes, in addition to the parent company, branches that are not legal entities and enterprises that are legal entities. In this case, branches receive materials for their warehouses from the central warehouse of the association, while enterprises that are legal entities independently plan procurement procedures and sign contracts, receive materials in their warehouses directly from suppliers. Some entities located near the parent company can be partially supplied from the central warehouse of the association. A decentralized procurement method is used in case centralization is not available. An optimal procurement method will depend on the size of the enterprise, product assortment, turnover, financing, location and other factors. (Intalev 2018.)

2.2 Main components and tools used in procurement logistics

In the previous chapter the definition of business process and the indicators of the effectiveness of business process were considered in detail. In this chapter the main components of procurement logistics will be considered more deeply.

2.2.1 Contractual work and automatization of the process

Success in managing procurement business processes at a manufacturing enterprise largely depends on the supplier's good faith and a timely execution of the contract by the parties. Therefore, daily monitoring of the execution of contracts and delivery of goods becomes an important part of procurement. It makes it possible to provide for a timely and uninterrupted flow of quality goods according to the agreed assortment and in specified quantities. (Prigozhin 2010.)

However, prior to signing a contract, it will be necessary to choose product suppliers. These can be suppliers that have already acted in this role and with whom the enterprise has already established business relationship, or you can choose a new supplier on the basis of search and analysis of the market you are interested in: a market your company

is already working with, or a completely new market. (Kuzmitskaya et al. 2015.)

The execution of the signed contracts for the supply of goods is monitored for their overall volume, expanded assortment, delivery deadlines, quality and completeness of the supplied goods, compliance with transportation requirements and settlement regime. Also, such issues are monitored as container and packaging turnover, fulfillment of shipment terms, procedure for negotiating prices. Besides, availability and due execution of the supporting documents is also checked. (Kuzmitskaya et al. 2015.)

The procurement process of companies operating on the consumer market consists of the following operations, presented in Figure 3.

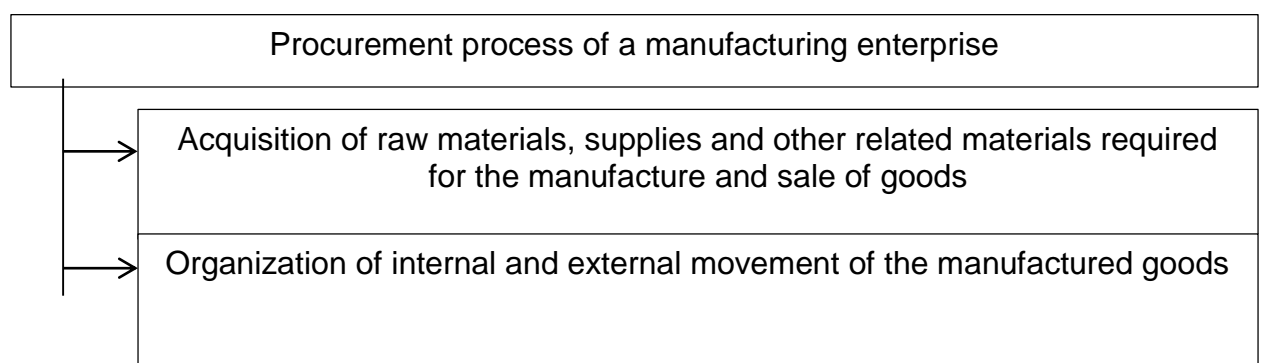


Figure 3. Procurement procedure at enterprises (Popova 2013).

A competent organization of the procurement process allows:

- to build the required assortment of manufactured goods in order to satisfy the customers' needs;
- to influence the suppliers so that they deliver raw materials and supplies for the manufacture of products and goods in accordance with the customers' demand;
- to guarantee an efficient operation of the production process of the enterprise, reducing risks related to the production, transportation, storage and distribution of goods;
- to guarantee profits to the manufacturing enterprise due to the difference between purchase and sale prices. (Popova 2013).

Key questions asked when organizing procurement at an enterprise are shown in Figure 4.

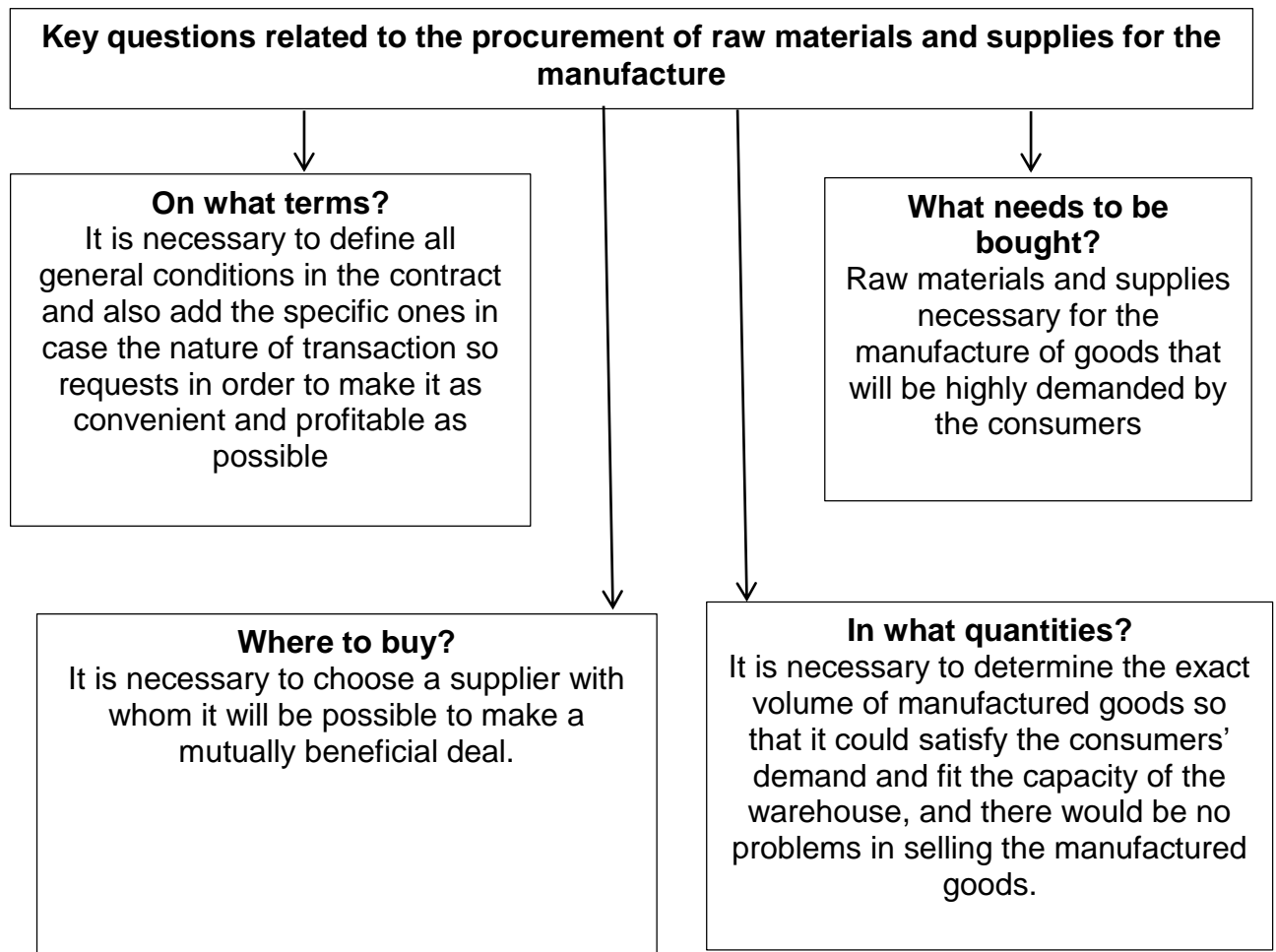


Figure 4. Key questions for the procurement process (Sysolyatin 2014.)

A mutually beneficial relationship between the customer and the supplier is based on Ishikawa's principles that consist of mutual trust, mutual respect, shared responsibility for the product quality, provision of all the necessary and reliable information to each other and establishment of business relations guided by the interests of the consumers. (Sudakholsky 2015.)

The basic commercial document confirming the contractual agreements of sale and purchase of goods is the contract. The contract prescribes all the necessary conditions for its signing and execution that should contain answers to all questions regarding the transaction, arising between the customer and the supplier. Price, quality, quantity of

goods and payment conditions: these are contract terms to which, as a rule, most attention is directed. (Kaplan & Norton 2003.)

Therefore, it can be noted that procurement is one of the main components of any commercial activity, since it has a direct impact on the entrepreneur's success in his business. After all, the strongest competitive advantages do not belong to those companies that stand out for their standard characteristics such as price and quality, but to those that pay attention to the supply of goods and reduce costs thanks to the effective organization of the procurement system. (Shreibfeder 2014.)

Upon implementation of information technologies in sales, the procurement management process has been simplified hundreds of times. Modern entrepreneurs have already appreciated the convenience and simplicity of different services for the management of the production and warehouse. Automation programs make it possible to analyze sales data for different periods, plan purchases accordingly, monitor the volume of goods in stock, quickly and easily upload all documents and place orders to suppliers in a short time. (Shreibfeder 2014.)

The need for automated business processes is especially high in today's conditions of economic crisis. Experts are positive that thanks to automatization, even small retail stores will be able to solve a number of important issues at once. First of all, this is about automatization of the inventory and expansion of goods assortment. It becomes possible due to the fact that automation programs allow to identify those categories of goods in the store that sell best. (Vdovenko 2011.)

First of all, the owner of a manufacturing enterprise at all times has information about the volume of goods he has in stock and can always maintain the remnants in an optimal way. Second, automated procurement management helps entrepreneurs to order goods based on the information about their actual turnover. And it will be easy to get rid of the goods that are stale for months and of low turnover stock: all the data on goods will be available to the entrepreneur or the merchandiser. The third important issue that automated business programs are helping to solve in terms of procurement is time saving. (Parfenov 2012.)

The effective functioning of an enterprise depends on the system management of the product movement (supplier - consumer). Unification of the process of the flow of

materials is of great importance. The final results of procurement procedures will depend on the interaction of all its elements. Any mistake will lead to increased costs and reduced effectiveness of the manufacturing system. The overall goal of the procurement function is to obtain quality materials in the right quantity and in the right place at a reasonable price from reliable suppliers. (Butrin 2013.)

2.2.2 Algorithm of choosing a supplier and criteria for supplier selecting

The success of the procurement function will depend on the ability to find suppliers and develop relationships with them, analyze their capacities and always improve shared activities. (Sysolyatin 2014.)

The algorithm for choosing a supplier is shown in Figure 5.

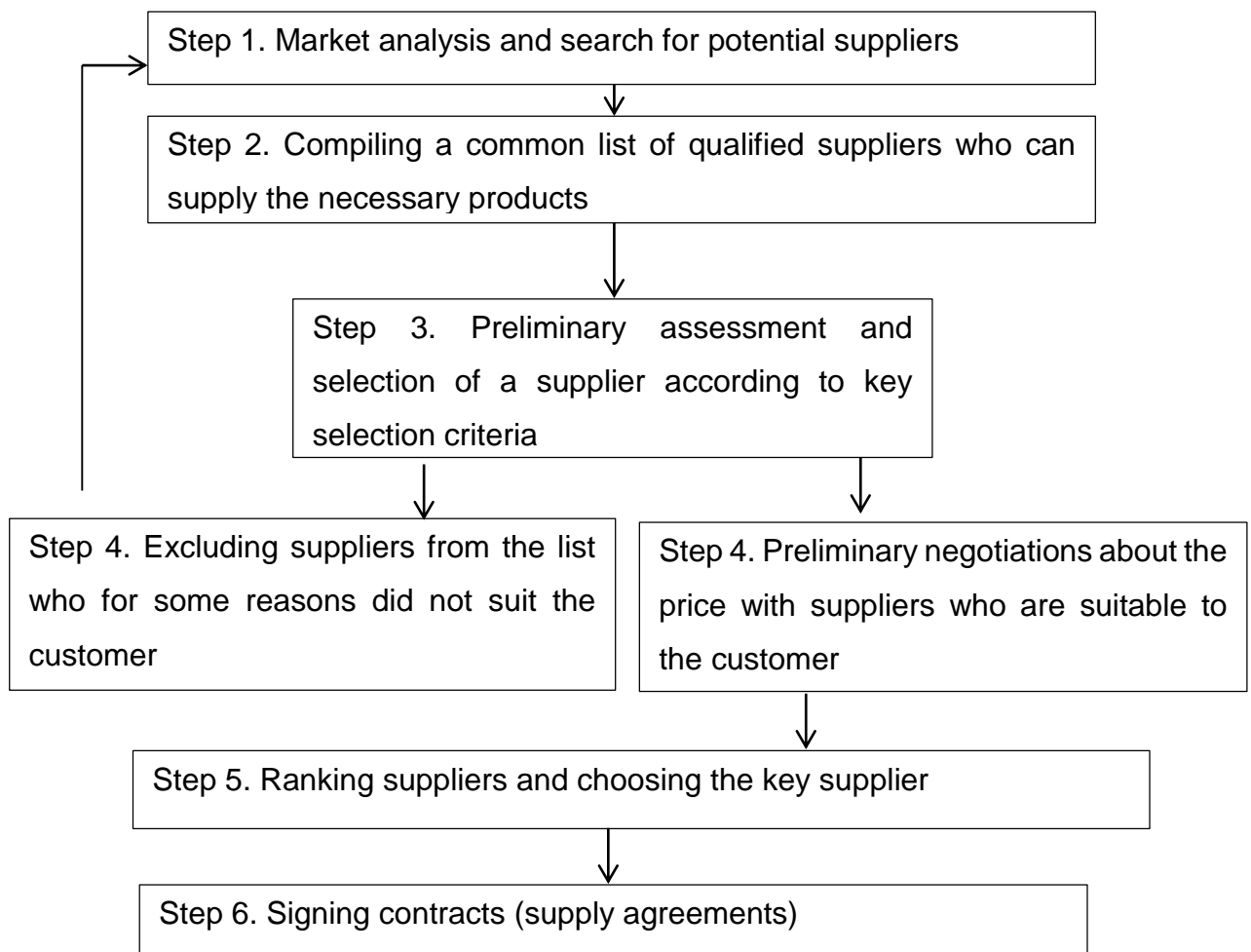


Figure 5. Algorithm for choosing a supplier (Bashnyanin & Tretyakov 2012).

The following are methods for choosing a supplier:

- Method based on points and ratings. A list of selection criteria is generated and an enterprise is assessed accordingly. The criteria depend on the consumers' needs and may vary.
- Method of "Setting priorities". The most important evaluation criteria are selected and the method for measuring performance indicators, the relative importance of each parameter is established (for each indicator), partial results are calculated and then these are summed up, for example, in points or scores. (Zaitsev 2012.)

The main criteria for selecting a supplier are shown in Table 2.

Criterion	Criterion characteristics
Reliability	Evaluation of the degree to which clients' requirements are met
Quality	Availability of a quality management system, qualifications of specialists, standards of input control.
Service	Analysis and comparison of standards of service
Terms of payment and possibility of organizing unscheduled deliveries	Flexibility of payment terms (deferment, credit) and unscheduled deliveries
Price	Price, discounts, reduced costs
Distance between the supplier and the enterprise (customer)	Transportation expenditures, "right on time" principle, short production cycles, highly reliable supplies, best terms for cooperation
Deadlines for order execution	Fast execution of orders, capacity to fulfill emergency orders
Reserve capacities	Availability of equipment designed for quickly meeting the increasing demand for

	the product or for maintaining the production process in case equipment fails
Product assortment	Extended assortment of products,
Availability of maintenance service	Long-term maintenance service for the supplied equipment
Supplier's business reputation and image	For how many years the supplier has been on the market, what companies have business relations with it, reviews from other companies

Table 2. Criteria for choosing a supplier (Zaitsev 2012.)

Thus, increasing the demands towards the suppliers is an objective and unavoidable process which creates the conditions for developing a successful business in the conditions of increased competition and market changes. (Baranova 2016.)

Thus, in this paragraph we have identified two main directions for improving procurement procedures at a manufacturing enterprise:

1. Automatization of procurement procedures.
2. Improving the process for the selection of suppliers.

Conclusions of the First Chapter: on the basis of the research made in the First Chapter of the Thesis, it can be concluded that procurement at a manufacturing business constitutes a fundamental process.

The main purpose of procurement is to obtain high quality raw materials and supplies for the manufacture.

The procurement process at a manufacturing enterprise constitutes a certain business process; its implementation is assigned to a specially created structural unit: the procurement department.

The procurement process represents a chain of interrelated actions. It begins with the elaboration of orders and ends with the effective delivery of the required quality goods in the right quantity within the prescribed deadlines and, most importantly, on acceptable terms (this may turn out to be a limiting factor).

2.2.3 Purchasing methods and main goals of procurement management

Procurement logistics is an activity of a manufacturing enterprise responsible for managing the flow of goods for the purpose of supplying the enterprise with resources in a short time and with a commercial profit.

Procurement logistics can be viewed from three perspectives:

1. The macro-logistics perspective represents the relationship between the supplier and the consumer;
2. The micro-logistics perspective represents a structural unit of the manufacturing enterprise for the purpose of procurement;
3. An independent system: procurement logistics acts as a link between its own elements (Klochkov 2011.)

The main objects of procurement logistics in the frames of micro-logistic perspectives are the following:

- organizing a continuous flow of goods (raw materials) to the enterprise;
- being aware of the needs of the manufacturing units that use the purchased materials;
- searching for suppliers and building relationships with them;
- purchasing products;
- ensuring reasonable prices and optimal supply terms;
- maintaining the necessary reserves;
- monitoring current market conditions (expected price growth, level of competition in the business, emergence of new products or seasonal changes in demand). (Komarova & Zhikhareva 2016.)

There are two options for managing procurement logistics:

1. The traditional way: procurement procedures are carried out by all the structural units of the organization;

2. The logistics option: procurement procedures fall under the responsibility of one structural unit. (Raitsky 2013.)

In the course of its activities, the procurement system management of any enterprise seeks to:

1. Expand the assortment of the manufactured goods;
2. Reduce expenditure of resources;
3. Get rid of low turnover stock;
4. Monitor special orders;
5. Monitor lost sales;
6. Expand the standard procurement sector. (Watson 2012.)

Procurement logistics of an enterprise regulates its activities according to the chosen option. There are descriptions of the main procurement methods:

1. Method of increasing the volume of purchases:

- the demand for certain types of goods is taken into account;
- the demand is analyzed year round (to identify seasonal variations);
- the optimal volume of stock is determined throughout the year;
- decision on stockpiling is made based on the number of orders.

2. Method of reducing the volume of purchases.

- monthly analysis of the sale of unpopular goods;
- types of goods are identified which stocks should be reduced;
- criteria are defined for making a decision on reducing certain kinds of stocks;
- the share of low turnover stock tends to zero.

3. Method of direct calculation of the volume of purchases:

- purchases are calculated for a certain period of time;
- the volume of sold goods is calculated;
- the average value of the necessary reserves is calculated. (Pleshchenko 2011.)

In order to carry out efficient procurement procedures, it is necessary that all structural

units interrelate for the purpose of exchanging updated information on the composition of costs and the necessary resources. (Iskokov 2011.)

2.2.4 SWOT and ABC analyses with regard to the procurement activities

The term SWOT was first used by Kenneth Andrews at the 1963 Harvard business policy conference.

SWOT analysis is one of the most common methods that assess the complex internal and external factors affecting the development of the company. This is an analysis of the strengths and weaknesses of the organization, as well as opportunities and threats from the external environment. "S" and "W" refer to the state of the company, and "O" and "T" refer to the external environment of the organization. (E-executive 2018.)

The main idea of the SWOT analysis technique is to try to determine by calculation how each of the possible ways of development can affect the success of the current, tactical and strategic business processes of the enterprise. When ranking threats in the SWOT analysis matrix by the degree of impact, it is expected to determine the estimated time at which the enterprise will reach a certain degree of destruction, and the sooner the economic performance will deteriorate, the more attention should be paid to the elimination of this threat. After full completion of the work based on SWOT-analysis and associated with the identification of the greatest threats to the activities of the enterprise and the identification of priority areas of development, promising the greatest economic effect with the available financial and human resources, the next stage begins to optimize the work of personnel. (E-executive 2018.).

Based on the results of the situation analysis, it is possible to assess whether the company has the internal forces and resources to realize the existing opportunities and confront external threats. Accordingly, it is necessary to analyze the internal and external situation. The purpose of using SWOT analysis in this study is to determine opportunities and treats regarding to the procurement activities of the company and to provide recommendations for the improving of management system of procurement activities of Bushe company.

ABC analysis is a method by which it is possible to classify the resources of the enterprise and the degree of their importance. This analysis is a method of rationalization, which can

be applied in the activities of any enterprise. (Up-pro 2018.)

The ABC analysis method makes it possible to compare values in value and in kind. The main task is to determine priorities. This requires gradation of tasks, materials, processes, suppliers, customer groups, product groups and sales areas, assortment. This type of analysis is effectively used in the warehouse and in the Procurement Department. So with the most important suppliers for the enterprise, producing, as a rule, A-materials work should be organized differently than with the enterprises supplying C-materials. (Up-pro 2018.)

The objective of using ABC analysis in this study is to classify raw-materials and suppliers of Bushe company and determine the priorities and to provide practical recommendation to the case company procurement strategy.

3 Empirical analysis of the procurement system of the case company

A procurement management system manages the evaluation, selection, and creation of formal agreements with suppliers. In this chapter the case company procurement system is going to be investigated and evaluation and selection of suppliers are going to be provided.

3.1 General characteristics of the enterprise

The Bushe company was founded on February 10, 1999; it was on that day that the first “Bushe” bakery and pastry shop was opened on Razyezzhaya Street. Since 2005, it has made wholesale deliveries to the supermarkets and HoReCa, and the volume of wholesale deliveries has grown from year to year.

In 2006, the first bushe-mobiles appeared on the streets of Saint Petersburg. In 2010, Bushe opened its own production. This unique production complex is located on an area of 4,000 square meters, it is equipped with European stress-free machinery, allowing to combine manual and automated labor.

2015 Bushe, the largest player in the food industry and service in Saint Petersburg: the manufacture is working, there are 25 Bushes, 10 bushe-mobiles, Bushe makes wholesale deliveries to the largest retailers, restaurants and HoReCa representatives.

2015 the Cloudy cuisine appears; besides bakery and confectionary, author's cuisine at the level of the best restaurants in the city appears in the café network.

2017 New coffee making equipment is purchased, special coffee beans are selected in Africa, of "specialty" category. Fragrant freshly toasted coffee appears in the café and the network acquires the status of exclusive coffee houses.

Bushe company in numbers:

- 19 years on the market
- 1,200 + employees
- 4,000 square meters of industrial complex
- 30+ tons of bread and pastry products daily
- 40+ types of bread
- 15+ types of cakes
- 20+ types of pies
- 20+ types of puffs
- 900,000 purchasers a month

The company has introduced a Quality Management System and a Food Safety System, in compliance with the international standards ISO 9001: 2008 and ISO 22000:2005.

- The industry includes 6 workshops:
- Bakery workshop;
- Puff workshop;
- Confectionary workshop (it includes the Workshop of custom-made cakes);
- Cheese production workshop;
- Decoration workshop (puffs, muffins);
- Packaging workshop.

In 2004, the "Bushe" company was located on an area of 350 m². The total volume of production was 200-300 kg a day at that time. By the end of 2009, that is, in less than 6 years, the company managed to increase its production volumes by 30 times. This amounted to 8 tons of products per day. This huge leap was due not only to the increased production areas of up to 2,000 m², but also due to the reasonable labor organization and professionalism of the industry employees.

In the spring of 2010, a new modern plant “Bushe” was inaugurated on Shkolnaya Street, with an area of 4,000 m², being twice as big as the previous complex. The plant has no analogues in Saint Petersburg and is the best one in Eastern Europe.

Bushe company’s activities comply with ISO international quality standards. This is largely due to the implementation of the Kaizen philosophy in the company. This is a Japanese philosophy or practice that focuses on continuous improvement of production processes, development, supporting business processes and management, as well as all aspects of life.

Kaizen method is based on 5 key elements, or 5 “S”:

Seiri - accuracy

Seiton - order

Seiso - cleanliness

Seiketsu - standardization

Shitsuke – discipline

The retail network of Bushe is represented by 42 café-bakeries in Saint Petersburg and 1 café in Moscow. In the beginning of 2019 it is planned to open a second café in Moscow and the first one in Amsterdam.

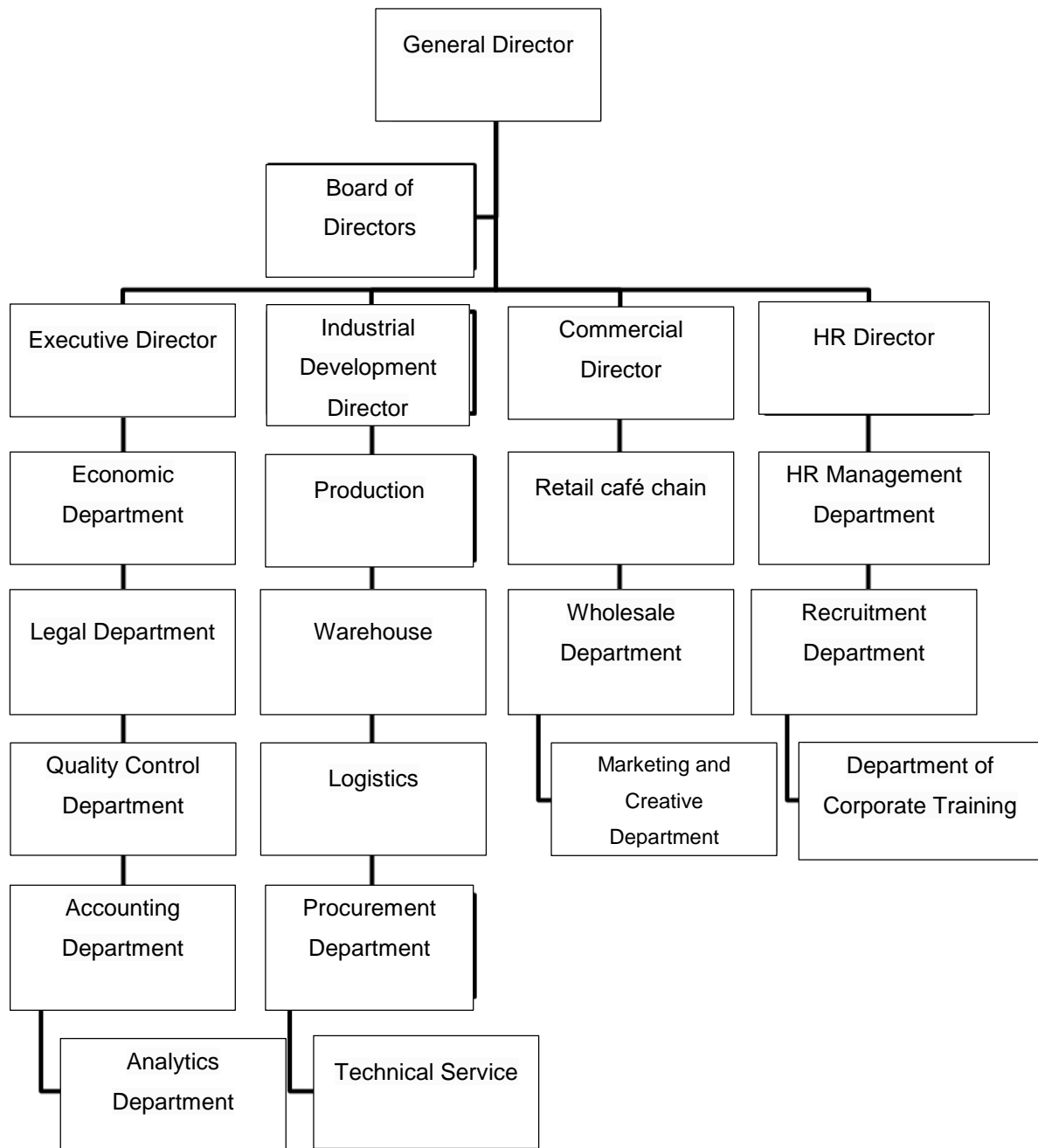


Figure 6. Organizational structure of the company

3.2 Assessment of the procurement management system of the enterprise

At Bushe company, procurement is handled by a special structural unit: the procurement department.

3.3 Procurement department structure and responsibilities

The organizational structure of the procurement department is as follows:

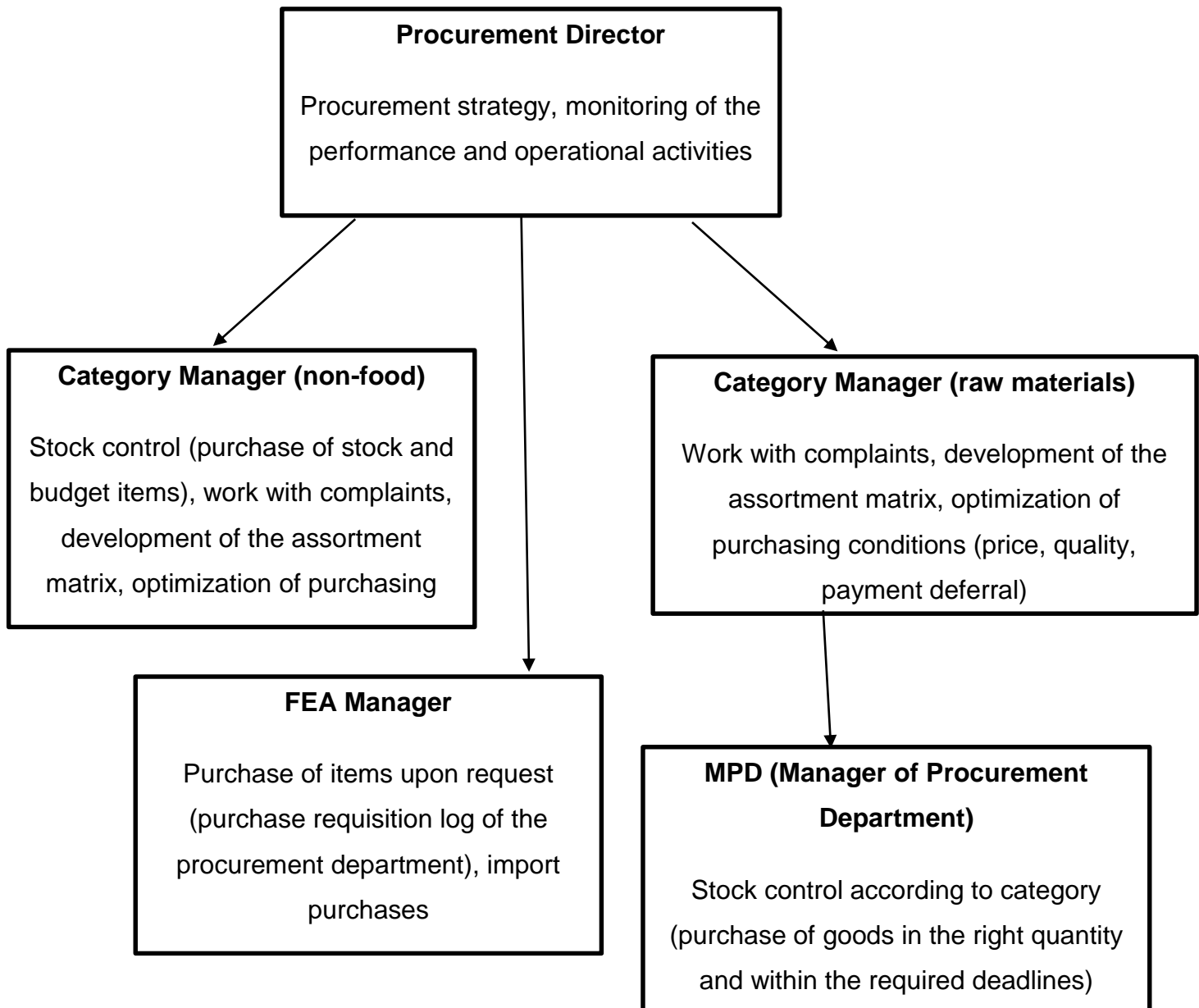


Figure 7. The organizational structure of the procurement department

The main responsibility for organizing and implementing an effective procurement process at the enterprise is borne by the heads of departments, the warehouse manager, the procurement department staff and, accordingly, the Procurement Director. Table 3 shows the distribution of responsibilities for the procurement process of the enterprise.

Table 3. Distribution of responsibilities for the procurement process at Bushe company

Responsible party	Area of responsibility
Heads of Departments	establish the requirements to the purchased material assets
Procurement Director	<ul style="list-style-type: none"> • assess and select suppliers of material assets; • sign contracts in compliance with the requirements of this procedure; • exercise control over the fulfillment of contractual obligations on part of the supplier and product verification; • submit orders for the purchased raw materials and supplies for the manufacture; • timely delivery of material assets to the Company's warehouse in the required quantity and appropriate quality; • handle claims; • indicators of turnover of the purchased material assets, • study of low turnover stock
Warehouse Manager	<ul style="list-style-type: none"> • check raw materials and supplies at the input control point and in case of non-compliance reject them and fill in the re-grading act. • submit the invoices to the accounting department; • comply with the storage requirements for the warehouses; • complete and correct management of material assets in 1C in the supply warehouse. <p>Production manager/production designer is responsible for:</p> <ul style="list-style-type: none"> • informing the Production Development and

	<p>Logistics Director and the Procurement Department on decisions about inappropriate raw materials/supplies;</p> <ul style="list-style-type: none"> • drawing up a rejection act.
Director of the retail network	<ul style="list-style-type: none"> • transfer the incoming invoices from the suppliers to the accounting department; • informing the Production Development and Logistics Director and the Procurement Department on decisions about inappropriate raw materials/supplies; • timely submit to the Warehouse Manager the expenditure invoices for the goods arriving from the supply warehouse.
Chief Economist	enter data in C1 promptly and provide information to the Procurement Department
Heads of Departments responsible for the procurement of works (services)	for the selection and assessment of the supplier and acceptance of works
All employees of the Procurement Department involved in the business process	for the stages of the business process, in compliance with the diagrams provided in this Procedure

The Procurement Department is responsible for managing the following categories of material assets:

- basic raw materials (food);
- packaging;
- business assets and production inventory;
- cutlery and special clothing for retailers;
- spare parts and accessories for the equipment;
- new equipment (investment purchases).

3.3.1 Approaches to the procurement system at the case company

As the next step the procurement business process for the basic raw materials and supplies schematically is going to be considered.

Figure 8. Scheme of procurement of the basic raw materials, packaging and business assets for manufacturing permanent items

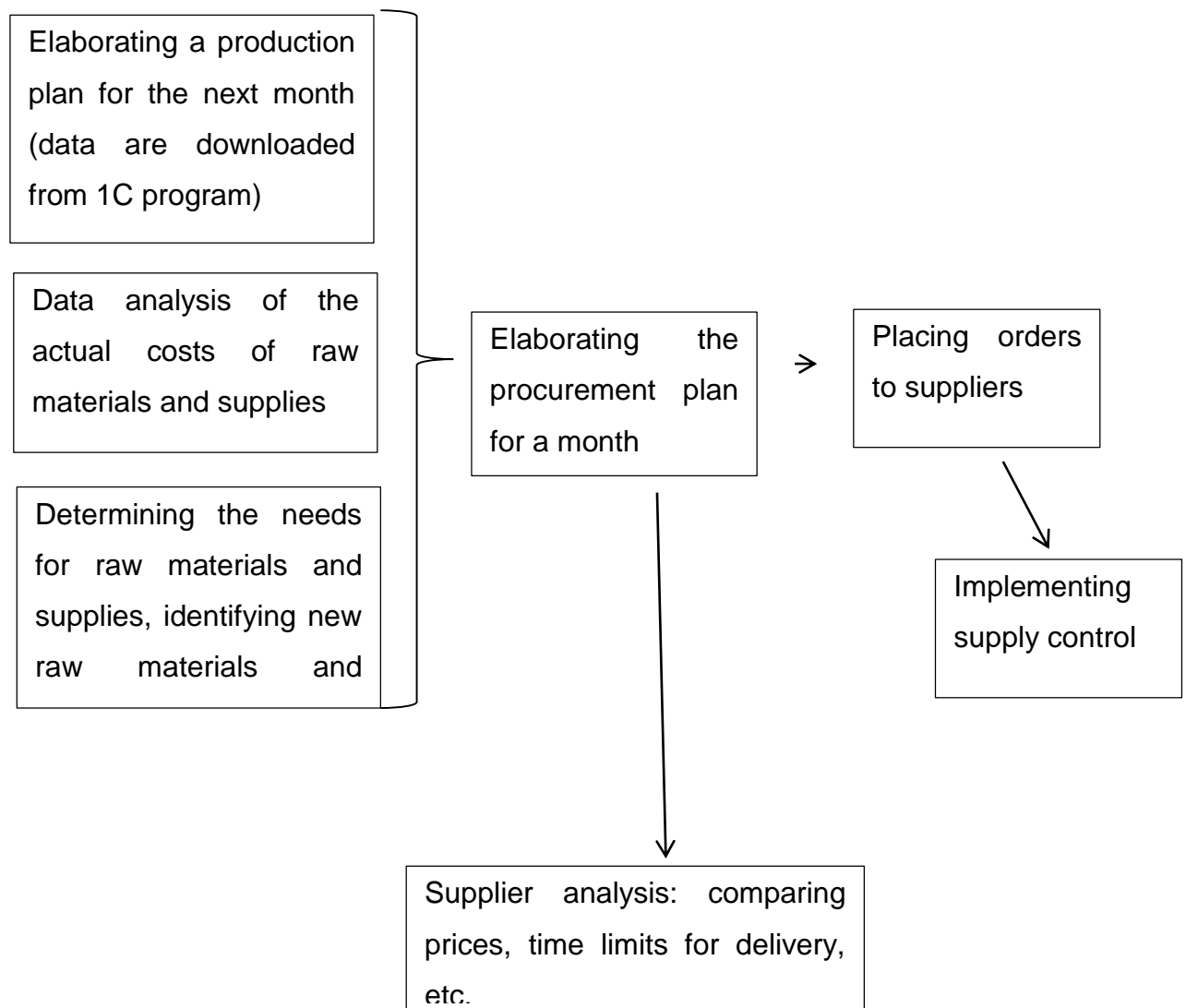
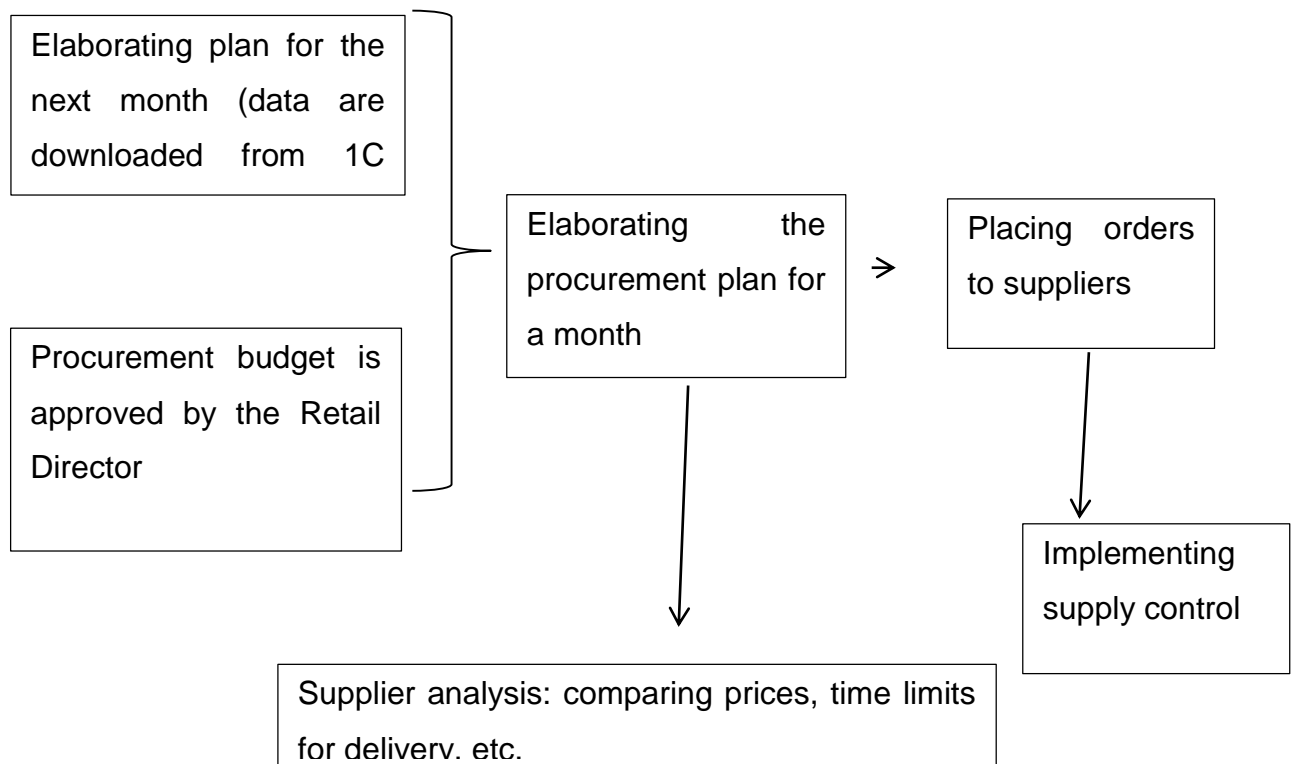


Figure 9. Scheme of procurement of utensil and special clothing



Based on the above mentioned business process procurement schemes of Bushe enterprise, it can be concluded that the procurement procedure for different types of raw materials is implemented according to different schemes.

On the basis of each procurement plan for the directions, orders are generated in the 1C 7 software program. Then the program distributes all orders among suppliers.

- To provide the business with high quality materials and components in the right quantity, the company uses different approaches to the procurement system:
- Items that are bought on an ongoing basis for the manufacture and retail network are kept in stock based on the consumption data for the period. For items with a quick turnover, such as perishable dairy products, groceries and so on, the volume to be ordered is calculated based on the consumption data for the last 3-4 days, and for non-food items the average period for the consumption analysis is 2 weeks.
- Budget products, such as cutlery and special clothing for retail network, are ordered according to requests from related departments in the exact amount and in full compliance with the procurement plan approved in the monthly budget.

- In addition, there are purchases made upon receipt of orders from the manufacturing department or technical support service. Search and purchase of goods is carried out on the basis of an order at the earliest manageable time and in accordance with the customer's specifications.

Overall, the procurement system of the company is based on the following principles:

- only those goods are ordered for which quality requirements have been previously identified, documented and approved;
- only selected and qualified suppliers, capable of meeting the established requirements are recruited;
- the required quantity of goods is ordered and the delivery is scheduled right on time;
- employees of the quality department carry out quality control of the purchased raw materials prior to their use for manufacturing;
- safety and operational management of all purchased products.

Since procurement procedures are carried out on a monthly basis, the company has clearly identified and tightly controlled deadlines for all activities of this business process.

As an example, Table 4 shows an excerpt from the regulation describing the procedure for procurement of cutlery and special clothing for the retail network.

Table 4. The procurement procedure for budget goods

N	Day of the month	Process	Responsible party
1		An order shall be based on the procurement budget, specified at :\\cob\\citek-s\\ПК\\ \\2017	file with the name of the budgeted month
2	20	Within the Procurement budget file, a monthly budget file is created \\cob\\citek-s\\ \\2017	Category Manager of Supplies Department

3	23	Managers of retail stores upload their budget (cutlery and inventory) from 1C to the monthly budget file in Excel format	Retail Network Manager
4	23	The uniform is ordered in Excel file \\cob\citek-s\ПК\ \2018. Next, an order for material assets is generated for the uniform in 1C, based on the orders from the file. Day 26 of the month is established as shipment date.	Retail Network Manager
5	23	An order for fixed assets is placed at \\cob\citek-s\ПК\2018\2018 "purchase of fixed assets for the corresponding month" file	Retail Network Manager
6	24	The files are downloaded to be uploaded in 1C in the internal folder of the department, with limited access.	Category Manager of Supplies Department
7	25	On the basis of downloaded files, a summary report is generated and placed in the "Procurement Budget" file for approval	Category Manager of Supplies Department
8	25	The file is checked and approved by the Retail Network Manager. The file with the approved budget is saved in the same folder, \\cob\citek-s\ПК\ОБ\ \2017. The fact that the budget file is ready and agreed upon is confirmed by an e-mail to the Procurement Manager who is responsible for this category of goods, until 17:00 Moscow time.	Retail Network Manager

9	25	The file with a new budget is uploaded in 1C; based on this upload, data on orders coming from retailers is changed in 1C	Category Manager of Supplies Department
10	16 to 21	From the 16 th day of the following month, the warehouse collects and ships the ordered cutlery and inventory, as well as fixed assets.	Warehouse Manager
11	26 to 31	starting from the 26-31 day of the following month, the warehouse collects and ships the uniforms, according to the orders for material assets	Warehouse Manager

Procurement staff perform the following activities to select and assess a supplier:

- they study and analyze the market;
- they identify potential suppliers by material assets groups;
- they assess suppliers, taking into account recommendations on assessing the quality and reliability of suppliers (Table 4).

3.3.2 Evaluation and selection of suppliers

Suppliers are assessed according to two main characteristics: quality and reliability. Also, procurement staff use different evaluation criteria for new and already existing suppliers.

Table 5. Evaluation and selection of suppliers of material assets

Valuation	QUALITY	
	New supplier	Current supplier
1	Tests gave a negative result	Problems that led to the disruption of plans / halting of production

	and/or the supplier is not able to achieve the specified parameters	and/or Permanent non-compliance with the specifications that affects the quality of finished products
2	Tests revealed deviations from individual specified parameters that affect the quality of finished products; these deviations can be corrected.	Recurring deviations from individual specified parameters that can be corrected
3	Tests revealed deviations from individual specified indicators, the risk of impact on product quality is very small	Different problems with the same supplier that can be corrected and/or recurring documentation issues
4	Positive test results, the quality meets the specifications in all respects, additional minor adjustments to the production parameters are required	A single problem requiring additional modifications, adjustments to the production parameters (without halting the production / disrupting plans)
5	Positive test results, the quality meets the specifications in all respects	A single problem that does not affect the product quality
Valuation	RELIABILITY	
	New supplier	Current supplier
1	A company presenting serious quality problems or cases of supply chain failure	A company presenting serious quality problems or cases of supply chain failure, and/or the supplier ignores the problems

2	A company with extended experience, presenting recurrent quality problems or cases of supply chain failure	A company with extended experience, presenting recurrent quality problems or cases of supply failure, the supplier is reluctant to solve the problems
3	The company's experience is insignificant or it is an unknown company, there are no complaints	There have been isolated incidents of late delivery or quality problems, but the supplier has a good reputation on the market
4	Good reputation on the market, the quality system is not certified according to MS ISO 9001:2015; or it is a previously unknown company with a quality system certified according to MS ISO 9001:2015.	All delivery deadlines are met, but the supplier does not always respond promptly to emerging issues
5	Good reputation on the market, the quality system is certified according to MS ISO 9001:2015	Immediate response from the supplier aimed at eliminating the emerging problems, all deadlines are met

Conclusion for Chapter Three: the practical analysis performed in the Third chapter of the Thesis has shown that the Bushe company is the largest manufacturing company in the region with an expanded retail network of café-bakeries.

Based on the above organizational structure of the company it can be concluded that, given the importance of procurement efficiency for the manufacture in terms of maintaining an optimal amount of raw materials and supplies, the subordination of the procurement department to the head of the production unit is reasonable and optimal in the framework of the goals and business processes of the enterprise.

The analysis of procurement procedures of the enterprise has shown that the entire procurement process is entrusted to the procurement department, while responsible parties from other departments are also involved in the procurement business process,

such as: warehouse employees, Director of retail network and Chief Economist.

The Procurement Department is responsible for managing the following categories of material assets:

- basic raw materials;
- packaging;
- business assets and production inventory;
- cutlery and special clothing for retailers;
- spare parts and accessories for the equipment;
- new equipment (investment purchases).
- The enterprise under study has three main processes in the framework of the procurement business process, that we have discussed in detail:
- procurement of the basic raw materials, packaging and business assets;
- procurement of packaging and business assets;
- procurement of cutlery and special clothing.

On the basis of the above three diagrams of the procurement business process of the Bushe company, it can be concluded that this process is implemented on a monthly basis, that is, daily, during each month, orders are placed for the necessary raw materials and supplies for the manufacture, suppliers are searched for (based on the business forecasts that are generated after each implemented business process) and the procurement business process itself is carried out. Additionally, within every month a budget is agreed upon for the procurement of such material assets as cutlery and special clothing for retail network employees.

On the basis of each procurement plan for the three directions, orders are generated in the 1C software program. Then the program distributes all orders among suppliers.

4 Applying different research methods for the development of procurement system improvement measures

This chapter presents different research approaches for the investigated subject study. For the beginning, the difference between quantitative and qualitative research methods should be considered.

Quantitative research methods focus on obtaining strictly objective, i.e. quantitatively expressed data. Based on the positivist methodology, which asserts operationalization and verification as the basis of scientific research, quantitative methods are characterized by a high level of validity and reliability, structuring, while at the same time a low level of realistic naturalness, constructive and environmental validity. Examples of quantitative methods are experiment, structured interview and observation, quasi-experiment, data series, tests, etc. Critics of the quantitative or positivist approach to the study note their isolation from the real social context, distance from the research situation, artificiality, predetermining the nature, etc. As an alternative, qualitative research methods are considered. (Stud files 2018.)

Qualitative research methods focus on the setting of individual-specific, unique, as close as possible to the conditions of manifestation in real practice. Examples of qualitative methods include unstructured or free interviews, as well as included observation, examination of documents, focus groups, etc. Overcoming the traditional limitations of quantitative research methods, qualitative methods are focused on the originality of contexts, identification of meanings and originality of interpretations, flexible, dialogical and interactive in procedure. However, they also have a number of limitations, the leading of which is a high degree of subjectivity. Traditionally opposed to quantitative research methods. (Stud files 2018.)

4.1 Qualitative method of research for analyzing the supplier matrix

Qualitative research focuses on obtaining in-depth, detailed information about the subject of the study. They do not focus on statistics, but rather on understanding, explaining and interpreting empirical data and are a source of hypotheses and productive ideas. (Stanway 2016.) The expert evaluation of the supplier can be given only on the basis of the experience of employees, and therefore is subjective. As a result, a qualitative approach was applied to the analysis of the matrix of suppliers based on the collected statistics after a survey of employees of different departments.

The importance of supplier cooperation was detailed described in the theoretical part. On this basis, the system for evaluating the choice of suppliers of the enterprise according to individual ratings was proposed to be implemented. For this purpose, 6 specialists of the expert group of the case company from procurement, production and marketing

departments were interviewed. The secondary data collected from the interview and from the external resources have established the necessary criteria for choosing a supplier, by which the priority of the criterion has been assessed:

1. Delivery date;
2. Reliability of delivery;
3. Price of the delivered goods;
4. Alternative payment methods;
5. Willingness to build partnerships and compromise;
6. Product quality;
7. Financial situation of the supplier.

Then the obtained values were sorted and entered into the table presented below. This table demonstrates the relative importance of the criteria in accordance with the case study company vision.

Table 6. Choosing suppliers by the rating method

Criterion	Relative importance of the criterion
Product quality	0.25
Delivery date	0.25
Reliability of delivery (correct and complete execution of the order, availability of documentation)	0.2
Price of supplied products	0.1
Payment terms	0.1
Financial situation of the supplier	0.1
Total	1

All policy, mission and values of the company are aimed at being honest to itself and the

clients, implying the manufacture of high quality products. Product samples are carefully selected and tested before approving raw materials for delivery. That is why the key factor in choosing a supplier was identified as the quality of the goods.

Since manufacturing industry should be supplied without interruptions, the next most important criteria were delivery dates and reliability of supplies, that means, availability of all the necessary documentation for accepting the food raw materials and the presence of the whole range of the ordered products. A compromise between quality and delivery date is unacceptable, therefore, a pool of reliable key suppliers shall be generated with guaranteed quality and reliability of supplies, both in terms of meeting the deadlines and in terms of documentary support of the delivery.

The least important criteria for selecting suppliers were determined as follows: the price of the supplied goods and payment terms, since a delay in the delivery of supplies to the manufacturing business can result in big financial losses of the enterprise due to equipment downtime.

Then, in order to determine the supplier's rating, value was calculated by multiplying the relative importance of the criterion by its expert value (on a 10-point scale).

After that, all obtained indicators are summed up and the final rating of a specific supplier is obtained (Table 7). The expert evaluation provided by Procurement Department staff presented at the Appendix 1.

Table 7. Calculating a supplier's rating

Criterion	Relative importance of the criterion	Expert value	Product of the values
Product quality	0.25	7	1.75
Delivery date	0.25	6	1.5
Reliability of delivery (correct and complete execution of the order,	0.2	8	1.6

availability of documentation)			
Price of supplied products	0.1	8	0.8
Payment terms	0.1	8	0.8
Financial situation of the supplier	0.1	4	0.4
Total	1		6.85

By implementing this model for assessing suppliers, it will be possible to reduce the time taken by the supply service for making decisions on the supply of materials for unscheduled or urgent requests.

Also, when introducing this model, it is recommended to keep records of the parameters used for supplier assessment. This will allow to control the supplier's performance and, if necessary, to change the criteria and values in its rating card.

Thus a supplier evaluation system was developed that would promote the effectiveness of procurement procedures. In particular, it will save time and reduce financial resources spent on procurement procedures for the manufacture.

A methodology for supplier assessment was developed and tested, including a system of new indicators, a technology for generating rating assessment of suppliers and decision making on selecting suppliers with whom it will be possible to establish a relationship aimed at improving the effectiveness of procurement procedures.

This model involves the creation of a matrix of suppliers ranked according to their value, depending on the procurement turnover, and also an auxiliary (reserve supplier pool) for emergency restructuring of the procurement turnover in case of critical problems with current qualified suppliers. In other words, the already qualified suppliers should be assessed at least once a year in order to make sure their quality standards and product quality have remained unchanged, while the system for evaluating the auxiliary supplier

pool (alternative to the approved raw materials) will be engaged in an emergency situation, in case of unavailability of qualified suppliers - for example, in case of production halting or a dramatic deterioration of quality and so on.

4.2 Applying quantitative method in analyzing the nomenclature matrix

Quantitative research uses only accurate measurements and analysis of target concepts to answer the question. More in-depth study of the subject, factors, and quantitative measurement is more suitable for the study of this question. (DeVault 2017.) The reason for choosing quantitative method of the research for the nomenclature matrix was the fact that the data of the nomenclature matrix are available as numbers. The main source for the quantitative method was the secondary data, such as company accounting system.

With the purpose of the nomenclature matrix optimization the ABC analysis of the nomenclature items was provided. The ABC analysis of the purchased items was performed in the study in order to determine key positions of raw materials and identify areas where procurement of raw materials supplied in small lots should be optimized.

In accordance with the data obtained from ABC analysis, the Bushe company purchases 455 items of raw materials from 121 suppliers on the domestic market. In the process of ranking according to the procurement turnover, the following data on raw materials were obtained:

- 17 items with the value of procurement turnover of more than 10,000 euros a month constitute 50% of the overall procurement turnover
- 88 items with the value of procurement turnover between 2,000 and 10,000 euros a month constitute 36% of the overall procurement turnover
- 105 items, which is 13% of the total number of items of purchased raw materials, constitute 86% of the procurement turnover per month
- 350 items, which is 77% of the total number of items of purchased raw materials, constitute 14% of the procurement turnover per month

The total number of suppliers of raw materials for the company is 121. Of these, 23 are suppliers with a turnover of more than 100,000 euros a month, which is 80% of the overall procurement turnover, and 98 are suppliers with a turnover of less than 100,000 euros,

which represents the remaining 20% of the overall procurement turnover.

Based on this data, it can be concluded that items with total procurement turnover of 80% are purchased from 23 suppliers, so, to reduce operational costs, increase the suppliers' commitment by increasing procurement turnover and reducing logistics costs per unit of output, it will be necessary to concentrate the procurement items with a small turnover in one supplier and intend to reduce the number of suppliers by 20%, from 121 to 95. All this will make it possible to obtain optimum purchase prices, as increased volume of the overall procurement turnover will mean better prices for the client.

The company purchases 471 non-food items (consumables, utensils and so on) from 104 suppliers.

In the process of ranking according to the procurement turnover, the following data were obtained:

- 28 items with the value of procurement turnover of more than 1,000 euros a month constitute 90% of the overall procurement turnover
- 76 items with the value of procurement turnover of less than 1000 euros a month constitute 10% of the overall procurement turnover.

The total number of suppliers providing non-food goods is 104. Of these, 28 are suppliers with a turnover of more than 1000 euros a month, which is 90% of the overall procurement turnover, and 76 are suppliers with a turnover of less than 1000 euros, which represents the remaining 10% of the overall procurement turnover.

Procurement turnover of non-commodity items represents 16% of the overall company turnover. On the average, the amount of procurement turnover of each item is significantly lower than in case of raw materials, therefore, purchasing more items from fewer suppliers will have a much more significant impact on the effectiveness of the company's procurement procedures in terms of reducing operational and logistics costs and optimizing of relationships with suppliers. It was recommended to reduce the number of suppliers by 30%, that is, to seek that the overall number of suppliers of the non-commodity category be no more than 70.

4.3 SWOT analysis of the procurement activities of the Bushe company

To determine the conditions for procurement functioning of an enterprise, it will be necessary to know its own strengths and weaknesses and those of its individual components, and be able to predict future new opportunities and difficulties. For these purposes, it will be necessary to undertake a SWOT analysis.

For providing SWOT analysis of the procurement function the quantitative research method was applied. 5 specialists from Marketing, Commercial, Production and Procurement departments took part in discussion. After that, the list of Strengths, Weaknesses, Opportunities and Threats of the case company regarding the procurement function was combined into a SWOT analysis table presented below. The respondents for the interview and factors ranking were chosen based on the involvement in the procurement process. That is, there were representatives of those departments whose activities are affected by the procurement policy to a greater extent.

After drawing up a table of SWOT analysis was developed and proposed to fill in sheets with matrices of opportunities and threats to the procurement function of the company to prioritize factors. The results of this primary data gathering are presented in the Appendix 2. The final results are presented in Tables 8 and 9.

Table 8. SWOT analysis of the procurement activities of the Bushe company

Strengths	Weaknesses
1. Strategic partnership with big enterprises	1. Inefficient organization of flows of materials
2. Maintenance and development of a quality management system	2. The company's software accounting system is inefficient
3. One of the biggest market leaders	3. Financial implications for the delivery of components
4. Great production capacity	4. Limited number of suppliers on the market with approved quality of materials
5. Large network	5. Suppliers are lacking interest in

6. Long-term contracts with suppliers	participating in promising projects 7. Irregular delivery of components
Opportunities	Threats
1. Improving relationships with partners in the logistics system 2. Developing the “right on time” concept (to reduce the volume of inventory and costs) 3. Stimulating the creation of joint ventures with suppliers 4. Transformation of the supplier base to build capacity	1. Rising prices for raw materials and supplies 2. Growing competition from foreign manufacturers 3. Fluctuating foreign exchange rates 4. Rising tax rates 5. Rising customs duties on exported products 6. Non-fulfillment of contractual obligations by suppliers 7. Financial crisis in the country

Table 9. Matrix of procurement opportunities for the Bushe company

Impact of opportunities on the enterprise			
Chances to take advantage of opportunities	High	Medium	Low
High	5		
Average	1,2	4	
Low			3

Opportunities that fall in the “HH”, “HA” and “MH” intersections are of great importance for the enterprise and must be taken advantage of. Opportunities that fall in the “ML”, “LA” and “LL” intersections can be disregarded. The “LH”, “MA” and “HL” opportunities should be used, provided the enterprise possesses sufficient resources. Based on Table 7 it can be concluded that it is necessary in the first place to use opportunity 5: transformation of the supplier base to build capacity, and also pay attention to inventory and costs numbers 1 and 2: improving relationships with partners in the logistics system, developing the “right on time” concept (to reduce the volume of inventory and costs). (Diesperov 2012.)

Table 10. Matrix of threats to the procurement activities of the Bushe company

Impact of threats on the enterprise				
Probability of threats	Destructive	Critical condition	Severe condition	Light bruises
High	-	1	3,4	-
Average	-	6	5	-
Low		2	7	-

The fields “HD”, “HC” and “AD” pose a great threat to the enterprise and require a rapid and mandatory response and the elimination of threats. The fields “HS”, “AC” and “LD” should be constantly monitored by the management and eliminated as a matter of priority. The fields “LC”, “AS” and “HL” require a careful and responsible approach in order to be eliminated. The fields “LS”, “AL” and “LL” can be left unattended.

Table 10 shows that in the considered case threats fall into the fields “HC”, “AC”, “LC” and “LS”. Threat 1: rising prices for raw materials and supplies and threat 6: non-compliance with contractual obligations by suppliers require a rapid and mandatory response. Threats 3, 4 and 5: fluctuating foreign exchange rates and possibility of rising tax rates should be continuously monitored by the management and measures should be taken to minimize their consequences in the event of their emergence.

4.4 Optimization of procurement activities due to software improvement

Applying the qualitative method of the research on the basis of the SWOT analysis of the Bushe procurement activities the obsolescence of 1C7 software of the company as one of the weaknesses was indicated.

In particular, the following deficiencies were identified in the 1C7 software by investigating the system of work and providing the interview of the company staff (12 employees from different departments were interviewed):

- Very few options for filling in the items - it is not possible to search for the items by their code, the main characteristics (goods description) are not displayed, there is no possibility for adding a picture (instead of manual entering of the standards), the program does not show the historical price changes with the dates of delivery, there is no possibility for checking the volume of remnants and the movement of the item over a period of time,
- It is not possible to quickly track information on supplier price increase and transfer it automatically to related departments,
- It is not possible to generate a report on inventory turnover, indicating the turnover period in days per item,
- There is no report on the movement of goods in a period of time (price dynamics), indicating the average cost over the previous three months,
- There is no report on the movement of goods that permits to filter the item and warehouse, with a possibility of grouping data by months, indicating their amount and cost for a period of time,
- There is no report on zero quantities - for each item, days when the product is absent (zero products left) are displayed, with a filter by item group,
- It is not possible to generate a report on low turnover stock with a filter by item group,
- It is not possible to make requests in the database according to their characteristics (different types of requests), or generate an order to a supplier on the basis of a request with an automatic notification of the initiator of the request on the goods delivery, indicating the delivery deadline,
- No statistics report on the number and type of request, neither on the promptness of request processing,

- No report on the status of received goods

All of the above mentioned deficiencies were classified as a problem requiring an immediate solution, as all these shortcomings make the procurement system less effective in terms of replenishment of inventories, as well as create risks for the zeroing of inventories and stopping production. Accordingly, one of the optimization measures for the procurement process should be the software replacement. At the moment the new ERP system –CSB has been selected and is under implementation stage.

Conclusion for Chapter Four: Based on the research described in Chapter four, a supplier selection system was proposed that can contribute to the effectiveness of procurement procedures. In particular, it will save time and reduce financial resources spent on procurement procedures for the manufacture.

The methodology for a rating assessment of suppliers including a system of new indicators was developed and tested, a technology for generating rating assessment of suppliers and decision making on selecting suppliers with whom it will be possible to establish a relationship aimed at reducing low turnover stocks.

The above SWOT-analysis of the procurement procedures of the enterprise has shown that the main threat comes from the suppliers, therefore, it is necessary to improve the procurement business process as part of the enterprise's interaction with suppliers, besides, a serious threat is posed by the possibility of rising raw materials prices due to changes in foreign exchange rates, as well as import duties due to the political situation in the country, therefore, the issue of a substantial increase in the price of the final product is worth discussing in advance with the marketing department, for the purposes of making public price increase to the final consumer.

5 Summary and discussion

5.1 Improving the efficiency of procurement activities on the basis of the proposed measures - rationale for economic efficiency

The main research question was: how to improve the efficiency of procurement activities on the basis of the proposed activities. One of the main criteria of the efficiency of procurement activities is economic efficiency.

The proposed measures, in particular the supplier selection system, help to reduce procurement costs by an average 10% and increase the efficiency of supply and procurement structure of Bushe company. It was not planned to allocate additional costs for the proposed measures (except for general business and production assets).

Based on the analysis of economic efficiency of the proposed measures, it was concluded that subject to using an optimization scheme to reduce the number of raw materials suppliers by 20% and non-food goods suppliers by 30%, costs can be reduced by 5% of the total turnover due to savings on logistics, reduction of operational costs and the possibility of reducing purchase prices from suppliers due to an increase in the procurement turnover and enhancement of items purchased from the same supplier.

The analysis of economic efficiency of the proposed measures has shown that it is possible to reduce the cost of the purchased raw materials within 10% of the overall procurement turnover. These indicators testify the effectiveness of the proposed measures.

The provided SWOT analysis helped to identify the main threats and opportunities of procurement activities, which should allow to eliminate or minimize the identified risks while they are not reflected in the financial condition of the company, as well as to use the opportunities to increase efficiency and maximize profits.

5.2 General results and suggestion to the case company

Based on the findings that the main threat comes from the suppliers, it was recommended to improve procurement business process as part of the enterprise's interaction with suppliers, besides, a serious threat is posed by the possibility of rising raw materials prices due to changes in foreign exchange rates, as well as import duties due to the political situation in the country, therefore, the issue of a substantial increase in the price of the final product is worth discussing in advance with the marketing department, for the purposes of making public price increase to the final consumer.

The results of the study show that the implementation of assessment and continuous monitoring of suppliers will allow to exercise full-fledged control over production and timely substitute suppliers, without prejudice to the production process.

Replacing the outdated corporate software will improve the reporting and analytics system, accelerate the pace of work, reduce errors and mitigate the risks of unavailability of raw materials for the production.

By implementing the model for assessing suppliers, it will be possible to reduce the time taken by the supply service for making decisions on the supply of materials for unscheduled or urgent requests.

The suggested supplier evaluation system would promote the effectiveness of procurement procedures. In particular, it will save time and reduce financial resources spent on procurement procedures for the manufacture.

5.3 Description of the conducted research

As a final point of the thesis, it can be concluded that procurement procedures in the framework of Bushe company activities, as in any other manufacturing enterprise, play a key role. The objectives of procurement activities in the studied company Bushe include full support of the enterprise: materials and raw materials, equipment, furniture, office equipment, stationery, services provided by third-party organizations, etc.

In the course of studying theoretical materials, conclusions were drawn on the importance of procurement procedures; these were presented above. Among procurement methods, in fact the choice of supplier on one's own is the most common one. This method implies the following algorithm: placement of material supplies needed by the enterprise under certain conditions of cooperation and involving certain characteristics of goods. Later, the analysis and selection of an optimal supplier is carried out and a contract is signed with it.

The main purpose of procurement is to obtain high quality raw materials and supplies for the manufacture. The procurement process at a manufacturing enterprise constitutes a certain business process; its implementation is assigned to a specially created structural unit: the procurement department.

The procurement process represents a chain of interrelated actions. It begins with the elaboration of orders and ends with the effective delivery of the required quality goods in the right quantity within the prescribed deadlines and, most importantly, on acceptable terms (this may turn out to be a limiting factor).

The empirical analysis performed in Chapter Three showed that the Bushe company is a major manufacturing enterprise in the north-western market, with a well-developed system of its own café-bakeries.

The analysis of the organizational structure of the enterprise showed that due to the importance of the continuity of manufacturing process, the procurement department is subordinated to the Industrial Development Director. It also emphasizes the importance of quality and reliability of the supply of raw materials for the manufacture.

The analysis of procurement organization at the enterprise showed that the entire procurement process is entrusted to the Procurement Department, however, employees of related departments are involved in the implementation of the procurement business process: heads of departments (marketing, creativity, finance and so on), warehouse workers, Retail Network Director, Chief Economist.

The Procurement Department is responsible for managing the following categories of material assets:

- basic raw materials;
- packaging;
- household goods and production inventory;
- cutlery and special clothing for retailers;
- spare parts and accessories for the equipment;
- new equipment (investment purchases).

The enterprise under study has three main processes in the framework of the procurement business process, that were considered in detail:

- procurement of the basic raw materials, packaging and business assets;
- import goods, spare parts, equipment, imported items;
- procurement of cutlery and special clothing.

It was concluded that the procurement process is implemented on a monthly basis, that is, daily, during each month, orders are placed for the necessary raw materials and supplies for the manufacture, suppliers are searched for (based on the business forecasts that are generated after each implemented business process) and the procurement

business process itself is carried out. Additionally, within every month a budget is agreed upon for the procurement of such material assets as cutlery and special clothing for retail network employees.

On the basis of each procurement plan for the three directions, orders are generated in the 1C software program. Then the program distributes all orders among suppliers.

The above SWOT-analysis of the procurement procedures of the enterprise has shown that the main threat comes from the suppliers, therefore, it is necessary to improve the procurement business process as part of the enterprise's interaction with suppliers, besides, a serious threat is posed by the possibility of rising raw materials prices due to changes in foreign exchange rates, as well as import duties due to the political situation in the country. Therefore, the issue of a substantial increase in the price of the final product is worth discussing in advance with the marketing department, for the purposes of making public price increase to the final consumer.

Based on the research described in Chapter three, a supplier selection system that can contribute to the effectiveness of procurement procedures was proposed. In particular, it will save time and reduce financial resources spent on procurement procedures for the manufacture.

The methodology for a rating assessment of suppliers including a system of new indicators, a technology for generating rating assessment of suppliers and decision making on selecting suppliers with whom it will be possible to establish a relationship aimed at reducing low turnover stocks was developed and tested.

5.4 Suggestions for further research

In the frames of this research it could be advised to the Case Company, as mentioned above, to oversee for the economic situation of the country in order to determine the possible risks associated with the exchange rate and food embargo. The process of testing and approval of raw materials in production takes a certain period, in addition, in the light of a strict approach to the quality of raw materials, not all samples of alternative raw materials can be approved. This creates the risk of production stoppage due to the lack of approved analogues. Some of the goods are imported and in the light of the instability of the political and economic situation, alternative domestic analogues of raw

materials should already be worked out. Therefore, it is recommended to determine the list of imported raw materials and to work out replacement options, as well as to evaluate potential suppliers with the help of the evaluation and selection system developed in the study.

It is also recommended to create a schedule of visits to current suppliers to evaluate the production process. The visits should involve specialists of the quality Department, to compile estimates that should be used in the ranking of suppliers on a regular basis.

As a final recommendation for the further research it should be noted that there is need to analyze the inventory replenishment system, which is not considered in this work, but is critical for optimizing the procurement turnover and as a consequence leads to an increase in the efficiency of the enterprise procurement logistics.

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Appendices

Appendix 1. List of suppliers with rating mark

№	Supplier	quantity of items	rating mark
1	Gotek	132 300	9, 5
2	Bumazniy slon	702 867	5,4
3	Pitservis	237 579	9,1
4	Gelon	116 010	5,9
5	Profhim	3 232	7,9
6	Formaziya	178 267	7,3
7	Vestapak	956 888	5,9
8	Optikom	379 405	6,2
9	Stairs	400 000	6,4
10	Torus	4 945	7,3
11	Yunipack	6 207	5,2
12	Alyaska	434 976	8,9
13	Rosgigiena	1 198 547	9,1
14	Profhozsab	40 803	6,7
15	Pallet	1 900	4,5
16	Industriya zveta	20 663	6,7
18	VDV	44 497	6,7
19	Trier	9 835	9,1
20	Ultratex	1 333	8,4
21	Hayball	1 544	6,2
22	TC	1 617	9,2
23	Kalkulait	16 455	5,8
24	DjiDiSi	45 678	9,1
25	Tehnologiya pitaniya	1 157	5,2
26	Transpack	5 477	6,3
27	Protek	91 667	7,1
28	TigMet	160 000	8,2
29	Iris	37 998	9,3
30	Troffi	54 333	7,2
31	SoloPlast	5 493	9,3
32	Best Treid	13 839	8,4
33	Baker plus	152 000	6,9
34	Comus	473	4,5
35	Panse	3 600	5,9
36	Service Centr	963	6,8

Appendix 2. Matrixes of opportunities and threats of the procurement activities

Impact of opportunities on the enterprise			
Chances to take advantage of opportunities	High	Medium	Low
High	5,4,5,5,3	5	
Average	1,2,1,1,2,2,2	4,5,4,4,4	
Low	1,1,2		3,3,3,3

Impact of threats on the enterprise				
Probability of threats	Destructive	Critical condition	Severe condition	Light bruises
High	1	1,1,1,4	3,4,3,3,3,4,4,4	3
Average	1,6	6,6,6,6	5,5,5,5,5	-
Low		2,2,2,2	7,2,7,7,7	7