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FACTORS AFFECTING THE PURCHASING DECISION OF RUSSIAN CONSTRUCTION
COMPANIES

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ABSTRACT

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VUITCIK, ALEKSANDRA	Factors Affecting the Purchasing Decision of Russian Construction Companies
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This thesis gives an overview of the Russian construction market and focuses on the purchasing decision making among Russian construction companies. The companies in focus are the customers of a Company X, Finnish export distributor of specific construction equipment produced by the Finnish manufacturer.

The goal of the research was to provide the company with the basis for its future strategic decisions aimed at targeting of potential customers in Russia. The research concentrated on factors which affect the company customers during their purchasing decision-making process.

The study was based on the telephone survey held among 76 customers of the Company X. The results of the survey were analyzed statistically.

Based on 62 responses received from the customers, the major factors affecting the purchasing decision of the case company's clients were identified. The factors included are innovation, relationship history and financial factors. Furthermore, based on the results, the suggestions for the company's strategic decisions were made, such as investment into company's marketing activities, targeting partners of its existing customers and introduction of the leasing service.

TIIVISTELMÄ

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VUITCIK, ALEKSANDRA

Factors Affecting the Purchasing Decision of Russian Construction Companies

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Tämä opinnäytetyö antaa yleiskuvan Venäjän rakennusmarkkinoista ja keskittyy Venäjän rakentamisen organisaatioiden ostopäätöksen tekemiseen. Tutkimus keskittyy Yritys X:n asiakkaisiin. Yritys X on Suomalainen vienti jakelija, joka myy erityisiä Suomen tuottajan valmistettuja rakennuskoneita.

Tutkimuksen tavoitteena oli antaa yritykselle perustan sen tuleville strategisille Venäläisien asiakkaiden suuntautuneille päätöksille. Tutkimus keskittyy tekijöihin, jotka vaikuttavat yrityksen asiakkaisiin heidän ostopäätöksen tekemisen aikana.

Tutkimus perustui puhelinkyselyyn, joka oli pidetty yrityksen asiakkaiden keskuudessa. Yhteensä 76 yritystä oli haastateltu. Tulokset oli analysoitu tilastollisesti.

Vastauksien perusteella (62 vastausta) merkittäviä yrityksen asiakkaiden ostopäätöksen vaikuttavia tekijöitä oli tunnistettu. Sellaiset tekijät ovat: innovaatio, yhteistyön historia ja rahoitukselliset tekijät. Lisäksi, ehdotuksia yrityksen strategisista päätöksistä oli tehty vastauksien perusteella. Yritys oli ehdotettu investoimaan markkinointiin, kohdistamaan nykyisien asiakkaiden partnereita ja tarjoamaan leasingpalvelun.

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1. INTRODUCTION

1.1. Background

This research was initiated after I was employed at a Company X – organization operating in the sphere of sales of innovative construction equipment. The main target area was selected to be the Russian market due to the fact that it is one of the main markets, where such equipment is sold.

The CEO of the Helsinki-based office suggested me to analyze the factors which could have had an effect on buyers of that particular equipment from a statistical point of view. The purpose of analysis was to find out which factors play the major role in the decision-making process, when Russian construction companies decide to purchase construction equipment. The received data was planned to be utilized during the strategic planning process in order to enhance the operations of the company and in general get the picture of the customer's preferences and driving forces.

1.2. Market overview

1.2.1. Construction sphere in Russia

Construction is a rapidly developing industry in Russian Federation. At the moment the industry is represented by over 200000 companies employing over 4 million people. Those companies are construction, construction materials manufacturing, research and engineering, transport, and mechanization organizations handling design, construction, reconstruction, technical re-equipment and major repairs of buildings in all sectors of the economy. (Ministry of Regional Development, 2012)

In recent years the whole structure of the construction industry has changed. Nowadays, instead of controlling the organizations and enterprises, the government only manages the investment activity in the construction sphere. (Ministry of Regional Development, 2012)

During the last years the development of the sector of small and medium sized organizations has increased dramatically, and at the moment such organizations

constitute 90% of the whole number of construction organizations. Alongside with the development of the small and medium sized enterprises the process of integration has become more common. Financial industrial and construction groups started to emerge in different regions of Russia. Moreover, leasing and holding entities are formed. (Ministry of Regional Development, 2012)

The investment activity has started to be managed according to international standards. Nowadays, almost in every region tender commissions are formed. (Ministry of Regional Development, 2012)

It can be concluded that the market infrastructure of the Russian construction industry created in the process of economic reforms takes into account international experience and corresponds to the structure of the construction industries of other countries with established market economies. (Ministry of Regional Development, 2012)

1.2.2. Statistics

As mentioned in the previous section the sphere of construction has developed greatly over the past years, which leads us to the logical conclusion that the number of construction organizations has also increased. The official figures regarding the construction companies' statistics can be seen in Figure 1.

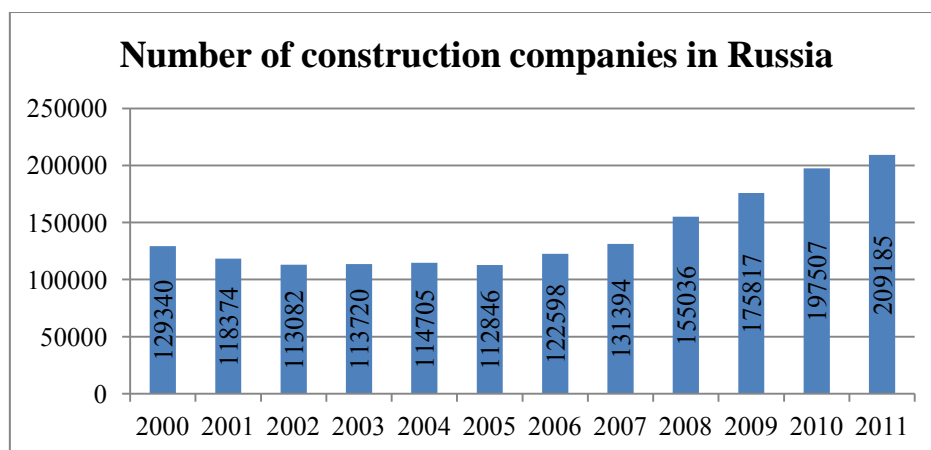


Figure 1. Number of construction companies in Russia (Federal State Statistics Service, 2012)

As it can be seen in the graph, the number of companies has almost doubled over the past 10 years. Among the 209185 constructions registered in 2011, the distribution according to the type of ownership is the following (Figure 2):

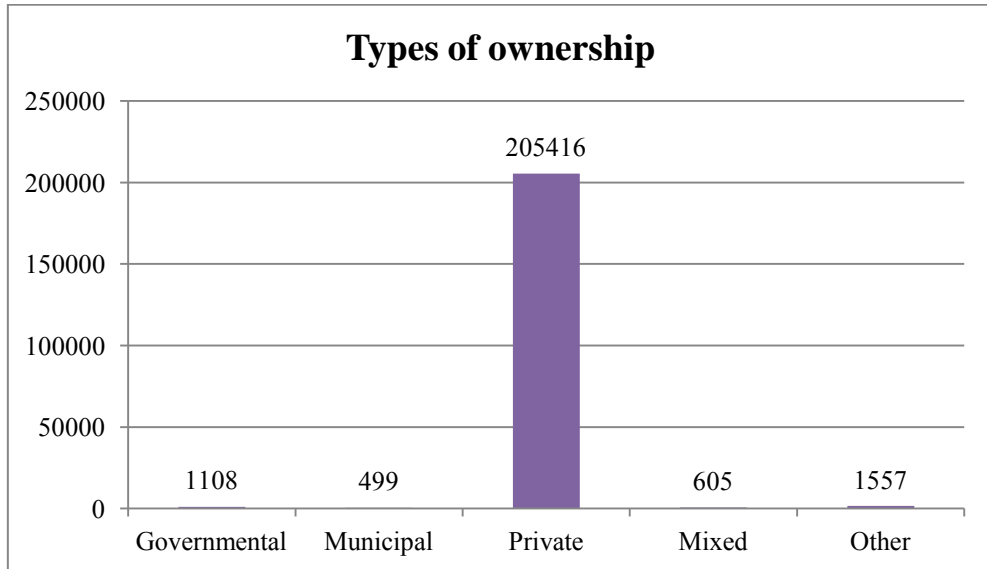


Figure 2. Types of ownership (Federal State Statistics Service, 2012)

The graph shows that 98.1% of all construction companies registered in 2011 are represented by private organizations.

The development of the Russian construction market can be seen not only from the increase in number of companies, but also in the market volumes (Figure 3):

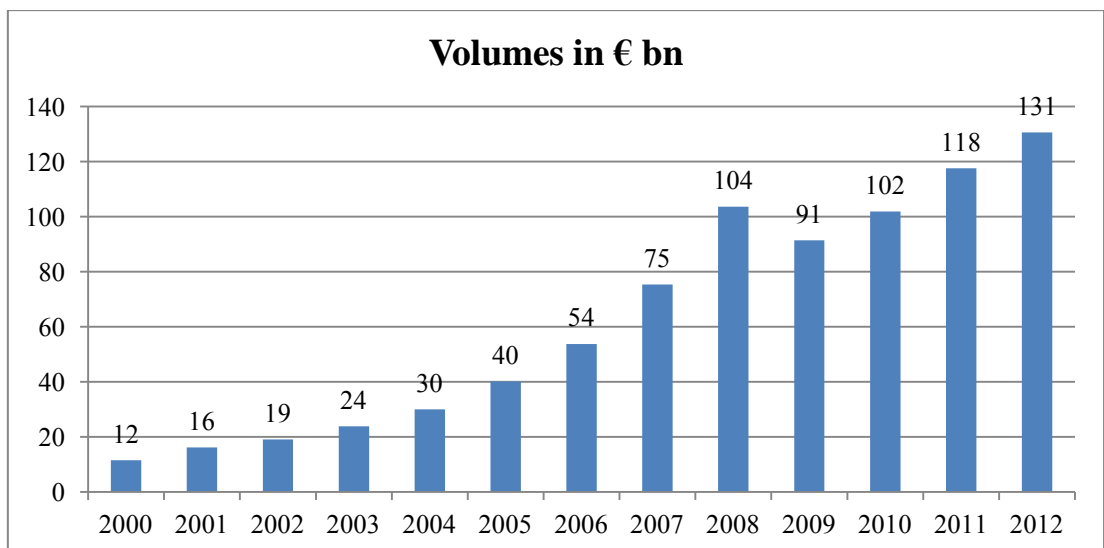


Figure 3. Construction volumes (Federal State Statistics Service, 2012)

The graph depicts the steady increase in the construction volumes during the past 12 years; the exception is the period during years 2008-2009, when a decrease in production volumes happened due to global economic crisis. However, since then the industry has rehabilitated and now is developing even faster than before 2008.

According to the information provided by the Ria Novosti news portal, more than 62.3 million m² of buildings were built in 2011. Around 45% of those buildings are built in 10 regions. The share of construction works in Moscow amount to about 16% of the total construction volume. The regions with the highest construction rate are: the Moscow Oblast, Belgorod Oblast, Chuvash Republic, Krasnodar Krai, Nenets Autonomous Okrug, Lipetsk Oblast, Tatarstan Republic, Leningrad Oblast, Tyumen Oblast, and Kaluga Oblast. (Ria Novosti, 2012)

1.3. Research Problem

Company X is a group of companies represented by Helsinki, Moscow and St. Petersburg offices, which not only are the official distributors of the innovative construction equipment, but also provide installation, maintenance and repair services for construction equipment sold. Among the clients of the Company X there are most of the leading construction companies from all regions of Russia. However, the most number of customers mainly come from Moscow and St. Petersburg. Russia is the leading market for the equipment, which share is about 40% of total sales.

The company deals with a wide range of products from several manufacturers of construction equipment, and the product in focus is the major one. This construction equipment is based on the innovative technology and is used for basic construction works.

The necessity of the given work lies primarily in acquisition of important information from customers and its analysis with the aim to provide the company with the basis for some of its future strategic decisions. Company employees and executives are extremely busy with everyday business operations and do not have enough time to contact hundreds of customers to conduct this kind of research and fulfil such work which is extremely useful for the company.

Moreover, this research will examine the nature of Russian construction companies and their purchasing processes and decisions, which will be valuable information for other companies, operating in the sphere of construction equipment production or distribution. The company's clients are the biggest construction organizations in Russia; therefore, the importance of findings should not be underestimated. Regarding academic significance, the work will focus on statistical analysis of small-sized populations and also on the analytical methods for categorical variables, which can serve as a basis for future research works and be a good model, giving directions.

1.4. Research Objective

The objective of the research can be divided in-to the primary objective and sub-objectives. The main objective of the work is: *analysis of the factors affecting the purchasing decision for construction equipment among Russian construction companies.*

The sub-objectives include: *examination of the nature of the Russian construction industry; determination of the direction for future strategic decisions.*

As mentioned in the previous section, the objective selected for the work aims at collection and analysis of the information, which will be further utilized by company's executives, when making important decisions targeting company's development.

The additional value of the work lies in examination of the peculiarities of the Russian construction industry, which will make it easier for Finnish businesses operating in similar fields to target the Russian market.

1.5. Research/Development Question

The underlying research question of this work is:

How can the operations of the company be improved based on the Russian construction organizations' purchasing preferences?

And the sub-questions derived from objectives are:

What are the most important factors for Russian construction companies when buying construction equipment?

What is the nature of the Russian construction industry?

How do factors affect each other and is there any relationship between the factors?

2. ORGANIZATIONAL BUYING

2.1. Organizational buying process

2.1.1. Definitions

For the given work it is vital to understand what the organizational buying refers to, in which way the organizational buying differs from personal buying, who participates in the organizational buying process, what the stages of this process are, and what factors affect the process.

At first, it is vital to have a look at the definitions given by authors, who wrote their works on the organizational buying topic. Different scientists mostly refer to the organizational buying in rather similar ways. For example, as stated by Doyle (2011, p. 66), organizational buying is “the acquisition of goods and services that enter into the production of other products and services that are sold, rented or supplied to others”.

Gilligan and Wilson (2012, p. 248) (in their book), citing Webster and Wind, define organizational buying as “the decision-making process by which formal organizations establish the need for purchased products and services, and identify, evaluate, and choose among alternative brands and suppliers”.

Doyle focuses more on the purpose of organizational buying; he identifies the needs of an organization, for which the purchase is made. Webster and Wind focus more on the process of organizational buying in their definition and identify some of the stages this process includes.

2.1.2. Types of organizational consumers

Kardes, Cronley and Cline (2010, p. 9) give a definition of organizational consumer, which is very similar to Doyle’s definition of organizational buying. They suggest that organizational buyers are consumers “who purchase goods and services in order to produce other goods or services, resell them to other organizational or to individual consumers, and help manage and run their organization”.

As ordinary consumers, organizational buyers can also be divided into groups. Panda (2007, p. 217) suggests two main categories for organizational buyers: commercial enterprises and non-commercial enterprises.

For the given work the group of commercial enterprises is relevant. In the category of commercial enterprises the following groups of organizational buyers can be identified:

- a) Organizational distributors and dealers – such distributors and dealers, who purchase industrial goods and sell them to commercial, institutional, and governmental bodies;
- b) Original equipment manufacturers – manufacturers, who buy the products (e.g. spare parts) to utilize in their own production process and purchased products become a part of the buyer's product;
- c) Users – buyers, who purchase product to facilitate the production process (e.g. computers).

(Panda, 2007, pp. 217-218)

This research will focus on two groups of commercial enterprises: distributors and dealers, represented by our case company and its dealers, and users group, comprising construction companies, purchasing construction equipment for their own utilization.

2.1.3. Distinctive features of organizational purchasing

When considering the organizational buying as a basis for a research, it is of the utmost importance to determine in what way the organizational buying behaviour differs from the ordinary consumer buying behaviour.

The very basic peculiarity about the organizational buying decision is that the purchase is made by the organization to facilitate its operations, while for a consumer a purchase is a way to satisfy his/her needs. Thus, a conclusion can be made that the nature of the organizational purchasing decision is rational, but not emotional as the consumer purchasing decision. (Weele, 2010, pp. 22-23)

The next specific feature of the organizational buying highlighted by Weele (2010, p. 23) is the major characteristic of the decision making unit – professionalism. Therefore, a decision regarding the purchase made in the organization is informed and weighted. What is more, the decision is made by many people rather than one or at least several people participate in the discussion process, which means that there is an intense interaction during the decision making process while making a purchase in the organization. The complexity of the decision making in its turn leads to a more specific feature of the organizational buying, being inelasticity of demand. (Weele, 2010, p. 23)

Dependency on the demand among the end consumers is the feature which also differentiates organisational buying from consumer buying, which is rather independent. The complexity of the decision making during the organizational purchasing is also increased by huge amounts of money involved and substantial amounts of goods acquired. (Weele, 2010, p. 23)

Thus, it can be concluded that the organizational buying differs from consumer buying significantly as it takes much more time, consideration, effort, and resources.

2.1.4. Purchase situations

Phadtare (2008, pp. 20-21) distinguishes three purchase situations, which are: straight re-buy, modified re-buy and new task.

The straight re-buy situation implies that the buying organization is buying exactly the same product, which it already bought in the past. The modified re-buy situation occurs, when the company is dissatisfied with the purchased product or its specifications do not suit the organization's needs anymore. In that case company tries to change the product type, characteristics, pricing, commercial terms, and etc. (Phadtare, 2008, p. 20)

The third purchase situation, the new task situation, refers to the purchasing of a product for the first time. In such a situation more effort is needed from the supplier in terms of information provision. From the buyer's side, it usually takes much more time to make the final decision. (Weele, 2010, p. 21)

For the given research all types of purchasing situations are relevant. Most of the companies purchase the equipment just once. This can be explained by the expensiveness of the equipment and its outstanding working capacity. Straight re-buy situations also occur, when customers require more than one piece of equipment of the same model. And modified re-buy situation usually take place, when customers purchase a different model of equipment, which is mostly relevant, when a new model is introduced.

2.1.5. Stages

In case of this research not only the type of the buying situation needs to be analyzed, but also the stages those buying situations comprise. After the analysis of the whole process the stages will be selected, which we would like to focus on.

The buying process in organizations depends on the purchase situation: new task situations, straight re-buy situations and modified re-buy situations lead to different structures of the purchasing process.

For new task situation the purchasing process consists of 8 stages:

1. Problem recognition. At this stage someone in the company recognizes the need for a new purchase based on the internal or external stimuli. Internal stimuli could be a need for a company to improve its operations or produce some new product. The external stimuli could be a commercial offer received from potential suppliers.
2. General need description. At that point the purposes for which the purchase is needed are clearly stated and the purchase is discussed on several levels in the organization.
3. Product specification. During this stage the characteristics of the item are defined and the purchased quantity is agreed upon.
4. Supplier search. This stage is needed to identify the potential suppliers.
5. Proposal solicitation. At this point of the purchasing process selected suppliers send detailed proposals to the buying organization. After that the buyer will evaluate the proposals and select several suppliers, with whom meetings will be held.

6. Supplier selection. During this stage the company will select the suppliers, who suit the characteristics, previously selected by the buyer.
7. Order-routine specification. At this moment the final order is negotiated, the buyer provides the supplier with the desired product specifications, quantity, time of delivery, warranty, and etc.
8. Performance review. At this final stage the successfulness of the purchase is analysed.

(Kotler, 2009, pp. 280-288)

In modified re-buy situation the only stages that are always present are “Product specification” and “Performance review”, the rest of the stages may or may not be followed (Kotler, 2009, p. 280).

In straight re-buy situation no stages, except for “Product specification” and “Performance review”, are followed (Kotler, 2009, p. 280).

For this work, supplier search and selection related stages are of the utmost importance, therefore, those stages will be analyzed in more detail.

2.1.6. Participants

As already mentioned above, due to the complexity of the purchasing decision making within the organization there are many people involved in the process having some specific role. Phadtare (2008) (in his book) mentions the groups listed further.

The first group identified by Phadtare is “initiators”. Those people notice the need for a new product to be acquired and initiate the first step in the purchasing process. The next group specified is “buyers”. “Buyers” group corresponds to the personnel, which is involved in enquires sending, proposal evaluation, negotiations and order preparation. The group of “gatekeepers” controls the communication of the buyer organization and the suppliers. “Users” group includes people, who will utilize the product(s) purchased in the end of the purchasing process. “Influencers” constitute one more group of participants of the purchasing process. Influencers can be both internal and external. The last group, “deciders”, consists of the people holding the

highest positions in the company, whose main role is to approve or disapprove the actions of the buyers. (Phadtare, 2008, pp. 18-20)

For this work it is important to find out what participants have the most important roles in Russian construction companies for the case company to know, whom to target.

2.1.7. Factors affecting organizational buying

Organisational buying is a complex issue, which depends on numerous factors. There exist several organizational buying behaviour models suggested by different authors. Those models are focused on different factors that influence decision makers, when making a purchasing decision.

One of the models, offered by Sheth, includes four categories of factors (see Appendix 1). The first category is related to psychological world of decision makers, which suggests that the perception of the product differs based on the decision maker's background (e.g. education, lifestyle, and etc.). (Baker, 2003, p. 154)

The next group of factors is "product and company variables". Product-related factors focus on perceived risk, type of purchase situation and time pressure. Regarding company-related factors, they include: company orientation, company size, and centralization. (Baker, 2003, p. 154)

One more group of factors refer to the interpersonal relationships and conflict handling. Conflict situations may affect the decision making as they can be based on:

- a) Disagreement about the supplier or product selection;
- b) Disagreement about the evaluation criteria;
- c) Differences in buying goals and objectives among the members of the buying centre;
- d) Disagreement about the style of decision making.

(Baker, 2003, p. 155)

The last group among the factors, offered by Sheth, is the group of situational factors. Situational factors refer to non-systematic situations and occasions (e.g. strikes, price controls and economic instability). (Baker, 2003, p. 155)

One more well-known model is a Webster and Wind model (see Appendix 2).

According to the model, those factors can be divided in four categories: organizational, environmental, interpersonal and individual. (Pride & Ferrell, 2007, p. 215)

Organisational factors mainly refer to purchasing policies, company's objective s and resources as well as the type of its buying centre. Among the environmental factors Pride and Ferrell (2007, p. 215) highlight competitive, economic, political, legal regulatory, technological and sociocultural factors. Those factors can have both positive and negative influence on making of the buying decision. They can either be barriers for decision-making or driving forces.

The next two groups of factors are more employee-related. For instance, interpersonal factors have the relationships between the employees in the buying department in their core. They refer to the level of conflict among the employees, ability and willingness to cooperate and use of power. Individual factors' group comprises such ones as: age, educational background, personality, position in the organisation and tenure. (Pride & Ferrell, 2007, p. 216)

Those two models are quite similar; however, there are still some peculiarities in each model. For example, among the Sheth's model takes into account product-related factors, while Webster and Wind do not clearly identify this group of factors in their model. One more difference that can be noticed is that Webster and Wind analyse the organizational buying process in a broader sense than Sheth, as in their model environmental factors play equal role alongside with other groups of factors. Sheth focuses more on the factors, which are organization related.

2.2. Acquisition of construction equipment

2.2.1. Stages of the acquisition process

Now, as the general stages of the organizational buying process are identified, we can have a deeper insight into the acquisition of the construction equipment and see in more detail what exactly this process represents in construction companies.

According to Benton and McHenry (2009, p. 104), the acquisition process starts with the equipment request from the project manager. Then the preparatory stage takes place, which includes: analysis of the company's goals and objectives, new equipment ideas (e.g. replacement), cash flow analysis (net cash investment, economic life of the equipment), economic evaluation methods (acquisition under market uncertainty), selection of equipment, and financial plan analysis (analysis of all identified options). Further, if the generated plan meets the goal, the implementation phase takes place. Finally, the evaluation stage comprises expenditure control and auditing.

Buying process of constructional companies described by Benton and McHenry corresponds to the general organizational buying process, described by Kotler. The peculiarity of the Benton and McHenry's model is that they identify the supplier selection stage as the equipment selection stage. Also those authors pay a lot of attention to the evaluation of the financial factors, which determine the rationality of the purchase.

2.2.2. Factors affecting the selection of construction equipment

One of the major stages in the preparatory phase is the selection of the equipment. In order to make the correct decision during that stage, some factors have to be evaluated.

For example, it is vital to determine, whether the equipment in question is of a standard type, or whether it is special equipment. Ghaleb (n.d., p. 4) defines the standard equipment as:

The equipment that can be used economically on more than one project, its repair parts may be obtained more quickly, and it can be easily disposed of at more favourable price.

Special equipment is the equipment produced for specific project or for specific type of work. For this type of equipment it is important to check the availability of the spare parts, and then decide, if it is better to use specific equipment or try to manage the whole work with the standard one. (Ghaleb, n.d., pp. 4-5)

Jha (2011, pp. 286-287) suggests some other factors, which he divides into two groups: “hard factors” and “soft factors”. The “hard factors” group includes the factors, which are mainly related to “the technical specifications of the equipment, physical dimensions of the site and constructed facility, and cost calculations”. The group of “soft factors”, in turn, comprises such factors as “safety considerations, company policies regarding purchase/rental, market fluctuations and environmental constraints”.

For our research product-related factors are not required, because our research is more related to the supplier selection stage of the organizational buying process. The only exception among the equipment-related factors is the type of the equipment (general equipment or special), this factor will be used when analyzing the importance of service centres for Russian construction companies. Otherwise, the research will mainly focus on so called “soft factors”, suggested by Jha.

2.2.3. Construction equipment classification

According to Jha (2011, p. 286) there exist several ways to classify the construction equipment. In his book he distinguishes three methods:

1. Classification according to the function. Based on their functions, the following groups of equipment can be identified: power units, prime movers, tractors, material-handling equipment, and material-processing equipment.
2. Classification according to the types of operation. In case of this type of classification the groups are such as: “equipments used for loosening and moving the materials found in their natural state” (e.g. compressors, pumps, and excavators),

“equipments used for processing materials” (e.g. asphalt producing equipment), “equipments used for transporting processed materials”, and “equipments used for placing finished materials”.

3. Classification according to the purpose of the equipment. General-purpose equipment (e.g. earthwork equipment and concrete equipment) and special-purpose equipment (e.g. bridge-construction equipment and marine equipment) categories are distinguished based on this classification method.

2.3. International distribution channels

For the purpose of understanding of the whole construction equipment acquisition process it is vital not only to understand, who the buyer is, but also the perspective of the selling party has to be examined.

Construction equipment manufacturers, as manufacturer's operating in other industries, can sell their products to foreign countries using two distribution techniques, which are: direct selling and indirect selling. In direct selling a manufacturer acts through a channel established overseas and is in charge of the whole selling process. In case of indirect selling a manufacturer is “exporting through an independent local middleman”, which eliminates a need for a manufacturer to establish an international department. (Onkvisit & Shaw, 2008, pp. 347-348)

Both direct and indirect selling is usually performed through intermediaries. The hierarchy of international channels of distribution can be seen from the Figure 5.

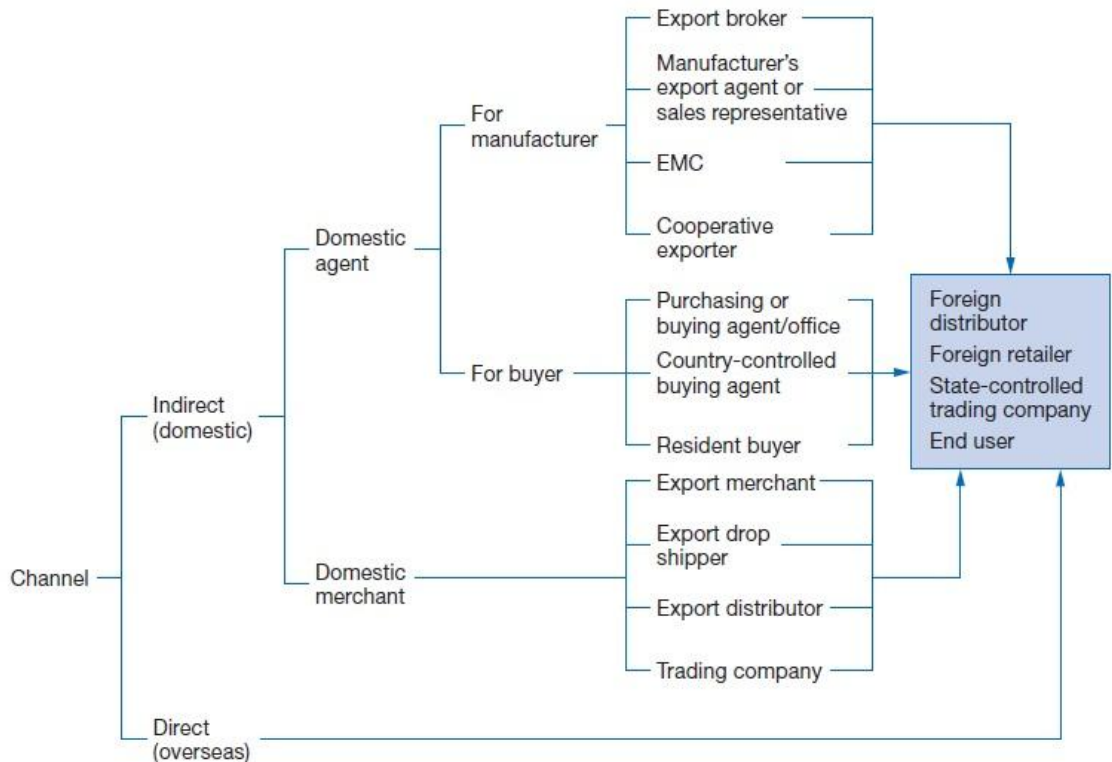


Figure 4. International channels of distribution (Onkvisit & Shaw, 2008)

In case of this research the indirect selling is used by the manufacturer of the equipment. The Helsinki office acts as a distributor and the Moscow and St. Petersburg offices play the dealers' roles.

According to Onkvisit and Shaw (2008, p. 433), there exist two types of distributors based on their location. The distributors located in the country different from the manufacturer's country are called foreign distributors, while those distributors, who are located in the manufacturer's country, are called export distributors. Our case company, located in Helsinki, is an export distributor.

Export distributors have a continuous relationship with manufacturers and are "authorized and granted an exclusive right to represent the manufacturer and to sell in some or all foreign markets" (Onkvisit & Shaw, 2008, p. 433).

Export distributor can either operate in its own name or in the name of the manufacturer. The main peculiarity about the export distributor is that it purchases the product from the manufacturer and then sells it abroad at the manufacturer's price, thus, the manufacturer just participates in the domestic transaction and does

not need to handle the rest of the selling process. For its work the distributor receives an agreed percentage of the product price. It can be granted a commission or have a discount, when purchasing from the manufacturer. The buyer can be billed either from manufacturer or distributor. (Onkvisit & Shaw, 2008, pp. 433-434)

3. METHODOLOGY

3.1. Data acquisition

3.1.1. Data acquisition method

Due to the nature of the topic in focus it was decided to utilize quantitative research method as a major tool. As stated by Zikmund and Babin (2012, p. 99), when dealing with qualitative research, the researchers too often get overly involved in the topic examined, which in most cases makes the results of the research subjective. In quantitative research those pitfalls are easily omitted as there is almost no possibility for the researcher to misinterpret the numerical data received. In depth analysis of just several companies will not give us the full picture of the client's preferences and may lead us to incorrect conclusions.

In order to find out what way of communication with the respondents could be the most effective a test survey was conducted, which aimed at 15 construction companies in the St. Petersburg area. Among those companies 7 were sent an email containing a test questionnaire (see Appendix 1). The rest 8 were contacted by phone.

From the respondents that were sent an e-mail not a single response was received. Among the companies contacted by phone 3 (which is 20% of the whole number of companies contacted) were ready to answer the questions. Therefore, it was decided to contact the respondents via the phone.

As it might take too much time to ask all the background questions from the company representatives Internet research will be used as a secondary method to find out some background data about the respondents.

For statistical purposes database analysis will be used in order to obtain data on sales volumes, dates of sales and other important values.

3.1.2. Sampling

According to Dattalo (2007, p. 3) the definition of sampling is "sampling is a strategy used to select elements from a population".

The two main questions, which are important during the sampling process include:

1. How the elements of the population will be selected?
2. How many elements will be selected?

(Dattalo, 2007, p. 4)

In our research no techniques will be used to determine how to select the elements (construction companies) from the population, as the whole population is represented by 76 companies in total. However, it is vital for this research to determine, how many answers we need to receive from the interviews to consider the results of the research to be relevant.

The web resource *Research Advisors* offers researchers a table from which the sample size can be determined based on the population size, confidence interval and margin of error. (Research Advisors, 2006)

As stated by the web resource *Stat Trek*, the confidence interval “*is used to describe the amount of uncertainty associated with a sample estimate of the population parameter*”. The most commonly used confidence intervals are: 90%, 95% and 99%. (Stat Trek, n.d.)

Research Advisors suggest researchers to select from the intervals of 95% and 99% (Research Advisors, 2006).

According to Fritz Scheuren a margin of error is a quantitative measurement of the sampling error. (Scheuren, n.d.) The website *Research Advisors* suggest to select the margin error among the values 1%, 2,5%, 3,5% and 5%. (Research Advisors, 2006)

In order to understand what the minimum number of answers would be relevant for our population, we will select the lowest confidence level – 95%, and the highest margin of error – 5%. Those values will determine the sample size of 63 respondents for our survey (See Appendix 2). (Research Advisors, 2006)

3.1.3. Questionnaire design

The main criteria taken into account during the questionnaire design included several points, such as:

1. Making the questionnaire as short as possible.

This criterion was generated based on the general knowledge of the Russian mentality and the overabundance of different kind of surveys aimed at businesses. As it was highly important for the company to receive the answers and not to cause any irritation among the respondents, the total number of questions was narrowed to 4.

2. Asking only those questions that can be useful for the company and can serve as a basis for statistical analysis.

The factors for the research were selected based on the Webster and Wind model. Such organizational factors as the size of the company, its decision-making period and the decision-making apparatus were selected for the questionnaire. The major question of the questionnaire is devoted to the evaluation of the factors, which, according to the case company's experience and future needs, are the most important. Among the environmental factors it was decided to focus only on competitive factors and technological factors. In addition, the question related to the importance of the "re-buy" situation was included in the questionnaire to learn about the loyalty of the customers. One more important factor for the company is the importance of the supplier image to its customers; therefore, such a question was also included into the questionnaire. Information about the leasing necessity for Russian construction companies is useful for the company as it might introduce such a service, if it is important for the customers. Finally, as the company offers maintenance and repair services for its clients, it is important to discover, whether availability of service centres affects the buying decision of its clients.

3. Evaluation of the factors should be performed on a scale from 1 to 5.

Russian academic grading system is a 1 to 5 grade system, where 5 is "excellent", 4 is "good", 3 is "satisfactory", 2 is "unsatisfactory" and 1 is "non-credit". And many

Russian are used to this type of evaluation not only in the academic institutions, but also in their everyday life. (Ministry of Education and Science of the Russian Federation, n.a.)

The scale, which is similar to the Russian grading system, is a Likert 1 to 5 scale, which is one the most commonly used Likert's scales. In this scale five statements, starting from "strongly disagree" and ending with "strongly agree", correspond to numbers from 1 to 5. The statements can be changed to the options, which suit the data the most. In this research the options will be the following: "not important", "of little importance", "of average importance", "quite important", and "very important". (Monette, Sullivan, & DeJong, 2010)

Based on the criteria described above, the following questionnaire was designed:

1. How many construction vehicles does your company own at the moment?
2. Evaluate the importance of the following factors for making of the decision about the purchase of the construction equipment (rate from 1 to 5, where 1 – not important at all, 5 – very important)?
 - a) Innovation
 - b) Brand awareness
 - c) Relationship history
 - d) Recommendations of partners
 - e) Vehicles, used by competitors
 - f) After-sales activities
 - g) Financial factors
3. Average decision making time?
 - a) Up to 2 weeks
 - b) Up to 1 month
 - c) Up to 2 months
 - d) More than 2 months
4. Who is making the purchasing decision in your company?

3.2. Statistical framework

3.2.1. Basic statistical concepts

As stated by Berenson, Levine and Krehbiel, in order to be able to perform a statistical analysis it is important to understand the meanings of the basic statistical concepts, which are: variable, data, population, sample, operational definition, parameter and statistic. (Berenson, Levine, & Krehbiel, 2012, p. 5)

Shortly defined, variables are “characteristics of items or individuals”. Various values associated with the variable constitute data. (Berenson, Levine, & Krehbiel, 2012, p. 5)

Population involves all the items and individuals about whom/which conclusions are to be made. Sample stands for “a portion of a population selected for analysis”. (Berenson, Levine, & Krehbiel, 2012, p. 6)

Parameter and statistic are the measures, which respectively correspond to the characteristic of the population and sample. (Berenson, Levine, & Krehbiel, 2012, p. 6)

3.2.2. Types of variables

Berenson, Levine and Krehbiel define four major groups of variables, which are: categorical (qualitative variables), numerical (quantitative) variables, discrete variables and continuous variables. (Berenson, Levine, & Krehbiel, 2012, p. 7)

Categorical variables (qualitative variables) are the ones, which can only have the values from a predetermined limited set of values. (Berenson, Levine, & Krehbiel, 2012, p. 7)

There exist two ways to measure the categorical variables: on nominal and ordinal scale. The values measured on nominal scale are divided into categories where no ranking is applied. On the other hand, values measured on the ordinal scale are distributed among the predefined categories, where rankings are used. (Berenson, Levine, & Krehbiel, 2012, p. 8)

Numerical variables (quantitative variables) are the variables, which simply represent certain quantities. Numerical variables can be of two types: discrete and continuous. Discrete values are the result of counting process (e.g. number of items), while continuous variables are the results of the measuring process (e.g. time). (Berenson, Levine, & Krehbiel, 2012, p. 7)

3.2.3. Descriptive statistics

As stated by Rubin (2010, p. 31), descriptive statistics are “various statistics used to organize, summarize and display a set of data – without testing hypotheses about possible relationships among variables”.

The major concepts related to descriptive statistics, and more precisely to univariate analysis (analysis of single variable), include: frequency distributions, graphs and charts, measures of central tendency, measures of dispersion, normal distributions, z-scores, percentiles, and effect size (Rubin, 2010, p. 31).

Also descriptive statistics deal with the relationships of two variables, which are examined with the help of bivariate analysis. Those concepts will be further defined and described in the “Analytical approaches” part of the given work.

3.2.4. Inferential statistics

“A basic aim of inferential statistics is to use the samples scores to make a statement about a characteristic of the population.” (Pagano, 2011, p. 190)

There exist two types of statements, which can be made, being: the hypothesis testing and the parameter estimation.

For the present study, the parameter estimation statement is important in terms of basic criteria understanding for selection between parametric and non-parametric statistics as a basis for analysis. Parametric statistics are meant to be utilized with dependent variables of an interval or ratio nature – the variables, which allow us to calculate means and standard deviations and use parametric tests. Non-parametric test are mainly used with the variables which are not of the interval or ratio nature, but rather nominal- and ordinal-level variables. (Rubin, 2010, p. 155)

Applicable hypothesis testing techniques and parametric/non-parametric tests will be discussed further in the “Analytical approaches for the given research” section.

3.3. Analytical approaches for the given research

3.3.1. Univariate analysis

At first, all of the variables used in the given research will be analyzed using the most basic type of statistical analysis – univariate analysis, which helps to understand the data set. The measures, which are intended to be used in the given work, are:

1. The minimum and maximum values;
2. The mean – the average value in the data set for a variable;
3. The median – the middle value in the data set for a variable;
4. The mode – the most frequently met value in the data set for a variable;
5. Percentiles.

(Brown & Saunders, 2007, p. 57)

Those analytical methods will be used to analyze each single variable, to understand the overall picture of the construction companies’ sizes, ages, decision making approaches and purchasing preferences.

As one of the main parts of this research is the analysis of ordinal variables and their relationship, non-parametric tests will be used to make conclusions. One of the suitable techniques for the analysis of the ordinal variables is the determination of their median. As previously mentioned the median is the middle value of the given variables arranged in the ascending order. Median is also often called the 50th percentile. This measure is used to measure the central tendency, the value around which all other measures are concentrated. (Gomez & Jones, 2010, pp. 284-285)

Percentiles represent one more method for statistical analysis of the ordinal variables. The purpose of the percentile analysis is to determine “the point below which a specific percentage of cases fall”. (Healey, 2009, p. 67)

3.3.2. Spearman's rank correlation coefficient

The purpose of the Spearman's rank correlation test is used to correlate the ranked variables and measure the strength of their relation to one another. It is used for variables which can be ranked and ordered. The most suitable types of variables for this analysis are ordinal, interval and ratio variables.

The formula for the rank correlation coefficient is:

$$r_s = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

In this formula d is the difference between the ranks for the ranked observations and n is the number of paired observations. (Lee, 2010, p. 772)

If the result of the correlation is 1, then the correlation is perfect. In case the value is -1, the correlation can be called the inverse perfect correlation. If the result of the correlation is 0, the monotonic relationship does not exist. (Lee, 2010, p. 772)

The important peculiarity of the Spearman's correlation is that it measures the monotonic relationship, which means that the function either never increases, or never decreases. Therefore, if the result of the correlation is 0, it does not necessarily mean that the relationship does not exist, it means that the relationship is not monotonic (e.g. it may quadratic). (Statstutor, n.d.)

An example of perfect decreasing and increasing monotonic functions can be seen from the Figure 5.

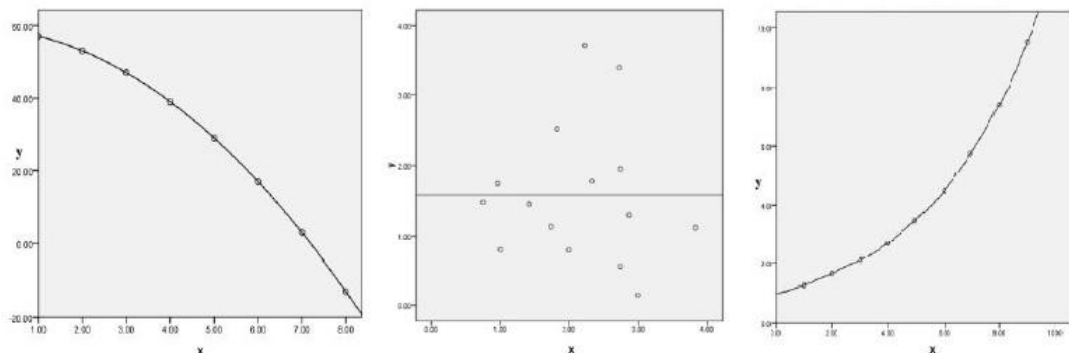


Figure 5. Monotonic and non-monotonic functions (Statstutor, n.d.)

In order to interpret the results of our tests we will use the following scale, offered by the Statstutor website:

- 0.00-0.19 – very weak relationship
- 0.20-0.39 – weak relationship
- 0.40-0.59 – moderate relationship
- 0.60-0.79 – strong relationship
- 0.80-1.0 – very strong relationship

(Statstutor, n.d.)

Spearman's rank correlation coefficient is an appropriate method for our research to analyze the data received. Spearman's correlation does not require the data to be either normally distributed or to have the linear relationship. Therefore, if it appears that some of our data sets are not normally distributed, we could still rely on the results of the test. (Laerd Statistics, n.d.)

With the help of this analysis we will correlate the factors, evaluated on the scale from 1 to 5 and see, whether they affect each other. If a relationship is found, we will look at the trend of the relationship. In addition, this test will be used to see, whether such factors as age of the company, the number of vehicles it owns and its decision-making time have any effect on the preferences of the construction companies.

3.3.3. Kendall tau rank correlation coefficient

Kendall tau rank correlation test is a one more option for a non-parametric analysis. Kendall's correlation is used only for tied pairs of variables. For both values the pairs of values with higher ranks have to be determined. The formula for the Kendall's tau rank coefficient is the following:

$$r^t = \frac{4 \sum P}{n(n-1)} - 1.$$

In the given formula P is the number of tied pairs, while n is the total number of pairs. (Harry, Mann, Hodgins, Hulbert, & Lacke, 2010, p. 228)

The values received as the result of calculations can vary from 1, being a perfect correlation, to -1, being a perfect inverse correlation. The result equal to 0 means absence of the relationship. The measurement system is identical to the one of the Spearman rank correlation test. (Tavakoli, 2013, p. 311)

Kendall correlation will be used in this work to ensure that the relationship exists.

3.3.4. Two-tailed test for hypothesis testing

During the statistical analysis, one of the major approaches to evaluation of the significance of the relationship is the hypothesis testing. Johnson and Christensen (2010, p. 489) define the hypothesis testing as:

The branch of inferential statistics that is concerned with how well the sample data support a particular hypothesis called the null hypothesis and when the null hypothesis can be rejected.

There exist two types of hypothesis, which we need to test, the null hypothesis (H_0) and the alternative hypothesis (H_1). The null hypothesis is a statement, implying that certain statement about the population is true. Usually the null hypothesis states that there are no relationships in the sample. The alternative hypothesis is an opposite of the null hypothesis, suggesting that certain statement about the population is different from the H_0 . And the alternative hypothesis shows that there is a relationship in the sample. In order to test, whether there are relationships in the sample, the hypothesis has to be tested and the null hypothesis has to be either rejected or not. (Johnson & Christensen, 2010, p. 491)

One of the tests that are performed for hypothesis testing is a two-tailed test – “a test with two rejection regions” (Harry, Mann, Hodgins, Hulbert, & Lacke, 2010, p. 437). The test, which we are going to use, is based on the p value – a value, which “measures evidence in support of null hypothesis”. In order to determine, whether the p value shows that the null hypothesis can be rejected, the significance level has to be selected. The significance level is “a probability of committing the Type I error” (rejecting the null hypothesis, when it is correct), it is denoted by α . When the p value is smaller than the significance level, the null hypothesis is rejected. (Stat Trek, n.d.)

Usually the significance levels used for hypothesis testing are 5% and 1%. For our research we will use the 5% level. This means, that in order for our null hypothesis to be rejected, the p value has to be smaller than 0.05.

4. FINDINGS AND ANALYSIS

4.1. Collected data

By the means of primary data acquisition method (telephone calls) 62 answers were gathered from 76 given companies, which means that the response rate was 81,5%.

The reasons for non-response among the questioned companies included: unwillingness to respond due to confidentiality reasons, non-response due to the lack of time, no interest in the research, and finally, no response to the phone call in general.

The rest of the information, required for the analysis, was obtained from the web search. In particular, the research required the age of the companies and their location – this information found from the companies' websites.

4.2. Location, age and number of vehicles

Among 62 analyzed (see Figure 6) companies the most number of company's clients are located in the Moscow region – 24 companies in total. The next location based on the number of companies is St. Petersburg – 15 companies are located there. Among other cities: in Yaroslavl, Voronezh, Ryazan and Chelyabinsk answers were received from 2 companies from each location. In other regions the number of clients and consequently the response rates were the lowest. In total 15 companies are located in other cities, such as Kazan, Tolyatti, Tomsk, Taganrog, Petrozavodsk, Saratov, Sochi, Irkutsk, Tver, Klin, Stavropol, Pyatigorsk, Vladimir, Kazan, and Krasnoyarsk.

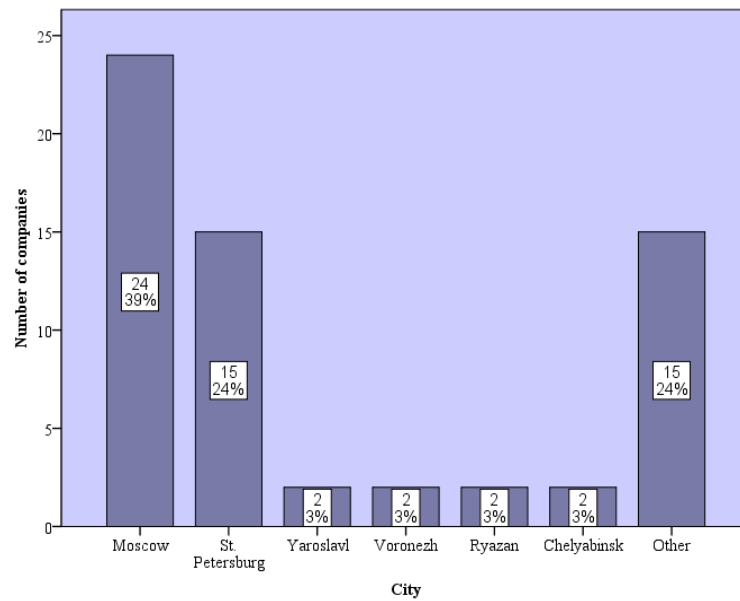


Figure 6. Respondent's locations (n=62)

The ages of companies are absolutely different, ranging from 1 year to 83 years. The average age of companies is 13 years. The mode of the data set is 6 – 6 companies out of 62 are found 6 years ago. According to percentile analysis, only 25% of the companies more than 15 years old, 25% of the companies are less than 5 years old and the rest 15% are between 5 and 15 years old with 9, being a median value. The distribution of ages can be seen from the Figure 7.

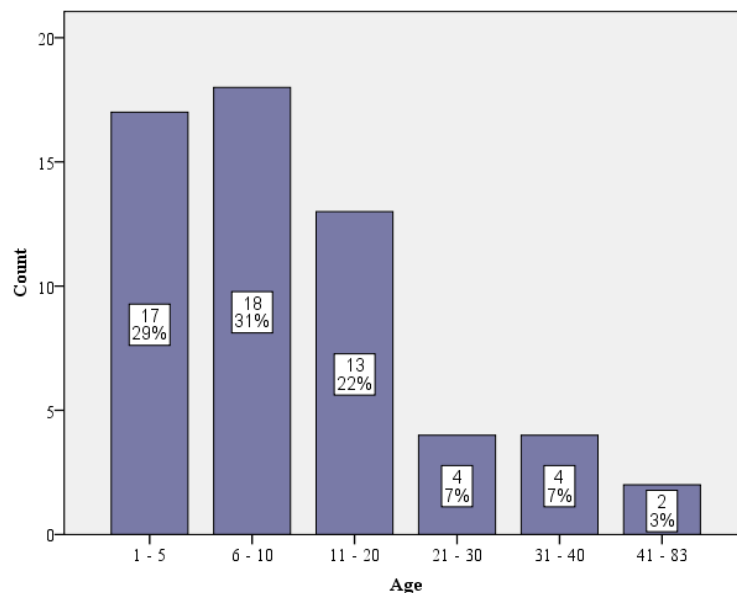


Figure 7. Age distribution (n=58)

Regarding the number of vehicles companies own, the results are shown in Figure 8. The largest number of vehicles among the Company X clients is 400, while the

smallest number of vehicles is 6. The average size of the vehicle park is 53 units. The most frequent size of the vehicle park is 30 units. Based on the percentile analysis, 25% of companies have less than 19 vehicles, 25% have more than 50 vehicles.

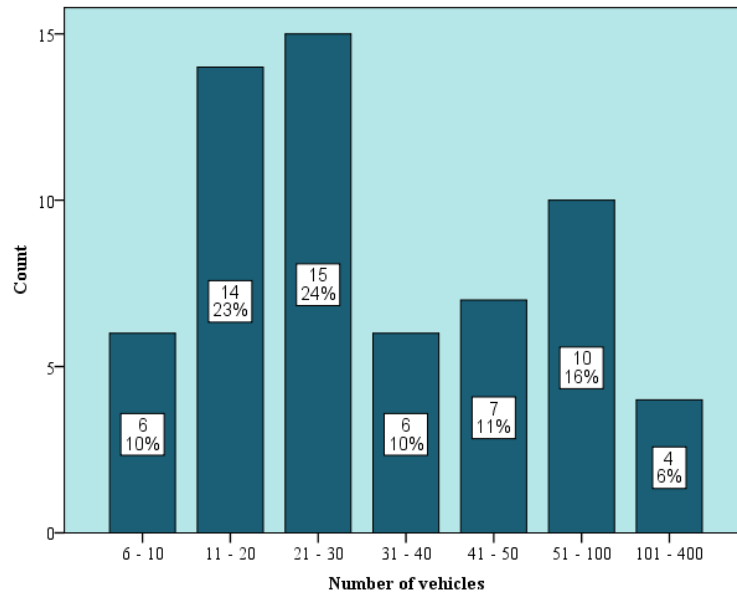


Figure 8. Number of vehicles (n=62)

4.3. Decision making time and decision makers

One more factor which was evaluated in this research was the time period, required for the company to make a buying decision for construction equipment. The options for the time periods included:

1. Up to 2 weeks;
2. Up to 1 month;
3. Up to 2 months;
4. More than 2 months.

The responses for this question were divided in the following way: 32 companies replied that their decision-making time is about 2 weeks, 18 companies claimed that they needed up to 2 months to make such a decision, 8 companies usually need up to 2 months to decide on the purchase, and finally, only 4 companies need more than 2 months on average to decide whether to purchase or not the construction equipment (see Figure 9).

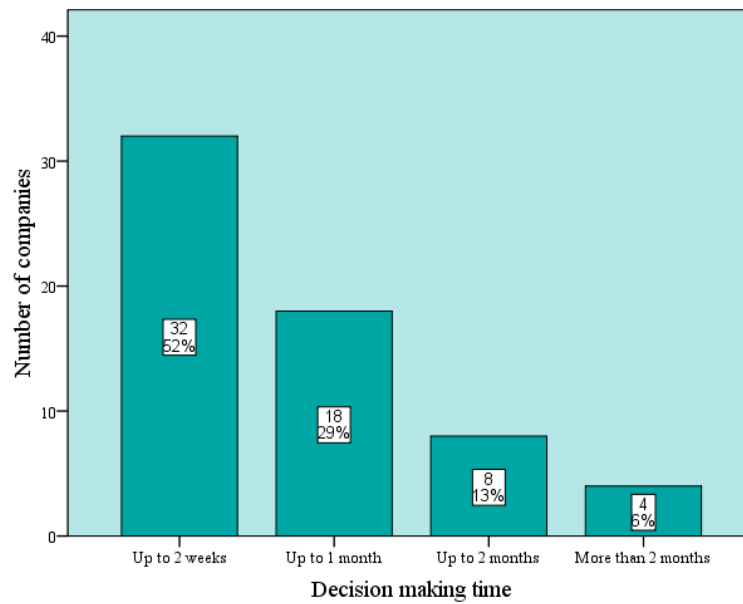


Figure 9. Decision making time (n=62)

One of the questions asked to the respondents was related to the buying center. It was important for the case company to find out who exactly is making the purchasing decision in construction companies regarding the acquisition of construction equipment.

The results for this question were the following: in 11% of cases technical director participates in the decision making alongside with the CEO, in the rest 89% of companies the decision is autocratic and is made by the CEO only, however, other parties participate in the discussion process.

4.4. Descriptive analysis of factors

As already mentioned in the section “Questionnaire design”, 7 factors were selected for the analytical purposes: innovation, brand awareness, relationship history, recommendations of partners, vehicles used by competitors, after-sales activities, and financial factors. All those factors were analyzed separately on the scale from 1 to 5, with 1 being “not important at all” and 5 – “very important”.

The results for the factors were the following:

1. The results for the innovation factor are the following: 28 companies gave 5 for innovation, 25 gave 4, 7 gave 3, 1 gave 2, and 1 gave 1. The mode is 5, which means

that for most companies the innovation factor is very important. For the second largest group the innovation factor is quite important. See Figure 10.

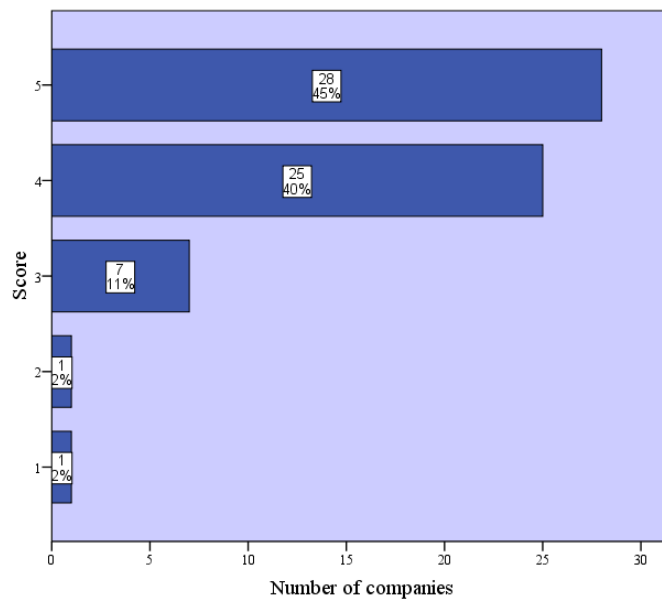


Figure 10. "Innovation" factor (n=62)

2. The second analyzed factor (brand awareness) had the following scores: 15 companies evaluated this factor as a very important one, when making their buying decision, 19 companies gave this factor 4, 21 companies gave it 3, and 7 companies gave it 2. The mode for this factor is 3, which means that for the most of the companies the brand awareness factor is of the average importance. See Figure 11.

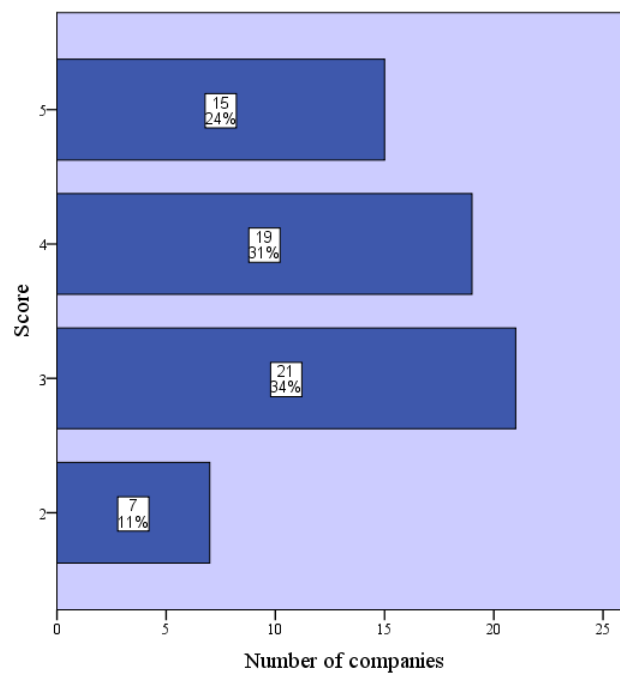


Figure 11. "Brand awareness" factor (n=62)

3. The factor related to the relationship history received such scores from the respondents as: 26 respondents gave this factor a score of 5, 22 respondents gave it 4, 12 gave 3, and 2 respondents gave 2. The mode for this factor is 5, which means that the relationship history is very important for construction companies.

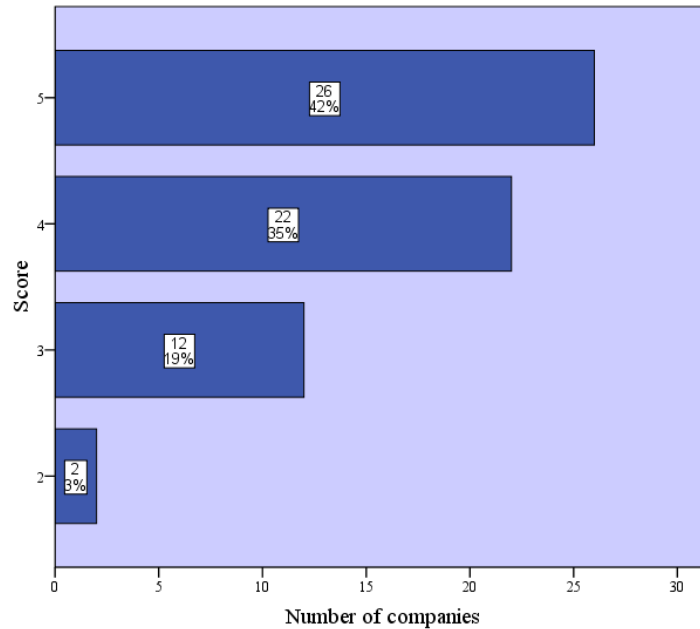


Figure 12. “Relationship history” factor (n=62)

4. When evaluating the factor related to the recommendations of partners the respondents gave the following answers: 9 companies gave 5, 20 gave 4, 18 gave 3, 12 gave 2, and 3 gave one. The mode for this factor is 4, which means that the factor is quite important for the respondents.

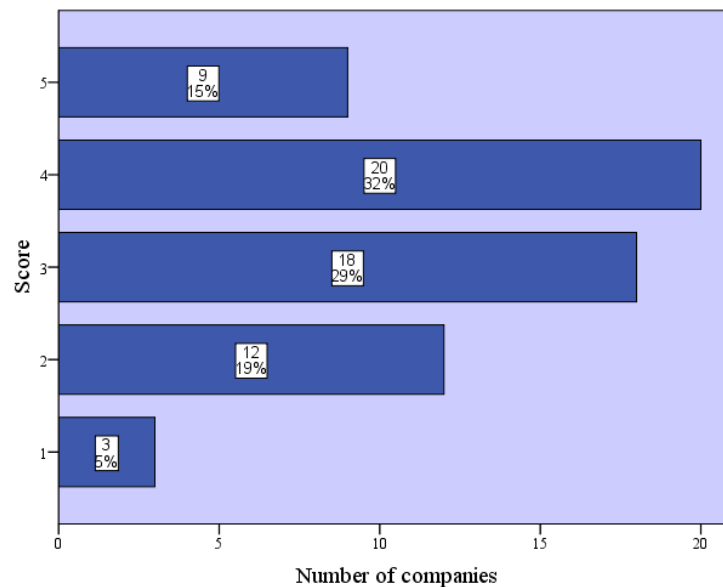


Figure 13. “Recommendations of partners” factor (n=62)

5. Regarding the equipment, used by competitors, the scores were the following: 3 companies gave this factor 5, 7 companies gave it 4, 20 companies gave it 3, 16 companies gave it 2, and 16 respondents gave it 1. The mode for this factor is 3, which stands for “average importance”.

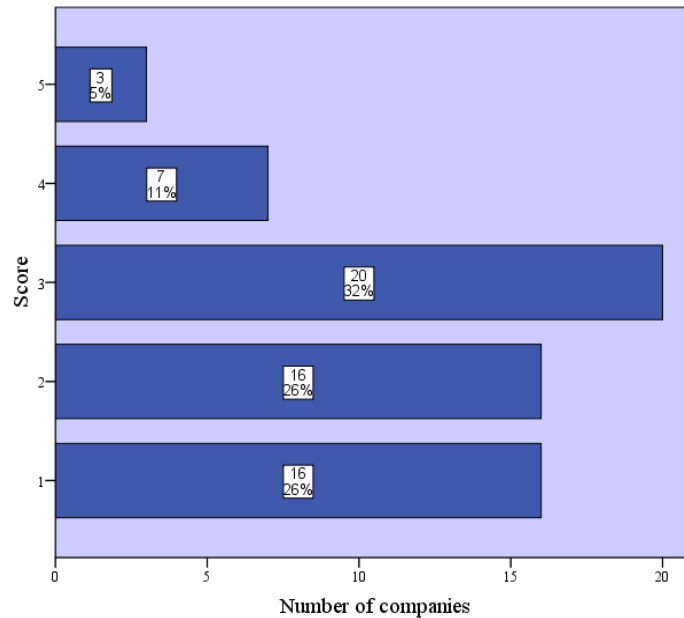


Figure 14. Equipment used by competitors (n=62)

6. When the companies were asked to evaluate the after-sales service, based on its importance, the responses were as follows: 14 companies gave evaluated this factor as a very important one and gave it 5, 28 gave it 4, 15 gave it 3, and 5 gave it 2. The mode for the factor is 4, meaning that for most of the companies this factor is “quite important”.

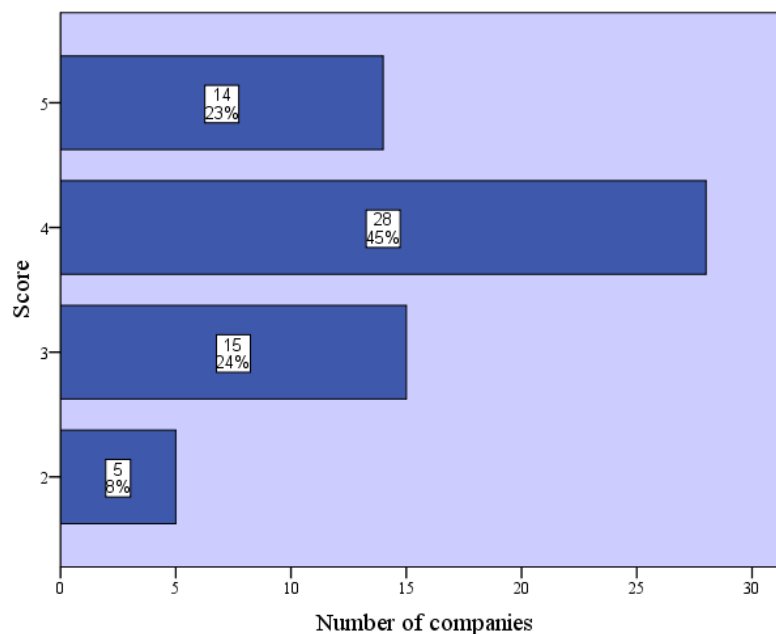


Figure 15. After-sales service (n=62)

7. And finally, the seventh factor (financial factors) received the following scores: 25 companies evaluated it with 5, 22 gave it 4, 10 gave it 3, 4 gave it 2, and 1 gave it one.

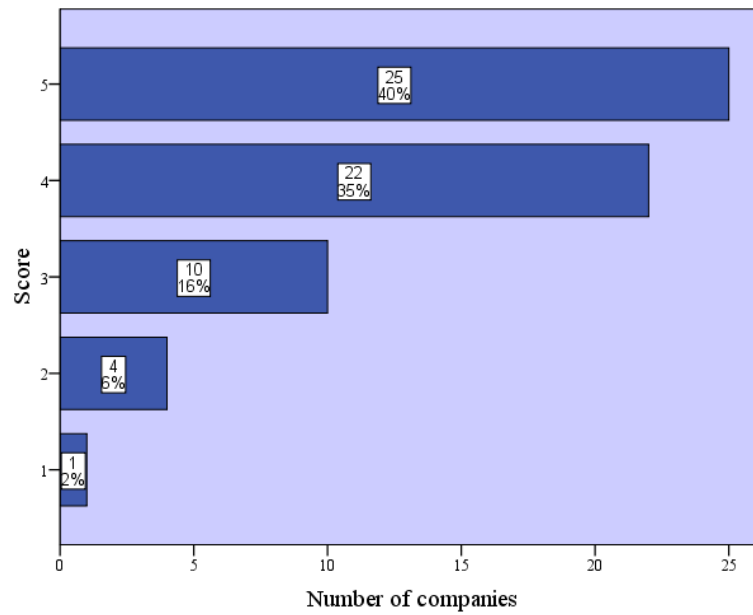


Figure 16. “Financial factors” factor (n=62)

For the purpose of comparison all the mean values of all factors are shown from the figure below (Figure 17).

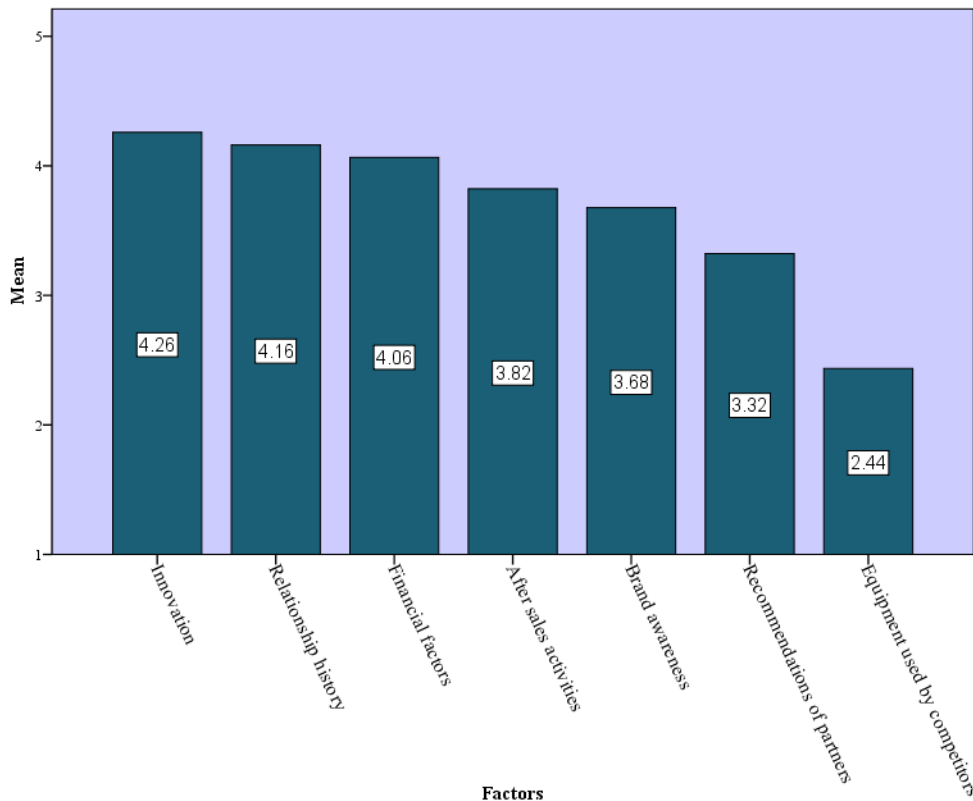


Figure 17. Comparison of the importance of factors

4.5. Spearman's rank correlation and Kendall tau rank correlation

One of the purposes of this work was to analyze the data gathered statistically and check, whether there are any relationships between the variables and what those relationships represent.

As statistical methods Spearman and Kendall correlations were selected for all of the factors, because all of our variables are either ordinal, or ratio variables, which are considered to be the most suitable types of data for those analyses.

In order to analyze all variables at once, SPSS matrix analysis was utilized. Not only Spearman and Kendall correlations were selected for matrices, but also a two-tailed test, which was needed for verification of the results. The matrix with correlation coefficients can be seen from the Appendix 6.

Among all of the correlation coefficients we will focus only on significant ones, which symbolize a relationship between variables. At first the relationships between 7 factors will be analyzed:

1. One of the strongest relationships among factors is the relationship between the factors "Recommendations of partners" and "Equipment used by competitors": Kendall's correlation coefficient is .514 with the highest level of significance .000, meaning that the relationship is moderate, but significant. Spearman's rank correlation coefficient also shows a significant relationship, which can be evaluated as strong, as the coefficient is .603. The relationship is positive, therefore, it can be concluded that as the score for the "Recommendations of partners" factor rises, the "Equipment used by competitors" factor rises too.

2. The second strongest relationship among factors is between the factors "Equipment used by competitors" and "After-sales activities". Spearman's correlation coefficient is .481 with the level of significance equal to .000. In case of Kendall coefficient the value is .424. The relationship is positive and moderate as in the previous case.

3. One more relationship, which should be pointed out is a weak positive relationship between the factors "Equipment used by competitors" and "Financial

factors”. Spearman’s coefficient in that case is equal to .383 with the level of significance equal to .002. Kendall’s rank correlation also detected a weak relationship with a coefficient being equal to .336.

4. Another moderate positive relationship can be found between the “After-sales activities factor” and “Financial factors”. Spearman’s coefficient is equal to .427 in that case, and Kendall’s coefficient is equal to .374 with the level of significance equal to .001.

5. And the last weak positive relationship that is worth mentioning can be noticed between “Innovation” and “Brand awareness”. Spearman’s coefficient is equal to .376, while Kendall’s coefficient is .338. In both cases the level of significance is .004.

The second part of our analysis is related to correlation of 7 factors with other parameters and attributes, selected for our research. Those parameters are: the age of the company, the number of vehicles it owns, and its decision-making time. Those parameters were also correlated with each other.

The results of these analyses were the following:

1. There were no relationships found with the age variable.
2. A very weak negative relationship was found between the “Number of vehicles variable” and the “Vehicles used by competitors” variable. Spearman’s coefficient is equal to -.318 with the .015 level of significance. Kendall’s coefficient is equal to -.238, with the level of significance equal to .019. The negative relationship is such, in which one variable rises as the other one decreases.
3. The last and the most significant relationship found with the analysis was a relationship between the “Number of vehicles” and the “Decision-making time” factors. According to Spearman’s correlation, the coefficient is -.603, with the level of significance equal to .000. According to Spearman’s coefficient, the relationship is strong. The result of the Kendall’s correlation is the coefficient equal to -.477 and the level of significance equal to .000. Based on the Kendall’s coefficient, the relationship can be described as moderate.

5. CONCLUSIONS

5.1. Summary of main findings

Based on the acquired data and its analysis, several conclusions can be made. To start with, it was found out that customers of Company X are rather young organizations as 75% of them are less than 15 years old. This can be explained by the fact that, due to the competitive nature of the Russian market, more and more companies are founded every year, and in order to gain a competitive advantage, those companies purchase innovative equipment.

One more conclusion that can be made is that most of the companies are mainly located in the central region of Russia. And the main locations are Moscow and St. Petersburg. The reason for such a result is that those regions are mainly targeted by the company and two of its offices are located in those cities. However, still a lot of companies from other regions are using the equipment, which means that the awareness is not limited just to the central region.

Company's clients have rather big vehicle parks and the average size of them is about 30 units. This can be explained by the expensiveness of the equipment and also by the fact that companies purchase equipment not only for construction purposes, but also for renting.

Regarding the decision making time, it was found out that Russian companies tend to make their purchasing decisions rather rapidly. In most cases it takes then up to 2 weeks. There is also a relationship between the size of the company's vehicle park and its decision-making time. Usually, companies with more vehicles spend less time for decision-making than companies with the smaller vehicle parks. This can be explained not only by more extensive experience of bigger companies, but also by the fact that companies with a bigger number of vehicles usually have more projects and sometimes as the project proceeds it turns out that the company urgently needs one more piece of equipment, which it buys without delays.

As capital equipment purchasing requires huge amounts of money, usually in Russian construction companies the decision regarding the purchase makes the CEO solely, however, the purchase is still discussed on several levels.

Concerning the factors that are the most important for the decision-makers, the most significant are innovation, relationship history, and financial factors. Innovation is important as due to high competition, companies need to find new ways of performing works, which will be more efficient than their competitors' methods. Therefore, Russian companies search for new technologies, which can help them to perform the works on the higher level.

As for the relationship history, first of all, it is important for Russian companies, because the relationships are important for Russian people in general. Secondly, stability is an important factor in the construction business, especially in Russia, where a certain level of uncertainty is always present, which is why companies tend to have continuous relationships with their suppliers.

Financial factors are of the utmost importance for Russian construction companies. As the construction equipment is extremely expensive and no company wants to freeze these huge amounts of money at once, Russian construction organizations prefer to lease the equipment.

Some other factors that are quite important include recommendations of partners and after-sales activities. Russian construction companies frequently collaborate, when dealing with construction projects. It is common that several companies are responsible for separate phases of the construction process during one project. Thus, it is logical that before making the purchase, companies have consultations with their partners.

After-sales activities are vital for companies as it is very important for effective work of the company to have specialized service centres in their regions, otherwise, an external team of mechanics will be invited, which will be more expensive for the company. What is more, the repair may be postponed in that case and the work may even stop if the equipment is unique. For those companies that think about the after-sales service one more important factor is the financial side of the purchase, those companies try to minimize their costs and gain as much benefit as possible.

The least important factors are the brand awareness and the equipment used by competitors. However, based on the statistical analysis, it can be seen that for those

companies that ask for advice from partners, it is also important to analyse the competitor's position and its technical equipment. We can assume that the rest of the companies underestimate the preliminary research before the purchase and do not pay much attention either to partners or to competitors.

Brand awareness, in turn, is more important for those companies that are interested in innovation. When buying absolutely new equipment, companies tend to rely on world leaders, rather than unknown brands.

5.2. Implications for the commissioner

The main purpose of the given work was to examine the preferences of the customers of the Company A and find out, what factors have the greatest effect on them, when making the purchasing decision. The results of the research should serve as a basis for companies further strategic decisions. Some of the possible implementations of the received information are discussed further.

At first, as the decision making regarding the acquisition of construction equipment is usually made by the CEO solely, it is important for the company to target these persons, when, for example, sending the commercial offers to potential customers.

Secondly, as the decision-making time is rather short in construction companies, it is vital for the Company A to invest in marketing activities, so that the awareness about the company and the equipment brand is increased. This is highly important, because as the buying decision is made rather in construction companies, they will more likely choose the brand, which they are already familiar with, instead of searching for a new supplier. During the marketing campaign the innovativeness of the product sold should be highlighted as for Russian construction companies innovation is an important factor.

What is more, other valuable information acquired during this research was that recommendations of partners are rather important for Russian construction companies, when making the purchasing decision. Thus, it can be concluded that it would be beneficial for the company to target the partners of its already existing clients as older clients can give recommendations to the partners and share their impression.

Another strategic decision which can be made based on this research is that the company can itself offer leasing service, because the financial factors are among the most important ones for the Russian construction companies. The interest rate, which is lower than other leasing providing entities' interest rate can become a competitive advantage for the company. What is more, this will become an additional source of income for the company.

Finally, certain actions have to be taken in order to increase customer loyalty, as relationship history is very important for Russian construction companies. For example, new value added services can be offered to companies.

5.3. Suggestions for further research and development

The research topic selected for this work can be used for further research in many ways due to the fact that the issue has not been studied intensively from the international perspective before. Moreover, as the given work was only focusing on clients of one particular company, purchasing only one type of equipment, the conclusions about the whole Russian construction market cannot be made. Besides, only several factors influencing the purchasing decision making were analysed within the framework of the research.

Thus, the existing research opportunity is to conduct a more extensive research and analyze a much bigger sample of companies based on the factors mentioned in this work and the ones, which were excluded from the research.

One more opportunity is to conduct a qualitative analysis of several construction organizations in order to get a more in depth view on the purchasing decision making in Russian construction companies. Interpersonal relationships and personal factors could be analyzed in detail in that case.

Finally, the research on other export distributors' methods of targeting Russian construction companies can be performed. This research will help to make conclusions on the competitive environment among the companies, dealing with the export of construction equipment. The research should rather be of the qualitative nature, because the number of construction equipment manufacturers is limited and no results would be achieved if performing quantitative research.

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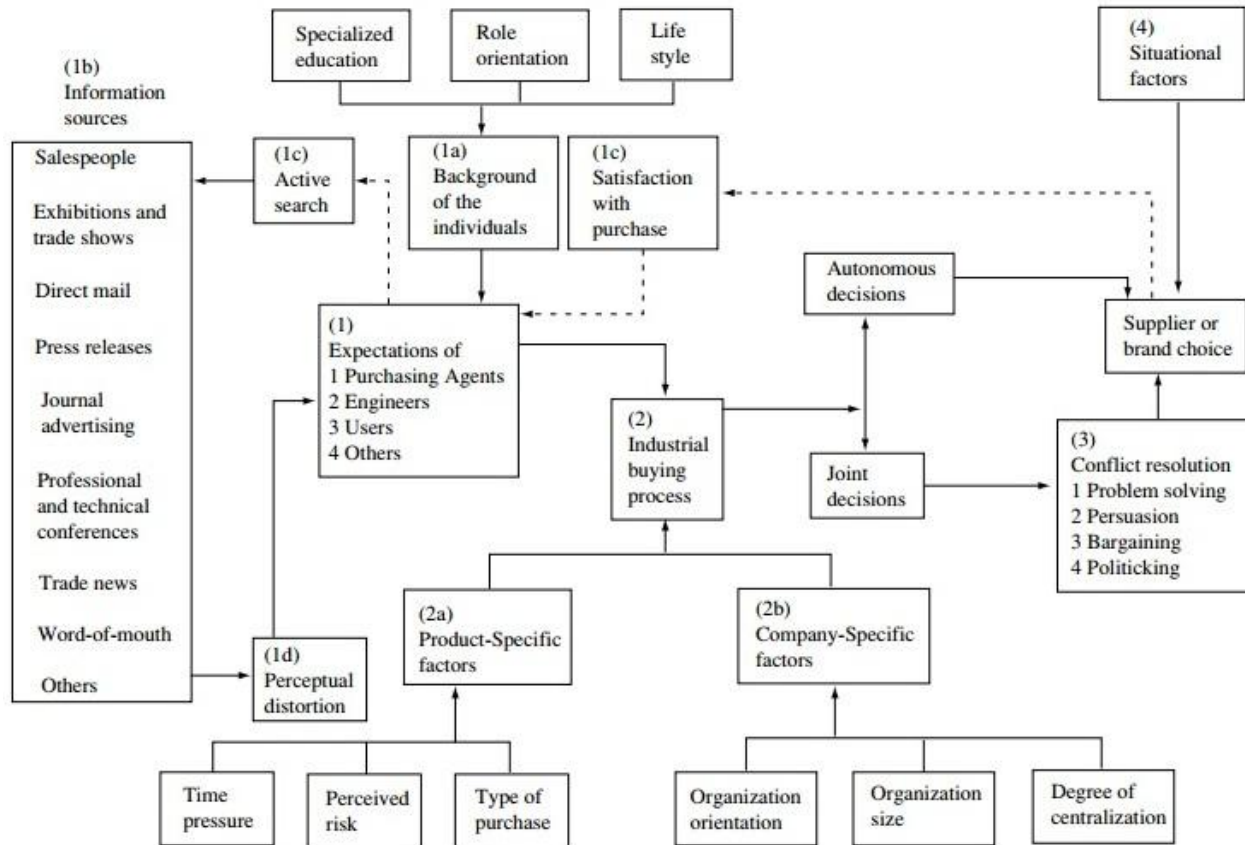
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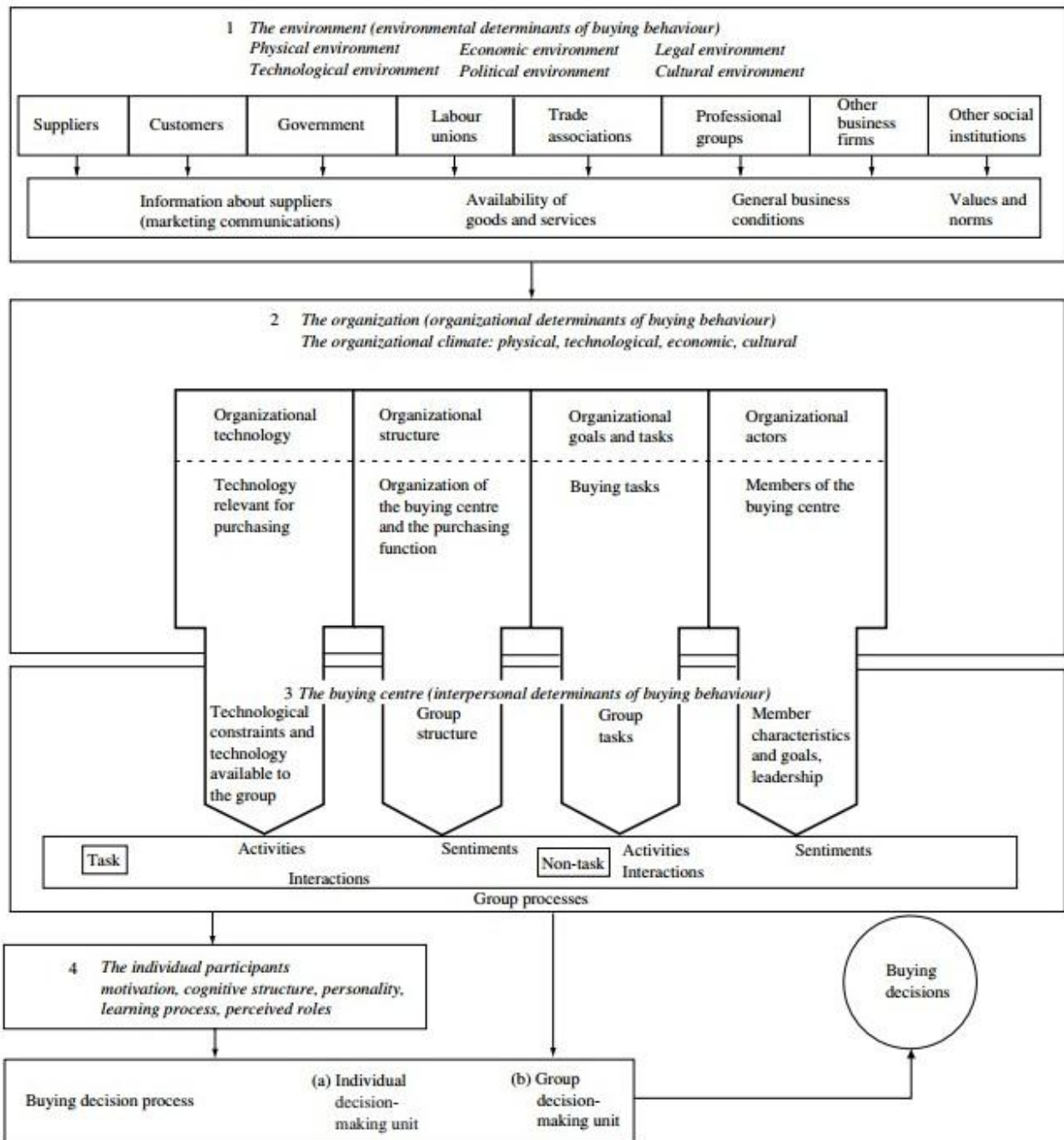
APPENDICES

Appendix 1. The Sheth model of organizational buying behaviour



(Baker, 2003, p. 154)

Appendix 2. The Webster and Wind model of organizational buying behaviour



(Baker, 2003, p. 156)

Appendix 3. Test letter and questionnaire

Hello,

My name is Aleksandra, I am the student of Finnish university who is working on the thesis work at the moment. The topic of my thesis is “Factors affecting the buying decision for construction equipment among Russian construction companies”.

I would be very grateful to you if you could answer the questions related to the topic listed below. (Altogether there are 6 questions)

1. What is the number of construction vehicles owned by your company?
 - a) 0-20
 - b) 20-70
 - c) 70-200
 - d) More than 200

2. What kind of vehicles are they?

3. What are the major countries from which vehicles were purchased?

4. How long does it take to make a final decision about the purchase?
 - a) Up to 2 weeks
 - b) Up to 1 month
 - c) Up to 2 months
 - d) More than 2 months

5. Who takes part in the decision making process? (Departments, positions)

6. Please, evaluate each of the following factors on the scale from 0 to 5, where 0 is “not important at all” and 5 – “very important”:
 - a) Country of origin
 - b) New technologies
 - c) Image of the production company

- d) Previous purchases from the company
- e) Partners' recommendations
- f) Equipment used by competitors
- g) Availability of service center in your region
- e) Possibility to pay in installments (leasing, credit)

Thank you for your help!

Appendix 4. Required sample size

Required Sample Size [†]								
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

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(Research Advisors, 2006)

Appendix 5. The questionnaire

1. What is the number of construction vehicles owned by your company?

2. Please, evaluate each of the following factors on the scale from 0 to 5, where 0 is “not important at all” and 5 – “very important”:
 - a) Technological innovation
 - b) Image of the production company
 - c) Previous purchases from the company
 - d) Partners’ recommendations
 - e) Equipment used by competitors
 - f) Availability of the service center in your region
 - g) Possibility to pay in installments (leasing, credit)

3. How long does it take your company to make the final decision about the purchase?
 - f) Up to 2 weeks
 - g) Up to 1 month
 - h) Up to 2 months
 - i) More than 2 months

4. Who takes part in the decision making process? (Departments, positions)

Appendix 6. Spearman rho and Kendall tau correlations (plus two-tailed test)

			Correlations									
			Innovation	Brand_awareness	Relationship_history	Recommendations_of_partners	Equipment_used_by_competitors	After_sales_activities	Financial_factors	Age	Number_of_vehicles	Decision_making_time
Kendall's tau_b	Innovation	Correlation Coefficient	1.000	.327**	.050	.201	.069	-.015	.110	-.010	.055	.029
		Sig. (2-tailed)		.004	.659	.069	.535	.893	.330	.924	.590	.799
		N	62	62	62	62	62	62	62	58	62	62
	Brand_awareness	Correlation Coefficient	.327**	1.000	.168	.159	.252*	.173	.036	-.003	-.051	.073
		Sig. (2-tailed)	.004		.131	.138	.019	.114	.740	.977	.606	.513
		N	62	62	62	62	62	62	62	58	62	62
	Relationship_history	Correlation Coefficient	.050	.168	1.000	.150	.016	-.069	-.104	.169	-.060	.161
		Sig. (2-tailed)	.659	.131		.171	.887	.537	.353	.106	.552	.156
		N	62	62	62	62	62	62	62	58	62	62
	Recommendations_of_partners	Correlation Coefficient	.201	.159	.150	1.000	.528**	.256*	.268*	-.044	-.129	-.034
		Sig. (2-tailed)	.069	.138	.171		.000	.018	.013	.664	.186	.756
		N	62	62	62	62	62	62	62	58	62	62
	Equipment_used_by_competitors	Correlation Coefficient	.069	.252*	.016	.528**	1.000	.424**	.336*	-.085	-.235*	.022
		Sig. (2-tailed)	.535	.019	.887	.000		.000	.002	.401	.016	.841
		N	62	62	62	62	62	62	62	58	62	62
	After_sales_activities	Correlation Coefficient	-.015	.173	-.069	.256*	.424**	1.000	.374**	-.012	-.077	-.150
		Sig. (2-tailed)	.893	.114	.537	.018	.000		.001	.909	.439	.182
		N	62	62	62	62	62	62	62	58	62	62
	Financial_factors	Correlation Coefficient	.110	.036	-.104	.268*	.336*	.374**	1.000	-.082	-.026	-.084
		Sig. (2-tailed)	.330	.740	.353	.013	.002	.001		.428	.795	.453
	N	62	62	62	62	62	62	62	58	62	62	
Age	Correlation Coefficient	-.010	-.003	.169	-.044	-.085	-.012	-.082	1.000	.089	-.084	
	Sig. (2-tailed)	.924	.977	.106	.664	.401	.909	.428		.338	.422	
	N	58	58	58	58	58	58	58	58	58	58	
Number_of_vehicles	Correlation Coefficient	.055	-.051	-.060	-.129	-.235*	-.077	-.026	.089	1.000	-.439**	
	Sig. (2-tailed)	.590	.606	.552	.186	.016	.439	.795	.338		.000	
	N	62	62	62	62	62	62	62	58	62	62	
Decision_making_time	Correlation Coefficient	.029	.073	.161	-.034	.022	-.150	-.084	-.084	-.439**	1.000	
	Sig. (2-tailed)	.799	.513	.156	.756	.841	.182	.453	.422	.000		
	N	62	62	62	62	62	62	62	58	62	62	
Spearman's rho	Innovation	Correlation Coefficient	1.000	.376**	.060	.236	.081	-.021	.122	-.013	.076	.034
		Sig. (2-tailed)		.003	.646	.065	.534	.869	.344	.920	.556	.792
		N	62	62	62	62	62	62	62	58	62	62
	Brand_awareness	Correlation Coefficient	.376**	1.000	.191	.187	.293*	.203	.042	-.005	-.068	.089
		Sig. (2-tailed)	.003		.138	.146	.021	.114	.744	.967	.597	.490
		N	62	62	62	62	62	62	62	58	62	62
	Relationship_history	Correlation Coefficient	.060	.191	1.000	.172	.018	-.075	-.115	.214	-.070	.184
		Sig. (2-tailed)	.646	.138		.181	.892	.561	.374	.107	.587	.152
		N	62	62	62	62	62	62	62	58	62	62
	Recommendations_of_partners	Correlation Coefficient	.236	.187	.172	1.000	.603**	.303*	.307*	-.056	-.173	-.038
		Sig. (2-tailed)	.065	.146	.181		.000	.017	.015	.675	.180	.770
		N	62	62	62	62	62	62	62	58	62	62
	Equipment_used_by_competitors	Correlation Coefficient	.081	.293*	.018	.603**	1.000	.481**	.383**	-.109	-.313*	.027
		Sig. (2-tailed)	.534	.021	.892	.000		.000	.002	.416	.013	.836
		N	62	62	62	62	62	62	62	58	62	62
	After_sales_activities	Correlation Coefficient	-.021	.203	-.075	.303*	.481**	1.000	.427**	-.013	-.105	-.171
		Sig. (2-tailed)	.869	.114	.561	.017	.000		.001	.920	.418	.184
		N	62	62	62	62	62	62	62	58	62	62
	Financial_factors	Correlation Coefficient	.122	.042	-.115	.307*	.383**	.427**	1.000	-.110	-.033	-.097
		Sig. (2-tailed)	.344	.744	.374	.015	.002	.001		.410	.796	.452
	N	62	62	62	62	62	62	62	58	62	62	
Age	Correlation Coefficient	-.013	-.005	.214	-.056	-.109	-.013	-.110	1.000	.134	-.102	
	Sig. (2-tailed)	.920	.967	.107	.675	.416	.920	.410		.316	.448	
	N	58	58	58	58	58	58	58	58	58	58	
Number_of_vehicles	Correlation Coefficient	.076	-.068	-.070	-.173	-.313*	-.105	-.033	.134	1.000	-.553**	
	Sig. (2-tailed)	.556	.597	.587	.180	.013	.418	.796	.316		.000	
	N	62	62	62	62	62	62	62	58	62	62	
Decision_making_time	Correlation Coefficient	.034	.089	.184	-.038	.027	-.171	-.097	-.102	-.553**	1.000	
	Sig. (2-tailed)	.792	.490	.152	.770	.836	.184	.452	.448	.000		
	N	62	62	62	62	62	62	62	58	62	62	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).