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BACHELOR THESIS

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OF GRADUATE OF ACADEMIC DEGREE
«BACHELOR»

THEME: **«Organization of special equipment lease of construction company»**

Speciality 073 «Management»

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МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
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NATIONAL AVIATION UNIVERSITY
Faculty of Transport, Management and Logistics
Logistics Department

Academic degree Bachelor

Speciality 073 «Management»

Educational and Professional Program «Logistics»

APPROVED
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TASK

FOR COMPLETION THE BACHELOR THESIS OF STUDENT

Mykyta O. Nikolaev
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1. Theme of the bachelor thesis: «Organization of special equipment lease of construction company» was approved by the Rector Directive №553/CT. of May 04, 2020.
2. Term performance of thesis: from May 25, 2020 to June 21, 2020.
3. Date of submission work to graduation department: June 05, 2020.
4. Initial data required for writing the thesis: general and statistical information about construction market in Ukraine, information of the company «Console», production and financial indicators of the PE «Console», literary sources on logistics and lease of equipment, Internet source.
5. Content of the explanatory notes: introduction, theoretical basis of the problem of special equipment lease in Ukraine and its legal support; trends in the lease market of special equipment in Ukraine; analysis the construction market in Ukraine and activity of the company «Console»; development of proposals to organize a special equipment lease for construction company “Console”; calculation of the economic effect of the proposed measures; conclusions and recommendations.
6. List of obligatory graphic matters: tables, charts, graphs, diagrams illustrating the current state of problems and methods of their solution.

7. Calendar schedule:

№	Assignment	Deadline for completion	Mark on completion
1	2	3	4
1.	Study and analysis of scientific articles, literary sources, normative legal documents, preparation of the first version of the introduction and the theoretical chapter	25.05.20-27.05.20	Done
2.	Collection of statistical data, timing, detection of weaknesses, preparation of the first version of the analytical chapter	28.05.20-29.05.20	Done
3.	Development of project proposals and their organizational and economic substantiation, preparation of the first version of the project chapter and conclusions	30.05.20-01.06.20	Done
4.	Editing the first versions and preparing the final version of the master thesis, checking by standards inspector	02.06.20-03.06.20	Done
5.	Approval for a work with supervisor, getting of the report of the supervisor, getting internal and external reviews, transcript of academic record	04.06.20	Done
6.	Submission work to Logistics Department	05.06.20	Done

Student _____
(signature)

Supervisor of the bachelor thesis _____
(signature)

8. Consultants of difference chapters of work:

Chapter	Consultant (position, surname and name)	Date, signature	
		The task was given	The task was accepted
Chapter 1	Senior Lecturer, Semeryagina M.M.	25.05.20	25.05.20
Chapter 2	Senior Lecturer, Semeryagina M.M.	28.05.20	28.05.20
Chapter 3	Senior Lecturer, Semeryagina M.M.	30.05.20	30.05.20

9. Given date of the task May 25, 2020.

Supervisor of the master thesis: _____
(signature of supervisor)

Semeryagina M.M.
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Task accepted for completion: _____
(signature of graduate)

Nikolaev M.O.
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ABSTRACT

The explanatory notes to the bachelor thesis « Organization of special equipment lease of construction company» comprises of 75 pages, 14 figures, 14 tables, 49 references.

KEY WORDS: CONSTRUCTION COMPANY, INFORMATION MODELING OF THE BUILDING, LEASE, PRIVATE COMPANY, SPECIAL EQUIPMENT

The purpose of the research is to study the theoretical foundations and problems of organization of special equipment lease of construction company and to develop project recommendations for implementing logistics approach in the company activity to achieve the best customer service.

The subject of the research is the lease of special equipment for construction company “Console”.

The object of the research is the business processes of organization of special equipment lease of construction company.

Methods of research are scientific inquiry, empirical, analysis and synthesis, modeling, expert assessments, extrapolation of time series.

Materials of the thesis are recommended for use during scientific research, in the educational process and in the practical work of specialists of logistics departments.

CONTENTS

NOTATION	7
INTRODUCTION	8
CHAPTER 1. THEORETICAL BASIS OF THE PROBLEM OF SPECIAL EQUIPMENT LEASE IN UKRAINE AND ITS LEGAL SUPPORT.....	11
1.1 Trends in the lease market of special equipment in Ukraine.....	11
1.2 Seasonality, operator qualifications and customer priorities.....	15
1.3 Legal aspects of a lease in Ukraine.....	20
1.4 Chapter 1 summary.....	25
CHAPTER 2. ANALYSIS OF THE ACTIVITIES OF CONSTRUCTION ENTERPRISES AND THE COMPANY "CONSOLE".....	26
2.1 Analysis of the construction and technological regions of the world and Ukraine.....	26
2.2 Main characteristic of private company "Console".....	32
2.3 Analysis of the financial indicators of the construction company	40
2.4 Chapter 2 summary	46
CHAPTER 3. DEVELOPMENT OF PROPOSALS TO ORGANIZE A SPECIAL EQUIPMENT LEASE FOR CONSTRUCTION COMPANY "CONSOLE".....	47
3.1 Logistic approach to improve the management of the materiel and technical support of building company "Console".....	47
3.2 Using the expert assessment method to select a leasing equipment supplier.....	58
3.3 Evaluation of the effectiveness of investment project solutions.....	61
3.4 Chapter 3 summary	65
CONCLUSIONS AND RECOMMENDATIONS	67
REFERENCES	71

NOTATION

AIS	– Automatic Identification System;
BL	– Bill of Lading;
DPP	– Discounted Payback Period;
IT	– Information technology;
IMB	– Information modeling of the building;
IRR	– Internal Rate of Return;
NPV	– Net present value;
PP	– Payback Period;
VAT	– Value Added Tax

INTRODUCTION

Industrial enterprises in Ukraine provide their customers with building materials and provide rental services for various special equipment. Available equipment for construction, transportation, and other activities in demand at the construction site, in industrial workshops, with carriers. A wide fleet of special equipment allows you to choose the right machine for any needs and quickly send it to the object to perform tasks.

In the context of the ongoing economic crisis in the country for more than two years, many owners of special equipment parks stopped buying special equipment and equipment in the previous volumes and turned to the services of companies providing fixed assets for rent. Equipment rental, with or without an operator, or, as they say now, outsourcing, allows you to do without large investments in the purchase of equipment, its maintenance, as well as avoid downtime.

Lease companies are seriously affected by seasonality. In the cold season, frontal bucket loaders are especially in demand, and in the construction season - cranes. The estimated demand for the near future can be calculated only fairly approximately - therefore, there are frequent cases when the customer, having won a tender, say, for snow removal, simply cannot find the required number of units of this equipment in the city, since all available on the balance sheet the car owner has already been leased. This question is especially painful for customers who need narrowly specialized machines - for example, in mobile snow melting installations.

To this day, most of the special equipment leased in Ukraine is provided along with the services of an operator who is supposed to ensure targeted and safe use of the machine, on the one hand, and to monitor its safety, on the other. Unfortunately, due to the peculiarities of the Ukrainian labor market, namely the shortage of qualified operators of construction and other special equipment, the professional level of personnel working on a rented car often leaves much to be desired. An inexperienced operator whose services are included in the rental price can be an

unpleasant surprise for both the customer and the company that owns the car that hired him to work. Demand for the services of high-class drivers and operators of special equipment, including those offered for rent, in our country significantly exceeds the supply. Given that modern special equipment is becoming, on the one hand, more convenient to manage, and on the other, more equipped with many technological systems and options, the ability to equip the staff with the ability to work with it professionals for the company-owner of the machines can be considered a great success. After all, with high demand for these professions in the market, there are much fewer people who want to get them than real jobs.

The purpose of bachelor thesis is to study the theoretical foundations and problems of organization of special equipment lease of construction company and to develop project recommendations for implementing logistics approach in the company activity to achieve the best customer service.

The following scientist and researchers focused their efforts on using logistics approach for company activity: Grygorak M.Y. [17,18], Grygorev M.N. [20], Dybska V.V. [22], Sherbakova V.V. [29], Nerush U.M. [22].

In accordance with purpose of thesis was defined and formed the follow tasks:

1. Consider theoretical basics of problem of special equipment lease in Ukraine and its legal support.
2. Breakdown of legal basics of lease functioning.
3. To study global modern trends in construction industry.
4. Study current situation in construction market in Ukraine.
5. Describe general characteristic of construction company “Console”.
6. Carry out analysis of the “Console” business indicators.
7. Use the logistic approach to improve the management of the materiel and technical support of building company “Console”.
8. Carry out calculation of the economic efficiency of the special equipment lease for construction company.

The subject of the research is the lease of special equipment for construction company “Console”.

The object of the research is the business processes of organization of special equipment lease of construction company.

During the performance of the thesis was used general scientific methods: system analysis, induction and deduction, analyze and synthesis, expertise. During calculation of economic effectiveness of the project was used project performance indicators.

The information sources during thesis research were:

- regulations and legal documents;
- scientific and methodological approach to improve the management of the materiel and technical support of building company;
- statistics and financial report of Console company, internal documents that describe company's activity;
- Internet sources.

During carrying out calculations and edition of thesis was used Microsoft Office software applications: Word, Excel and Visio.

CHAPTER 1

THEORETICAL BASIS OF THE PROBLEM OF SPECIAL EQUIPMENT LEASE IN UKRAINE AND ITS LEGAL SUPPORT

1.1 Trends in the lease market of special equipment in Ukraine

In the context of the ongoing economic crisis in the country for more than two years, many owners of special equipment parks stopped buying special equipment and equipment in the previous volumes and turned to the services of companies providing fixed assets for rent. Equipment rental, with or without an operator, or, as they say now, outsourcing, allows you to do without large investments in the purchase of equipment, its maintenance, as well as avoid downtime.

Until 2014, the Ukrainian rental market for special equipment, although it was very small nationwide, was developing at a fairly rapid pace. In the pre-crisis 2013, the volume of the Ukrainian rental market for special equipment (construction and lifting) and equipment for the same purpose grew by 18% compared to the previous year, in the previous period it grew annually to 25% per year. From 2014 to this day, the growth rate of the rental market, although slightly decreased compared to the previous period, amounting to 8-9% per year, but the number of Ukrainian companies interested in this service, while, on the contrary, increased. Geographically, the largest activity in terms of renting construction and road-building machinery and equipment is shown by enterprises operating in the main administrative cities of Ukraine.

The deficit of working capital and the already established requirements of leasing companies ensured stable demand for their services to companies providing equipment for rent. Leasing to construction organizations allows them to obtain equipment for a limited amount of work at minimal cost, as well as to pre-evaluate the operational properties of machines if they resort to rent with the possibility of

subsequent redemption. Of the other benefits for the renting party, it should be noted that there are no expenses for servicing and maintaining parking lots for equipment, car insurance, as well as the absence of an interest rate for raising the cost of equipment, as is the case with bank loans or leasing.

Unfortunately, the generally economically unfavorable situation in the country has left its mark on the peculiarities of domestic rental of special equipment. First of all, this resulted in a reduction in the number of orders compared to the previous year; in 2016, some of the companies offering equipment for rent estimate this reduction by 1.5-2 times. Another trend is due to the fact that competition in this segment has intensified, customers have become more susceptible to price and are more likely to trade with landlords about the cost of rent. For the same reason, some companies, unable to withstand competition, sell special equipment and close their rental business.

It is interesting to note that when concluding a lease agreement, a preliminary form of payment is increasingly being negotiated. What a few years ago was not observed: payment for equipment was made at the end of work, upon its return. However, a decrease in the solvency of contractors, an increase in receivables from lessor companies change the rules of the game. This often causes confusion among representatives of the domestic construction industry, where work is traditionally carried out first, and then settlement is done.

A number of enterprises offering special equipment are actively developing their rental business, offering cars for rent to customers with or without foreclosure. However, this is only beneficial if local dealers of one brand or another have such a service provided.

Another characteristic feature of the time is the desire of potential customers when searching for rental equipment to avoid the services of dispatchers and other intermediaries. In addition to the fact that this increases the cost of the order, such companies, forming a fleet of equipment for working at a particular facility, trying to get their own piece of the pie, do not always have the appropriate professional competence. In the context of a decrease in rental demand, many companies are

dumping and lowering the price of equipment services. Such a game of lowering with constantly increasing prices for equipment, spare parts and fuel leads to a decrease in profitability - but in the face of declining demand in many regions, sometimes this is the only way for a company to stay on the rental market. And if earlier the payback period of the machine was one or two years, now it has slightly increased.

Trends in the rental market of special equipment in Ukraine are presented in fig. 1.1.

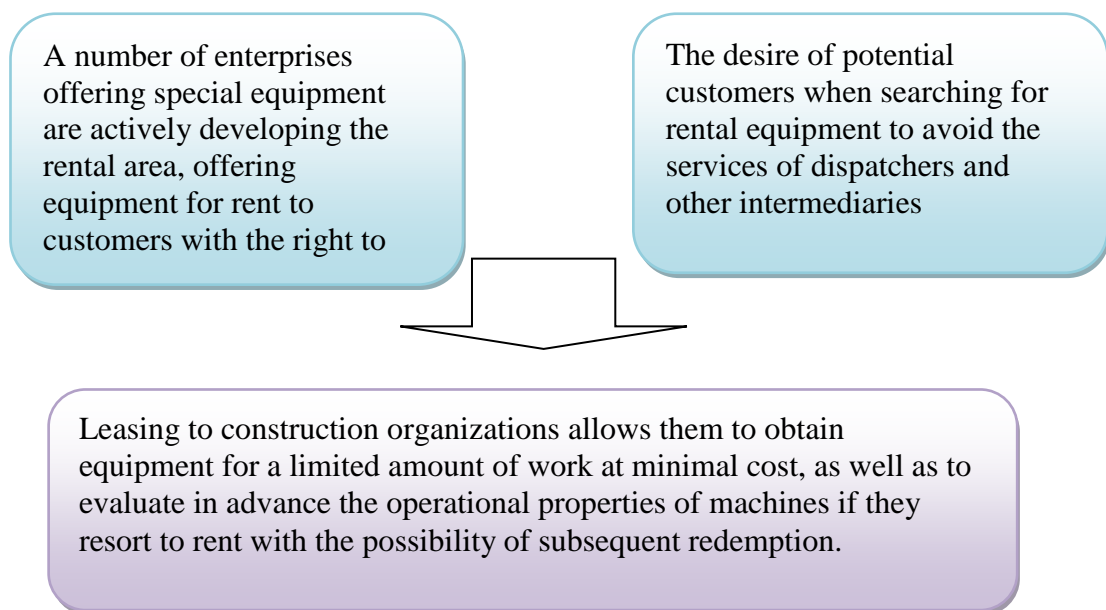


Figure 1.1 – Trends in the rental market of special equipment in Ukraine

Industrial enterprises in Ukraine provide their customers with building materials and provide rental services for various special equipment. There are available equipment for construction, transportation, and other activities in demand at the construction site, in industrial workshops, with carriers. A wide fleet of special equipment allows you to choose the right machine for any needs and quickly send it to the object to perform tasks [18].

Consider special equipment for construction, transportation, installation works, which is presented in fig. 1.2.



Stationary concrete pumps



Concrete mixer



Long lengths



Loader cranes



Truck cranes



Aerial platform

Figure 1.2 – Classification of special equipment for construction, transportation, installation works

You can rent such special equipment from us:

- stationary concrete pumps;
- concrete mixers;

- truck cranes;
- long meters;
- loader cranes.
- aerial platforms.
- loaders, etc.

The service is provided for any necessary period, and its cost is negotiated individually. Professional advice on the selection of special equipment for construction, transportation, loading and unloading and other works can be obtained from specialists of lessor companies. Rental of special equipment for construction, transportation, installation activities will save on the purchase of expensive cars, but to complete the existing tasks with the help of professional equipment at the right time.

1.2 Seasonality, operator qualifications and customer priorities

Lease companies are seriously affected by seasonality. In the cold season, frontal bucket loaders are especially in demand, and in the construction season - cranes. The estimated demand for the near future can be calculated only fairly approximately - therefore, there are frequent cases when the customer, having won a tender, say, for snow removal, simply cannot find the required number of units of this equipment in the city, since all available on the balance sheet the car owner has already been leased. This question is especially painful for customers who need narrowly specialized machines - for example, in mobile snow melting installations.

To this day, most of the special equipment leased in Ukraine is provided along with the services of an operator who is supposed to ensure targeted and safe use of the machine, on the one hand, and to monitor its safety, on the other. Unfortunately, due to the peculiarities of the Ukrainian labor market, namely the shortage of qualified operators of construction and other special equipment, the professional level

of personnel working on a rented car often leaves much to be desired. An inexperienced operator whose services are included in the rental price can be an unpleasant surprise for both the customer and the company that owns the car that hired him to work. Demand for the services of high-class drivers and operators of special equipment, including those offered for rent, in our country significantly exceeds the supply. Given that modern special equipment is becoming, on the one hand, more convenient to manage, and on the other, more equipped with many technological systems and options, the ability to equip the staff with the ability to work with it professionals for the company-owner of the machines can be considered a great success. After all, with high demand for these professions in the market, there are much fewer people who want to get them than real jobs [32].

From the point of view of the contracting organization, the main requirement remains the reliability of the rented special equipment. If in past years a contractor, for which the cost of downtime is traditionally high, could afford to rent two similar cars - one is working, the other is for insurance, then since 2016 this practice has become too expensive. Therefore, concluding a lease, the client increasingly requires guarantees of the quality of the equipment or its quick replacement in case of failure. Such requirements are completely justified and require owners of equipment more responsibility in matters of competent operation, timely maintenance, and, if necessary, operational repair of machines. Therefore, companies renting special equipment are traditionally conservative in choosing a partner and prefer cooperation with the owner of the equipment, predictable in terms of the quality of the vehicles provided, even if its rental price is 5-10% higher than that of competitors dumping in order to attract orders.

This does not apply to management companies operating at the expense of homeowners. For them, the main criteria when choosing a landlord are the minimum price, the absence of intermediaries and the willingness of partners to provide a car with an operator on the first call - for example, in the event of ice formation. Efficiency of providing equipment as a prerequisite is almost always fixed by a special clause in the contract.

The main criteria for choosing a lesser of special equipment is given in fig. 1.3.

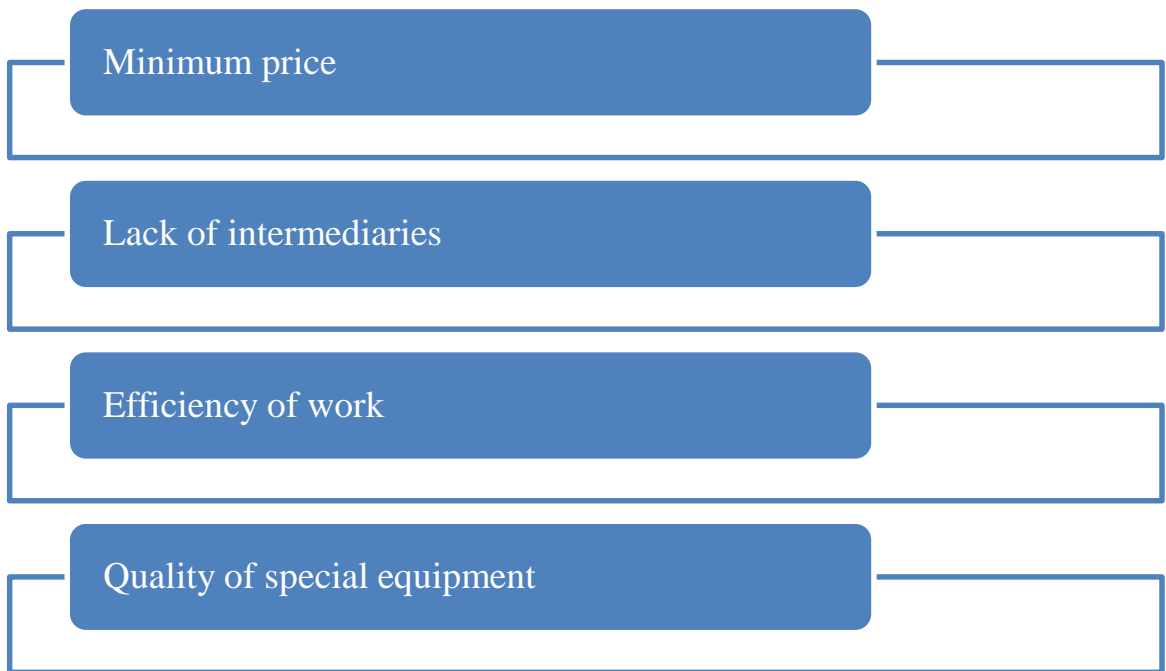


Figure 1.3 – The main criteria for choosing a lesser of special equipment

It should be noted that for management companies the rejection of intermediary services is justified not only by price, but even more so by considerations of the same efficiency. The need to contact the dispatcher, who for some time will negotiate with the owners of the cars about their readiness to rent them out, the choice among the available options - this entire long process involves time losses that are unacceptable if, for example, urgent snow removal is required. Therefore, management companies strive to simplify and optimize the issue of rental of special equipment as much as possible [14].

It should be noted that for management companies the rejection of intermediary services is justified not only by price, but even more so by considerations of the same efficiency. The need to contact the dispatcher, who for some time will negotiate with the owners of the cars about their readiness to rent them out, the choice among the available options - this entire long process involves time losses that are unacceptable if, for example, urgent snow removal is required. Therefore, management companies

strive to simplify and optimize the issue of rental of special equipment as much as possible.

Against the backdrop of the growth in the rental market for special equipment, the services of individual entrepreneurs, who simultaneously acted as owners of special equipment, and its landlords, and its operators, and often service specialists — at least the current one — were attracted for a more serious service and repair of third-party specialists. Today, the rental of special equipment in medium-sized Ukrainian cities is much smaller; there are reasons for this, and the national economic crisis is probably the most important, but far from the only one.

Starting with a single special equipment vehicle, many companies managed to develop, receiving rental orders, and become owners of a small but own fleet of special equipment from two to three, or even more. More often than not, the first main tool for such enterprises is a universal equipment - an backhoe loader or a front-end loader, which allows, by changing attachments, to carry out a large list of the work required in the city: loading and unloading related to snow transportation, digging trenches, and so on. Investing in the purchase of replacement equipment, individual entrepreneurs (and, if we take it more broadly, owners of special equipment as a whole) get the opportunity to expand for themselves the number of areas in which their services may be in demand. The acquisition of a mounted snow blower, pit saw, log grabber and hydraulic hammer opens up new perspectives for the front loader owner [21].

That was until 2014, when the demand curve for rental of special equipment steadily went up. In addition to non-economic circumstances, the situation was affected by the saturation of the rental market for special equipment and a decrease in the pace of construction. When the rental offers of special equipment exceeded demand, the owners of the machines began, as already mentioned, not only to dump, reducing the price for an hour of work (up to 25% compared to the previous period), but also to reduce the duration of the minimum rental period. For example, the services of a involved loader with an operator at a price of UAH 200 for an hour of snow removal work became available not on an eight-hour working day, but on a half

day or four hours. For management companies serving a relatively small area, this time may be enough for snow removal - and the owner of the special equipment needs to look for an additional order to avoid downtime in the afternoon. And if there is always work for special equipment in cities with a population of over one million, despite a large number of competing enterprises, then in smaller settlements there are often idle cars for lack of orders, and individual entrepreneurs themselves sell equipment and reprofile their enterprises for activities of a different kind.

Another point for companies specializing in renting is the wear and tear of components and parts of special equipment - a problem that is equally familiar to all owners of special equipment without exception. Even in compliance with all operating standards, technicians in three to five years are increasingly in need of unscheduled maintenance and repair. The latter, for example, can cost a decent amount to the owner of a well-known brand of backhoe loader. Not to mention the forced downtime during the repair, such unplanned spending eats up possible profits - therefore, it is better to sell cars and buy new ones in exchange for them over five years old.

In fact, if the rental market for special equipment in Ukraine in recent years has seriously reduced the growth rate, while the competition in these services in major Ukrainian cities is quite strong. The sense and economic feasibility in this business is still there. But for this, several key conditions must be met, the compliance with which will help to take its own, albeit first and small, place in the market.

Firstly, even in the current, far from favorable conditions, the rental market is still growing, although its growth rate is three times lower than before 2014. And any growth, even small, leaves the opportunity for new players to appear on the market. Of course, each of them, even before acquiring special equipment, needs to find out the circle of potential customers and their needs for rented equipment, at least in the short term - until the investments in utility, cleaning and other machines pay off.

Secondly, equipment, all fixed assets - both equipment and attachments that increase its capabilities - must be purchased exclusively for their own money. Options, when cars were purchased on credit or on leasing terms, in the current

conditions there is no point in considering at all. Whereas with your own equipment you can survive a seasonal or unscheduled downtime without leaving a minus. If there is such an opportunity, it is better to buy special equipment, especially those brands and models that are compatible with the maximum number of types of attachments.

And, finally, thirdly, in the era of information, the awareness of the rental company about what is happening in the city, district, region and so on is of prime importance. In any metropolis or region, something is always being built, whether it is housing, commercial buildings or infrastructure. Everywhere there are competitions for the cleaning and development of a particular territory.

To be aware of all these events, to receive orders for the construction and maintenance of facilities, the implementation of which is designed for two to three years, means at least to recoup the costs of the acquisition and maintenance of equipment and make some profit, which will allow the new enterprise to take its place in the market and little by little develop. And there, perhaps, the economic situation in the country will change: even in our memory, this already happened at the turn of the nineties and zero, because stagnation or decline sooner or later turn into growth.

1.3 Legal aspects of a lease in Ukraine

Rent is one of the types of property leasing. The Law on Leases regulates organizational relations related to the leasing of property of state enterprises, their structural divisions, as well as property relations between lesser and tenants regarding the economic use of state property. Leasing of property of other forms of ownership is regulated by the provisions of the Law on Leases, unless otherwise provided by the legislation of Ukraine and the lease agreement. In modern civil law, a property lease (lease) agreement is defined as a civil law contract by which the lesser transfers or

undertakes to transfer the property to the tenant for use for a fee for a certain period of time [2 p.183].

V.V. Vitryansky defines the lease as a civil law contract, by virtue of which the lessor agrees to provide the tenant with certain property for temporary possession and use or for temporary use, and the tenant with the obligation to pay the rent to the lessor. In this case, the products and income that the lessee received as a result of using the leased property in accordance with the contract are his property [14, p. 216].

In section 759 Civil Code of Ukraine secures the traditional definition of a contract of employment. According to this article, it is established that under a lease (lease) agreement, the lesser transfers or undertakes to transfer the property to the lessee for use for a fee for a specified period of time [2].

So the exact definition of a lease is an urgent and paid transfer of property for use (not property) based on the contract.

From the above definition it follows that:

- lease relations are exclusively contractual in nature and cannot arise on the basis of planned tasks or other administrative acts;

- the lease provides for the transfer of property for use, in contrast to the contract of sale, which gives the right of ownership of the property (section 761 of the Civil Code);

- use of paid, which is ensured by the tenant making a daily fee in the amount and terms specified in the contract (section 762 of the Civil Code);

- rent provides for the transfer of property for temporary use. The contract is terminated upon the expiration of the term (section 763 of the Civil Code).

The property being leased can be used by the lessee to carry out both entrepreneurial (production of goods, performance of work, rendering of services, trade), and other (satisfaction of medical, recreational, educational, cultural and sports needs, etc.).

The purpose of the contract is to ensure the transfer of property for temporary use.

As a general rule, a lease is consensual, that is, it comes into force from the moment the parties reach an agreement on all essential conditions. However, in cases where the conclusion of a lease agreement coincides with the actual transfer of property, it is real. This agreement is bilateral (its parties acquire mutual rights and obligations) and reimbursable (temporary use of property in the form of rent is always carried out for a fee).

Along with the Civil Code, the important source of rent is the Law of Ukraine “On Leasing State and Communal Property” dated 04/10/1992 p. [2], resolution of the Cabinet of Ministers of Ukraine “On the approval of a model land lease agreement” 2004 [2], etc.

In accordance with the Law on Leases, rental objects can be integral property complexes of enterprises or their structural divisions (branches, workshops, sections), individual individually defined property, for example, separate buildings, structures, equipment, vehicles, tools, other material values [1].

The legislation establishes the types of integral property complexes of enterprises that, by the nature of their activities, cannot be leased. For example, activities for the manufacture and sale of narcotic drugs, military weapons and their ammunition, as well as cold steel [45 c. 352].

Transport enterprises engaged in the domestic and international transportation of passengers and goods, enterprises whose activities are related to the extraction of precious metals and precious stones, the manufacture and sale of products using them, and other activities cannot be leased. The Decree of the Cabinet of Ministers of Ukraine dated December 31, 1992 approved the List of property complexes of state enterprises, organizations, their structural divisions of the main production, the privatization or leasing of which is not allowed [28, p. 21].

Leasing property does not entail the transfer of ownership of this property. It is provided to other persons for temporary and paid use. The document governing the lease is a lease. It consists in writing on the principles of voluntariness and equality of parties. So, under a lease agreement, one party (the lesser) is obliged to provide the

other side (the lessee) with the appropriate property for temporary possession and use for entrepreneurial and other activities.

According to the general rule established by Art. 638 of the Civil Code of Ukraine, the contract is considered concluded if the parties in an appropriate form have reached agreement on all the essential terms of the contract. Moreover, the essential terms of the contract are the conditions on the subject of the contract, the conditions that are defined by law as essential or necessary for the contract of this type, as well as all those conditions regarding which, at the request of at least one of the parties, an agreement must be reached. It should be noted that Art. 12 of the Law of Ukraine “On the rental of state and municipal property” almost duplicates the provisions of Art. 638 of the Civil Code of Ukraine regarding the determination of the moment of conclusion of the contract except that the necessary element for concluding the lease and state or communal property is the signing by the parties of the text of the lease. Given this, the lease of state or communal property is consensual.

The essential conditions for the lease of state and communal property are the conditions defined by the Law of Ukraine “On the lease of state and communal property”, as well as the conditions on which at least one of the parties to the lease agreement insists. The legal significance of the essential terms of the lease is that only with their availability the lease is considered concluded [28, p. 18].

The lease agreement concluded by the parties in terms of essential conditions must comply with the standard lease agreement for the respective property. Model leases of state property are developed and approved by the State Property Fund of Ukraine [3].

In accordance with section 10 of the Law of Ukraine “On the lease of state and communal property”, the essential terms of the lease are the following (the law or the parties to the lease provide the following ten essential conditions may be expanded):

- 1) Object of lease (composition and value of property, taking into account its indexation).
- 2) Term.

- 3) Rent.
- 4) The procedure for using depreciation.
- 5) Restoration and repair of leased property, as well as the conditions for its return.
- 6) Fulfillment of obligations.
- 7) Ensuring the fulfillment of the obligation - forfeit (fine, penalty), guarantee, deposit, guarantee, etc.
- 8) The procedure for the lesser to monitor the condition of the leased object.
- 9) The responsibility of the parties.
- 10) Insurance by the lessee of the property he has leased.

So, one of the most ancient and at the same time the most common at the moment in everyday life and economic activities of civil contracts is the contract of employment (lease). Common and traditional in the civil code is the definition of a lease (lease) agreement as a contract under which the lesser transfers or undertakes to transfer the property to the tenant for use for a fee or for a specified period (part 1 of article 759 of the Civil Code of Ukraine). The Civil Code of Ukraine enshrines the general provisions of the lease, and also defines the features of some of its varieties.

The lease agreement consists of the following conditions: the lease object (composition and value of the property, taking into account its indexation); the period for which the lease is concluded; rent taking into account its indexation; procedure for using depreciation deductions; restoration of leased property and conditions for its rental; execution of obligations; enforcement of obligations - penalty (fine, penalty), guarantee, deposit, guarantee, etc .; the procedure for the lesser to monitor the condition of the leased object; responsibility of the parties; tenant insurance of property leased by him; obligations of the parties to ensure the fire safety of the leased property.

1.4 Chapter 1 summary

So, as a result of the work done on the basis of processing scientific papers, analyzing trends in the field of rental of special equipment, analyzing the current legislation and the practice of its application, a number of conclusions are formulated in the thesis. The main ones are:

1. Industrial enterprises in Ukraine provide their customers with building materials and provide rental services for various special equipment. Available equipment for construction, transportation, and other activities in demand at the construction site, in industrial workshops, with carriers. A wide fleet of special equipment allows you to choose the right machine for any needs and quickly send it to the object to perform tasks.

2. Rental companies are seriously affected by seasonality. In the cold season, frontal bucket loaders are especially in demand, and in the construction season - cranes.

3. A lease agreement is a civil law agreement under which the lessor transfers or undertakes to transfer the property to the lessee for use for a fee for a certain period (Part 1 of Article 759 of the Civil Code of Ukraine). Under the lease agreement, the landlord transfers or undertakes to transfer the property to the lessee.

4. Important in regulating the relationship of the lease agreement are the provisions of certain laws - "On the lease of state and municipal property", "On the lease of land" and so on. In addition, a fairly wide range of regulations is devoted to lease relations, including the Civil Code of Ukraine, the Commercial Code of Ukraine, the Land Code of Ukraine and others. Section 10 of the Law provides that the essential conditions of a lease are: the leased object (composition and value of property, taking into account its indexation); the period for which the lease is concluded; rent taking into account its indexation.

CHAPTER 2
ANALYSIS OF THE ACTIVITIES OF CONSTRUCTION
ENTERPRISES AND THE COMPANY "CONSOLE"

2.1 Analysis of the construction and technological regions of the world and Ukraine

In the analytical part of our work, we will conduct research and analysis of the construction and technological regions of the world, Ukraine. So, in the table. 2.1 is a list of countries that include the largest construction companies in the world, as of 2019. The ranking in the list was carried out according to the total indicators of assets and used IMB (Information modeling of the building) technologies.

Germany has high rates in the technological world market, but in the construction industry it is not represented at all. The United States shares the primacy with China in the construction space and occupies a monopoly on the technologic. Thus, to compare the% influence of the construction and technogenic regions of the world, only those countries that are represented in both positions are derived: India; Korea; China; USA; France; Japan. To realize the% influence of the construction and technogenic regions of the world, it is proposed to use TIF (TIF – technology integration factor), which will allow the level of ability of building regions of technological integration to be implemented.

Conducting an analysis of countries to which the largest construction companies in the world are involved, it can be noted that the first part of the list is confidently occupied by China with 12 companies; Japan is in second place with 9 companies; the third place is taken by the USA with 12 companies. Having a numerical advantage over the number of companies over Japan, the United States is inferior to the lowest places in the ranking with lower total assets and technologies used by VIM (Building Information Modeling).

Table 2.1 – List of countries that include the top 50 construction companies in the world (list)

№	Country	Number of company	Including% on the world market
1	2	3	4
1.	Austria. Strabag (38)	1	2
2.	Holland. Chicago Bridge & Iron (42)	1	2
3.	India. Larsen & Toubro (10)	1	2
4.	Spain. Grupo Acs (9); Acciona (40); Fcc (44)	3	6
5.	China. China State Construction Engineering (1); China State Construction Engineering (2); China Railway Group (4); China Railway Construction(5); Sinohydro Group (6); Metallurgical Corp Of China (8); China Energy Engineering (13); China Gezhouba (24); Shanghai Construction (26); China National Chemical (32); Oceanwide Holdings (37)	12	24
6.	Korea. Doosan (27); Hyundai Engineering (28); Gs Engineering (47)	3	6
7.	Mexico. Desarrolladora Homex	1	2
8.	Singapore. Sembcorp Industries (35)	1	2
9.	The USA. Lennar (15); DR Horton (16); Fluor (25); Barratt Developments (29); Taylor Wimpey (30); Persimmon (31); PulteGroup (36); NVR (43); Jacobs Engineering (45); SNC-Lavalin Group (46); Berkeley Group Holdings (49); Quanta Services (50);	12	24
10.	Turkey. Enka (39)	1	2
11.	Finland. China Energy Engineering (14); Eiffage (18)	1	2
12.	France. China State Construction Engineering (3); Bouygues (11)	3	6
13.	Sweden. Skanska (17)	1	2
14.	Japan. Daiwa House Industry (7); Sekisui House (12); Obayashi (19); Taisei (20); Shimizu (21); Daito Trust Construction (22); Kajima (23); Sekisui Chemical (33); Aecom Technology (34); Haseko (48)	9	18
15.	Total	-	100

The visual representation of table 2.1 is shown in fig. 2.1 - 2.2.

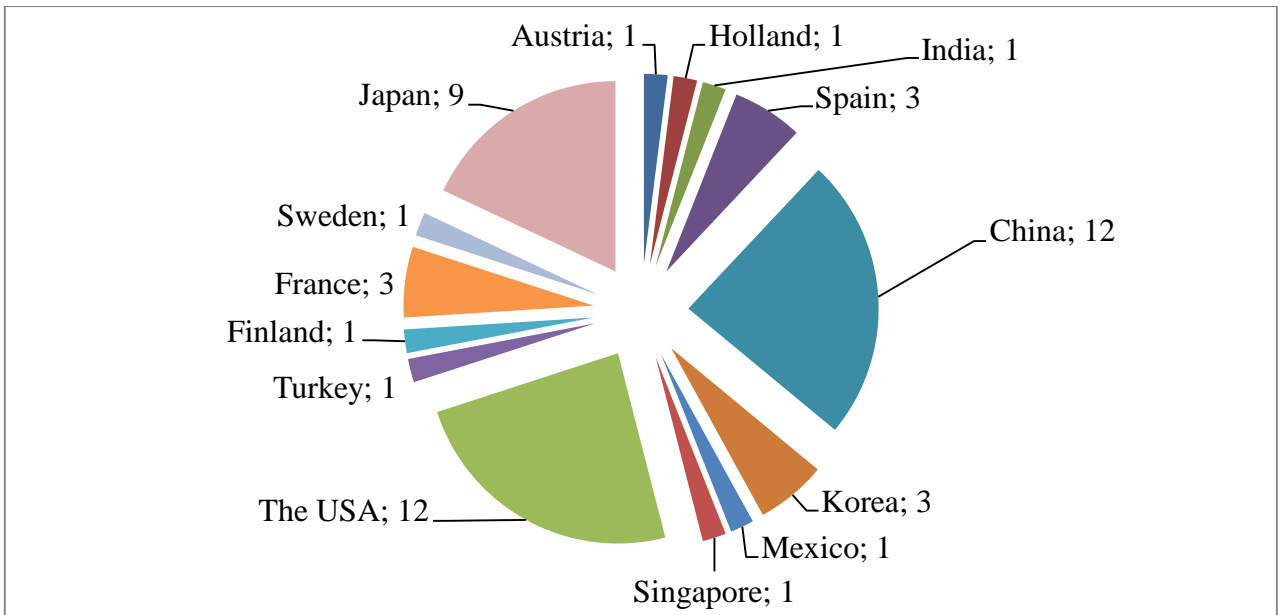


Figure 2.1 – The number of building companies in the world

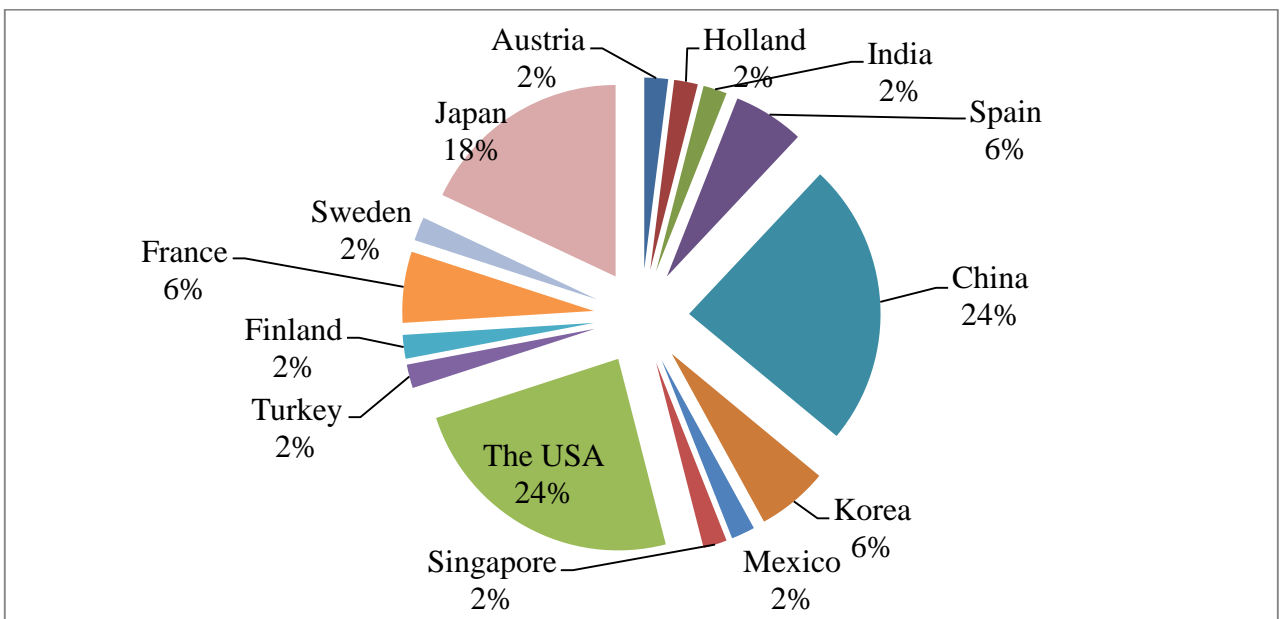


Figure 2.2 – Number of building companies in the world, including% on the world market

Building Information Modeling (BIM) is an integrated approach to the construction, equipment, maintenance and repair of a building, which provides for the collection and complex processing in the design process of all architectural and design, technological, financial and other information about the building with all its relationships and dependencies. In information modeling, a building and everything

related to it is considered as a single object. Each elementary module, building object is a spatial information model that is associated with a knowledge base, and in which each element can be assigned additional attributes. Such signs and advantages organically follow from the global differences between knowledge and information, their compositiveness, hierarchy and descriptiveness. Since then, a construction object has been actually designed as a whole and a change in any of its parameters entails an automatic change in other parameters and objects associated with it, changes in drawings, visualizations, specifications, construction schedules, etc. at all stages of the life cycle.

Table 2.2 shows the list of countries that include the largest technology companies in the world, as of 2019. The ranking in the list was carried out according to the total indicators of technological patents.

Table 2.2 – List of countries which include the top 50 technology companies in the world

№	Country	Number of company	Including% on the world market
1	2	3	4
1.	England. BT Group (47)	1	2
2.	India. Tata Motors (26)	1	2
3.	Ireland. Medtronic (42)	1	2
4.	Germany. BMW (7); Daimler A (10); Bayer (11); Allianz (25); BASF (29); Siemens (30); Volkswagen (37)	7	14
5.	China. Tencent (12); Huawei (45); Lenovo (50)	3	6
6.	Korea. Samsung (5)	1	2
7.	The USA. Apple (1); Google (2); Tesla Motors (3); Microsoft (4); Gilead Sciences, Inc. (8); Amazon (9); IBM (13); Yahoo!(16); Biogen (17); The Walt Disney Company (18); Marriott International (19); Johnson & Johnson (20); Netflix (21); Hewlett-Packard (23); Amgen (24); General Electric (27); Facebook (28); Cisco (31); Dow Chemical Company (32); Fidelity Investments (34); VISA (36); DuPont (37); 3M (40); JPMorgan Chase (43); Pfizer (44); Nike (46); Mastercard (48); Salesforce (49)	28	56
8.	France. AXA (22); Renault (33)	2	4
9.	Switzerland. Roche (39)	1	2
10.	Japan. Toyota (6); Softbank (14); Fast retailing (15); Hitachi (38); NEC (41)	5	10
26	Total		100

The data for analysis (see table 2.2) showed that in the world technology market, the United States has almost become a monopolist, having - 56% of the market for technological patents. Germany, occupies the second position of the rating - 14%; third place - Japan - 10% of the total.

The construction region is represented by 14 countries (see table 2.1): Austria; Holland; India; Spain; China; Korea; Mexico; Singapore; USA; Turkey; Finland; France; Sweden; Japan. The technology region in table 2.2 is represented by 10 countries: England; India; Ireland; China; Germany; Korea; USA; France; Switzerland Japan; Interestingly, one of the leaders in the construction region of the world - China, is almost not represented on the technological market of the world. Germany has high rates in the technological world market, but in the construction industry it is not represented at all. The United States shares the primacy with China in the construction space and occupies a monopoly in the technological area.

Table 2.3 shows a list of cities that include the largest construction companies in Ukraine, as of 2019. The ranking in the list was carried out according to the total indicators of assets and used IMB technologies.

Table 2.3 – List of cities which include the top 10 construction companies in Ukraine

№	City	Number of company	Including% on the world market
1	2	3	4
1.	Kyiv. Kyivmiskbud (1); Ukrbud Corporation (2); UDP (3); KAN Development (4); Zhitloinvestbud-UKB (5); DBK-Zhitlobud (6); Intergal-Bud (7); Fundament (8); Stolitsa Group (9); NOVBUD (10)	10	45
2.	Odessa. Kyivmiskbud (1); Ukrbud Corporation (2)	2	9
3.	Lviv. Ukrbud Corporation (2); Intergal-Bud (2)	2	9
4.	Zhytomyr. Kyivmiskbud (1); Intergal-Bud (2)	2	9
5.	Dnipro. Ukrbud Corporation (2)	1	5
6.	Zaporizhzhia. Kiev miskbud (1)	1	5
7.	Sumy. Intergal-Bud (2)	1	5
8.	Ternopil. Intergal-Bud (2)	1	5
9.	Rivne. Intergal-Bud (7)	1	5
10.	Mariupol. PE Console (11)	1	5
11.	Total		100

Fig. 2.3 show the List of cities that include the top 10 building companies in Ukraine. In fig. 2.4 presented cities of building companies in the Ukraine, including % on the Ukrainian market.

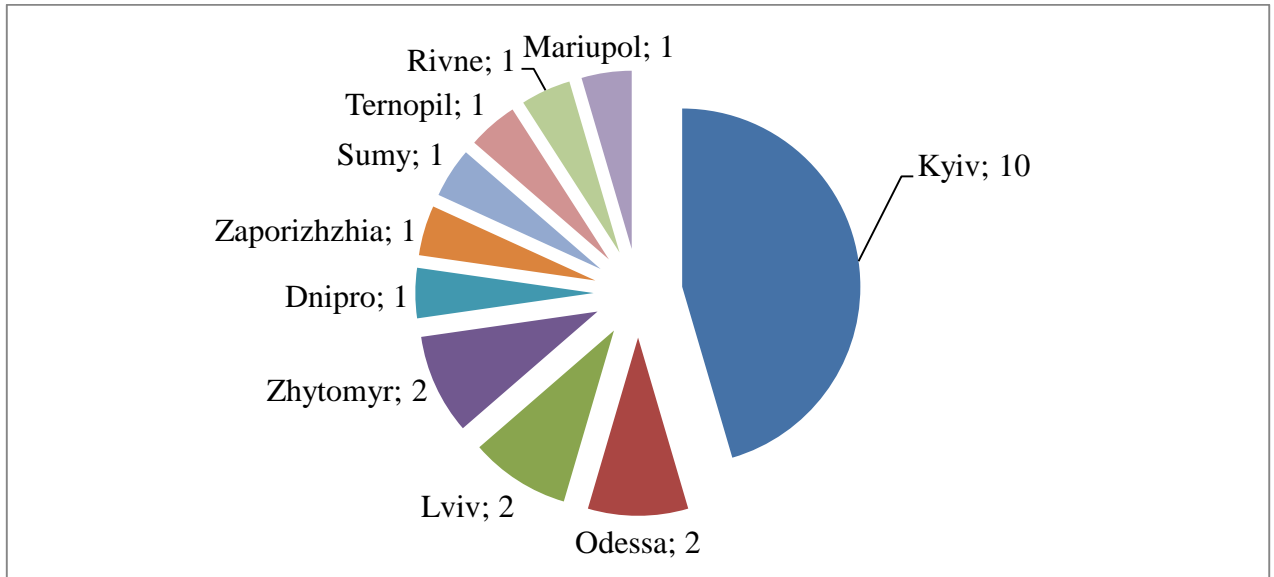


Figure 2.3 – List of cities that include the top 10 building companies in Ukraine

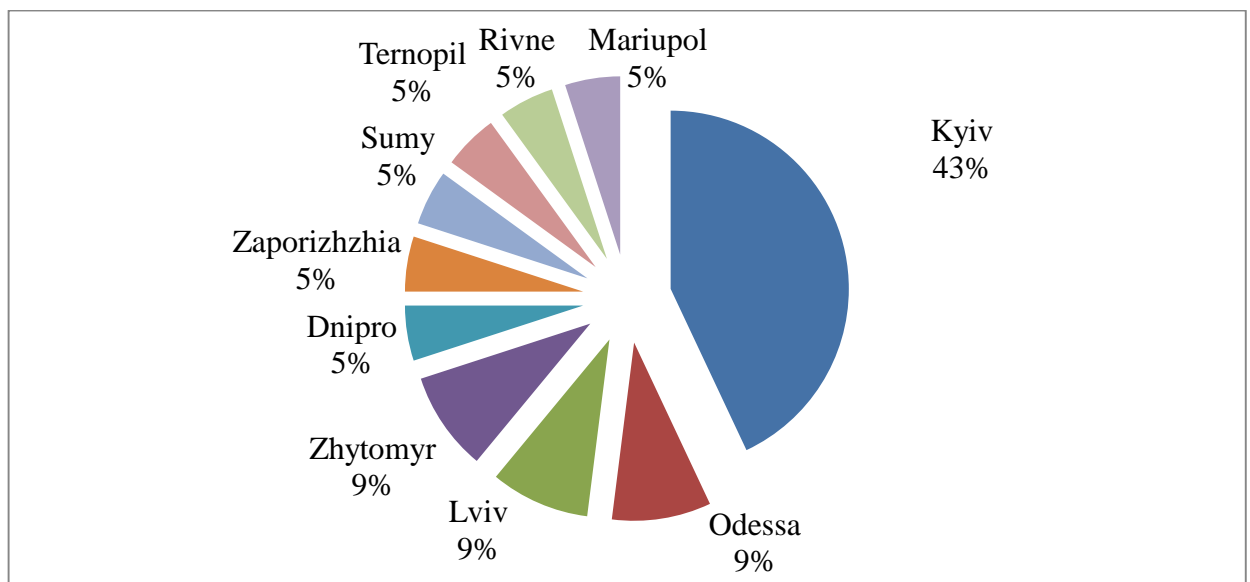


Figure 2.4 – List of cities of building companies in the Ukraine, including % on the Ukrainian market

The large construction business is more active in the field of capital construction, that is, it is building:

- shopping centers;
- microdistricts with all infrastructure;
- factory buildings;
- departmental buildings of various institutions.

Small business mainly builds:

- holiday villages;
- cottages.

The construction complex is closely connected with all sectors of the economy. With his participation, most of the basic production and non-production assets are created. At the same time, the complex is a consumer of products of many industries. In construction, 10% of engineering products, 20% of rolled ferrous metals, 40% of timber are used. It consumes products of the chemical industry (varnishes, paints, plastics). The production of building materials requires a large amount of fuel and water. Building materials, constructions are an important component of freight traffic. Transportation costs in the cost of construction are about 25%. The share of the construction complex in the economy is very significant. In Ukraine, the gross domestic product of construction alone is 8%. The complex covers almost 10% of all employed in the economy, of which 6% - in construction.

2.2 Main characteristic of private company “Console”

PE “Console” has been successfully operating in the construction market of Ukraine for more than ten years. During this period, extensive experience has been gained in the construction of facilities of varying complexity.

Type of activity: 41.20 Construction of residential and non-residential buildings.

The company is located and registered in city Mariupol.

The company provides a full range of services, which include design with an individual approach that takes into account any wishes of the customer for planning,

appearance, interior design, redevelopment and decoration of apartments, construction of houses, cottages of varying complexity, warehouses and other building structures.

The purpose of the company is to profit by carrying out various types of economic activity, based on the principles of the current legislation of Ukraine.

According to its purpose, the company has the right to:

- set prices for products;
- independently determine the amount and conditions of remuneration, internal regulations, mode of work and rest, taking into account the requirements of labor legislation.

The main activities of PE “Console” are:

- construction of production facilities and social sphere;
- implementation of various types of construction and installation, commissioning works;
- provision of transport services;
- trucking of various cargoes both for production and consumer goods;
- introduction of modern technologies for the production of products and services related to the purpose of the enterprise.

The subject of the company is:

- construction of buildings;
- construction of residential and non-residential buildings;
- construction of bridges and tunnels;
- construction of communications;
- construction of power supply and telecommunications facilities;

The main advantages of the company are:

1. SSL certificate. A document that ensures that the information transmitted from your browser to the server remains private and is protected from hackers or anyone who wants to steal the information;

2. Reputation. 10 years of impeccable experience in the construction market has led to recognition and high trust.

3. Environmental friendliness. Maximum preservation of the existing landscape during the works, use of environmentally friendly building materials.

4. Professionalism. The team consists of highly qualified specialists with many years of experience.

5. Utilitarianism. Planning the interior of apartments and adjacent areas is carried out with the maximum benefit for residents.

6. Manufacturability. Modern architectural solutions, the latest technologies and advanced construction equipment are used in construction.

7. Activity. The company is actively involved in supporting various charitable and social projects, arts and sports events.

8. Price. Flexible pricing policy and a wide range of offers allow us to meet the most diverse needs of customers.

9. Infrastructure. All new buildings are located in places with developed transport, trade and social infrastructure.

10. Quality. High-quality building materials and strict adherence to construction technologies ensure guaranteed quality of housing.

The fixed assets of PE “Console” include:

- workshops;
- administrative building;
- household building;
- garage for cars;
- warehouses of materials.

The company, striving for the highest productivity and enterprise development, is interested in a stable team and takes measures for economic reasons to limit the number of unwanted layoffs, one of the most important characteristics of management is the staff of the company - a set of employees. The staff is shown in table 2.3.

Table 2.3 – Categories of Staff of the enterprise “Console” for the period from 2017-01.01.2020

№	Categories of staff	2017	2018	2019	01.01.2020
1	2	3	4	5	6
1	Administrative and managerial staff	17	15	10	10
2	Specialists	83	72	67	63
3	Workfolk	40	30	26	28
4	Total	140	117	103	101

After analyzing the data in the table, we can conclude that the company is mainly dominated by specialists in the personnel structure: managers, engineers, design engineers (fig. 2.5). If we consider the structure of personnel by gender, the proportion of males prevails - 76.2% of the total number of employees in the enterprise. This trend is explained by the industry and the specifics of the enterprise.

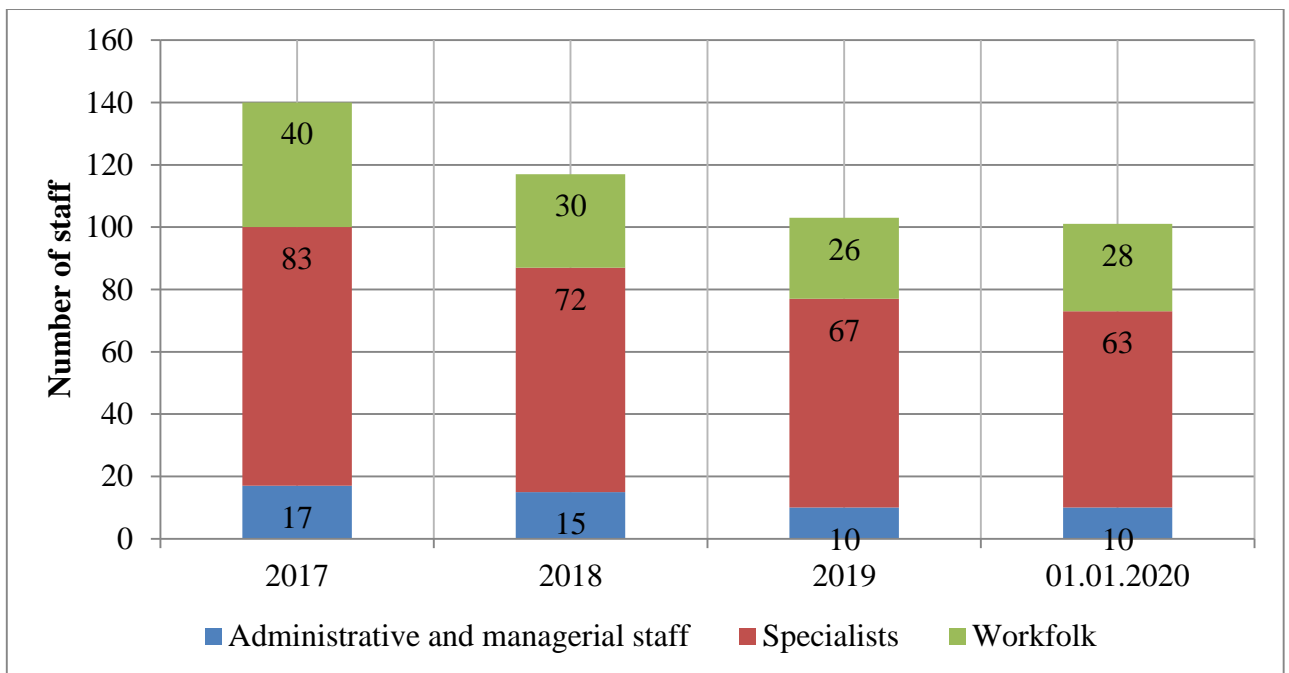


Fig. 2.5 – Categories of Staff of the enterprise “Console”

In order to optimize the internal relationship between employees and improve the flow of information flows between functional units over the past 4 years, there has been a process of reducing the number of administrative staff by 41%,

professionals by 24% and workers by 30%. This solution is appropriate in this case, so that staff tasks are simplified by automating processes.

The company "Console" has a problem of rather slow career advancement due to the organizational structure (fig. 2.5) and the Japanese management model, which is more typical for this enterprise. Based on the image of the organogram, we can note that the promotion can mainly be horizontal, namely between departments of the company.

A prerequisite for the effective functioning of the industrial complex of Ukraine is the restructuring of enterprise management. In accordance with the new conditions, and first of all, the restructuring of economic management, which in Ukraine is called the planned economic work. As a leading element of the enterprise information system, it includes analysis and forecast of the external environment, planning and analysis of the enterprise and its units, the organization of material incentives for employees.

Management of construction costs at PE "Console" is carried out by the finance department. Accounting is responsible for keeping the company's accounts and preparing its open financial statements in accordance with the established requirements and regulations.

The analytical department is obliged to analyze and evaluate the financial condition of the enterprise, the implementation of planned tasks for profit, production and sales, to maintain liquidity and profitability of the enterprise.

The financial planning department develops plans and budgets of the enterprise (balance of revenues and expenditures, cash flow budget, balance of assets and liabilities, etc.).

The operational department collects invoices, bills, tracks their payment, provides effective relationships with banks for non-cash payments and cash withdrawals, counterparties for payment of goods, services, dispute resolution with the state regarding the payment of taxes, mandatory payments, fines and other measures of economic influence on the enterprise.

The cost of construction and installation work characterizes the activities of construction organizations and is taken into account only by them. It includes all types of resources in value terms, which are grouped by elements and cost items also for PE “Console”:

- building materials, structures and details;
- wages of workers;
- operating costs of construction machinery and equipment;
- transportation costs;
- other direct costs;
- overhead costs.

The results of the performed contracts (projects) in terms for 2015-2019 are presented in table 2.4 and in fig. 2.6.

Table 2.4 – Volume of performed contracts in ths. Uah for 2015-2019

№	Years	The volume of performed services, thousand UAH	Number of contracts
1	2	3	4
1	2015	2545,3	168
2	2016	2956,4	154
3	2017	3227,2	125
4	2018	4926,1	123
5	2019	7856,6	138

According to the data obtained, it can be concluded that the number of contracts concluded and the money received from it are not always equivalent. There is also a positive dynamic in the development of services and completed projects for the construction of various structures. Unfortunately, 2020 brought a negative trend for the entire business and in particular for the “Console” company, which is associated with the emergence of the global coronavirus pandemic. So, in 2020, a total of 28 contracts were concluded, which have not yet been completed due to the quarantine regime in Ukrainian cities.

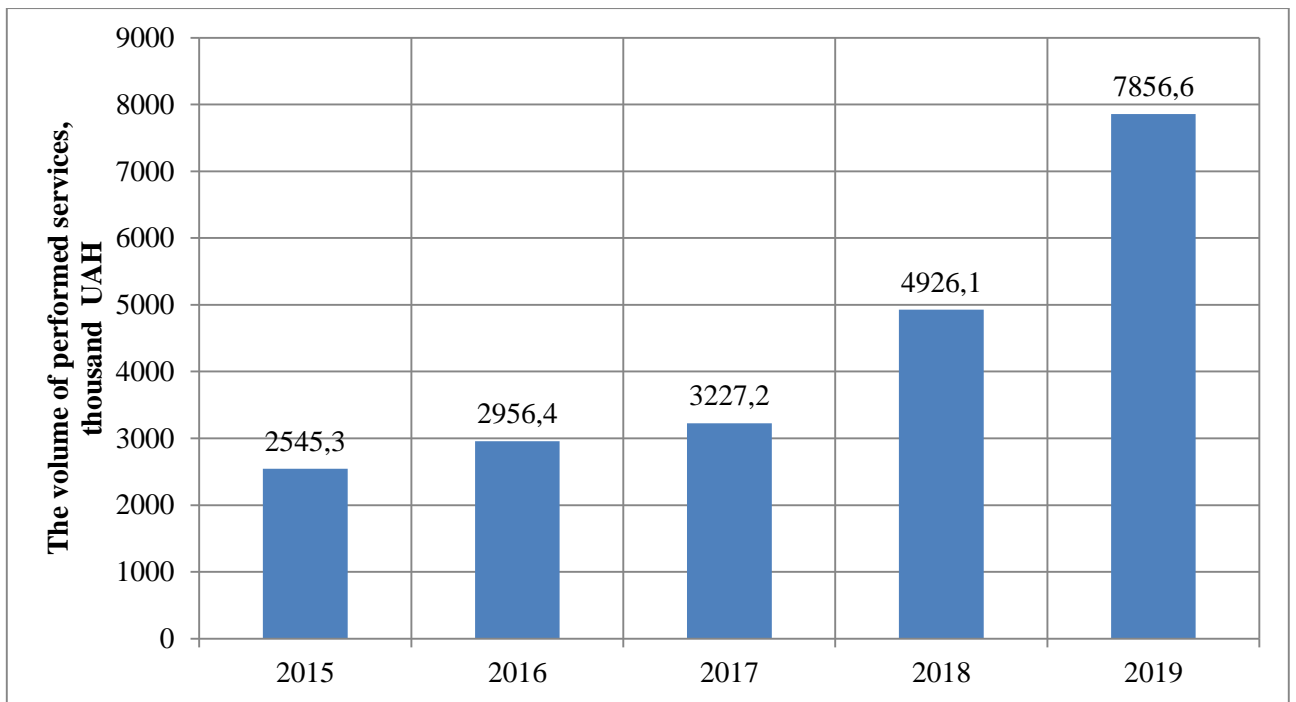


Figure 2.6 – The volume of performed services of PE “Console” during 2015 – 2019 years, thousand UAH

Next, we analyze the performance of the use of special equipment of the “Console” company. The data is presented in table 2.5.

In table 2.5 for calculating Growth rate (Gr) and Rate of increase (Rinc) we use following formulas:

$$Gr = (N_i/N_{i-1}) * 100\%, \quad (2.1)$$

where Gr - Growth rate, %;

N_i – the value of the indicator for period i (2019);

N_{i-1} – value of the indicator for the previous period i-1 (2018).

$$Rinc = (N_i/N_{i-1}) * 100\% - 100\%; \quad (2.2)$$

where Rinc – Rate of increase, %

Table 2.5 – Indicators of the use of special equipment of the “Console” company during 2018 – 2019 years

№	Indicators	2018 year	2019 year	Growth rate (Gr)	Rate of increase (Rinc)
1	2	3	4	5	6
1	It worked out during the year for each type of machine, (shifts):				
	bulldozers	370	462,5	125	25
	excavators	735	918,8	125	25
	tower cranes	665	831,3	125	25
	truck cranes	560	700	125	25
	dump trucks	285	356,3	125	25
	lifts	200	250	125	25
2	Calendar time, shifts	365	365	100	0
3	Mode time, shifts	251	252	100,4	0,4
4	The utilization factor of the regime of time (hours):				
	bulldozers	147,4	183,5	124,5	24,5
	excavators	292,8	364,6	118,4	18,4
	tower cranes	264,9	329,9	124,5	24,5
	truck cranes	223,1	277,8	124,5	24,5
	dump trucks	113,5	141,4	124,6	24,6
	lifts	79,7	99,2	124,5	24,5
5	Calendar Time Utilization (dsys):				
	bulldozers	101,4	126,7	124,95	24,95
	excavators	201,4	251,7	124,98	24,98
	tower cranes	182,2	227,8	125	25
	truck cranes	153,4	191,8	125	25
	dump trucks	78	97,6	125,1	25,1
	lifts	54,8	68,5	125	25

For 2019, there is an increase in the number of worked shifts of all types of machines by 25%. With the same number of calendar time shifts, the regime time in 2018 is less by 1 shift than in 2019. Due to the increase in the number of worked shifts in 2019 and the increase in operating time, the usage coefficient of operating time increased for all types of machines.

Various factors influence the execution of the volume of construction and installation works: positive, contributing to the implementation of the construction and installation plan and putting the objects into operation, and negative, which impede the progress of the production program. They act not in isolation from each

other, but in a certain relationship. These factors can be quantitative and qualitative. Such a division of factors is of fundamental importance, since it allows:

- to give an objective assessment of the work of the construction organization, to develop specific and most effective measures for the use of internal reserves;
- to influence the shortcomings that arise for reasons beyond the control of the construction organization, or to neutralize their impact.

2.3 Analysis of the financial indicators of the construction company

Analysis of the financial performance of the “Console” company will be carried out for 2017 - 2019, which we present in the table 2.6. From the presented data, you can see that the company's revenue from the sale of services in 2019 increased by 2930,5 thousand Uah, compared with 2018; and at 1698,9 thousand in 2018 compared to 2017.

Table 2.6 – Analysis of the financial performance of the “Console” company

№	Indicator	Year			Deviation 2018-2017	Deviation 2019-2018
		2017	2018	2019		
1	2	3	4	5	6	7
1	Income (revenue) from the sale of services, ths. Uah	3227,2	4926,1	7856,6	1698,9	2930,5
2	Value added tax, ths. UAH.	523	821	1244	298	423
3	Net income (revenue) from the sale of works and services; ths Uah	2704,2	4105,1	6611,8	1400,9	2506,7
4	Cost of goods sold (goods, works, services), ths. Uah	2145,3	3372,1	5118,2	1226,8	1746,1
5	Gross profit, ths Uah.	521	733	1493,6	212	760,6
6	Other operating income, ths Uah.	52,3	83,2	182,4	30,9	94,8
7	Administrative costs, ths Uah.	689,3	885,9	1107,9	196,6	222

1	2	3	4	5	6	7
8	Other operating costs, ths Uah	66,8	87,6	206,3	20,8	118,7
9	Profit from operating activities, ths Uah.	66	180	340,2	114	160,2
10	Other income, ths Uah	2,5	8,5	6,7	6,1	3,6
11	Profit from financial activities, ths. Uah	98,3	173,6	205,2	75,3	31,6
12	Other costs, ths Uah	6,5	8,9	10,9	2,4	2
13	Profit from ordinary activities before tax, ths Uah.	187,6	223,63	336	36,03	112,37
14	Net profit, ths. Uah	86,2	123,3	205,2	37,1	81,9

Income from the sale of services, work performed is determined upon conclusion of a contract for construction or construction work. Revenue from the provision of services is recorded when the services are provided. Recognized income from the sale of works and services for 2019 in the amount of 7856,6 thousand Uah which are classified in accounting as the income from the sale. In fig. 2.7 we present key financial indicators of the “Console” company. The data show that the income from the sale of works and services during the reporting period increased by UAH 2930,5 thousand Uah compared with the previous reporting period.

The cost of services consists of the production cost of products that were sold during the reporting period and unallocated fixed overhead costs. In 2019, the cost of goods sold amounted to 5118,2 thousand Uah. The cost of services sold, work, compared with the previous period increased, while increasing revenue received. Other operating incomes in the reporting period were estimated at 182,4 thousand Uah. Namely: - income from operating lease of assets – 16,0 thousand Uah; other operating income – 166,4 thousand Uah.

Administrative costs are formed from the costs associated with the maintenance and management of the “Console” company – 1107,9 thousand Uah. In relation to the previous reporting period, increased by 222,0 thousand Uah. Other operating expenses for the reporting period were formed in the amount of 206,3 thousand and are classified by economic content into: recognized fines, penalties – 10,9 thousand

Uah; other expenses related to the company's operating activities – 195,4 thousand Uah. Other financial income – 0,8 thousand Uah - percent of the bank.

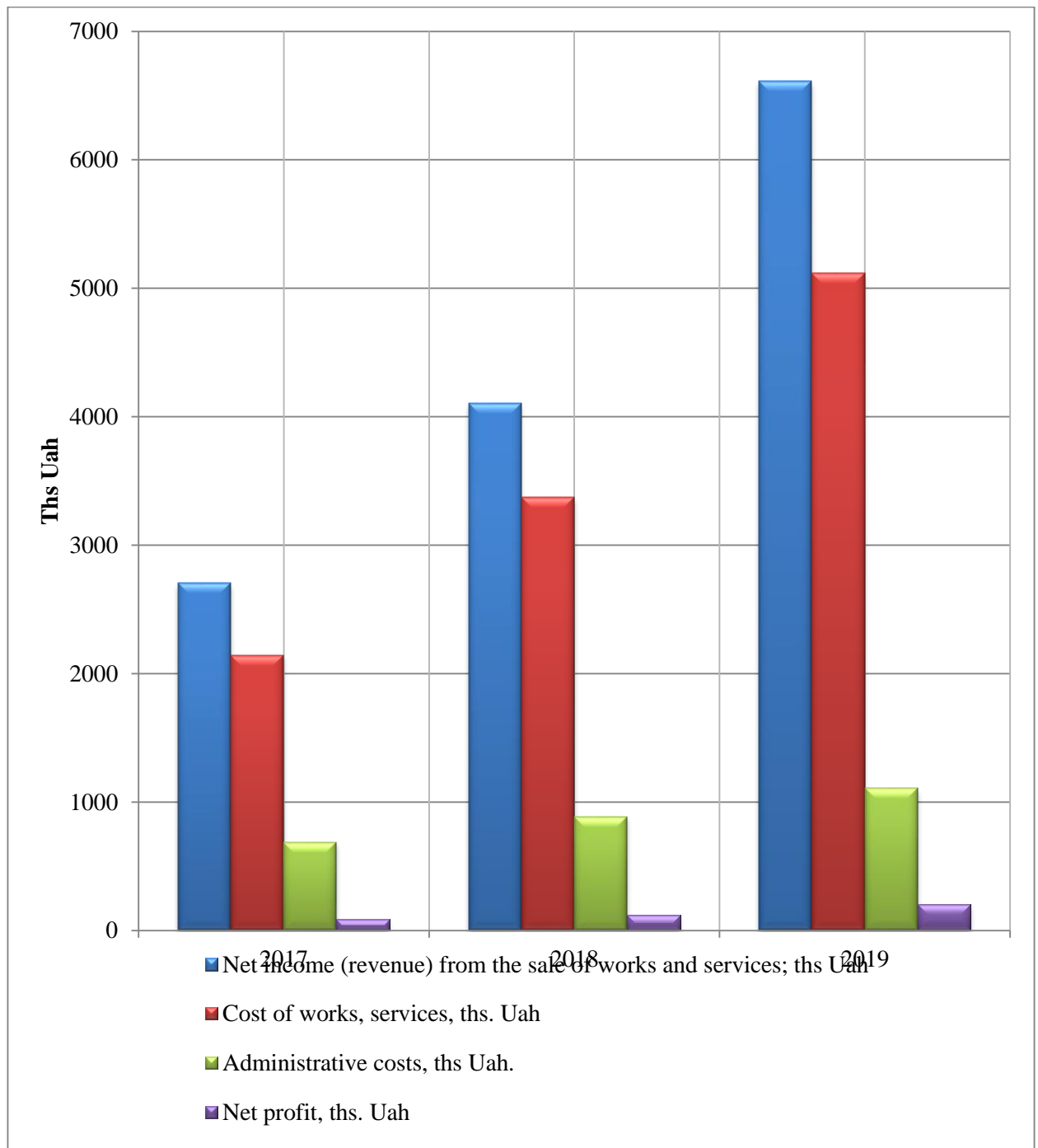


Figure 2.7 – The main financial indicators of the building company “Console” during 2017 – 2019 years

“Other incomes” is shown: - other incomes from ordinary activities not related to operating income – 5,9 thousand Uah. There are no financial expenses. Other

expenses: for the reporting period, other expenses were formed in the amount of 10,9 thousand Uah, of which: write-off of non-current assets – 10,9 thousand Uah.

In the reporting period, in general, the “Console” company had a profit tax in the amount of 130,8 thousand Uah. In 2019, profit was received before tax in the amount of 336,0 thousand Uah.

Note that the income (revenue) from the implementation of the work performed, services is the amount of funds received by the company for the realized service. The amount is the main source of cash income and financial resources of the company. Proceeds from the implementation of the work performed, services are a financial category, expresses the monetary relations between suppliers and consumers of services.

Value Added Tax (VAT) - an indirect tax that is set as a premium to the price of services. It is paid by the company from the amount of the increase in value at this enterprise, calculated as the difference between the revenue from services and the amount of expenses for raw materials, materials received from other manufacturers. At the same time, a number of goods, services, works, types of activities are partially or fully exempted from paying this tax.

Net income (revenue) from the sale of works and services is determined by deducting from the income (revenue) from the sale of works and services the corresponding taxes, fees, charges, discounts (VAT, excise duty, other deductions from income).

The cost of services - the amount of the company's cash costs for the services and marketing.

All costs are divided into production and non-production. To the production include the costs of raw materials, materials, energy resources, depreciation, wages, social security contributions, taxes, interest on the loan.

Non-production costs include costs related to the implementation of works and services, payment for marketing services, contributions to budget funds, for the training and professional development of personnel, and the social development of “Console”.

Company's revenues are presented in table 2.7. Note that they indicate a gradual increase in their share every year.

Table 2.7 - Analysis of the company's revenue structure of “Console”

№	Indicator	Year					
		2017		2018		2019	
		Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %
1	Net income (revenue) from sales of (goods, works, services)	2704,2	98,01	4105,1	97,81	6611,8	28,24
2	Other operating income	52,3	1,90	83,2	1,98	1493,6	39,91
3	Other financial income	1,2	0,04	6,3	0,15	0,8	23,85
4	Other income	1,3	0,05	2,3	0,05	5,9	8
5	Total	2759	100	4196,9	100	8112,1	100

The cost structure of the company “Console” indicates its growth (in table 2.8). So the total amount of expenses in 2018 increased by 1783,23 thousand Uah, and in 2019 by 2606.07 thousand Uah. This can be explained by an increase in administrative costs, incurred freight forwarding costs, as well as a significant increase in other operating expenses and other expenses of the company.

Next, we analyze the structure of the company's revenues (table 2.9). The analysis of the economic results of the company showed that the company's revenue from the sale of services in 2018 increased by 1698,9 thousand Uah and in 2019 it amounted to 2930,5 thousand Uah compared to 2018. As can be seen from the table 2.8 net profit is growing rapidly. The analysis of the structure of the financial results of the “Console” company is positive. The total income in 2018 increased by 437,33 thousand Uah., in 2019 by 1064,77 thousand Uah. The increase in total profit is due to the increase in profits from ordinary activities and financial activities of the company.

Table 2.8 – Analysis of the cost structure of the building company “Console”

№	Indicator	Year					
		2017		2018		2019	
		Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %
1	Value added tax	523	14,40	821	15,16	1244	15,51
2	Excise duty	2145,3	59,07	3372,1	62,27	5118,2	63,81
3	Cost of sold products	689,3	18,98	885,9	16,36	1107,9	13,81
4	Administrative costs	13,2	0,36	15,8	0,29	21,6	0,27
5	Selling costs	66,8	1,84	87,6	1,62	182,4	2,27
6	Other operating costs.	0	0,00	0	0,00	0	0,00
7	Financial costs	6,5	0,18	8,9	0,16	10,9	0,14
8	Other costs	187,6	5,17	223,63	4,13	336	4,19
9	Tax on profit from ordinary activities	3631,7	100,00	5414,93	100,00	8021	100,00
10	Total	523	14,40	821	15,16	1244	15,51

Table 2.9 – Analysis of the profits structure of the building company “Console”

№	Indicator	Year					
		2017		2018		2019	
		Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %	Amount, ths Uah	Relative share, %
1	Profit from ordinary activities, including:	187,6	21,49	223,63	17,07	336	14,15
2	Operating profit including:	66	7,56	180	13,74	340,2	14,32
3	Gross profit	521	59,69	733	55,94	1493,6	62,89
4	Profit from financial activities	98,3	11,26	173,6	13,25	205,2	8,64
5	Total profit	872,9	100	1310,23	100	2375	100

As a result, we will determine that the activities of the building company “Console” can be considered profitable; however, the company should increase the volume of sold services and work, and reduce costs.

2.4 Chapter 2 summary

In the second chapter of bachelor thesis was analyzed building and technological regions of the world and Ukraine. The analysis shows that Germany has high rates in the technological world market, and in the construction industry it is not represented at all. The United States, shares primacy with China in the construction space and occupies a monopoly in technology. Conducting an analysis of countries to which the largest construction companies in the world are involved, it can be noted that the first part of the list is confidently occupied by China with 12 companies; Japan is in second place with 9 companies; the third place is taken by the USA with 12 companies. Having a numerical advantage over the number of companies over Japan, the United States is inferior to the lowest places in the ranking with lower total assets and technologies used by BIM (Building Information Modeling).

Analysis of the construction business in Ukraine revealed the main construction companies, which are Kyivmiskbud; Corporation Ukrbud, Interagal-Bud etc.

The object of study was the building company "Console". This company was founded in 2010. The main activities of PE "Console" are:

- construction of production facilities and social sphere;
- implementation of various types of construction and installation, commissioning works;
- provision of transport services;
- trucking of various cargoes both for production and consumer goods;
- introduction of modern technologies for the production of products and services related to the purpose of the enterprise.

In the research the main indicators of the company's personnel, the dynamics of the services performed and the signed agreement, as well as various financial indicators were analyzed. The data obtained allows us to conclude that the company conducts its business effectively and makes profit from completed projects.

CHAPTER 3
**DEVELOPMENT OF PROPOSALS TO ORGANIZE A SPECIAL
EQUIPMENT LEASE FOR CONSTRUCTION COMPANY “CONSOLE”**

3.1 Logistic approach to improve the management of the materiel and technical support of building company “Console”

In modern conditions of economic development, in the fierce competition in which Russia is today, the issue of saving and rational use of material resources has become quite relevant.

Logistics is a form of distribution of means of production on the basis of organizational ties and agreements between suppliers and consumers directly or through an intermediary. It largely determines the effectiveness of construction production, having a direct impact on the use of production assets, the rhythm of production of construction and material resources, cost, labor productivity, construction duration and other indicators.

Construction in its organizational, technical and economic characteristics objectively differs from other industries. The specifics of the industry are:

- in the absence of mass production of the same type of products (in contrast to industry), as well as in the construction of various types of buildings and structures on the same site, which determines the composition of the material resources necessary for construction and installation work, depending on the purpose of the facilities being constructed;

- in changing the quantity and assortment of required materials, structures, products for certain periods in relation to the corresponding stage of construction of the facility;

- the uneven volume of construction work performed by the periods of the year under the influence of climatic conditions, as a result of which there are significant differences in the consumption of materials and products during the year;

- in the dispersal of construction projects over long distances from the control center, which determines the difficulties in organizing construction support;

- in changing the location of construction organizations in connection with the transition of builders from one site to another, which necessitates the creation of temporary storage facilities and changes in transportation schemes of material resources

Construction as a system is perceived primarily through the logistics of construction.

In order to build any buildings and structures, building materials, structures and products, raw materials and technological equipment, etc., which are provided for by the project for construction and installation works, are needed in the right amount. The process of organizing construction production provides for a clear supply of these resources in a given volume, specified terms and of appropriate quality.

Material and technical support of construction includes a system of services that ensures the normal operation of construction and installation organizations by using the capabilities of the industrial, production and infrastructure links of the existing material and technical base.

The material and technical base of construction is understood as a system of enterprises and farms, including both the construction organizations themselves and the enterprises serving them.

Usually, three links are distinguished in such a system:

- Construction and installation link includes construction and installation organizations directly involved in construction.

- The industrial-production link (the base of the construction industry) provides the construction and installation link with “raw materials”, i.e. building materials products and structures. These are manufacturers of products consumed by the construction site: quarries for the extraction of sand, crushed stone, factories for the

production of precast concrete products, bricks, washing and sorting plants, mortar-concrete and asphalt-concrete units, enterprises (workshops) for the manufacture of reinforcement, formwork, carpentry products, plumbing products, etc.

- Infrastructure link (auxiliary base) ensures the interaction and normal operation of the construction and industrial and production links. It mainly includes enterprises that do not produce products, but perform certain technical services. These are enterprises for maintenance and repair of construction machines, warehouses, transport enterprises, organizations providing production and technological equipment for materials and structures, intermediaries in the purchase of materials, workers' settlements for builders and organizations providing normal social conditions, engineering communications, to the infrastructure link often include organizations providing vocational training and retraining.

In general, the material and technical support of construction includes the following areas of activity:

- Supply system for construction materials, structures, products;
- Production and technological equipment, i.e. the choice of the sequence of deliveries, their distribution by objects, coordination with the adopted SMR technology;
- Warehousing and storage of materials and products;
- Tool management and tooling service;
- Mechanical repair services;
- Transport facilities.

The main functions of the material and technical support of construction production are:

- Providing construction flows with the necessary raw materials, semi-finished products and parts;
- Storage, processing and supply of raw materials at the request of consumers - construction and installation organizations;

- Provision with tools, fixtures and repair of technological, energy, transport and other equipment, care and supervision of them, constant maintenance of equipment in working condition;

- Providing the enterprise with electric and thermal energy, compressed air and water; movement of goods inside and outside the site; all loading and unloading operations.

The material and technical support system includes the supply of material resources for state needs, wholesale of technological equipment, building materials, structures and parts, trade in building materials, structures and parts through a system of building exchanges, trading houses and intermediary enterprises

In modern conditions, the logistics of construction organizations is aimed at on the implementation of the following points (see fig. 3.1)

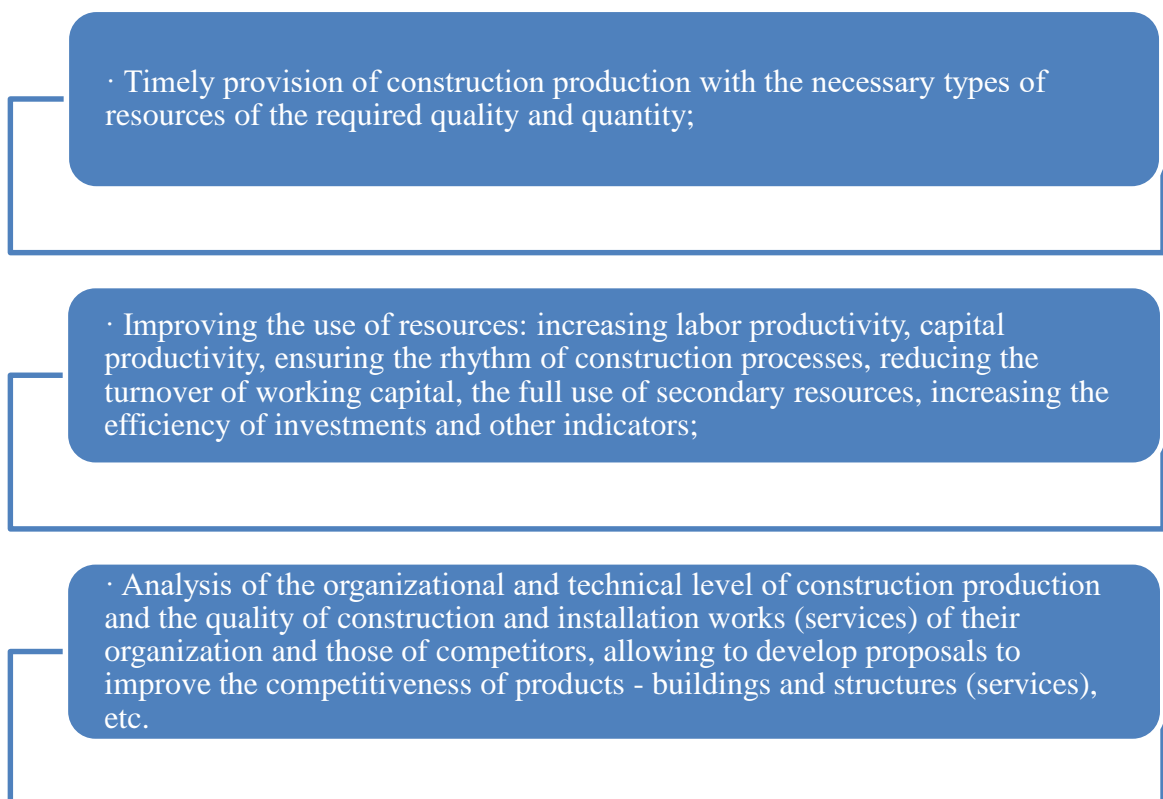


Figure 3.1 – Implementation of the main points of material and technical support of construction enterprises

To do this, the construction company must constantly perform the following work:

- Conducting market research of suppliers of building materials, structures, products, semi-finished products and other services). The choice of suppliers is recommended on the basis of the following requirements: suppliers have a license and sufficient experience in this field, a high organizational and technical level of production, reliability and profitability of work, ensuring the competitiveness of building materials, etc., reasonable price, simplicity of the scheme and stability their supplies;

- Rationing the need for specific material and technical resources;

- Development of organizational and technical measures to reduce the norms and standards for the consumption of material and technical resources.

Consideration of the construction complex as a whole and its components allows us to conclude that construction can be attributed to a system that includes a set of interconnected and interdependent flows. The main ones are: flows of information, material, technical and financial resources. To achieve the necessary results to reduce the construction time of buildings and structures, improve their quality with reasonable costs, first of all, optimization and rationalization of these and other economic flows are required. In construction organizations and enterprises of the construction industry, economic flows can be considered interrelated and interdependent processes of movement of own and attracted resources to achieve their goals.

The development of the material and technical support system for construction provides for the creation of such an organizational structure and economic mechanism for managing resource support that would meet the requirements of intensifying production, expanding the scale of construction and increasing the efficiency of the investment process, reducing its duration, reducing cost, material consumption and laboriousness of construction.

The restructuring of the logistics system is currently ongoing simultaneously in three main directions:

- Accelerated and large-scale transfer of construction organizations to the supply of materials through wholesale trade.

- Increasing the efficiency and widespread introduction of a progressive industrial system of industrial and technical equipment for construction sites with industrial structures, parts and products with high technological readiness.

- Reconstructed enterprises and non-production facilities, the first transition to new effective forms and methods of acquiring technological, engineering and other types of equipment under construction and the turn of objects constructed on a turnkey basis.

Given the new requirements for material and technical supply, it is planned to rebuild the warehouse supply system, to turn the base of territorial bodies from simple product storages into powerful production complexes, which, according to customer orders, must carry out a wide variety of operations to increase the production readiness of materials.

This is beneficial both to consumers and to manufacturers of products, since the supply authorities remove from them some of the worries and significant production costs for the supply of material resources, cutting and packaging, corresponding to the needs of each consumer.

The construction complex (the largest subject of final consumption of material resources) in the most acute form is faced with the task of choosing effective forms of their acquisition and rational use. For machines and equipment in solving these problems, a large role belongs to the development of leasing, for materials and building structures - the effective organization of material flows, which is associated with the application of logistics methods in material support.

For materials, building structures and parts, the rationalization of material flows is of the utmost importance in order to minimize the costs associated with them, which determines the feasibility and necessity of using logistics methods in providing construction materials as an effective scientific toolkit for controlling the formation and movement of material flows.

Therefore, in modern conditions, the logistic approach to logistics is becoming particularly relevant, which is aimed at optimizing all stream processes and improving the efficiency of the organization of the entire logistics system.

Logistics covers both the sphere of production and the sphere of exchange of material goods. It aims to create and control the activities of a unified system of production and marketing management, financial and economic calculations and the processing of necessary information. In logistics, specific concepts and mathematical models are used that allow in a generalized form to solve the problems of organizing production, purchasing raw materials, transporting them, marketing finished products, etc.

The market of building materials and the capital construction industry are now those sectors of the economy in which there are already sufficient conditions for the use of logistics solutions in organizing material flows, including distribution of goods:

- There is the highest level of competition in the market of building materials (compared with other markets of means of production);

- enterprises of the building materials industry have significant reserves of unused production capacities, and many, in the name of their full load, are ready to cooperate with customers, based on meeting the increased requirements from the demand side;

- a significant part of the material flow in the investment process is formed within the building complex and completely depends on the actions of the links and units of this complex, their choice of rational decisions and their consistent implementation;

- the material flow in construction as an end-use sector of a part of a social product, starting outside it, ends with the moment of using material resources in the process of creating (updating, repairing) fixed assets. In industry, the material flow does not end with the creation of a finished product in a given production, but only transforms in its movement into other production as an element of revolving funds. Therefore, the use of logistics in construction does not apply to the product of labor in this industry;

- the material flow in construction during the creation of an object has a pronounced productive heterogeneity in the process of the construction cycle. As a

rule, the composition of the materials at each stage of the cycle changes (in the process of fundamental work, construction of walls, roofing, interior work, construction of communications, etc.). Therefore, for each stage of the construction cycle, adequate logical solutions are necessary, which can fundamentally differ from each other. In other words, if in industry the starting point for a logical solution is a product, then in construction it is the stage of the construction cycle;

- the material flow in construction is constantly changing its spatial orientation as the movement of work from one object to another or branches in space with the simultaneous construction of several objects. From this it follows that according to the same materials the work producer should use various logical solutions, which does not exclude their coincidence in similar conditions.

The logistics concept includes a system of more rational planning, organization and control in the areas of production and exchange of products to more fully satisfy consumer demand.

The implementation of logistics concepts leads to the following features (fig. 3.2).

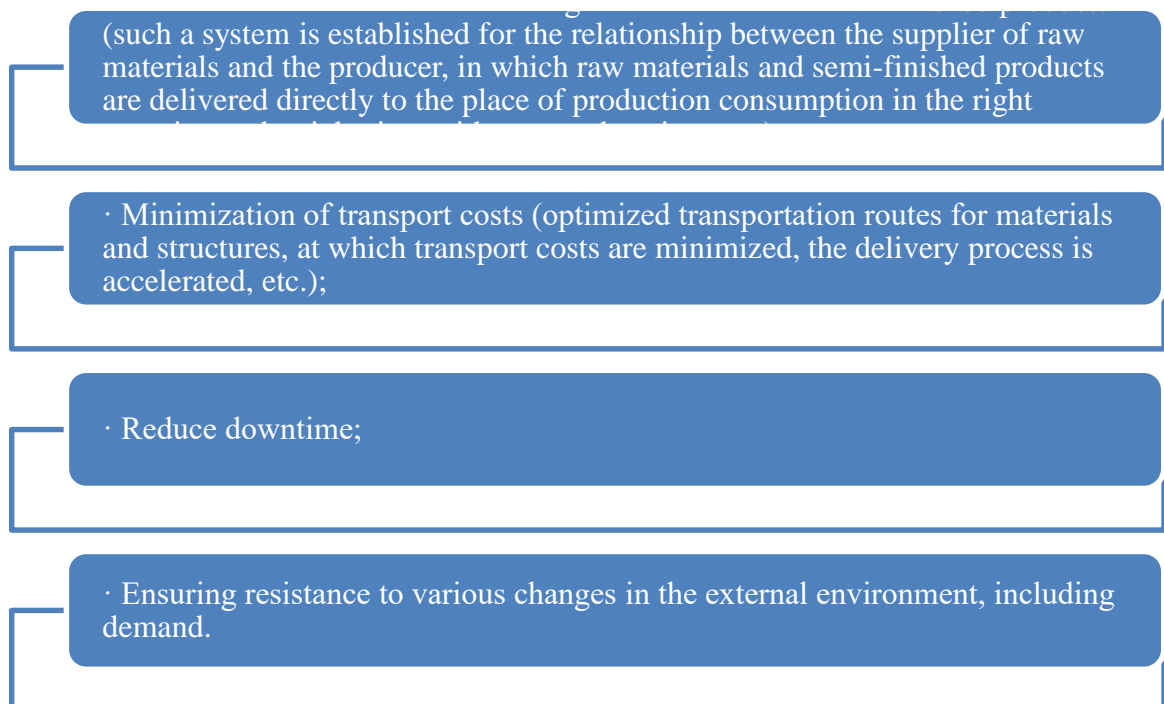


Figure 3.2 – The main features of the implementation of logistics concepts

However, two situations can negatively affect the construction process:

- when lacking in the right amount of building materials;
- when building materials are in excess.

The latter situation is especially undesirable if the construction is carried out once.

It is the logistics approach that provides ways to ensure the efficiency of the enterprise, i.e. achieving the best result at the lowest cost by optimizing stream processes.

Although certain logistics problems were solved earlier, however, in modern logistics they received a unified theoretical basis, which opened up the possibility of effectively solving many new, more complex problems, taking into account a wider range of factors. Being one of the largest subjects of final consumption of material resources, the construction complex should be most interested in effective forms of their acquisition and rational use, therefore improving the material and technical support of construction enterprises is an effective “internal” reserve for increasing the efficiency of construction enterprises.

Thus, logistics as the science of streamline process optimization serves as the basis for improving the management of the logistics system, and the logistics methodology allows for systematic rationalization of complex production systems, which equips enterprise managers with modern methods to improve the organization of production systems and can effectively gain competitive advantages.





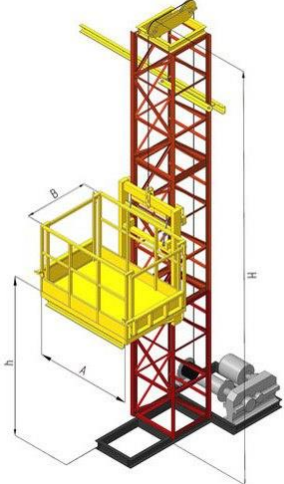
Consider the option of material and technical support for the construction of cottages by the “Console” company. Table 3.1 presents data on the name of the work, the complexity and necessary need for special building equipment.

In table 3.2, we present the necessary amount of special equipment for the building of one cottage and compare with the amount available in the company “Console”.

Table 3.1 – Project initial data for determining the required number of special equipment

№	Name of the work	Units measuring	Volume	labor intensity, people - days		The need for special equipment		The composition of the brigade		Shift work	Duration, days.
				Normal	Extra	type, brand	amount	profession	amount		
1	2	3	4	5	6	7	8	9	10	11	12
1.	Excavation	1000 m ³	0.38	1.05	1	Ballast rammer	1	driver	1	1	1
2.	Installation of pile foundations	Statement of labor costs		171.8	160	Rail gantry crane	2	concrete workers	8	2	10
3.	Basement device	Statement of labor costs		82.4	80	crane	1	concrete workers	8	2	5
4.	Backfill soil	1000 m ³	0.078	1.07	1	Ballast rammer	1	driver	1	1	1
5.	Compaction of soil with pneumatic rammers	100 m ³	0.78	14.32	12	pneumatic ramming machine	6	diggers	6	1	2
6.	Roof device	Statement of labor costs		79.76	78	Construction Hoist	1	roofers	6	1	13
7.	Window and door installation, ground floor	Statement of labor costs		2.92	2	Construction Hoist	1	carpenters	2	1	1
8.	Window and door installation, 1st floor	Statement of labor costs		6.2	4	Construction Hoist	1	carpenters	4	1	1
9.	Window and door installation, 2nd floor	Statement of labor costs		6.16	4	Construction Hoist	1	carpenters	4	1	1
10.	Interior finishing work	100 m ²	2.15	53.65	50	-	-	plasterers	5	1	10
11.	Facade painting	100 m ²	3.95	83.2	80	-	-	painters	10	1	8
12.	Base trim	100 m ²	0.7	25.83	25	-	-	tilers	5	1	5
13.	Plumbing	%	4	62.6	60	-	-	plumber	10	1	6
14.	Electric installation work	%	4	62.6	60	-	-	an electrician	10	1	6
15.	Landscaping	%	2	31.31	30	-	-	auxiliary	10	1	3
16.	Other work	%	10	156.53	150	-	-	auxiliary	10	1	15

Table 3.2 – Number of special equipment for the building of one cottage

№	Name of special equipment	Type, brand of special equipment	necessary amount of special equipment	Available at Console	The necessary amount of special equipment for the construction of 3 cottages at the same time
1	2	3	4	5	6
1	Ballast rammer		2	2	4
2	Rail gantry crane		2	1	5
3	crane		1	1	2
4	pneumatic ramming machine		6	4	14
5	Construction Hoist		4	2	

According to the data in table 3.2, we can conclude that the company Console for the construction of one cottage lacks special equipment. The signed contract for the construction of the cottage town provides for the construction of 12 houses with a limited time interval for the completion of the project on time. According to the timing of the projects, the possible construction of three houses at the same time. Thus we obtain the following necessary quantity of special equipment, which is presented in the last column of table 3.2.

The optimal condition for the company Console is to rent special equipment for a certain one, but for this it is necessary to analyze the market of companies that offer these machines for rent.

3.2 Using the expert assessment method to select a leasing equipment supplier

There are many processes and phenomena, quantitative information for the characterization of which is absent or very rapidly changing.

In this case, expert assessment methods are used, the essence of which is that the expert's opinion is based on the forecast based on professional, scientific and practical experience.

The expert assessment method is used to compare some parameters of objects (for example, in our case, a comparison of enterprises and special equipment for leasing) located in the same "class", of the same category, and belongs to the type of brainstorming.

The following companies are represented on the Mariupol market, which lease the special equipment necessary for the "Console" company: LLC Masterstroyservi, LLC Komplekt, Strong Tech, LLC Technomash, LLC Stroybud. In table 3.3 we will present the assessments of each expert regarding the main criteria for choosing 5 main lease companies.

Table 3.3 – Calculations by an expert method of choosing a leasing equipment supplier for building company “Console”

№	Criteria	Expert 1	Expert 2	Expert 3	Weight coefficient	LLC Masterstroyservi		LLC Komplekt		Strong Tech		LLC Technomash		LLC Stroybud	
						Evaluation of the company characteristics	Company value by criterion	Evaluation of the company characteristics	Company value by criterion	Evaluation of the company characteristics	Company value by criterion	Evaluation of the company characteristics	Company value by criterion	Evaluation of the company characteristics	Company value by criterion
1	Product compliance with the best requirements	10	9	9	9,18	6	55,08	6	55,08	9	82,62	9	82,62	5	45,90
2	Price of speech.equip.	9	10	9	9,18	8	73,44	7	64,26	9	82,62	8	73,44	6	55,08
3	Reliability of mechanism	8	9	8	8,20	5	40,98	7	57,38	8	65,57	8	65,57	9	73,77
4	Distance supplier	9	8	7	7,87	9	70,82	6	47,21	8	62,95	7	55,08	6	47,21
5	financial stability of leasing supplier	9	7	10	8,52	7	59,67	8	68,20	7	59,67	9	76,72	5	42,62
6	Staff qualifications	8	9	8	8,20	7	57,38	7	57,38	9	73,77	9	73,77	4	32,79
7	Warranty service	7	10	9	8,52	8	68,20	7	59,67	9	76,72	8	68,20	3	25,57
8	Possibility of lease with option to purchase	9	9	9	8,85	5	44,26	8	70,82	8	70,82	8	70,82	5	44,26
9	Payment flexibility of leasing supplier	10	9	7	8,52	5	42,62	6	51,15	8	68,20	7	59,67	4	34,10
10	Request response speed	8	8	10	8,52	6	51,15	6	51,15	7	59,67	9	76,72	6	51,15
11	The possibility of delivery at an unplanned time	7	9	9	8,20	7	57,38	7	57,38	9	73,77	7	57,38	4	32,79
12	The possibility of leasing specialized personnel	6	7	6	6,23	8	49,84	6	37,38	8	49,84	7	43,61	4	24,92
13	amount of complex criterion	-	-	-	100,00	-	670,82	-	677,05	-	826,23	-	803,61	-	510,16
14	Total Value	-	-	-	-	-	6,71	-	6,77	-	8,26	-	8,04	-	5,10

The experts will be the founders of the PE “Console” and other leading persons.

The next step is the selection algorithm, which is as follows:

- 1) drawing up a list of characteristics (criteria) and a quantitative assessment of their significance in evaluating lease company;
- 2) evaluation of each lease company according to the established criteria;
- 3) determine the best lease company for PE “Console”.

The characteristics for each lease company equal on a 10-point scale. Next is the calculated value of each characteristic of the lease company, taking into accounting its importance.

The complex criterion Q_m of the quality of a leasing equipment supplier for building company “Console” is calculated by the formula:

$$Q_m = 0.01 \sum P_i * E_i \quad (3.1)$$

P - the weight of the leasing equipment supplier characteristics in%;

E - score in points (from 1 to 10).

The graphical result of evaluations of the choice of leasing equipment supplier for building company “Console” is presented in fig. 3.3.

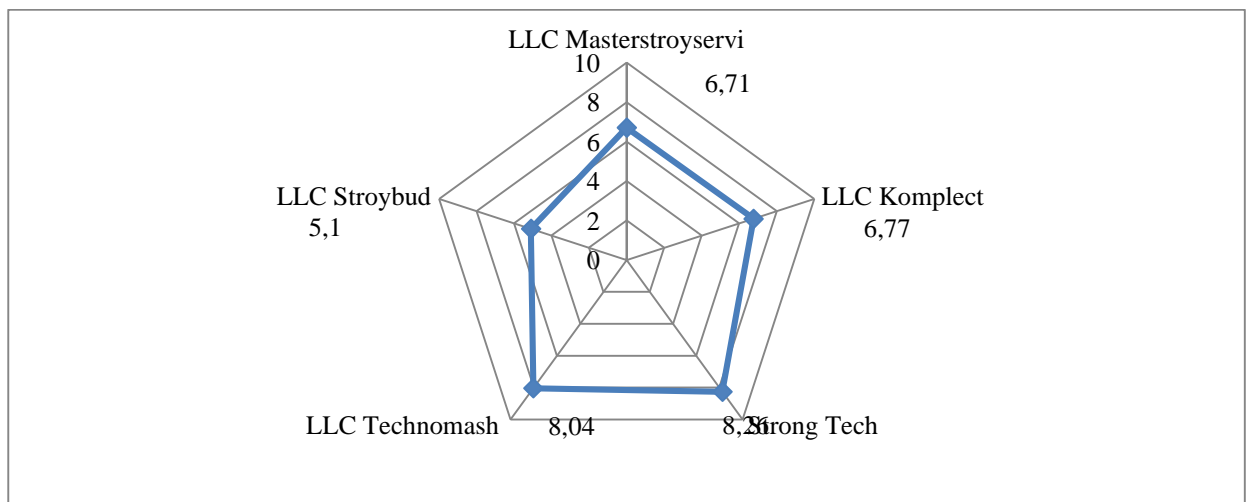


Figure 3.3 – Results of evaluations of the leasing equipment supplier for building company “Console”

Thus, the calculations allowed us to choose the best leasing equipment supplier for building company “Console”, which is Strong Tech. Its comprehensive estimate is 8.26. Next, we present a brief description of the special equipment, which will be taken in leasing for building company “Console”.

3.3 Evaluation of the effectiveness of investment project solutions

The final calculations in the thesis work will be the determination of the performance indicators of leasing equipment supplier for building company “Console”. For the calculation we take the following initial data, which are presented in table 3.4.

Table 3.4 – Special equipment leasing costs

№	Name of special equipment	The necessary amount of special equipment for the construction of 3 cottages at the same time	Cost, UAH / hour	Hours required, hours	Total cost
1	2	3	4	5	6
1	Ballast rammer	4	300	35	10500
2	Rail gantry crane	5	350	48	16800
3	Crane	2	450	13	5850
4	pneumatic ramming machine	14	425	36	15100
5	Construction Hoist	10	250	155	38750

According to data in table 3.4 the cost of special equipment leasing is 87000 Uah,

- the effect of the Special equipment leasing is 50,000 UAH;
- discount factors for Uah equal to 18% and 23%;
- the cost of special equipment maintenance is 5000 UAH;

To decide on the implementation of the project using different criteria based on the idea of discounting.

Net Present Value (NPV). The NPV is equal to the difference between the future cost of the wiping benefits stream and the present value of the current and future costs of the project throughout its cycle.

The calculation of NPV is done according to the following formula:

$$NPV = \sum_{t=1}^n \frac{B_t - C_t}{(1+i)^t} \quad (3.2)$$

where B_t , – project benefits per year t ;

c_t , – project cost per year t ;

i – discount rate;

n – duration (lifetime) of the project.

i – discount rate.

Calculations of the net present value of the project, the benefits and costs are presented in the table 3.5.

Table 3.5 - Calculations of the effectiveness of the special equipment leasing

Month	Benefits, Uah	Costs, Uah	Net benefits	Discount rate at $i=18\%$	Discounted net benefits	Discount rate at $i=23\%$	Discounted net benefits
t	B_t	C_t	$B_t - C_t$	$1/(1+i)^t$		$1/(1+i)^t$	
1	50000	87000	-37000	0,84746	-31356	0,81301	-30081,37
2	57500	5000	52500	0,71818	37704,45	0,66098	34701,45
				NPV=	6348,43	NPV=	4620,08

So, the difference between the present value of future benefits and the present value of the future costs of implementing the project is 6348,43 Uah at a discount rate of 18%. As a result, the sum of discounted net assets has a positive value - the net present value is positive, the project will positively affect and may be recommended for financing.

Internal Rate of Return (IRR).

The IRR calculation is performed by the method of successive approximations of the NPV value to zero at various discount rates. Calculations are carried out according to the formula:

$$IRR = A + \frac{a(B - A)}{(a - b)} \quad (3.3)$$

where A is the discount rate at which NPV is positive;

B - the value of the discount rate at which NPV is negative;

a is the value of the positive NPV, with the size of the discount rate A;

b is the value of the negative NPV, with the value of the discount rate B.

Find the internal rate of profitability using formula 3.3.

Thus, $IRR = 36,36\%$.

The IRR can be found graphically. In fig. 3.4 we show the correspondence of the NPV value on the discount rate.

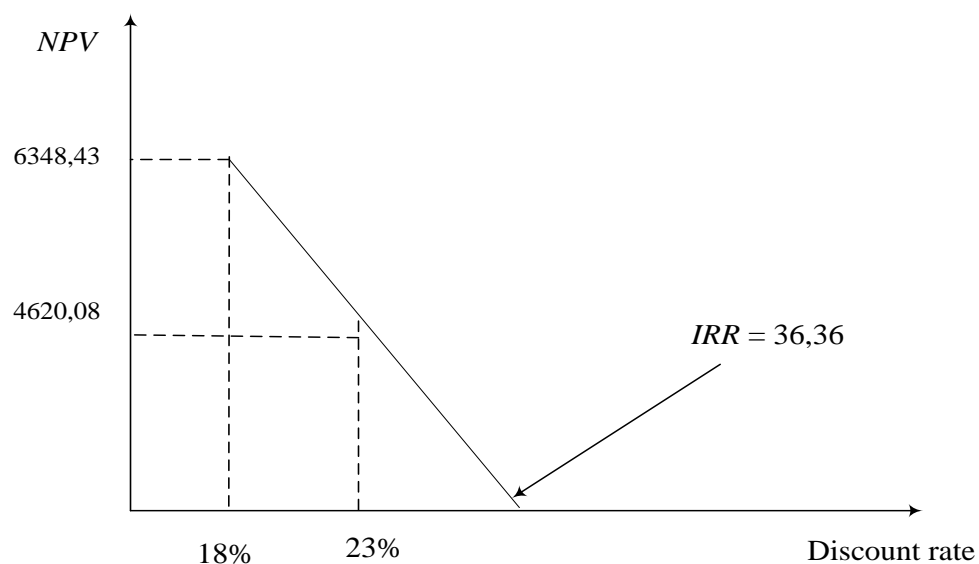


Figure 3.4 – The correspondence of NPV of the discount rate

Benefit / Cost Ratio (BCR).

BCR is the ratio of discounted benefits to discounted costs. The basic formula for the calculation is as follows:

$$BCR = \frac{\sum_{t=1}^n \frac{B_t}{(1+i)^t}}{\sum_{t=1}^n \frac{C_t}{(1+i)^t}}, \quad (3.4)$$

The criterion for selecting projects is to approve a project with a BCR coefficient that is greater than or equal to one (table 3.6).

Table 3.6 – Calculation of the BCR ratio project

Month	Benefits, Uah	Costs, Uah	Discount rate at i=18%	Discount rate at i=23%	BCR at 18%	BCR at 23%
1	50000	87000	0,84746	0,81301		
2	57500	5000	0,71818	0,66098		
			NPV=63483,43	NPV=4620,08	1,082	1,062

The BCR criterion can be used to demonstrate how much cost can be increased without turning the project into an economically unattractive one.

Projects characterized by a higher benefit / cost ratio are more profitable than projects with a lower benefit / cost ratio. Projects with a higher value of the BCR coefficient are considered more attractive to the investor than projects with a lower value.

Thus, our proposed solutions indicate the effectiveness of special equipment leasing. The analyses of lease companies were carried out and, using an expert method. The calculations of project performance indicators showed the feasibility of leasing equipment. The result of applying the strategy is to increase the competitiveness of the PE “Console” and increase profits, as well-built relationships based on a personal approach to each client, allow to choose a new contracts in building area.

3.4 Chapter 3 summary

The project part of the thesis is devoted to the organization of special equipment lease and the effectiveness of its use. In detail was considered logistic approach to improve the management of the materiel and technical support of building company “Console”. The market of building materials and the capital construction industry are now those sectors of the economy in which there are already sufficient conditions for the use of logistics solutions in organizing material flows, including distribution of goods:

- There is the highest level of competition in the market of building materials (compared with other markets of means of production);

- enterprises of the building materials industry have significant reserves of unused production capacities, and many, in the name of their full load, are ready to cooperate with customers, based on meeting the increased requirements from the demand side;

- a significant part of the material flow in the investment process is formed within the building complex and completely depends on the actions of the links and units of this complex, their choice of rational decisions and their consistent implementation;

- the material flow in construction as an end-use sector of a part of a social product, starting outside it, ends with the moment of using material resources in the process of creating (updating, repairing) fixed assets. In industry, the material flow does not end with the creation of a finished product in a given production, but only transforms in its movement into other production as an element of revolving funds. Therefore, the use of logistics in construction does not apply to the product of labor in this industry;

- the material flow in construction during the creation of an object has a pronounced productive heterogeneity in the process of the construction cycle. As a rule, the composition of the materials at each stage of the cycle changes (in the process of fundamental work, construction of walls, roofing, interior work,

construction of communications, etc.). Therefore, for each stage of the construction cycle, adequate logical solutions are necessary, which can fundamentally differ from each other. In other words, if in industry the starting point for a logical solution is a product, then in construction it is the stage of the construction cycle;

- the material flow in construction is constantly changing its spatial orientation as the movement of work from one object to another or branches in space with the simultaneous construction of several objects. From this it follows that according to the same materials the work producer should use various logical solutions, which does not exclude their coincidence in similar conditions.

For building company “Console” it was considered in detail the option of material and technical support for the construction of cottages. It was identify the data on the name of the work, the complexity and necessary need for special building equipment, that allow as to calculate the necessary amount of special equipment.

Thus, our proposed solutions indicate the effectiveness of special equipment leasing. The analyses of lease companies were carried out and, using an expert method. The calculations of project performance indicators showed the feasibility of leasing equipment. The result of applying the strategy is to increase the competitiveness of the PE “Console” and increase profits, as well-built relationships based on a personal approach to each client, allow to choose a new contracts in building area.

CONCLUSIONS AND RECOMMENDATIONS

So, as a result of the work done on the basis of processing scientific papers, analyzing trends in the field of rental of special equipment, analyzing the current legislation and the practice of its application, a number of conclusions are formulated in the thesis. The main ones are:

1. Industrial enterprises in Ukraine provide their customers with building materials and provide rental services for various special equipment. Available equipment for construction, transportation, and other activities in demand at the construction site, in industrial workshops, with carriers. A wide fleet of special equipment allows you to choose the right machine for any needs and quickly send it to the object to perform tasks.

2. Rental companies are seriously affected by seasonality. In the cold season, frontal bucket loaders are especially in demand, and in the construction season - cranes.

3. A lease agreement is a civil law agreement under which the lesser transfers or undertakes to transfer the property to the lessee for use for a fee for a certain period (Part 1 of Article 759 of the Civil Code of Ukraine). Under the lease agreement, the landlord transfers or undertakes to transfer the property to the lessee.

4. Important in regulating the relationship of the lease agreement are the provisions of certain laws - "On the lease of state and municipal property", "On the lease of land" and so on. In addition, a fairly wide range of regulations is devoted to lease relations, including the Civil Code of Ukraine, the Commercial Code of Ukraine, the Land Code of Ukraine and others. Section 10 of the Law provides that the essential conditions of a lease are: the leased object (composition and value of property, taking into account its indexation); the period for which the lease is concluded; rent taking into account its indexation.

In the second chapter of bachelor thesis was analyzed building and technological regions of the world and Ukraine. The analysis shows that Germany has high rates in

the technological world market, and in the construction industry it is not represented at all. The United States, shares primacy with China in the construction space and occupies a monopoly in technology. Conducting an analysis of countries to which the largest construction companies in the world are involved, it can be noted that the first part of the list is confidently occupied by China with 12 companies; Japan is in second place with 9 companies; the third place is taken by the USA with 12 companies. Having a numerical advantage over the number of companies over Japan, the United States is inferior to the lowest places in the ranking with lower total assets and technologies used by VIM (Building Information Modeling).

Analysis of the construction business in Ukraine revealed the main construction companies, which are Kyivmiskbud; Corporation Ukrbud, Interagal-Bud etc.

The object of study was the building company “Console”. This company was founded in 2010. The main activities of PE “Console” are:

- construction of production facilities and social sphere;
- implementation of various types of construction and installation, commissioning works;
- provision of transport services;
- trucking of various cargoes both for production and consumer goods;
- introduction of modern technologies for the production of products and services related to the purpose of the enterprise.

In the research the main indicators of the company’s personnel, the dynamics of the services performed and the signed agreement, as well as various financial indicators were analyzed. The data obtained allows us to conclude that the company conducts its business effectively and makes profit from completed projects.

The project part of the thesis is devoted to the organization of special equipment lease and the effectiveness of its use. In detail was considered logistic approach to improve the management of the materiel and technical support of building company “Console”. The market of building materials and the capital construction industry are now those sectors of the economy in which there are already sufficient conditions for

the use of logistics solutions in organizing material flows, including distribution of goods:

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- a significant part of the material flow in the investment process is formed within the building complex and completely depends on the actions of the links and units of this complex, their choice of rational decisions and their consistent implementation;

- the material flow in construction as an end-use sector of a part of a social product, starting outside it, ends with the moment of using material resources in the process of creating (updating, repairing) fixed assets. In industry, the material flow does not end with the creation of a finished product in a given production, but only transforms in its movement into other production as an element of revolving funds. Therefore, the use of logistics in construction does not apply to the product of labor in this industry;

- the material flow in construction during the creation of an object has a pronounced productive heterogeneity in the process of the construction cycle. As a rule, the composition of the materials at each stage of the cycle changes (in the process of fundamental work, construction of walls, roofing, interior work, construction of communications, etc.). Therefore, for each stage of the construction cycle, adequate logical solutions are necessary, which can fundamentally differ from each other. In other words, if in industry the starting point for a logical solution is a product, then in construction it is the stage of the construction cycle;

- the material flow in construction is constantly changing its spatial orientation as the movement of work from one object to another or branches in space with the simultaneous construction of several objects. From this it follows that according to

the same materials the work producer should use various logical solutions, which does not exclude their coincidence in similar conditions.

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Thus, our proposed solutions indicate the effectiveness of special equipment leasing. The analyses of lease companies were carried out and, using an expert method. The calculations of project performance indicators showed the feasibility of leasing equipment. The result of applying the strategy is to increase the competitiveness of the PE “Console” and increase profits, as well-built relationships based on a personal approach to each client, allow to choose a new contracts in building area.

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