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MASTER THESIS

(EXPLANATORY NOTES)

OF GRADUATE OF ACADEMIC DEGREE

«MASTER»

THEME: **«Reengineering of business-processes in customer service chains»**

Speciality 073 «Management»

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NATIONAL AVIATION UNIVERSITY
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TASK

FOR COMPLETION THE MASTER THESIS OF GRADUATE

Kurbatova V.G.
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1. Theme of the master thesis: «Reengineering of business-processes in customer service chains» was approved by the Rector Directive №2051/ст. of September 29, 2021.
2. Term performance of thesis: from October 04, 2021 to January 02, 2022.
3. Date of submission work to graduation department: December 13, 2021.
4. Initial data required for writing the thesis: general and statistical information about Reengeneering of business processes in the customer service, information of the company «FTP» LLC, production and financial indicators of the company «FTP» LLC, literary sources on logistics and customer service process, Internet source.
5. Content of the explanatory notes: introduction, the essence of the business process reengineering, the specifics of business process reenginering, business analysis of the processes of the company «FTP» LLC, financial analysis of the company «FTP» LLC, the essence of LCL and LTL, advantages and disadvatnages of LCL, providing the project of implementation of LCL service in the business-processes in customer service chains of the company, calculation of the economicaleffectivness of the project, conclusions and reccomendations, references, appendix.
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	04.10.21-28.10.21	Done
2.	Collection of statistical data, timing, detection of weaknesses, preparation of the first version of the analytical chapter	29.10.21-15.11.21	Done
3.	Development of project proposals and their organizational and economic substantiation, preparation of the first version of the project chapter and conclusions. Editing the first versions of maser thesis	16.11.21-03.12.21	Done
4.	Preparing the final version of the master thesis, checking by standards inspector	04.12.21-09.12.21	Done
5.	Approval for a work with supervisor, getting of the report of the supervisor, getting internal and external reviews, transcript of academic record	10.12.21-12.12.21	Done
6.	Submission work to Logistics Department	13.12.21	Done

Graduate_____
(signature)

Supervisor of the master 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	Associate Professor, Savchenko L.V.	04.10.21	04.10.21
Chapter 2	Associate Professor, Savchenko L.V.	29.10.21	29.10.21
Chapter 3	Associate Professor, Savchenko L.V.	16.11.21	16.11.21

9. Given date of the task October 04, 2021.

Supervisor of the master thesis: _____ Savchenko L.V.
(signature of supervisor) (surname and name)

Task accepted for completion: _____ Kurbatova V.G.
(signature of graduate) (surname and name)

ABSTRACT

The explanatory notes to the master thesis «Reengineering of business-processes in customer service chains» comprises of 106 pages, 29 figures, 8 tables, 1 appendix, 100 references.

KEY WORDS: BUSINESS PROCESS REENGINEERING, LESS-THAN-CONTAINER LOAD, LESS-THAN-TRUCK LOAD, BUSINESS PROCESS MANAGEMENT, BUSINESS PROCESS MODEL

The purpose of the research is to study the theoretical foundations and problems of the reenginerring of the business processes in customer service chains in logistics companies and to develop project recommendations for conducting reengineering of business processes in customer service chains of the logistics company.

The subject of the investigation is the reengineering of business processes in customer service chains of the company «FTP».

The object of the research is the business processes in customer service chains of the company «FTP».

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.

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NOTATION

BPR – Business Process Reengineering

LRP – Logistics Reengineering Process

BPM – Business Process Management

BPM – Business Process Modeling

BPMN – Business Process Model and Notation

BPD – Business Process Diagram

IDEF – IDEF modeling techniques

DFD – Data flow diagram

LCL – Less–that–Container–Load

LTL – Less Truck Load

BL – Bill of lading

CRM – Customer Relationship Management

KPI – Key Performance Indicator

ET – Expected time

NPV – Net Present Value

IRR – Internal Rate of Return

DPP – Discounted Payback Period

PV – Present Value

INTRODUCTION

Reengineering is a complete rethinking and complete redesign of all business processes of an enterprise to maximize efficiency in all areas of the enterprise, from the production and economic sphere to working with regulatory documents.

Today, all over the world, the "driving force" of the enterprise is business processes. A detailed description of internal business processes helps a company to be efficient and competitive. Any business began with a simple one to clearly understand the strategy of the enterprise, thereby helping employees, money turnover, or changing the type of activity, the enterprise (company) needs to optimize its business processes.

The difference between optimization of business processes and reengineering is that during optimization, all changes are quickly communicated to the executive, and reengineering is a different system of rules that is developed over a long period of time, after which it is tested, and then implemented in the enterprise.

There is a reengineering of the "revolutionary" business process. In the first case, the integration of business processes is optimized, without making significant changes in the functioning of the enterprise. In the second case, all business processes are redesigned, and the organization is completely reoriented to a new business area. In general, there are two main types that "evolutionary" reengineering solves such problems as:.

– Creation of networks for emergency conditions;

– Centralization of information flows;

– Separation of management functions and creation of a network of task forces;

– Analysis of various situations and teamwork;

– Combining strategy coordination from the center or decentralized decision making;

– Enterprise restructuring.

At the beginning of the Business Process Reengineering, a retraining process is launched, which was primarily developed for the three peas. The first goal is to

convince the slave workers that this process is a constant requirement, and not a recurring one. The second goal of changing processes is to have a positive effect on the mood of people and bring pleasure from work. The main challenge is convincing that change will have a positive impact not only on productive work, but also in simplifying processes for the workers themselves. It is meaningful work, not hard work, that is the main challenge faced by the company's management.

Some organizations need to change their approach. get credit from those people and groups who took part in improving the work process, not just those people who tried hard.

Any organization wishing to survive in today's environment must continually improve using a systems framework, using a variety of methods and tools designed specifically for this process.

Now, Business Process Reengineering is one of the important tools available, but it needs to be properly positioned if we want to get the most profitable process that it can provide.

One example of scourge reengineering is the rebirth of IBM. In which the issuance of a loan – "PBM Credit" could take from 4 days to 2 weeks. One of the company's senior executives decided to go through the loan request process on his own. After that, he discovered the following fact – the time to process the request was 40 minutes. This meant that 80% of the processing of the request was downtime. In this regard, the company decided to create a business process reengineering working group, the analysis of which showed that more than 80% of all loan requests are simple enough, which can be processed by one person who does not have in–depth knowledge of the relevant areas. Less than 20% of all inquiries were considered difficult, requiring specialists with professional skills to process them.

As a result, all requests were divided into 2 types: simple and complex. After carrying out this reengineering, the business process of considering requests began to have two options. For simple ones, one person was involved in the processing, and for complex ones, a group of experts.

Thus, when working in the future, it is undoubtedly important to use in your activity such methods as the reengineering of business processes in cases where drastic measures are required to change the structure of the company. Business process reengineering contributes to optimization, and accelerates the work of processes, making the enterprise more efficient.

The meaning of business process reengineering in its two main stages:

– determination of the optimal (ideal) type of business process (primarily the main one);

– determination of the best (in terms of means, time, resources, etc.) method of transferring the existing business process to the optimal one.

Business process reengineering (BPR) is the practice of rethinking and changing the way work is done to better support an organization's mission and reduce costs. Organizations are reengineering two key areas of their business. First, they use modern technology to improve data dissemination and decision making. They then change functional organizations to form functional teams. Reengineering begins with a high–level assessment of the organization's mission, strategic objectives, and customer needs. Key questions are asked such as "Should our mission be redefined? Are our strategic goals aligned with our mission? Who are our clients?" An organization may find that it is acting on dubious assumptions, especially in terms of the wants and needs of its customers. Only after an organization rethinks what it should do will it continue to decide how best to do it.

As part of this baseline assessment of mission and objectives, reengineering focuses on the organization's business processes — the steps and procedures that determine how resources are used to create products and services that meet the needs of specific customers or markets. As a structured sequencing of work stages in time and place, a business process can be decomposed into specific actions, measured, modeled and improved. It can also be completely reworked or completely eliminated. Reengineering identifies, analyzes, and redesigns an organization's core business processes to achieve improvements in critical performance metrics such as cost, quality, service, and speed.

Reengineering recognizes that an organization's business processes are usually divided into sub–processes and tasks that are performed by several specialized functional areas within the organization. Often no one is responsible for the overall performance of the entire process. Reengineering argues that optimizing the performance of subprocesses can lead to some benefits, but cannot lead to improvements if the process itself is fundamentally inefficient and outdated. For this reason, reengineering focuses on redesigning the overall process in order to achieve the maximum possible benefits for the organization and their customers. This drive to realize improvement by fundamentally rethinking how an organization's work is supposed to be done distinguishes reengineering from process improvement efforts that aim at functional or incremental improvement.

Business process reengineering began as a private sector method of helping organizations rethink how they do their jobs in order to improve customer service, reduce operating costs, and become world–class competitors. The continued development and deployment of information systems and networks was a key impetus for the reorganization. Organizations are becoming bolder in using this technology to support business processes, rather than to improve existing ways of doing work.

In 1990, Michael Hammer, a retired professor of computer science at the Massachusetts Institute of Technology (MIT), published an article "Reengineering Work: Don't Automate, Destroy" in the Harvard Business Review, in which he argued that the main job of managers is to destroy forms of work that are not add value rather than use technology to automate it. This statement indirectly accused managers of focusing on the wrong questions, namely this technology in general and, more specifically, information technology, was used mainly to automate existing processes, and not to be used as a tool to get work done. non–value added, obsolete.

Hammer's statement was simple: most of the work being done does not add any value to customers, and that work should be removed rather than accelerated through automation. Instead, companies must reconsider their inability to meet customer needs and their inadequate cost structures.

CHAPTER 1
THE ESSENCE OF BUSINESS PROCESS REENGINEERING (BPR)

1.1 The essence of the Business Process Reengineering (BPR)

The Logistics Reengineering Process (LRP) is a good engineering and management method to achieve significant operational efficiencies in the provision of services and processes within a company[1].

As business process of re–engineering (BPR) is an important foundation to ensure the success of enterprise systems.

The companies that carried out the reengineering process outperformed the companies that did not participate in BPR in such parameters as:

– data processing;

– technological applications;

– organizational structure and coordination;

– basic logistics operations.

Comparing the different impacts of success factors for business reengineering, companies that have not done BPR spend more resources on the importance of employee engagement, while BPR companies pay more attention to influence and risk management. Management's attitude towards the impact of reengineering on company processes can affect the performance of both technology applications and logistics operations. [2].

The supply chain is made up of manufacturers and suppliers, as well as all the parties involved, who are involved in satisfying customer demand. It follows from this that the supply chain can be called a series of processes and subjects, which includes:

– suppliers;

– clients;

– manufacturing and factories;

– distributors;

– retailers who aim to fulfill orders from customers / consumers.

Logistics is a part of supply chain management, which is an activity that facilitates the movement and coordination of supply and demand according to a specific time and place. Logistics management is the key to efficiency, quality planning, implementation and control at every stage, as well as a flexible approach to storing goods, providing services and information from point of origin to point of consumption in order to meet customer needs [3].

A business process is a collection of actions and decisions that require one or more types of input and produce a product or service that has a specific value for customers. The goal of a business process is to solve a problem. Improvement practices are the ways in which different activities are designed or managed. Business process reengineering (BPR) can be performed to improve business processes and solve business problems.

Business Process Reengineering (BPR) was first introduced by Davenport, Short and Hammer in 1990. Business process reengineering (BPR) is considered to be an attempt to improve the foundations of a process and radically change it in order to improve the efficiency of such important steps as cost, quality, service and speed. Many companies have adopted BPR as a quality improvement tool to reduce costs, cycle times and improve quality, for example: Mahindra & Mahindra Ltd., General Motors Corporation, Michael Dell and Ford Motor ITC L&T, Siemens, Crompton Greaves (CG), etc [4].

The BPR structure includes 4 stages:

1. Preparing for changes.

2. Planning for changes.

3. Implementation of changes.

4. Assessment of changes.

Business Process Management (BPM) provides management of the business process environment to improve agility and operational performance. It is a systematic approach to improving business processes within an organization. Process simulation

is a defined period of time when manual and / or automatic process descriptions are subject to change. Business Process Modeling and Business Process Management have the same acronym (BPM).

Business process modeling is an activity during which the current process of a company can be analyzed and corrected for the future to improve performance / goals, etc. Analysts and business managers to improve the efficiency and quality of processes in the company's activities usually use business process modeling. Business Process Modeling (BPM) is focused on optimizing business processes and can eliminate or simplify processes that require change. Many techniques are used to model processes such as [4]:

– BPMN – Business Process Model and Notation – a system of symbols for modeling business processes.

Business Process Model and Notation is a standard for business process modeling that provides graphical notation for defining a business process in the form of a Business Process Diagram (BPD). Such a diagram is based on a flowchart representation of a business process that is semantically similar to an activity diagram.

The goal of BPMN is to support business process modeling and management. A single business process model should be clear to all users / stakeholders. The system of graphic signs allows to define complex semantics of business processes. To simplify the understanding and use of the standard, it is proposed to split the elements of the notation into two levels: the basic elements of the notation and the elements that allow to define all (technical) details of the business process. [5];

– IDEF – IDEF modeling techniques are a combination of graphical and linguistic symbols and rules designed to capture the processes and structure of information in an organization [6];

– DFD – Data flow diagram – design model, graphical representation of "data flows" in the information system. The data flow diagram can also be used to visualize data processing processes [7];

– Value stream mapping – material– and information–flow mapping – is a lean management method for analyzing the current state and projecting the future state for

a series of events that cover a product or service from the beginning of a specific process until it reaches the consumer. It is a visual tool that displays all the critical steps in a specific process and easily quantifies the time and volume spent in each step. This method shows the flow of materials and information as they move through the process [8].

Technological aspect of reengineering:

In terms of technology, this process means:

1) more efficient use of the material resources available in the company;

2) the possibility of using more advanced means of production or the provision of services [9].

Organizational aspect of reengineering:

This aspect includes organizing, ordering elements and changing the structural unit of the firm. We are talking about the transition from technological structural units to economic ones based on business processes. Transformation of a unit from a hierarchical bureaucratic organization to flat, horizontal, network and other structures, which also contain other principles of coordination and connection of elements into complexes. Such changes determine the radical nature of changes in the company and a leap in overall efficiency in functioning [9].

The economic aspect of reengineering:

The economic aspect of reengineering is that as a result of changes in business processes, effective companies with competitive advantages appear, not because of the scale or diversity of the activities provided. These companies can become more competitive and the allocation of public resources more efficient (Figure 1.1) [9].

Reengineering is a kind of phenomenon that has absorbed new and old positions and approaches. The old approaches include cooperation – (unification) of activity and its distribution, fragmentation.

Speaking of reengineering, one should consider the activities of a firm as an economic entity, divided into certain business processes, which are then combined into a new whole, which provides a radical improvement in the situation.

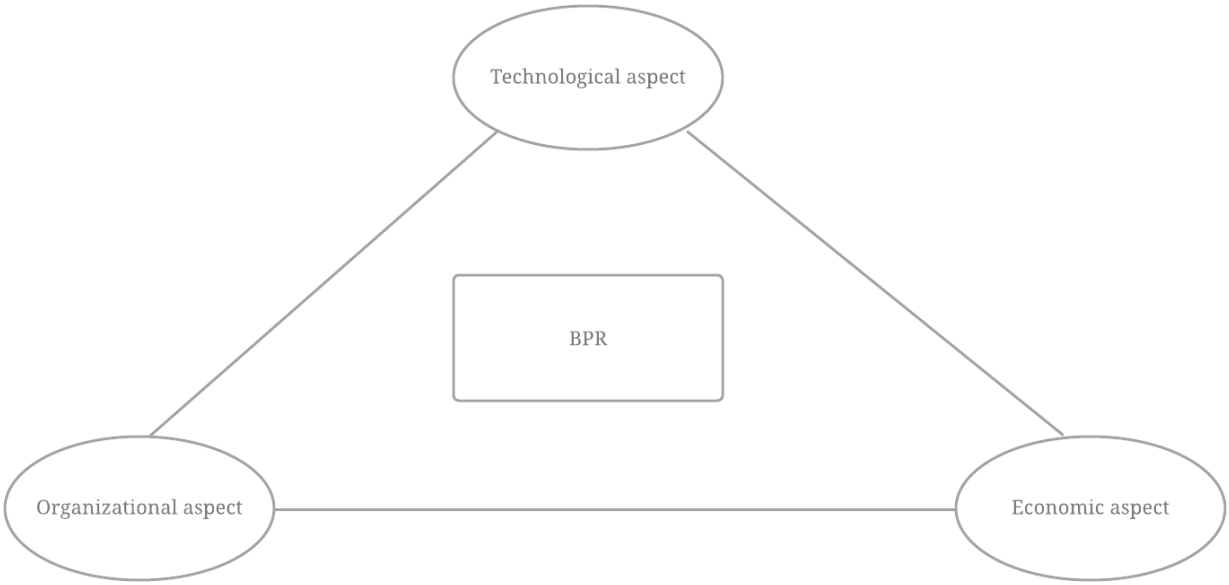

Figure 1.1 – BPR aspects

The principles of business process reengineering are the basis for achieving significant improvements in business performance are include:

1) Top Management Engagement: Heads of department should support and involve people in reengineering to remove barriers and promote success.

2) The culture of the organization: must be consistent with the goals and principles of reengineering.

3) Major changes and improvements, as well as results, should occur in business processes, not functions.

4) Processes for reengineering should be selected based on a clear understanding of customer needs, expected results and potential for success.

5) Those responsible for processes should maintain process boundaries, monitor needs and goals, and implement changes in a timely manner [9].

As a rule, mature companies introduce reengineering, when the processes have already been described and built, and it is possible to use the existing model for the development of the enterprise.

The essence of reengineering is a gradual change in the company's processes aimed at improving the activities that are produced and measured according to business processes and their indicators [11].

As a rule, the definition of reengineering includes fundamental change, complete redesign and redesign of activities, but in addition, the concept also includes the production and recording of results at the level of individual processes and even their sections [11].

There are two methods of reengineering business processes (Figure 1.2), depending on the situation at the enterprise:

– Crisis reengineering – introduced when a company needs to radically change the current situation and introduce changes in most of the processes.

– Development reengineering – gradual changes and study of implementation results for the development and maintenance of the company's processes in good condition [11].

Figure 1.2 – Methods of reengineering

Also, reengineering is divided into several levels (Figure 1.3):

– Operational level – changes in several indicators to improve the situation in one of the areas of the business process;

– Process level – usually affects one process and is considered a classic level of reengineering;

– System level – the entire system of the company is involved in changes and redesign, that is, the entire enterprise is completely reengineered and changed [11].

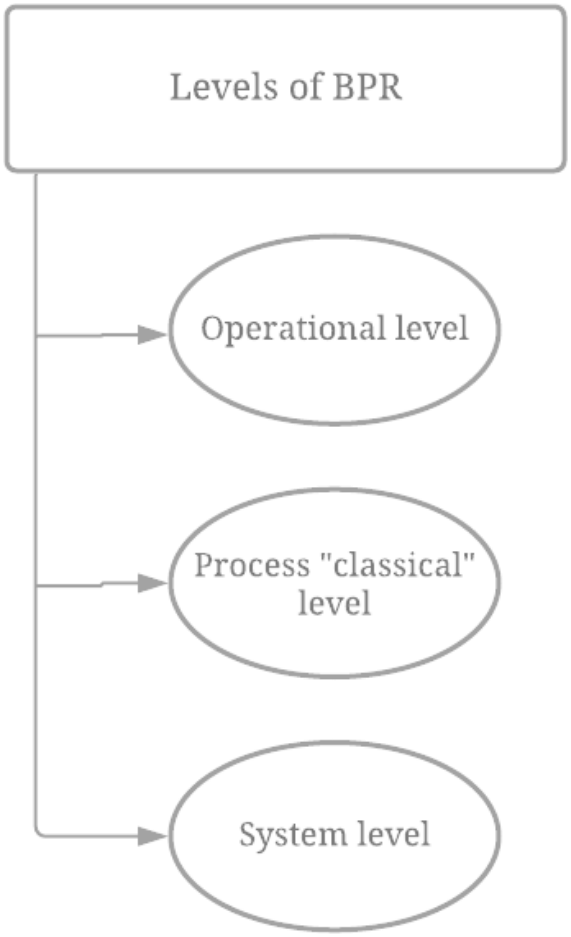

Figure 1.3 – Levels of BPR

As a rule, changing management processes is relevant and advisable for several types of organizations.

First of all, reengineering is suitable for companies that are not in a very good economic condition or are on the verge of bankruptcy due to high prices for products / services and / or low quality indicators. Radical changes in processes and approaches can be a good solution for such companies to improve performance and overcome economic problems.

Also, reengineering is great for companies that are not experiencing economic difficulties, however, according to market analysis, there is a possibility of risks in the future. These risks can be associated with the emergence of new competitors, changing customer needs, economic environment and other factors.

In addition, changes and transformation of processes may be relevant for leading companies in industries that are not experiencing difficulties and are not expected to pose serious risks in the future. In this case, reengineering serves as a tool to achieve new goals [11].

There are clear stages in the reengineering of business processes (Figure 1.4):

1) Formation of a system of indicators – there is a need to measure the indicators of the current state of the process in order to have an understanding of what the essence of the problem is and why changes are needed.

2) Creation of criteria for what the process should be – at this stage, how the process should look after the transformations, the goal of reengineering and what values the indicators should come to are formed at this stage.

3) Implementation of reengineering – that is, making changes: processing of information systems, approaches or methods in the provision of services, personnel change, reorganization of workflow, etc.

4) Summing up / feedback – collecting information and indicators of processes after the introduction of changes to summarize, whether they were able to achieve the goals, optimize the processes, whether there is a need to make additional changes, and more [11].

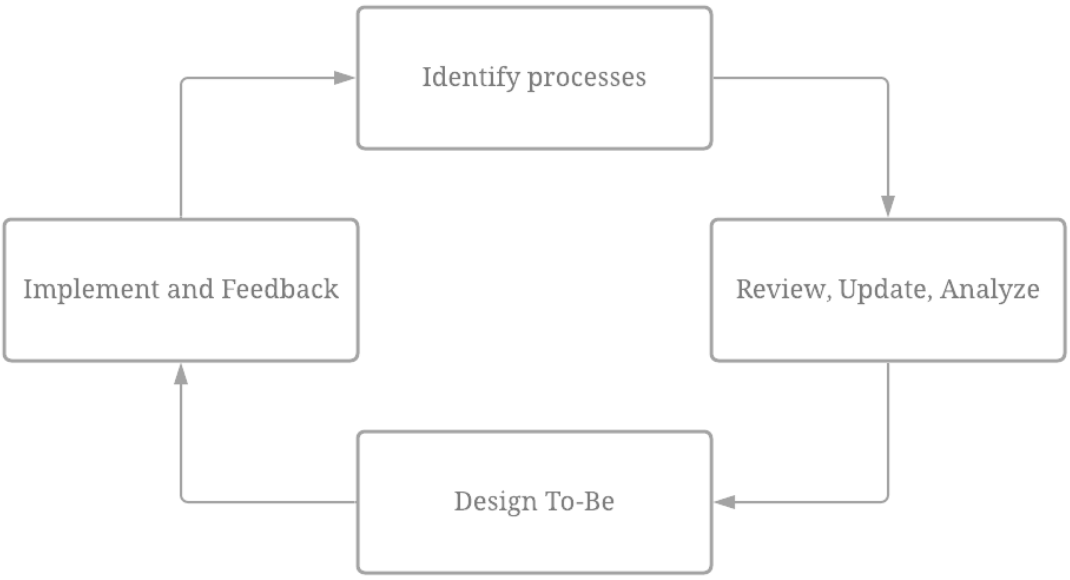

Figure 1.4 – Business process reengineering cycle

Below are the main characteristics of business reengineering:

1) Radical. Process reengineering involves rebuilding the stages and components of business processes. As a rule, changes affect all areas.

2) Fundamental. Changing the processes in the company involves the preparation of criteria for the desired state of the enterprise.

3) Business process. The result of the transformations in the company should be a transition to a process approach, since such a reboot is based on the business process.

4) Substantial. Significant transformation should be the goal for the company. If the changes were minor, it is possible that some mistake was made at some stage of the conversion [11].

The following factors affect the implementation of changes:

– Leadership staff. Reengineering and business process management should be carried out under the supervision of department heads. This implies responsibility and readiness for possible difficulties, for example, resistance from employees and others.

– Motivation. To achieve the ultimate goal, it is necessary to clearly understand the motive for change. It is important that the leadership of the organization is aware of the goals of the transformation and understands what results it will lead to.

– Personnel. The team working on reengineering in the organization must be competent and aware of the need for these changes, that is, objectively assess the existing problems.

– Communication. Employees must be aware of the goals of the transformations being carried out and understand how they will directly affect them.

– The budget. Enterprise process engineering has its own budget, in particular for IT involvement [11].

The results of successful implementation of changes in business processes are:

– Cost reduction due to simplification of work without reducing the number of tasks performed or dismissing employees;

– A significant reduction in the cost of performing the assigned tasks by optimizing and identifying unnecessary links in different types of activities of the organization;

– Increase in the involvement of employees in the work of the company due to a clear structure and distribution of responsibilities;

– An increase in the efficiency of the enterprise, which is facilitated by the timely identification of productive and outdated working methods;

– Full–scale growth of the company, which provides for the development of the industry [11].

Types of changes in the company after reengineering:

– departments are being transformed from functional departments into process teams;

– simple tasks are replaced by multilateral work;

– control over employees decreases, and their powers expand;

– the effectiveness of employees and their remuneration are determined by results;

– employee values focus on productivity;

– the structure of the organization becomes flat and not hierarchical [12].

1.2 The specifics of Business Process Reengineering (BPR)

BPM is “a vast consolidation of disciplines that shares the belief that a process–oriented approach leads to significant improvements in both system performance and compliance. In practice, organizations are typically integrated into several functional silos, each of which operates relatively in isolation, ignoring the critical processes that these silos go through in order to become the product or service of an often forgotten customer [26].

The implementation of BPM means identifying, evaluating and improving these cross–silo business processes and placing the focus on “process–oriented thinking,

results and customers versus hierarchies". The importance of focusing on and interacting with the customer has been recognized by many researchers in BPM and beyond [26].

In a detailed analysis of what constitutes the core of BPM, Rosemann and vom Brocke (2010) highlighted the importance of assessing customer priorities and interactions with them. Von Brocke and Sinnl (2011) also identified "customer orientation" as one of the core values of BPM. Other authors have emphasized the importance of an "outside–in" approach to BPM while taking customer needs into account [26].

Despite the consensus about the importance of the customer voice in BPM and the fact that the declarative goal is mostly to create added value for the customer, BPM is still predominantly implemented in an internal focus. Too often an "inside–out" approach is used that ignores the company's strategic intent and value creation for the customer. Most academic literature and industry efforts focus on modeling and developing internal organizational processes that work towards commonly identified success factors such as executive support, project management, balanced communication, and adequate (end–user) training [26].

These factors are mostly located within the organization and focus on the implementation of BPM (system) to facilitate measurement and control. Companies should not mistakenly believe that internal process development and automation alone bring about improvement for the customer. While BPM should start by assessing the real priorities of key customers, all too often it ignores the fact that perceived value is the consumer's overall assessment of the benefits of a product based on what they are getting and what they are getting. . This means that the assessment of the usefulness of products and services can be based not only on the properties of the product and the service itself, but also on the role of both in the customer process [26].

Interestingly, a search of Business Process Management magazine, the de facto leading magazine in the field of BPM, found no results, despite the notion of servitization being widespread in various communities. As a result, BPM leaves a lot of potential unused and has to be managed by customer processes. This call is not new,

and previous work suggested solutions that bring internal and customer processes closer together. One such seemingly promising effort was suggested by Gersch, Hewing, and Schöler (2011), who introduced an approach that combined BPM with service blueprinting [26].

A service blueprint is a tool that simultaneously depicts the service process, the customer's contact points and evidence of the provision of services from the customer's point of view. As such, service planning has been used as a service planning and control tool to optimize the service delivery process. The method has been adapted many times in recent years and has developed into an increasingly holistic tool: as a service design and innovation technique to map the organizational structure of several companies in a complex engineering service company, or as a means of internal and external communication [27].

The blueprint enables different views of the service offering that can be used by different decision makers, enabling employees, customers, and managers to understand their role in service delivery and even in co–creating the service. This systematic approach also enables the systematic control, monitoring and evaluation of the effectiveness of the implementation of Customer Relationship Management (CRM). One possible explanation for the failure of CRM implementations is that current CRM implementations typically only view customers as “customers” through a single pair of glasses and ignore customer interaction and customer activity as a whole [28]. .

Creating a service plan can help provide an overview of these interactions as it begins with a comprehensive analysis of how customers perceive the desired service, participate in the encounter with the service and their processes. After completing the analysis, the actual service plan can be drawn up. According to the latest standards, this plan consists of five components. The first component, “Case Studies,” includes all operations related to the customer's service delivery process. Since these actions are at the heart of the plan, they are presented in chronological order along with “physical evidence” at the top of the plan. The latter includes all material assets to which customers are exposed and which can influence their perception of quality [27].

The third component "Actions in connection with stage / visual contact employees" is separated from the customer's actions by the interaction line. Every interaction between the customer and the service provider means that this line of interaction is over and the moment of truth has arrived. The "behind–the–scenes / invisible contact employee actions" are separated from the stage actions by the visibility line, which describes all service activities that are invisible to the customer. Finally, “support processes” are separated from the backstage liaison staff by the line of internal interaction [27].

A first shortcoming has already been identified by Gersch, Hewing and Schöler (2011). Customers are satisfied when their expectations of the value of a product or service and their relationship with the company are met. These expectations depend on the needs of the customers that arise in the implementation of the processes. However, these needs are becoming more and more heterogeneous and vary from customer to customer. Therefore it is important to understand the specific hierarchy of customer needs and internal processes need to be tailored to these needs [28].

Most BPM efforts are not properly tailored to customer needs and expectations. Accordingly, Gersch et al. (2011) suggest a method to fill this gap by integrating internal processes and externally oriented service blueprinting efforts. The second shortcoming is that the current format of the blueprint is only visible to the service provider and includes customer operations that are performed by the customer service representatives. It is imperative that the company gather all necessary information about the potential behavior of customers and their interactions with frontline staff in order to better understand customer needs when encountering the service. However, this is not enough [28].

This is because the plan does not include any information about the customer's pre–, intermediate, and post–contact processes and does not necessarily reflect the activities of the service users, which can be particularly problematic in the business–to–business market. Customers sometimes have to go through time–consuming internal processes before first contact. Without the knowledge of the service provider, the customer can carry out processes that are disadvantageous for the service provider,

such as B. carry out incorrect self–repairs. The service provider must therefore identify the customer's business processes and adapt their own processes accordingly. You can go one step further and reshape their customers' businesses.

The current study describes the development and implementation of a systematic approach all that is:

- The study of own and customer processes in an expanded form;

- Service planning and application of business process management techniques on both sides;

Line of interaction. The approach is presented using a case study of a change initiative at Hamapol (the name is fictitious, all data is real), the innovative high.

High performance devices. Hamapol also provides service support for customers who increasing percentage of its sales.

The study describes the development and implementation of a systematic approach: the investigation of own and customer processes with an extended form of the service plan and the application of business process management techniques on both sides of the interaction line. The approach was presented in the case study of the Hamapol (Name Fiction, all data is real) Change Initiative, a leading international provider of innovative high–performance equipment. Hamapol also offers service support to its customers, which is an increasing percentage of its sales [28].

The study at Hamapol also includes elements of case study research and action research, but can best be described as an independent post–interpretative review. The focus is on a deeper understanding of what and how employees work, which is an important characteristic of case study research. On the other hand, the conclusions are based on self–reported data and observations from stakeholders, some of whom played an active role in the investigation [29].

Therefore, it also contains elements of action. There are three main sources of data. The main source of information was the Global Services Manager, who was closely involved in the initiative to be examined and who wrote an extensive project paper on the initiative as part of a management training course. The project document was based, among other things, on a series of interviews with nine employees from

various customers who were in regular contact with Hamapol customer service in the previous year [29].

An in–depth, unstructured series of interviews was to be carried out with the Global Services Manager, the project document was to be checked in detail and the report was to be traced back to two other data sources: two structured surveys with open comment fields at the end. A survey is aimed at 32 respondents, experts or superiors from all competence centers (who are also the first point of contact) [29].

The survey consisted of a series of closed–ended questions that rated job content, workload, employee well–being and job satisfaction, and an open–ended comment box at the end. The survey took place in four waves: one month before the change, two months after the change, and three and six months after the change. The proportion of responses to the survey ranged from 55% to 65%. Due to the anonymity of the survey, it was not possible to match the respondents between the waves [29].

The second survey was sent to regional customers by a Hamapol engineer after each on–site visit. Customers were asked to rate the simplicity of requesting the service, as well as the quality and timeliness of the service itself. Here, too, there were open comment fields to identify quality changes and other identified problems or improvements. A total of 1351 replies were received. For reasons of confidentiality, we cannot disclose the quantitative results of the surveys; we concentrate our analyzes more on open comment fields [29].

In the first step, a number of reasons for the relatively low customer satisfaction were identified. While some of these causes are related to the inadequacy of the systems used to contact Hammol and the staff who must respond to all support requests, other issues are directly related to the customers' business processes. The first important observation was that customer employees often had to go through a time–consuming internal process before they could or could request Hamapol's service [30].

In many cases, end users had problems several days prior to contacting Hammol. Usually the problem is reported internally, which initiates an internal escalation process. Depending on the complexity of the problem, a knowledgeable user, an in–house help desk, or even an inexpensive, non–specialized vendor would solve it. Only

when these opportunities fail will they contact Hamapoll. This means that in many cases the internal customer process is terminated due to a problem with Hamapol devices without contacting Hamapol [30].

In addition, these internal customer problem–solving processes were often ineffective and the resulting solutions were unsatisfactory. In addition to unsatisfactory internal repairs, Hamapol had an incomplete service log and, above all, only very limited knowledge of the customer processes in which the delivered devices were used and the problems that occurred. An important trigger for this decrease in satisfaction is the lack of regular and clear communication [30, 31].

Many customers reported that they were not always informed of the status of their service request and when a technician would arrive to resolve the problem. Instead, they had to call Hammolt themselves to get status updates or find out what was happening. Customers also reported that they had to speak to various support staff before they could find someone who could really solve the problem [31].

In addition, the ranking of service needs was based on customer segmentation. This meant that requests from key customers took precedence over service requests from non–key customers. While this approach seemed logical, it ignored the fact that different requests from the same customer may come from different customer processes and thus have significantly different priorities, and in some cases it made sense to prioritize an important request from a less important customer. due to an insignificant request from an important customer [32].

While many agree on the need for "process owners", who are responsible for internal organizational processes, and "key account managers", who are responsible for the relationship with a certain customer group (customer group), it has become clear here that it is a “Customer Process Owners” requirement (similar to the problem owner concept in Elbeltagi et al., 2013). These not only identify the customer's most obvious needs, but also really optimally adapt the service process provided to the customer's processes. In cases where a customer needs help with a problem, the customer process owner is the only point of contact who manages the problem internally and provides consistent status updates [30, 32].

It is also responsible for the timely, accurate, transparent and sustainable solution to the root cause of the problem that has arisen; From start to finish. In order to make this possible, however, a sound knowledge of the business processes of the customers is essential, so that the customers have to be adapted to the adaptation of their internal processes or in some cases even of their processes. To acquire this knowledge, a service blueprinting exercise was started [31].

However, the five–part plan quickly became inadequate: there was a lack of information about the customers' internal processes, which was the basis for many of the shortcomings in the entire process. Three additional components were added to the plan to incorporate information about these internal customer processes. The most important expansion was the division of "customer activities" into customer care processes, backstage customer campaigns and stage campaigns [31].

This allowed for a more complete mapping of the service delivery process, which covered the entire process between identifying the need and resolving the problem. In addition, the supplier's internal key performance indicators (KPIs) were placed at the end of the service plan. In this way, KPIs can be optimally adapted to customer activity and the encounter with the service. It has also enabled Hamapol to communicate more clearly with its customers about what it is focusing on and how it strives to provide the best and fastest possible service [31].

With this new format, customer processes are mapped together with the customer. This meant that all processes on the customer side that lead to a service requirement and are triggered by it, were described and, if possible, optimized. On the service provider side, all processes were reassessed on the basis of the customer processes. Following this design exercise, a new customer relationship system was introduced that standardized the contact process and sent all service inquiries centrally [31].

In accordance with the new procedures, if a customer has a problem with a Hamapol product, the customer will be prompted to immediately record the problem on the Hamapol website. If the problem cannot be resolved internally, the customer can contact Hammol through the call routing system or an online device and an expert will be appointed to be responsible for the problem. This expert is responsible for

proactively providing status updates and monitoring the resolution of the problem until the problem is completely resolved [32].

The aim of business process management is to develop and control organizational processes in order to offer the customer maximum benefit. Despite the importance of the customer, most process development efforts and techniques do not sufficiently consider the customer. Gersch et al. (2011) suggested that a good approach to integrating customer expectations is to incorporate BPM into service planning. Since BPM is a management discipline designed to create and manage processes, and a service plan is a tool that helps you understand customer processes, combining these to optimize your service experience is a really important step in building your customer focus and To make your service profitable [31].

However, the lack of efficiency lies more in the customer's processes than in the internal processes or in the interaction between service provider and customer. These deficiencies can only be remedied by extending the scope of optimization to the customer's internal processes. In addition, it is not enough to pay attention to what the customer “wants” and without insight into the process it is not possible to fully understand what the customer “needs”. Even if the customer's processes are not changed, a deeper understanding of the service provider enables better consideration of the customer and his potential behavior [31].

This approach has several advantages and risks. The first benefit is the ability to gain a sustainable competitive advantage. Since modern ERP tools can also easily reproduce complex internal processes, one process alone can no longer create a sustainable competitive advantage. Process management and optimization of service and customer processes can be so beneficial because this customer orientation is difficult to imitate and can therefore be a tacit, socially complex, company–specific resource that significantly influences process performance. In addition, the degree of integration achieved with this approach increases the cost of changing customers [32].

On the other hand, this integration of BPM and Serviceplan Design also means the integration and knowledge transfer of customer and proprietary processes, which makes both companies more susceptible to knowledge risks for lengthy discussions

about the types and consequences of knowledge risks.). As both gain deeper insights into what the other is doing, the risk of vertical integration or imitation increases.

Both companies have the knowledge to integrate each other's processes or to copy them with a more competitive third party. This close intermeshing can therefore only be desirable if the buyer is looking for a supplier who is willing to invest in customer–specific resources and in which both sides bind in the long term.

Focusing on the customer's processes and problems, and in some cases a shared commitment to solving them, increases the risk for manufacturers as service providers, but potentially improves long–term benefits [32].

Many procedures lay between the manufacturing of the product to the final stage of delivering it to the customers. Firstly, the products will be sent to the warehouse where it needs to wait for its order to be placed. The product spent a considerable amount of time in the warehouse or it can also be ordered as soon as it reaches the warehouse.

The next step that follows is to arrange for the most suitable means of transport for delivering the products to the postal carriers or retailers. The retailers or postal carriers in return deliver the product to customers. Whatsoever, transportation is a tricky process that has many elements to it. The important being the weather conditions. If the weather conditions are not favourable, then it can disrupt the whole transportation process, which in turn can bring about huge losses to the company [34].

The main purpose of the logistics services i**s** to oversee all these matters. They coordinate transportation services and keep the products flowing smoothly. For instance, if a particular client does not have many products to fill the entire truck, the logistics service providers strategically combine one customer’s shipments with another customer’s shipments, so that the truck can be fully utilized. This also avoids certain delays in the deliveries.

Logistics best practices vary depending on the nature of the business and its product decisions. Consider the variances in the following examples[34].

A manufacturer bases its business model on a just–in–time inventory management system that aligns receipt of raw materials with production schedules so there is little

need to pay for storage and a company's capital is continuously freed for reinvestment. Its logistics priorities include demand planning, selecting suppliers that consistently deliver on time and on budget, fast intake of materials upon arrival and efficient material handling. Once final goods are manufactured, priorities shift to packaging the finished product and transporting it to distributors, wholesalers, retailers or other customers. Manufacturers need to manage true end–to–end logistics from procurement to receipt to manufacturing to packaging, storage and transportation to a buyer.

If the manufacturer has a direct–to–consumer model, it may use a supply chain as a service provider to get its products to the end customer.

In the second example, a boutique clothing store orders stock from designers and manufacturers. Finished goods arrive at the retailer's main distribution warehouse for intake. The items are first unitized—broken down from bulk commercial packaging to individual consumer packages. Barcodes are added, then items are sorted, packaged and shipped to the store or a nearby warehouse. Logistics for the retailer begins with intake of goods and continues through the movement of those goods to their final destinations, which in this case is a brick–and–mortar store, not the final customer [34].

In a second retail scenario, some or all of the goods are sent to an order–fulfillment center, where they are processed and shipped to the end customer, who likely made the purchase online. In this scenario, logistics entails the retailer receiving the goods it ordered from suppliers, unitizing them and storing them in the fulfillment center's storage onsite to be sorted per customer order and then shipped by a third–party logistics supply company, such as UPS, FedEx or USPS [35].

In a third scenario, the retailer redistributes its in–store inventory to other stores where demand for the product is higher to avoid discounting and taking a hit to profits. Or, the retailer may know from its analysis that demand is sluggish everywhere for certain products. In that case, the more quickly it marks the stock down or sells to a retail discounter at a reduced bulk price the more likely it is to recoup much of its investment. Logistics in this scenario entail inventory control, demand planning, pulling, packing and shipping products between stores, moving some items to sales racks, and shipping a bulk distribution in a transaction with a third–party seller [33].

If the retailer declares some remaining product as too costly to sell, because demand is too low at any price, then logistics would also include transport of these items to a charity for a tax write–off. If some of that product is also damaged, the retailer's logistics manager would transport it to a disposal site [33].

Mainly three types of logistics services are commonly used. The logistics industry is widely spread and it contains a vast range of services that have a direct impact on how the products are delivered from the maker to the particular recipients. It does not matter where the business lies in between the shipment and production lines, it is always better to have that feel from how the products are getting from one point to another. There are various types of logistics that influences the production processes [34]:

Warehousing services. The product is typically held at a warehouse or is consecutively transported through various warehouses before it is shipped. Many companies prefer their warehouses; whereas many companies work hand in hand with third–party logistics service providers. They tend to receive ship and store out products on behalf of their clients [34].

These help in eliminating the cost of paying for a complete warehouse. Although warehousing is a very flexible and non–complex aspect of the field, still it has certain elements that make the situation critical. The storage you require will determine the dynamic of space that your products need, the time aspects of your need for space, how easily your products are accessible, and many more[34].

Freight shipping. Large items and large orders are mostly shipped with the help of freight shipping. This includes a combination of particular vehicles like ships, trains, cargo, trucks, and many more. Freight services also include drayage services that enable your order to be transported from ports to particular warehouses for storage [34].

Just like warehousing, freight shipping is also full of complexities and involves constant fluctuations in labour shortages, demands, shipping timings, and many more. It is the logistics provider's job to see that the products are delivered timely no matter

what the situation is or what circumstances the company is facing. These enable brand loyalty and customer loyalty to remain constant [35].

Courier shipping. Courier shipping is one of the most popular shipping services opt by the company. Shipping companies like UPS, FedEx, etc. are very popular now. Courier service is mostly availed for smaller orders and for products that are very fragile and require extra care during delivery. Courier services have a faster pace than freight shipping. The reason is very simple that is courier services take care of the smaller orders, not large scales of items. Many retailers tend to reserve the courier services for the last step when the particular product reaches directly to the intended customers from the warehouse [34].

Logistics management is one of the essential elements of supply chain management that is used to fulfil customer needs and demands by planning, controlling, and executing this effective movement. Logistics management is the management of the complete flow of goods and their particular services [35].

It provides full information on the complete movement of raw materials, and other respective activities in inventory. Logistics management plays an important role in running your supply chain smoothly. It also tracks movement, location, and the status of the inventory. Logistics management helps organizations to cut out their expenses and enable better customer service. By adhering to the customer requirements and the standards laid by the industry, logistics management provides implementation, planning, and strategizing [35].

Given that the movement of goods is what drives cash flow, it stands to reason that managing that movement—logistics management—is a core business concern. Indeed, logistics management impacts a company's bottom line for better or worse. It's best not to leave that impact to chance [36]

The following are six major benefits of effective logistics management [37]:

1. Visibility: Logistics management affords greater visibility into the supply chain. This enables businesses to better control costs, tease out efficiencies, spot supply chain problems, conduct demand planning and gain insights into opportunities.

2. Reduced overhead: Logistics management enables companies to reduce overhead in areas from cutting shipping costs to shrinking how much warehouse space they need by proactively controlling inventory levels.

3. Improved customer experience: An excellent customer experience (CX) is the driving factor behind repeat sales. By delivering orders accurately and quickly, you improve the customer experience which in turn increase brand loyalty and future sales.

4. Preventing loss: Logistics management helps prevent loss in several ways. One is by a true inventory accounting, so your company knows exactly how much stock it has on hand at any given time. Companies can also track movement and current location so stock won't be misplaced or diverted without notice. In addition, by ensuring optimal storage and transport conditions, such as temperature and moisture management, solid logistics prevents spoilage and damage.

5. Support expansion: Demand forecasting supports expansion by realistically calculating inventory needs and ordering, transporting and stocking accordingly. Further, logistics management best practices help companies scale to fulfill more customer orders on time.

6. Competitive edge: Delivering orders correctly and on time is a foundational element in the customer experience—and good CX is key to repeat orders as well as solid brand reputation and net promotor scores, which in turn help a company acquire new buyers. Logistics management helps a company consistently deliver, or over deliver, on promises and sharpen its competitive edge.

1.3 Chapter summary

The Logistics Reengineering Process (LRP) is a good engineering and management method to achieve significant operational efficiencies in the provision of services and processes within a company.

Reengineering allows companies to improve the following parameters:

– data processing;

– technological applications;

– organizational structure and coordination;

– basic logistics operations.

Changes like these have their advantages, for example:

– increased income;

– improving the information flow;

– providing quality service to clients;

– acceleration of business and logistics processes.

Leadership, motivation, personnel, communication and budget are the main factors that affect the implementation of changes in the reengineering process.

The results of successful implementation of changes in business processes are:

– Cost reduction;

– Increase of the involvement of employees;

– An increase in the efficiency of the enterprise;

– Full–scale growth of the company.

Basically, reengineering of business processes is aimed at the internal environment of the company, to which the company has the right and has the ability to change.

Summarizing the first chapter, business process reengineering is relevant for most companies that want to improve their processes, position, economic component.

Reengineering of business processes is and remains relevant and gives the company an opportunity to increase its own competitive advantage in the market.

As noted above, reengineering is a fundamental restructuring of all business processes, which should lead to a dramatic improvement in the company's performance. And just such an approach as the destruction of the old system and the construction of a fundamentally new one, taking into account the maximum optimization of the business, is the only way for enterprises to resist the pressure of other companies.

CHAPTER 2
BUSINESS ANALYSIS OF THE PROCESSES OF FTP LLC

2.1 Portfolio of FTP LLC

Freight forwarding activities – business activities for the provision of services for the organization and provision of transportation goods under export, import, transit or other conditions. Freight forwarding service – amount of works that directly related to the organization and provision of transportation of cargo under the contract of freight forwarding [25].

There is a law that is dedicated to the regulation of this kind of activity. This law was adopted on July 1, 2004 and regulates the validity of freight forwarding services. Freight forwarding services are usually provided by organizations that are engaged in the carriage of goods during export, import, transit and other modes.

There are two concepts:

– transport and forwarding activities;

– transport and forwarding services.

To summarize, these two concepts are synonymous and their general essence is the same. This means that freight forwarding includes a set of specific services, namely:

– providing an optimal vehicle;

– organization of transportation by various types of transport;

– chartering of ships / booking seats for air flights / rail transportation;

– storage;

– cargo marking;

– cargo insurance;

– sorting and consolidation of cargo;

– organization of security and inspection;

– other.

Below in Figure 2.1 you can familiarize yourself with the services that are included in the concept of freight forwarding services.

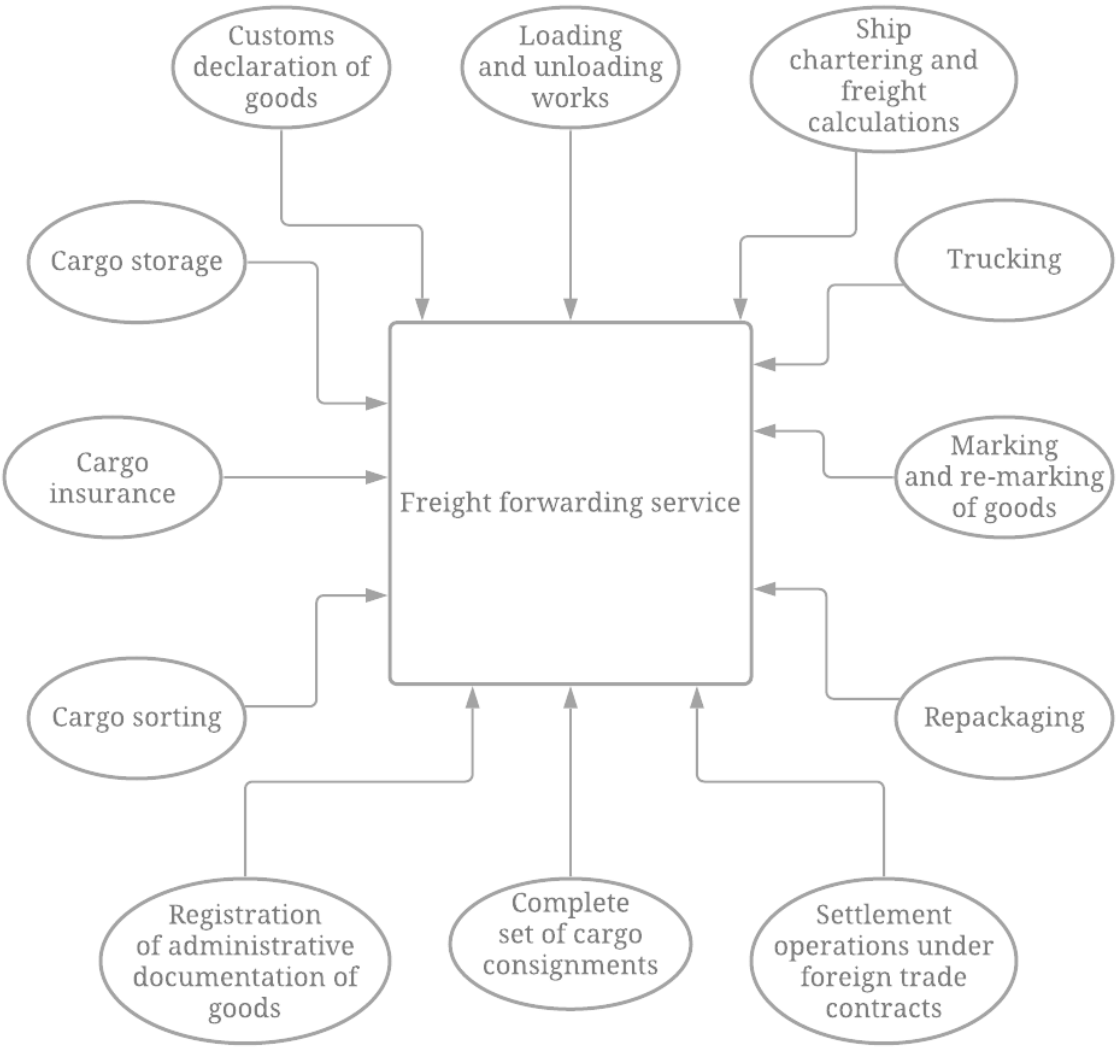

Figure 2.1 – Transport–forwarding services

Thus, the forwarding company acts as an intermediary and a link between the agent and the client.

Thus, the forwarding company can provide a number of services required by the customer for the transportation of goods, and can do this both with the help of its own capacities (own vehicle fleet, warehouse, office, etc.), and hire other companies to organize and provide a certain service. ...

Based on this, the client and the freight forwarder must conclude an agreement in which the freight forwarder undertakes to perform the services specified in the agreement in proper quality for a certain fee.

In such an agreement, as a rule, you can indicate:

– duties of the forwarder during the organization of the carriage of goods by a certain type of transport;

– transportation route;

– the ability to conclude an agreement on its own behalf or on behalf of the recipient necessary for the transportation of goods;

– additional services (for example, checking the amount of cargo and the condition of the packaging of the cargo, loading and unloading, marking, payment of duties, fees and costs, storage of goods, brokerage services, etc.).

FTP LLC is a logistics company founded in 2011, provides quality services for international and domestics services.

FTP provides transport services, financial logistics, contract logistics, and customs services. The company also provides cargo insurance in case of damage, loss or excess cargo, as well as provides advice on the work of banks, courier services and customs.

The average number of employees in 2021 is up to 100 people. The main stages of the company's development history:

1. 2010 – the transport and logistics company LLC "FTP" was founded.

2. 2010 – opening of the office of FTP LLC in Odessa.

3. 2014 – received the Leader of the Industry 2014 award (twenty–eighth place (Silver) rating in Ukraine among small enterprises in terms of financial and economic activity "Investment attractiveness" in the main activity NACE 52.29 – other ancillary activities in the field of transport).

The company's mission is to provide customers with the clearest, high–quality and convenient service in the field of customs clearance and transport logistics.

The company's global goal is to become a market leader in foreign trade consulting and logistics services.

The company's values are high quality services, love for customers, skilled employees, creativity and honesty.

The company's philosophy – the team of LLC "FTP" – is the most important thing in the organization. To this end, a staff selection system has been set up to select people who do not meet the requirements. All those who pass the selection are trained and turned into first–class professionals.

FTP logistics company has been operating in the market of international freight forwarding services, transportation and customs since 2010. Over ten years of operation in the Ukrainian market, the company has gained a reputation as a reliable partner and continues to grow and develop with its customers and partners, responding to their requests and meeting their needs for logistics services with optimal time and money.

The company is managed by a team of young professionals-practitioners in the field of logistics, which explains its constant and dynamic development.

The FTP company has been operating for 10 years in the market of transport and forwarding services. FTP offices are located in Kyiv and in the port of Odessa, and also has partners at the terminal of Boryspil airport.

The company works both with import, export, and with the transportation of goods under customs control.

Types of transport services provided by FTP LLC (Figure 2.2):

– sea freight;

– rail freight;

– air freight;

– road freight;

– container transportation.

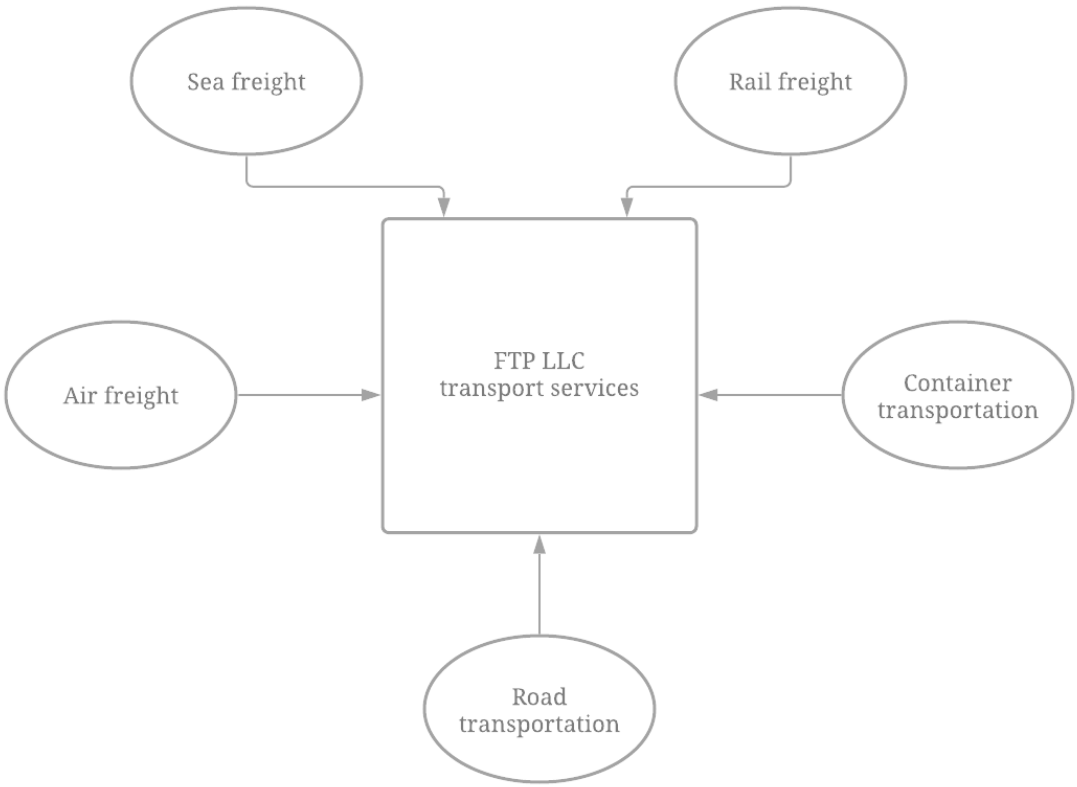

Figure 2.2 – Types of transport services provided by FTP LLC

Organization of cargo transportation by sea (FCL / LCL services):

– The most profitable way to deliver bulk quantities of inexpensive products over long distances;

– Delivery time from 10 to 50 days (transit time depends on the remoteness of the port of departure, congestion of both dispatch and transit ports and the port of arrival, as well as direct or indirect service);

– Due to weather conditions and congestion of transit ports, delays may occur;

– A popular form of transport for the delivery of goods from China, USA, India, Korea, Israel, Spain, Turkey.

Railway transport:

– Low cost of transportation over long distances:

– High lifting capacity;

– Average delivery time from 7 to 35 days. The length of the route and the number of transit stations influences the delivery time;

– Suitable for bulk and bulk cargo, heavy and oversized cargo;

– Not suitable for hazardous and liquids;

– Most often used for container delivery of goods from China and the CIS countries.

Delivery of goods by air:

– The fastest delivery method;

– Transit time without delay 1–5 days from anywhere in the world;

– Timing depends on whether direct / indirect departure and the availability of space on board;

– Well suited for fast and urgent delivery;

– Most often used for the delivery of expensive, highly profitable or perishable goods.

Road freight transport:

– One of the most popular and fastest modes of transport;

– Advantages – speed and flexibility of routes;

– Delivery time from 3 to 7 days with the possibility of door–to–door delivery;

– Optimal cost of delivery of goods from Europe and the CIS countries;

– Suitable for the transportation of any cargo, including liquid, bulk, hazardous, requiring a special temperature regime.

The container transporting:

– A single way of delivering goods between countries;

– Multimodal transportation is especially in demand;

– Usually 20 and 40 feet containers are used;

– Suitable for difficult routes where you need reloading to other types of transport for delivery to your destination;

– Due to streamlined processes, the company can deliver the container door–to–door.

FTP LLC is involved in the following product sectors:

– food;

– electronics;

– cosmetics and cosmetic accessories;

– fabrics and leather goods;

– furniture fittings;

– floor coverings;

– industrial equipment;

– construction materials;

– medical supplies;

– power tools;

– stationery;

– auto / bicycle / motorcycle spare parts;

– vehicles and agricultural machinery;

– clothes, shoes, accessories;

– goods for hunting and fishing;

– tourist equipment;

– fertilizers;

– paint and varnish products;

– household chemicals;

– plumbing.

Each of the goods listed above requires a unique approach and shipping method as they are subject to certain restrictions, specifications and certifications and the company's staff devise every means to deliver the goods to a successful and safe destination.

Organizational process of the company:

1. Application / call.

2. Miscalculation.

3. Commercial offer by mail.

4. Contract.

5. Loading / selection of cargo.

6. Customs clearance.

8. Delivery of goods by a confirmed mode of transport.

The main competitors of FTP LLC in the international market: Ekol, Kuehne + Nagel, Schenker, Your logistics, FM Logistics.

Figure 2.3 below shows the main directions and relationships by country, from where FTP organizes the supply of imported cargo. China is in the leading place (22% of the total), followed by Germany, Poland and Belarus.

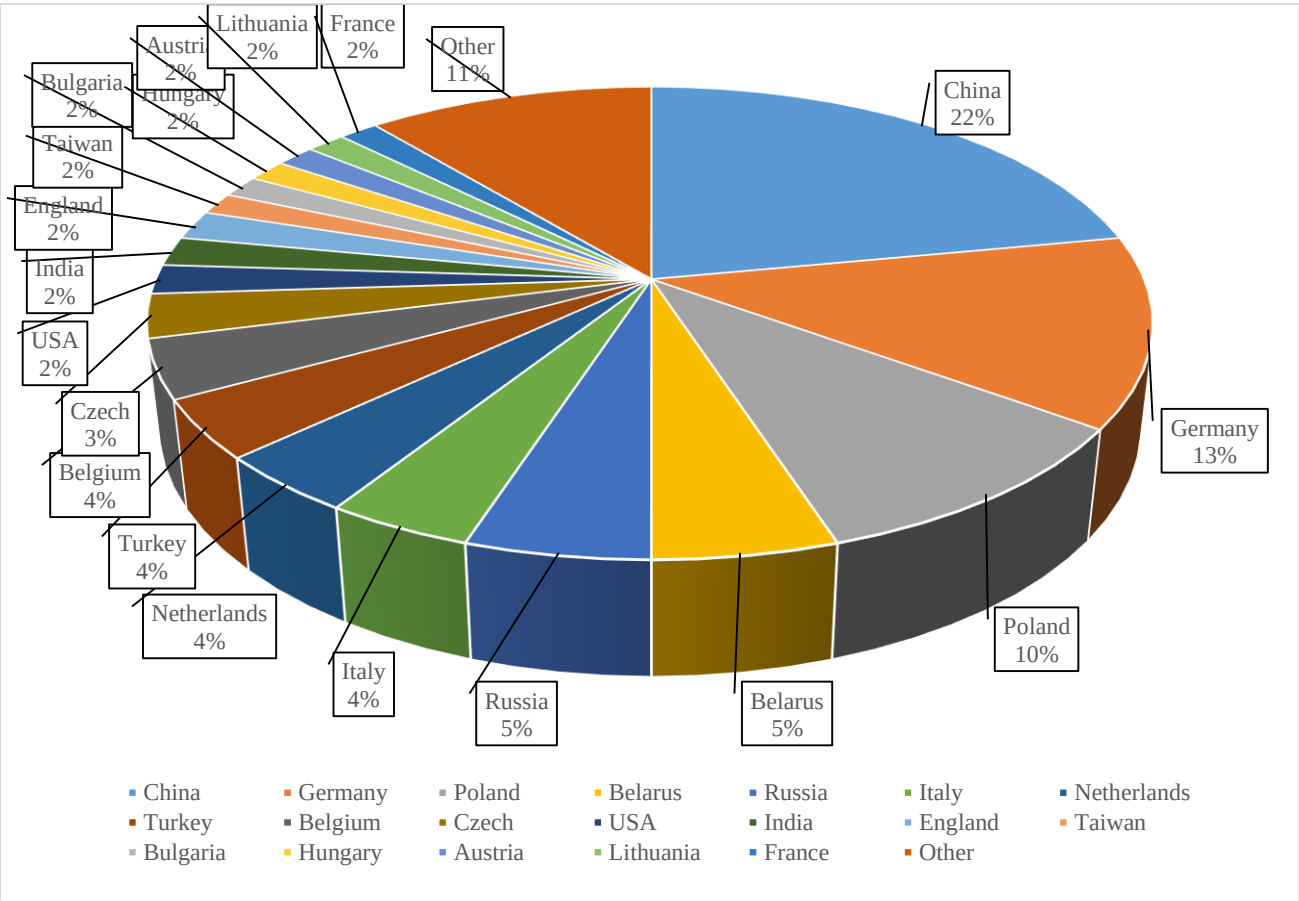

Figure 2.3– Distribution of imported goods services by FTP LLC by country

Since the logistics company does not have its own vehicle, it cooperates with the largest freight forwarders on the Ukrainian market such as Nova Poshta, UkrPoshta, Delivery, Autolux, In–Time, Mist Express and SAT as well as the largest express freight forwarders in the world. . such as DHL, UPS, TNT, Fedex and freight forwarders, including mostly small limited companies and individuals who have become trusted partners over the years, such as Pan Avtos LLC, Vast Trans LLC, LLC "Ekono LTD", LLC "Kalberson Logistics Ukraine ", LLC" Consult–Auto "and LLC" Novinka LTD "and others (Figure 2.4).

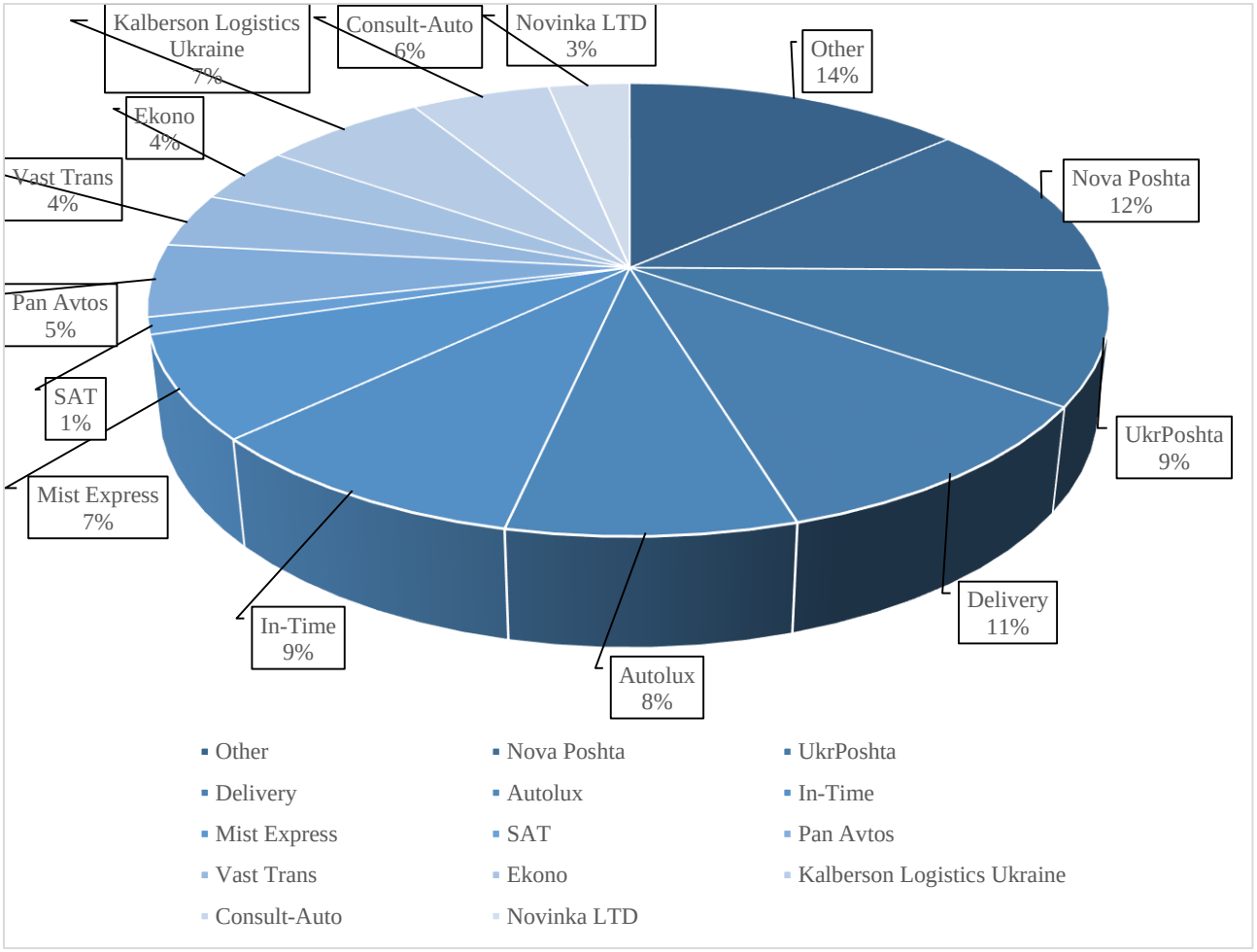

Figure 2.4 – Main partners among trucking companies

Therefore, most of the road transport is carried out in partnership with companies such as Nova Poshta and Delivery.

It should be noted that the transport is domestic, among the largest share of international transport is carried out in partnership with carriers such as Kalberson Logistics Ukraine LLC and "Consult–Auto".

Sea lines with which the logistics company cooperates in providing freight forwarding support for sea transportation – Hapag–Lloyd, Evergreen; MSC; Maersk, ZIM, Yang Ming, Cosco and OOCL (Figure 2.5).

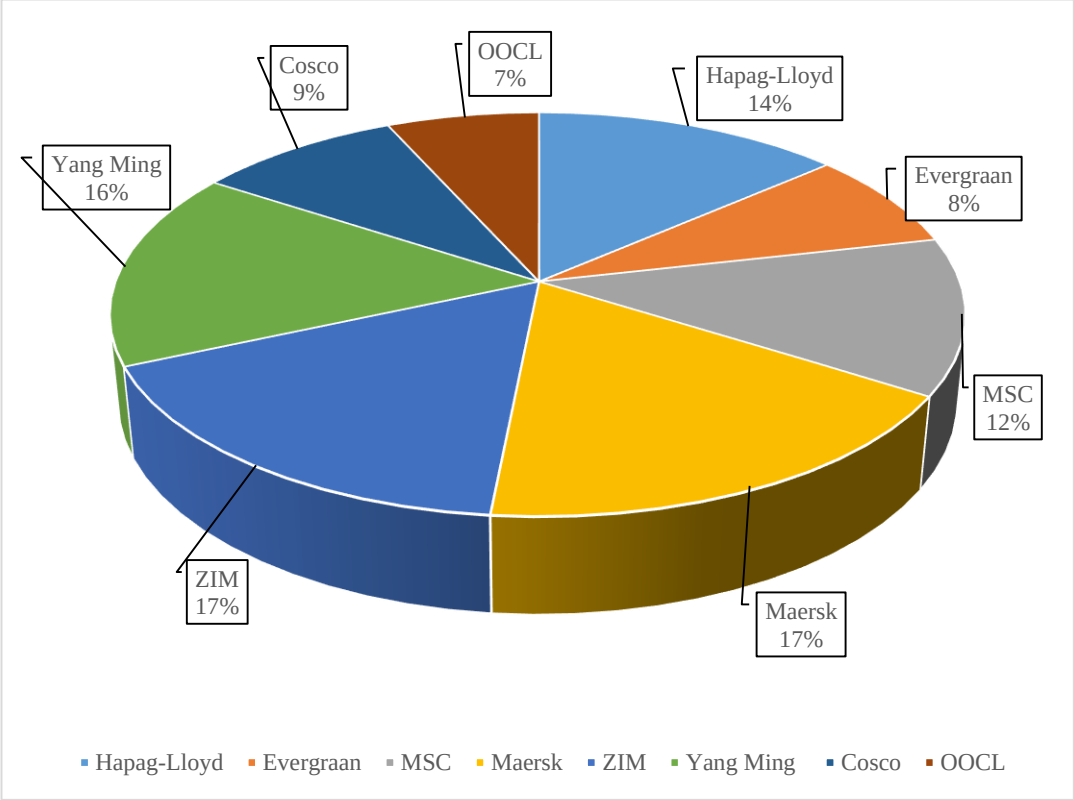

Figure 2.5– Main partners among sea lines

In the field of international maritime transport, FTP specialists are ready to provide freight transport by sea, even in the most remote regions with poorly developed infrastructure through major world ports in China; in Central, Southeast, East, West, Southwest Asia; in Europe and Australia, as well as in the ports along the coast of North and South America.

The service of the organization of transportation by separate containers is possible for safe freights of any type:

- general cargo, which is packed in containers (boxes, bales, barrels, etc.);
- bulk cargo;
- bulk or bulk cargo;
- refrigerated cargo that requires special attention (for example, it may be food);
- non-standard, oversized and heavy cargo, for the transportation of which a special permit is required.

2.2 General characteristics of the construction of company FTP LLC

The organizational structure of the company is linear and functional, represented by departments: sales and marketing, telemarketing, road transport, sea and air transport, customs brokerage services, accounting, internal audit.

Organizational structures are geared towards the requirements of long–term competitiveness and profitability of the company in order to ensure the coordination and control of company departments and employees.

The advantages of this structure include:

– In–depth preparation of work decisions and plans related to the specialization of employees;

– Dismissal of line managers from solving many issues related to financial planning, logistics, etc.;

– Establishment of "manager–subordinate" relationships on a hierarchical ladder, in which each employee is subordinate to only one manager.

However, there are shortcomings in the linear–functional structure, including:

– every relationship has an interest in the achievement of its own narrow purpose and not in the overall purpose of society;

– the lack of close links and horizontal interactions between the various units;

– overdeveloped vertical interaction system;

– top–level accumulation in addition to strategic operational goals

Road freight transport activities focus on:

1. Complete provision of transport services in the field of road transport.

2. Freight traffic between Ukraine, the CIS countries and Western Europe.

3. Intra–European freight traffic.

4. Customs clearance, consolidation, storage of goods in Germany, Poland, Lithuania and other countries.

5. Cargo insurance against possible risks.

6. Road transport of any complexity, including prefabricated goods, vehicles of various classes (ADR), perishable and refrigerated, for the transport of dangerous goods of various types.

The activities of the customs agency department focus on:

1. Preselection of UN product codes.

2. Representation of the client's interests at customs.

3. Preliminary calculation of duties and taxes.

4. Fill out all required shipping documents according to international standards.

5. Customs approval of companies that carry out a foreign economic activity.

6. Advice and assistance in preparing the complete package of documents required for the cargo registration.

The activities of maritime and air transport are focus on:

1. The transport of goods from door to door by container with the possibility of reloading to other modes of transport to the place of destination.

2. Make complex freight decisions by coordinating routes.

3. Preparation of packages with accompanying documents and control of the customs clearance of the goods.

4. Coordination of the actions of the participants in the transport process.

5. Track freight everywhere.

6. Provision of transport insurance.

7. Transportation of cargo to / from the airport for international air traffic.

8. Weighing, marking, recording of the necessary transport documents and other services.

9. Registration of the cargo with the customs authorities of the countries of departure and arrival.

10. Flight booking and freight tracking for the entire route.

11. Freight insurance with the largest insurance companies.

12. Organization of multimodal freight transport.

A detailed description of the services provided by FTP LLC is presented in Figure 2.6.

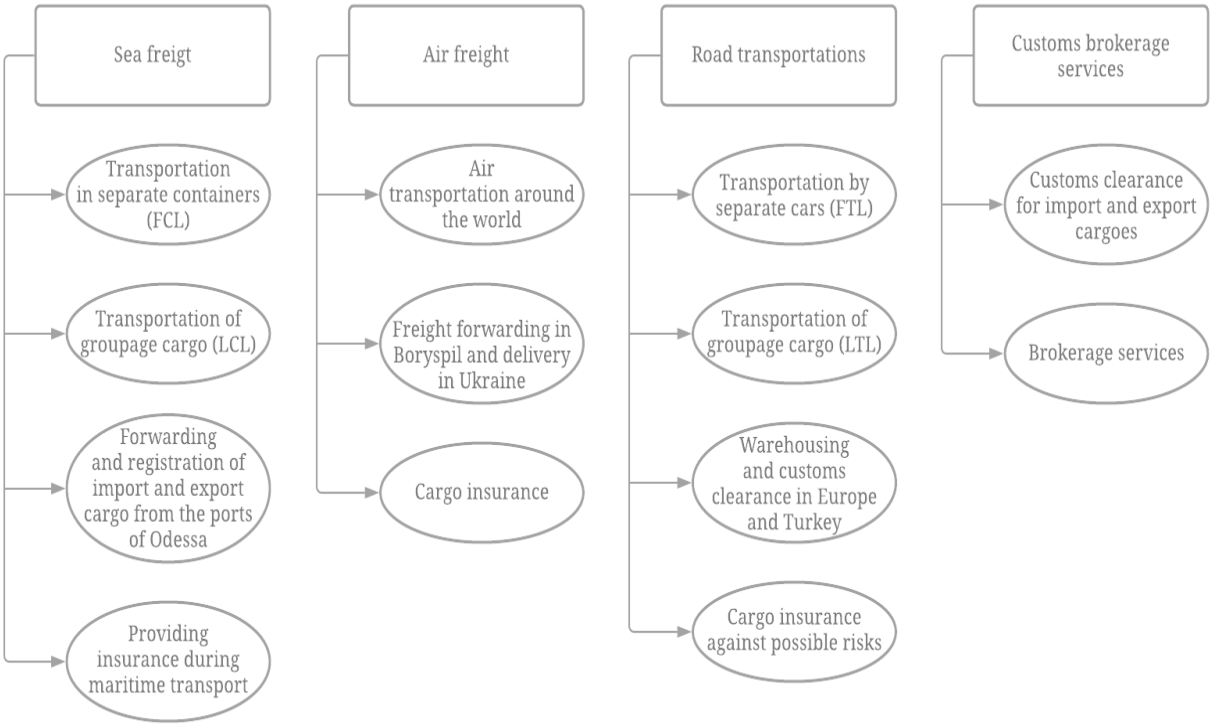

Figure 2.6– Services provided by FTP LLC

This structure of the logistics company is best suited for its activities in comparison with other possible structures of the organization.

Sales, marketing departments and telemarketing departments, are departments whose main goal is to increase the number of sales of services. The activities of the sales department are aimed at achieving the following goals of the company:

– attracting customers;

– preservation of the client base and loyalty;

– increasing the number of customers.

The company does not have its own fleet or warehouses. Therefore, the company cooperates with a number of freight forwarders and rents warehouses in Poland.

The company has its own office in the Odessa seaport, which saves a lot of time for shipping and customs clearance of imported/exported goods arriving there. However, the company does not have its own office at Boryspil Airport, so the services of partner companies that serve cargo directly at the airport are used to organize the transportation of air cargo.

As FTP LLC provides services by different modes of transport, it does not have a specific geographical segment in which it operates: it can perform cargo shipments from the United States, Canada, China, South Korea, etc. and cargo shipments from Poland, Lithuania or Turkey. To do this, there is an agency network that allows to perform shipments of various types of varying complexity to be carried out anywhere in the world.

At the same time, the largest part of freight forwarding services is carried out from China to Ukraine, ie during import agreements of clients.

When providing transport and forwarding support for air transportation, the logistics company's carriers are such airlines as: Ukraine International Airlines, Austrian Airlines, British Airways, KLM, LOT Polish Airlines, Lufthansa, Turkish Airlines and others.

FTP uses the services of the Ukrainian flagship UIA most often when providing freight forwarding services, which can be attributed to the optimal tariffs for transportation and the largest network of routes from / to Ukraine.\

On the company's website it is possible to track the transportation of goods:

- in Ukraine: Nova Poshta, UkrPoshta, Delivery, Autolux, In-Time, Mist Express and SAT;

- during international transportation: DHL, UPS, TNT, Fedex, DB Shenker USA, DHL G.F., Air Cargo, POST / EMS (with USPS);

- and also by container number, sea bill of lading or MRN code.

It is possible to conclude that FTP LLC meets the criteria that determine a quality partner in the field of foreign economic activity and unites the whole complex of procurement, financial and transport logistics.

2.3 Analysis the financial indicators of the company FTP LLC

Financial Management is a vital activity in any organization. It is the process of planning, organizing, controlling and monitoring financial resources with a view to achieve organizational goals and objectives. It is an ideal way of controlling an organization's financial activities, such as fundraising, resource use, accounting, payments, risk assessment, and all other monetary matters.

In other words, financial management is the application of general management principles to a company's financial assets. Proper management of an organization's finances provides quality fuel and regular service to keep it running efficiently. If finances are not properly managed, the organization faces obstacles that can have serious consequences for its growth and development.

Financial management is the strategic planning, organization, management and control of financial companies in an organization or institution. This includes the application of management principles to the organization's financial assets and also plays an important role in budget management. Take a look at the goals associated with it:

- Provision of sufficient resources for the organization;
- Ensure the organization's shareholders get a good return on their investment;
- Optimal and efficient use of resources;
- Creating real and safe investment opportunities.

Financial management is also consists of certain elements. These include:

- Financial planning: This is the process of calculating the amount of capital required by an organization and then determining its allocation. The financial perspective has a number of main objectives, namely:

- Determination of the required capital;
- Definition of capital organization and structure;
- Developing the organization's financial policies and regulations.

- Financial control: This is one of the key activities in financial management. Its main role is to assess whether an organization is meeting its objectives or not. Financial control answers the following questions:

- Are the organization’s assets being used professionally?
- Are the company’s assets safe?
- Is the management acting in the best financial interests of the organization and the key stakeholders?
- Financial decision–making: This includes investments and financing related to the organization. This department decides how the organization raises funds, sells new shares, or distributes profits.

A company's financial management department is headed by a chief financial department. This class has many functions such as:

- Calculation of the required capital: The financial manager must calculate the amount of money the organization needs. It depends on the company's policy regarding the expected costs and profits. The amount required should be estimated to increase the employability of the organization.

- Formation of capital structure: Once the amount of capital the firm requires has been estimated, a capital structure needs to be formed. This involves debt equity analysis in the short–term and the long–term. This depends upon the amount of the capital the firm owns, and the amount that needs to be raised via external sources.

- Investing the capital: Every organization or company needs to invest money to raise more capital and generate regular returns. Hence, the finance manager must invest the organization's funds in safe and profitable businesses.

- Distribution of profits: If the organization has made a good net profit, it is the responsibility of the chief financial officer to distribute it efficiently. This may include keeping part of the net profit for emergency, innovation or expansion purposes, while the other part of the profit can be used for shareholder dividends.

- Efficient money management: This department is also responsible for the efficient management of the company's funds. The money is needed for various

purposes in the company, e.g. B. Paying salaries and bills, managing inventory, fulfilling obligations, and purchasing materials or equipment.

Financial control: The financial manager not only has to plan, organize and procure resources, but also control and analyze the company's finances in the short and long term. This can be done with financial instruments such as financial forecasts, key figure analysis, risk management and profit and cost control.

At the same time, most of the shipping services are from China to the Ukraine, which means during import transactions of clients, among the export deliveries of clients the largest share of freight forwarding services is carried out in Europe, North and South America.

When providing transport and forwarding support for air transportation, the logistics partners of the logistics company are such airlines as: International Airlines of Ukraine, Air Astana, LOT Polish Airlines, Lufthansa, Turkish Airlines and others.

First let’s consider the performance of each department in terms of quantitative characteristics (Figure 2.7).

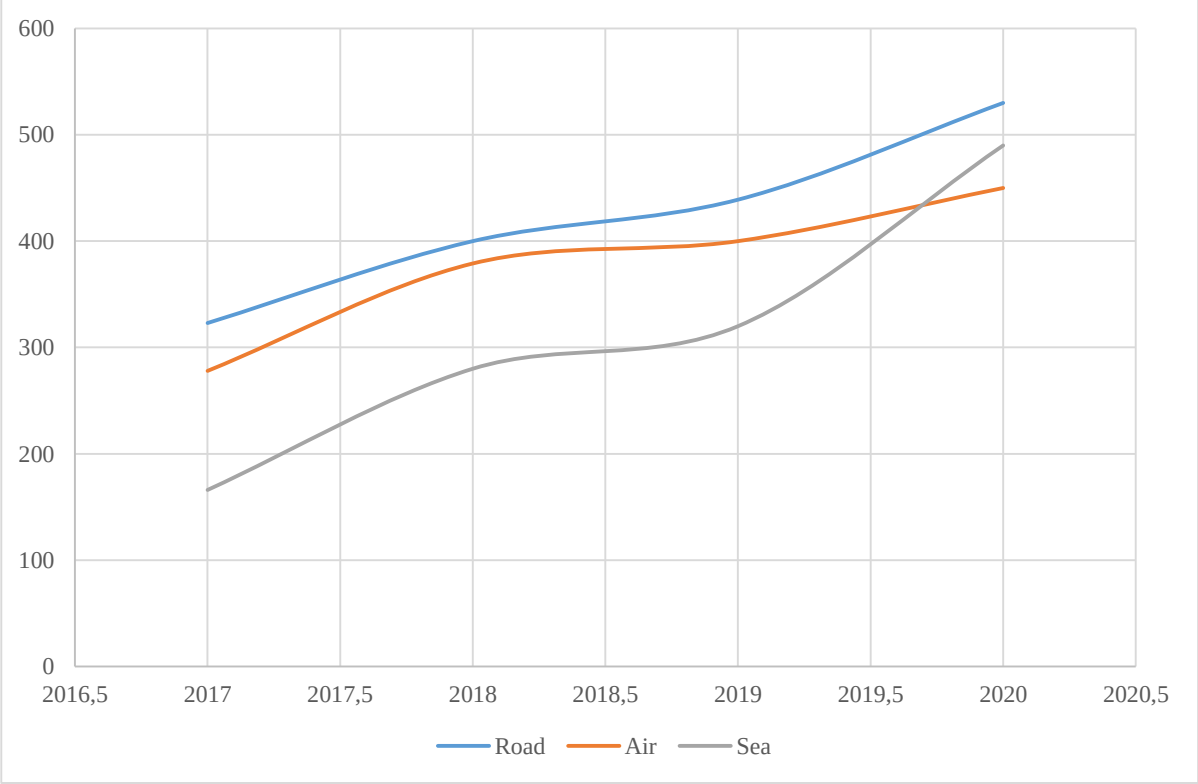

Figure 2.7 – Performance in units of transport orders over the last four years

Compared to the three modes of transport, road transport has the highest number of orders (in units) in four years (Figure 2.7).

Despite the coronavirus pandemic, which began in 2019, orders for road transportations tend to grow. Compared to 2017, the number of orders for road transportation increased by 164% (almost 1.5 times).

Next, I considered air travel. As a result of the pandemic, many modes of transport and transport have in principle been affected and severely detained. That is why the air was affected, as the best deliveries of medicines and medical supplies were provided in the air at the international level – the largest places were given to the delivery of masks, tests in large quantities, leaving little room for entrepreneurs from other industries. However, orders for medical devices that needed urgent delivery (air has the shortest transit time) are more air travel in the company.

Maritime transport, on the other hand, was much cheaper than air transport and more accessible to entrepreneurs due to the pandemic, so in 2019 it did not show such a sharp and huge decline as air transport. Now the relevance of sea transportations tends to increase and compared to 2017 the number of orders increased by 295%.

Let's move on to the financial indicators that characterize the economic result of each department, and consider the amount of income of the company "FTP" by groups of services, considering the period over the past three years (see Table 2.1).

Table 2.1 – Incomes for 2017 – 2020, thousand UAH

	FTP LLC service groups	Years				Total
		2017	2018	2019	2020	
1	Road	440,1	602,3	681,2	721,1	2444,7
2	Air	412,8	521,6	640,7	725,4	2300,5
3	Sea	720,4	708,1	668,7	483,4	2580,6
5	Total	1573,3	1832	1990,6	1929,9	

According to the volume of income, for clarity, we will build a graph of the distribution of income by type of transport for four years (Figure 2.8).

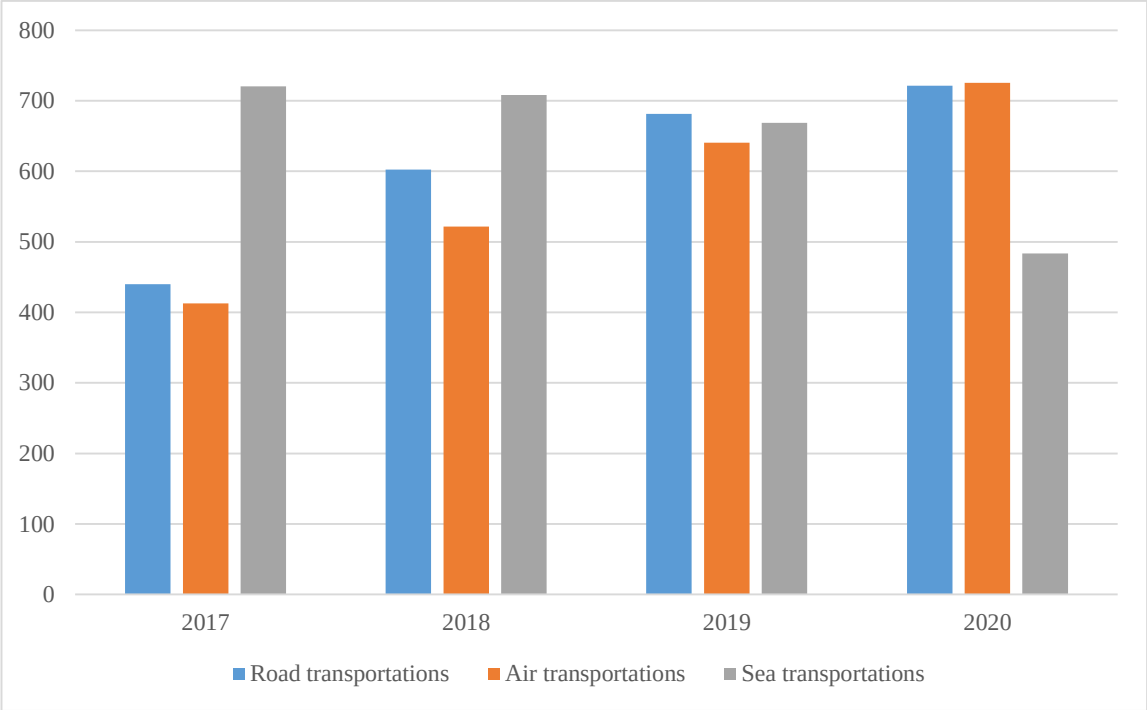

Figure 2.8 – Incomes per type of transport 2017–2020

As shown in Figure 2.8, the income of FTP LLC has a growth trend over the past four years and are growing steadily. It should be borne in mind that brokerage services are often provided in a package with freight forwarding services for various modes of transport.

Air and road transport account for almost the same share of revenue in 2020, but the number of orders for air transport is lower than for road transport. From this is possible to conclude that air transport is more profitable on average (per unit order) than road. This is typical for this type of transport, as customers use air transport in cases of urgency, time constraints, which means that they are willing to pay more for delivery, as air transport itself is the most expensive of all other modes of transport.

Below, in Figures 2.9–2.11, consider the volumes of orders of LCL sea for three years.

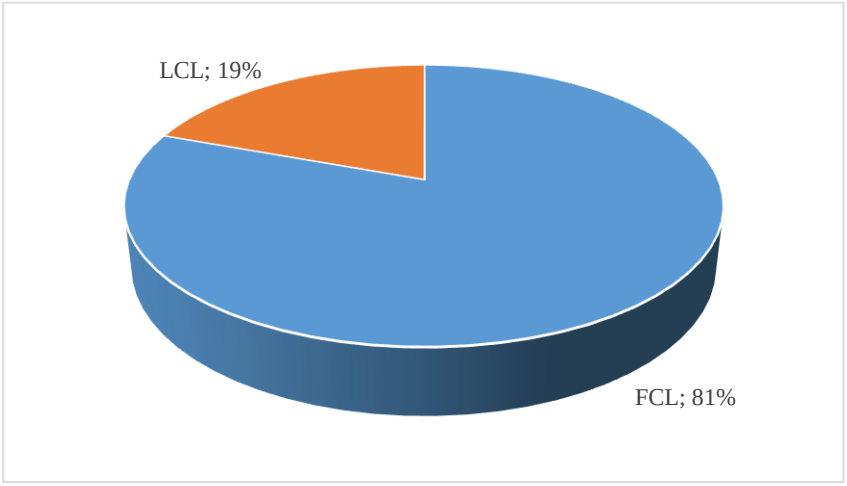

Figure 2.9 – Volume of orders by FCL and LCL sea in 2018

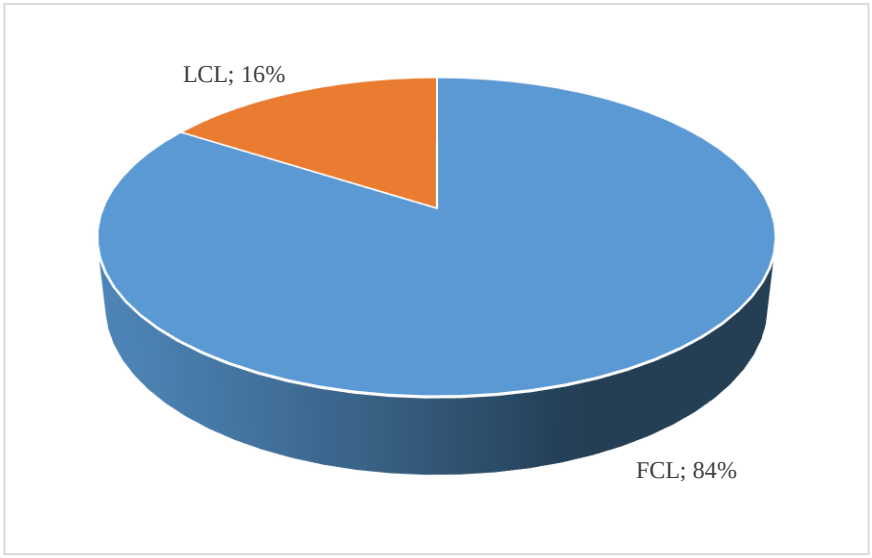

Figure 2.10 – Volume of orders by FCL and LCL sea in 2019

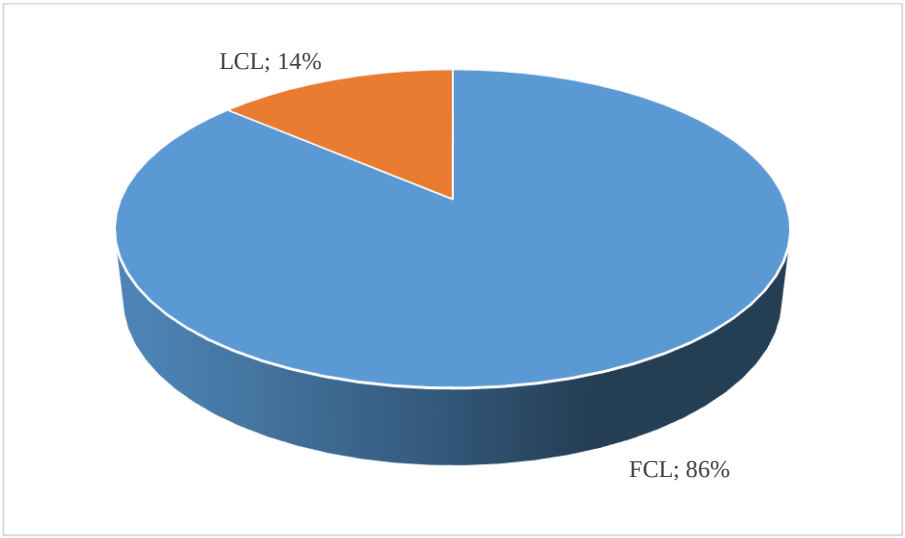

Figure 2.11 – Volume of orders by FCL and LCL sea in 2020

As you can see in Figures 2.9–2.11, the delivery of a full container takes up a much larger part of the total number of orders for delivery by sea in the company. This type of transportation accounts for over 80%.

The number of LCL volumes tends to decrease: since 2018, the total percentage of LCL orders has decreased by 5%.

Since FTP LLC does not have its own LCL service and an established base of foreign LCL agents, the company is forced to turn to LCL contractors in Ukraine in order to establish the LCL delivery process and provide customers with the service they need.

Such a scheme of business processes has its drawbacks, for example:

– spend more time on calculating the tariff;

– it takes more time to transfer information;

– the cost of delivery increases due to the profit pledged by all involved agents.

All these disadvantages reduce the quality of service and the ability to continue to remain a competitive company in the field of providing LCL service.

Below in Figures 2.12–2.14 are shown the directions in which FTP LLC accepted orders and organized an LCL service for delivery.

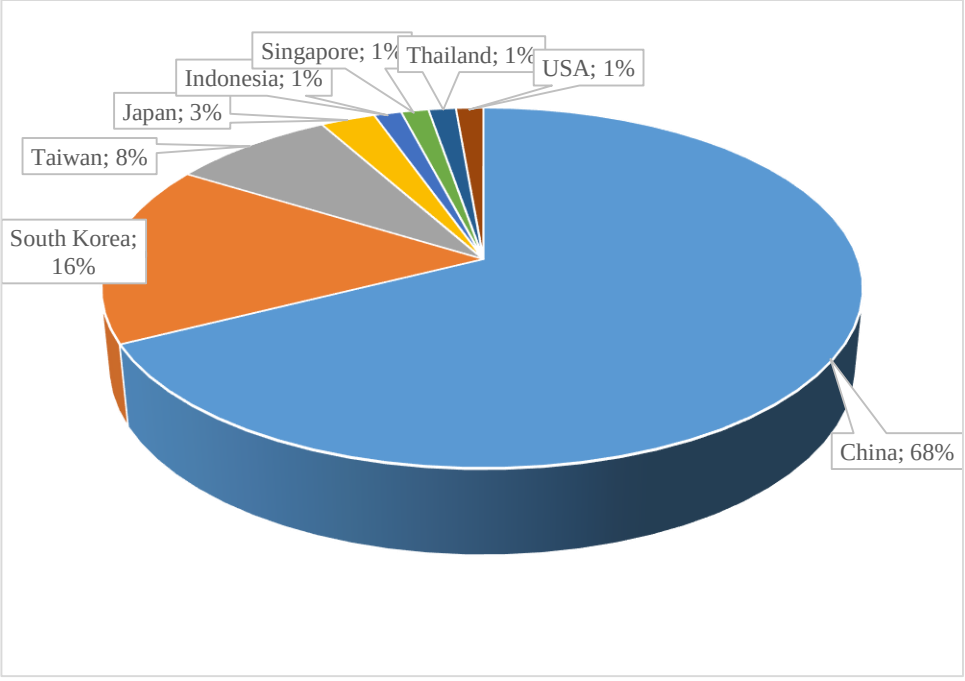

Figure 2.12 – LCL sea volumes by countries in 2018

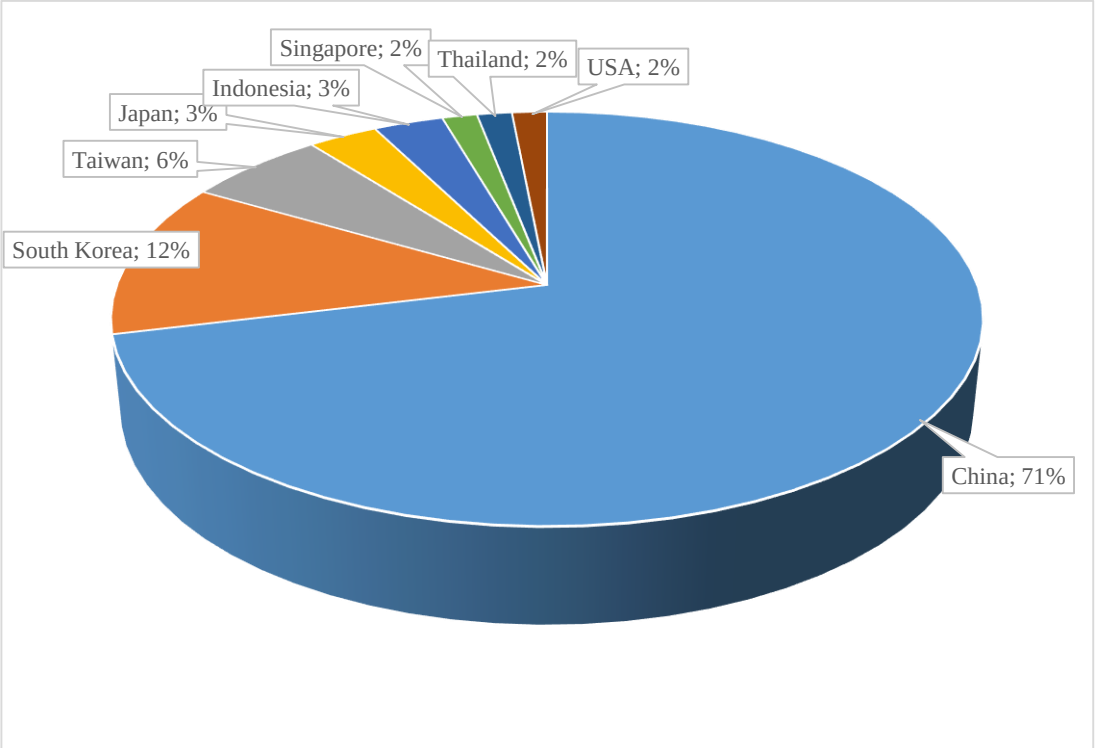

Figure 2.13 – LCL sea volumes by countries in 2019

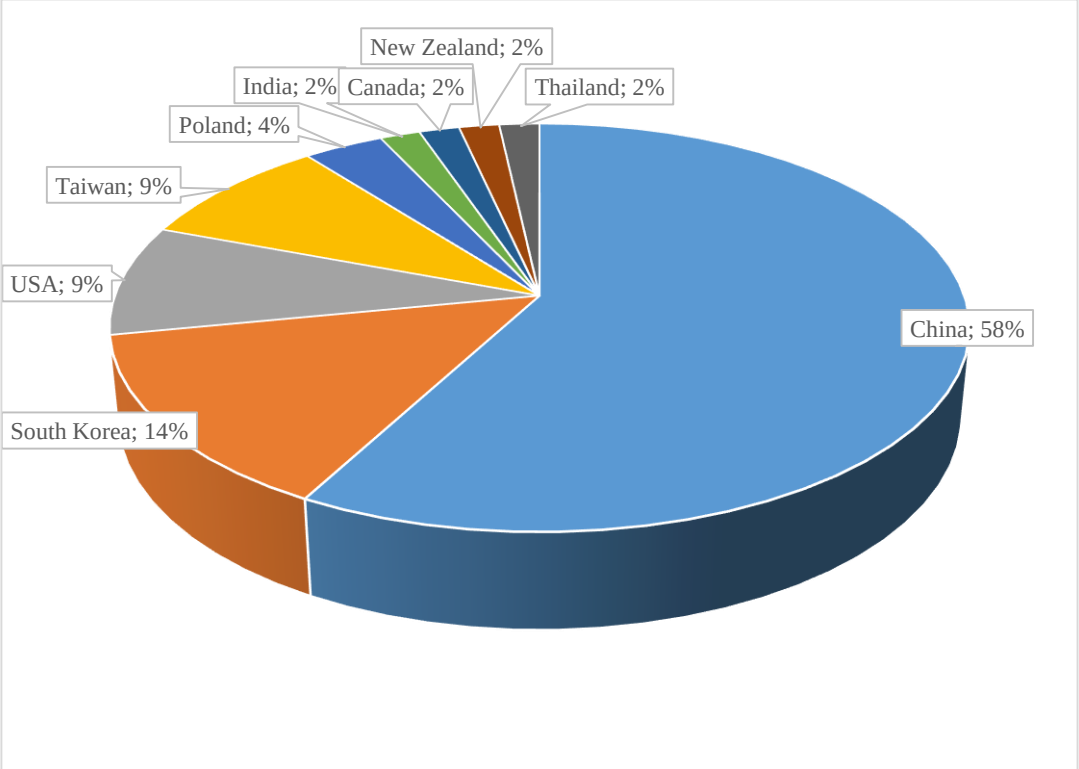

Figure 2.14 – LCL sea volumes by countries in 2020

As you can see in Figures 2.12–2.14 above, the most popular, not surprisingly, route is China – the most export–oriented country in the world. This direction accounts for 50% or more of the total number of LCL supplies.

The next, after that, is Korea – this route is allocated an average of 10–15%.

As can be concluded, the main routes of LCL supplies are Asia: Taiwan, Japan, Indonesia, Singapore and Thailand all together occupy an average of 10–15%.

Figure 2.14 shows that there has been a significant increase in the number of orders from the United States in 2020. Compared to 2019, the volume of orders increased by 8%.

2.4 Chapter summary

Summing up this chapter, FTP is a freight forwarding company that provides customers with a number of services, namely:

– auto delivery (auto, sea (FCL / LCL), rail transport, air and container delivery);

– brokerage services;

– as well as additional services in the form (storage, consolidation, labeling, etc.).

Based on the indicators for 2017–2020, it can be seen that due to the influence of the coronavirus pandemic, in 2019 there is a decline in the volume of maritime transport, but the indicators of air transport are increasing (fast and urgent deliveries of medicine have become important).

Auto and air transport show an upward trend over all feature years, while the sea, due to the surge in freight prices from China, shows a downward trend in volumes.

Nevertheless, statistics show that the sea is one of the main modes of transport, whose service is provided by the company and its development will be relevant. From the second chapter of section 2.3 it can be seen that the marine LCL service accounts for about 20% of the total amount of marine supplies.

The most popular LCL routes are: China, South Korea, America, Taiwan and Japan.

I consider it relevant to consider the introduction of its own LCL service into the business processes of a customer service company, since in this case it will allow FTP to:

– Optimize operational and business processes;

– Optimize the information flow, which will improve the quality and time of information submission;

– Attract new customers and keep existing ones due to high–quality and cost–effective service;

– Optimize the cost of costs and service.

I will consider the relevance and implementation of this project in customer service business processes below in Chapter 3.

CHAPTER 3
CONDUCTING BUSINESS PROCESS REENGINEERING

3.1 The essence of LCL and LTL

Next, I want to consider the topic of international Less–that–Container–Load (LCL) transportation, since in the third part I want to consider the opening of an LCL department at the “FTP” LLC.

Less–than–Container–Load (LCL) is a service in maritime logistics that consists of delivering small cargo shipments from different senders and to different recipients through consolidation, ie different cargoes can be combined and shipped in one container. . It can be 1 box or 15 or more pallets.

Delivery with this type of service has many advantages over shipping a full container and is in high demand by consumers. Due to the development of the market and the increase in the number of online shops, this means of transport is becoming more and more up–to–date and in demand [13].

The LCL service enables you to buy goods at the optimal price and in the quantity you need. In addition, buyers do not have to wait for a large shipment and have to pay for all the goods in the container and, accordingly, the full shipping amount.

LCL shipping can be planned and organized worldwide. Market participants use a network of agents to organize the delivery of goods via the LCL service. The most popular direction for LCL service is of course Asia, where much of the world's production is concentrated and export services are well established. Shipments from China via FCL and LCL are only increasing every year [13].

The largest ports for handling LCL cargo are concentrated in Southeast Asia:

– Hong Kong;

– Shanghai;

– Ningbo;

– Qingdao;

– Shenzhen;

– Singapore;

– and other ports.

There are currently around 70 ports in Asia alone that offer regular shipments to various countries around the world, including Ukraine [13].

The advantages of LCL are:

– Save money – buyers of cargo only need to pay for liquid cargo that they can quickly sell in production or trade;

– Efficiency of supplies – consumers do not have to wait for a large batch to be produced to completely fill the container; With the LCL service, consumers expect a small load to be produced and can ship it at the first available ship exit.

– Flexibility – LCL enables the customer to expand his product range and to order a small batch of test items from a new manufacturer without risk, as well as to combine several orders from different suppliers.

– Optimal logistics – With this type of transport, the price plays the main role, which is proportional to the cost distribution to all recipients within the container. Thus, the freight depends on the amount paid (weight or volume, proportion). If the cargo takes up one third of the container, the cost of sea transport will not exceed one third of the total cost of the container, so the recipient can get the most optimal transport cost for a small shipment [13]. .

Disadvantages of the LCL service:

– Large shipments and bulky items as well as heavy goods can sometimes not be transported;

– There may be delays in departure as the full container is waited for.

See Figure 3.1 for the advantages and disadvantages of the LCL service.

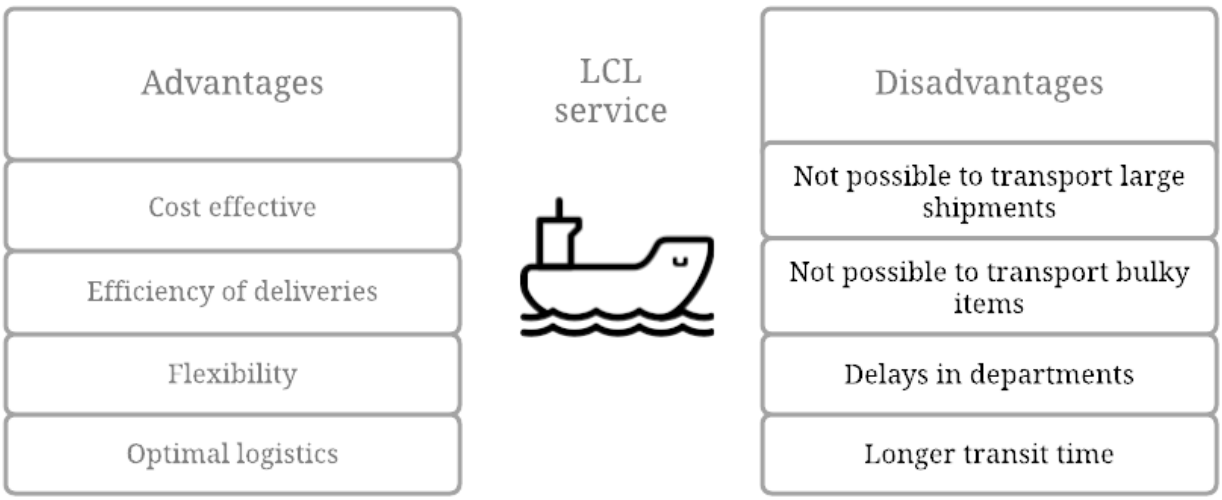

Figure 3.1 – Advantages and disadvantages of the LCL service

The main differences between LCL and FCL services in the delivery process are:

1. When an FCL cargo is shipped, the transport documents (such as the consignment note – abbreviated to BL) are issued by the owner of the cargo on the sea line. The LCL service is inevitably an agent who compresses the cargo in a container and also hands over the delivery papers to the owner of the cargo.

2. Freight costs are easier to calculate in FCL – some carriers offer online charges. You can also ask them about an exchange rate. The tariffs for the LCL service are calculated individually and depend on the weight and volume. LCL prices should be obtained from the agent in the country of arrival to avoid additional costs.

3. The delivery time of FCL and LCL containers is different because it takes longer to consolidate, handle the cargo and dismantle the container to deliver the LCL cargo to the recipient.

4. In the FCL cargo chain, it is sufficient for the owner or consignee to take over a carrier, but there is also a freight consolidation company in the LCL cargo chain [14].

FCL offers a single container tariff, while LCL chooses the higher of the actual and volumetric weights for the calculation. In most cases, the cost per m3 of LCL goods is higher than FCL due to the additional cost of transporting the combined goods. Even

so, the LCL service is cheaper – all costs are shared by more customers. Additional costs:

– cargo handling during consolidation in warehouses, during container dismantling and further sorting of consignments;

– additional marking, lathing and installation on pallets (if necessary);

– port service charge;

– terminal handling fee;

– agency fee;

– fee for an issuance order;

– security fee [16].

Groupage shipments can increase the profitability of the entire logistics process if several goods can be loaded after loading the container.

Organizing this type of cargo requires a flexible approach as there are some difficulties. The organization must take into account the specifics of the different types of goods and provide a loading system that ensures the safe storage of all parties in the container. Cargo security in the cargo transport process is the main responsibility of the consolidation agent [15].

To calculate shipping costs by LCL, you need to provide Incoterms shipping terms, route, product name, quantity and weight. LCL generally does not accept dangerous goods and battery loads for shipment, as in this case the entire load in the container is very likely to be lost and even the entire load in the container is lost, even if it is general and non–hazardous, according to the Dangerous goods costs calculated, i.e. the transport costs increase and the piece goods transport as part of the dangerous goods:

a. risky;

b. unprofitable.

Consolidated shipments also do not accept shipments that require constant temperature maintenance, as it is very difficult to put together a shipment quickly within a certain temperature.

When accepting freight transport requests, the consolidation agent analyzes the filling of the containers and enables suppliers with small orders to use the remaining space for safe and inexpensive transport to Ukraine.

All goods within the container are bundled and distributed according to their properties. From a business point of view, shipping the freight in a consolidated container is much cheaper than the FCL service. Without the LCL service, international trade would simply be excluded from small business accounts [15].

When designing an LCL delivery, all parties need to be gathered in one place. This is done in special distribution warehouses. In these warehouses, the dimensions of the goods are weighed, weighed and compared with their names with the accompanying documents. After checking and reading the indicators, the final shipping costs are calculated.

In addition, the consolidation agent checks the quality and reliability of the original packaging for every shipment. If there is a need for repackaging (damage to the integrity of the base or non–compliance with standards), it is possible to offer a repackaging service. This ensures the safety and integrity of the cargo during transport [15].

The main parameters of the consolidation warehouse, where the batch does not risk being damaged:

– highly qualified warehouse employees;

– quality control of loading and unloading operations;

– loading equipment, which undergoes a regular inspection of the technical condition and thanks to which all work is carried out as quickly as possible;

– a well–built security system and warehouse security, which prevents damage and theft of expensive goods;

– the warehouse complex must be protected from adverse weather conditions (precipitation, wind, cold, heat, etc.);

– the ability to provide a photo report of the cargo from the warehouse [15].

The complex logistics system of groupage is not operated by all freight forwarders. The international transport of groupage consignments must be carried out

immediately and with the necessary care. In addition to ensuring security, it is important to fill out the customs declaration correctly and do everything possible to ensure that the container is not delayed at customs by one or more incorrectly declared shipments [15].

Goods with different incompatible properties cannot be transported together. For example, it is better not to put fragile products in a container with metal products, as well as household chemicals and food. For this reason, the consolidation agent must pay special attention to the sorting and ordering process. The integrity of the shipment and the preservation of the functional properties of all goods depend on this level [15].

General cargo is a product (product) that is transported in packaging. The following can be used as packaging:

– boxes;

– bags;

– barrels;

– big–run;

– containers;

– bales;

– packages;

– other types of cargo packaging [17].

Transportation of general cargo, in contrast to cargo transported "without packaging" (in bulk (oil and other liquids), in bulk or in bulk (grain, ore, coal, fertilizers)), requires preparation for the upcoming transportation in direct or mixed traffic: sea, river , rail, road and air transport and special treatment on the part of the carrier [17].

The following goods fall under the general cargo category:

– Metal products (rebar, metal ingots, rolled metal, tape, scrap metal, wire, etc.);

– Mobile equipment (self–propelled and non–self–propelled wheeled or tracked);

– Reinforced concrete products (rails) and structures;

– Containers;

– Cargo in transport packages;

– Piece cargo in packaging (for example, in boxes of different sizes and made of different materials);

– Oversized and heavy cargo;

– Various types of timber (boards, lumber, plywood, etc.);

– Cement, non–ferrous metal ores and concentrates in big bags;

– Various cargoes in barrels, drums, baskets, so–called roll–barreled cargo;

– Clothes and footwear;

– Construction goods;

– Electronics (without batteries and accumulators);

– Fabrics;

– Other goods not limited in circulation by both states [17].

General cargo can be divided into the following 3 compatibility categories (Figure 3.2):

– neutral;

– aggressive;

– susceptible to the influence of aggressive factors [17].

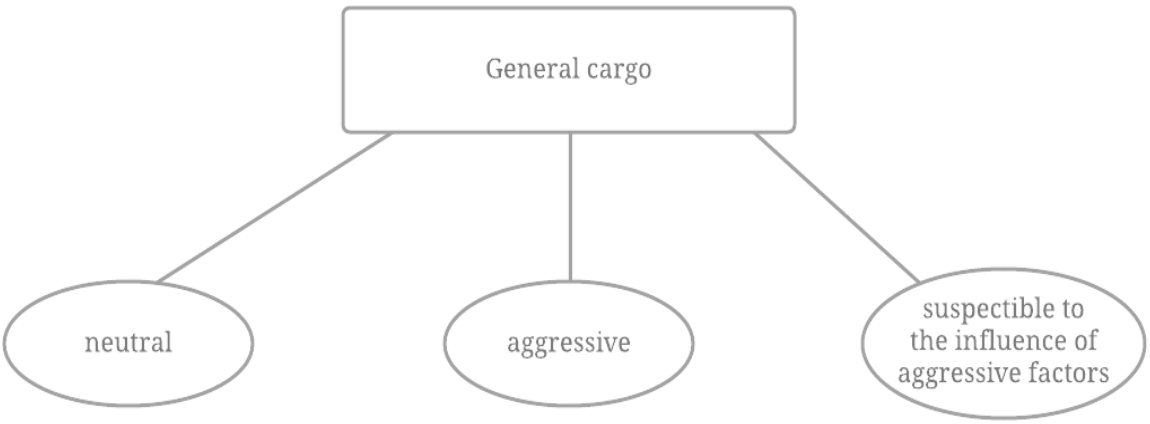

Figure 3.2 – Classification of general cargo by compatibility

As mentioned above, not all goods are accepted for LCL transportation. Below are the categories of cargo that are prohibited and are not accepted for the carriage of groupage cargo (Figure 3.3):

– food products (dairy products, meat, fish, frozen berries, vegetables, fruits, seafood and others);

– goods requiring maintenance of a certain temperature for transportation in a refrigerated container;

– dangerous goods (acetone and solvents, gasoline and kerosene, compressed gas, poisons, tar, turpentine, antifreeze, electrolyte, most acids);

– explosive products that can be damaged by shaking and vibration;

– goods with a high level of pollution and a fetid odor [18].

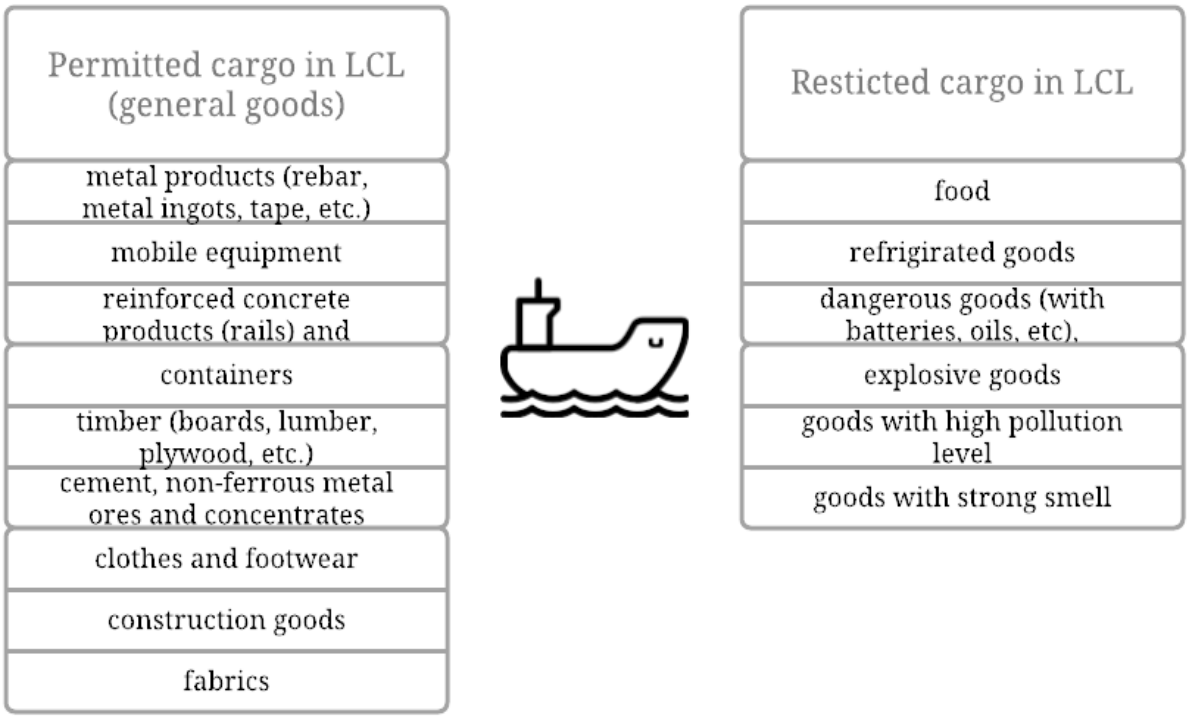

Figure 3.3 – Permitted and restricted cargo in LCL service

Transport costs are influenced not only by the distance between points A and B, but also by the complexity of the paperwork at the border crossing and the format of the service (to the door or to the logistics warehouse). Accompaniment). It is important to choose a responsible and reliable entrepreneur. Only qualified logisticians with professional experience and a good reputation can carry out all processes precisely and without delay.

Delivery of groupage cargo includes the following stages of transportation:

1) Assembling goods in a warehouse and taking cargo from suppliers.

2) Sorting and consolidation for delivery in one place.

3) Marking and, if necessary, additional packaging.

4) Loading into a container and onto a vehicle.

5) Placement in transport so that the cargo is not damaged during transportation and does not shift along the way.

6) Monitoring of movement.

7) Registration, collection and verification of all documents required at customs or at the port.

8) Passing through customs.

9) Delivery to the consignee's warehouse [16].

More detailed diagram of the processes of cargo movement in the LCL service can be seen in Apendix A.

Delivery of groupage cargo can also be organized by road transport in the same way, both in the context of unimodal and multimodal transportation.

LTL–transportation (Less Truck Load) is a partial loading of a truck, i.e. LTL service is the same as LCL, only in relation to vehicles.

General cargo LTL is most often transported on trucks with tilt semi–trailers, which are designed for international long–distance cargo transportation. This type of transport is the most popular for such types of transportation due to convenient loading and unloading and the ability to transport almost all types of cargo [19].

LTL service can be used both in unimodal transportation (from Europe to Ukraine) and in multimodal transportation – as a link in the delivery chain, for example, after sea, river, railway or air transport.

The cost of groupage transportation depends on a combination of different factors, namely:

– the presence of loading and unloading operations;

– type and dimensions of cargo;

– additional packaging;

– transportation distance;

– courier service [20].

Features of LTL transportation (Figure 3.4):

- profitability;
- transportation of small and medium consignments of cargo;
- the weight of the cargo, as a rule, ranges from 75 kg to 10 tons;
- transit time is longer than for FTL transportation;
- the cargo is usually placed on pallets or in box [21].

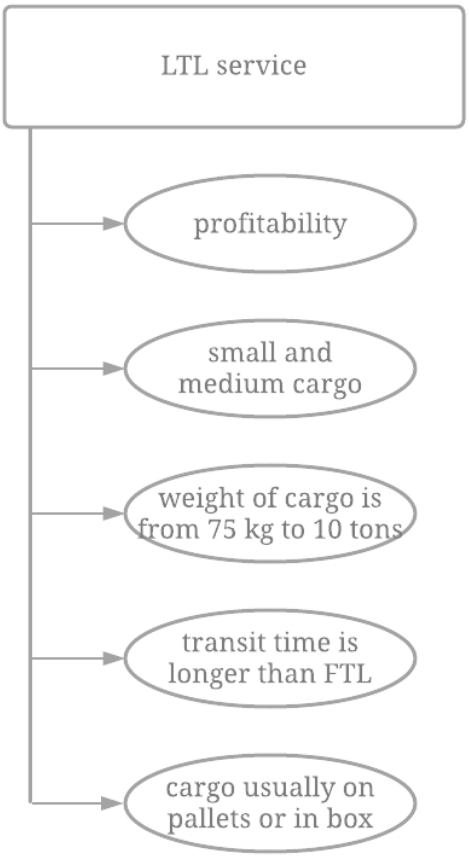

Figure 3.4 – Features of LTL transportation

– Inexpensive. Transport companies charge relatively low tariffs for the transport of goods in the LTL system, since the customer only pays for one piece and not for the entire cargo space of the car.

– Safety. The freight forwarder is responsible for the safety of the cargo not only during the transport to the destination, but also during the entire storage time in the collective warehouse.

– Send small items. According to world standards, freight in LTL is accepted if its volume does not exceed one third of the loading space of the truck. This means that the customer can send a load with a weight of 75 kg to 10 tons.

The LTL delivery is preferably used for small and medium–sized shipments. The transport of cargo in the LTL system is not as efficient as the transport of FTL because the consolidation of the cargo takes some time [22].

There are different types of LTL shipping:

1) Complete truck loaders can place 2–6 different loads on a trailer, and since each item is technically “smaller than a truck”, it is counted in LTL.

2) There are also forwarding companies that do not specialize in the transport of goods, but compress large loads of approx. 2–12 pallets and call themselves LTL carriers.

3) The most commonly mentioned LTL shipments are through "regular" carriers who handle more shipments than those normally sent via FedEx Ground, UPS, or US Postal Services, which is less than the volume typically found on a 14 pallet load. . Regular LTL carriers are also more likely to accept bulk goods (not palletized) than the other two [23].

The main differences between these 3 LTL modes of transport lie in the general methods and price rules: Truckers who pick up more cargo for a full load in a certain area are more likely to quote a flat rate or “spot” price for the load, which by definition simply specify when you request the shipping costs. These carriers are often smaller and it is difficult to trust their regular shipments as it is usually unfortunate and inconsistent to agree on the location of their trucks and the destination of the goods [23].

Consolidators (usually medium–sized) collect cargo on pallets in strategically located warehouses and build trucks in different parts of the country. The consolidated LTL is then handed over to the freight forwarders as a multi–shipment full load. These

carriers usually set tariffs with customers so you don't have to get a quote right away for every shipment. LTL consolidators often rely on the linear footprint of a trailer or on a "per pallet" basis with breaks per pallet [23].

Alignment with LTL Consolidators is better than freight carriers putting parts together, but this is not always optimal as the available transport routes are sometimes quite limited and they are usually not a viable option for smaller cargo volumes.

The organization of groupage cargo transportation, in fact, is a very "delicate" task – it is full of nuances. First, it is necessary to collect enough goods traveling in one direction to complete the whole car. And secondly, "tamp" the car so that it carries as little air as possible. In addition, although different types of cargo can be transported in prefabricated lots, they still need to be correctly combined – in accordance with the composition, density, hazard class, shelf life, transportation conditions, etc.: food will not go along with computer equipment, but cosmetics – with fuels and lubricants [24].

Therefore, large freight forwarding companies have an advantage when organizing such deliveries. Receiving and processing a large number of applications, they can regularly and in the shortest possible time form groupage cargo transportation in different directions.

The key stage in organizing groupage cargo transportation is working at a consolidation warehouse. It is there that goods are sorted by type, hazard class, storage period, transportation conditions, destination, etc. and assembled to be shipped in one car. And here it is very important to take into account many subtleties: how compatible are the loads, how to arrange them in the car, so that during transportation they do not damage each other, so that there is as little free volume as possible (both in width, and in length, and in height), so as not to exceed the permissible load capacities and axle loads. Therefore, at the consolidation warehouse, marking, packaging or repackaging of cargo, weighing and measurements of dimensions in a finished container are performed [24].

However, preliminary work with the cargo must be carried out by the client himself even before the goods are sent to the consolidation warehouse. Indeed, in order to plan the transportation more carefully (in particular, choose a car for a certain

direction, set a date for dispatch, prepare the necessary documents) and carry it out as soon as possible, the employees of the freight forwarding company should know:

– the nature of the cargo;

– hazard class;

– temperature conditions of storage and transportation;

– weight and dimensions;

– features of transportation and loading / unloading [24].

The latter is also very important for warehouse keepers who take care of loading and unloading at all levels, directly to the driver and of course to the buyer who wants to take over his goods intact.

There are several options for transporting the cargo to the collective storage facility: by the sender (if a car is available), with the involvement of an external transport company or by using the services of the actual delivery agent. from groupage. The same applies to the delivery of the goods to the recipient [24].

Therefore, groupage adopts more flexible organizational schemes – "door–to–door", "door–to–warehouse", "warehouse–to–warehouse" or "warehouse–to–house".

Calculation of groupage costs. The main feature here is the density of the cargo: the price of transport depends on its size. The density is measured in kg / m3 and is determined by the weight / volume formula of the load. With less than 250 the load is considered bulky and is estimated from its dimensions, with more the load is heavy and the calculation is based on its weight [24].

Interestingly, even relatively small shipments that are transported as part of a combined load can be oversized. Their excess is that they do not fit into a standard package (weight – 500 kg, height – 2.5 m, width – 2 m, length – 3 m) and a surcharge of 25–100 percent has to be paid [24].

Naturally, warehouse and other additional services are also included in the cost of transportation.

As mentioned in Chapter 2, the LCL service, organized through an LCL contractor in Ukraine, has a number of disadvantages that affect the quality of the service provided by the LCL and the cost of delivery. Thereby, in the next section of

Chapter 3, I want to consider the project of launching LCL service organized by the FTP LLC itself, in which the company will not need to involve an LCL contractor from Ukraine. Instead, FTP LLC itself will act as an LCL contractor and remove one leg from the supply chain.

3.2 Launch of own LCL service for sea shipments in FTP LLC

In this case on Figure 3.5, the Ukrainian contractor is the link that helps the FTP to organize shipment from China through the LCL contractor from the country of departure and the acceptance and delivery of groupage cargo in Ukraine.

The duties of the Ukrainian LCL contractor include:

– transfer of information between FTP and a Chinese agent;

– monitoring and updating;

– disbandment and forwarding in the port of Ukraine;

– truck delivery across Ukraine.

The duties of a Chinese agent include:

– contact the shipper and specify the details of the shipment;

– pick–up the cargo;

– place a booking with the sea line;

– prepare a bill of lading (BL);

– cargo consolidation;

– packaging and labeling if necessary;

– deliver the container to the port and hand it over to the sea line;

– update information in time.

It is possible to optimize the process by excluding the operator from Ukraine and organize own LCL service by contacting the Chinese contractor directly.

Figure 3.5 below shows the business processes of LCL delivery from China by sea, in which an LCL contractor from Ukraine is involved.

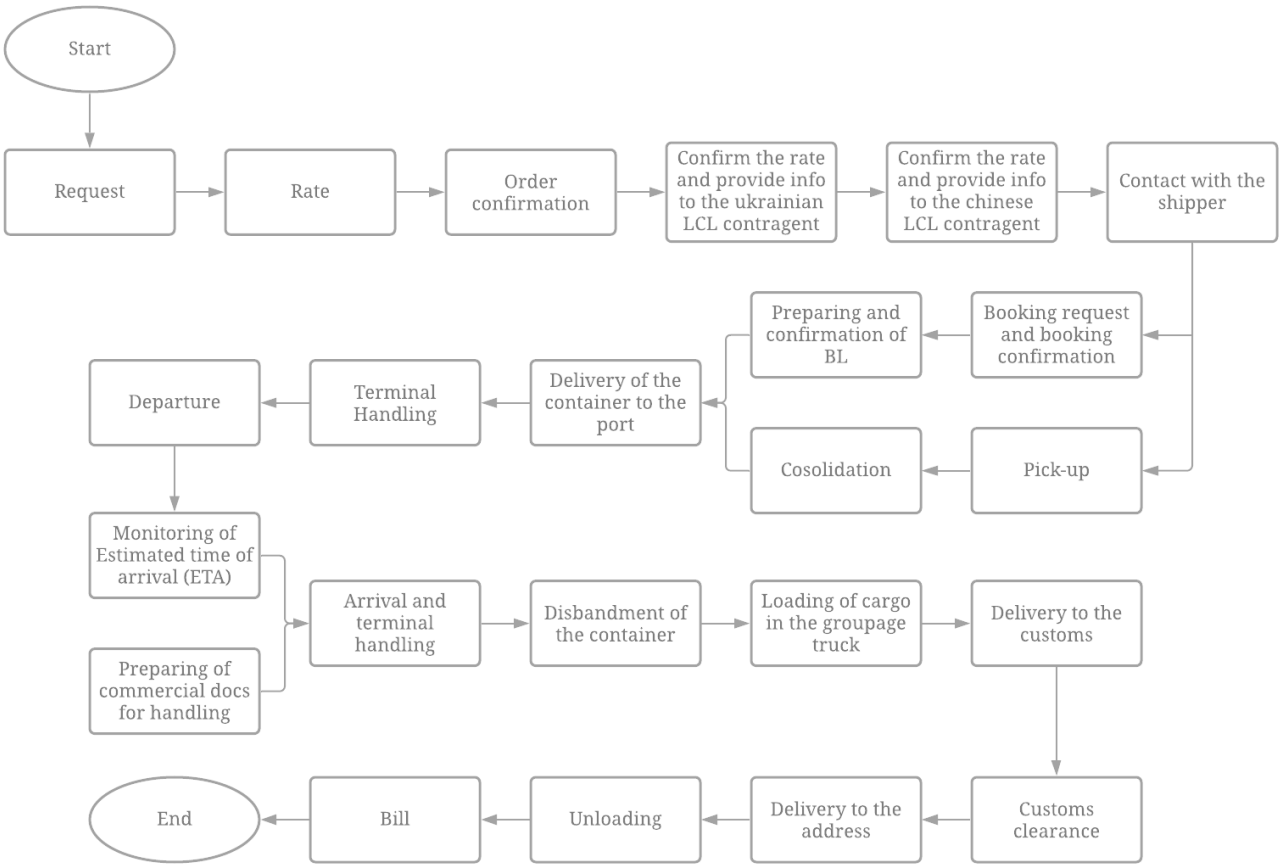

Figure 3.5 – Business processes with LCL sea shipment in fact

Figure 3.6 below shows the business processes according to the project – without an LCL contractor in Ukraine.

If we compare the business processes in Figures 3.5 and 3.6, then the overall picture seems to be unchanged, since the overall delivery process will hardly change – the scheme for organizing the LCL delivery will remain the same. However, by eliminating an extra link in the supply chain, we will speed up some processes, which will allow us to establish and reduce the total time for contact, organization and transit time for delivery in general.

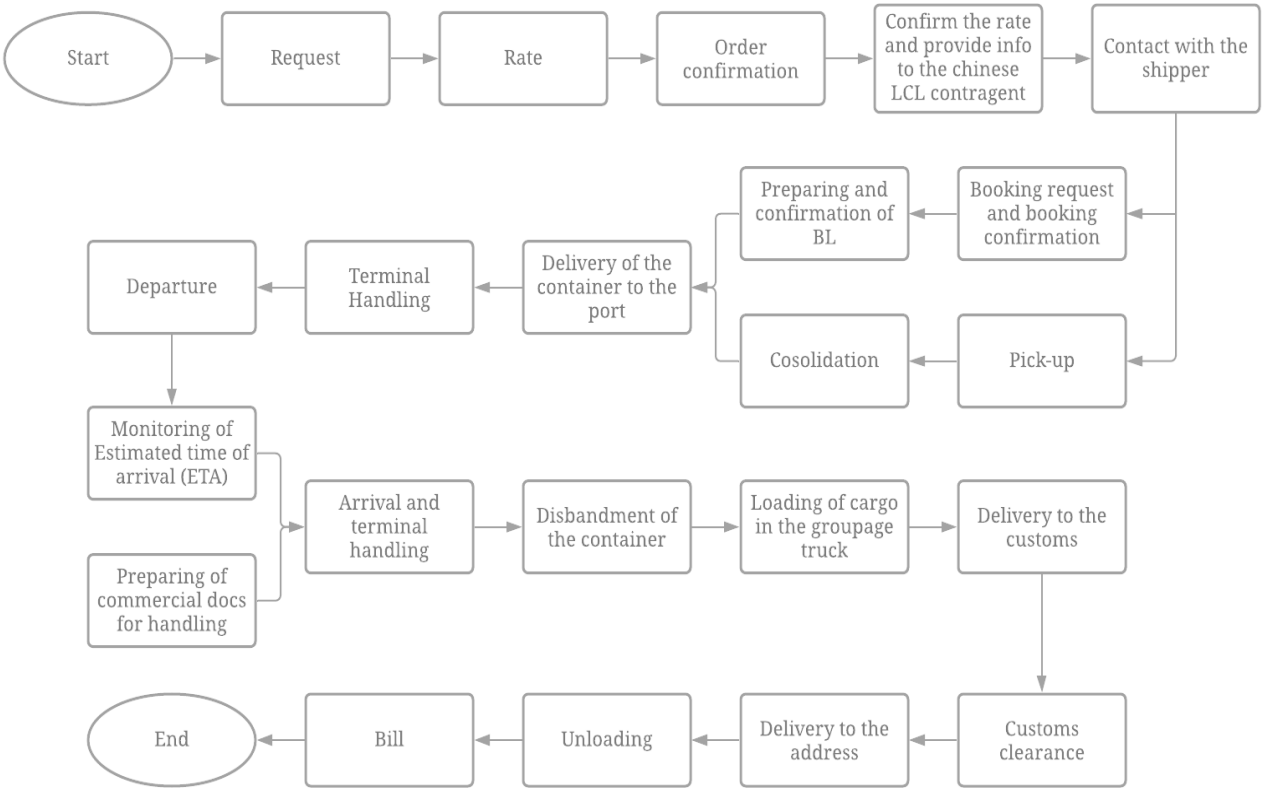

Figure 3.6 – Business processes with LCL sea shipment in the future

This will lead to the following benefits:

– reduced risk of transmission of incorrect information;

– reduced time of information transfer;

– cost of delivery;

– keep competitiveness in the market;

– improvement of the service;

– the ability to attract new customers.

Let's designate the necessary stages for the implementation of own LCL service. I have identified the following steps:

– Statistics;

– Appointment of employees for this task;

– Search for Chinese LCL agents;

– Evaluation of Chinese LCL agents;

– Search for a warehouse for dismantling containers, reloading and consolidating cargo in a car;

– Search for Ukrainian contractors in road transport;

– Assessment of Ukrainian contractors;

– Development of a tariff grid;

– Direct launch of the service.

Let's analyze each stage separately. Appointment of employees will be considered in the end.

Statistics. Naturally, in addition to the costs and duration of the processes, the company's order statistics should influence the decision to introduce an own LCL service.

The most important statistical questions are:

– The number and volume of orders – if only a few customers are interested in the LCL service, it is not profitable to launch own service;

– The most popular routes – manager should also study the routes along which orders are most often carried out;

– Characteristics of goods – if the main product is a general cargo, then it makes sense to consider the idea of launching own service.

Thus, all of the above data displayed in statistical indicators are important factors in:

– making a decision to launch the LCL service as a whole;

– understanding which route is of greatest interest to existing customers;

– the direction in which the service should be developed.

In this project, I will consider the direction of import from China, since China is now the most popular destination both in the world and in the FTP company.

In order to launch an LCL service from China, it is necessary not only to own/rent premises in Ukraine, but also to develop a base of reliable Chinese agents who will be able to organize the selection, labeling, registration, consolidation, loading, documentation and other services so that FTP has the ability to provide a full range of services.

To do this, a search is made for Chinese LCL agents, whose services differ significantly from those of FCL agents, and then an assessment is carried out according to different criteria.

Naturally, important criteria when choosing an agent are:

– reliability;

– speed;

– cheap tariff;

– range of services;

– scope;

– service in general.

After the assessment and selection of an agent, a contract is concluded.

A similar scheme of actions applies to the search and pricing of Ukrainian contractors for auto delivery of goods. However, the criteria for choosing agents are somewhat different here, since the range of services is more narrowed here – only auto delivery is needed.

Since the FTP company does not have its own fleet of vehicles and storage facilities, there is a need to find a warehouse where containers will be disbanded and the goods will be reloaded into rented cars for delivery across Ukraine.

Since the FTP auto department is aimed at foreign economic activity, for this department, directions from Europe to Ukraine are more interesting, and not delivery across Ukraine, therefore there is a need to find Ukrainian contractors.

After the contracts are concluded and the route to the key points is clear, you can draw up a tariff scale. Some costs have a fixed cost and are multiplied by billable weight or volume, and then a tariff grid can be drawn on some costs. But, of course, each request should be individually calculated and additional costs should be specified.

Appointment of employees. Since the introduction of a new service is a rather complex task, it is important to appoint qualified personnel who have experience in setting up and organizing the entire LCL process. I propose to consider the option with the appointment of one and three managers for this project below in Tables 3.1 and 3.2.

Table 3.1 – Duration of process of implementation of LCL service with 1 appointed manager

№	Tasks	Duration, days	Start	End	Predeces-sors
1	2	3	4	5	6
1.	Start of project	0	01.11.2021	01.11.2021	
2.	Appointment of staff	1	01.11.2021	01.11.2021	1
3.	Statistics	2	02.11.2021	03.11.2021	2
4.	Look for LCL chinese contragents	5	04.11.2021	08.11.2021	5
5.	Assessment of contragents	1	09.11.2021	09.11.2021	4
6.	Contract with the contragent(s)	3	10.11.2021	12.11.2021	5
7.	Look for a place to disband containers	3	13.11.2021	15.11.2021	6
8.	Contract and reservation	2	16.11.2021	17.11.2021	7
9.	Look for a partners among road carriers in Ukraine	3	18.11.2021	20.11.2021	8
10.	Assesment of road carriers	1	21.11.2021	21.11.2021	9
11.	Contract with the road carrier(s)	2	22.11.2021	23.11.2021	10
12.	Development of a tariff grid	3	24.11.2021	26.11.2021	11
13.	Service implementation	7	27.11.2021	03.12.2021	12
14.	End of the project	0	04.12.2021	04.12.2021	13

As you can see from Table 3.1, if you appoint one manager, the service implementation process becomes completely linear, since one person is able to perform one task efficiently.

Thus, the entire process of launching your own LCL service can take up to 34 days (if exclude weekends). If this option is beneficial for the company, then it can also be considered. From the point of view of costs, this is more profitable, since the costs

will be per 1 person, and not for three, but from the disadvantages: the duration of the service implementation can be delayed and much longer.

Table 3.2 – Duration of process of implementation of LCL service with 3 appointed managers

№	Tasks	Duration, days	Start	End	Predeces-sors
1	2	3	4	5	6
1.	Start of project	0	01.11.2021	01.11.2021	
2.	Appointment of staff	1	01.11.2021	01.11.2021	1
3.	Statistics	2	02.11.2021	03.11.2021	2
4.	Look for LCL chinese contragents	5	04.11.2021	08.11.2021	5
5.	Assessment of contragents	1	09.11.2021	09.11.2021	4
6.	Contract with the contragent(s)	3	10.11.2021	12.11.2021	5
7.	Look for a place to disband containers	3	04.11.2021	06.11.2021	3
8.	Contract and reservation	2	07.11.2021	08.11.2021	7
9.	Look for a partners among road carriers in Ukraine	3	04.11.2021	06.11.2021	3
10.	Assesment of road carriers	1	07.11.2021	07.11.2021	3
11.	Contract with the road carrier(s)	2	08.11.2021	09.11.2021	10
12.	Development of a tariff grid	3	13.11.2021	15.11.2021	6, 8, 11
13.	Service implementation	7	16.11.2021	22.11.2021	12
14.	End of the project	0	22.11.2021	22.11.2021	13

From Table 3.2, you can see that the total time to implement the service takes 22 days (if exclude the weekends), since there are 3 managers involved. Thus, a larger number of personnel allows to optimize processes and several tasks can be performed

simultaneously, which reduces the duration of the project implementation. From this it follows that the cost per person will be higher than in the first case, but the implementation of the project will be faster by 12 days.

Below in Figures 3.7 and 3.8, Gantt diagrams are presented, on which you can see the approximate duration of the project implementation if only 1 manager is involved in the process and if 3 managers are involved in the process.

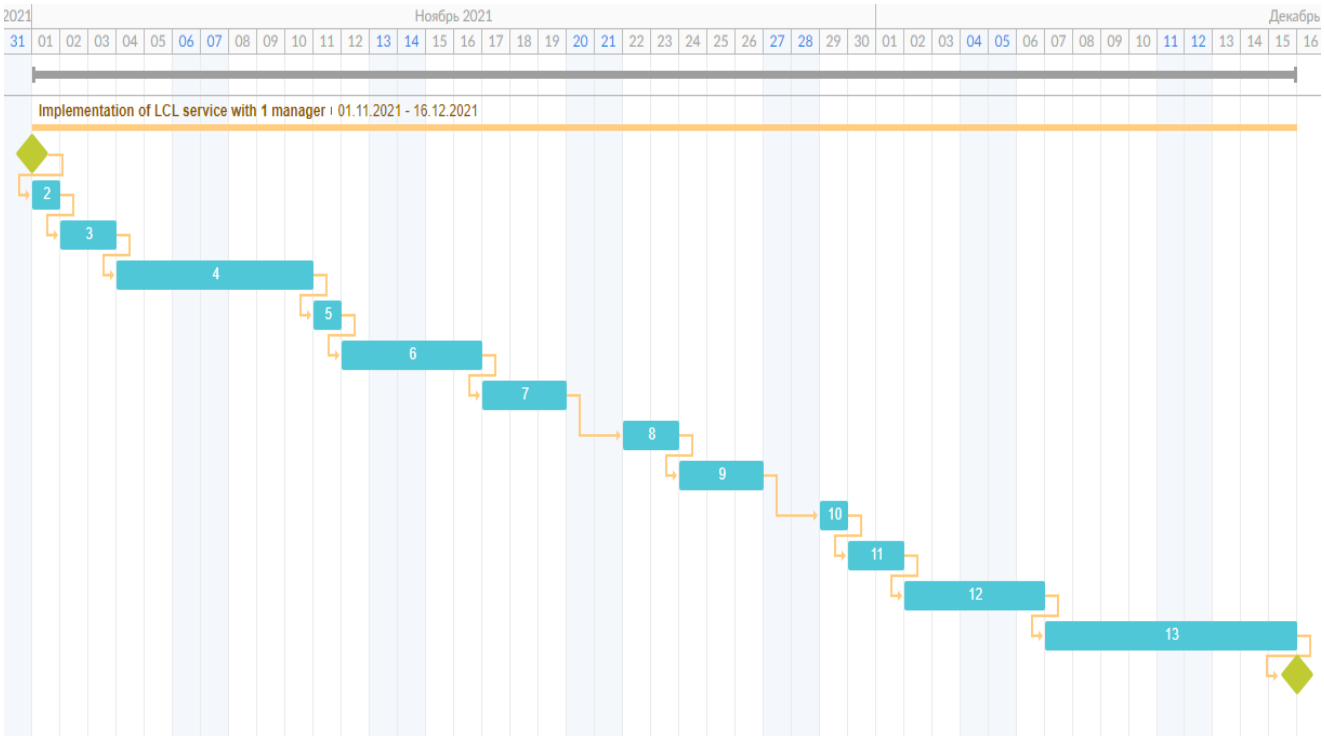

Figure 3.7 – Gantt chart of the implementation of the project by 1 manager

Above in Figure 3.7, you can see that if you involve only one manager in the project, the process becomes completely linear, which increases the total time of the project. Since a person is qualitatively capable of performing one task at a time, he will organize the necessary stages of the project one by one. The total duration of such a project implementation option reaches 33 days, including weekends. However, in this case, possible delays in the implementation of the project are not considered, that is, this task completion time is approximate and neutral:

– if the manager has time to complete some process earlier, he will be able to shorten the total duration of the project;

– if the manager, for some reason, will carry out some task longer than the set time, this will increase the total time of the project.

Next, consider the implementation of the project by three managers in Figure 3.8 below.

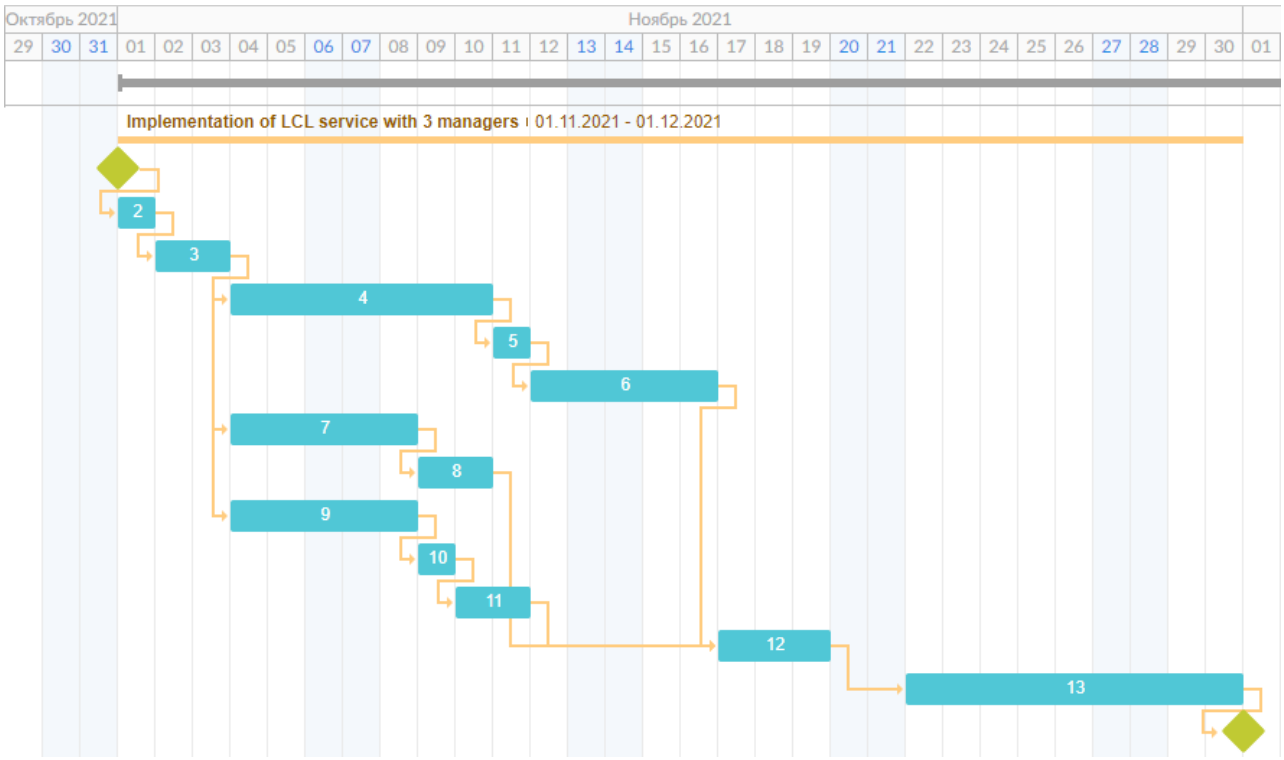

Figure 3.8 – Gantt chart of the implementation of the project by 3 managers

Figure 3.8 shows that the project execution process is more complex and not completely linear – the number of personnel involved helps to collect, analyze information and execute several processes at the same time. This approach significantly speeds up the duration of the project.

In the case of three managers, the estimated completion of the project will take 22 days, including weekends.

In this case, delays and speed of execution also affect the duration of the project, but here it is necessary to highlight the critical path, the duration of which will determine the duration of the entire project.

In Figure 3.7, the critical path is the entire project, since the execution process is linear. As mentioned above, in this case, the duration of one process will fully affect the duration of the entire project.

In the case of Figure 3.8, there are processes that do not affect the duration of the entire project, if they increase slightly. I will analyze this further in Figure 3.9 and in the calculations below.

In the center of each circle, you can mark the ordinal number of the process, which I gave it above in Tables 3.1 and 3.2.

The numbers located in the upper half of the circle are Earliest Start and Earliest Finish, i.e. the most positive indicators of the duration of each process.

The numbers in the lower half of the circle on the left and right – Latest Start and fFinish, that is, this is an indicator of the duration of the process, if for some reason it starts and ends later than the set duration.

The number below in the middle is the duration of the process in days.

Next, consider the duration, earliest and latest starts and finishes of the processes in Table 3.3.

Table 3.3 shows the early and late starts and finishes of each process by which slack time is calculated.

The early start and end time (ES and EF) is the execution of the project from the very beginning, that is, it is determined by the start of the project. The late start and end times (LS and LF) are determined by the deadline, that is, the duration of the project starts from the date of the final completion of the project.

A critical path is a chain of processes whose duration affects the duration of the entire project as a whole. It is calculated by comparing the early start and end and the late start and end of the process. If their difference is equal to zero, this means that these processes are critical, and they cannot be postponed, since their duration can increase the project implementation time. The critical path of the project, in which 3 managers are involved: 1–2–3–4–5–6–12–13, and the total project implementation period is 22 days.

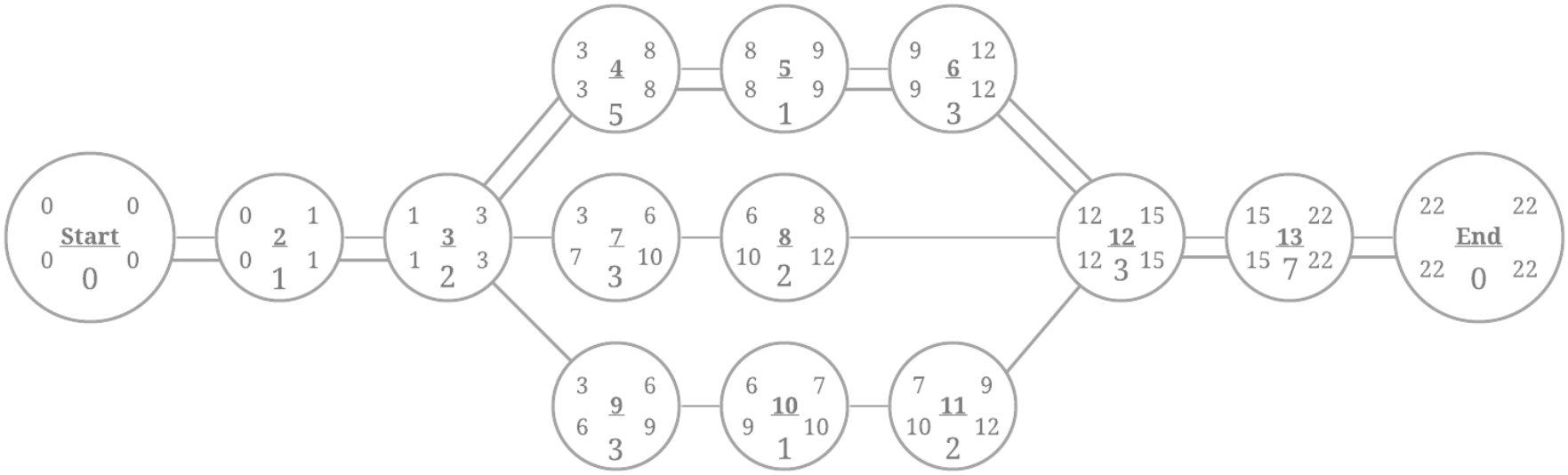

Figure 3.9 – Sequence of processes for the project implementation by three managers

Table 3.3 – Earliest and latest starts and finishes for each process

Process Number	Earliest Start (ES)	Earliest Finish (EF)	Latest Start (LS)	Latest Finish (LF)	Slack time of the process
1	0	0	0	0	0
2	0	1	0	1	0
3	1	3	1	3	0
4	3	8	3	8	0
5	8	9	8	9	0
6	9	12	9	12	0
7	3	6	7	10	4
8	6	8	10	12	4
9	3	6	6	9	3
10	6	7	9	10	3
11	7	9	10	12	3
12	12	15	12	15	0
13	15	22	15	22	0

In order to determine the likelihood of completing this project on time, that is, for the indicated 22 days, the following indicators need to be determined:

– optimistic time (a) – the time that the activity will take if everything goes according to plan;

– pessimistic time (b) – the time that the activity will take under unfavorable conditions (delays, etc.);

– most probable time (m) – the most realistic time allotted for the execution of a process.

Table 3.4 below shows the optimistic, pessimistic and real times of each process, the expected times of the processes and their deviations.

Table 3.4 – Expected times of the processes and their deviations

Processes number	Optimistic time (a), d	Most likely time (m), d	Pessimistic time (b), d	Expected time (ET), d	Variance (var), d
1	2	3	4	5	6
1	0	0	0	0	0
2	1	2	3	2	0,11
3	2	3	4	3	0,11
4	5	6	7	6	0,11
5	1	1,5	2	1,5	0,03
6	3	4	5	4	0,11
7	3	5	7	5	0,44
8	2	5	7	4,83	0,69
9	3	4	5	4	0,11
10	1	2	3	2	0,11
11	2	3	5	3,17	0,25
12	3	5	7	5	0,44
13	7	14	18	13,5	3,36
14	0	0	0	0	0

Expected time calculated as follows:

$$ET = (a+4m+b)/6 \quad (3.1)$$

Variance of times has such formula:

$$Var = ((b–a)/6)^2, \quad (3.2)$$

where a – optimistic time;

m – most probable time;

b – pessimistic time.

Expected time of process 2 = (1 days+4*3 days +3days)/6 = 2 days.

Expected time of process 3 = (2 days +4*3 day +4 days)/6 = 3 days.

Expected time of process 4 = (5 days +4*6 days + 7 days)/6 = 6 days.

Variance of process 2 = $((3–1)/6)^2$ = 0,11 days.

Variance of process 3 = $((4–2)/6)^2$ = 0,11 days.

Variance of process 4 = $((7–5)/6)^2$ = 0,11 days.

To calculate the project probability of implementing, we need to calculate standard deviation of the project as below:

$$\sigma = \sqrt{\sum Variances\ of\ processes\ on\ critical\ path} \quad (3.3)$$

Next we should calculate the probability of the project implementation on time by such formula:

$$z = (x-\mu)/\sigma, \quad (3.4)$$

where z is the number of standard deviations the due date or target date lies from the mean or expected date;

x is the possible duration of project;

μ is expected duration of project.

In the Table 3.5 shows calculations of standard deviations and probabilities of implementation projects, which involve 1 manager and 3 managers.

Table 3.5 – Standard deviations and probabilities of implementation of projects, which involve 1 manager and 3 managers

	σ	x	μ	z	Standard normal distribution (z)	Probability of implementation in time, %
1	2	3	4	5	6	7
Project involved 1 manager in 35 days	2,43	35	33	0,82	0,7939	79,39
Project involved 1 manager in 38 days	2,43	38	33	2,06	0,9803	98,03
Project involved 3 managers in 25 days	2,07	25	22	1,45	0,9365	92,65
Project involved 3 managers in 28 days	2,07	28	22	2,9	0,9981	99,81

z = (35 – 33)/2,43 = 2/2,43 = 0,82.

P(x≤35) = P(z≤ 0,82) = 0,7939= 79,39%.

Z –value of 0,82 to the right of the mean indicates a probability of 0,7939. Thus means that there 79,39% chance that the project of implementation of LCL service involved 1 manager will be implemented in 35 days or less.

In Table 3.5, you can also see that if we consider the probability of completing the project for the implementation of an LCL service with the help of 1 manager within 38 days or less, then the probability of being on time is 98.03%. This probability is much higher.

As for the probability of implementing an LCL service project with the help of 3 managers, the probability of being able to implement the project in 25 days or less is 92.65%, which confirms the ability to quickly complete this project.

Also, if we consider the implementation of the LCL service in 28 days, then the probability of meeting the deadline is even higher – 99,81%.

3.3 Economical support of the project

In this paragraph of the third chapter, I want to consider the economic justification for introducing an LCL service project into the business processes of an FTP company in the case when implementation requires 3 managers to quickly complete the project.

As I mentioned above, in order to implement a project to introduce LCL service into the chains of business processes to improve customer service in 22 days, it is necessary to involve 3 managers.

Also, a manager will be involved in this chain, who will collect statistics on the company.

If we do not take into account the head of the sea/aviation department and the company's directors, who will be responsible in making decisions and developing

strategies (for example, which route should be developed first, what criteria in choosing agents are key, where to disband containers, etc.) 4 managers are involved in the project.

The distribution of tasks will be as follows:

– 1 manager – collects company statistics on LCL transportation, which includes a cut by volumes, directions, product categories, etc .;

– 1 manager – is looking for agents in China, evaluating them and concluding a partnership agreement;

– 1 manager – is looking for a warehouse for dismantling containers, which will meet the most optimal route and popular directions in Ukraine;

– 1 manager – is looking for auto contractors and their assessment.

To calculate the economic feasibility of this project, it should be taken into account that for organizing own LCL service at the first stage, the costs will be as follows:

– investment in the development of the project in the amount of UAH 110 000;

– increase in salaries for employees (4 people) by UAH 5500.

To determine the economic attractiveness of a project for the implementation of own LCL service, it is necessary to calculate the following indicators: Net Present Value (NPV), Internal Rate of Return (IRR) and Discounted Payback Period (DPP).

To calculate the NPV of the project, it is necessary to determine the rate of return. The rate of return should be used to discount the stream of costs and benefits and then sum the discounted net benefits. This will be the project's net present value at the specified discount rate.

So, to calculate the NPV of the project, the following rates of return were taken: 10%, 25% and 50%, and the five–year life cycle of the project was taken into account.

Table 3.6 shows the benefits and costs of the project in accordance with the reviewed rates of return over the five years and the calculation of the project's net present value.

Table 3.6 – Benefits and costs of the project within 5 years

Year	Benefits	Costs	Net benefits	Required rate of return 10%	Discounted net benefit	Required rate of return 25%	Discounted net benefit	Required rate of return 50%	Discounted net benefit
–	B_t	C_t	$B_t–C_t$	$1/(1+i)^t$	–	$1/(1+i)^t$	–	$1/(1+i)^t$	–
1	70500	132000	–61500	1	–61500	1	–61500	1	–61500
2	76493	55507,5	20985	0,93303	19579,7	0,8409	17646,21	0,7071	14838,64
3	82994	60225,6	22768,7	0,89596	20399,83	0,7598	17300,49	0,5774	13145,53
4	90049	65344,8	24704,1	0,87055	21506,14	0,7071	17468,41	0,5	12352,03
5	97703	70899,1	26803,9	0,85134	22819,24	0,6687	17924,86	0,4472	11987,07
NPV					22804,91	–	8839,97	–	–9176,73

NPV (Table 3.6) for the project was calculated by such a formula:

$$NPV = \sum_{t=1}^{n} \frac{B_t - C_t}{(1+i)^t}, \quad (3.5)$$

where B_t is benefits for t–period of time;

C_t is costs for t–period of time;

i is rate of return (10%, 25%, 50%);

n is a life cycle of project (5 years).

IRR is possible to calculate by next formula:

$$IRR = A + \frac{a(B-A)}{(a-b)}, \quad (3.6)$$

where A – the value of the rate of return at which the NPV is positive;

B – the value of the rate of return at which the NPV is negative;

a – the value of the positive NPV, when the value of the rate of return is A;

b – the value of the negative NPV, when the value of the rate of return is B.

IRR = 0,25+8839,97*(0,5–0,25)/(8839,97–(–9176,73)) = 0,3726*100% = 37,26%.

This means that at the rate of return with 37,26%, the NPV of the project will be zero. And since at the rate of return with 25% the NPV is equal 8839,97 UAH, this means that the project can be successfully implemented.

DPP is calculated by the next formula:

$$DPP = n + \left(\frac{-PV}{B_t}\right) \times 365, \quad (3.7)$$

where n – the number of t–periods before the period, in which costs are fully paid off;

PV – the present value of the assets (cumulative sum of net benefits);

B_t – the net benefits in the t–period, where costs are fully pay off.

DPP = 3+(–(–17746)/24704,06)*365 = 3+262,20/30 = 3 + 8,74.

Table 3.7 – Net benefits and PV of the project

Years	Net benefits	PV
1	-61500	-61500
2	20985	-40515
3	22768,725	-17746
4	24704,06663	6957,79
5	26803,91229	33761,7

This means, that payback period of project is 3 years and 9 month.

3.4 Chapter summary

In conclusion of Chapter 3, I would like to summarize that despite the obvious advantages of the LCL service, such as the ability to deliver a small batch of goods at the optimal price, there are also a number of restrictions such as long transit time and the ability to transport only general safe cargo.

The necessary stages for the implementation of own LCL service:

– Statistics;

– Appointment of employees for this task;

– Search for Chinese LCL agents;

– Evaluation of Chinese LCL agents;

– Search for a warehouse for dismantling containers, reloading and consolidating cargo in a car;

– Search for Ukrainian contractors in road transport;

– Assessment of Ukrainian contractors;

– Development of a tariff grid;

– Direct launch of the service.

The implementation of own LCL service leads to the following benefits:

– optimization of the delivery process;

– acceleration and purity of information flow;

– improving the competitiveness of the company;

– improving the business process in the customer service chain;

– the ability to attract new customers and retain existing ones.

The above benefits are a good motivation for FTP for further development and improvement. This will help the company to re–engineer business processes in the customer service chain and improve its service, thereby bringing itself to a new level of competitiveness.

As mentioned in the chapter, there are several options for implementing an LCL service: linear project execution by 1 manager and complex approach to the implementation of the project, where 3 managers are involved.

Both options have both obvious advantages and disadvantages, such as project lead time and costs. Nevertheless, if we consider the option with the complex implementation of the project, the duration of its implementation will take up to 22–25 days and, according to miscalculations, with a probability of 92,65% it will be completed on time.

The terms of the linear project implementation are somewhat longer and with a probability of 98,03% it will be completed in 38 days. According to calculations, the payback period for such a project is 3 years and 9 months, nevertheless, In my opinion a lot depends on the volumes transported and the number of orders.

CONCLUSIONS AND RECOMMENDATIONS

Business process reengineering (BPR) is the practice of rethinking and changing the way work is done to better support an organization's mission and reduce costs. Organizations are reengineering two key areas of their business. First, they use modern technology to improve data dissemination and decision making. They then change functional organizations to form functional teams. Reengineering begins with a high–level assessment of the organization's mission, strategic objectives, and customer needs.

In 1990, Michael Hammer, a former professor of computer science at the Massachusetts Institute of Technology (MIT), introduced the concept of process reengineering.

Reengineering allows companies to improve the following parameters:

– data processing;

– technological applications;

– organizational structure and coordination;

– basic logistics operations.

Leadership, motivation, personnel, communication and budget are the main factors that affect the implementation of changes in the reengineering process.

Stages in the reengineering of business:

1) Formation of a system of indicators.

2) Creation of criteria for what the process should be.

3) Implementation of reengineering.

4) Summing up / feedback.

FTP was chosen to consider the project of business process engineering in the customer service chain.

The company has been operating on the Ukrainian market for 10 years and is a transport and forwarding company.

The company's mission is to provide customers with the clearest, high–quality and convenient service in the field of customs clearance and transport logistics.

The company's global goal is to become a market leader in foreign trade consulting and logistics services.

The company's values are high quality services, love for customers, skilled employees, creativity and honesty.

Types of transport services provided by FTP LLC:

– sea freight;

– rail freight;

– air freight;

– road freight;

– container transportation.

FTP LLC is involved in the following product sectors: food, electronics, cosmetics and cosmetic accessories, fabrics and leather goods, furniture fittings, floor coverings, industrial equipment, construction materials, medical supplies, power tools, stationery, auto / bicycle / motorcycle spare parts, vehicles and agricultural machinery, clothes, shoes, accessories, goods for hunting and fishing, tourist equipment, fertilizers, paint and varnish products, household chemicals, plumbing.

The organizational structure of the company is linear and functional, represented by departments: sales and marketing, telemarketing, road transport, sea and air transport, customs brokerage services, accounting, internal audit.

Organizational structures are geared towards the requirements of long–term competitiveness and profitability of the company in order to ensure the coordination and control of company departments and employees

The income of FTP LLC has a growth trend over the past four years and are growing steadily. It should be borne in mind that brokerage services are often provided in a package with freight forwarding services for various modes of transport.

Despite the fact that FTP has been operating on the market for 10 years, the company does not have its own capacities in the form of transport and warehouses. The

company has a list of reliable and proven partners and agents who, thanks to close and fruitful cooperation, successfully organize deliveries and fulfill orders.

The most popular routes in the company are imports from China, Germany, Poland and France.

FTP's main competitors are large international companies such as Ekol, Schenker, Kuehne–Nagel, as well as Tvoya Logistics and FM Logistics and other Ukrainian carriers.

It was relevant to consider the introduction of its own LCL service into the business processes of a customer service company, since in this case it will allow FTP to:

– Optimize operational and business processes;

– Optimize the information flow, which will improve the quality and time of information submission;

– Attract new customers and keep existing ones due to high–quality and cost–effective service;

– Optimize the cost of costs and service.

The advantages of LCL are:

– Save money – buyers of cargo only need to pay for liquid cargo that they can quickly sell in production or trade;

– Efficiency of supplies – consumers do not have to wait for a large batch to be produced to completely fill the container; With the LCL service, consumers expect a small load to be produced and can ship it at the first available ship exit.

– Flexibility – LCL enables the customer to expand his product range and to order a small batch of test items from a new manufacturer without risk, as well as to combine several orders from different suppliers.

– Optimal logistics – With this type of transport, the price plays the main role, which is proportional to the cost distribution to all recipients within the container. Thus, the freight depends on the amount paid (weight or volume, proportion).

The chain of LCL service in customer service included the LCL counterparty in Ukraine, which influenced the quality and time of information submission, the

company's competitiveness and the cost of cargo delivery. When introducing its own LCL service, the company removes this link and contacts the LCL counterparties in the country of dispatch directly and organizes transport activities on the territory of Ukraine itself.

Several options for the implementation of the LCL service were considered. The shortest implementation of the project, taking into account possible detachments, will take up to 25–28 days

The probability of implementing an LCL service project with the help of 3 managers, the probability of being able to implement the project in 25 days or less is 92.65%, which confirms the ability to quickly complete this project.

Also, if we consider the implementation of the LCL service in 28 days, then the probability of meeting the deadline is even higher – 99.81%.

The rate of return with 25% the NPV is equal 8839,97 UAH, this means that the project can be successfully implemented.

The payback period for such a project is 3 years and 9 months.

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APPENDIX
Flowchart of the LCL processes