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# BACHELOR THESIS

(EXPLANATORY NOTES)  
OF GRADUATE OF ACADEMIC DEGREE  
«BACHELOR»

THEME: **«Organization of company interaction with customers in an electronic environment»**

Speciality 073 «Management»

Educational and Professional Program «Logistics»

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МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
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## ДИПЛОМНА РОБОТА

(ПОЯСНЮВАЛЬНА ЗАПИСКА)

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«БАКАЛАВР»

ТЕМА: «Організація взаємодії компанії з клієнтами в електронному середовищі»

зі спеціальності 073 «Менеджмент»  
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Київ 2020

NATIONAL AVIATION UNIVERSITY  
Faculty of Transport, Management and Logistics  
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Academic degree Bachelor

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Educational and Professional Program «Logistics»

APPROVED  
Head of the Department

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«05» June 2020

## TASK

### FOR COMPLETION THE BACHELOR THESIS OF STUDENT

Anton M. Koptiev  
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1. Theme of the master thesis: «Organization of company interaction with customers in an electronic environment» was approved by the Rector Directive №553/CT. of May 04, 2020.
2. Term performance of thesis: from May 25, 2020 to June 21, 2020.
3. Date of submission work to graduation department: June 05, 2020.
4. Initial data required for writing the thesis: general and statistical information about US road transport market, information of the company Alvil Trucking Inc., production and financial indicators of the company Alvil Trucking Inc., literary sources on logistics and customer service process, Internet source.
5. Content of the explanatory notes: introduction, the essence of the logistics cooperation in the supply chain; process model for logistics collaboration development based on logistics cloud services; communication with customers in a digital environment; analysis the activity of the company Alvil Trucking Inc.; US road transport market analysis; identification of disadvantages in the process of interaction with the company's customers; recommendations for improving company's interaction with customers in an electronic environment; calculation of the economic effect of the proposed measures; conclusions and 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	25.05.20-27.05.20	Done
2.	Collection of statistical data, timing, detection of weaknesses, preparation of the first version of the analytical chapter	28.05.20-29.05.20	Done
3.	Development of project proposals and their organizational and economic substantiation, preparation of the first version of the project chapter and conclusions	30.05.20-01.06.20	Done
4.	Editing the first versions and preparing the final version of the master thesis, checking by standards inspector	02.06.20-03.06.20	Done
5.	Approval for a work with supervisor, getting of the report of the supervisor, getting internal and external reviews, transcript of academic record	04.06.20	Done
6.	Submission work to Logistics Department	05.06.20	Done

Student \_\_\_\_\_  
(signature)

Supervisor of the 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, Karpun O.V.	25.05.20	25.05.20
Chapter 2	Associate Professor, Karpun O.V.	28.05.20	28.05.20
Chapter 3	Associate Professor, Karpun O.V.	30.05.20	30.05.20

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

Supervisor of the master thesis: \_\_\_\_\_  
(signature of supervisor)

Karpun O.V.  
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Task accepted for completion: \_\_\_\_\_  
(signature of graduate)

Koptiev A.M.  
(surname and name)

## **ABSTRACT**

The explanatory notes to the bachelor thesis «Organization of company interaction with customers in an electronic environment» comprises of 77 pages, 20 figures, 10 tables, 58 references.

**KEY WORDS:** TRANSPORT COMPANY, CUSTOMER SERVICE, SERVICE PROCESS, ELECTRONIC ENVIRONMENT, OMNI-CHANNEL CUSTOMER INTERACTIONS, LOYALTY

The purpose of the research is to study theoretical approaches, as well as to develop practical recommendations for improving the organization of company interaction with customers in an electronic environment.

The subject of the investigation is the electronic environment of interaction between company Alvil Trucking Inc. and its customers.

The object of the research is the process of interaction of the company Alvil Trucking Inc. with customers.

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

- 3PL – Third Party Logistics Provider;
- 4PL – Fourth-Party Logistics Provider;
- BPMN – Business Process Model and Notation;
- CLV – Customer Lifetime Value;
- CRM – Customer Relationship Management;
- DCSP – Distributed Constraints Satisfaction Problem;
- ERP – Enterprise Resource Planning;
- GIS – Geographical Information System;
- GPS – Global Positioning System;
- IFDC – Inland Freight Distribution Clusters;
- IT – Information Technology;
- KPI – Key Performance Indicators;
- MARS – Modeling Autonomous CoopeRating Shipping Companies;
- NAFTA – North American Free Trade Agreement;
- NPS – Net Promoter Score;
- PDPTW – Pickup and Delivery Problem with Time Windows;
- RIO – Roles, Interactions, Organization;
- UX – User Experience.

## INTRODUCTION

Globalization and the new internet-based capabilities of ready informational networking among companies impose and enable new value-added structures known as bot-tom-up economy. The structure and process related nature of the bottom-up economy is dramatically different from the top-down economy of the past in that it follows a logic of cooperation among smaller, locally based value-added units flexibly combining to form larger structures to generate complex products and services. This is referred to as open production by production managers and suggests that new technical opportunities might give rise to structural changes also in the logistics sector in future.

From the angle of small and medium-size logistics companies the challenge is to be able to forge ties of cooperation with other logistics service providers quickly and with as little input of resources as possible in a situation in which the cooperative business processes must be handled efficiently with the aim of providing joint logistics services in the market. The present stock of software used by small and medium-size logistics companies systematically supports isolated internal functions and is not made for easy and quick integration with the software applications of complementary partners in the value-added process. Innovative, co-operation-supporting and multitenant cooperation-enabling logistics cloud services, resp. hold out the promise of new opportunities for the short-term establishment and termination of logistics ties of cooperation without the need or risk of investment associated with conventional software applications. Meanwhile the integration issue between cooperation partners on the IT level can essentially be cleared up by the usage of the same cloud software installation.

The problem at present is less that of the availability of the suitable logistics cloud services than the introduction of new approaches for the shared use of software

Some of logistics enterprises would be able to cooperate at lower costs and in a shorter time by using multi-tenant cooperation-enabling logistics cloud services.



How-ever, a part of logistics enterprises does not know about the advantaged and capabilities of logistics cloud services. They need an external suggestion to get know about cloud computing and an external support for the implementation of logistics cloud services in their own companies.

The digital age is disrupting traditional customer service models – new customer touchpoints are appearing the world over at breakneck speed and against a backdrop of rising expectations.

In this paper, we outline our perspective on the implications of digital technology for customer service.

A customer service reformation is taking place. It's radical, it's far-reaching and it's being driven by customers. The digital age has transformed the way customers shop and share their experiences. Today, customers are driving the buying process using websites, blogs, vlogs and social platforms. By the time they enter a store or become visible in the sales funnel, they know what they want to buy and how much they want to pay. It doesn't stop there. Once the sale is closed, customers use those same channels to join forces and name and shame those that dissappoint.

On the face of it, it seems a concerning development for businesses. But there's a bright side to these changes. New channels and technologies open up fresh opportunities that can make a company stand out from the rest of the crowd. Opportunities to build an ongoing dialogue with customers. Opportunities to learn from customers and to increase the relevance of products and services. So it's time for every business to start seeking and fostering enduring relationships with their customers – a relationship that goes far beyond the initial sale.

All this determines the relevance of the chosen topic of the research.

The purpose of the research is to study theoretical approaches, as well as to develop practical recommendations for improving the organization of company interaction with customers in an electronic environment.

The object of the research is the process of interaction of the company Alvil Trucking Inc. with customers.

The subject of the research is the electronic environment of interaction between company Alvil Trucking Inc. and its customers.

To achieve this purpose, the following tasks were set:

- identify the essence logistics cooperation in the supply chain;
- consider the specifics of communication with customers in a digital environment;
- analyze the main performance indicators of the company Alvil Trucking Inc.;
- analyze the existing US road transport market;
- identify existing problems in the process of interaction with the company's customers;
- develop recommendations for improving company's interaction with customers in an electronic environment;
- calculate the economic effect of the proposed solutions.

In the process of writing the thesis was used materials of internal reporting of the enterprise, data from statistical directories and materials of practicing specialists in the field of logistics and management, published in periodicals, monographs, textbooks and electronic sources.

# **CHAPTER 1**

## **THEORETICAL PRINCIPLES OF COMPANY INTERACTION WITH CUSTOMERS IN AN ELECTRONIC ENVIRONMENT**

### **1.1 Logistics cooperation in the supply chain**

The term "cooperation" is generally understood as a particular type of activity that businesses decide to pursue together in a particular place and time. It is emphasized that the essence of cooperation lays in the achievement of a common goal or in the provision of mutual support to one another, if the goals are not interrelated [45]. A similar importance of this concept is presented by Ciesielski and Długosz [6], who define cooperation as a "combination of mutual benefits achieved by a joint effort." The research shows that businesses decide to cooperate to strengthen their competitive position or to continue their development. In addition, willingness on part of the businesses to share resources is considered to be a particularly important aspect of cooperation.

In terms of a cooperation in the area of logistics, the activities undertaken in this respect are of paramount importance in the supply chain management. Richey et al. [38] are of the opinion that it is difficult to effectively manage the supply chain without an effective cooperation. In this case, an efficient meeting of the demand of the final purchaser becomes the priority. However Harrison and van Hoek [17] note that the majority of entities are unable to fulfill this task without the assistance of other businesses, which in practice results in an increased, interest in logistics services. In other words, physical flows in the supply chain become more frequently the domain of specialized businesses, known as logistics service providers or "third participants". Such an understanding of cooperation means an activity undertaken on different levels of the supply chain, starting from the supply source and ending on the shop shelf. It should also be noted that the logistics service provider does not enter into relationships

with the main participants in the supply chain only, but also develops relationships with businesses. The research conducted by Zowada [53] suggests that one should appreciate the logistics cooperation with customers of this sector because it constitutes an important source of revenue for the logistics sector.

The service providers offer their customers a wide range of cooperation forms. The service can be carried out both on the basis of a contract governing the obligations of both parties, or be of a more casual nature. In the first case, one talks about contract logistics, which is considered to be the most profitable form of cooperation. In practice, this type of service is provided by 3PL, which offer a wide range of tailored solutions. Under the contract logistics, one can provide services in the field of transport, forwarding and storage, which are the foundation of any logistics offer [46], as well as such value-added services as: co-packing, co-manufacturing and processing of returns, which are examples of "made to measure" services. Apart from the reductions of costs, the basic benefits of 3PL services include streamlining of the operations, achieved to a great extent by reducing the stock levels in the customer's warehouses and by shortening the delivery cycle.

The literature provides with many examples of the key role of service providers in the supply chain [11, 14]. There can be also noticed a trend towards a further intensification of their activities, and notes that this group is increasingly more responsible for the integration of the supply chain [23]. In this regard, a special role is attributed to the 4PL, which are described as the supply chain coordinators [40] or integrators. The research indicates that 4PL have the most extensive scope of services covering the entire supply chain. In addition, these service providers have the strongest position in the logistics market [46].

Taking into account the above-mentioned tendency of the customers to purchase logistics services, attention should be also pay to the various forms of logistics cooperation. In this regard, one finds of interest the typology presented by Hsiao et al. [22] which distinguishes 4 levels of logistics cooperation (the first two levels concerning the operational activity, and the remaining two ones – strategic management). In the opinion of the authors, the relationships between the service

provider and the customer are generally unstable on the first level. This is the least binding form of cooperation in which one provides standard services, usually relating to the carriage and storage of cargo. In the second case, the cooperation is based on a short-term contract and covers a wider range of services. Apart from the basic services, one also offers services tailored to the needs of customers, including value-added ones. The next level of cooperation exists in the case of services tailored closely to the needs of the customer (i.e. service customization) and means a further strengthening of the ties existing between the parties to the relationship. According to the authors in this form of co-operation the service provider, apart from offering physical activity-based services, also performs managerial functions associated with logistics planning and controlling. According to the authors, full outsourcing is the highest, 4th level of cooperation. In this type of relationship, the service provider is distinguished by capacities and competences in the field of supply chain management. Among other competences, it integrates 3PL logistics services and determines the location of new nodes in the network. The authors' research also suggests that this form of cooperation is the most beneficial to the customers.

## **1.2 Process model for logistics collaboration development based on logistics cloud services**

We'll describe different scenarios for the redesign of a company's internal IT landscape due to the use of cloud services. The scenarios of using cloud services most frequently cited include the following [2, 36]:

1. Higher flexibility of software use by the faster and simpler provision of software applications via the internet (on-demand) or outsourcing of software applications so far used internally, e.g., order management, enterprise resource planning (ERP), supply chain management (SCM) and customer relationship management (CRM) systems.

2. Improvement of the cost variability of software use by more flexible accounting models (pay-per-use).

3. Further development and augmentation of the internal business model by the ability of offering complementary IT services to available company services (e.g., easier IT integration of customers and value-added partners by linking them to the cloud service).

4. Protection of critical business processes, business applications and business data by shifting them to a cloud environment with very high security requirements.

Many of the application scenarios of cloud services discussed so far aim at providing internal/company-focused advantages of cloud usage. In contrast with that, explicitly cooperation focused application scenarios are discussed much less frequently today. The benefits of the multitenant capability of SaaS applications (e.g., cost sharing, risk sharing, internet-based access, and constant availability) are in the focus of attention whereas multitenant cooperation by means of SaaS applications has received less attention. The joint use of multitenant cooperation logistics cloud services could mean that logistics willing to cooperate develop a higher degree of ability to work together than with the applications they have been using so far.

Unlike local integration of all with all applications (“mesh networking”) among all network partners, the investment in IT for integration and interface development in the case of a central SaaS application with shared use is limited to the number of applications needing integration (“hub and-spoke network”).

The approach model comprises of totally six main activities each with three or four intermediate activities which, in turn, are divided into sub-tasks. Fig. 1 shows the main activities of the process model using the business process model and notation (BPMN).

The process model combines, in its activities, a multitude of procedures, techniques and methods of other engineering disciplines, e.g. business engineering, systems, engineering, software engineering, service engineering, integration engineering, and requirements engineering.

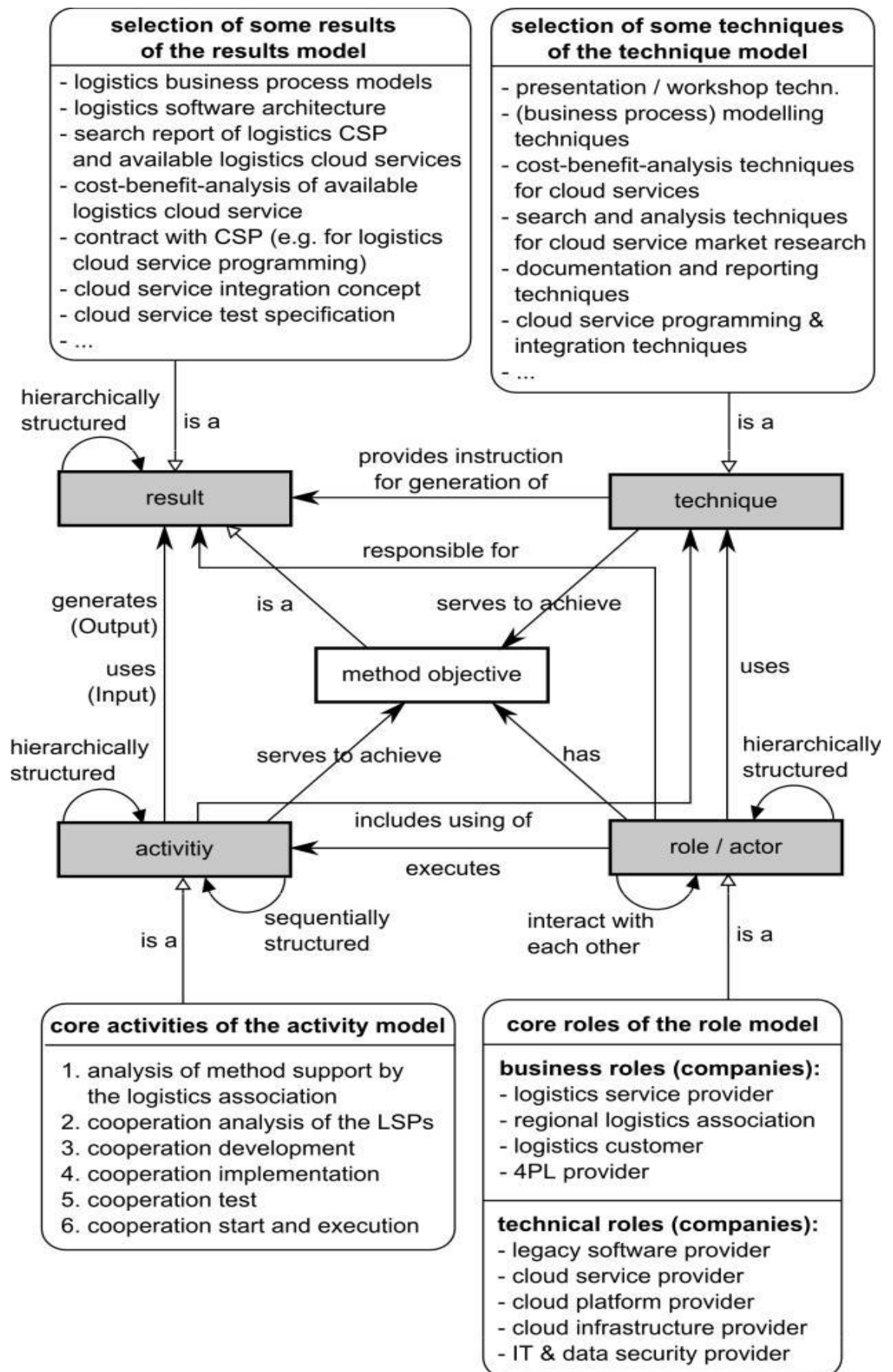


Fig 1.1 – Meta Model of cloud-based Logistics Cooperation Development [36]

The assignment of roles, results and techniques to the activities is described in detail in reference [36] as well as the techniques and results of all activities and their sub-activities. For example, the techniques include presentation and workshop techniques to describe the possible application of logistics cloud services by the project manager or cloud service provider to decision-makers in the logistics association and the logistics companies. The result and output model contains the final results of each activity that should be attained by the respective activity. These include, for example, business process models, search and market analysis results, IT system descriptions, target and performance specifications, minutes of meeting, results of cost-benefit calculations, etc.

The transport requirements in modern society are becoming more and more important. The transport services need to be more and more advanced and better designed to meet the needs of users. A significant part of costs of many goods are transport costs. The size of the market of transport services as well as the sales volume and derived profits intensify competition. Therefore, a reduction of costs and better adaptation of strategies to the demand require better planning and scheduling tools for available resources of transport companies. Computer systems can be a useful tool for transport companies. They may support a rapid creation of effective transport plans and schedules or enable simulation research leading to the correct selection of company organization, vehicles and capacities or locations of depots.

The dynamic Pickup and Delivery problem with Time Windows and capacity constraints (PDPTW).

PDPTW is defined as follows: there is a set of transport requests, which should be performed by a fleet of vehicles at the lowest possible cost expressed by the number of vehicles, total travel distance and total travel time. Each request is described by two locations: pickup and delivery, and two time windows, the time window for the pickup operation and the one for the delivery operation. Both the request pickup and delivery places should be visited by the same vehicle in the proper order. The time window is a period of time, when the service may be started. The time window is described by the start time and due time. A vehicle has to arrive at



some location before the due time, and must wait if it arrives before the start time, then it performs its services. Each request has a load and each vehicle has a maximum capacity which cannot be exceeded by the total load of goods transported. In the dynamic PDPTW, the difference with the static case is that the request input set now vary dynamically and that the optimization process has to take place in real time as new input requests arrive.

The nature of the problem, which involves distributed entities as vehicles in communication with the company controllers dealing with environment uncertainty and random demands, leads us to use a multi agent approach. A multi agent system following the RIO (Roles, Interactions, Organization) [18] methodology allows to specify the system at the level of role, interaction and organization, and by using the Contract Net Protocol [43] as an interaction schema. The aim is to exploit the physical distribution among vehicles and a central company in order to distribute computations and solve collectively the optimization problem. Another advantage of the proposed approach is its flexibility, that is its capacity to be easily extended.

The multi agent approach concerns the development of systems consisting of many autonomous entities which are able to create plans and choose actions to reach their goals [26]. Because of different locations of vehicles, the transport planning and scheduling problem may be considered as a typical example of a problem with a distributed domain, which are very suitable for a multi agent methodology. The multi agent approach allows autonomous, goal driven agents, which represent company or vehicles, to be taken into consideration. Each agent vehicle manages its route. An agent estimates a request taking into consideration its feasibility, the payment it obtains and the expenses. Thus, in multi agent approaches, the natural distribution between physical entities (vehicles and company) is exploited in order to achieve distributed computations and optimization.

In the literature, the multi agent approach to transport problems focuses mostly on complex cargo shipping problems, sometimes taking into consideration trans shipments and transport multimodality as the MARS (Modeling Autonomous CoopeRating Shipping Companies) platform [12] or TeleTruck system [4].

TeleTruck is an extended implementation of the MARS system. While agents of MARS represent homogenous trucks, the TeleTruck approach models the basic physical objects (drivers, trucks, trailers, containers) by basic agents which join together and form holonic agents that act in a corporated way. Some multi agent systems are specifically targeted for vehicle routing problems and very few on transport on demand problems [15]. In the above multi agent approaches two mechanisms are identified to deal with route optimization. Route construction is generally performed by instantiating a Contract Net Protocol [43] between agents, whereas route improvement is achieved by the simulated trading procedure. However, few benchmark results exist for static VRP, VRPTW or PDPTW and no benchmarks are given for the dynamic case problem. Here, we will instantiate negotiation protocols based on similar structure and dynamic benchmark.

Apart from the approaches based on Contract Net protocol and simulated trading, there are also solutions used which take advantage of the algorithms solving the DCSP (Distributed Constraints Satisfaction Problem) which has been widely researched in the domain of the multi agent research problem [33]. Among recent results related to the application of multi agent approaches in solving transport problems, it is worth mentioning the AS/ATN (Living Systems Adaptive Transportation Networks) system [34]. According to its authors, this system was applied in practice by several big international shipping companies to construct their transport schedules, making the application of this system probably the largest commercial use of agent technologies in the world.

A model of a multi agent system or transport planning is composed of the following main entities:

- environment: it is a transport network, a graph describing road connections;
- agents: customer agent responsible for the generation of transport requests, agent company, representing a transport company, and agent vehicles, representing single vehicles like minibuses.

Fig. 1.2 shows agent population within its environment.

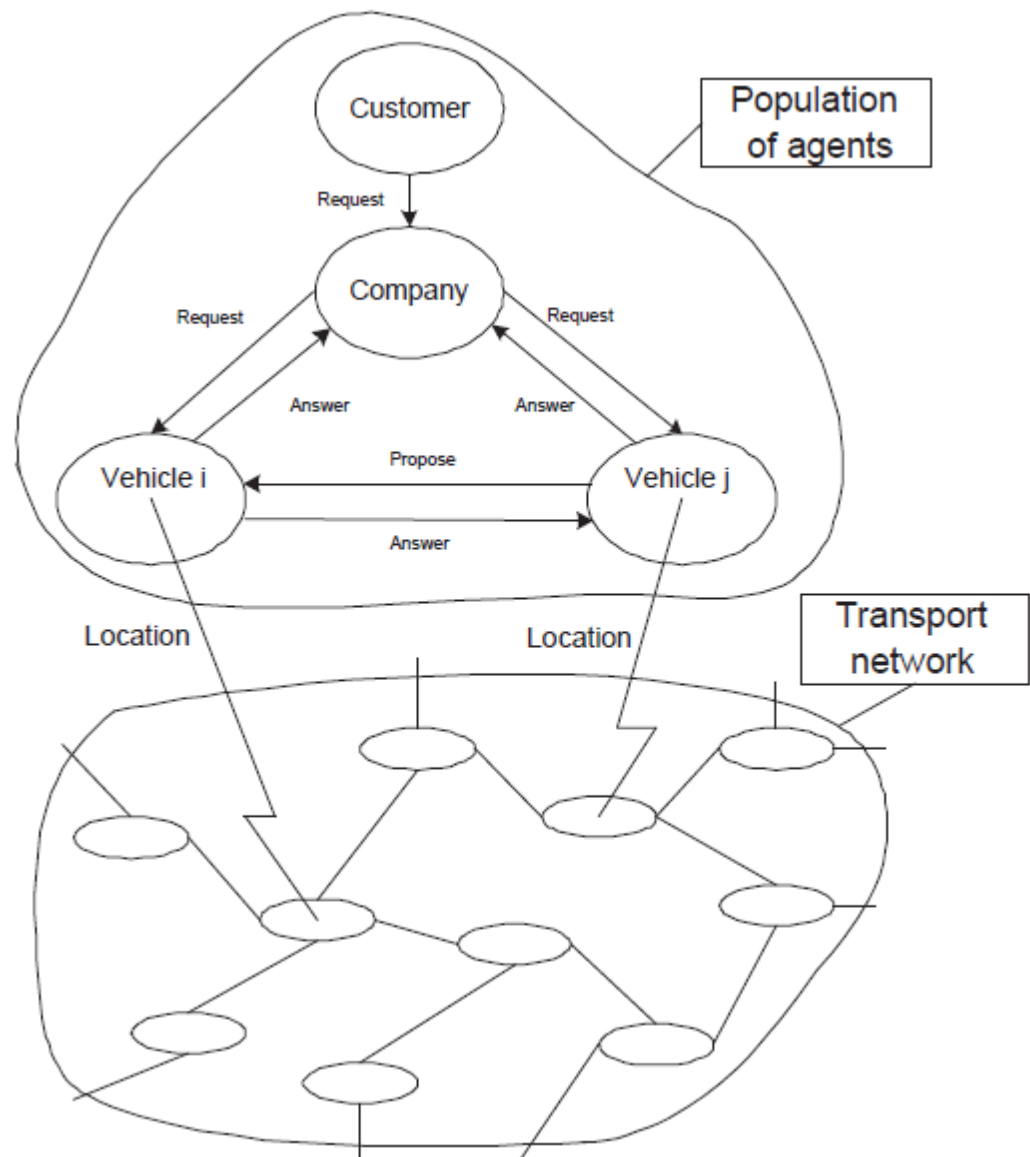


Figure 1.2 – Multi-agent system model: structure and main interactions [26]

Each agent vehicle has a representation of the transport network and of its successive positions on roads assuming, that a vehicle uses a geographical information system (GIS) and geolocalizes itself using satellite positioning as GPS (Global Positioning System) system. The agents vehicle communicate with the agent company or directly one to each other. The system organization is described using the RIO framework previously defined in [18]. This framework is based on three interrelated concepts: role, interaction and organization. Roles are generic behaviors. These behaviors can interact mutually according to interaction pattern. Such a pattern groups generic behaviors and their interactions into an organization. Organizations

are thus descriptions of coordination structures. In this context, an agent is an active communicative entity which plays roles.

Fig. 1.3 describes the organizations of the system.

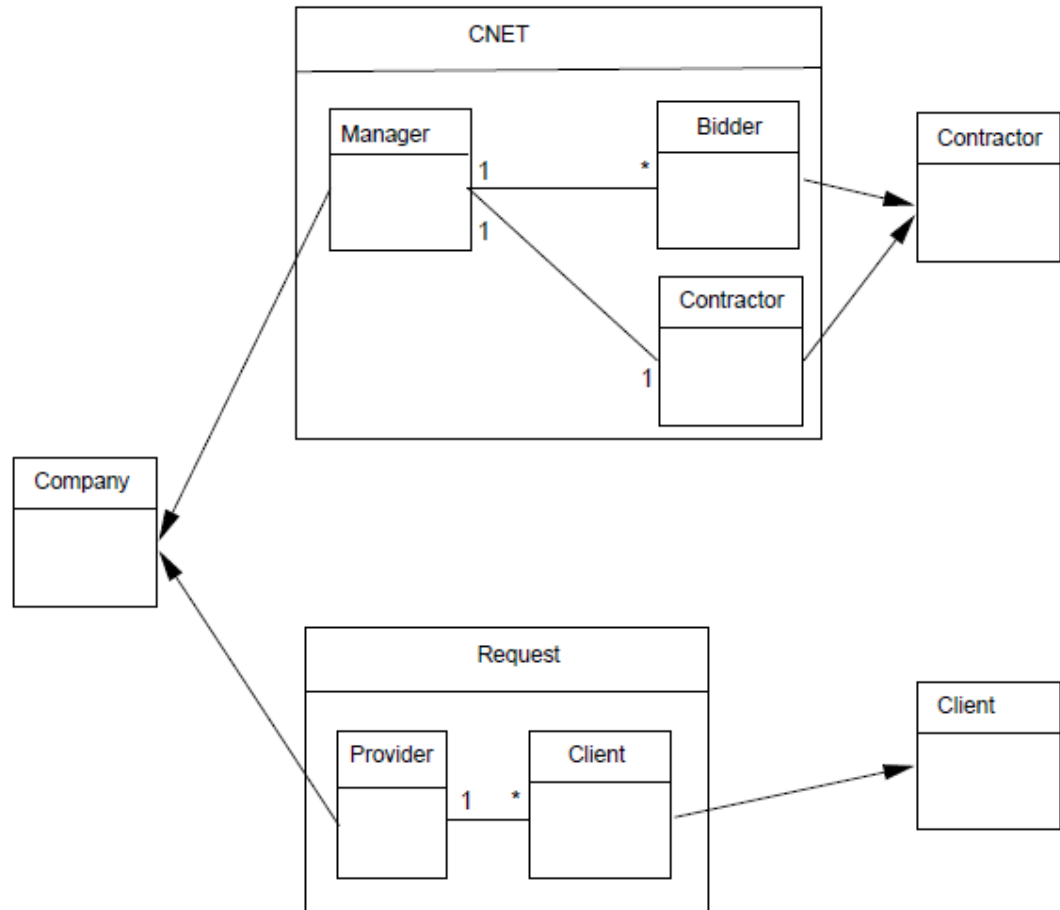


Figure 1.3 – System organization [26]

There are two organizations, one specifying the Contract Net protocol and one specifying the interactions between clients and pickup and delivery service providers. The former organization is composed of three roles: Manager, Bidder and Contractor. This organization specifies a Contract Net based negotiation between a Manager which proposes pick up and delivery requests, some Bidders which are able to realize these requests and among these Bidders a Contractor who eventually realizes this request. The Manager role is played by the agent company and the Bidder and Contractor roles are played by agents vehicles. The latter organization specifies two roles: Provider and Client. The Client role represents virtual clients that send a

request of pickup and delivery to a virtual Provider that accepts these requests and answers with an offer. The Provider role is played by the agent company. Agents instantiate organizations (roles and interactions). They always exhibit behaviors defined by the organization's roles. Each time they play one or more roles and they act executing predefined associated protocols. The different protocols coordinate actions in order to favor distributed optimization. Conversely, a role may be instantiated by one or more agents. Furthermore, roles are basic protocol components that are assigned or deleted in a dynamic way, depending on events received and actions performed.

### **1.3 Communication with customers in a digital environment**

Technology and innovation has changed customer expectations and the way that companies communicate. While businesses have become more accessible by having a digital presence, the need is to successfully communicate with customers to meet their needs. Various online mediums are also being used by businesses to market their products and services. Following are some ideas for effective communication with online customers [20].

#### **1. Communicating Through Social Networking Websites**

Social media has grown with time and is now being used as an information sharing medium by customers as well as businesses. There are 2.03 billion active social media users and the figures would increase in the coming years.

#### **2. Facebook**

Facebook provides a powerful yet systematic way to increase sales which gives businesses the ability to reach targeted customers. Anyone can sign up and start promoting their products but if the aim is to establish the company as a reliable brand and increase your engagement with followers, you need to approach things differently. You have to know the importance of quality content, how and when to

present it. Facebook's page insights can help companies establish strategies as to how and when to engage with fans and followers and can also help in experimenting what works best for the business. While communicating with customers on Facebook, understand who your target audience is and what they would want.

### 3. Twitter

This social media platform is used by businesses to constantly update customers and engage with them in one-to-one conversations. Twitter allows business to be precise and responsive at the same. It can also be used as a platform to advertise as it caters to an average of 236 million active members per month. Companies can make the most of this by engaging with customers regularly and responding to them in a timely manner. This would enhance the brand image and the company will also come across as responsible and reliable.

### 4. Instagram

After Twitter and Facebook, Instagram is appearing to be the next big platform for customer engagement. Engagement rate on Instagram is 15 times higher than Facebook and the videos are twice as popular as compared to pictures.

Businesses can not only use this platform to create hype for their products and services but, can also post behind the scenes footage, create catchy hashtags or come up with brilliant captions to get their customer's attention. Companies can engage with customers through the comments section and answer any queries they might have.

### 5. Communicating with Live Chat

Live chat service has seen a lot of growth and popularity in recent years. It is being integrated on websites of various companies because businesses have begun to understand the importance of customer engagement in real time. According to a survey conducted by EConsultancy, 73% of the customers experience a higher level of satisfaction using live chat as compared to email and phone. For getting the most out of your live chat it is vital to respond in a timely manner, understand the needs of your customer and provide the service 24/7 in multiple languages. Live chat technology is also a great way to assess customer satisfaction and gather feedback about products and services.

## 6. Webinars and Videos

ClickMeeting created an infographic which explained that 68% businesses run at least one webinar a month. Webinars are seminars which are arranged online. Executives, today, are signing up for creating webinars because it means instant access to the public and if the people like what you say, you become an instant success. Webinars can be used to promote the ideology of the company and this can also help the company create a positive image for itself by helping and guiding customers. According to the Content Marketing Institute, more than 60% marketers are using webinars as part of their marketing content.

Videos are another great way to engage customers. For example, YouTube has more than 1 billion users and millions of views are being generated every day. A large number of people use YouTube to research and discover services/products that they're interested in purchasing. Businesses can create "how-to" videos, product reviews, etc. to attract new customers while effectively serving existing customers. This would help them gain popularity and the company would also be able to reinforce itself in a subtle manner.

These practices help businesses improve customer engagement via digital channels. It is essential to keep in mind that the digital environment is constantly expanding and businesses need to keep up with the latest trends and innovations in order to facilitate their customers.

### **1.4 Chapter 1 summary**

This chapter deals with theoretical principles of company interaction with customers in an electronic environment.

The term "cooperation" is generally understood as a particular type of activity that businesses decide to pursue together in a particular place and time. It is emphasized that the essence of cooperation lays in the achievement of a common

goal or in the provision of mutual support to one another, if the goals are not interrelated.

We considered process model for logistics collaboration development based on logistics cloud services.

We also noticed that the transport requirements in modern society are becoming more and more important. The transport services need to be more and more advanced and better designed to meet the needs of users. A significant part of costs of many goods are transport costs. The size of the market of transport services as well as the sales volume and derived profits intensify competition. Therefore, a reduction of costs and better adaptation of strategies to the demand require better planning and scheduling tools for available resources of transport companies. Computer systems can be a useful tool for transport companies. They may support a rapid creation of effective transport plans and schedules or enable simulation research leading to the correct selection of company organization, vehicles and capacities or locations of depots.

So we can say that technology and innovation has changed customer expectations and the way that companies communicate.



## CHAPTER 2

### ANALYSIS OF THE ALVIL TRUCKING INC. ACTIVITIES IN THE US MARKET

#### 2.1 Information about Alvil Trucking Inc.

Alvil Trucking Inc. is a trucking company, which engaged in cargo transportation on the territory of all 48 US states, with the exception of Hawaii and Alaska. Logo of the company is presented in fig. 2.1.



Figure 2.1 – Logo of the company

Alvil Trucking Inc. experience allows them to provide optimal solution in the field of transport logistics, give necessary advice at all stages of transportation, as well as save time and financial resources of our clients. The range of services includes transportation of complete, groupage, dangerous, liquid, bulk and oversize cargo, temperature sensitive cargo, diplomatic and expensive goods.

Alvil Trucking Inc. offer clients:

- individual approach and the most effective way of delivery;
- business partnership and flexible attitude, based on mutual trust and cooperative development of solutions to your business;

– careful and strict observance and respect of mutual agreements.

The main advantages of the company are presented in fig. 2.2.



Figure 2.2 – The main advantages of the company Alvil Trucking Inc.

Common information about Alvil Trucking Inc. is presented in table 2.1.

Table 2.1 – Common information about Alvil Trucking Inc.

No	Type of information	Data
1	2	3
1	Legal Name:	ALVIL TRUCKING INC
2	Entity Type:	CARRIER
3	Operating Status:	AUTHORIZED FOR Property
4	Physical Address:	2195 ARTHUR AVE ELK GROVE VILLAGE, IL 60007
5	Phone:	(224) 266-2061
6	USDOT Number:	1346895
7	Drivers:	106
8	MCS-150 Mileage (Year):	15,047,400 (2019)

The company's fleet consists of 150 trucks. These are Volvo trucks, because Volvo is comfort (fig. 2.3). And, according to the company's management, the driver

spends a lot of time behind the wheel, therefore, first of all, he should be comfortable driving. Especially considering the long transportation distance across the United States.



Figure 2.3 – Fleet of the Alvil Trucking Inc.

All trucks and trailers in the company are new, produced in 2018, 2019 and 2020 (fig. 2.4). Since the new equipment practically does not break, which means that employees can work calmly, make money and not think that they will be somewhere in the middle of the road, it will break and wait for repairs. This, accordingly, affects the high quality of customer service.



Figure 2.4 – Volvo Truck 2020

Alvil Trucking Inc. also has a lot types of trailers, including in the company are refrigerators, driven and etc. Becoming a driver of enclosed car hauler is a great idea for drivers looking for a job with stability, that pays well, and is rewarding. Enclosed car haulers travel the country shipping classic cars, luxury cars, and exotic cars (fig. 2.5).

The cost of trailers for the shipping of expensive cars is 220,000 dollars. The cost of the truck is \$ 150,000.

This work of increased responsibility, great insurance, very expensive cars and, accordingly, a large salary for the driver.

The company cooperates with drivers from any city from any state.

The company also has its own staff of mechanics that have been working with Volvo trucks for many years, are well aware of this technique and how to properly maintain it so that there are no problems on the road.

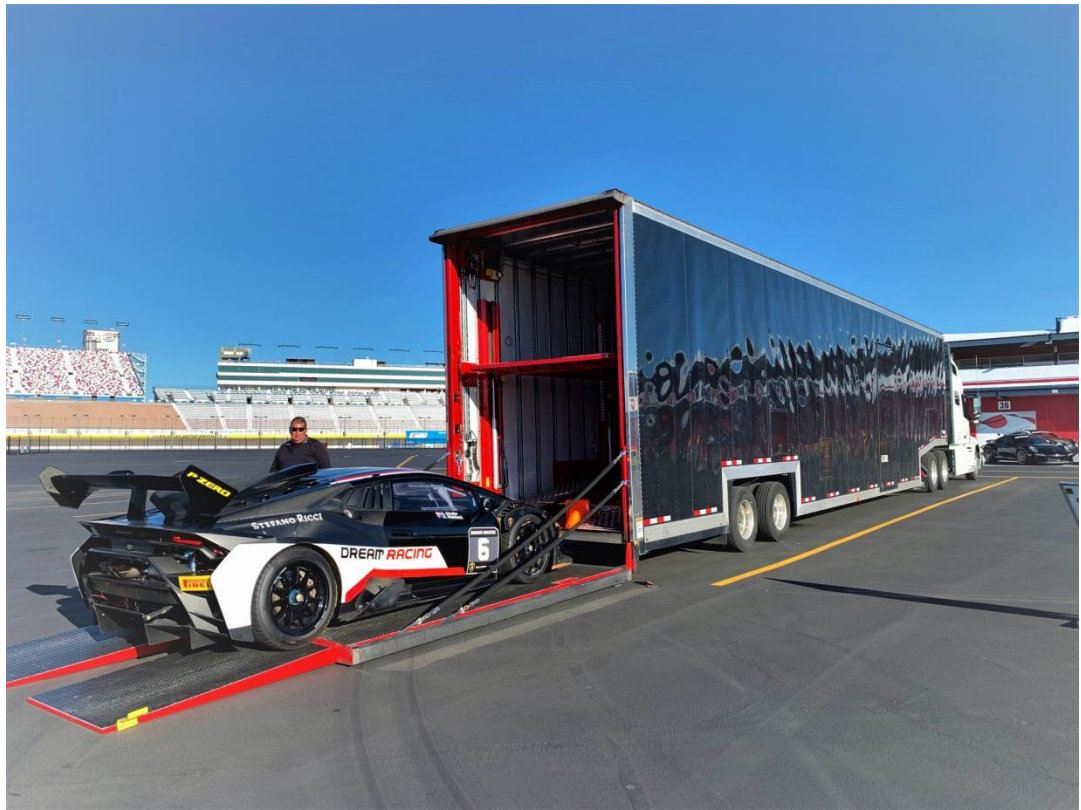


Figure 2.5 – Shipping luxury cars and exotic cars

Their main goal is building mutually beneficial relationship between our clients, subcontractors and employees. Cooperating with Alvil Trucking Inc., customers can count on strict adherence to the contract terms, quality and prompt delivery, complete safety and security of the cargo during transportation. Alvil Trucking Inc. sure, that providing high service level, continuous improving employees' qualification, developing of company's potential, they contribute to the success of their clients.

## **2.2 US road transport market analysis**

The scale and scope of globalization have created an environment where the transport sector is coping to adapt to expanded geography of distribution. This is particularly the case for North America where large distances are involved and because of the scale and scope of the production, distribution, and consumption

taking place. Historically, North America, mostly at the national level, was developed as a lattice of gateways and corridors enabling market expansion and access to the resources of the continent. The outcome was a set of functional regions with respective levels of specialization and comparative advantages, leaving the North American economy an integrated system of global and regional supply chains structured by networks linking production centers and distribution hubs across the continent. These supply chains depend on an efficient infrastructure and on a coherent and consistent system of regulations. Therefore and more than anywhere else in the world, North American integration is not necessarily about trade, but about functionally integrated supply chains.

Liberalization and globalization of trade have made necessary the restructuring of North American transport corridors as the commercial environment changed. These include three main longitudinal (north, central and south) and four latitudinal (west coast, central, NAFTA and east coast) axes. Ongoing deregulation combined with the North American Free Trade Agreement (NAFTA) concluded in 1994 following the Canada-USA Trade Agreement (CUSTA) in 1991 have had some impact on North American transport corridors. First, by increasing overall transborder freight traffic and, secondly, by emphasizing North-South regional corridors at the expense of long-haul East-West intra-national routes. The most prevalent transborder corridors are:

- the Toronto-Windsor-Detroit-Chicago corridor which is one of the densest and most integrated. The geography of the Great Lakes creates a funnel effect with the Niagara peninsula and the Windsor-Sarnia region as the only outlets. At the other end of the mid-continent (NAFTA) corridor is the Laredo inland port, a major gateway into Mexico. About a third of the volume involves auto parts produced in Southern Ontario and in the border regions of Mexico, which are used for low-cost car manufacturing in the Southeast states. The mid-continent corridor also has an extension reaching Winnipeg;

- the Vancouver-Seattle corridor in the Pacific Northwest and its counterpart the Los Angeles-San Diego-Tijuana corridor;

- the Montreal-New York corridor, which connects the Quebec-Windsor corridor to the Boston-Washington megalopolis.

The NAFTA Corridor links the two largest land gateways of North America, Detroit, Michigan, and Laredo, Texas (fig. 2.6). It dominantly relies upon trucking as about 65% of the value of the NAFTA trade is serviced by this mode. However, it is far from being a continuous corridor as northbound flows of Mexican imports and the southbound flows of Canadian imports dwindle as the distance from their respective borders increases. The threshold is around the Tennessee / Kentucky range, past which the respective flows are very small.



Fig. 2.6 – Some North American Trade Corridor Initiatives [44]

There are several trade corridor initiatives that have been established over North America, mostly on a consensual basis in order to address common problems, such as infrastructure improvements. Many have a form of governance such as forums that include major stakeholders (state Departments of Transportation, Metropolitan Planning Organizations). However, many do not reflect a functional reality, but an

expectation that at some point a coherent corridor will emerge. This is particularly the case for those having a north/south orientation. There is thus a dichotomy between functional corridors and formal corridors.

The Eastern Seaboard corridor, also known as the “I-95 corridor”, is one of the most cohesive, mainly because it focuses on a continuous Interstate highway shared through the East Coast as well as going through the most massive and coherent urban agglomeration in North America, the Boston – Washington megalopolis. Its interests are various, reflecting the complexity of the corridor itself, with issues ranging from tolls, key highway bottlenecks to promoting rail and short sea shipping.

The segment of the Mid Continent corridor between Laredo and Chicago, which is also labeled the “NAFTA corridor”, has seen a growth in the intensity of its traffic. The Asia-Pacific Gateway and Corridor initiative focuses on strengthening an existing axis of continental freight distribution between the Canadian West Coast (Vancouver and the new container port of Prince Rupert) and North America’s heartland (Chicago).

Transfer of freight traffic and activities from traditional East-West corridors to regional North-South axes is in process. This is not to say that the role of traditional latitudinal routes is to be neglected. Firstly, they are of prime importance to internal freight and passenger movement and, secondly, the Quebec-Chicago and Boston-Washington corridors remain core regions of North American transport activities.

The Main North American Trade Corridors, Gateways and Inland Freight Clusters are presented in fig. 2.7.

A North American lattice of trade corridors where freight distribution is coordinated by major gateways (container ports) and inland freight distribution clusters (IFDC) has emerged in the recent decades. While gateways and IFDCs are significant markets, they also command distribution within the market areas they service as well as along the corridors they are connected to. They thus have a significant concentration and logistics and intermodal activities. The extent of the market area of an IFDC is mainly a function of the average length of domestic truck freight haul, which is around 500 miles (800 km).





Fig. 2.7 – Main North American Trade Corridors, Gateways and Inland Freight Clusters [30]

Like many segments of the North American economy and territory, globalization and integration processes, namely NAFTA, have impacted on the nature and function of continental production, consumption and distribution. For international trade, the gateways of this system are major container ports along coastal areas from which long distance trade corridors are accessed. About a third of the American trade took place within NAFTA, mainly through land gateways (ports of entry) that are gateways in the sense that they are obligatory points of transit commanding access to the United States. For truck and rail flows, virtually no intermodal activities take place at land gateways, although several distribution centers are located nearby borders and along corridors. Laredo and El Paso, Texas and the Detroit / Windsor complex are notable exceptions with the presence of significant freight distribution activities linked with crossborder trade.

Although North America has a lattice of highways connecting all the major metropolitan areas, it the long-distance rail corridors supported by an intermodal rail

system that plays the most significant role in commercial flows. This implies that each gateway has a different modal split depending on the density of the regional market and railway connectivity to the hinterland. From coastal gateways longitudinal long-distance rail corridors, often taking the form of a landbridge, are servicing a continental hinterland articulated by major transportation and industrial hubs such as Chicago and Kansas City. The structure of the North American urban system clearly underlines the Midwest as the most accessible location for trucking to service a large segment of the American population (fig. 2.8).

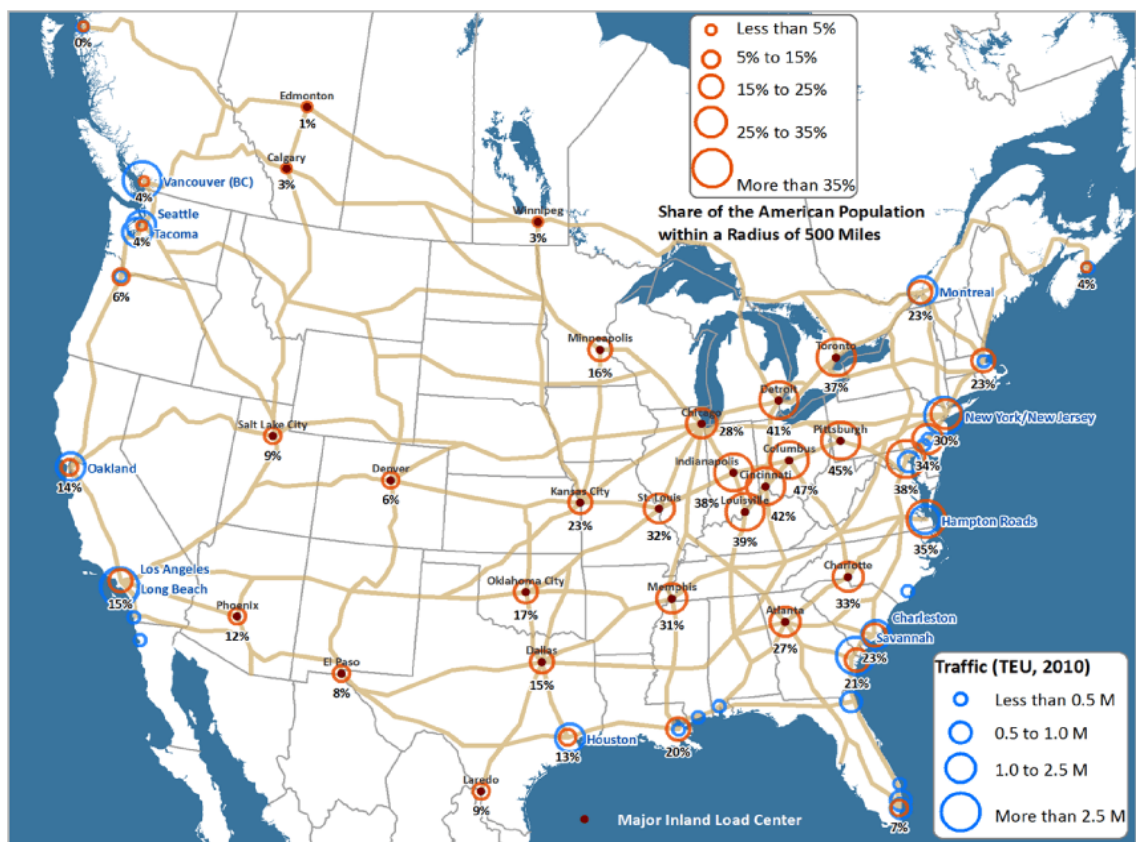


Fig. 2.8 – Market Accessibility of Major North America Distribution Clusters

[31]

The extent of the market area of an inland freight distribution cluster is related to the supply chains being serviced as each supply chain has different requirements in terms of lead time as well as the volume and frequency of deliveries. Many supply chains, particularly in retail, rely on daily deliveries, implying that the market area is mainly a function of the average length of domestic truck freight haul, which is

around 500 miles (800 km). An approximate way to assess market accessibility relates to a simple Euclidean distance radius. Thus, 500 miles is considered to be the upper limit of an operational daily radius for trucking, although shorter distances are generally preferred. 500 miles acts as a proxy for travel time, but a day of trucking can vary depending on the congestion level, which also has an impact on the reliability of deliveries. Additionally, new safety regulations for trucking are being implemented in the United States since 2008 (CSA; Compliance Safety Accountability) and which will impose more stringent monitoring of driving hours. The likely outcome is a reduction in the average length of domestic truck hauls.

On the above map the share of the total American population within a 500 miles radius from each major freight distribution cluster is depicted. From this standpoint, the optimal location (points of highest accessibility) is in the vicinity of Columbus, Ohio with 47% of the US population accessible within a day of trucking. Most locations within the Midwest have a share above 35%. Still, since a significant share of retail goods are imported through container ports, it is important to also consider port throughput as a factor in concordance with market accessibility. It underlines the difference between regionally anchored and long distance logistic functions. For instance for Los Angeles / Long Beach, only 15% of the US population is within 500 miles while for New York this share is double (30%). Thus, a great share of the logistical activities performed at LA/LB concern long distance freight distribution along the Los Angeles / Kansas City / Chicago rail corridor as the regional market is not large enough to support such a volume. This involves for instance an active transloading function where the contents of maritime containers are transloaded into domestic containers. For New York, more than 80% of all the traffic is bound to the immediate hinterland, implying that transloading is less prominent since most maritime containers will be brought directly to the customers. On the Canadian side, the two most important container ports stand at two extremes; Montreal covers 23% of the American population within 500 miles while Vancouver covers only 4%.

There are millions of “makers” in the U.S., producing everything from avocados to automobiles to shampoo to sofas. But of all those millions of products, there are

only a few ways to transport them from the production plant to the end user: Boats, planes, railroads, and trucks.

The vast majority – approximately 70% – of goods in the U.S. are delivered by trucks.

The global third party logistics market size was valued at USD 764.81 billion in 2018 and is anticipated to grow at a CAGR of 7.4% during forecast period (fig. 2.9).

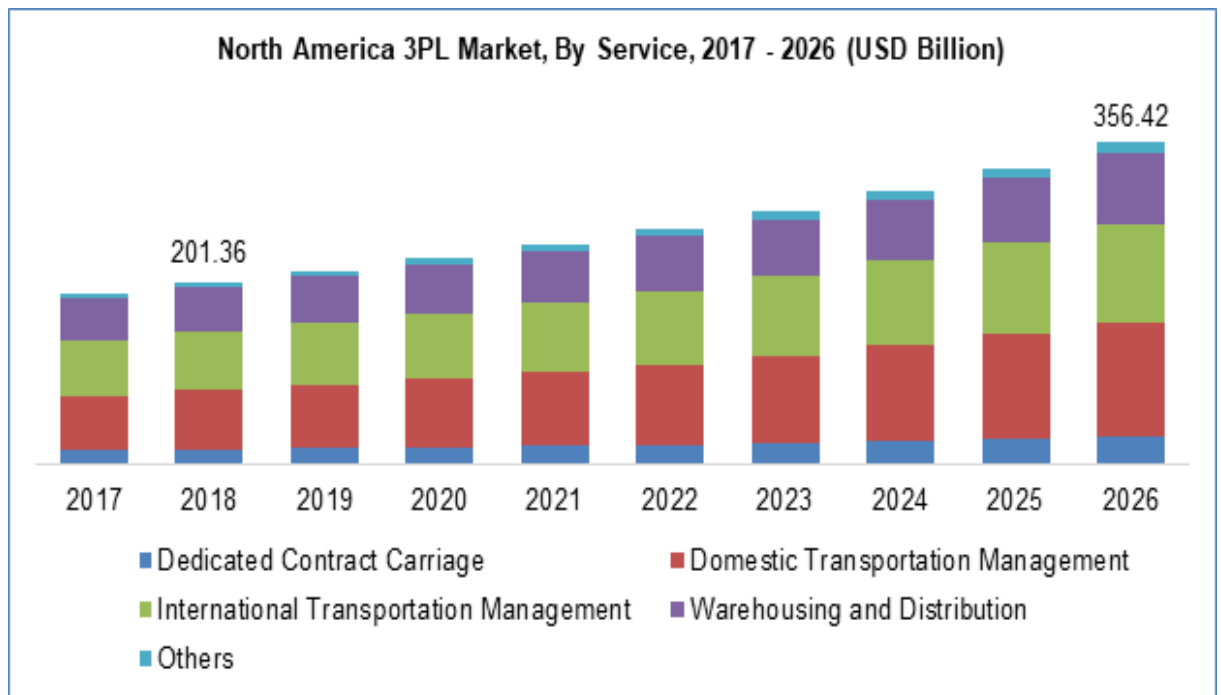


Figure 2.9 – US third party logistics market size

The outsourcing of some or all of a retailer’s logistics and supply chain to another company is known as third party logistics or 3PL. Once this aspect is looked into, the company is hereby enabled to focus on other important tasks of business development. The development of the modern-day supply chain and its enormous complexity gives rise to a smoother and more efficient logistics principle. Third party logistics or 3PL enables small businesses who do not own their independent logistics system to oversee supply chain of a bigger scale. 3PL oversees independently stock control, warehousing, IT infrastructure and delivery solutions. 3 PL eliminates enormous scale expense, while likewise expanding effectiveness.

The rise in worldwide trading activities as a result of massive globalization serves as a strong driver to market development. The market is propelled by need of manufacturers and retailers who feel the importance elsewhere in core competencies and would rather believe in it. This leads to an overall rise in e-commerce business and subsequently influences the market. However, reluctance of companies and organizations to rely on independent companies to settle with logistics operations may hamper market growth. The use of digital technology to digitize the process is expected to drive market growth during forecast period.

### 2.3 Analysis of the main Alvil Trucking Inc. activity indicators

The analysis of production indicators of the activity of the transport company Alvil Trucking Inc. showed that during the last five years the company fulfilled 76557 orders from customers (table 2.2).

Table 2.2 – Volumes of services provided by Alvil Trucking Inc.

№	Indicators	2015	2016	2017	2018	2019
1	2	3	4	5	6	7
1	Number of shipments, units	12509	13846	15445	16608	18250
2	Absolute change, units	–	+1337	+1599	+1163	+1643
3	Relative change,%	–	+10,69	+11,55	+7,53	+9,89
4	Number of transported cargo, tons	212651	242305	278010	293953	324850
5	Absolute change, units	–	+29654	+35705	+15943	+30897
6	Relative change,%	–	+13,94	+14,74	+5,73	+10,51

For better analysis of the presented data, we calculate the changes of indicators by years in absolute and relative values. Comparative analysis of provided services is presented in fig. 2.10.

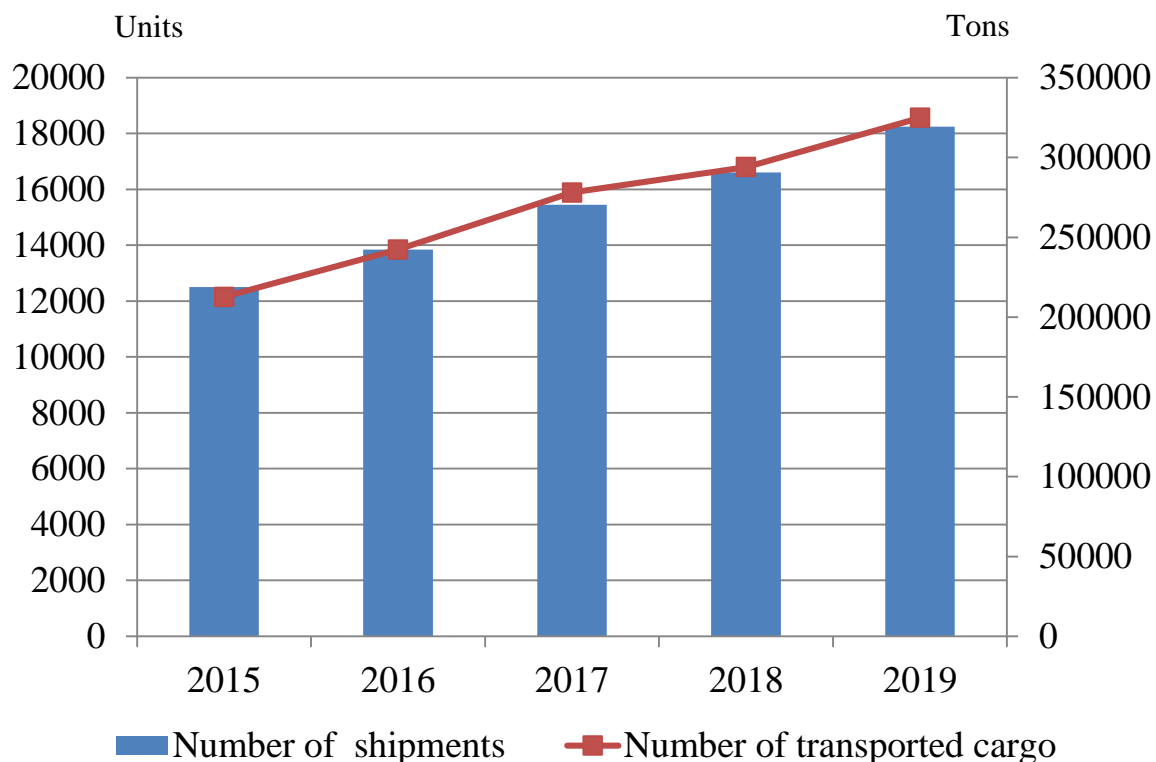


Figure 2.10 – Dynamics of services provided by Alvil Trucking Inc.

So, we see that the volume of services provided for all types of activity of the company Alvil Trucking Inc. is increasing from year to year.

In 2015-2016 increase in number of shipments was 10,69% and increase in number transported cargo was 13,94%.

In 2016-2017 increase in number of shipments was 11,55% and increase in number transported cargo was 14,74%.

In 2017-2018 increase in number of shipments was 7,53% and increase in number transported cargo was 5,73%.

In 2018-2019 increase in number of shipments was 9,89% and increase in number transported cargo was 10,51%.

In general, we see that the percentage of increase in 2016-2017 is significantly higher than the percentage of increase in other years. But totally indicates have a positive trend in the activity of Alvil Trucking Inc..

For financial analysis, various sources of information are commonly used, among which are the standard forms of annual financial reporting (table 2.3).

Table 2.3 – Financial results of Alvil Trucking Inc.

№	Indicators	2015	2016	2017	2018	2019
1	2	3	4	5	6	7
1	Total income from sales of products, dollars	57415783	67603095	80900779	88185825	99404100
2	Absolute change, dollars	–	10187312	13297684	7285046	11218275
3	Relative change,%	–	+17,74	+19,67	+9,00	+12,72
4	Net profit (loss), dollars	4248768	5070232	6148459	6525751	7455308
5	Absolute change, dollars	–	821464	1078227	377292	929556
6	Relative change,%	–	+19,33	+21,27	+6,14	+14,24

For better analysis of the presented data, we calculate the changes of indicators by years in absolute and relative values. Comparative analysis of financial results is presented in fig. 2.11.

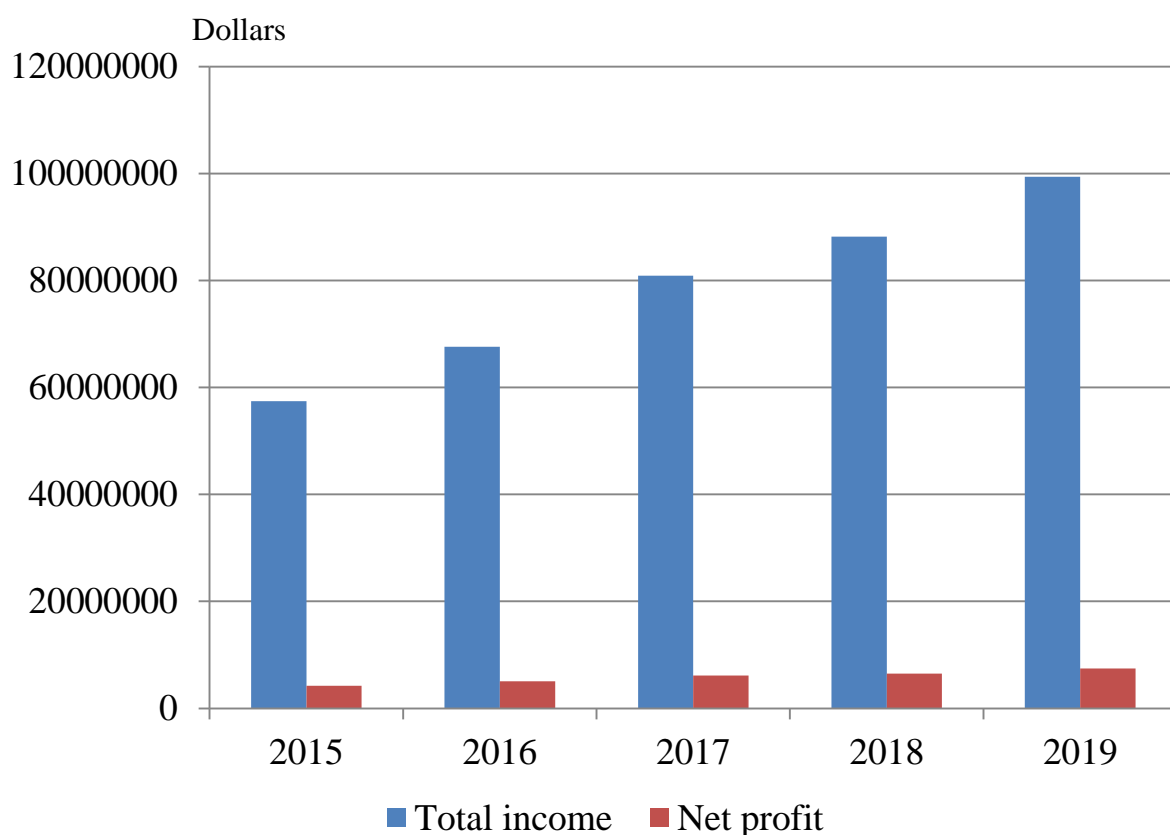


Figure 2.11 – Dynamics of Alvil Trucking Inc. financial results

So, we can see increasing of financial results from year to year.

In 2015-2016 increase in the total income was 17,74% and increase in the net profit was 19,33%.

In 2016-2017 increase in the total income was 19,67% and increase in the net profit was 21,27%.

In 2017-2018 increase in the total income was 9,00% and increase in the net profit was 6,14%.

In 2018-2019 increase in the total income was 12,72% and increase in the net profit was 14,24%.

In general, we see that the percentage of increase in 2016-2017 is higher than the percentage of increase in other years. But totally indicates have a positive trend in the activity of Alvil Trucking Inc.

The quality of the financial analysis allows to determine the key moments in the dynamics of the enterprise's development in the future, as well as its possibilities for further improvement. We can say that the company Alvil Trucking Inc. has all the incentives for active development.

## **2.4 Chapter 2 summary**

In this chapter we have analyzed activities of the Alvil Trucking Inc. in the US market. Alvil Trucking Inc. is a trucking company, which engaged in cargo transportation on the territory of all 48 US states, with the exception of Hawaii and Alaska. The company's fleet consists of 150 trucks Volvo. All tracks and trailers in the company are new, produced in 2018, 2019 and 2020.

Their main goal is building mutually beneficial relationship between our clients, subcontractors and employees. Cooperating with Alvil Trucking Inc., customers can count on strict adherence to the contract terms, quality and prompt delivery, complete safety and security of the cargo during transportation. Alvil Trucking Inc. sure, that



providing high service level, continuous improving employees' qualification, developing of company's potential, they contribute to the success of their clients.

We also have made US road transport market analysis, have reviewed Some North American Trade Corridor Initiatives and Main North American Trade Corridors, Gateways and Inland Freight Clusters. We also have analyzed US third party logistics market size.

The analysis of production indicators of the activity of the transport company Alvil Trucking Inc. showed that during the last five years the company fulfilled 76557 orders from customers. We have seen that the volume of services provided for all types of activity of the company Alvil Trucking Inc. is increasing from year to year. The quality of the financial analysis allows to determine the key moments in the dynamics of the enterprise's development in the future, as well as its possibilities for further improvement. We can say that the company Alvil Trucking Inc. has all the incentives for active development.

## CHAPTER 3

### PROPOSALS FOR THE IMPROVING COMPANY'S INTERACTION WITH CUSTOMERS IN AN ELECTRONIC ENVIRONMENT

#### **3.1 Identification of existing problems in the process of interaction with the company's customers**

For identification of existing problems in the process of interaction with the Alvil Trucking Inc. customers first of all we need to make customer segmentation.

The logistics approach to the company's customer segmentation is based on ABC and XYZ analyzes. Basic data for ABC and XYZ analysis are given in table 3.1. For analysis we took clients, which made more than one order during the last year. Unfortunately, about 70% of company's clients are one-time customers.

ABC analysis is based on the income (revenues) generated by the company's customers for the analyzed period:

- group A includes clients, whose share in the total number of customers is up to 20%, and the share in the total income of the company is up to 80%;
- group B includes clients, whose share in the total number of clients is up to 30%, and the share in the total income of the company is up to 15%;
- group C includes clients, whose share in the total number of customers is up to 50%, and the share in the total revenue of the company is only 5%.

When making ABC analysis, the following calculations are performed:

1. Thirst we need to calculate the total amount of income of the company. To do this, we need to summarize the revenues from all customers.
2. Then we need to calculate the share of each customer in the total income of the company. To do this, we need to divide the income from each customer by the total income and multiply by 100%.
3. Customers need to be re-sorted by share of income from larger to smaller.

Table 3.1 – Basic data for customer segmentation

№	№ of clients	Revenue from customer per year, dollars	Number of customer orders			
			1 quarter	2 quarter	3 quarter	4 quarter
1	2	3	4	5	6	7
1	1	1458372	5	4	4	5
2	2	161357	1	1	1	0
3	3	198227	2	0	2	1
4	4	2088555	3	3	2	2
5	5	283093	1	1	2	1
6	6	2089923	0	1	1	2
7	7	2143612	2	2	3	3
8	8	211715	2	3	1	2
9	9	1346158	4	5	3	5
10	10	12301569	24	22	22	24
11	11	301956	2	1	1	3
12	12	313288	1	2	1	0
13	13	510769	2	0	2	2
14	14	167907	0	1	1	0
15	15	441119	1	1	2	2
16	16	158924	1	1	2	1
17	17	290597	3	2	1	3
18	18	1970661	6	3	5	4
19	19	393801	2	2	1	2
20	20	219191	3	2	3	3
21	21	152015	1	1	2	1
22	22	393040	3	3	3	1
23	23	517499	3	2	3	3
24	24	441201	2	2	1	2
25	25	216026	2	2	0	0
26	26	148725	2	2	1	2
27	27	281489	2	2	3	3
28	28	211991	1	2	2	1
29	29	189272	3	3	3	1
30	30	219177	3	3	3	2
31	Total	29821230	-	-	-	-

4. The jump of share is calculated as the difference between share the previous and the next customer, according to the ordered list. Opposite the last client we must put "0", because he does not have the next client.

5. Dividing of the analyzed clients into groups A, B and C:

- group A includes clients of an ordered list, starting from the most profitable to the first maximum (or large) value of share jump inclusive. This is usually 20% of the total number of customers;

- group B includes the next clients of the ordered list up to the second maximum (or large) value of share jump inclusive. Usually group B includes 30% of the total number of customers;

- group C includes those customers who remain at the bottom of the sorted list. This is usually 50% of the total number of customers.

It should be noted that customers with relatively the share of income cannot fall into different categories, and customers with very different share of income cannot be in the same category.

Results of ABC analyzes of Alvil Trucking Inc. customers are given in table 3.2.

XYZ analysis is performed taking into account the stability of the relationship with a particular client.

When making XYZ analysis, the following calculations are performed:

1. Calculation of the average number of orders for each customer. To do this, we need to summarize the number of orders for each period and divide by the number of these periods.

2. Calculation of the coefficient of variation of orders (transactions) for individual customers by formula:

$$v = \frac{\sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}}}{\bar{x}} \cdot 100\% , \tag{3.1}$$

where  $x_i$  – the number of orders or transactions with a particular customer for the  $i$ -th period;  $\bar{x}$  – the average number of orders or transactions for all periods;  $n$  – the number of analyzed periods.

3. Customers need to be sorted by coefficient of variation from smaller to larger.

Table 3.2 – Results of ABC analysis of Alvil Trucking Inc. customers

№	Primary list			Ordered list			Group ABC
	№ of clients	Revenue from customer per year, c.u.	Share of each customer in the total revenue, %	№ of clients	Share of each customer in the total revenue, %	Jump of the share, %	
1	2	3	4	5	6	7	8
1	1	1458372	4,89	10	41,25	34,06	A
2	2	161357	0,54	7	7,19	0,18	B
3	3	198227	0,66	6	7,01	0,00	B
4	4	2088555	7,00	4	7,00	0,40	B
5	5	283093	0,95	18	6,61	1,72	B
6	6	2089923	7,01	1	4,89	0,38	B
7	7	2143612	7,19	9	4,51	2,78	B
8	8	211715	0,71	23	1,74	0,02	C
9	9	1346158	4,51	13	1,71	0,23	C
10	10	12301569	41,25	24	1,48	0,00	C
11	11	301956	1,01	15	1,48	0,16	C
12	12	313288	1,05	19	1,32	0,00	C
13	13	510769	1,71	22	1,32	0,27	C
14	14	167907	0,56	12	1,05	0,04	C
15	15	441119	1,48	11	1,01	0,04	C
16	16	158924	0,53	17	0,97	0,03	C
17	17	290597	0,97	5	0,95	0,01	C
18	18	1970661	6,61	27	0,94	0,21	C
19	19	393801	1,32	20	0,74	0,00	C
20	20	219191	0,74	30	0,73	0,01	C
21	21	152015	0,51	25	0,72	0,01	C
22	22	393040	1,32	28	0,71	0,00	C
23	23	517499	1,74	8	0,71	0,05	C
24	24	441201	1,48	3	0,66	0,03	C
25	25	216026	0,72	29	0,63	0,07	C
26	26	148725	0,50	14	0,56	0,02	C
27	27	281489	0,94	2	0,54	0,01	C
28	28	211991	0,71	16	0,53	0,02	C
29	29	189272	0,63	21	0,51	0,01	C
30	30	219177	0,73	26	0,50	0	C
31	Total	29821230	100	-	100	-	-

4. The division of customers into groups X, Y, Z is as follows:

– group X includes clients with whom the relationship is stable and easily predictable (0% <v (10%);

- group Y includes clients with whom the relationship has some fluctuations (10% <math>v \leq 25\%</math>);
- group Z includes clients with whom the relationship is random ( $v > 25\%$ ).

Results of XYZ analyzes of Alvil Trucking Inc. customers are given in table 3.3.

Table 3.3 – Results of XYZ analysis of Alvil Trucking Inc. customers

№	№ of clients	Average number of orders for the period, y.o.	The value of the coefficient of variation, %	Ordered list (by coefficient of variation)		Group XYZ
				№ of clients	Coefficient of variation, %	
1	2	3	4	5	6	7
1	1	4,50	11,11	10	4,35	X
2	2	0,75	57,74	1	11,11	Y
3	3	1,25	66,33	20	15,75	Y
4	4	2,50	20,00	23	15,75	Y
5	5	1,25	34,64	30	15,75	Y
6	6	1,00	70,71	9	19,51	Y
7	7	2,50	20,00	4	20,00	Y
8	8	2,00	35,36	7	20,00	Y
9	9	4,25	19,51	27	20,00	Y
10	10	23,00	4,35	19	24,74	Y
11	11	1,75	47,38	24	24,74	Y
12	12	1,00	70,71	26	24,74	Y
13	13	1,50	57,74	18	24,85	Y
14	14	0,50	100,00	15	33,33	Z
15	15	1,50	33,33	28	33,33	Z
16	16	1,25	34,64	5	34,64	Z
17	17	2,25	36,85	16	34,64	Z
18	18	4,50	24,85	21	34,64	Z
19	19	1,75	24,74	22	34,64	Z
20	20	2,75	15,75	29	34,64	Z
21	21	1,25	34,64	8	35,36	Z
22	22	2,50	34,64	17	36,85	Z
23	23	2,75	15,75	11	47,38	Z
24	24	1,75	24,74	2	57,74	Z
25	25	1,00	100,00	13	57,74	Z
26	26	1,75	24,74	3	66,33	Z
27	27	2,50	20,00	6	70,71	Z
28	28	1,50	33,33	12	70,71	Z
29	29	2,50	34,64	14	100,00	Z
30	30	2,75	15,75	25	100,00	Z

Based on the ABC and XYZ-analyzes, we must build the ABC-XYZ matrix (table 3.4) and develop recommendations for servicing each customer segment.

Table 3.4 – Matrix of ABC-XYZ analyze

№	Groups	A	B	C
1	2	3	4	5
1	X	10	–	–
2	Y	–	1, 4, 7, 9, 18	19, 20, 23, 24, 26, 27, 30
3	Z	–	6	19, 20, 23, 24, 26, 27, 30, 2, 3, 5, 8, 11, 12, 13, 14, 15, 16, 17, 21, 22, 25, 28, 29

Customers in the AX, AY and AZ groups are the customers who bring the company the most income. The service of these clients should be carried out at the highest level. We need to develop individualized service programs, to provide discounts and to try to win their loyalty. For customers AZ we should identify the reasons of their fluctuations in product consumption and create all possible conditions for its stabilization.

Clients of groups BX, BY and BZ bring the average income for the company. Their service should be carried out with the use of additional services and create conditions to increase income from them. For customers BZ we also should identify the reasons of their fluctuations in product consumption and try to eliminate them. But, unlike category A, for customers B, we need to be sure that these additional measures are not unprofitable for the company.

Clients CX, CY and CZ bring the lowest income. It is necessary to minimize the cost of their servicing and provide only the minimum necessary list of services at their minimum price. Discounts and loyalty programs should not be provided for these customers. The only exception may be done for clients of the CX group, which can become a source of «word of mouth» and therefore can be indirectly useful for the company. For customers of categories CY and CZ it is necessary to control expenses for their service. And if the costs exceed the income, it is necessary to refuse to cooperate with them, especially with customers of the CZ group.

In general, customers of category A should be served the first, customers of category B should be served the second, customers and category C (especially CZ) should be served the last.

According to our matrix, Alvil Trucking Inc. has only 1 customer of category A. This client is C.H. Robinson. With him Alvil Trucking Inc. has a stable relationships and it's good for both companies. Also Alvil Trucking Inc. has 6 customers of category B with average and nonstable relationships. But the most customers are nonstable with low share of each customer in the total revenue of the company.

Of course, the first reason for this situation is related to the specifics of the market – this is the spot market.

The spot market is notable for fast execution of orders and special conditions for settlements. A key feature of such agreements is the instant acquisition of obligations by both parties. It is assumed that participants in the system instantly make an exchange operation: the buyer acquires the goods, and the seller acquires the money.

At the same time, in practice, this procedure may be delayed. Financial institutions in different countries operate differently, due to which slippage occurs and cost changes. It is also worth considering the time zones of counterparties, which can differ significantly from each other.

But, for our opinion, even on this market we can improve company's interaction with customers, for example, be increasing loyalty of existing customer which will influence on positive «word of mouth» and help to invite new profitable customers.

### **3.2 Possible ways of improving company's interaction with customers in an electronic environment**

In today's digital world, the rules of customer engagement are changing. To continue acquiring and retaining customers, transport companies need to recognize this and adapt to these new dynamics.



The main factors that affect the process of interaction with customers are presented in fig. 3.1.

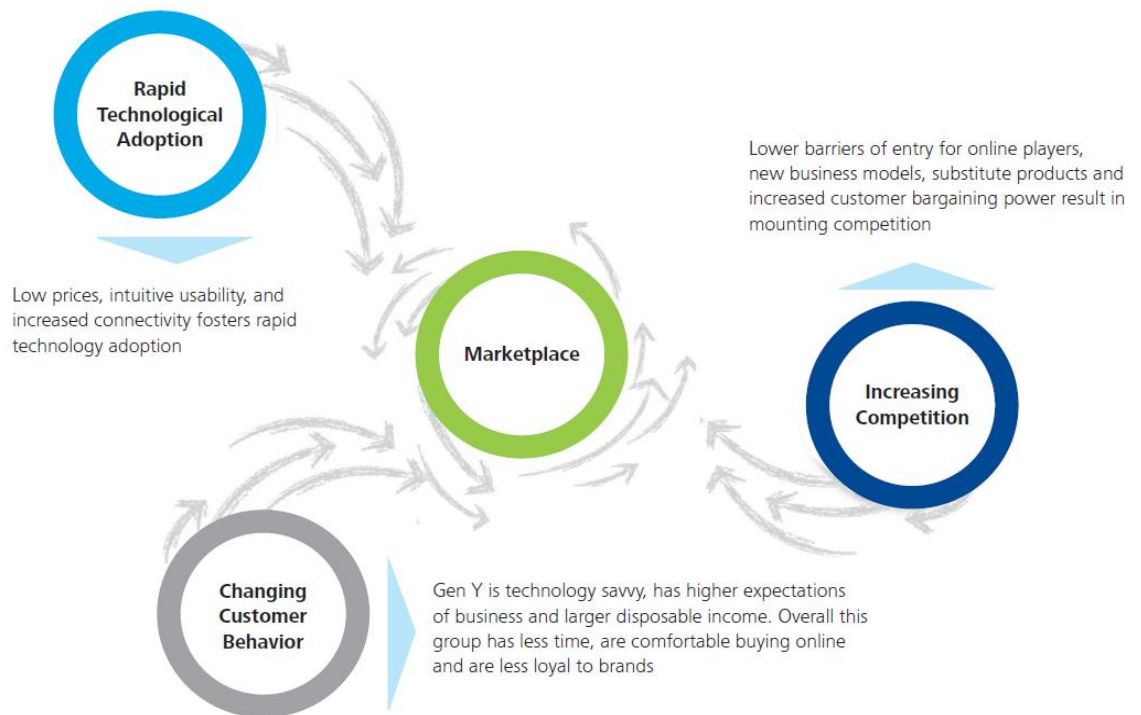


Figure 3.1 – The main factors that affect the process of interaction with customers

Consider them in more detail.

**The rapid adoption of technology.** Transport companies and their customers are adopting technology at a rapid pace. They need to use social networks, mobile computing, analytics and cloud computing. Even taken individually, they create major implications for customer services. Taken together, these digital trends will give higher effect.

**Changes in customer behavior.** Customer attitudes are changing, they are becoming more fickle and expect greater business transparency and corporate responsibility. Increased comfort with technology and high usage of online channels is feeding this shift.

**Increasing competition.** New competitors appear at almost every market. Some are engaging in direct competition taking advantage of the lower barriers of entry

provided by globalization, de-regulation and technology developments. Some, like Facebook, Amazon, Google, Apple or countless smaller ventures, are inventing new business models that create a sudden impact on traditional markets.

As we have noticed abuse, together, these three market forces are exerting intense pressures on almost all industries. The transportation industry is no exception.

Already in recent years, many businesses were beginning to raise the bar on customer service in order to differentiate from competitors and defend prices. Digitalization is acting as an accelerator on this shift, turning customer service improvement into one of the most important factor. The mainstream adoption of social platforms and the use of online forums is making business practices increasingly transparent.

In the past, poor service may have led to a customer complaining to a small number of family or friends. Today, however, a post or a tweet can share bad experiences with hundreds of potential customers instantly. Of course, its impact can be amplified to millions more at the click of a button. On one hand, this digital amplification effect punish a company for poor service, on other hand, positive messages from delighted customers boost a company's reputation for good service or excellent products. This kind of «word of mouth» marketing delivers a much more powerful message than any company can send.

The digital market signals the need for a fresh customer service strategy. Interacting on a frequent basis with customers, transport companies are in a prime position to engage with customers and create success stories. This can lead to better brand awareness, promote search engine listings, increased web traffic to websites and ultimately improve sales conversion rates and repeat business. Service has a bright future ahead at the heart of customer communication. The activity of first-class transport companies will not only leave customers with answered questions but drive customer acquisition and loyalty.

Service has a bright future at the heart of business communications. By developing new capabilities, transport companies can create differentiation and competitive advantage.

There are many transport companies understand that the customer service environment is changing. But several are already reacting to this trend and have deployed social media service channels. However, the general response to digitalization has been to deploy new technology-enabled interactions channels simply bolted-on to existing operational models and this, we believe, is missing the point.

The real importance of digital to transport companies is not the emergence of new technology. More important is change in customer behavior. The market leaders of tomorrow will not be decided by the amount of technology they deploy, but how they evolve their whole service operation to respond to the changing customer (fig. 3.2). We think companies must review their operations. All parts of the transport companies’ operating model (i.e. channels, people, process, technology and information) should be reviewed. This will enable the envisioning of improvement areas and new capabilities.

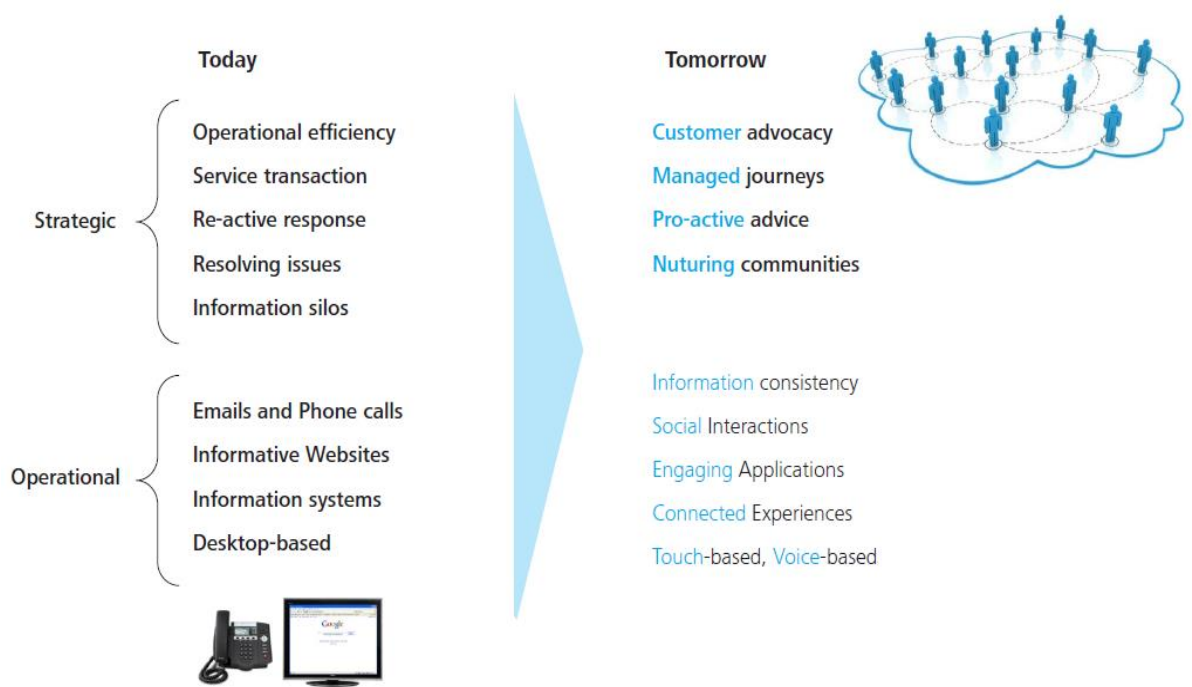


Figure 3.2 – Future of customer service

There are five important capabilities for today’s service delivery models for transport companies. These capabilities are highlighted against an example customer service delivery model in the illustration below (fig. 3.3).

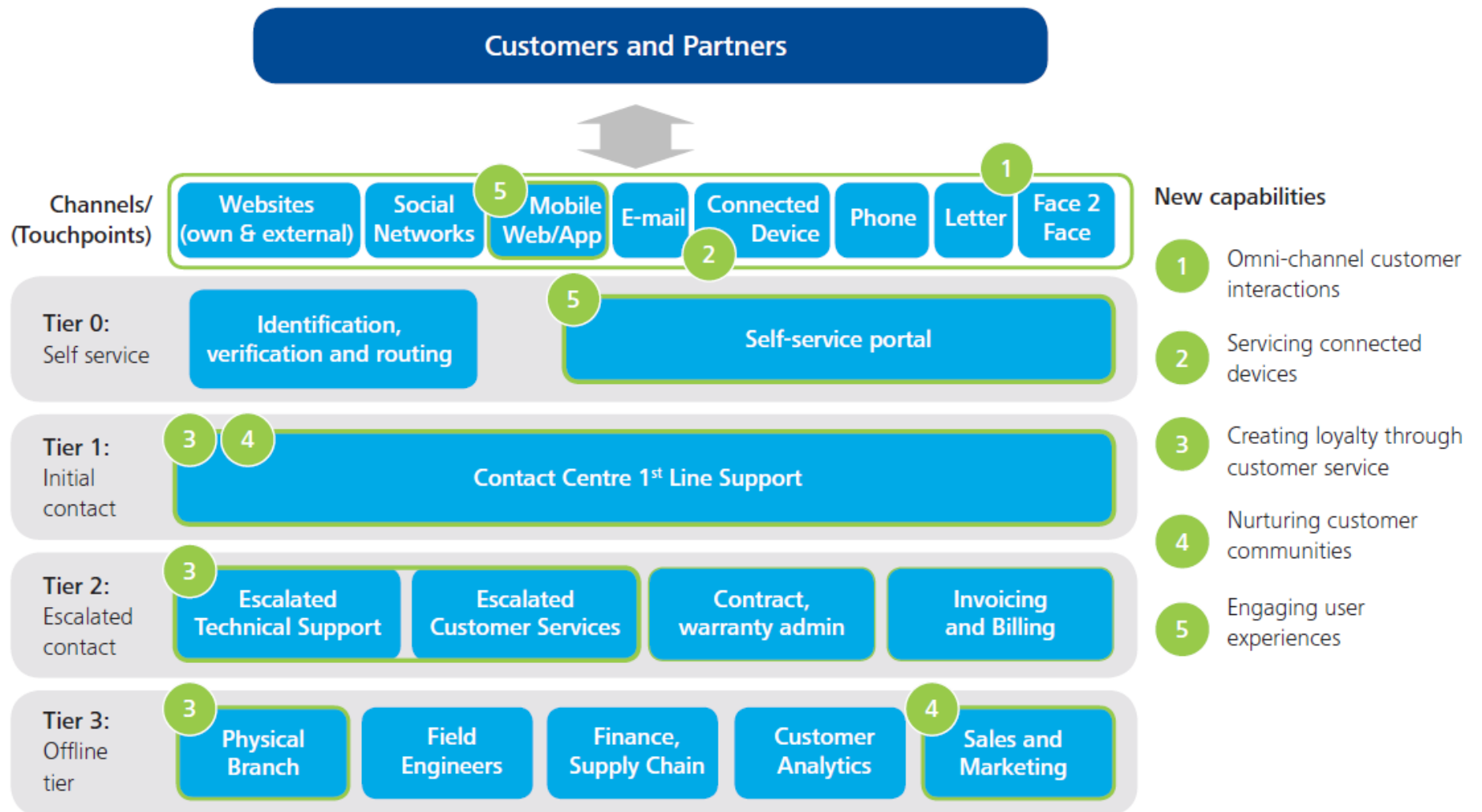


Figure 3.3 – New capabilities for the transport service delivery model

Let's review these capabilities more detail:

1. Omni-channel customer interactions – it means that transport companies need to understand the entire customer journey and not just optimize contact points individually. Building unified and pro-active cross-channel services will deliver differentiated customer experiences that drive loyalty and repeat sales.

2. Servicing connected devices – connected devices enable transport companies to monitor equipment remotely and analyze device data to predict possible failures. Advanced analytical techniques offer valuable opportunities to deliver better services and improve efficiency.

3. Creating loyalty through customer service – the mainstream adoption of technology has created greater transparency of business practices. Customer experiences, good or bad, may now be amplified to reach millions of potential customers within minutes. The stakes are high to create lasting relationships and the initial contact tier of the service model should take a leading role.

4. Nurturing customer communities – transport companies can better leverage their customers as a resource. A customer community can act as a self-help network, generate valuable user content and provide a wealth of product development ideas. Transport companies should play their role in stimulating and growing customer communities.

5. Engaging user experiences – today, online channels are a critical aspect of the customer journey. The quality of user interfaces significantly influences customer perceptions. Investing in user experience throughout the implementation of digital initiatives can improve customer satisfaction and brand recognition.

An efficient operation is a necessity but is no longer sufficient for a successful transport company. The key objective is to drive consumer acquisition, retention and loyalty through service. In other words, transport companies should be generating repeat business and drive «word of mouth» marketing that contribute additional revenue to the organization. Managers should shift their focus towards performance metrics such as customer profitability, Net Promoter Score and customer lifetime value.

### **3.3 Recommendations for improving company's interaction with customers in an electronic environment**

So, we can make next recommendations for company Alvil Trucking Inc. for improving its interaction with customers in an electronic environment:

1. Create Omni-channel customer interactions.

As we have sad, customers are increasingly using multiple touchpoints to resolve service issues, expecting an integrated and seamless experience. Digital innovations are a major influence on the way customers interact with Alvil Trucking Inc. and request services. More than 60% of customers interact through multiple channels and irrespective of time, place, device or medium, they expect consistency. As a result, Alvil Trucking Inc. must constantly evolve their support models to accommodate this ever-changing landscape.

In the past, companies have developed channel or product-specific support models which compete for supremacy. However, in the eyes of the customer, it's a single organization and the result is a diminished customer experience. Instead an omni-channel customer service approach is required that blends both digital channels (mobile, social, etc.) and traditional channels (call center, branch, etc.) (fig. 3.4). In this approach the different support touchpoints are designed to complement each other, allowing users to switch between channels without the need to repeat information. Furthermore, multiple channels can be used simultaneously.

Different customers will have different communication preferences. Omni-channel must enable these different touchpoints to work together in multiple ways in order to support the customers preferred journey. As the number of channels increase, expect Alvil Trucking Inc. customers to fragment over them across different groups. Expect also that channel preferences will change depending on the context of process, location and time. Alvil Trucking Inc. should leverage the customer segmentation work from marketing department to better direct engagement and support efforts across appropriate channels for target audience.

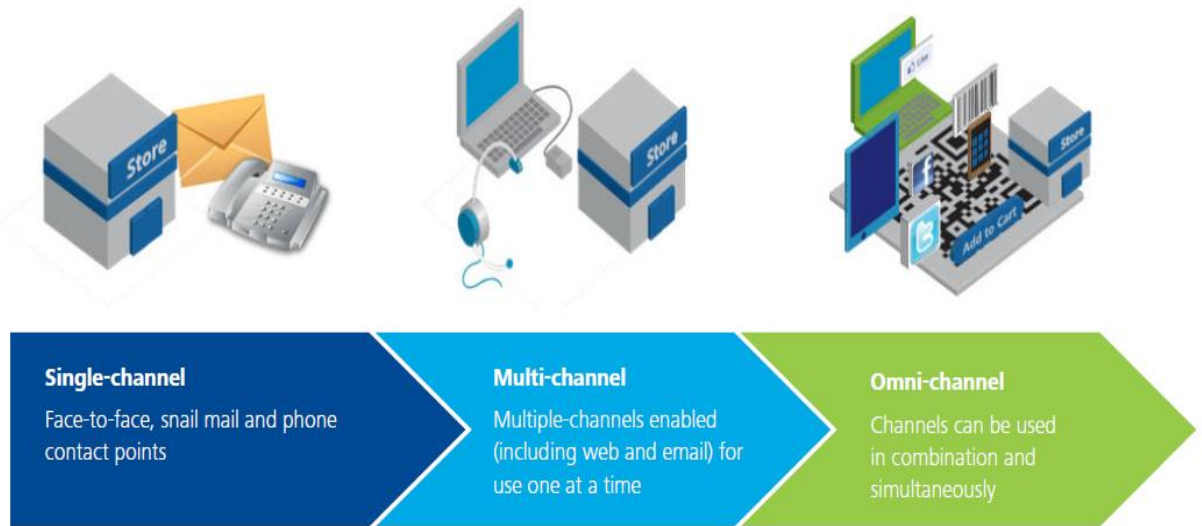


Figure 3.4 – Proposed transforming the business model: Omnichannel

Identifying issues or problems and informing customers through preferred touchpoints will manage customer expectations and increase trust to Alvil Trucking Inc. when things do go wrong. Investing in up-front service notifications will reduce the number of inbound calls and differentiate Alvil Trucking Inc. from the competition.

In today's, digital world, Alvil Trucking Inc. must understand the entire customer journey and creatively apply the right technology at the right time to build greater customer engagement. The omni-channel approach to customer service provides convenience and accessibility for customers to interact over the channels that they want to use. In reaching this goal, each improvement must not compete with the existing channels. New channels should be introduced at the right level of maturity while early enough to differentiate and deliver the edge over competition. Old channels should be phased-out to keep the operation "lean and mean". Consistent pro-active cross-channel services will put Alvil Trucking Inc. ahead in building and maintaining relationships with their customers.

## 2. Use servicing connected devices.

An ever increasing number of sensory capabilities are becoming available to monitor device performance remotely. This, coupled with the decreasing hardware

and network costs to connect devices to the internet, are now offering opportunities for Alvil Trucking Inc. business growth and greater efficiency in service.

Traditionally, maintenance has followed a corrective or preventative approach.

In the corrective approach, maintenance is performed when failure happens. This leads to unplanned activities and a high stock of spare parts.

In the preventative approach, maintenance is performed periodically to decrease unexpected failures. However, over-maintenance and cost of spare parts leads Alvil Trucking Inc. to additional costs. Today's technology advances in both data analytics and connected devices present the opportunity to improve upon traditional methods and apply a predictive maintenance approach.

Powerful analytical techniques can now be exploited to improve asset maintenance services to internal and external customers. A reliability model can be developed to determine the probability of failure of a given asset. Such a model predicts failure based on statistical analysis of performance data making the quality of the model highly dependent on the quality of the source data. Consequently, data preparation is a critical task.

Connected devices provide the ability to monitor asset conditions such as usage, temperature and vibration in real-time. This monitoring capability, combined with reliability models enables the predictive maintenance approach for Alvil Trucking Inc. Maintenance will be performed based on the condition of the asset compared to the reliability model. Monitoring should be applied on the root causes of failure (true condition) rather than on the symptoms when failure has already begun. This means maintenance is only performed when required, therefore it will avoid over-maintenance. This approach accurately schedules cost-effective maintenance and will lead to increased availability of the asset, extended asset lifetimes and improved Alvil Trucking Inc. engineer efficiency. Information from the reliability model means that the scope of the maintenance is also forecasted, as root causes are known and the monitoring of present condition of assets enables more effective ordering of spare parts.



To improve service maintenance approaches through advanced analytical and remote monitoring technology, Alvil Trucking Inc. must acquire a new set of skills.

The development of technology enabling Alvil Trucking Inc. to connect and monitor devices remotely will continue to accelerate. Alvil Trucking Inc. need to start to grapple with the opportunity presented from data analytics and remote monitoring to improve maintenance processes. This journey will require new data analytic skillsets within the Alvil Trucking Inc. that are likely not to exist in sufficient measure today. New service processes must be designed and implemented.

### 3. Create loyalty through customer service.

The competition to acquire new customers is intense. Customers have more choice and greater access to information than ever before. They are using social media, forums and blogs to connect and share their experiences of good and business to aid one another in purchasing decisions. Considering the cost of winning new customers, developing long-term loyalty with customers once Alvil Trucking Inc. has them is more critical than ever. Alvil Trucking Inc. must exploit its frequent contact points with customers to play a crucial role in building loyalty.

Alvil Trucking Inc. will need to review their people and processes to ensure they are prepared for this new role. Service staff must be relationship builders, consultative, listeners and good communicators. Hire for character and attitude, train for skills may be a known principle to follow for improving company's interaction with customers in an electronic environment.

Companies that are utilizing digital support channels such as Facebook, Twitter or web chat are noticing that queries on these channels have a different mix from traditional service. Customers not only request help for product issues but also seek buying advice and comparisons with competing products. The customer does not want to worry about whether a query should go to sales, service or marketing, they just want answers. As a result, Alvil Trucking Inc. needs to be trained and equipped with helpful responses that also ushers the customer along the buying path.

If Alvil Trucking Inc. expects customer services to drive loyalty and manage end-to-end customer experiences, then the way we measure and reward their

activities must change. Performance measurement of service in general has focused on efficiency metrics (such as average handling time and call volumes per agent). To drive relationship building in service, KPIs must be appropriate. Net Promoter Score (NPS) and Customer Lifetime Value (CLV) are two KPIs that becoming increasingly popular for measuring the effectiveness of service teams.

Digitalization is increasing the importance of customer services in acquiring and retaining customers. In response to digitalization Alvil Trucking Inc. must launch technology initiatives to enable their service teams engage with customers on web, mobile and social channels. However, opening new interactions channels is addressing only a minor aspect of the change required. The more significant shift is in consumer attitudes and expectations of service. This cannot be resolved simply through hooking up channels on to Facebook and Twitter. This must be answered by revising the traditional service agenda of efficiency and cost reduction to refocus on transforming Alvil Trucking Inc. into a loyalty generator. This must be backed up with the right capability in people and culture, and the right metrics to drive relationship-building behavior.

Current customer service models must be reassessed to ensure they also support customer acquisition and loyalty.

#### 4. Nurture customer communities.

Many transport companies are failing to get the most from their customers. Alvil Trucking Inc. should know why its product sells and where it falls short. The social tools and online platforms can enable communities to be developed quickly and efficiently. Alvil Trucking Inc. should play an important role in enabling these communities to increase levels of engagement and tap into this valuable knowledge.

Building customer communities is not about Millennials socializing on Facebook and Twitter. It's about creating connections between the people within organization to the people that buy transport services. Human-to-human interactions, even via online channels, can build authentic relationships between Alvil Trucking Inc. and customers. Alvil Trucking Inc. should be empowered to respond to customer service issues raised by the community using both your brand identity and their own

personality. Trust and credibility is created not only with the individual customer but also with the potential millions watching. Some organizations are concerned with the loss of control but training staff to interact responsibly is the key. Alvil Trucking Inc. should be selective in the people recruit to communicate through social media channels and invest in training and education.

An online community does not exist only on one forum or social platform. Customers will traverse these different sources of information as they discover products and services. Therefore, consistency in business communication is critical. It is important that service teams and marketers join forces to co-ordinate engagement activities and to make the most of contributions. Forming a cross-functional team comprising key stakeholders within the company Alvil Trucking Inc. will also enable a rapid co-ordinated response in the case of an emerging crisis.

Customer forums are now commonplace in many industries. Existing and potential customers mix in these channels to discover information or discuss relevant topics and issues without contacting the business directly. This customer-to-customer self-service process brings obvious operational benefits. If (potential) customers use other social sites, consequences follow: the company loses control of user-generated content, and are often asked to pay for access to customer data or the opportunity to respond to customers queries.

Building a customer community enables Alvil Trucking Inc. to drive greater engagement and contribution from their customers. With the right leadership, this approach will lead to reduced support calls, «word of mouth» marketing and greater customer driven product design. Like any new business initiative, engaging in online customer communities comes with risks but through appropriate governance, business policies and training this should not be feared. Alvil Trucking Inc. must work closely with other teams to keep communications consistent and leverage the best skills to participate. Intrinsic and extrinsic motivators should be implemented to push the community to a level of engagement where customers are actively helping others with service issues.

##### 5. Engage user experiences.

The user experience (UX) defines a customer's perception of human-computer interaction through a specific channel or device. It includes the customer's experience of using a device, based not only on its 'look and feel' but also on its practical aspects such as usability and efficiency. Nowadays, cutting-edge technology devised by UX leaders Apple and Google has led consumers to expect a digital service experience that is clean, simple and user-friendly, regardless of device, platform or service provider, including Alvil Trucking Inc.

In today's world, customers are discovering and engaging with a high proportion of services and products online. As a result, online channels are playing a critical role in setting perceptions for the overall transport company. We believe that putting UX capability high on the agenda for Alvil Trucking Inc. will help generate ideas and translate them into a business reality. Crucially, they are ensuring creative input throughout the lifecycle of the product or service, especially when it comes to post-implementation, when it's essential to respond quickly to feedback and customer behavior with release updates and tweaks.

Consistency is the key to successful UX. That's why we propose Alvil Trucking Inc. to invest in specific UX tools and processes, including guidelines, content libraries and digital asset management systems. This allows Alvil Trucking Inc. to deliver a consistent experience across different services and digital touchpoints. It's crucial to consider not only the different interfaces (e.g. clicks becoming touches and scrolling becoming swiping) but also the user's motivations and goals, as these are likely to differ between devices. Understanding these subtle variations is essential for Alvil Trucking Inc.

Digital technology requires a fresh approach to design. There are few hard and fast rules for what will and won't work. Much depends on the context in which customer will be using the service.

UX is a battleground for transport companies trying to gain competitive advantage within industries increasingly committed to digital customer services. Investing in user experience capability is essential. Alvil Trucking Inc. must focus

not only on fostering innovations that promote the best possible experience but also on testing those innovations frequently and at an early stage.

Next we can try to estimate economic effect of the proposed measures.

In order to calculate the further possible increase in Alvil Trucking Inc. income through the proposed measures, we can use method of the extrapolation of time lines:

$$A_n = a + b * t, \quad (3.2)$$

$$a = \frac{\sum A_n - b * \sum t_i}{n}, \quad (3.3)$$

$$b = \frac{n \sum A_n * t_i - \sum t_i * \sum A_n}{n \sum t_i^2 - (\sum t_i)^2}, \quad (3.4)$$

where  $A_n$  – total income from sales of products in a year, dollars;  $a$ ,  $b$  – parameters of the equation;  $t$  – the number of the year.

Basic data for the income forecast are given in table 3.5. Total income from sales of products we can take from the table 2.3.

Table 3.5 – Basic data for the income forecast

№	Year	The number of the year, $t$	Total income from sales of products, thousand dollars, $A_n$	$A_n * t$	$t_i^2$
1	2	3	4	5	6
1	2015	1	57416	57416	1
2	2016	2	67603	135206	4
3	2017	3	80901	242702	9
4	2018	4	88186	352743	16
5	2019	5	99404	497021	25
6	Total	15	393510	1285088	55

Find the parameters of the equation a and b:

$$b = 10456;$$

$$a = 47334.$$

After calculating these parameters, we can find the Alvil Trucking Inc. forecasted income for the next 3 years:

A2020 = 11070 thousand dollars;

A2021 = 120526 thousand dollars;

A2022 = 130982 thousand dollars.

Now we can make three possible forecasts:

1. According to a pessimistic forecast, the using proposed measures will increase company's income by 2% from the projected.

2. According to a realistic forecast, the using proposed measures will increase company's income by 3% from the projected.

3. According to the optimistic forecast, the using proposed measures will increase company's income by 5% from the projected.

Consider the total cost of implementing our project over the years (table 3.6).

Table 3.6 – Implementation costs

№	Cost components	2020	2021	2022
1	2	3	4	5
1	Design work and installation, dollars	4 050 000	–	–
2	End user training, dollars	486 000	–	–
3	Annual usage fee, dollars	364 500	364 500	364 500
4	Total annual costs, dollars	4 900 500	364 500	364 500

Now we can estimate the NPV of the using proposed measures for Alvil Trucking Inc. for a discount rate of 15% and 20% (table 3.7).

According to our estimation, the NPV of the project is positive for three forecasts and for two discount rates. That's why we can say, that the project is economically effective to implement for Alvil Trucking Inc.

Now we estimate the payback period of the company's investment. To do this, it is necessary to sum up the net benefits of the project for the entire period under consideration at various discount rates.

Table 3.7 – Estimation the NPV of the using proposed measures for Alvil Trucking Inc.

№	Year	№ of year	Discount rate of 15%	Discount rate of 20%	Forecast costs, dollars	Forecast costs at a rate of 15%, dollars	Forecast costs at a rate of 20%, dollars	Forecast increase in income, dollars	Forecast increase in income at rate of 15%, dollars	Forecast increase in income at rate of 20%, dollars	Net profit, dollars	Net profit at rate of 15%, dollars	Net profit at rate of 20%, dollars
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Pessimistic forecast												
2	2020	0	1	1	4900500	4900500	4900500	2201395	2201395	2201395	-2 699 105	-2699105	-2699105
3	2021	1	0,87	0,83	364500	317115	302535	2410513	2097147	2000726	2 046 013	1780032	1698191
4	2022	2	0,76	0,69	364500	277020	251505	2619632	1990920	1807546	2 255 132	1713900	1556041
5	Σ	—	—	—	5 629 500	5 494 635	5 454 540	7 231 540	6 289 461	6 009 667	1 602 040	794 826	555 127
6	Net present value of the project, NPV											794 826	555 127
7	Realistic forecast												
8	2020	0	1	1	4900500	4900500	4900500	3302092	3302092	3302092	-1 598 408	-1598408	-1598408
9	2021	1	0,87	0,83	364500	317115	302535	3615770	3145720	3001089	3 251 270	2828605	2698554
10	2022	2	0,76	0,69	364500	277020	251505	3929448	2986380	2711319	3 564 948	2709360	2459814
11	Σ	—	—	—	5 629 500	5 494 635	5 454 540	10 847 310	9 434 192	9 014 500	5 217 810	3 939 557	3 559 960
12	Net present value of the project, NPV											3 939 557	3 559 960
13	Optimistic forecast												
14	2020	0	1	1	4900500	4900500	4900500	5503486	5503486	5503486	602 986	602986	602986
15	2021	1	0,87	0,83	364500	317115	302535	6026283	5242866	5001815	5 661 783	4925751	4699280
16	2022	2	0,76	0,69	364500	277020	251505	6549080	4977301	4518865	6 184 580	4700281	4267360
17	Σ	—	—	—	5 629 500	5 494 635	5 454 540	18 078 849	15 723 653	15 024 166	12 449 349	10 229 018	9 569 626
18	Net present value of the project, NPV											10 229 018	9 569 626

Graphic finding of payback period of project at a discount rate of 15% and 20% are presented in fig. 3.5 and 3.6.

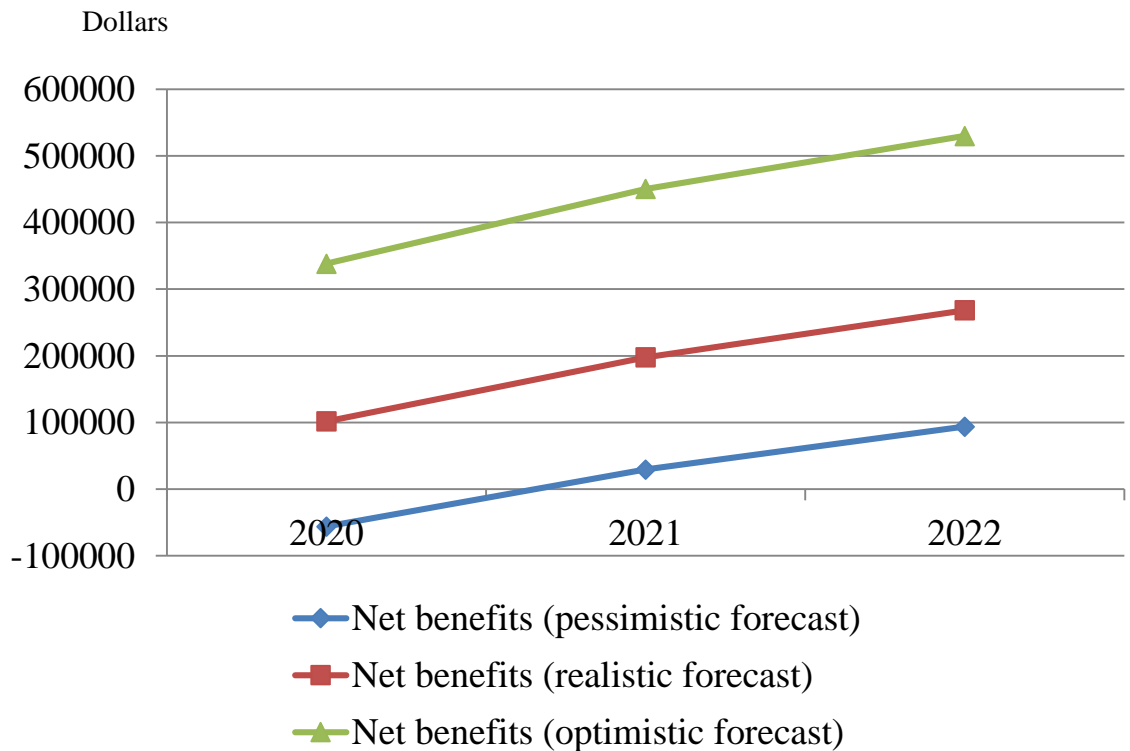


Figure 3.5 – Payback period of project at a discount rate of 15%

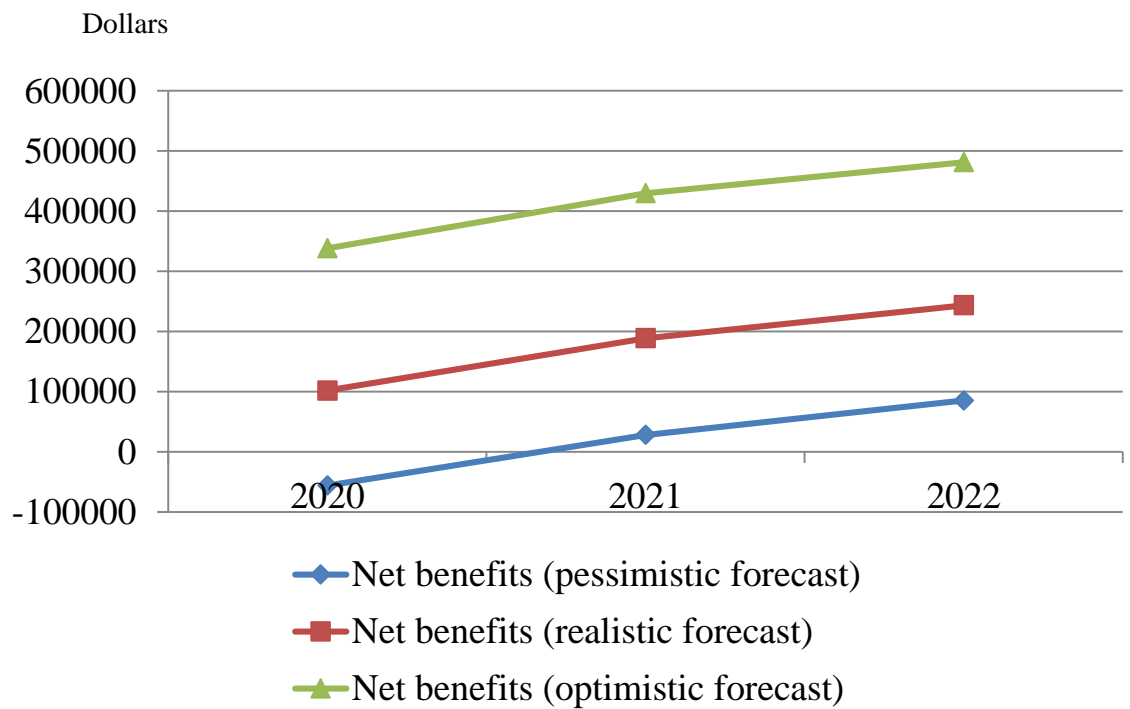


Figure 3.6 – Payback period of project at a discount rate of 20%



As we can see from the graphs, in accordance with a pessimistic forecast, our project will be paid back 1,7 years after its introduction. In accordance with an optimistic and realistic forecasts, the project will be paid back less than a year from the beginning of its implementation in Alvil Trucking Inc.

In conclusion, I would like to concentrate once more on the fact that the enterprises have long understood that optimization of transport process does not solve the problem of survival in a competitive struggle. Currently, transport companies depend not only on the quality and assortment of services provided, but also from the improvement of company interaction with customers in an electronic environment.

### **3.4 Chapter 3 summary**

In this chapter we have identified existing problems in the process of interaction with the company's customers. For this we made customer segmentation.

According to our matrix, Alvil Trucking Inc. has only 1 customer of category A. This client is C.H. Robinson and 6 customers of category B. But the most customers are nonstable with low share of each customer in the total revenue of the company.

Of course, the first reason for this situation is related to the specifics of the market – this is the spot market. But, for our opinion, even on this market we can improve company's interaction with customers, for example, be increasing loyalty of existing customer which will influence on positive «word of mouth» and help to invite new profitable customers.

We have made recommendations for improving company's interaction with customers in an electronic environment:

1. Create Omni-channel customer interactions.
2. Use servicing connected devices.
3. Create loyalty through customer service.
4. Nurture customer communities.

## 5. Engage user experiences.

According to our estimation, the NPV of the project is positive for three forecasts and for two discount rates. The payback period is in the range of one to two years, which is quite a good result. That's why we can say, that the project is economically effective to implement for Alvil Trucking Inc.

## CONCLUSIONS AND RECOMMENDATIONS

The first chapter dealt with theoretical principles of company interaction with customers in an electronic environment.

The term "cooperation" is generally understood as a particular type of activity that businesses decide to pursue together in a particular place and time. It is emphasized that the essence of cooperation lays in the achievement of a common goal or in the provision of mutual support to one another, if the goals are not interrelated.

We considered process model for logistics collaboration development based on logistics cloud services.

We also noticed that the transport requirements in modern society are becoming more and more important. The transport services need to be more and more advanced and better designed to meet the needs of users. A significant part of costs of many goods are transport costs. The size of the market of transport services as well as the sales volume and derived profits intensify competition. Therefore, a reduction of costs and better adaptation of strategies to the demand require better planning and scheduling tools for available resources of transport companies. Computer systems can be a useful tool for transport companies. They may support a rapid creation of effective transport plans and schedules or enable simulation research leading to the correct selection of company organization, vehicles and capacities or locations of depots.

So we can say that technology and innovation has changed customer expectations and the way that companies communicate.

In the second chapter we have analyzed activities of the Alvil Trucking Inc. in the US market. Alvil Trucking Inc. is a trucking company, which engaged in cargo transportation on the territory of all 48 US states, with the exception of Hawaii and Alaska. The company's fleet consists of 150 trucks Volvo. All tracks and trailers in the company are new, produced in 2018, 2019 and 2020.

Their main goal is building mutually beneficial relationship between our clients, subcontractors and employees. Cooperating with Alvil Trucking Inc., customers can count on strict adherence to the contract terms, quality and prompt delivery, complete safety and security of the cargo during transportation. Alvil Trucking Inc. sure, that providing high service level, continuous improving employees' qualification, developing of company's potential, they contribute to the success of their clients.

We also have made US road transport market analysis, have reviewed Some North American Trade Corridor Initiatives and Main North American Trade Corridors, Gateways and Inland Freight Clusters. We also have analyzed US third party logistics market size.

The analysis of production indicators of the activity of the transport company Alvil Trucking Inc. showed that during the last five years the company fulfilled 76557 orders from customers. We have seen that the volume of services provided for all types of activity of the company Alvil Trucking Inc. is increasing from year to year. The quality of the financial analysis allows to determine the key moments in the dynamics of the enterprise's development in the future, as well as its possibilities for further improvement. We can say that the company Alvil Trucking Inc. has all the incentives for active development.

The third chapter dealt with identification of existing problems in the process of interaction with the company's customers. For identification of existing problems we made customer segmentation. We took clients, which made more than one order during the last year. Unfortunately, about 70% of company's clients are one-time customers.

According to our matrix, Alvil Trucking Inc. has only 1 customer of category A. This client is C.H. Robinson. With him Alvil Trucking Inc. has a stable relationships and it's good for both companies. Also Alvil Trucking Inc. has 6 customers of category B with average and nonstable relationships. But the most customers are nonstable with low share of each customer in the total revenue of the company.

Of course, the first reason for this situation is related to the specifics of the market – this is the spot market. But, for our opinion, even on this market we can

improve company's interaction with customers, for example, by increasing loyalty of existing customers which will influence on positive «word of mouth» and help to invite new profitable customers.

We have found main factors that affect the process of interaction with customers:

- the rapid adoption of technology;
- changes in customer behavior;
- increasing competition.

We have made recommendations for improving company's interaction with customers in an electronic environment:

1. Create Omni-channel customer interactions.
2. Use servicing connected devices.
3. Create loyalty through customer service.
4. Nurture customer communities.
5. Engage user experiences.

According to our estimation, the NPV of the project is positive for three forecasts and for two discount rates. The payback period is in the range of one to two years, which is quite a good result. That's why we can say, that the project is economically effective to implement for Alvil Trucking Inc.

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