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Analysis and evaluation of transport exchanges in a selected TSL sector company

Analiza i ocena giełd transportowych w wybranej firmie z branży TSL

Abstract. The article shows the methods and tools used by the surveyed company in the transport process. Transport exchanges and GPS monitoring system play a key role here. A process map is presented, which shows the individual stages of transport tasks realization using the exchanges and other tools. On the basis of the examined entity, the transport exchanges were also compared and evaluated against various criteria. The research took into account three stock exchange platforms used by the company: TimoCom, Trans and Teleroute. As a result of the research, it was found that TimoCom exchange received the highest evaluation for the selected company – 4.74, Trans with a score of 3.84 and Teleroute 3.6. For the audited entity, TimoCom platform turned out to be the best in terms of the criteria compared.

Key words: transport, company, exchanges, freight exchanges, transport process

Synopsis. W artykule przedstawiono metody i narzędzia wykorzystywane przez badaną firmę w procesie transportowym. Kluczową rolę odgrywają tu giełdy transportowe i system monitoringu GPS. Przedstawiono mapę procesów, na której przedstawiono poszczególne etapy realizacji zadań przewozowych z wykorzystaniem giełd i innych narzędzi. Na podstawie badanego podmiotu dokonano również porównania giełd transportowych i oceny pod kątem różnych kryteriów. W badaniu uwzględniono trzy platformy giełdowe, z których korzysta firma: TimoCom, Trans i Teleroute. W wyniku przeprowadzonych badań stwierdzono, że giełda TimoCom uzyskała najwyższą ocenę dla wybranej firmy – 4,74, Trans z oceną 3,84 oraz Teleroute 3,6. Dla audytowanego podmiotu platforma TimoCom okazała się najlepsza pod względem porównywanych kryteriów.

Słowa kluczowe: transport, firma, giełdy transportowe, proces transportowy

Introduction

Among the tools and methods that support the transport process, the GPS monitoring system and transport exchanges are commonly known and used [Chamier-Gliszczyński Szada-Borzyszkowski 2015, Neuman 2017]. Nowadays, it is difficult to imagine proper

and effective management of the transport fleet and customer relations, and above all the functioning of companies from the TSL sector without these devices [Łukasik 2016]. One can even say that it is practically impossible. According to [Podolski and Szafulska 2017], it is necessary to efficiently plan, implement and control the flow of raw materials for economic and environmental reasons. At the same time, it should be emphasized that it is important, for example, to choose the right tools for handling transport processes. Malesa [2017] in his research emphasizes that solving transport issues requires taking many actions, but criteria that are important for the decision-maker should be determined. Continuous development of the economy and growing requirements of customers, as well as a constant influx of competitors, makes companies are forced to use various and increasingly better methods and tools supporting the transport process. Using these methods and information tools influences the basic management functions in a company, i.e. planning e.g. travel routes, coordinating activities in the transport process and controlling all processes connected with the transport service [Grad 2010, Kisielewski 2016, Kulińska 2016]. They constitute a basic source of information, which is an integral part of the logistics service. The use of information solutions, such as transport exchanges, primarily affects the minimization of costs and empty runs in the transport process, as well as an efficient and high level of customer service and the synchronization of the activities of logistics process partners, as well as their efficiency [Kusiakiewicz 2010]. These devices significantly improve the coordination of transport and shipping processes, and serve as basic tools in the organization of work [Woźniak 2017]. The selection of appropriate tools and methods supporting the transport process requires determining their functionality, the way they are used and the costs incurred, as well as many other factors that have an impact on it [Starkowski 2017]. The article shows the course of the transport process with the use of transport exchanges and other tools, as well as the comparison and evaluation of transport exchanges used by a selected company in terms of various criteria.

Transport exchanges

The transport exchange, using information technology, takes the form of an Internet platform in which it is possible to exchange information and conclude transactions concerning free cargo and cargo space among transport, forwarding and production companies [Ministerstwo Edukacji Narodowej]. These platforms allow to place detailed information about the cargo or free vehicles that can be used for transport services, or information about the possibility of contacting the disposers [Kos 2011].

There are many freight exchanges in the market, each one is different, but all have the same principle of operation, namely they offer free loads, return loads and free vehicles. Some of the exchanges also offer a number of other services in addition to data exchange, such as applications supporting the management of a transport company, calculators of various kinds, or applications for route planning [Trans.eu].

Depending on the range, you can distinguish between the existing exchanges [Ministerstwo Edukacji Narodowej]:

- locally (in a given region),
- within the country,
- in Europe,

- internationally.

Nowadays, freight exchanges are one of the basic tools for optimizing routes, reducing empty mileage or planning freight optimally [Jurczak 2014]. Thus, transport exchanges are not only a place for offers in the desired relationship, they are also a source of new contacts, transport planning tools, maps or communicators. For carriers and freight forwarders they are a valuable tool integrating a huge number of functions [Jurczak 2014]. However, in order to manage the trips effectively, it is necessary to have reliable and up-to-date information from the vehicles consulted on the orders [Klecha 2014]. Transport exchanges, also known as freight exchanges, are an effective way to find new, yet beneficial, orders. This is because it is the exchanges that provide an opportunity to constantly research the market and find new contractors. Undoubtedly the exchange is not equal, each of them is different, but the operation is the same. Among the transport exchanges, the following can be distinguished [Loos 2014]:

- Timo.com,
- Trans.eu,
- Wtransnet,
- Teleroute.

The advantages of electronic freight exchanges include [Romanow 2014]:

- improving the company's external communication,
- through them you can manage all cargoes and direct freight information to specific recipients,
- can serve as a platform for improving communication with customers and collecting transport orders,
- provide access to the pan-European freight market,
- they prove the effective controlling of all entities working in the system,
- they save time because the system enables simultaneous communication with many potential contractors,
- enable global freight management,
- they affect the savings related to fuel costs and fleet maintenance,
- reduce the level of office administration costs in forwarding companies.

When using the stock exchanges, it should be remembered that there are several tens of thousands of participants from different countries, therefore they cause great competitiveness, which is one of the few disadvantages of the exchanges. Additionally, due to the large number of users, many companies reduce the costs of their services, which may lead to lower profits. There is also a risk that a company with which a contract has been concluded may turn out to be insolvent. Of course, the exchanges use different systems of evaluation of their participants, which allows for the selection of reliable contractors [SpediGo 2019].

The aim and extent

The aim of this study is to present the course of the transport process with the use of transport exchanges and other tools in the examined company. The scope of the work included the analysis of three freight exchanges used in the transport planning process in the shipping company. The criteria of amenities for the examined enterprise were devel-

oped, which influenced the use of one of the three transport exchanges in the process of organizing transport services. The results were compared and discussed.

Data and methodology

Research was carried out in a service, trade and forwarding company. The research concerned the use of transport exchanges in the company. Three transport exchanges were distinguished, which the company uses on a daily basis. A survey was prepared among 20 users of transport exchanges in the surveyed company. The survey concerned the enterprise's needs in relation to transport exchanges, where 13 criteria were proposed and weights were assigned to them, where the total value of all criteria was equal to 1. The respondents assessed the individual criteria on a scale from 1–5, where 1 meant completely unacceptable, and 5 meant very good. From the average of the scores obtained by the respondents, the weight was multiplied by the score and a weighted score was obtained. On this basis, a comparative chart of 3 freight exchanges was prepared. For the examined company, a SWOT analysis was also prepared in order to assess the company's market.

Characteristics of the researched enterprise

Subject of the research entity

As the name suggests, The Service, Commercial and Forwarding Company deals with the provision of transport, forwarding and commercial services. As far as transport is concerned, it is the main field that the company deals with. The company offers transport services:

- canvas cover transport,
- cooling transport,
- oversized transport,
- transport of hazardous materials.

From the above mentioned transports, mostly tarpaulin and refrigerated transport is performed, because the company has the highest demand for this type of transport. It is conditioned by the fact that a particular group of the company's regular customers requires such services. Oversized transport is highly limited because the company does not have specialized equipment to perform this type of transport. This does not mean that the company does not provide this type of transport at all. The company only transports loads adapted to the capabilities of its low-loader trailers. However, as far as the transport of hazardous materials is concerned, it is still limited to a large extent because the company is still developing in this area, i.e. it is currently authorized to transport hazardous materials only, with the exception of liquid materials, which are the main subject of these transports.

The company provides transport services in the country, however, most of them are in Europe. The main directions of the transport are the western European countries such

as: Germany, Holland, France, Belgium, Luxembourg, Switzerland and Spain. However, most of the transports are made to Germany. This is due to the fact that the company has regular customers, who most often want the goods to arrive there. In order to optimize the costs, the company immediately performs cabotage transport in Germany. All this does not mean, however, that the company does not provide transport services in the above mentioned countries. Most of the transports that the company's dispatcher has found on the freight exchange are carried out to individual countries. The loads are selected in such a way as to minimize the costs of getting to the place of loading as little as possible. In the field of forwarding services, the company obtains cargoes on the freight exchanges selected appropriately for the company's means of transport. However, in this industry, it happens that not everything is just in time. Namely, there are situations when a company acquires an order and does not manage to complete it, e.g. due to delays or lack of equipment. Then the order is sold by the freight forwarder on the freight exchange. However, the freight forwarder of the company has constant supervision over the sold cargo, despite the fact that he sold the cargo to another company. As a last resort, the examined company is settled by the Customer. In other words, it is a sub-contracting, where the execution of the action is commissioned, in a situation when the company does not have adequate capacity to perform.

Transport process flow

In order to show the realization of the transport process using tools such as transport exchanges, process maps were presented. Figure 1 illustrates the realization of the transport order in case the freight forwarder is looking for free cargo on the freight exchange or when the goods are in the company's warehouse. Whereas Figure 2 shows the order received directly from the client and its execution or the order to the carrier

The whole process of order execution can be divided into three stages:

1. Activities performed before the transport process.
2. Activities performed during the transport process.
3. Activities performed after the transport process.

In the first stage, the key role is played by the customer and the company's dispatcher, who are in contact with each other and determine, among other things, the conditions of transport, such as price or choice of means of transport.

In the second stage there is a dispatcher-driver relationship, i.e. the driver is notified by the dispatcher about taking up a new order. According to the guidelines of the order, the driver goes to the loading, carries out the transport process, and then passes the goods to the recipient.

In the third stage after unloading the documentation is handed over by the driver to the person responsible for receiving the goods. Other documents and payment for the carriage are transferred electronically.

Figures 1 and 2 show exactly how the individual tasks performed by a forwarder, driver, accountant, warehouse keeper or other persons involved in the transport process take place in turn.

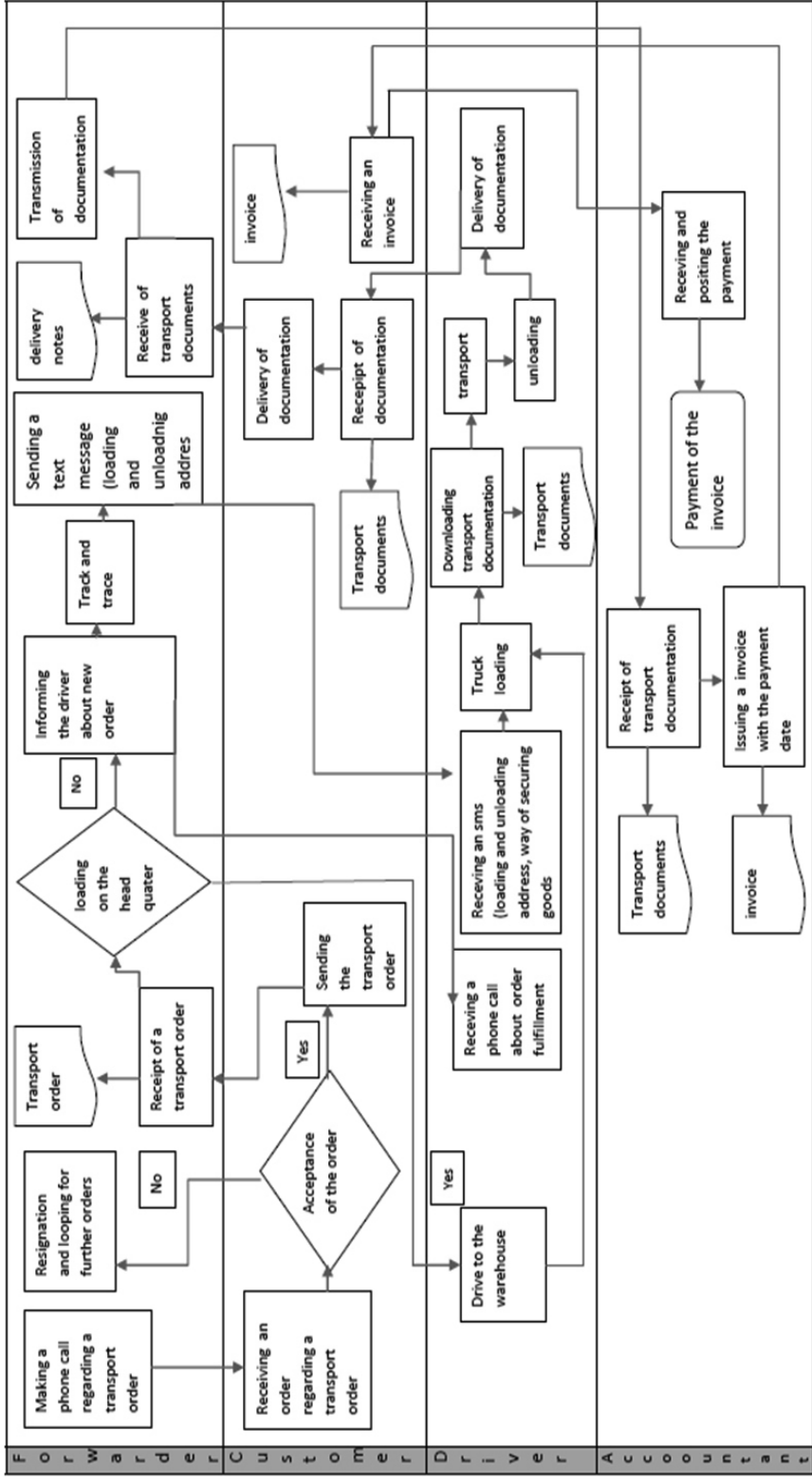


Figure 1. Process map – acceptance of the order by the forwarder from the customer
 Rysunek 1. Mapa procesu – przyjęcie zlecenia przez spedytora od klienta
 Source: own elaboration.

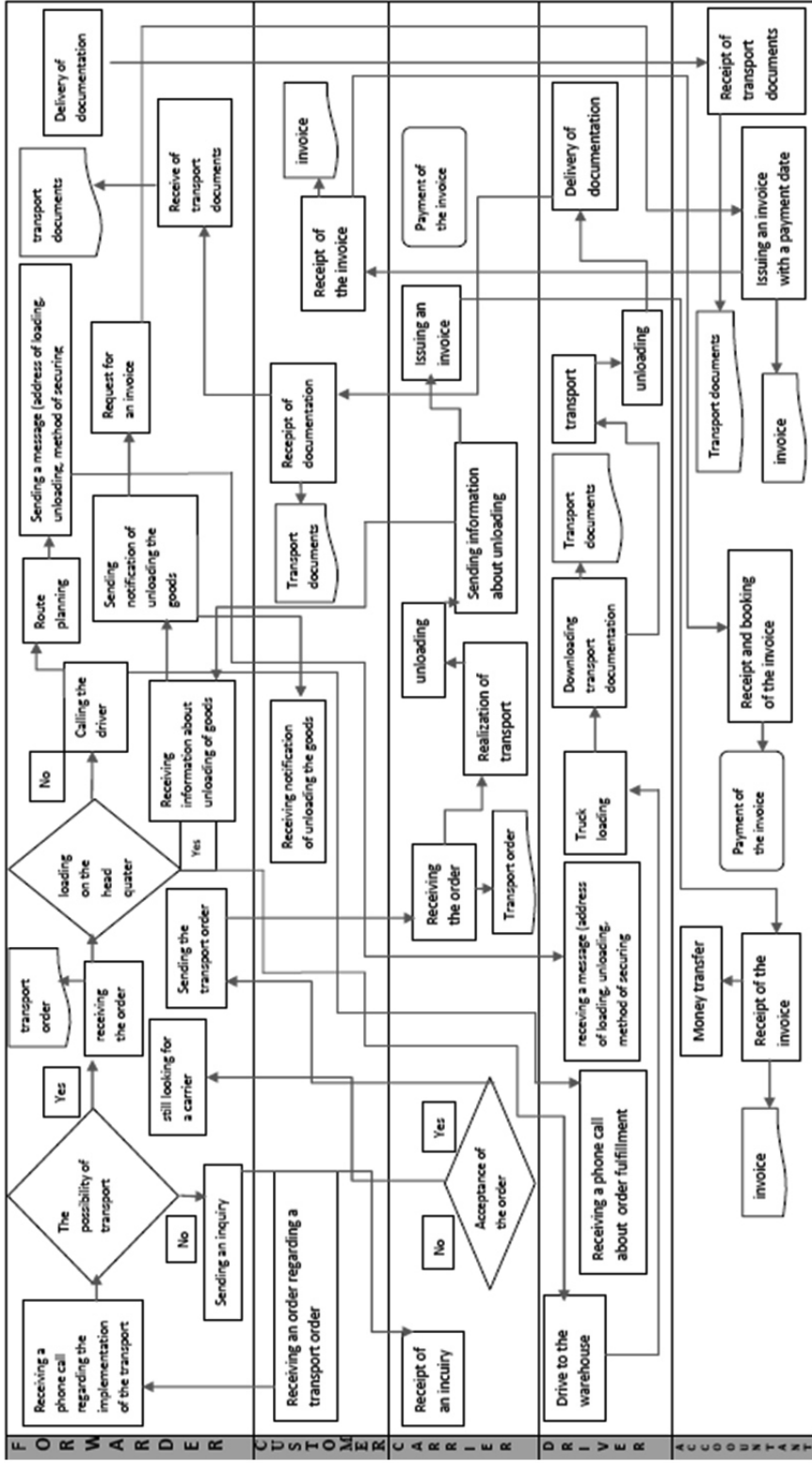


Figure 2. Process map – receiving an order from a client
 Rysunek 2. Mapa procesu – otrzymanie zlecenia od klienta
 Source: own elaboration.

Use of company transport exchanges

In the provision of transport services, the company uses from various types of tools supporting the transport process. The tools used in the company are a key role in the planning, organization, control and control of the transport process. Tools and methods used during transport management in a company can be listed:

- electronic transport exchanges,
- GPS monitoring system,
- wireless mobile telephony,
- websites,
- electronic document scanners,
- Viatoll toll system,
- fleet cards.

In order to provide transport services, it is practically impossible for a company to operate without a transport exchange. The company mostly uses exchanges such as TimoCom, Trans and occasionally Teleroute. The main functions of the exchanges include searching for cargoes, issuing cargoes and free vehicles. As a long-standing supply intermediary, the company uses the exchanges already in the first stage of the transport process. On entering the exchange platform, the company enters the relevant information about the desired cargo, i.e. vehicle address (country, zip code), type of bodywork or trailer, number of pallet spaces or weight. Then he selects the most advantageous offers selected according to pre-established criteria and makes calls to individual bidders. After finding a suitable offer, he receives an order and starts all activities related to the transport process.

The Trans has in its offer mainly export and import cargoes in Poland. It has a communicator that works like a reptile, so it facilitates fast communication. The platform is equipped with a very precise transport cost calculator. Trans notification of a new offer automatically by means of a sound signal and a message on the computer start bar. One of the main advantages is the ability to give marks to each other's users (companies), which consists of the overall company assessment. A big disadvantage of the Trans system is that the interface often hangs, which often prevents the smooth use of the exchange. Transaction security is provided by TransRisk, which is an indicator of payment reliability. Recently the exchange has introduced TransInkasso service which is used to recover paradise and foreign debts. Unfortunately, in contrast to the TimoCom exchange, this service is paid for.

Teleroute exchange is a basic platform in terms of the amount of cargo offered, which is rarely used by the company. It is mainly import and export cargo from France. This platform can be used by different users, not only those involved in the TSL sector. In addition to the cargo and vehicles offered, the exchange offers a route calculation system and a map of the location. However, it does not have additional functions such as compatibility with GPS monitoring system. Teleroute has a Start algorithm, it is an indicator that allows users to control the current reliability and reputation and quality of services provided by other platform operators. Teleroute also has a directory of transport companies which contains information about potential new partners. The exchange has in its assortment an E-confirmation, which is a tool that allows to automatically share transport and contract documents between the parties. The platform runs a financial rating, thanks to which the operator can check the financial condition of business partners. Teleroute has

a mediation service, which is used to collect the overdue invoices issued to forwarders by transport companies.

Another platform used by the company TimoCom is the TimoCom exchange, which is the oldest and most technically advanced platform. The exchange has a very extensive network of telematics suppliers so that the user can gather data on his vehicles which are equipped with systems provided by other telematics companies at one place. In addition to the freight exchange, TimoCom also offers a route calculation module, a platform for European transport tenders, a European index of transport companies registered with TimoCom and is the only one to offer a warehousing exchange. Transactions in this exchange can be verified by the contractor by contacting the customer service department free of charge after entering the number of the contractor called TimoComID. The platform is also operated by the collection department, which makes it possible to correct delayed payment dates on an ongoing basis.

Analysis and discussion of the results

Evaluation of transport exchanges used in the company

In order to show the functionality and usefulness of the exchanges, they were compared against selected criteria. The selection of the criteria was based on the needs of the company in question. These criteria inform the company about the attractiveness of a given exchange, which should be selected during the transport process.

Analyzing Table 1 you can see that each of the listed freight exchanges has international access to free vehicles and cargo. As for the annual fee for the selected platforms, TimoCom is the most expensive. Each platform has the same application, but the company's use varies, e.g. Teleroute's platform is used to obtain free import and export freight in France. The Trans exchange is used for freight coming from Poland. As far as TimoCom is concerned, the company's dispatcher uses the exchange in the international area, mainly Western countries such as Germany, the Netherlands, Switzerland, Portugal and Spain. The conditions for the platform are different for everyone. The easiest way to access Telerout and Trans exchanges is to meet more conditions, as can be seen in Table 1, while more conditions are needed to access TimoCom. In an interview with the company's dispatcher, TimoCom is the most advantageous and useful exchange. This is due to the fact that it offers a lot of free freight and vehicles, is very easy to use and, most importantly, is at the same time GPS-compatible for the service provider and the customer, which makes cooperation much easier.

In order to better illustrate the conditionings of the individual exchanges used by the subject of the survey, Table 1 is shown. This table shows the evaluation of individual transport exchanges. The adopted scoring scale for each criterion ranges from 1 to 5: 1 – unacceptable, 2 – mediocre, 3 – sufficient, 4 – good, 5 – very good.

Individual scales indicate the importance (usefulness) of a criterion. The assessment is weighted by the product of the weighting and the scoring of a given criterion. The maximum weighted total score that the exchange can obtain is 5, which is a very good score. The assessment was carried out by persons responsible for obtaining transport orders and organizing the transport process, i.e., among others, forwarders of the examined company.

Table 1. Comparison freight exchanges in the study company
 Tabela 1. Porównanie giełd transportowych w badanym przedsiębiorstwie

Criterion	STOCK		
	Teleroute international	Trans international	TimoCom international
Area of activity	international	international	international
Annual fees [EUR]	600	625	1600
Basic functions	displaying, searching for cargo and free vehicles	displaying, searching for cargo and free vehicles	exhibiting, searching for cargo and free vehicles and offering storage space
Distinguishing features	wide offer for Benelux and France	communicator facilitating contact with the contractor; a sound signal announcing the arrival of new offers	compatibility with GPS, a transport barometer – which allows you to track and evaluate the situation of free vehicles and cargo
Stock exchange holding conditions	the company must have a minimum of 2 months, recommended by at least 5 users	just have a number: Nip, Regon, KRS	the user must be at least one year old in the TSL industry and have positive opinions
Main application by the surveyed entity	import and export cargoes taking place in France	mainly in Poland	international
Free testing	only free software demo available	yes, a 30-day test	yes, a 4-week test to full software version
Transparency of the platform according to the users of the examined entity	difficult to use, not very understandable platform messages	the first contact with the stock exchange is quite complicated, however, after being tame it does not cause any problems	easy to use, clear information, intuitive to use
How to login	directly through the platform or the web browser	directly through the platform	directly through the platform or web browser and through the mobile phone application
Debt management	Start algorithm – a business indicator, providing stock exchange operators with an insight into the reliability and reputation of services provided by other users; Mediation service – facilitating the collection of overdue invoices	Certificate of reliable carrier – distinguishing companies characterized by professionalism and reliability; TransRisk – payment reliability indicator, gives the possibility to verify companies registered in the system.	secure, which takes care of detailed control of each user before they are included in the platform and technical security; Cash Care – a debt collection department ensuring fast and efficient enforcement of required payments; TC Profile – an index of proven companies offering logistics and transport services
Market operation of the exchange	from 1987	from 2004	from 1997
Ease of use of the interface from the point of view of the examined entity	straightforward	it often hangs out	easy to use
Number of offers on the exchange [daily]	200.000	150.000	450.000

Source: own study.

Table 2. Rating of freight exchanges according to the audited entity

Tabela 2. Ocena giełd transportowych według audytowanej jednostki

Exchange	Criterion number	Criterion	Weight	Scoring criterion	Weighted evaluation
Teleroute	1	area of activity	0.05	3	0.15
Trans				4	0.2
TimoCom				5	0.25
Teleroute	2	basic functions	0.2	4	0.8
Trans				4	0.8
TimoCom				5	1
Teleroute	3	distinguishing features	0.03	3	0.09
Trans				5	0.15
TimoCom				5	0.15
Teleroute	4	main application by the surveyed entity	0.2	3	0.6
Trans				4	0.8
TimoCom				5	1
Teleroute	5	free testing	0.01	3	0.03
Trans				4	0.04
TimoCom				5	0.05
Telerout	6	transparency of the platform according to the users of the examined entity	0.1	3	0.3
Trans				4	0.4
TimoCom				5	0.5
Teleroute	7	how to login	0.03	3	0.09
Trans				4	0.12
TimoCom				5	0.15
Teleroute	8	Debt management	0.07	3	0.21
Trans				5	0.35
TimoCom				5	0.35
Teleroute	9	market operation of the exchange	0.02	5	0.1
Trans				3	0.06
TimoCom				4	0.08
Teleroute	10	ease of use of the interface from the point of view of the examined entity	0.07	4	0.28
Trans				2	0.14
TimoCom				5	0.35
Teleroute	11	number of offers on the exchange [daily]	0.1	4	0.4
Trans				3	0.3
TimoCom				5	0.5
Teleroute	12	annual fees [€]	0.05	4	0.2
Trans				4	0.2
TimoCom				3	0.15
Teleroute	13	stock exchange holding conditions	0.07	5	0.35
Trans				4	0.28
TimoCom				3	0.21
Sum of weights			1		
Sum of ratings:	telerout			3.6	
	trans			3.84	
	timocom			4.74	

Source: own study.

So, as shown in Table 2, the ratings of the individual freight exchanges are as follows: The TimoCom exchange was rated best and scored 4.74, which is almost a very good rating, followed by the Trans exchange with a rating of 3.84, which is close to a good rating and finally Telerout with a rating of 3.6. The list of ratings is shown in detail in Figure 3.

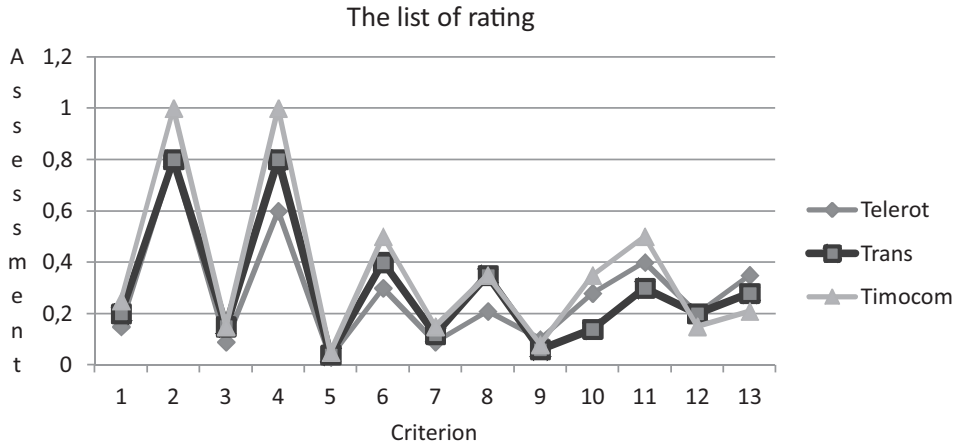


Figure 3. Rating of freight exchanges according to the audited entity
 Rysunek 3. Ocena giełd transportowych według audytowanej jednostki
 Source: own study.

The above chart presents the ratings of individual exchanges according to criteria. The criteria are numbered consecutively from 1 to 13. The chart shows that TimoCom’s stock exchange is highly dominant, which is also due to the platform’s rating. Almost every criterion is rated higher than the other exchanges. The Trans exchange comes second and

Table 3. SWOT analysis of the examined entity
 Tabela 3. Analiza SWOT badanego podmiotu

Strengths	Weaknesses
<ul style="list-style-type: none"> – convenient location, – many years of experience, – very good knowledge of foreign languages, – modern rolling stock, – very good advertisement, – individual customer service, – wide range of services (forwarding, transport, storage), – very good reputation with the customer. 	<ul style="list-style-type: none"> – rolling stock loading restrictions, – not using 100 % of the cargo space, – lack of proper division of duties, – too little storage space, – possibility of dismissal of employees, – poor price negotiation - adapting to competition.
Opportunities	Threats
<ul style="list-style-type: none"> – favorable changes in the law (working time standards, costs of roads and highways, emission standards), – signing of contracts and transport agreements, – certificate of a reliable carrier, – development of road infrastructure. 	<ul style="list-style-type: none"> – the possibility of the competition appearing, – increase in vehicle operating costs, – unstable financial situation (unpaid customer payments), – decrease in demand for transport services (displacement by foreign carriers and other transport modes, competition).

Source: own study.

Teleroute third. On this basis, it can therefore be concluded that the surveyed entity makes the most and most use of the TimoCom platform.

Table 3 presents the SWOT analysis for the examined enterprises.

The company is in a stable market position, but constantly has to search for new transport planning tools. The use of new load planning methods and techniques can increase their competitive advantage. It is therefore necessary to adapt the best stock exchange platforms that will streamline and improve the performance of the surveyed enterprise. Many years of experience make the company known among customers, which gives greater recognition of the company. Irregular payments of customers can be a major threat to the company. Too little storage space in warehouse can lead to loss of customers or failure to earn extra money.

Conclusions

In the implementation of transport processes, the examined entity uses various tools and information methods to support these processes. The main ones used by the company include: fuel cards, Viatoll toll collection system, electronic document scanners, wireless cell phone system and GPS system. The main tools and methods that form the basis of the company's operations include transport exchanges. TimoCom, Trans and Teleroute are among the company's exchange platforms. These exchanges serve as the basic tool for searching transport orders for execution. The company continuously obtains and executes orders.

The research showed that for the selected company TimoCom exchange scored the highest score of 4.74, followed by Trans with a score of 3.84 and Teleroute with a score of 3.6. Thus, TimoCom platform proved to be the best in terms of the criteria compared.

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