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“SCOPE”

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Author name(s):	Afroditi Anagnostopoulou (CERTH), Attila Akac (CERTH), Christina Nikolova (UNWE, BCCI), Dimitrios Nalmpantis (AUTh), Vasiliki Amprasi (AUTh), Leida Matja (CCIT), Nikolaos Vordonis (APOPSI SA, PCTh), Petros Pallis (APOPSI SA, PCTh), Georgia Mpasta (APOPSI SA, PCTh), Marios Giannoutsos (APOPSI SA, PCTh)
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Abbreviations and Terminology

AHP	Analytic Hierarchy Process
GHA	Greedy Heuristic Algorithm
SA	Simulated Annealing
GA	Genetic Algorithm
SLS	Stochastic Local Search
TS	Tabu Search
DE	Differential Evolution
LNS	Large Neighborhood Search
VRP	Vehicle Routing Problem
VRPTW	Vehicle Routing Problem with Time Windows
PDPTW	Pickup and Delivery Problem with Time Windows
CTP	Collaborative Transportation Planning
LTL	Less-Than Truckload
FTL	Full Truckload
CA	Conjoint Analysis
MAMCA	Multi-Actor Multi-Criteria Analysis
FEP	Freight Exchange Platform

I. Introduction

A standard procedure in an online system that aims to support and assist road freight transport is summarized as follows: new requests - orders for transportation and scheduled truck routes are continuously updated by including relevant information, such as the characteristics of the goods to be transported, the points and the dates of receipt and delivery; and possible time constraints that might be placed by the customers. Based on the available information, each carrier company has to decide immediately on the acceptance of an application - without flexibility.

Recognizing the potential synergies that may result from orders with additional features, SCOPE research project aims to develop a new modern web platform that is expected to greatly facilitate the negotiation process applications – orders and offer a unique feature of cargo/truck search optimization tool according to the users' needs. More specifically, the design and development of the platform will be based on automated and embedded smart functions by integrating and automating particularly complicated processes. Model, algorithms and technologies that will support the development of the platform will be carefully selected to meet the utmost needs of future users. The acceptance and widespread use of the platform by various transport service companies is very important in order to ensure the data protection requirements, a transparent and simple modules scheme, which will offer incentives and rewards for the use of the platform and additionally smooth integration capabilities with existing transport planning systems. The main objective of the system is to achieve a time-saving freight exchange platform (FEP) with simple and effective processes by reducing the complexity of the users required actions within the platform.

In the two following sections, a detailed description of the current state-of-the-art algorithms will be provided. A detailed reference to existing models that have been developed internationally for road freight transport services will be presented, plus an analytical showcase of the most recent state-of-practice applications developed for freight exchange transportation by key industry stakeholders (chapter 3). In that chapter, a proposed categorization of the existing FEPs will be presented. Following the proposed categorization of the FEPs an analytical showcase of 5 selected state-of-practice applications (one for each category) out of 66 identified FEPs in total (presented in Annex A) will be analyzed by presenting the structure and the services these applications provide to their users (clients & carriers). The results of the analysis are presented in two sections with the aim to use these mature and successful applications as a basis towards the development of the basic

architecture of the SCOPE platform. These offered services will be considered during the development process and will be under discussion in the workshop to be held with selected carriers - supporters of the project activities.

II. State-of-the-art in road freight exchange algorithms

1. Solution algorithms for clients

Auctioning schemes in road freight transport services have a strong research interest and provide a competitive solution in the transport sector taking into account the modern and particularly demanding environment. The improvement opportunities that offer have been presented in numerous scientific studies with special emphasis on applied solving algorithms, which have been studied extensively, thus creating a very active research field. The problem of the distribution of applications - orders that appears in these systems is a particularly complex problem. Solving approaches that follow "simple independent auctions" (this term refers to the cases that each carrier should only serve a sender) fail to deliver the synergies that can exist (Bykowsky et al. 2000). Unlike the "Combinatorial Auctions", wherein each carrier can handle orders from one or more senders, they appear as more effective (DeMartini et al. 1999). However, combinatorial auctions have some difficulties to deal with, such as the "Winner Determination Problem". This problem of threshold occurs either when bidders offer less value than the estimated target with minimum cost, or either when the algorithm has errors on identifying the optimal sub-group.

The "Winner Determination Problem" is a complex and complicated problem (NP-hard) combinatorial optimization resulting on making it necessary to use modern techniques to solve it. The objective is to point out on the bidders that the appropriate distribution of applications - ordering that maximizes the revenue of auction, which is modeled based on the "Set Packing Problem" as shown in the study of Rothkopf et al. (1998). Specifically, the high complexity of the problem makes it impossible to deal with it by standard mathematical approaches to large-scale problems, thus necessitating the development of approximate methods to solve within reasonable computing time. Particularly, the Analytic Hierarchy Process (AHP) is a systematic method which increases the reliability of the criteria weighting coefficient determination process and the ability to find a solution by connecting the individual elements and evaluating alternatives. A different method of solving are the heuristic algorithms which exhibit competitive advantage as they have the ability to produce a high-quality solution, close to the optimum, at acceptable (short) period. Finally, the meta-heuristic algorithms are intelligent iterative processes that improve a solution using non-addicts guidance mechanisms of other heuristic algorithms.

Padhi and Mohapatra (2006) used the AHP to find the best offer for a contractor selection process of a project, which was coordinated by the government. The problem of auctions for

the selection commission, modeled according to the “Winner Determination Problem” model of and the solving method was based on AHP by considering multiple selection criteria. Prasad et al. (2012) followed the "Combinatorial Auctions Branch on Bids” (CABOB) methodology, which is based on AHP to determine the parameters to solve the company's problem of choosing the most appropriate online cloud service. The problem of choosing the optimal cloud service provider was modelled as a “Winner Determination Problem” and is solved via the evaluation and classification of factors that influence the decision-making algorithm.

Leyton-Brown et al. (2000) proposed a multiple search approach for combinatorial auctions by using a «Branch-and-Bound» algorithm according to which an initial solution (an initial distribution of applications - orders was given) and then two heuristic algorithms are used to improve the solution it has already occurred. The first heuristic model aims at a more efficient arrangement of sets of applications - orders while the second is directed to improvements in the arrangement of applications - ordering within each set. In a similar way, Gonen & Lehmann (2000) addressed the problem of combinatorial auction following an advantageous algorithm in conjunction with the Branch-and-Bound method and using various criteria for the best bid selection process (e.g. total cost, mean value per load, etc.) for the optimization of the algorithm yield.

A stochastic heuristic algorithm (Cassanova) was developed by Hoos & Boutilier (2000) and appears more competitive than previous methodologies, particularly for large-scale problems. For standard small-scale problems, the algorithm manages to identify optimal solutions in a very short computing time. As a criterion, which was used for the creation of solutions, defined as the ratio: revenue for the number of applications - orders following the advantageous strategy combined with a degree of stochasticity trying in every step to incorporate bids are not set for service. In each iteration, the best solution lies in total is defined as the new output of the algorithm solution.

Anandalingam et al. (2001) have proposed a method of a two-phase solver combining classical mathematical approach with an approximate algorithm. Initially, the model finds a solution followed by a strategic optimization of the primary - secondary problem using the " LP-relaxation” approach and then an iterative mechanism is applied based on the LP-relaxation and an advantageous algorithm with stochasticity elements, which attempts to improve the solution that has emerged from the first phase. The dual strategy applied allows improved performance for both phases of the proposed approach. Respectively, Zurel and Nisan (2001) used a methodological approach to fit an approximate algorithm in order to solve the problem resulting from the application of the LP-relaxation. The advantageous

algorithm aims to promote the service offers with higher profit margin by ensuring that every offer will only be served by one company.

Schwind et al. (2003) oriented towards more flexible methodologies that can be incorporated successfully in information systems and develop other than a “Greedy Heuristic Algorithm” (GHA) and two meta-heuristic methods: an "Simulated Annealing” algorithm (SA) and a "Genetic Algorithm” (GA) to address the “Winner Determination Problem”. The advantageous constructive-heuristic algorithm gradually creates a solution classifying the tenders in accordance with the revenue earned (price per load) and then dividing the offers from the list following the order of priority. The SA belongs to the meta-heuristic algorithms and starting from an initial solution chosen by thoughtful way, in each iteration, a contiguous solution until the termination criterion is satisfied. The main feature of the SA is to accept with probability P even a solution that is of lower quality than the current research in order to be able to avoid a premature local minimum. Finally, GA manages a population of solutions which continually produces new better quality solutions, improving each iteration the population in order to find the best solution with the smallest possible number of repetitions. For the execution of the algorithm is followed by the encoding of the random key (Bean, 1994).

Khanpour and Movaghar (2006) use a GA to solve the “Winner Determination Problem” and based on the results obtained clearly demonstrate more competitive than in earlier heuristic methodologies such as SA and simple myopic advantageous algorithms. The GA proposed displays variations in crossover and mutation mechanisms while the selection of the population is performed both deterministic and a stochastic criteria and separated into two sets wherein each set is selected by the best solution, and then both are advanced to the next generation maintaining 'high quality' solutions.

Yadati et al. (2007) excluded the mathematical solving approaches due to the large computational burden and focused their interest on heuristics comparing different combinations of heuristic solutions creation processes. Initially several applications - orders are classified by the costs and then constructed the solution using the following criteria: (a) first serve the most expensive order, (b) first serve the most economic order, (c) service the first order which exhibits the greatest load, and (d) servicing the first order which exhibits the smallest load. The first situation was justified as more efficient comparing to the other situations and generally produces better results as the number of orders that must be satisfied increases.

Gradually there has been an increase in the use of approximate algorithms for solving the

"Winner Determination Problem" with more recent studies focusing mainly on heuristic and meta-heuristic methodologies that have proven more efficient in terms of quality of the solutions and the computational load. Boughaci et al. (2009) addressed the "Winner Determination Problem" by using a "mimetic" meta-heuristic algorithm (MA) containing a crossover operator and applies the encoding of a random key in the enforcement proceedings. Further improvement is achieved by applying a mechanism of "Stochastic Local Search" (SLS), in order to focus the research on "promising" areas of the solutions' space, selecting the best solution based on the quality of the solution and with some probability P.

Later, for the same problem Boughaci et al. (2010) considered the same simple heuristic stochastic local search algorithm (SLS) and a "Tabu Search" algorithm (TS). The TS aims to explore the area of the solutions and in each repetition moves from a solution in an adjacent higher-score solution, returning the best solution that has met constraints during its implementation. The contained short-term memory registers the latest solutions that the algorithm has visited and prohibits the return of these solutions for a predetermined number of iterations. It is worth noting that SLS is presented as a highly competitive algorithm offering higher quality solutions in relation to the TS.

Also, Boughaci (2010) proposed an algorithm "Differential Evolution" algorithm (DE) which manages a population of solutions and is implemented to every member of the population, creating new solutions through the mechanisms of mutation and crossover (combination of solutions). The proposed algorithm DE is particularly efficient compared to both previous successful heuristics (SA) and with meta-heuristics (GA, MA) producing better solutions in less computing time.

In today's business environment, companies who wish to maintain and / or achieve high returns should understand the important role of "level of service" they provide to their customers. Recognizing the needs of enterprises, in recent years they have published several studies where the "Winner Determination Problem" is tackled under another angle by integrating the optimization objectives and the level of service.

Specifically, Buer and Pankratz (2010) present a different version of the "Winner Determination Problem" with a dual target. Specifically, they seek to minimize the cost of applications - orders and also to maximize the level of service. Taking into account the computational requirements of combinatorial auction systems, where several hundred contracts will have to be managed, it is proposed a Branch-and-Bound algorithm eight variants of GA. The results show that Branch-and-Bound algorithm is competitive only for small-scale problems by providing the optimum solution and therefore can not be used to

address real problems. Additionally, it is proven that the output depends highly upon the initial constructive algorithm used and the search of high quality results demands a stabilized combinations of GA operators.

Recently, Buer and Kopfer (2014) developed a competitive solving approach based on an advantageous constructive algorithm with stochastic data and a meta-heuristic "Large Neighborhood Search" algorithm (LNS). The constructive algorithm includes a two-phase selection process for the candidate elements of the solution to produce "promising" original solutions to solve the modern alternative of the "Winner Determination Problem" by considering the cost of orders and service level. Then, LNS aims to improve acquired solutions by adjusting the applied parameters (likelihood of removal of the bids and advantageous function classification) with a self-adaptive manner. The effectiveness of the proposed approach was compared to other methods of pertinent literature known standards problems and finally the production of new more efficient solutions remains a proof of the algorithm's competitive performance.

Later, de Andrade et al. (2015) propose six variants of biased random-key genetic algorithms to solve the "Winner Determination Problem" following intermediate linear programming relaxations of the exact mixed integer linear programming model that they used as the initial chromosome in the genetic algorithm as well as the best-performing heuristics i.e. heuristic 1: random chromosomes are added on the best solutions and heuristic 2: the chromosome is used to generate a subset of bids and acts as a separation threshold. This approach is based on the intermediate solutions to the LP relaxation of the integer programming model for the problem. Experimental results prove the effectiveness of the proposed approach which finds high quality solutions in short computational time.

Remli et al. (2019) deal with the well-known "Winner Determination Problem" and they study uncertainty on shipment volumes and carriers' capacity. They extend their proposed algorithm (Remli and Rekik, 2013) by solving a relaxation of the "Winner Determination Problem" which is used as an upper bound for the original minimization problem. Then, multiple valid inequalities are generated and local search solutions are gained at each iteration. The termination criterion is a total number of the local search solutions. Experimental results prove the effectiveness of the improved constraint-generation algorithm even the studied modification is more complex than the original problem.

More recently, Othmane et al. (2019) study the "Winner Determination Problem" considering that shippers submit simultaneously their requests to a set of carriers and combinatorial bids are summited on their requests. Three approaches are proposed and then a centralized auction

is simulated to evaluate total costs and quality of services. In particular, the G-based approach which aims to minimize the total direct cost and hidden costs of shippers, the L-based approach which aims to provide more contracts locally to the shippers, and the H-based approach which aims to minimize only the total direct cost. Numerical experiments are conducted and results indicate that selecting the appropriate approach depends on the profile of shippers, their reputation and their perception of centralization.

2. Solution algorithms for carriers

Although the largest number of relevant scientific studies address the problem from the side of auctioneer/clients, there are cases studies oriented to the bidder, in our case the carriers, and attempt to answer the following questions:

- How could the carriers successfully evaluate the packets of applications - orders?
- What is the best strategy for a freight transport company to bid on effectively within the competition during an auction?

Unfortunately, these questions are not easy to answer, and freight transport companies have to face a series of combinatorial optimization problems.

Song and Regan (2004) concluded that tackling the problem from the side of the carriers can not be dealt with optimization models and present a simulation framework that integrates various problems. The same problem that appears, is solved every time. Later (Song and Regan, 2005), adopted the “Vehicle Routing Problem” (VRP) to study the case where the freight transport companies have no orders to serve (before the auction process) but also the case where orders already exist. Each route represents a candidate bid for the shipping company and the aim is to reduce the total cost arising from the movement of empty trucks.

In the literature several scientific studies focused on the carrier perspective, which follows the modeling of individual problems by known VRP problem and therefore treated using already successful heuristic and meta-heuristic algorithms. Schwind et al. (2009) adhering “Vehicle Routing Problem with Time Windows” model (VRPTW) by expanding Wendt method (1995) that combines the SA algorithm with GA, while Wang et al. (2013) applied “Pickup and Delivery Problem with Windows Time” model (PDPTW) and they use a thoughtful vantage heuristic algorithm in conjunction with a crossover operator.

In a more recent study, Wang and Kopfer (2013) adopt the logic of splitting the target into sub-problems and implement it in transport planning problems, where general and individual

routing decisions emerge and incorporate smaller sub-problems. To solve "Winner Determination Problem" cases, an iterative route creation process is used in order to minimization of costs by solving the central "Collaborative Transportation Planning" problem (CTP) with the use of efficient advantageous heuristic algorithms. In parallel, Wang and Kopfer (2013) proposed to set up a high penalty for the promotion of orders to subcontractors and thus increase the degree of carrier's self-handling services.

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More recently, Lai et al. (2017) propose an iterative auction scheme capable to exchange shipping requests iteratively promoting collaboration among carriers. This study is focused on supporting carriers to reduce their empty-miles deliveries and as such, the proposed scheme enables selling or buying requests among carriers in an attempt to maximize their profit. An insertion heuristic approach is followed for large scale-problems and it is applied based on two criteria i.e. (i) each carrier could place no more than a maximum number of bids and (ii) each carrier bids all the other carriers' requests but submits the estimated bidding price.

Qiao et al. (2019) examine the case of less-than-truckload (LTL) carriers of an online platform and they focus on how carriers should decide bidding price in order to maximize their profit. A dynamic pricing model is proposed based on the forecasted quantity of requests in the next auction periods with the aim to optimize the bidding price and as such, the total profit. Even though this model assumes forecasts, results prove that carriers could use it in order to decide the optimal bidding price according to the upcoming requests.

A first attempt to study the multi-modal aspect of freight transportation is presented by Baykasoğlu et al. (2019). The authors reviewed fleet planning models and solution algorithms and they summarized fleet planning studies in both single and multi-modal transportation systems. To this end, they also proposed an intermodal fleet planning framework which is based on a classification scheme for strategic, tactical and operational decisions.

In a more recent study, a hyper path-based dynamic trucking equilibrium assignment model is

proposed by Miller and Nie (2020) in which focus is given on the optimal bidding and routing strategies to maximize the expected profit of competing companies in a freight exchange platform. A heuristic solution algorithm is developed to deal with the variation inequality problem that is utilized to formalize the dynamic trucking equilibrium assignment problem. In more detail, hyper path flows create a dynamic freight network and a column generation scheme is used to create hyper paths. Then, a method of successive average is also applied in an attempt to equilibrate profits on existing hyper paths in order to maximize the expected profit of competing companies

III. International best practices of existing freight exchange platforms

3.1 Categorization of freight exchange platforms

During the continuous development of the global freight transport markets, all key market players have invested towards the creation of unique services and digital products. In this context, a significant amount of relevant digital tools has been created with slight alterations. Thus, it is important to classify these products according to the type of individual and combinatorial services provided. During this research study, a high-level categorization of the recorded freight exchange platforms (66 in total) has been made. The outcomes could offer indications on the key industry players' requirements and potential clients' goals on EU and Balkan level later on. The proposed categories with a short description are:

1. **Informative repositories (forums/channels):** The platform operates as a message/post exchange online portal between the two user profiles (clients & carriers). Through this portal both user profiles publish their requests, questions and any other relevant information they want to share to the other users.
2. **Freight planning services:** The platform contains a variety of freight management services, e.g. Truck route planning, cargo space management, cargo/truck tracking, etc. The platform operates as a host of the different platforms that are offered to the users in different packages and prices.
3. **Cargo/Truck booking platform:** The platform operates in the same context as the first category but it additionally offers the option of booking a truck (for clients) or cargo types (for carriers). The booking process is handled via the platform owner and the respective partners via the platform itself or on an external source.
4. **Auction platform:** The platform operates in the same way as in category 3 but with an important difference. Auctions replace booking reservations between the users. The platform follows the same auctioning regulations and procedures as in the other sectors that use auctioning platforms. In this case, all transactions and reservations are confidential and the deals are coordinated by the platform owner.
5. **Advanced freight services:** This category is a combination of Categories 2 &3 or Categories 2 &4. In short, freight exchange platforms that fit into this group, offer advanced freight reservation and management services that could be offer different privileges to their users/members.

These afore-mentioned categories have been used as clusters in order to groupage effectively the acquired data (see **Fig. 1**). Subsequently, smartphones became a vital asset for every human and

their use is increasing rapidly against other devices such as computers or tablets. Although as one of the freight exchange platforms' users group are truck/van drivers (carriers), the evolution of these freight transport platforms have limited smartphone applications (see **Fig. 2**). As it can be observed only ¼ of platforms have mobile apps. Additionally, the majority of the freight exchange platforms have been assigned in the first three categories with a consistent distribution between the category groups. In more detail, 32% of the current web-based platforms offer just information for the user groups, and 38% of the platforms offer either freight management services or booking reservation products.

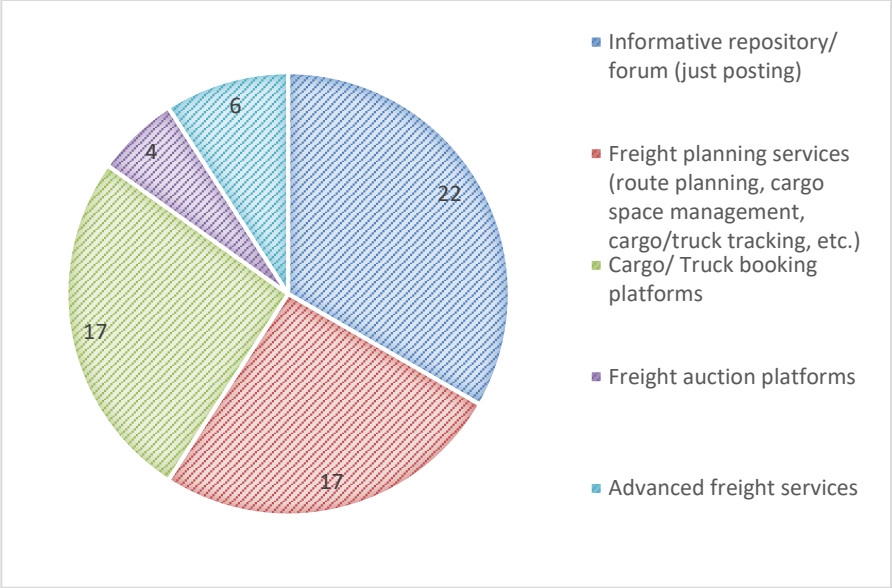


Figure 1: Results of freight exchange platforms categorization

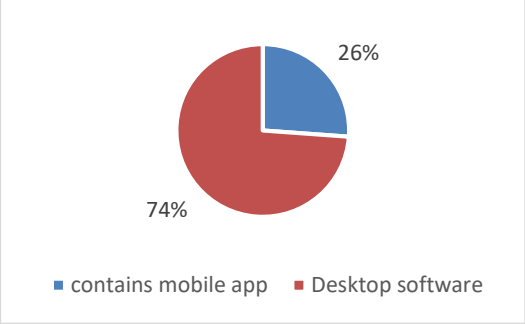


Figure 2: Freight exchange platforms that include mobile apps

This FEP groupage is essential to understand the service types offered in the most advanced and usable FEPs nowadays. In this context, during the implementation of the state-of-practice applied research study during this deliverable, it was decided that further analysis in depth on specific platforms should be made. Thus, there have been selected five (5) FEPs, each one

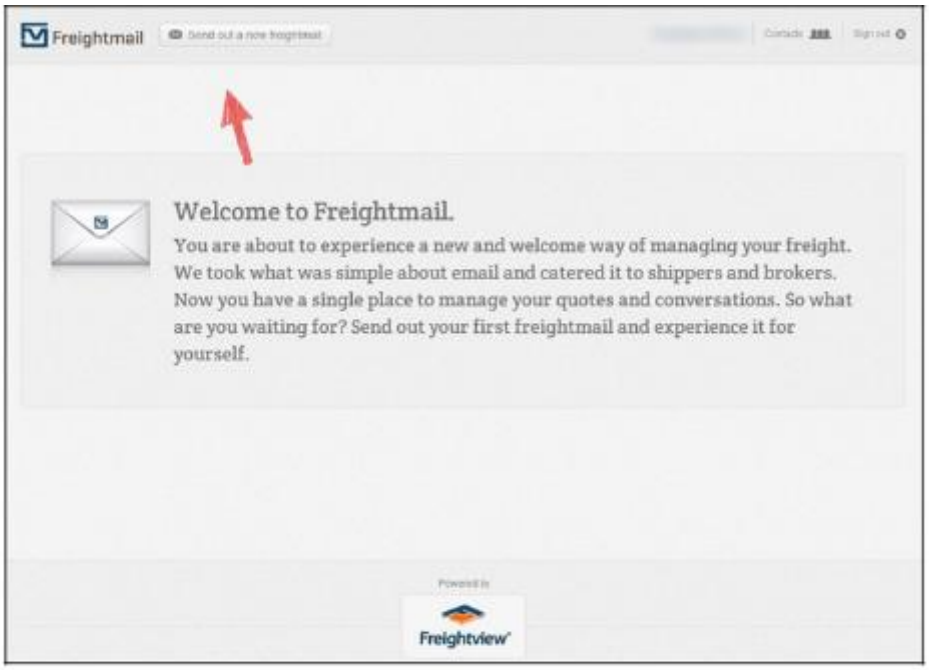
represents an above-mentioned category. Through this analytical showcase, an identification of offered features was achieved and create a pool of potential best practices that could be used on the final SCOPE platform creation and development.

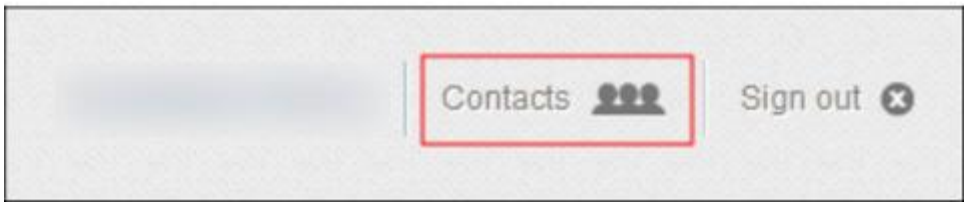
3.2 FreightMail" platform

3.2.1 Entry cargo and available truck

The "FreightMail" platform (http://www.freightmail.com) developed in the US and is a separate operation platform of the famous "FreightView". It provides services both at the state level, national level and throughout North America. The usage of search processes / ad of load or truck is different from the majority of similar platforms as the messaging process via the platform between the shipper and the carrier is based in the standard e-mail protocol but in a more streamlined and organized interface.

At first, the platform has an index of email contacts where the user, shipper or carrier, can create and store contacts. Even given the ability to search, modify and delete contacts.





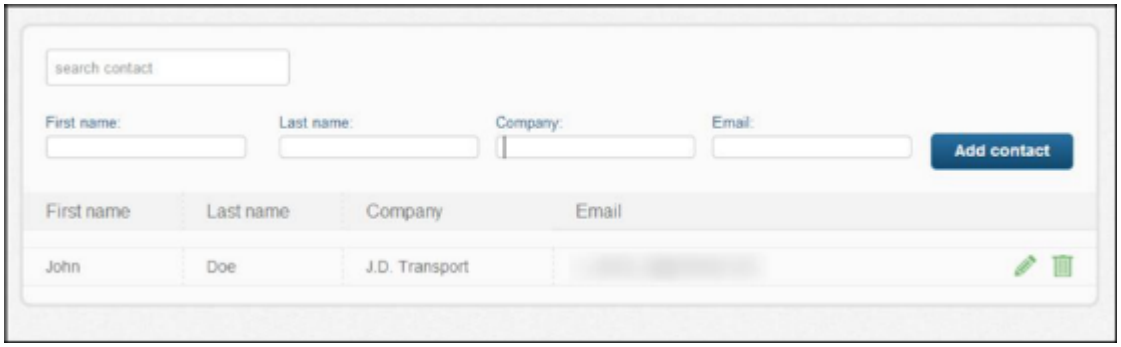


Figure 3: Index and email contacts management via the platform

Each shipper - user of the platform is able to submit the application - ordering with respect to the load which wants to be transferred by completing the form below. More specifically, the loader inserts the addresses in the form of email addresses - carriers that wishes to send the request. Then, the shipper fills in the drop in/off zones and dates of receipt / delivery of cargo, equipment that may potentially be required to have to enable the loading process (eg crane), other details regarding the cargo transfer and the code name of the load. The system allows the shipper to declare more than one load.

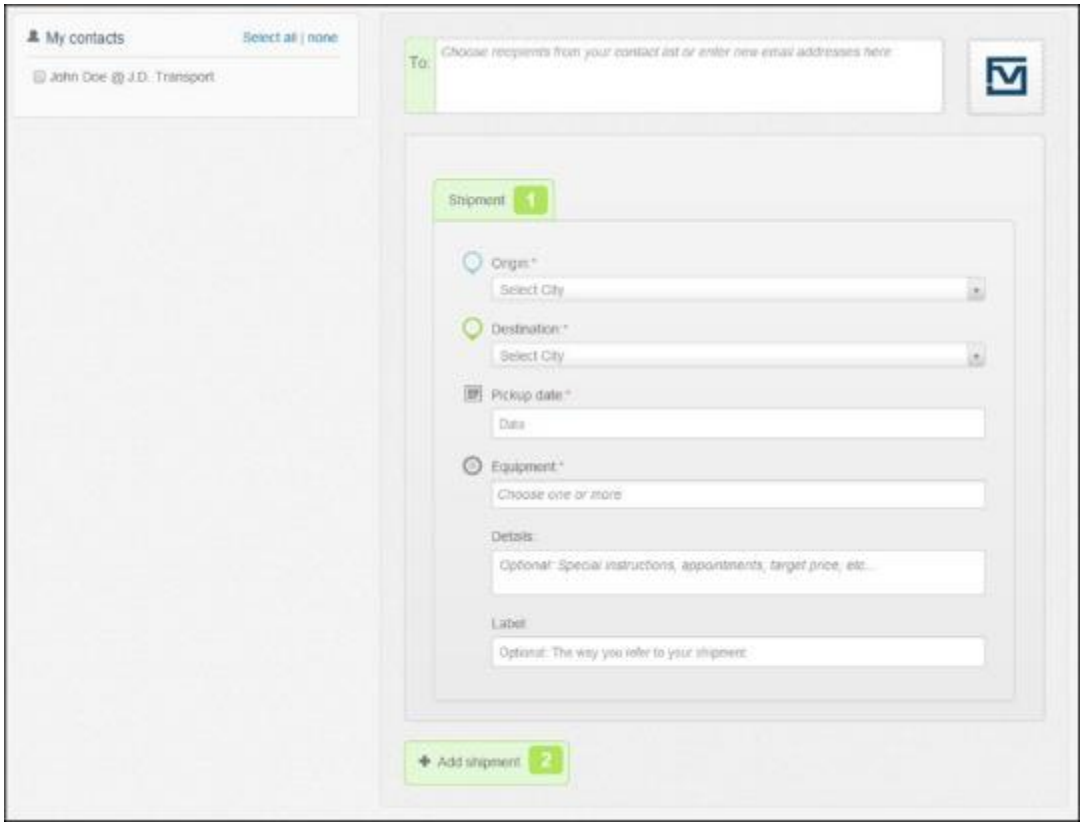


Figure 4: Form filling data regarding the shipment and determination of the recipients – carriers

After completing the form, the application - order is sent automatically via e-mail recipients - carriers and the shipper then guided in applications management page - of orders.

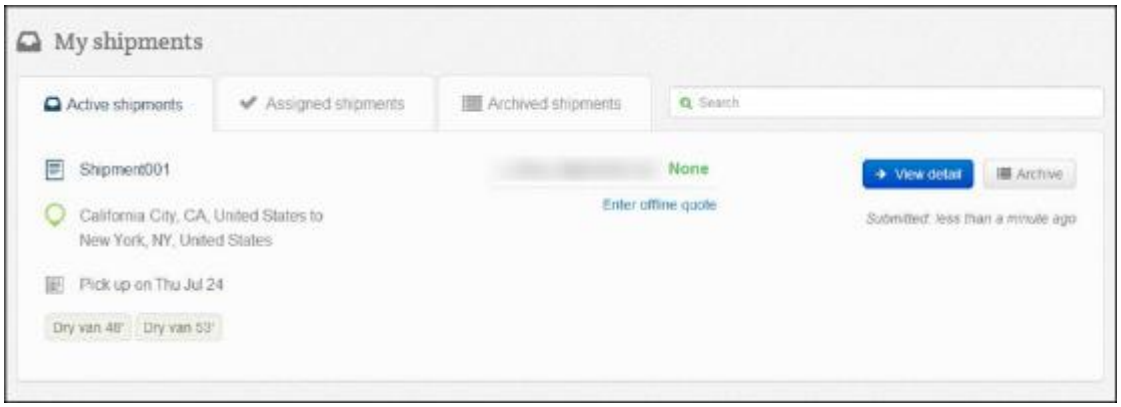


Figure 5: Management of applications Page - orders for a shipper

After completion of the above procedure, the recipients - carriers of the application -order receive a related email. In case of the request - ordering interests them, they can clink the green link to obtain more details regarding the transfer and to submit their bids.

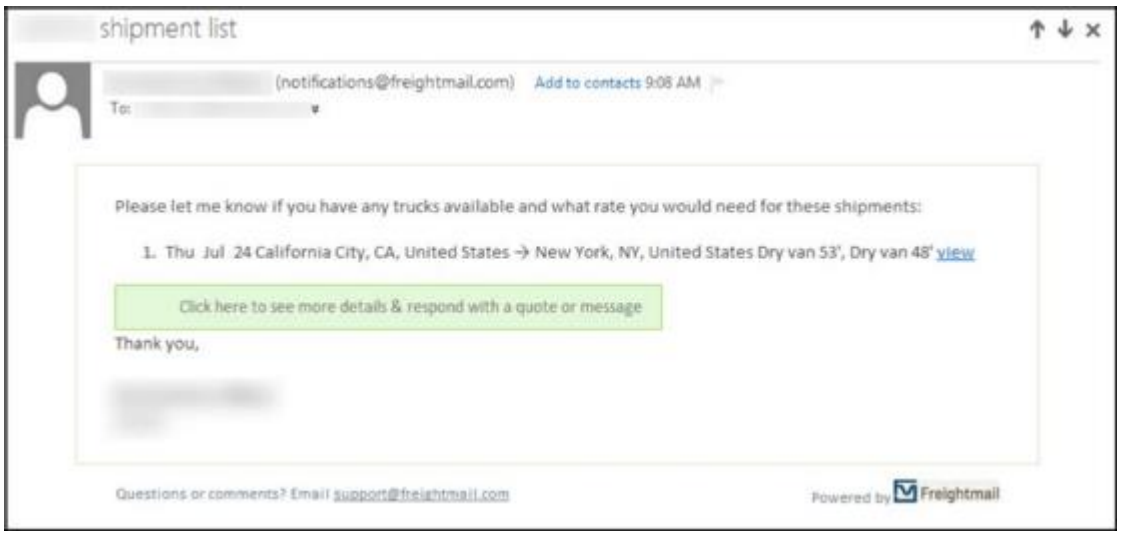


Figure 6: Automatic email sent to registered recipients - carriers on the application - order submitted

Apart from the details that interested operators receive about the transport of a load, the system provides additional through an interactive map the option to overview the path that the cargo transport vehicle should follow until the cargo arrives to the delivery point.

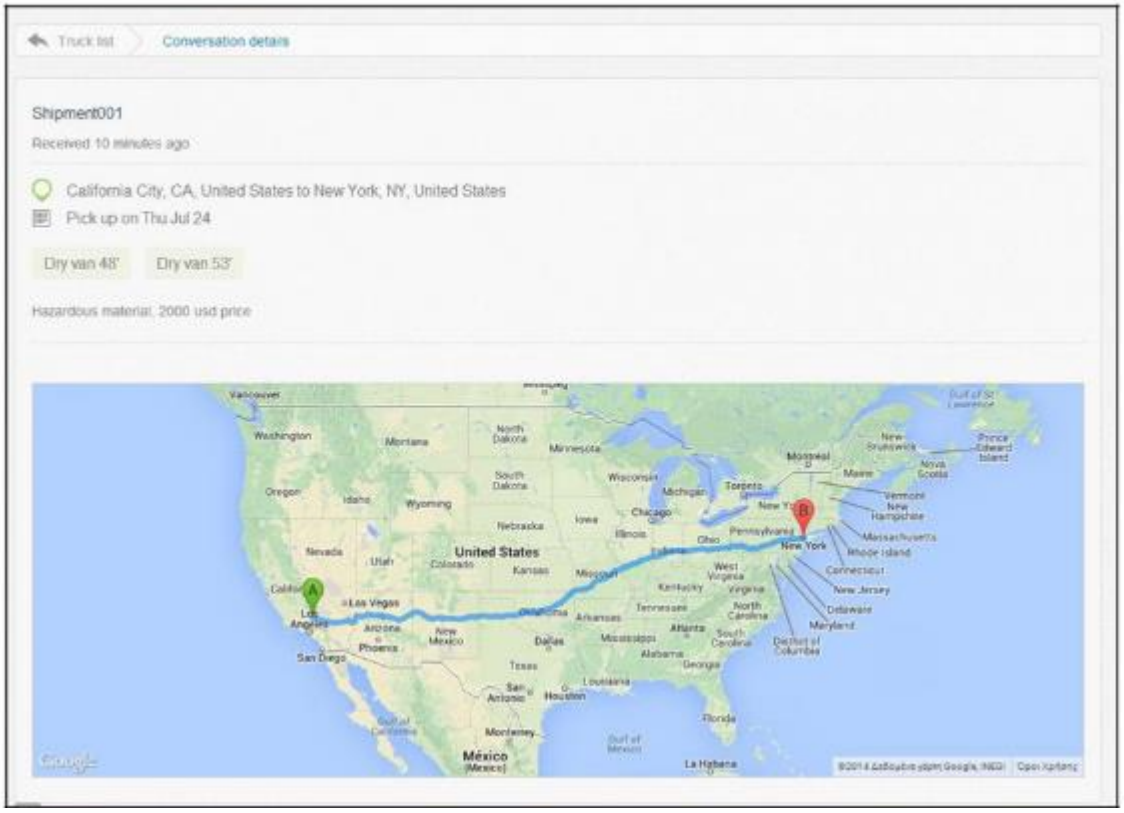


Figure 7: Interactive map showing the truck path between the drop-off points until the delivery of cargo

If the recipients - carriers are interested in this load they have two ways available to answer the shipper. Either leave a message with some additional questions / clarifications (in orange) either submit their offer/quote (green) indicating in parallel their details (ie name and company).

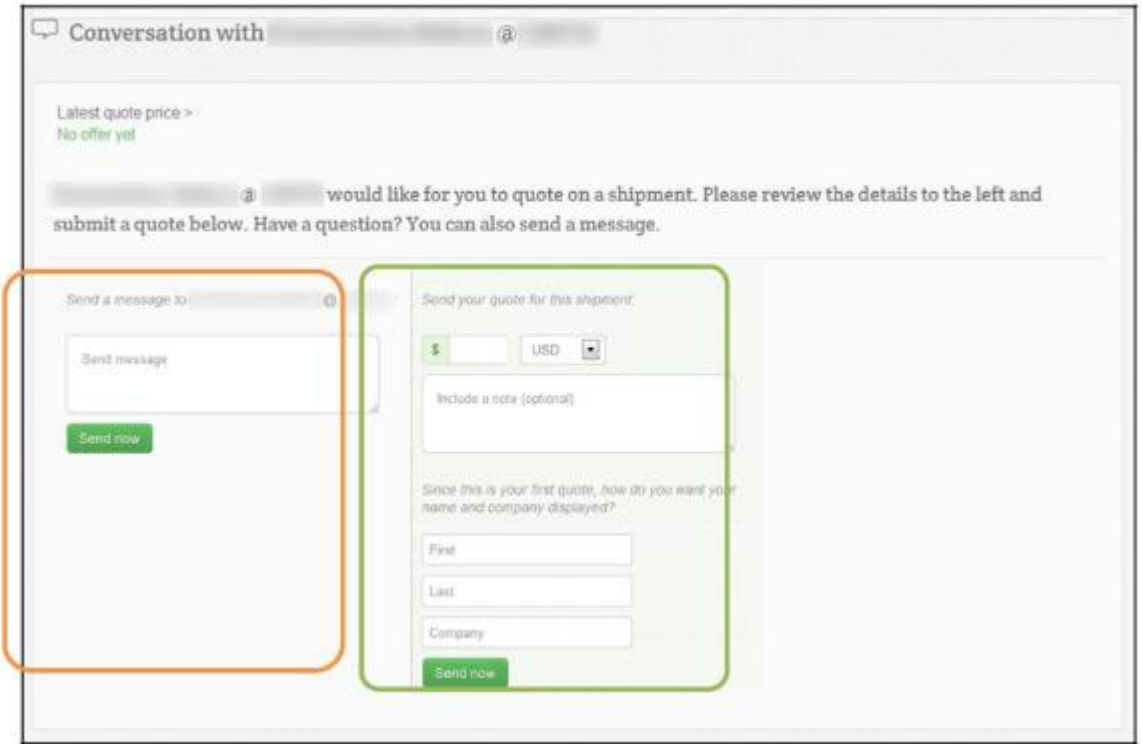


Figure 8: Form response to shipper regarding the application - order that has sent

Continuously, the shipper checks all the bids received from the carriers, to whom he had sent the application - order. The offers are classified into an organized view format where for any offer the value and potential relevant messages of the carrier are shown.

Figure 9: An organized view of the quotes submitted by the carriers - recipients who received the application - order of the shipper

From the list above, the shippers can choose the offer which fulfills their needs. When the desired bid is selected, the system automatically sends a relevant e-mail to the respective carrier, informing him that the offer and the details of transport accepted by the shipper.

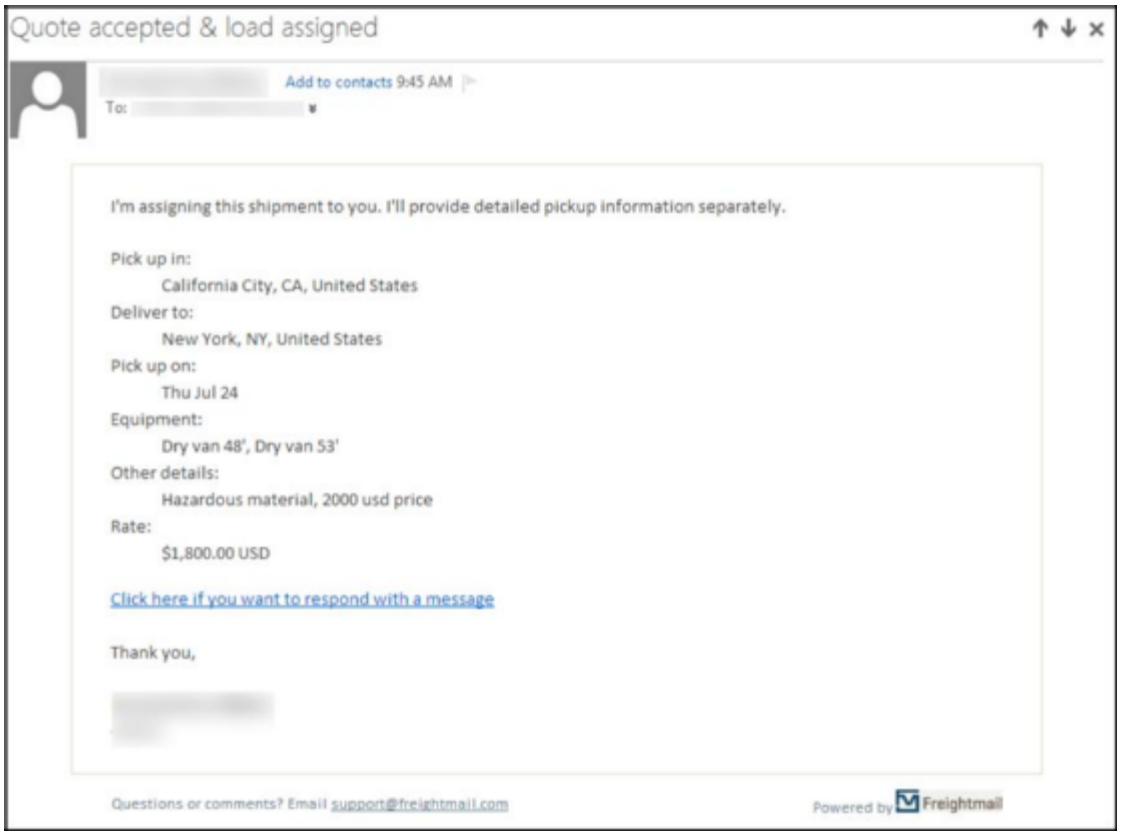


Figure 10: Automatic message sent to the carrier with the best offer, informing him about the acceptance of the offer and the agreed details of the transfer

The same procedure is followed in case a carrier wishes to indicate the availability of the vehicles.

3.2.2 Exchange messages between shippers and carriers

The following diagram presents the process flow followed regarding the exchange of e-mails between shippers and carriers for the selection of the optimal bid among those submitted.

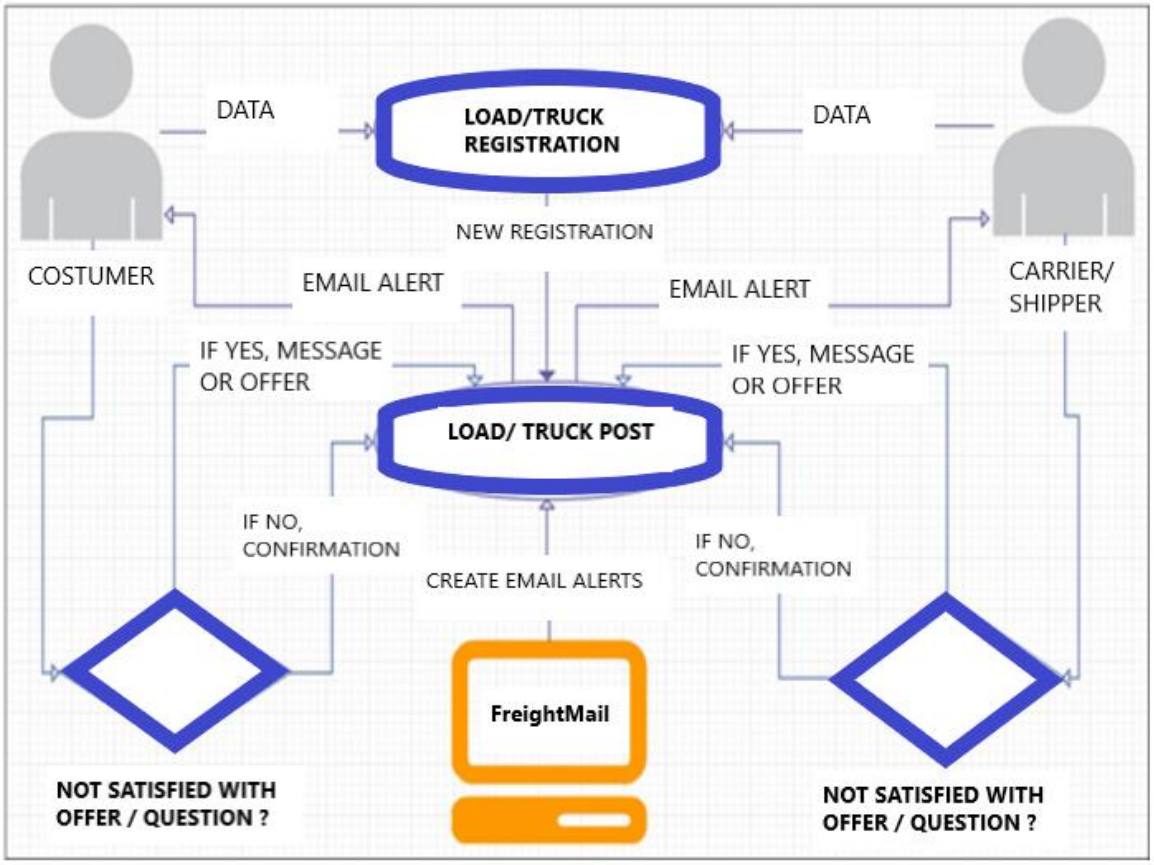


Figure 11: Flowchart regarding the e-mail process between shippers and carriers

3.3 "Freights" platform

The "Freights" exchange platform (https://www.freights.online) was developed in the United Kingdom and provides services at both national and European level, with a major occupancy and a significant number of activities is Greek area. In the following sections details about the platform's offered services will be described. Finally, a flowchart of the platform's functionalities structure is illustrated. The platform consists of the following 2 main modules:

1. Cargo (which incorporates the user's profile)
2. Eureka & Ferry Scheduling

3.3.1 The subsystem "Cargo"

The subsystem "Cargo" is a virtual portfolio, in which the carrier or shipper/loader is registered and their profile is incorporated in a set of provided tools/services. Within this subsystem, the user can post loads for transfer and available trucks along with a set of additional services. More specifically, through the platform, the following services are

provided:

- Available truck and cargo registration service

Each carrier - user has the ability to register an available truck for cargo transport. More specifically, the carrier must fill in the corresponding form with the following data: (a) the date on which the truck will be available, (b) route that can serve (starting points - destination), (c) characteristics of vehicle (type, length, weight, trailer type, availability of equipment, etc.), (d) carriage of dangerous goods (if applicable), (e) any other details you want to indicate the carrier and (f) the responsible person's contact information.

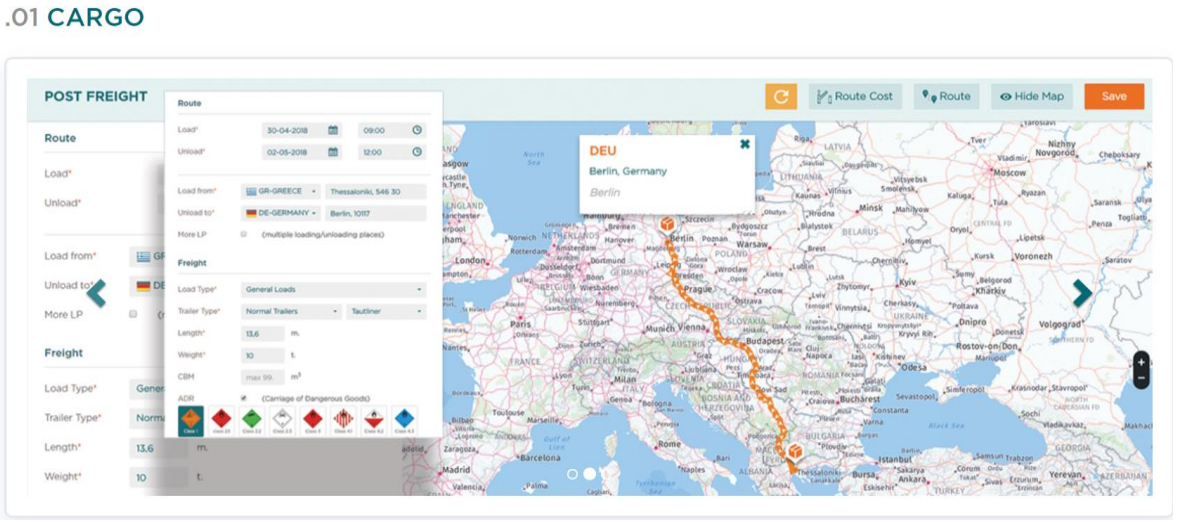


Figure 12: Registration Form available truck data

After the registration of all required data, each new entry of available truck/cargo included in the relevant list maintained by the system. In this way shippers/loaders can access this list and apply to occupy space on that specific truck route. Then it's on the responsibility of the carrier to accept the cargo. Carriers and shippers respectively can have an overview of their transaction history in a unified mail inbox interface.

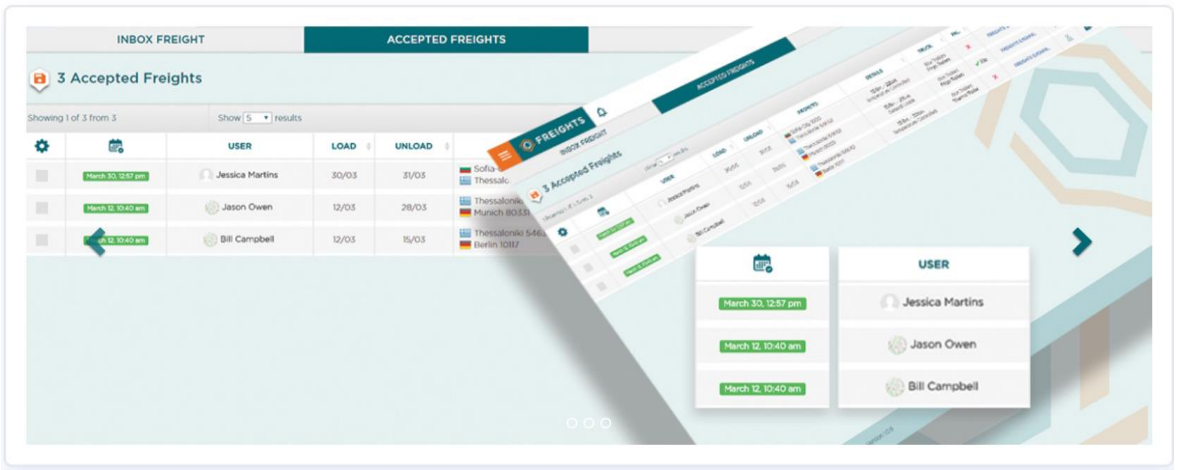


Figure 13: Interface and transaction history of carrier mail inbox

So similarly, shippers have the option to post to carriers available loads for transfer. Specifically, the shippers must fill in the relevant registration form: (a) signs and time of receipt and delivery of cargo, (b) the characteristics of the load (length, weight, type, whether it is a partial or total load and the price), (c) other relevant information / details possibly want to register the loader and (e) the contact details of the person responsible for the cargo.

- Creation of Corporate Profile

Through this can create a company profile that contains: (a) details of the company, (b) virtual contacts (user groups), (c) truck fleet, (d) offered freight services, (e) operating countries, (f) owned/affiliated warehouses and (g) legal/official documents.

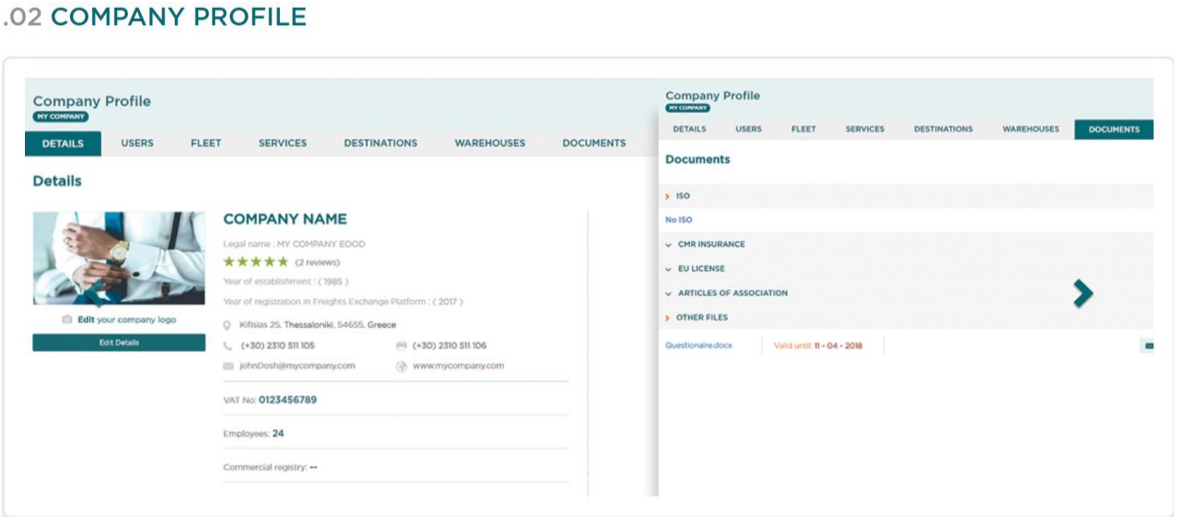


Figure 14: Creating a corporate profile – Company details

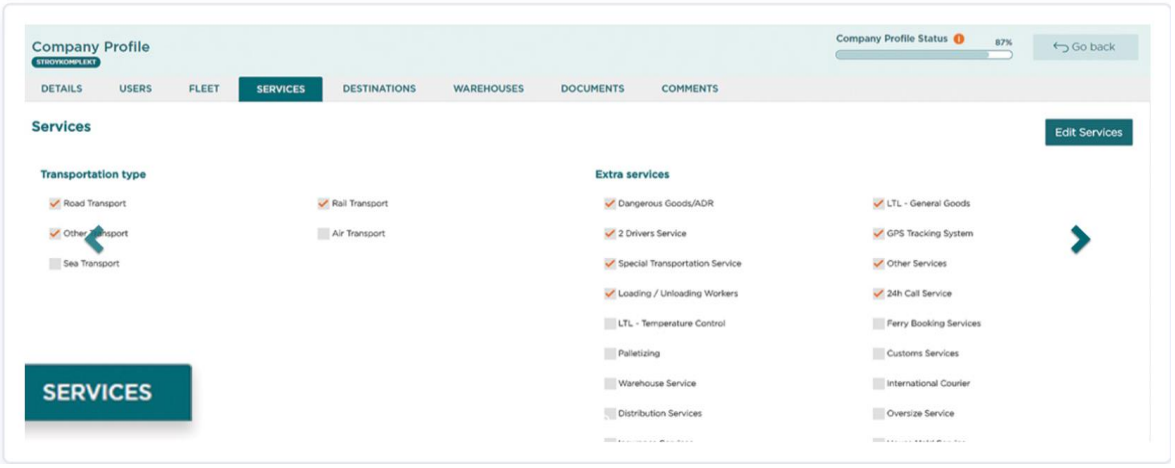


Figure 15: Creating a corporate profile – Company services tab

Plus, this service offers a search branch tool to locate potential interested clients or carriers by their (i) company names, (ii) established countries, (iii) truck types, (iv) truck fleet destinations and (v) offered services.

.02 COMPANY PROFILE

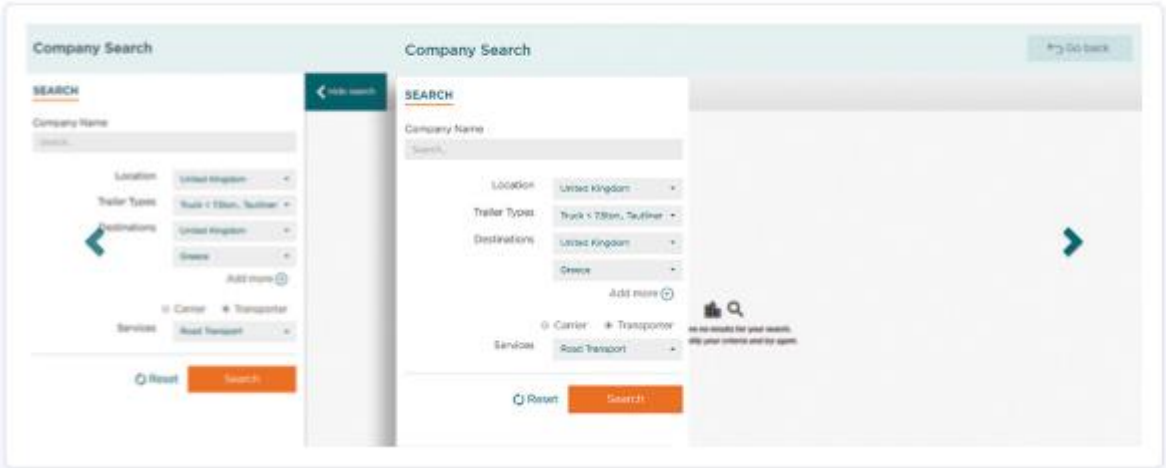


Figure 16: Searching tool by Company profile

- Calendar

Once their company profiles have been configured, both carriers and shippers can access to an additional online calendar. This calendar can by synced with their MS Outlook or any external domain mail for notifications.

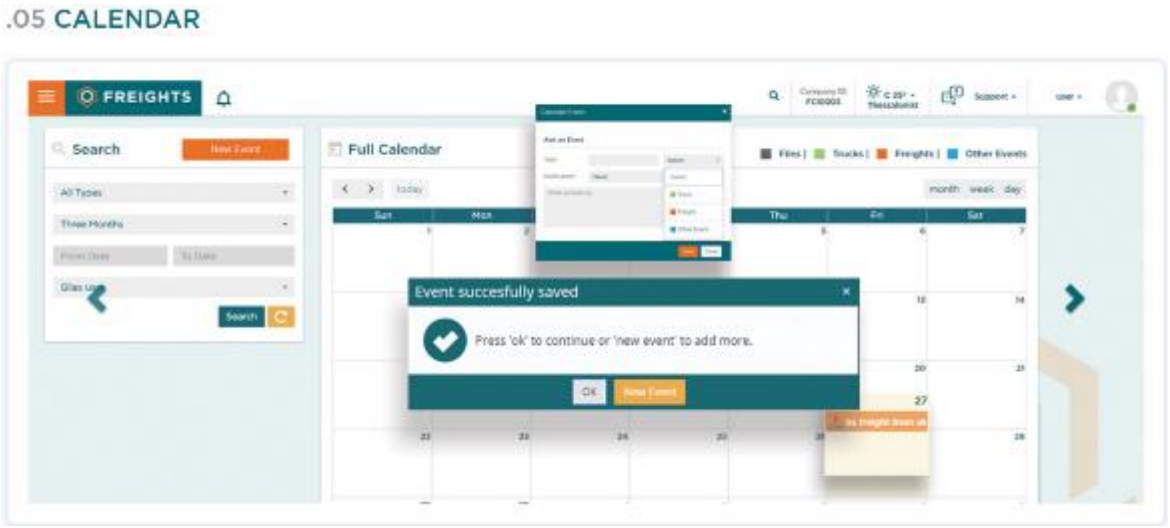


Figure 17: Creating event for carrier/shipper manually on calendar feature

- Legal Assistance

In the occasion of economic disputation between two user, through the "Cargo" subsystem it is offered to contact an affiliate third-party legal contractor in a specific country. By completing a legal form, the user can directly request a quote or legal services from the affiliated their-party legal company.

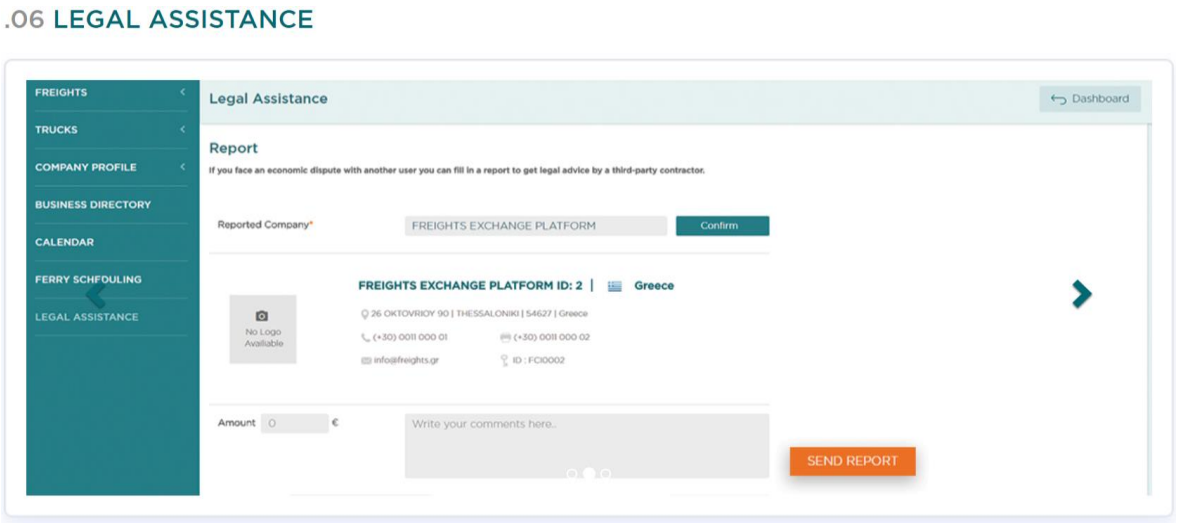


Figure 18: Legal assistance affiliated page

3.3.2 The subsystem "Eureka & Ferry Scheduling"

The subsystem "Eureka" is an interactive map interface that provides to carriers all the necessary information to organize their personal agenda on a truck route. In this sysbustem you can find 2 main modules; "Eureka" and "Ferry Sceduling" module. More specifically,

these modules are described below:

- "Eureka": a set of services for personal route agenda

This interactive tool uses every information that a truck driver might need to schedule a route or to face any situation while on the road. This module gathers a set of assets location and information on truck workshops, fuel stations, parking places, hotels and many more all displayed on a geo-data interactive map, while instantly provides with guide options and contact information as well as services available at every spot.

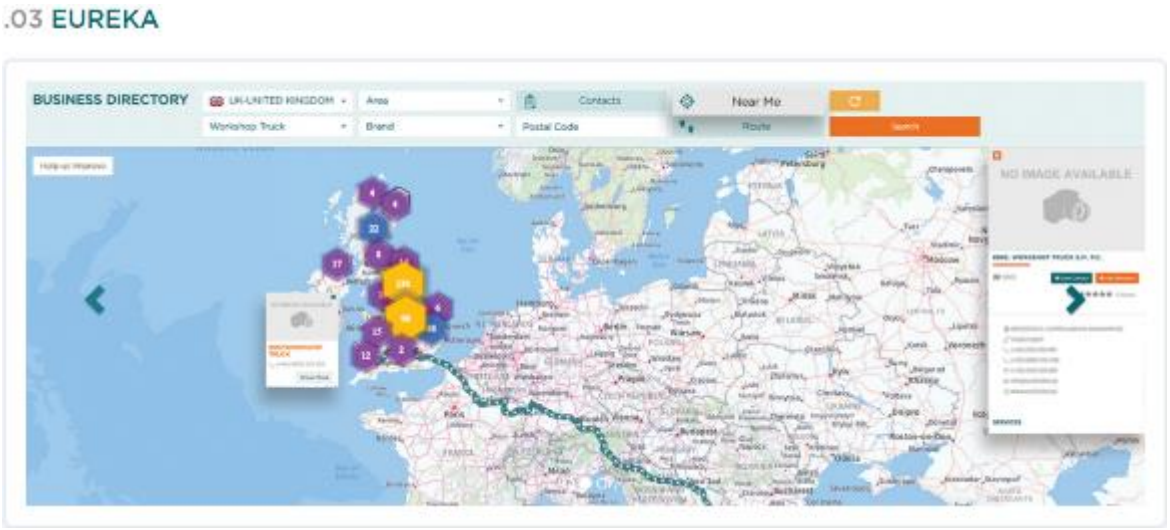


Figure 19: "Eureka" interactive map interface

- Ferry scheduling

This interactive module uses a unified search tool that provides to carriers and shippers the option to search for a specific ferry route and check their respective timetables. Additionally, users can search for a registered truck route that is travelling with the specific ferry route according to specific criteria: (a) truck length, (b) truck type, (c) full/partial truckload and (d) number of trucks on the ferry route. Although, this feature requires the online registration of the travelling trucks in each ferry route by the respective ferry company or national authorities.

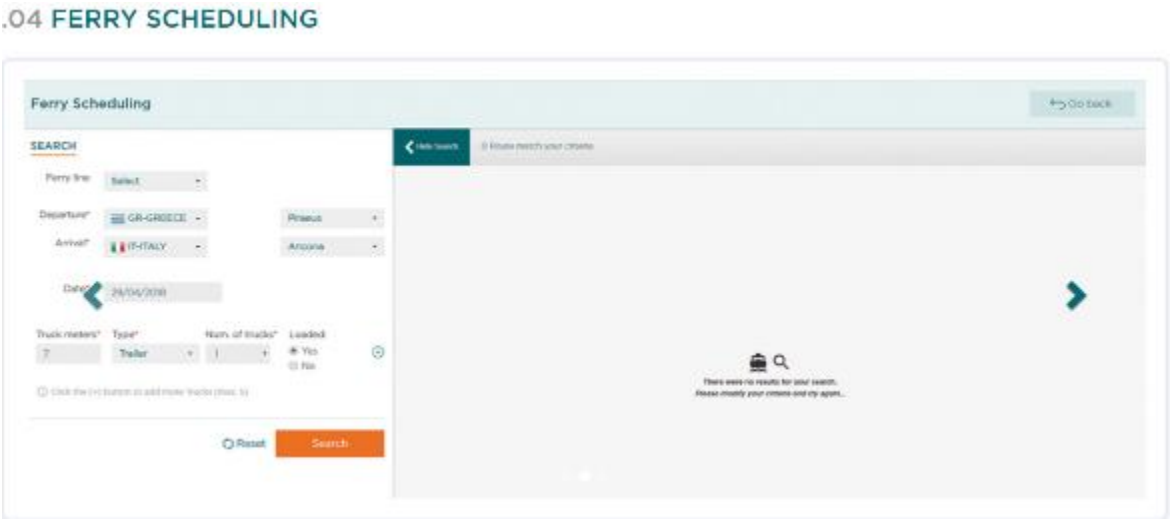


Figure 20: "Ferry scheduling" interface

3.3.3 Structure of the platform and services provided

The following figure shows the structure of the platform "Freights" including all the individual subsystems as well as the functions they provide to both shippers and carriers.

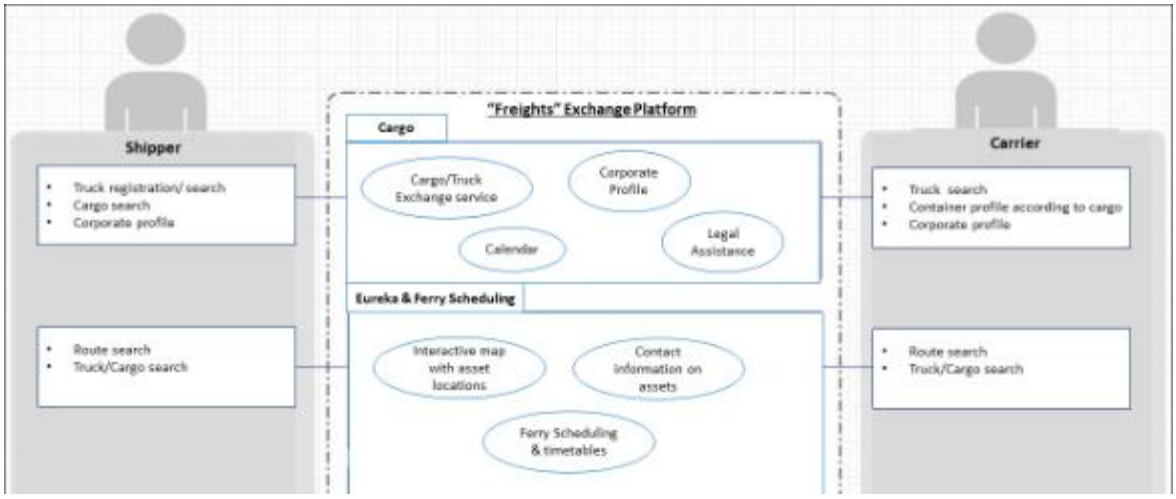


Figure 21: Structure of the platform and schematic illustration of the subsystems and services provided to the users - shippers and carriers

3.4 "Truckspace" platform

The "Truckspace" platform (http://www.truckspace.co.uk/) was developed in the United Kingdom and provides services to shippers and carriers at both national and European level. In the following sections details about the possibilities offered by the platform are described and finally a flowchart of the platform's functionalities structure is presented.

3.4.1 Shipper services

The platform provides the following services to the shipper:

- Register a transfer of cargo by entering the following information:
  - Date beyond which the load is available
  - Desired time of visibility of application - order in the platform
  - truck type required for the transport of the specific load
  - Type, dimensions and load weight
  - Other information / details
  - receipt and delivery points of the load

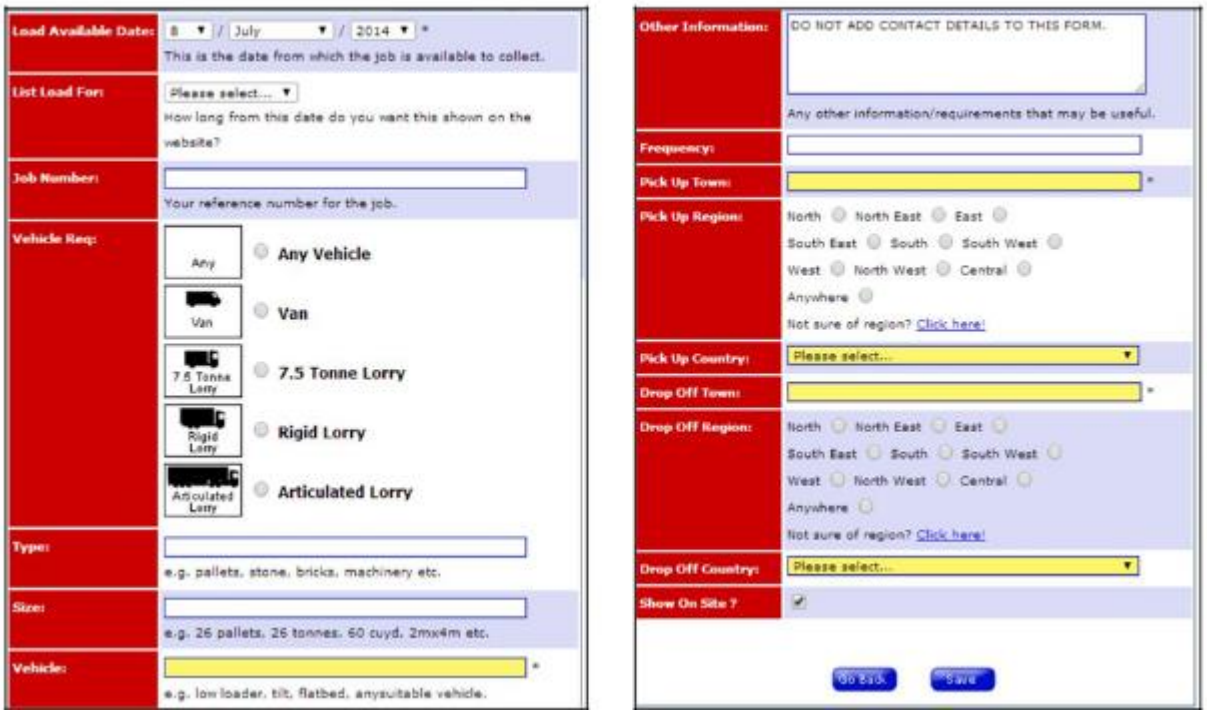
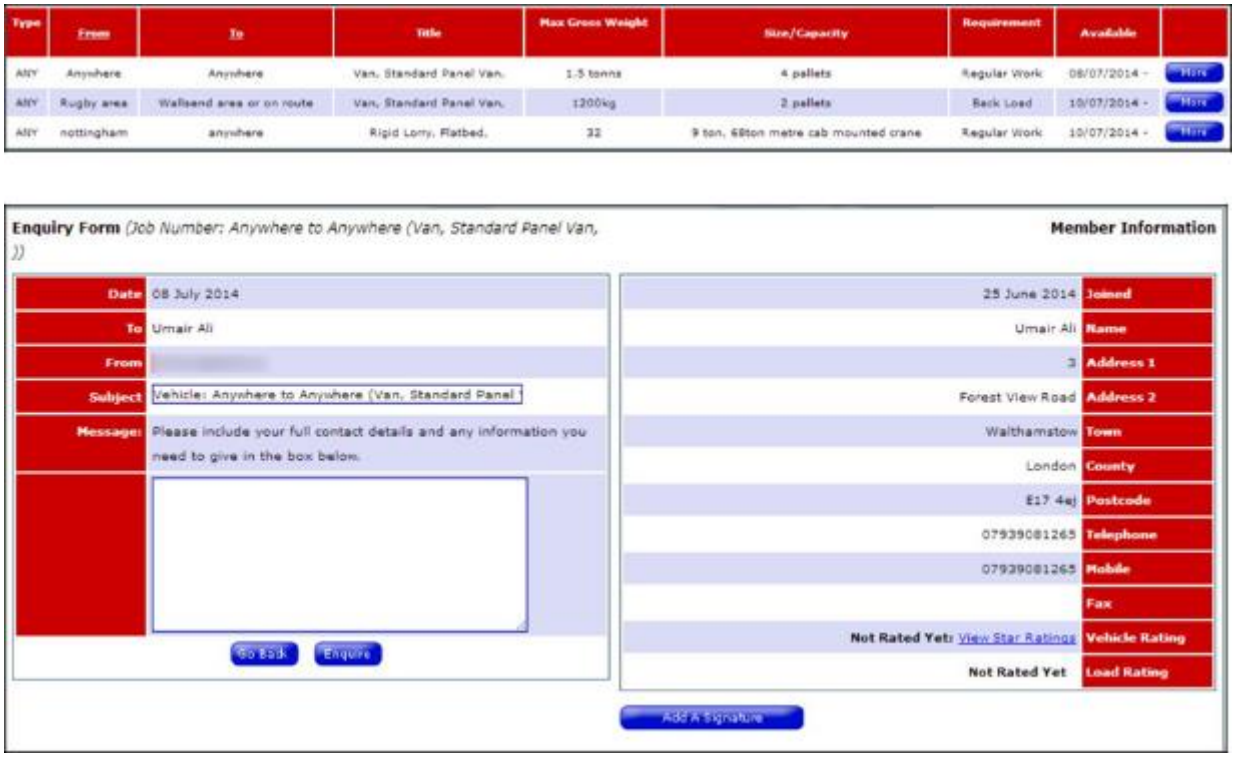


Figure 22: registration form for cargo transport and characteristics of the relevant freight route

- Choice of available vehicles registered in the transport system for the transportation of cargo. Possibility of vehicle booking and illustration of all the contact details of the respective carrier.



Type	From	To	Title	Max Gross Weight	Size/Capacity	Requirement	Available	
ANY	Anywhere	Anywhere	Van, Standard Panel Van.	1.5 tonns	4 pallets	Regular Work	08/07/2014 -	More
ANY	Rugby area	Wallsend area or on route	Van, Standard Panel Van.	1200kg	2 pallets	Back Load	10/07/2014 -	More
ANY	nottingham	anywhere	Rigid Lorry, Flatbed.	32	9 ton, 68ton metre cab mounted crane	Regular Work	10/07/2014 -	More

Enquiry Form *(Job Number: Anywhere to Anywhere (Van, Standard Panel Van,))*

Date	08 July 2014
To	Umair Ali
From	
Subject	Vehicle: Anywhere to Anywhere (Van, Standard Panel)
Message:	Please include your full contact details and any information you need to give in the box below.

Go Back | Enquire

Member Information

25 June 2014	Joined
Umair Ali	Name
3	Address 1
Forest View Road	Address 2
Walthamstow	Town
London	County
E17 4ej	Postcode
07939081265	Telephone
07939081265	Mobile
	Fax
Not Rated Yet: View Star Ratings	Vehicle Rating
Not Rated Yet	Load Rating

Add A Signature

Figure 23: List of available trucks and vehicle reservation form available with all carrier's contact information

- e-commerce operation execution (e-shop) including various companies that provide services such as the sale of vehicles - trailers, plant, machinery, spare parts, repairs etc.

Manufacturer	Category	Location	Title	Date Added	
	Trucks		24 hour breakdown and recovery	20 May 2014	More
Various	Parts	UK	1300 Part worn tyres,mix of 13inch to 20inch,4+mil mm,60/70% 15inch to 19inch	12 March 2013	More
Mercedes	Trucks	All areas	Northside Mercedes www.northside.co.uk	20 December 2012	More
Bridgestone	Parts	Nationwide see website for your area	www.bridgestone.co.uk Truck tyres	14 December 2012	More
Pirtek	Parts	Nationwide, see website for your region	www.pirtek.co.uk fluid transfer	14 December 2012	More
Various	Trucks	South Wales	www.cbcommercials.co.uk	13 December 2012	More
LPW Truckwash	Other	Nationwide	www.lpwgroup.co.uk	13 December 2012	More
JD Engineering	Plant/Machinery	Scotland	www.jdescotland.com	13 December 2012	More
Massey ferguson specialist	Farm	Hereford and Worcs	www.rosefarm.co.uk	13 December 2012	More
Cheneau	Trailers	Ireland	www.internationaltrailers.ie	13 December 2012	More
Various	Trucks	Leicestershire	www.valkermovements.co.uk 01530 279999	13 December 2012	More
All makes	Plant/Machinery	UK and Europe	www.diggermarket.com	13 December 2012	More

Figure 24: e-commerce mode via the platform

- In case the shipper owns/ has an available warehouse, it is possible to register the

warehouse into the system by filling in the following information:

- Dates on which the warehouse is available,
- Location,
- Type and storage capacity,
- Suitable type of cargo to be stored
- Security (video surveillance, guards, etc.)
- Other relevant information
- View related photos

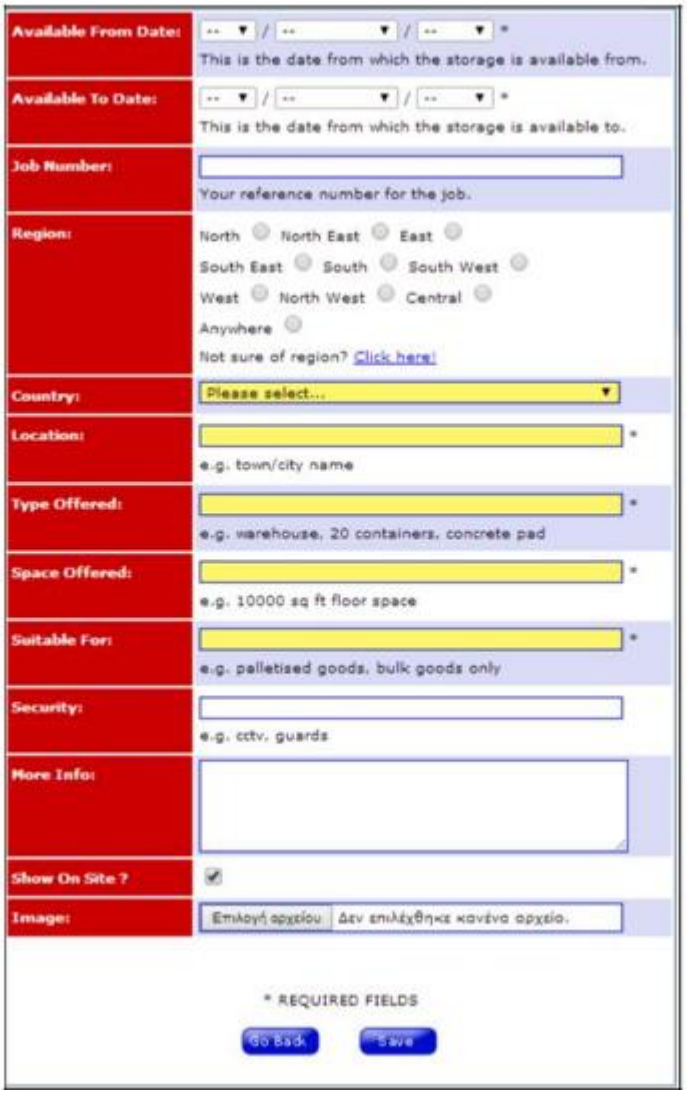


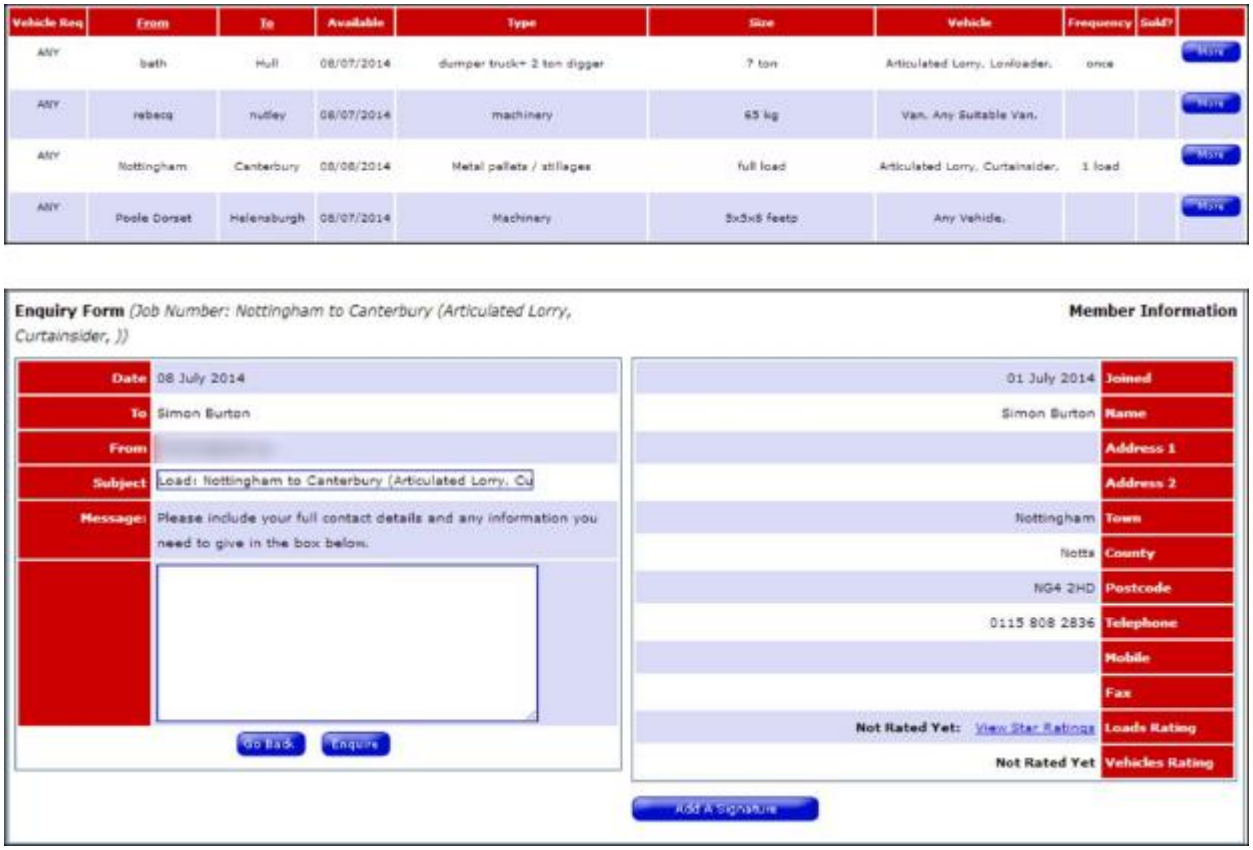
Figure 25: available warehouse registration form

3.4.2 Carrier services

- Registration of available truck vehicle by inserting the following:
  - Date beyond which the truck is available
  - Duration of vehicle availability and visibility of the platform,
  - Type of vehicle available,
  - Maximum permissible weight,
  - Capacity,
  - Frequency of carrying freight routes (once per week or month, etc.)
  - service points – i.e. places where the truck can pick up and deliver a load
  - View photos of truck.

Figure 26: Registration Form of available truck

- Selection, through the relevant list, and registration of the load transfer with all available contact details of relevant shipper.



Vehicle Req	From	To	Available	Type	Size	Vehicle	Frequency	Sold?	
ANY	bath	Hull	08/07/2014	dumper truck+ 2 ton digger	7 ton	Articulated Lorry, Lorloader,	once		More
ANY	rebecq	nutley	08/07/2014	machinery	65 kg	Van, Any Suitable Van,			More
ANY	Nottingham	Canterbury	08/08/2014	Metal pallets / stillages	full load	Articulated Lorry, Curtainsider,	1 load		More
ANY	Poole Dorset	Helensburgh	08/07/2014	Machinery	5x5x8 feeto	Any Vehicle,			More

Figure 27: List of available cargo for carriage and transfer vesting form with all available contact information shipper

- Also as in the case of the shipper, the carrier is capable of e-commerce function (e-shop).
- Search of available warehouses and booking process that meets the requirements of the carrier. In this case, the carrier is required to notify the contact details upon consultation with the shipper.

Type Offered	Location	Space Offered	Suitable For	Available From	Available To	
26,000 SQ FT RACKED STORAGE 1,000PLTS.STUFFING/DESTUFFING/REWORK.PICK.PACK/CROSS DOCK/DISTRIBUTION	NORTHAMPTON	26,000 SQ FT. PALLET RACKS FOR 1,000 PLTS PLUS FLOOR SPACE FOR BLOCK STACK STORAGE	PALLETISED GOODS	01/12/2013	28/12/2017	More
Secure site for LGV / HGV parking	Hilton, Derbyshire	Bays for 12 vehicles	trucks / LGV / HGV	01/08/2013	01/08/2017	More
Vosa approved HGT TEST CENTRE (ATF)	Junction 13 M1 01525 872466	Test lane	All classes of vehicle	12/12/2011	31/12/2014	More
Warehouse	Lutterworth	up to 10,000 sq ft	Palletised dry bulky freight	19/07/2012	19/07/2016	More
warehouse / containers / pallet. loose. pick and pack	Burton	100000	all goods	30/04/2012	01/01/2016	More
hard standing Granite floor. some concrete	east yorkshire	3 acres	trucks. trailers. containers etc...	23/11/2011	31/01/2015	More

Figure 28: List of available warehouse and capacity reservation form available to all administrator contact information

Also for both shippers and carriers some additional features are provided, such as the registration of a product for sale, evaluation of platform users and the activation of notification emails regarding new cargo entries for shipment and new available vehicles and warehouses.

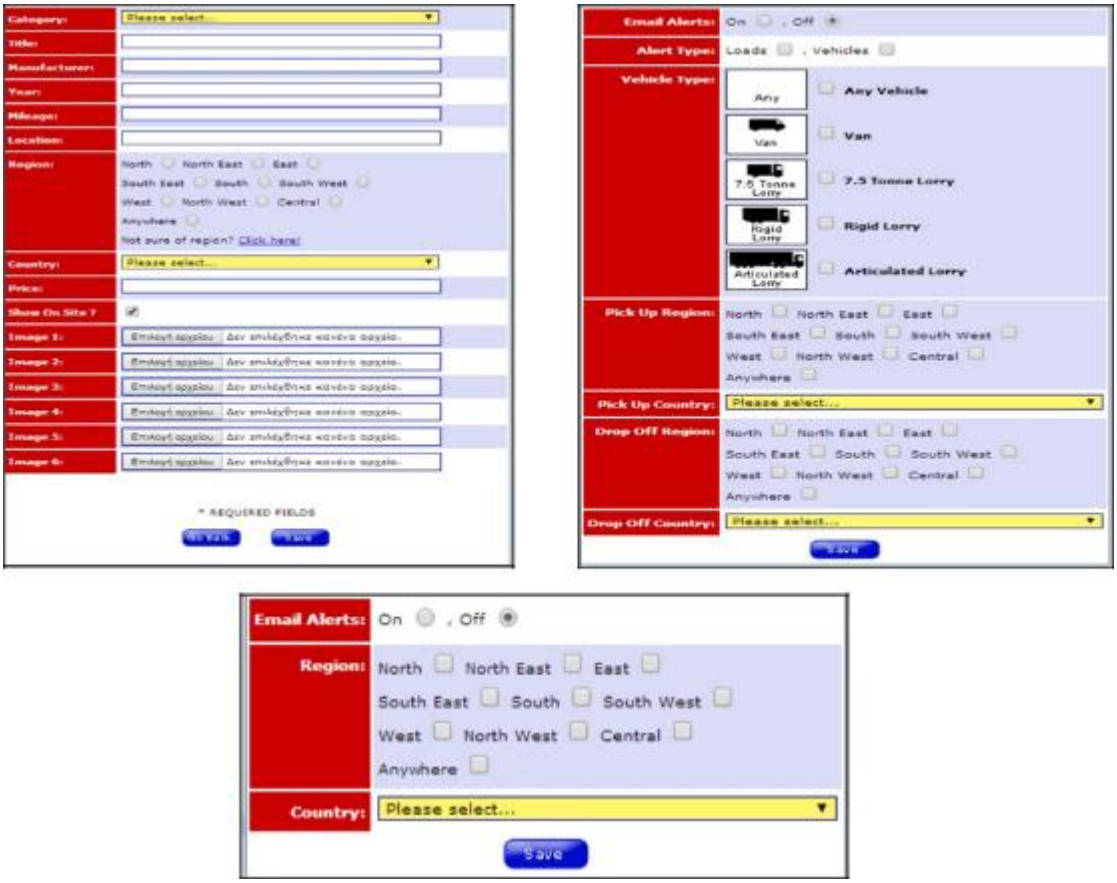


Figure 29: Product Registration Form for Sale and service notifications regarding new loads to be carried and available trucks and warehouses

3.4.3 Structure of the platform

The following diagram depicts the structure of "Truckspace" platform and the available possibilities offered for both shippers and carriers.

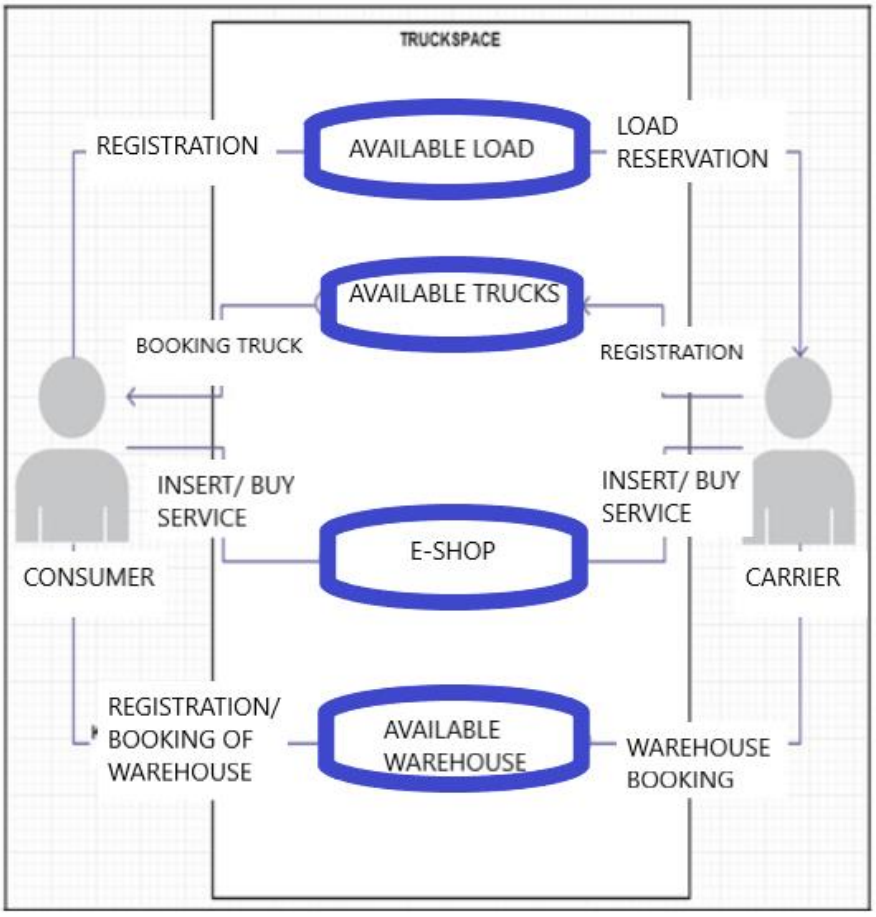


Figure 30: Structure of the platform and schematic illustration of the possibilities offered to the users - shippers and carriers

3.5 "CargoBid" platform

The "CargoBid" platform (https://cargobid.org/) was developed in Switzerland and provides services at both national and European level. The platform consists of a main database that contains all the registered cargo auctions and respective bids made. More specifically, the platform places a bigger emphasis on the clients' users rather than carriers who simply are bidding upon existing cargo offers, although both users register in the platform in a similar way (submit e-mail address, username, password). In this context, the system will be described for the clients and carriers together. Though, the only major difference between the two user profiles are the actions they take inside the platform.

3.5.1 Platform services

The platform provides the following services to the clients:

- Corporate profile

Each client – user after the confirmation of the registration is completed, can have an overview of all active auctions/bids in the "profile" section along with the personal details of the client's company. The user has to register the following information:

- Profile picture
- Location of client's company activity (operating countries)
- Company title, section and size
- Products/services for transport or for sale
- Payment methods & billing address (legal documents and bank account registration)
- Notifications & alerts preference list

In this section it is possible for the user to add contact groups via e-mail address or search them manually and add them and make "partner requests" with the same principle as in most social media channels.

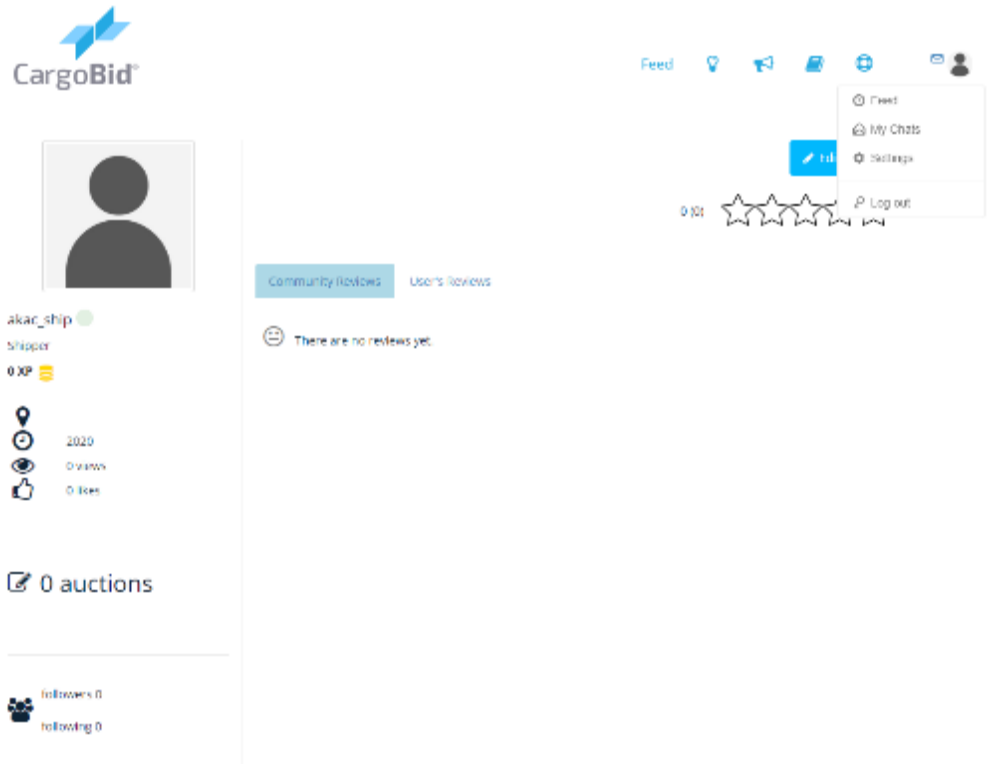


Figure 31: User profile overview

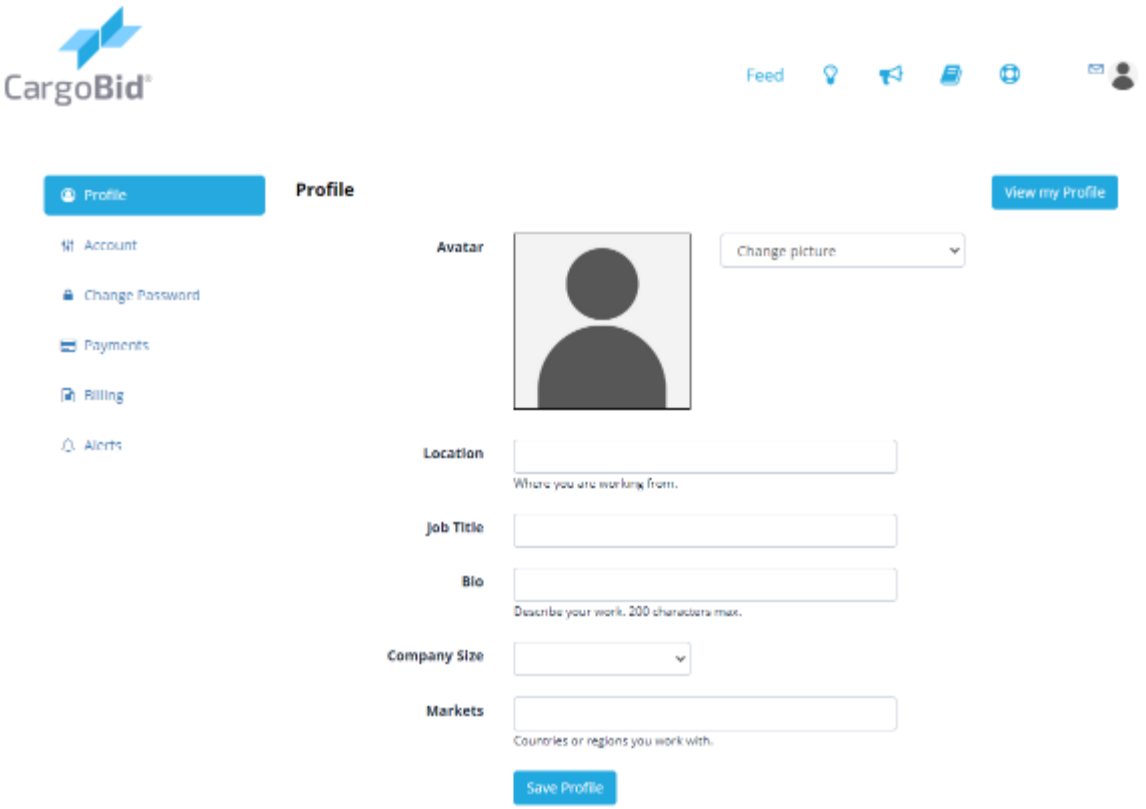


Figure 32: Edit account overview

- Main page – News feed

Each user has a main page containing a news feed of all the "partners" news/posts or updates about existing auctions/bids submitted or check listed.

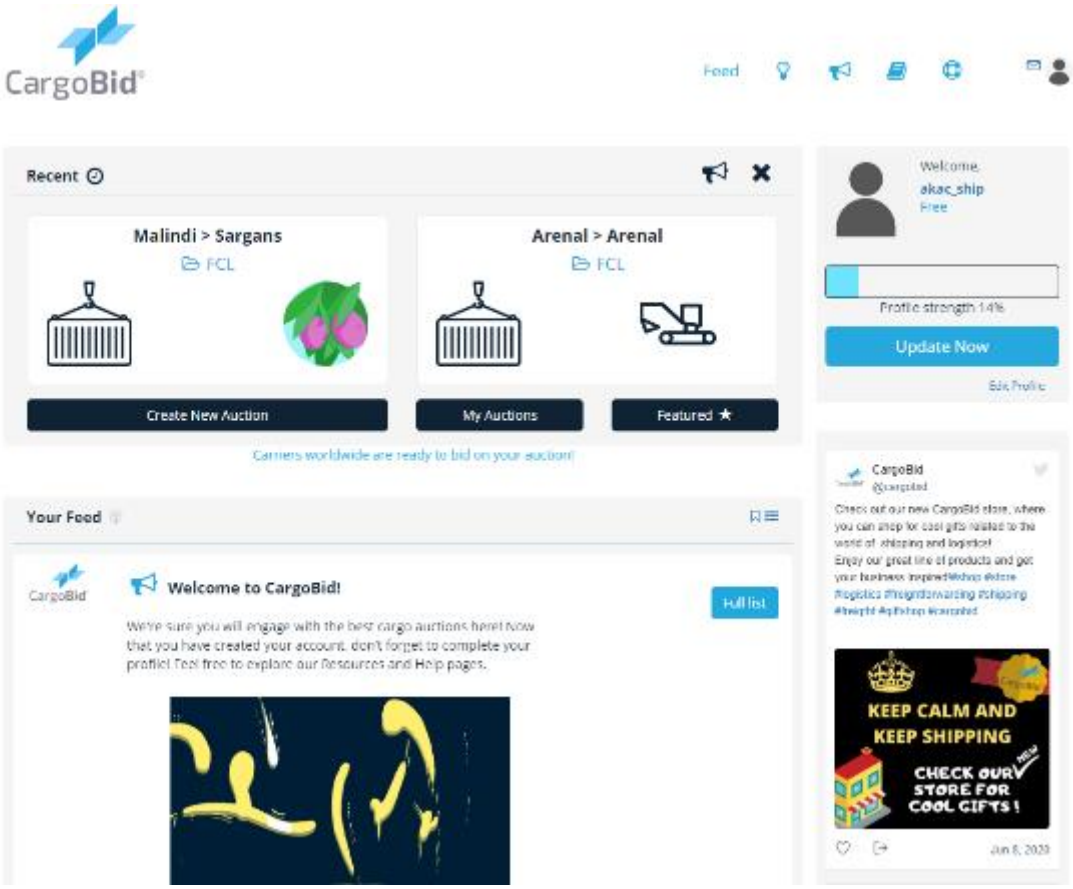


Figure 33: Main page – News feed section

- Personal chatbox

Each user has its personal communication channel, so called "chatbox" in which all parties that are involved in an auction bidding process can communicate through the portal and thus discuss upon financial and other terms.

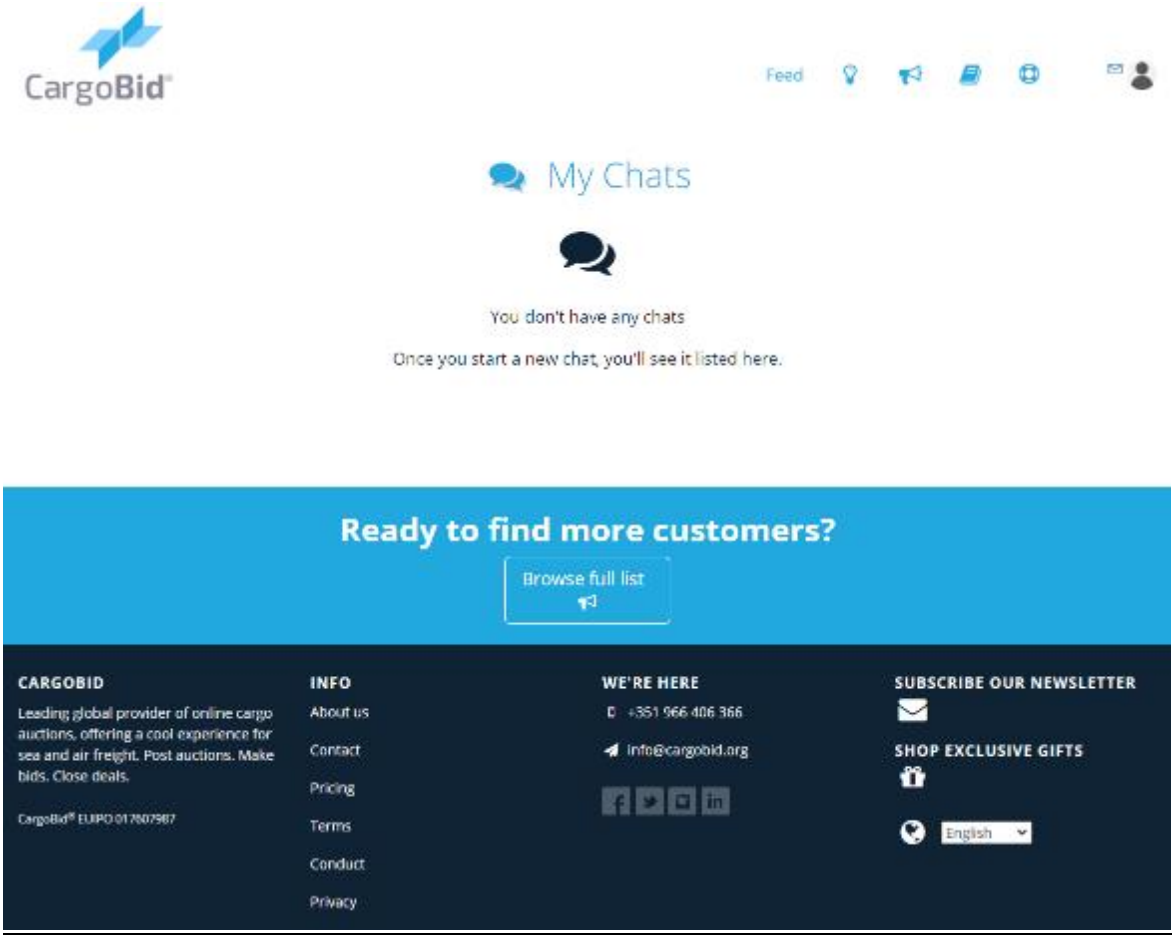


Figure 34: Personal mailbox page

- Guides

The platform offers to all users a detailed library of several guides that can inform the users about necessary regarding their cargo/container types, dangerous goods, trade/auction terminology, etc. This section assures the clarity of terms of use and legal aspects of the platform along with technical clarifications on auctioning procedures.

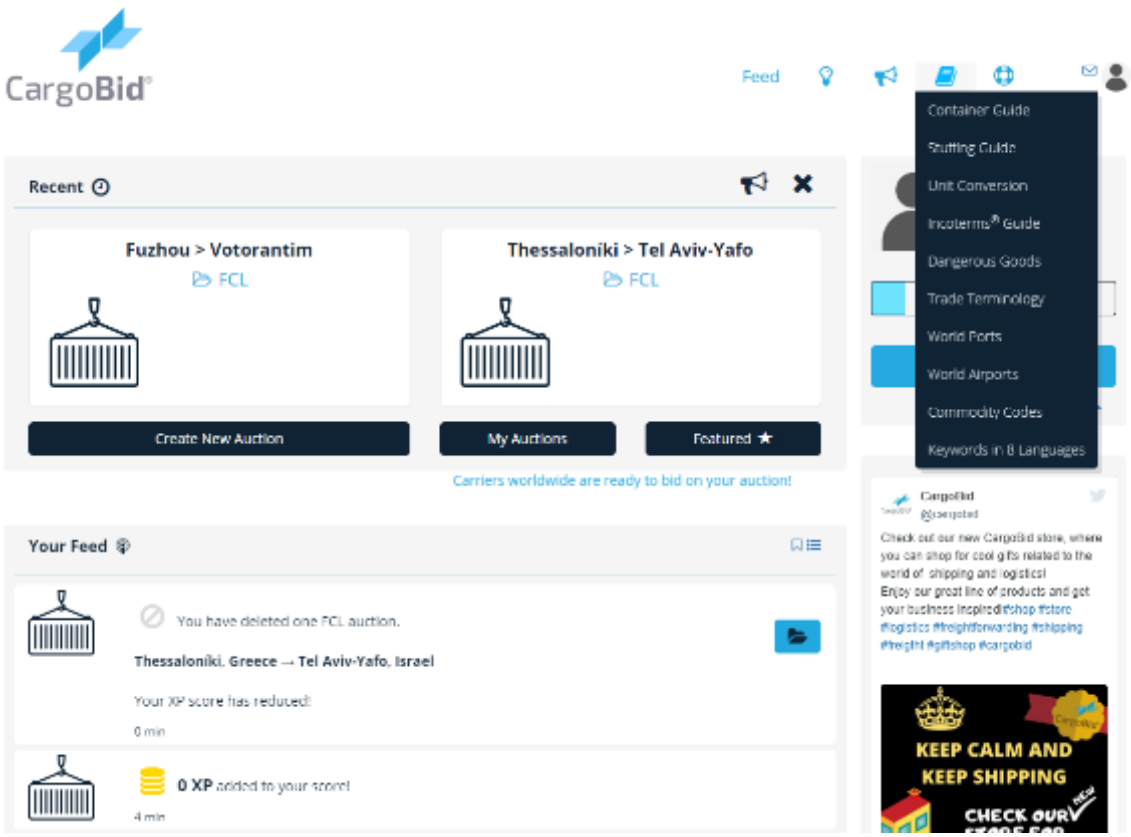


Figure 35: Main page – News feed section after submitted cargo/truck

- Cargo auction creation **(only for clients)**

The "Cargo Bid" platform's main module is the auctioning database that provides to its users. In this case, clients can post details about their cargo and receive offers from carriers about their transportation. This module supports four (4) types of cargo shipments:

1. Full Container Load
2. Less-than-Container (LT) Load
3. Non-Containerized cargo (bulk, ro-ro, special cargoes)
4. Air Cargo

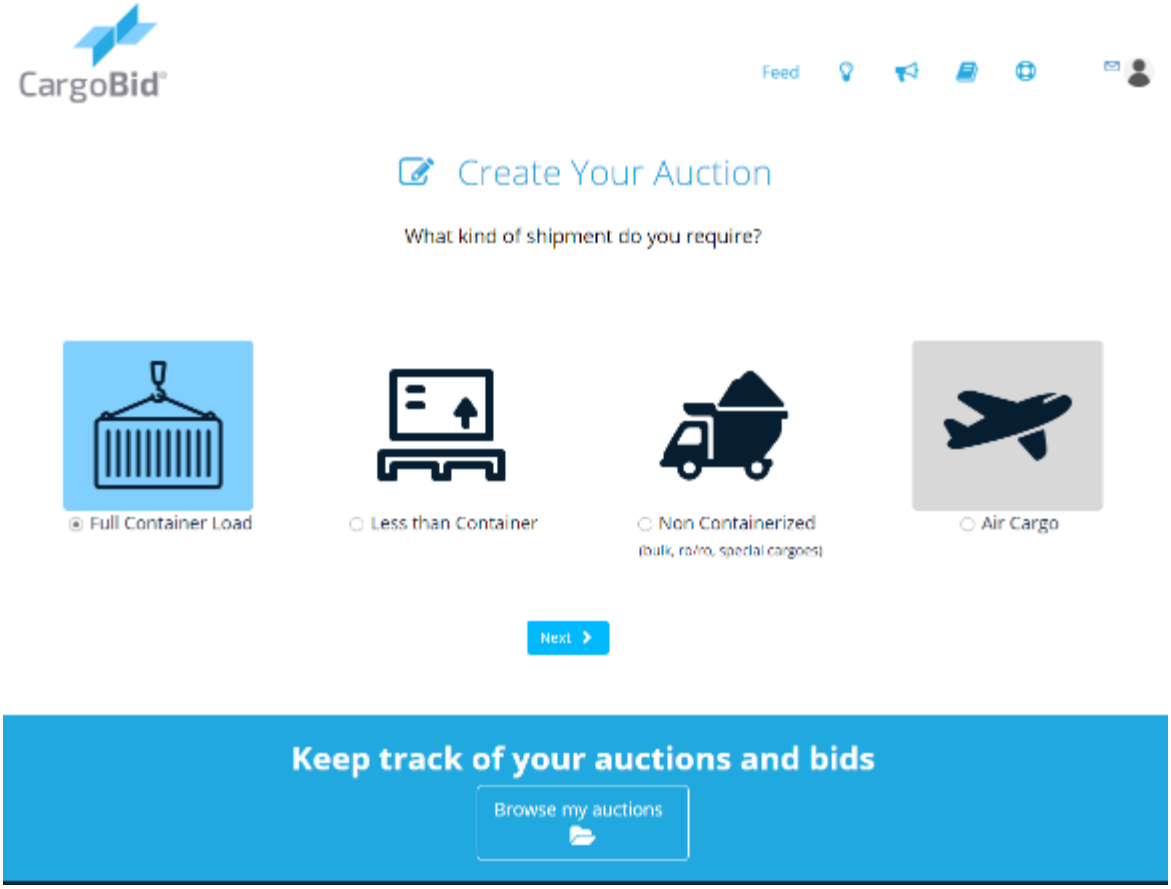


Figure 36: Auction creation module – Types of shipment

Each of these types of cargo has a different auction list, in which are posted. Once the client has selected their cargo shipment type, they are directed to a preliminary page in which they have to declare some information regarding their cargo shipment. This information is related to:

- Is the cargo liquid?
- Does the cargo requires temperature-control conditions?
- [Non-liquid cargo] Is the cargo over width (>235 cm) or over height (>251 cm)?

After this set of questions, a 5-step process starts for the auction post creation. The steps are:

1. *Pick-up & Delivery points*

   In this 1st step of this process the loading and delivery places are registered together with the respective pick-up or delivery addresses in case an inland transport is requested.

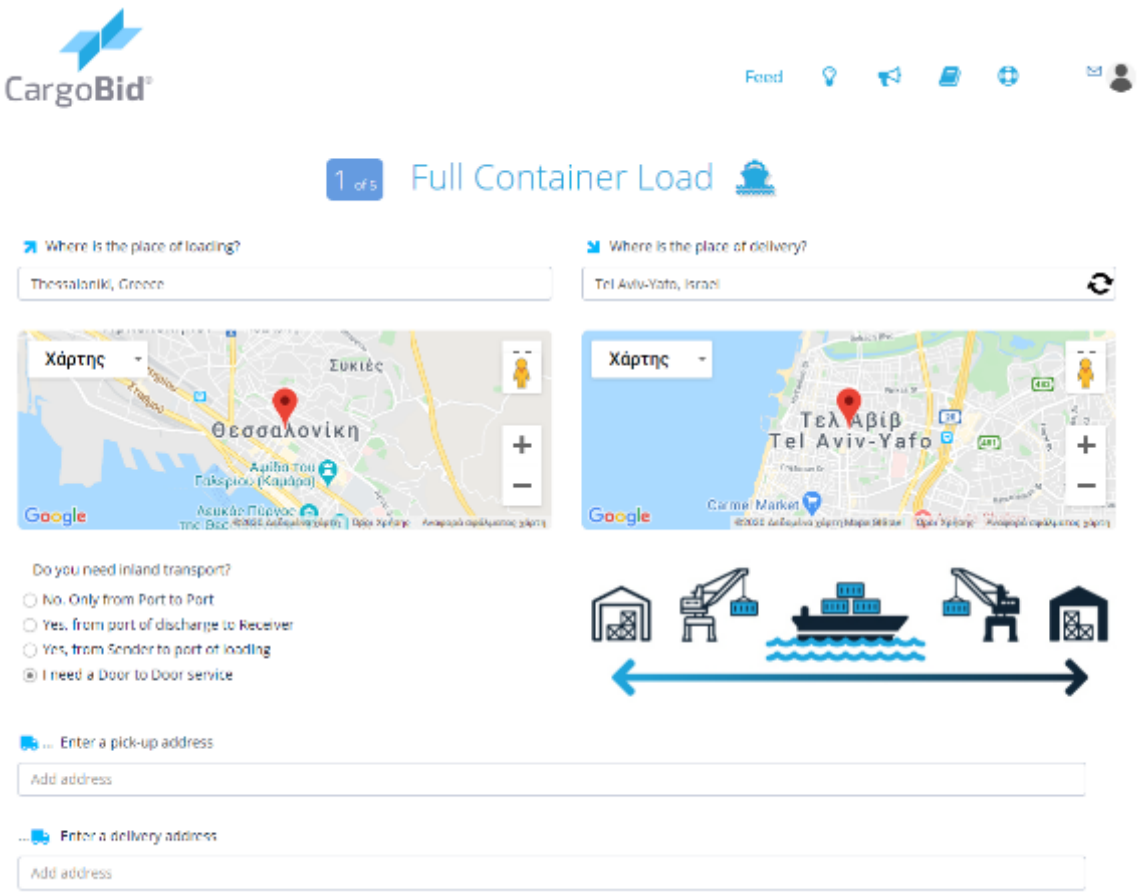


Figure 37: Auction creation module first step– Pick-up & Delivery points registration

2. *Container details*

In this 2nd step of this process the requested container information is confirmed: (a) container type, (b) amount of containers needed to be transported, (c) total cargo weight in different units, (d) "palletized cargo or not" confirmation

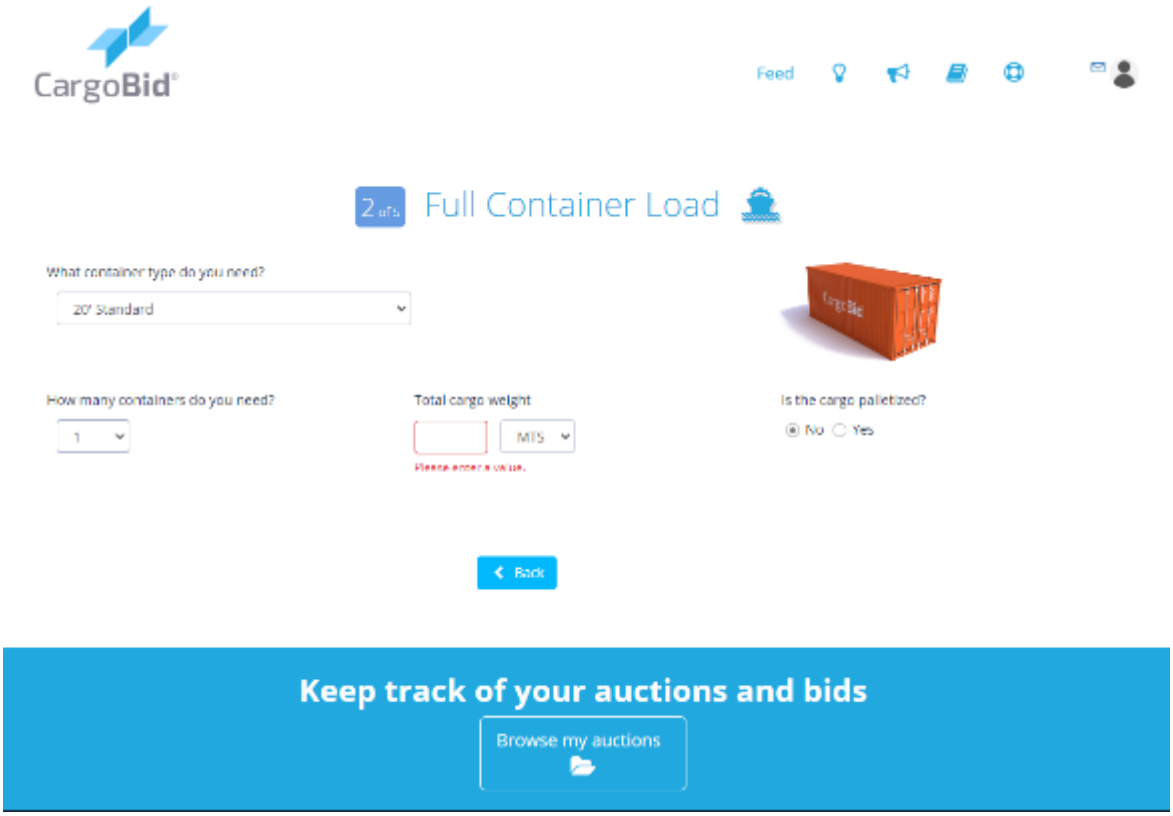


Figure 38: Auction creation module second step– Container details

3. Cargo details

In this 3rd step of this process the requested cargo information is confirmed: (a) goods description, (b) hazardous items (yes or no), (c) if cargo is classified as hazardous, hazardous goods IMO category.

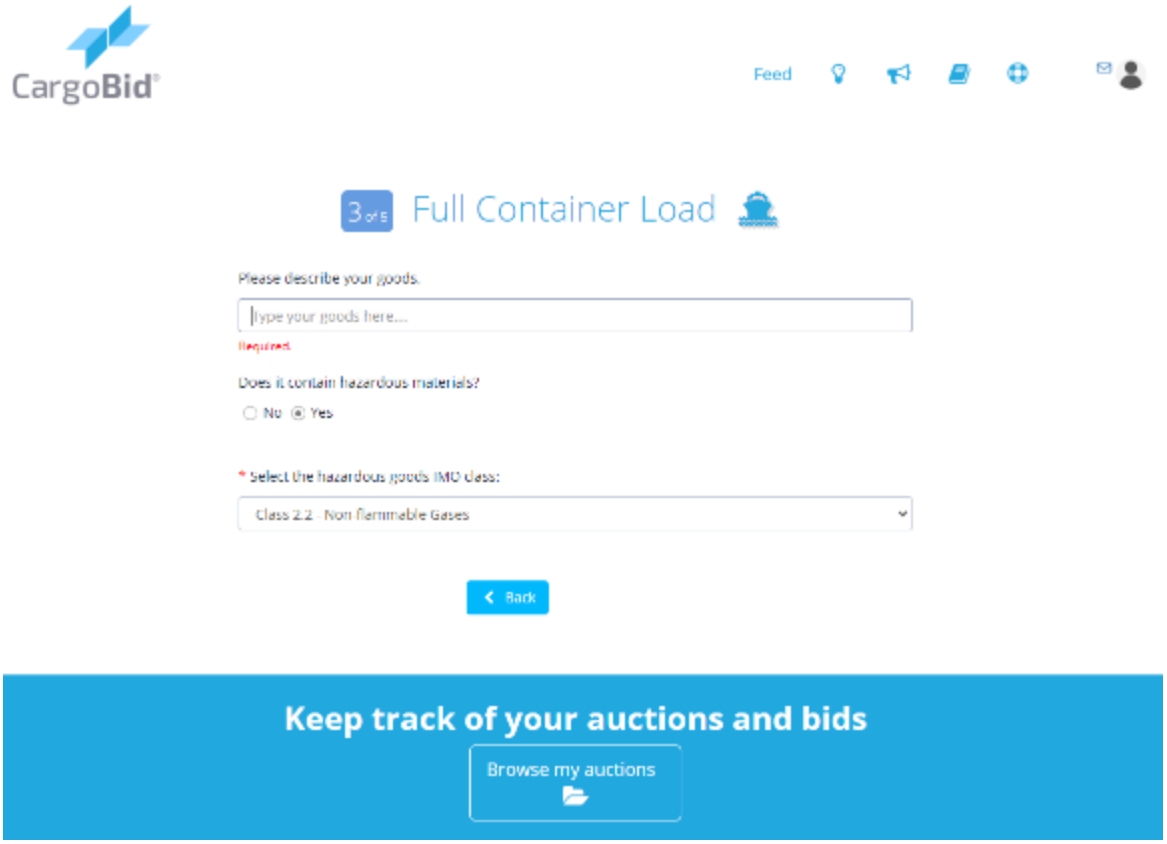


Figure 39: Auction creation module third step– Cargo details

4. Additional contact & cargo information

In this 4th step of this process a set of additional information are submitted regarding the role of client, any special shipment terms or comments.

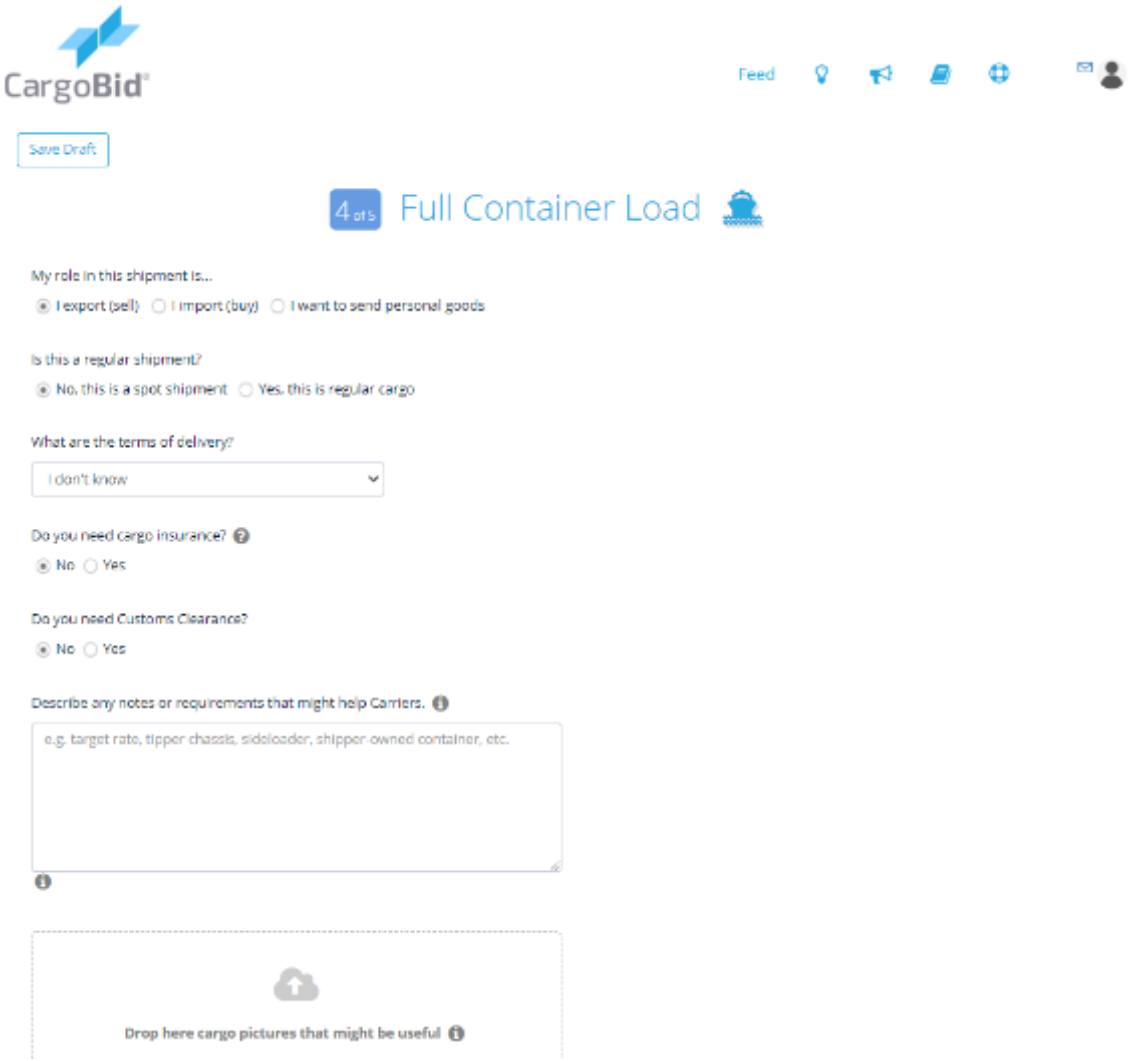


Figure 40: Auction creation module fourth step– Additional details on client & cargo

5. Auction list upgrade features

In this 5th and final step of this process the client decides if h/she wants to upgrade the status of the auction post in order to be appeared in higher order of the auctions list or be promoted inside the platform. This "upgrade" feature is available only to premium category users. After the completion of this final step, the auction has been posted and can be accessed by both clients and carriers in the respective auction listings.

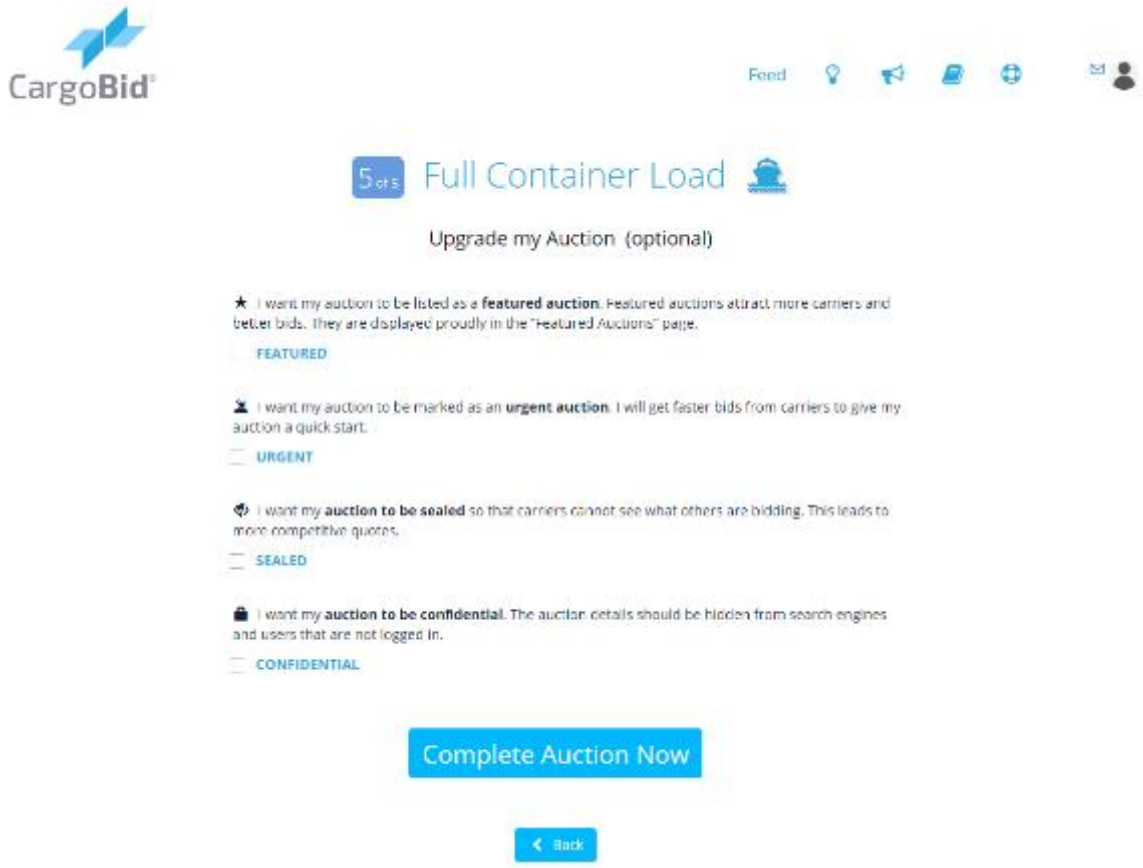


Figure 41: Auction creation module last step– Additional details on client & cargo

- Auction lists **(both users)**

In this main module, all auctions published can be viewed. The published auctions are categorized according to the respective type of cargo shipment (4 lists in total). Through this section, carriers can make bids on the published offers. Accordingly, the transaction process continues with acceptance/rejection of the offer from the client and internal communication within the interested parties via the platform's chatbox feature.

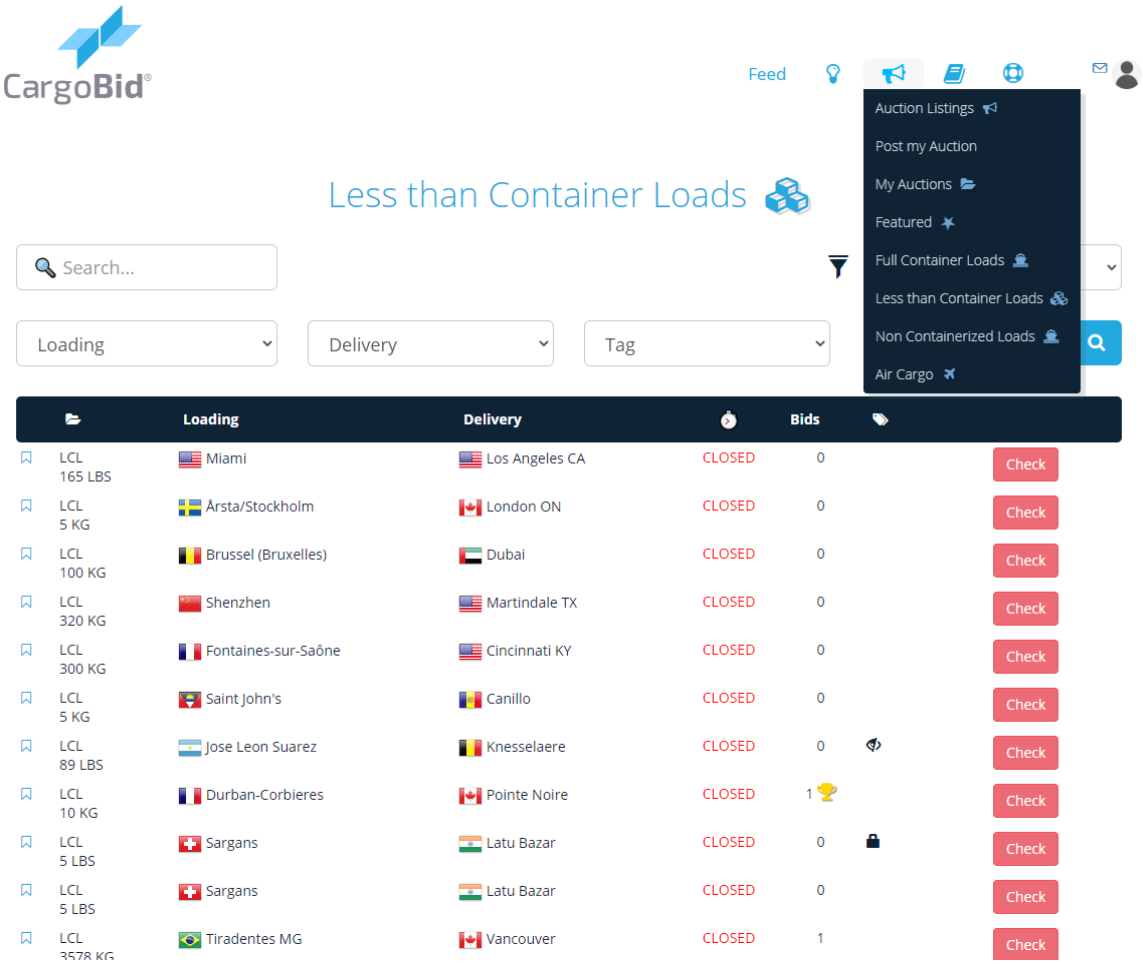


Figure 42: Auction listing – LT container loads

3.5.2 Structure of the platform and services provided

The following figure shows the structure of the platform "CargoBid" including all the individual subsystems as well as the functions they provide to both shippers and carriers.

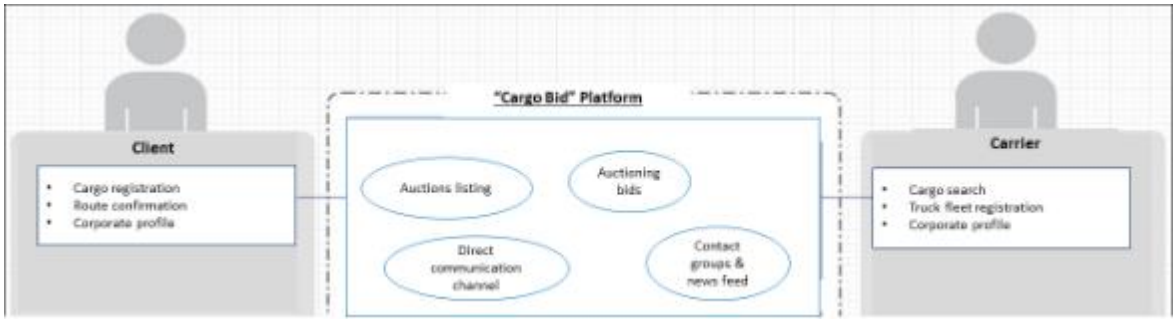


Figure 43: Structure of the platform and schematic illustration of the subsystems and services provided to the users - shippers and carriers

3.6 "TimoCom" platform

The "TimoCom" platform (http://www.timocom.de) was developed in Germany and provides services at both national and European level. It is worth mentioning that the platform and its services are available in several languages including Greek and Bulgarian. As the provider of Europe's first Smart Logistics System, they are expanding the logistics industry using smart, safe and simple solutions to meet the daily challenges faced by their customers, who represent a neutral network of over 43,000 verified companies. (TimoCom, 2020).

The platform offers an access to the Europe's largest freight exchange (Hänel, 2017). The freight forwarders and transport operators could select from up to 750,000 international freight and vehicle offers daily. They could find business partners amongst over 130,000 users and could avoid expensive empty runs.

The possibilities offered by the platform are related to two main areas: freight and vehicle space.

3.6.1 Shipper services

The platform TIMOCOM requires a registration and offers its services free of charge for up to 4 weeks. The monthly rate for subscription to the Platform is 159 EUR, and the provider offers quarterly installments of 430 EUR per user, including 3 registered officers. The freight exchange and its login software provide quick and efficient action on the spot market. Whether service provider or transport customer the user can find the business partner he/she are looking for.

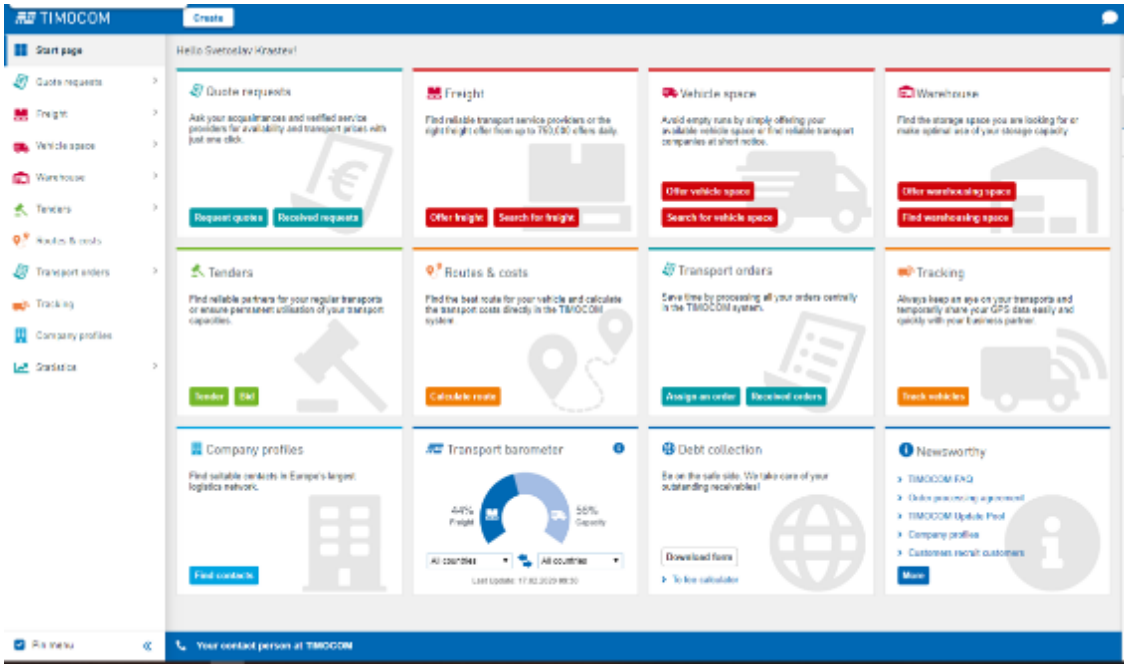


Figure 44: Home page of the login software TIMOCOM

Main advantages of the platform are related to the opportunity to profit from new business connections, increased turnover and fewer empty runs. The platform offers as well to its users to take advantage of special offers for courier express package services (CEP) or to use its transport barometer app to find freight and vehicle space whilst on the go.

Using the freight entry and freight summaries sections permit the users to find and arrange shipping for goods of all sorts. The transport customer should describe the shipment with as much detail as possible, including:

- size of the shipment,
- type of the shipment,
- weight of the shipment,
- origin and destination.

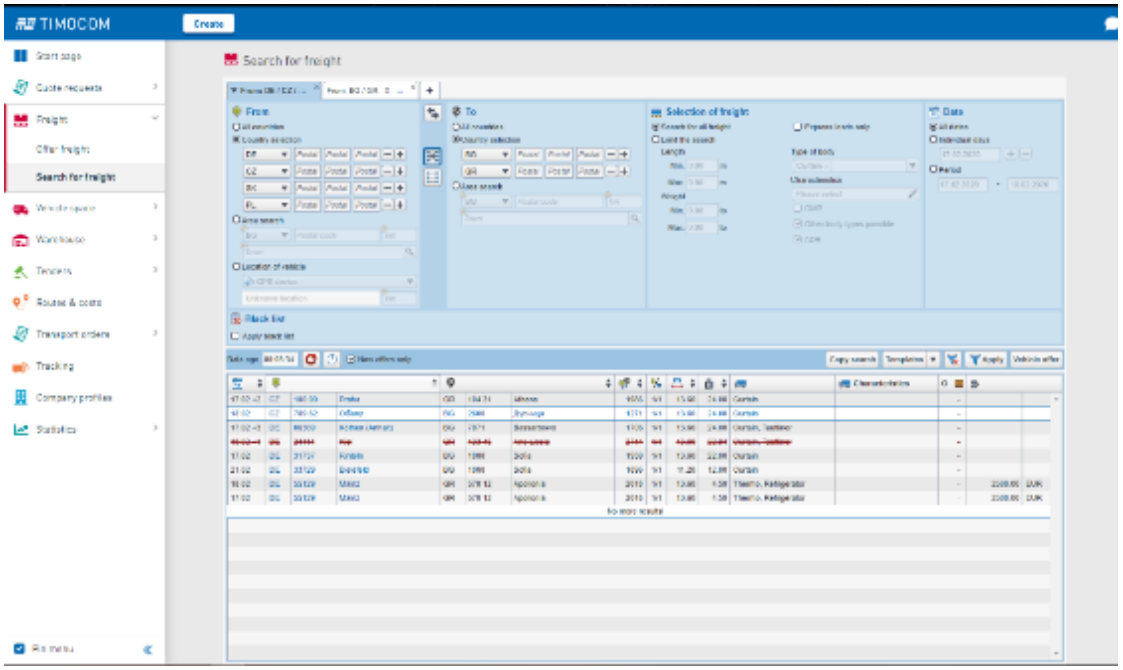


Figure 45: Search for freight

This makes it easier for those searching for freight to understand exactly what the shippers need, and they could be contacted more quickly. Respectively, service providers use lists in the freight search section to find the right load for their available vehicle space quickly. By clicking on the offer, service providers see the shippers contact information and can contact them, their potential business partners, directly.

The users could choose between different offers depending on the country of origin and destination.

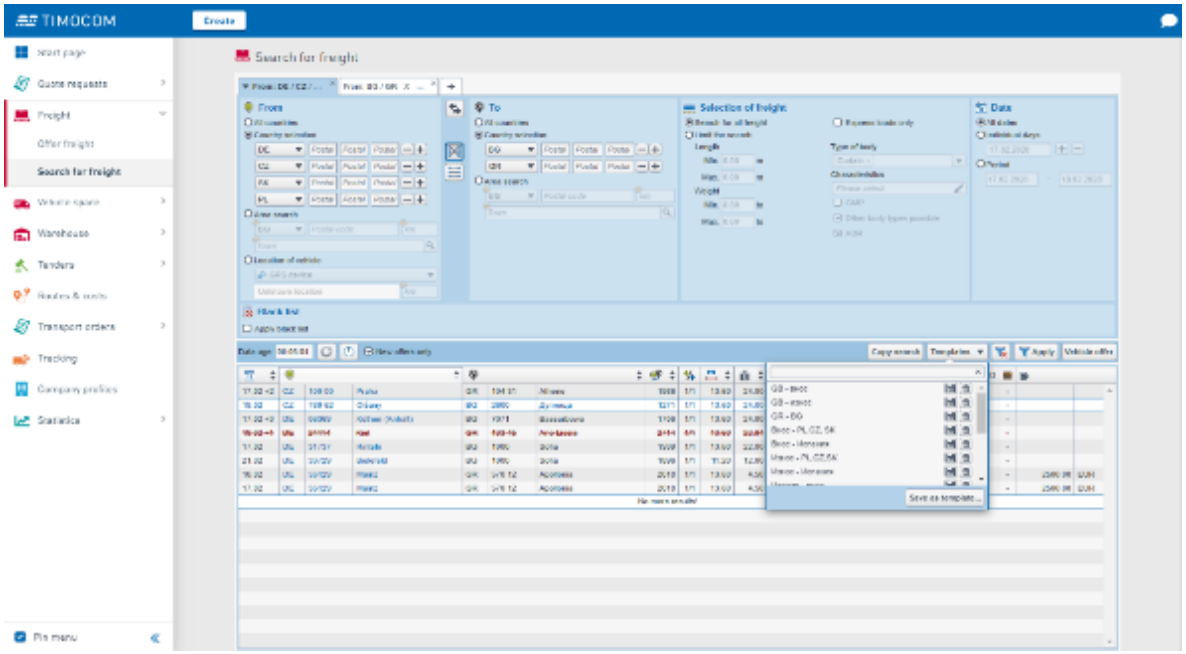


Figure 46: Search for freight by origin and destination

The user can choose the detailed view in a freight offer to find more information on the selected freight. By clicking on the offer, service providers are shown shipper's contact information and can contact them directly.

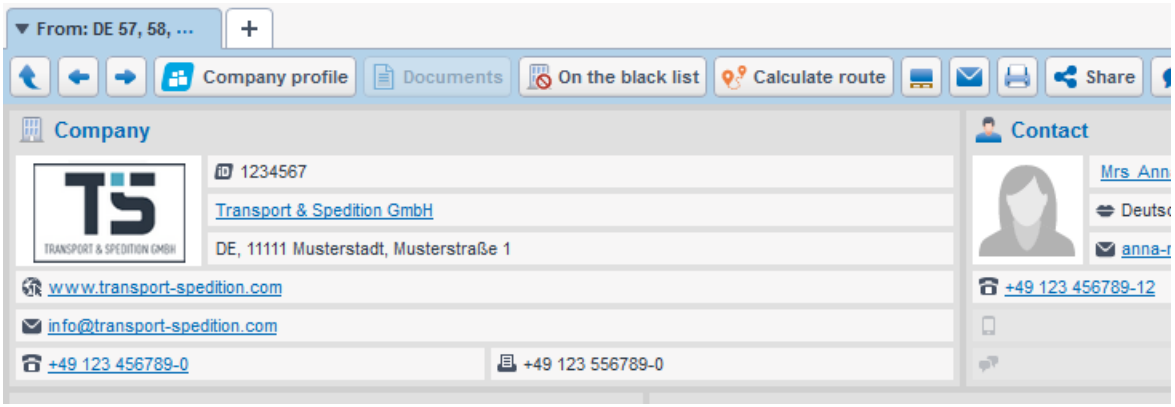


Figure 47: Freight offers – company profile

The shippers can find and assign all types of goods using the freight entry and freight summary section. They can describe their shipments' size, type, weight, origin and destination (incl. loading and unloading places) with as much detail as possible. This makes it easier for those searching for freight to find exactly what they need, and the respective shipper will be contacted more quickly.

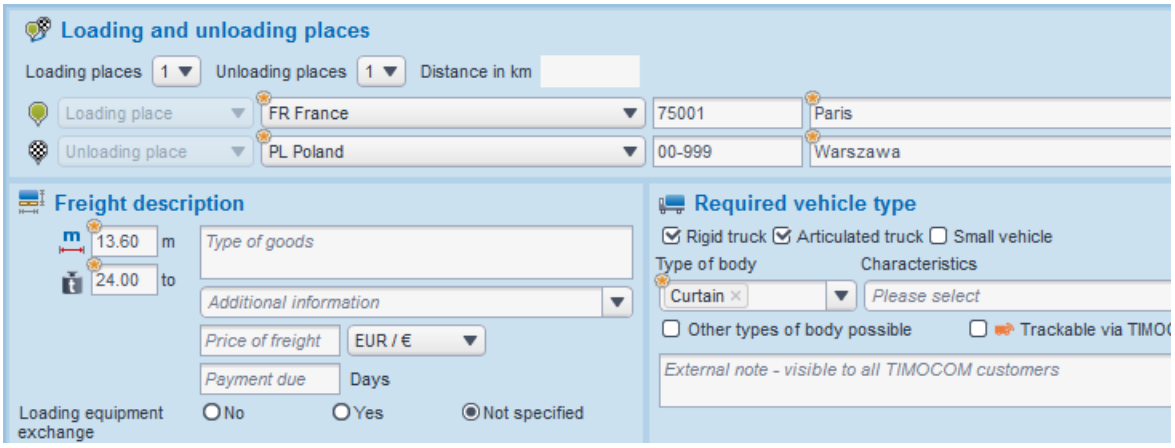


Figure 48: Registration form of freight for transport

The shippers of can send requests to carriers for the selection of the optimal services. They could discuss the conditions and different clauses of the services by using Quote requests menu of the platform.

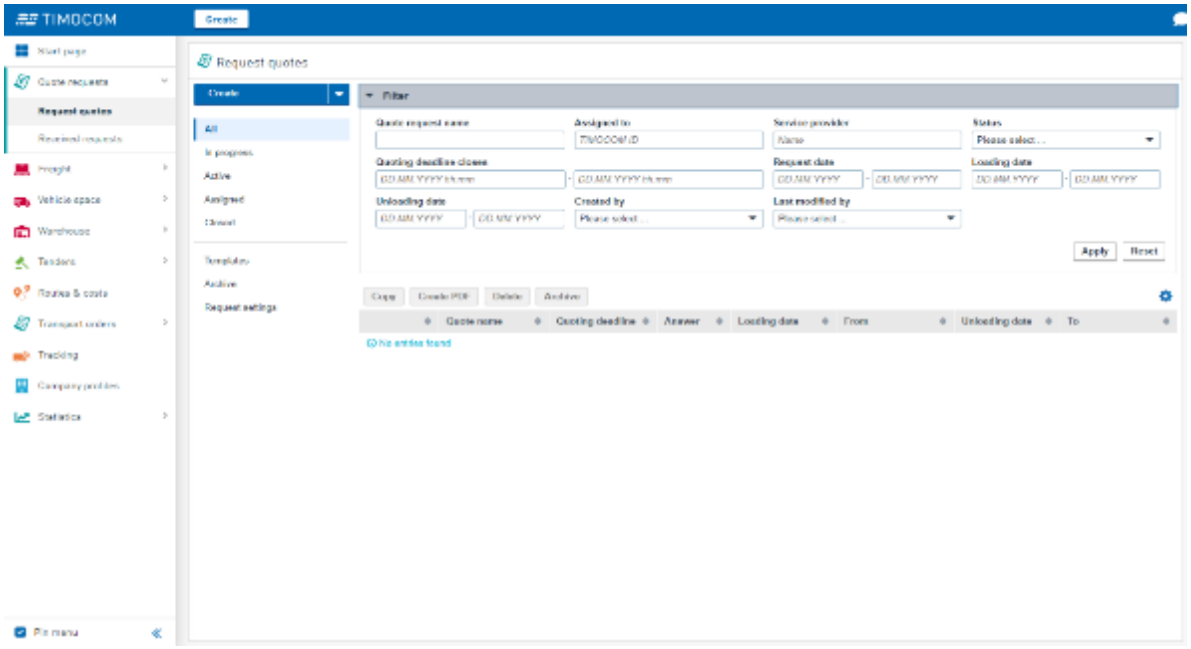


Figure 49: Request quotes form

The carriers receiving the request quotes could access detailed information about the shipments and could answer to their customers directly through the platform.

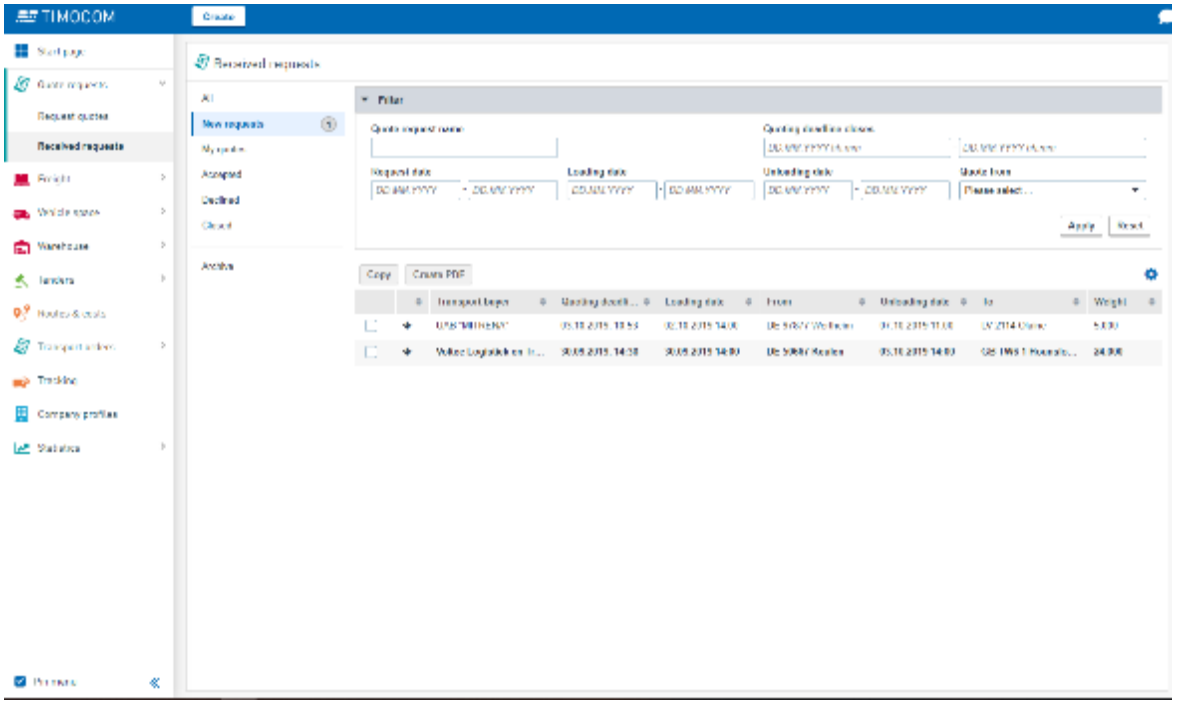


Figure 50: Received requests by carriers

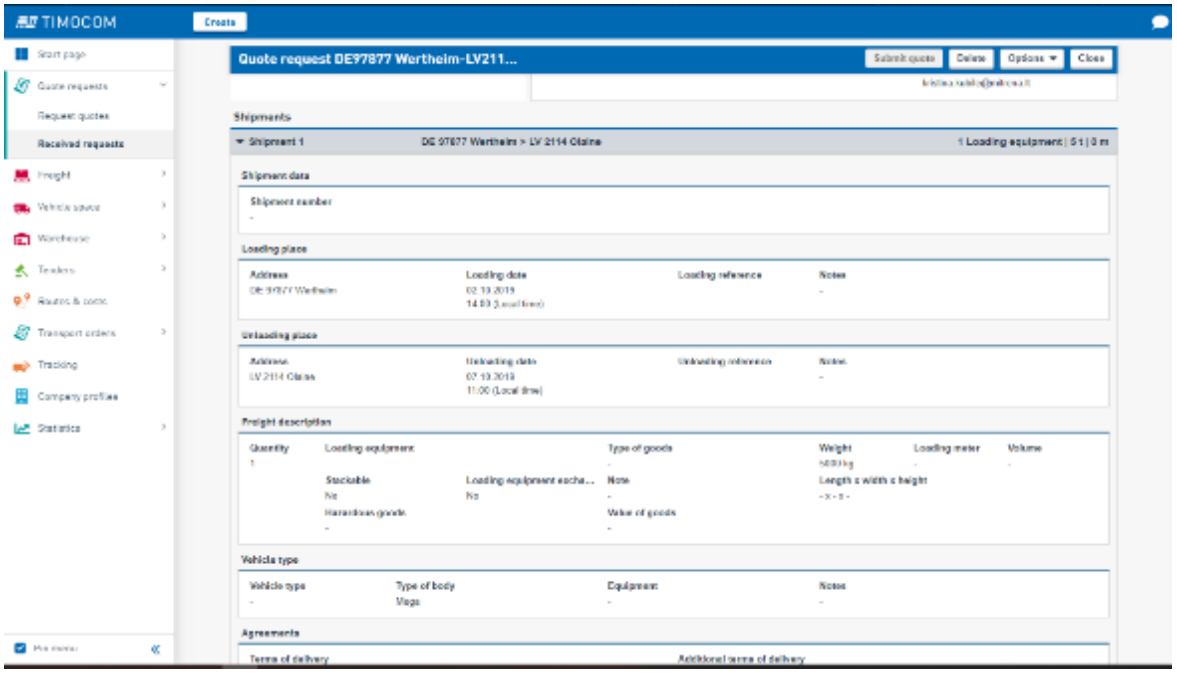


Figure 51: Received requests details

After the exchange of messages through the Request quotes menu, each shipper - user of the platform is able to submit transport orders. More specifically, the loader inserts the information about loading and unloading places, contact details of a shipper and the receiver of the shipment, and the company that wishes to send the request. Then, the shipper fills in the drop in/off zones and dates of receipt / delivery of cargo, equipment required to enable the loading process, other

details regarding the cargo transfer and the code name of the load. The system allows the shipper to declare more than one load.

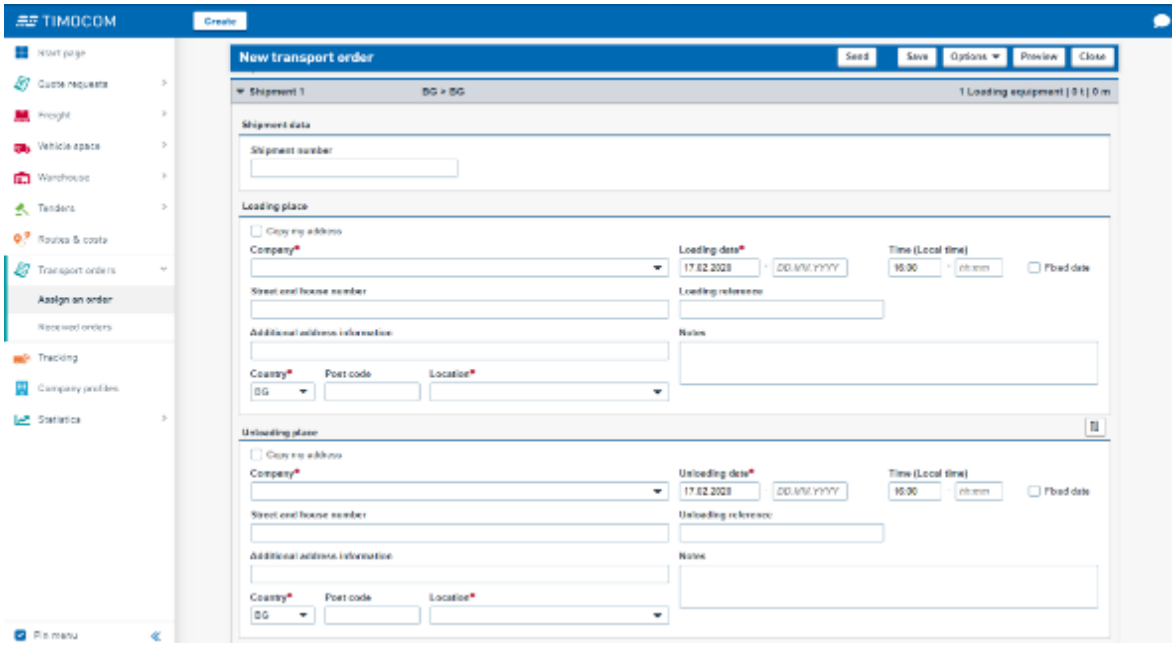


Figure 52: Transport offers form

After completing the form, the application - order is sent automatically via e-mail recipients – carriers and they could check and answer by suggesting appropriate vehicle or vehicle space.

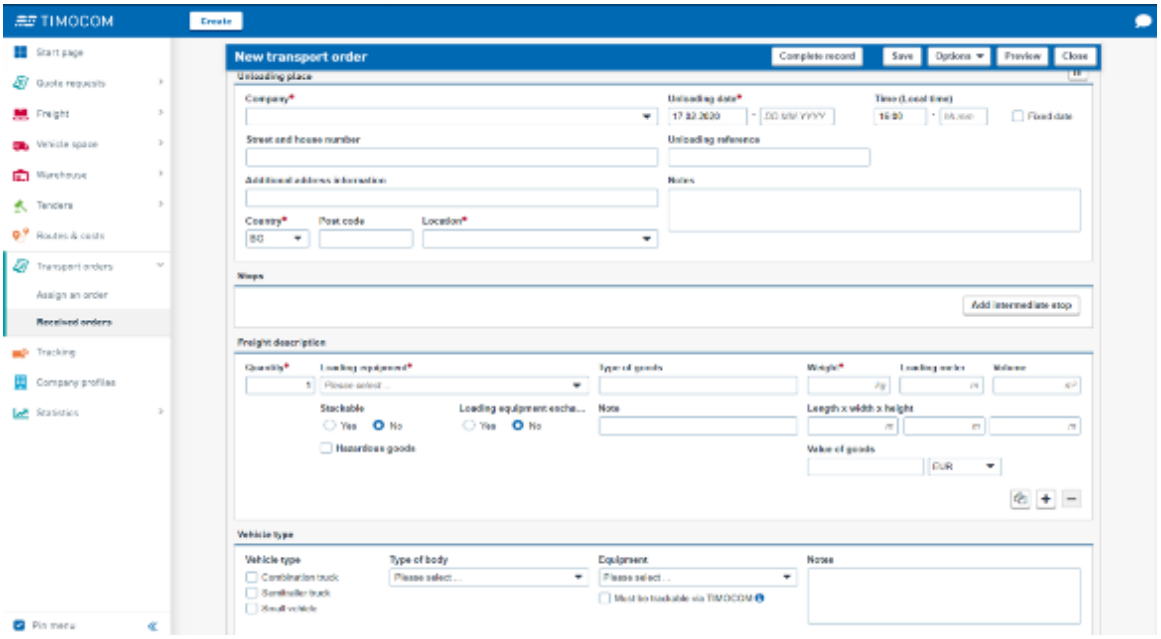


Figure 53: Received offers

3.6.2 Carrier services

To support the transport operators as they make full use of vehicle capacities, the platform presents

to them vehicle entries section within the Smart Logistics System. As service providers, the companies can enter vehicle space offers with information on:

- vehicle type,
- volume/weight,
- date,
- current location and
- Destination of the vehicle.

This way they could avoid both empty runs and unnecessary costs. The transport customers vet can click on service providers' offer and have the option of contacting them directly to organize transport orders.

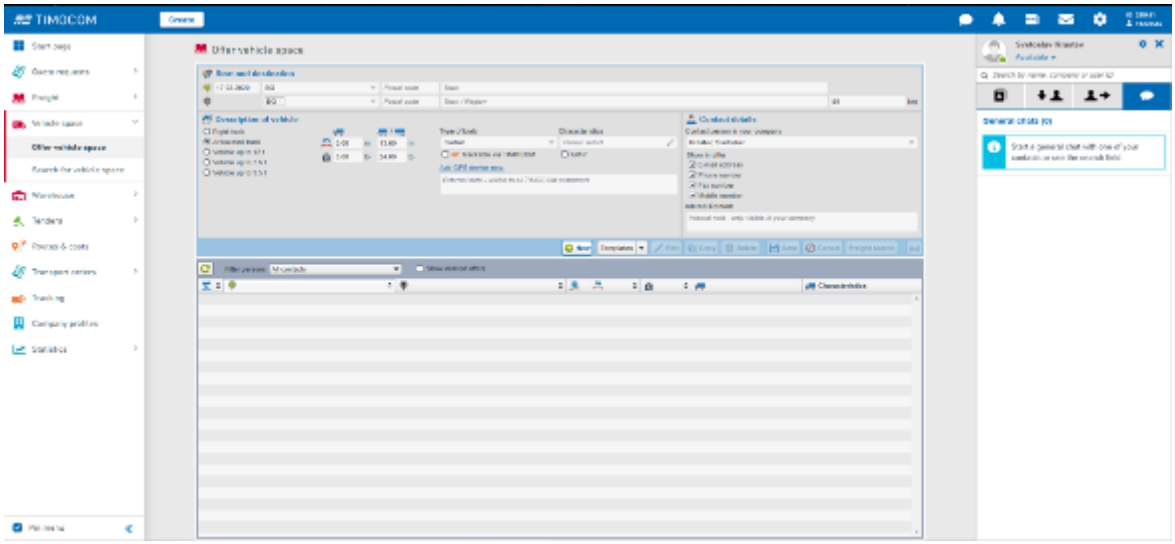


Figure 54: Vehicle space offer

As service providers, transport operators can use the user-friendly vehicle entry section to enter vehicle space offers with information on vehicle type, volume/weight, date, current location and destination of the vehicle. This way, they avoid both empty runs and unnecessary costs. Potential transport customers can contact the transport operators by simply clicking the offer.

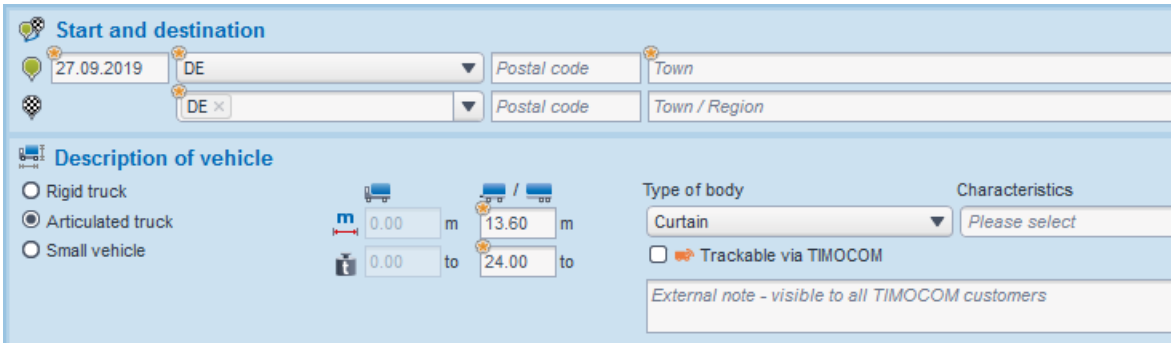


Figure 55: Registration form of available truck vehicle

Registration of available truck vehicle by inserting the following:

- Destination for which the truck is available,
- Type of vehicle available,
- Maximum permissible length,
- Maximum permissible weight,
- Type of body,
- Other characteristics.

The platform provides choice of available vehicles registered for the transport of cargo. The menu "Search for vehicle space" enable the users to book vehicle space and access to the contact details of the respective carrier.

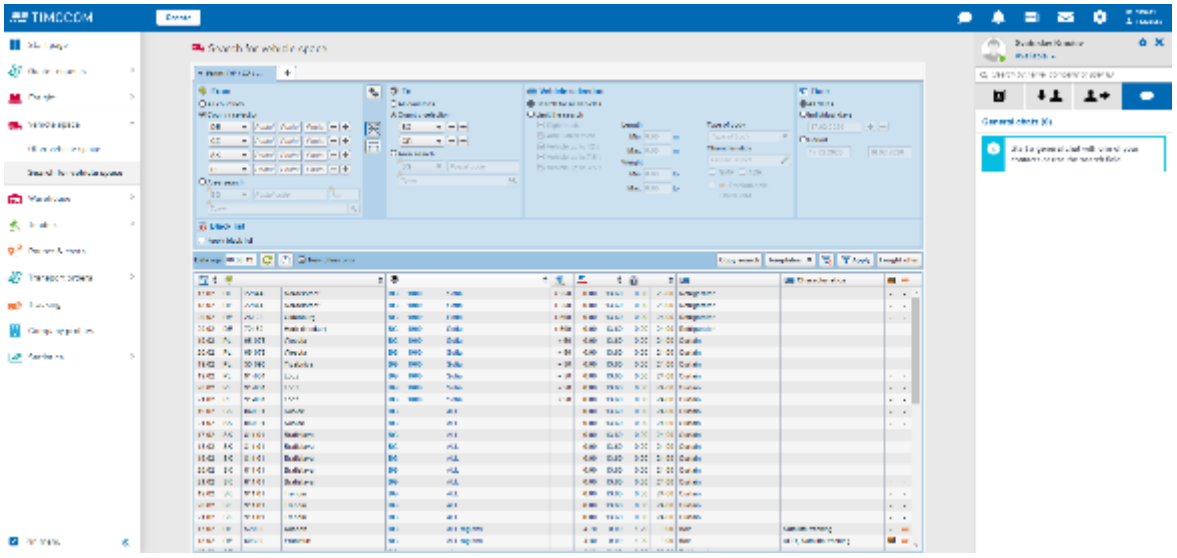


Figure 56: List of available trucks and vehicles with carriers' contact information

Another functionality provided by the platform is to search and offer for available warehouse spaces and booking process that meets the requirements of the carrier. The users can offer warehousing space by filling out the location of the warehouse, the period of availability of respective space, storage size, the price per unit per month, type of cargo, necessary storage equipment and the contact persons upon consultation with the warehouse operator.

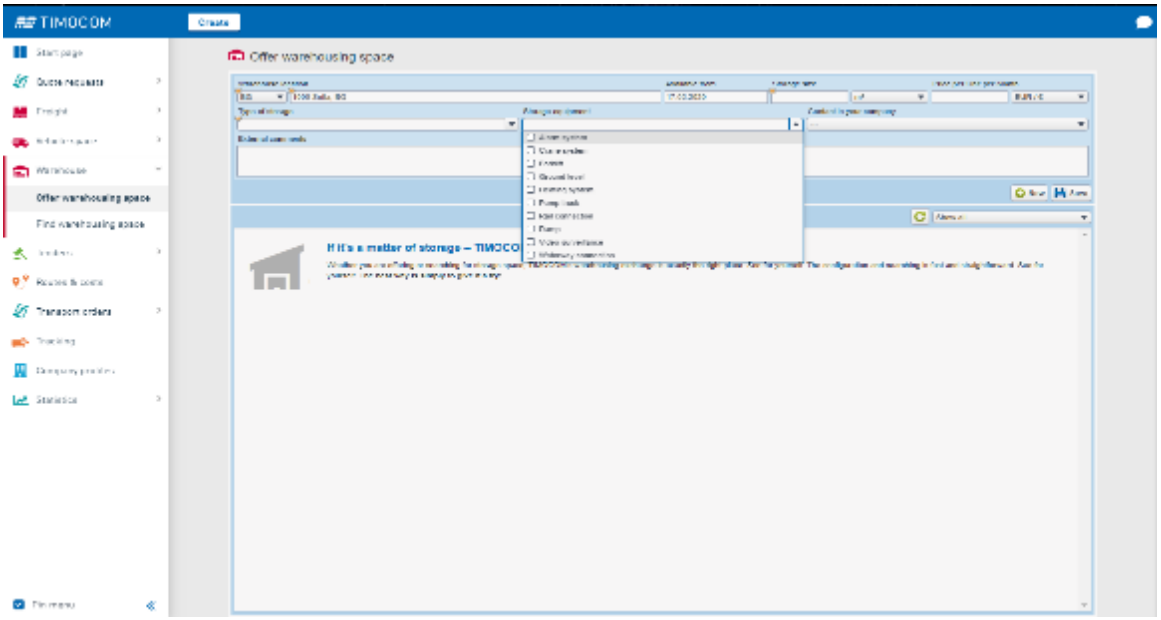


Figure 57: Offers for available warehousing spaces

Looking for available warehousing space, the users could fill in entry section to look for a space in certain location, certain type of storage or to look through the list of available free spaces provided by other users.

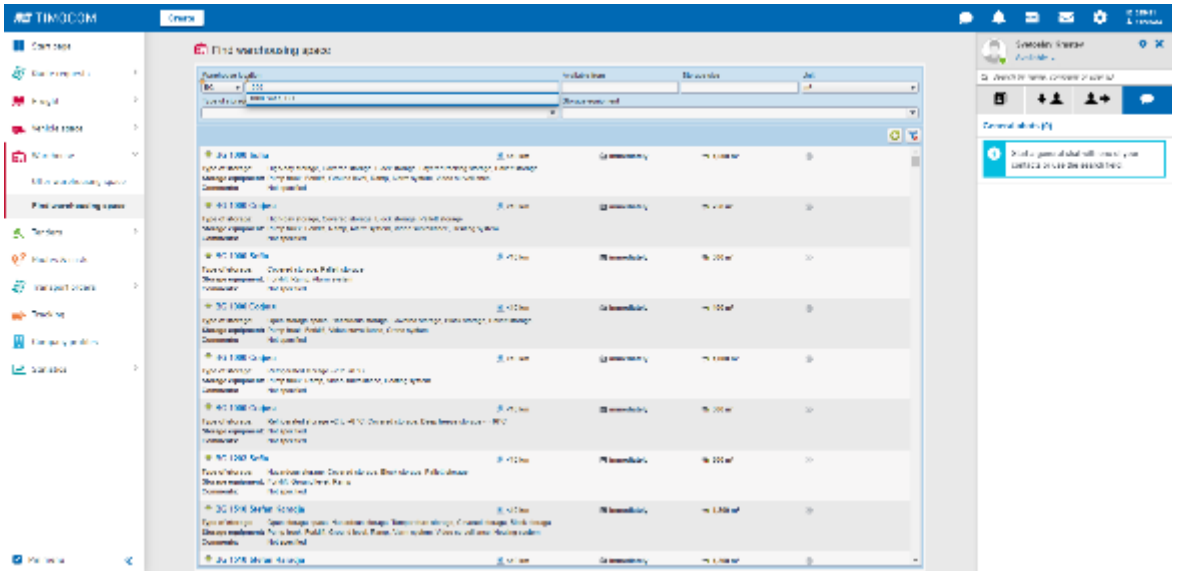


Figure 58: List of available warehousing spaces

Apart from the details that the users receive about the transport of a cargo, the platform provides additionally an interactive map for tracking the vehicles. Respectively, the users can request tracking permission from their transport service providers, and they can monitor the transport on a map and receive detailed information about the current location of the shipment.

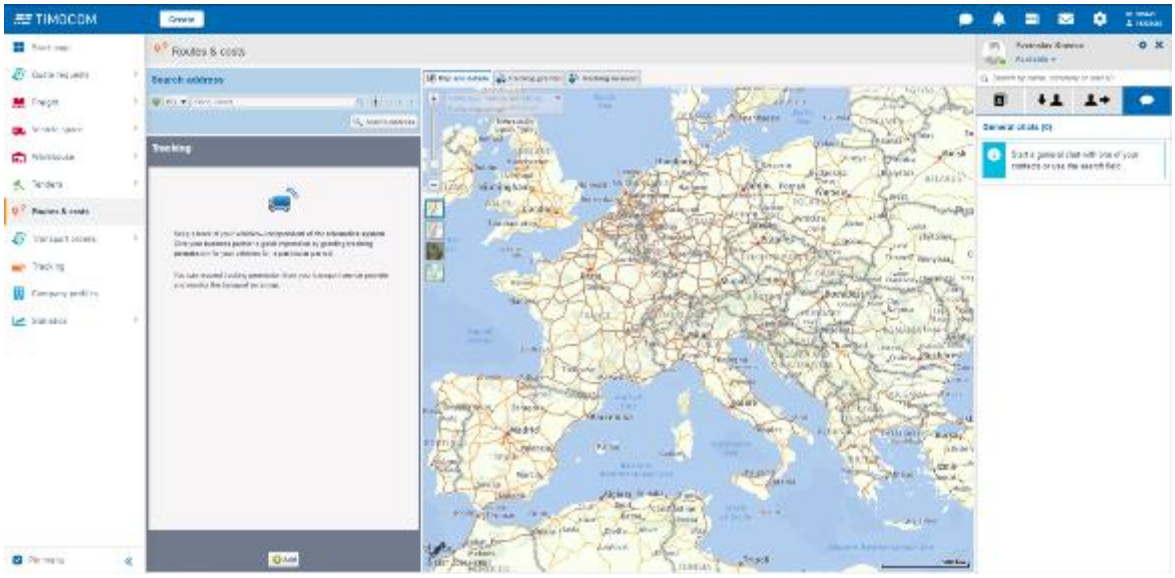


Figure 59: Maps and details for tracking vehicles

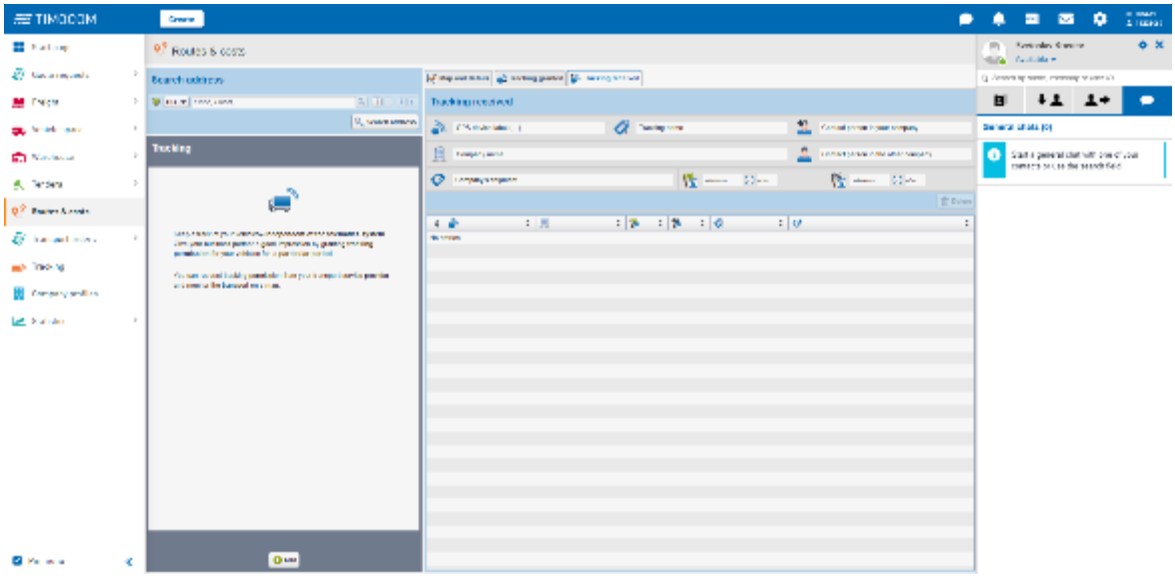


Figure 60: Transport monitoring

3.6.3 Tenders and bids

The shippers and carriers can arrange e-tenders by creating new tenders. They can create new tenders choosing between the options for routes and areas.

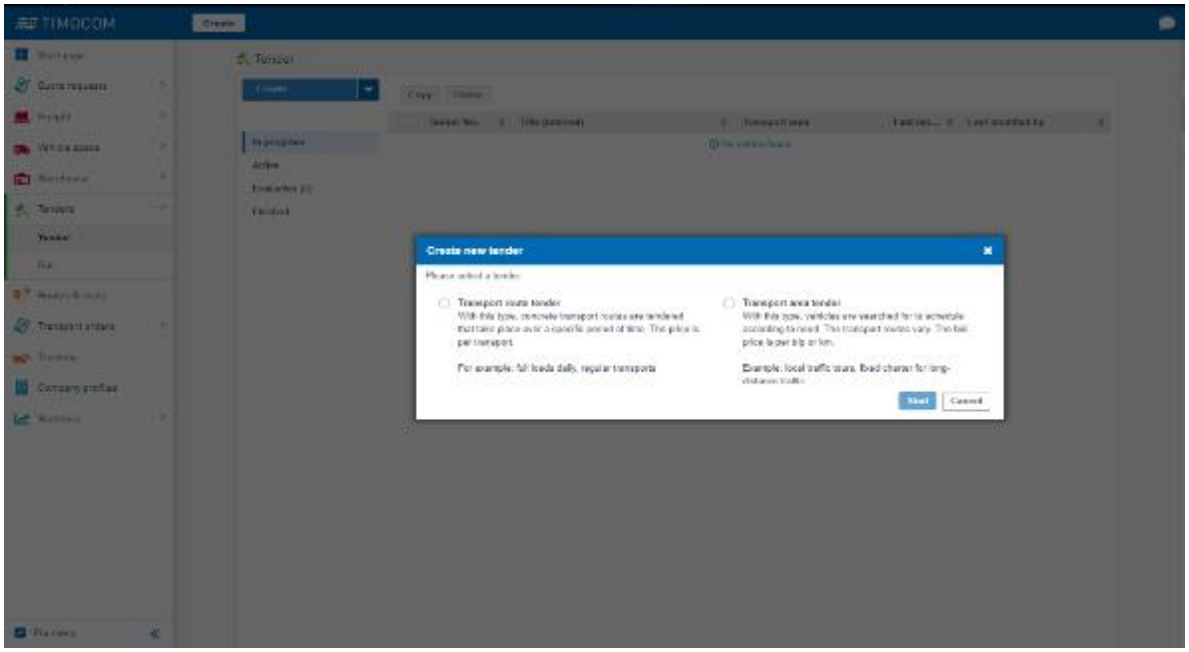
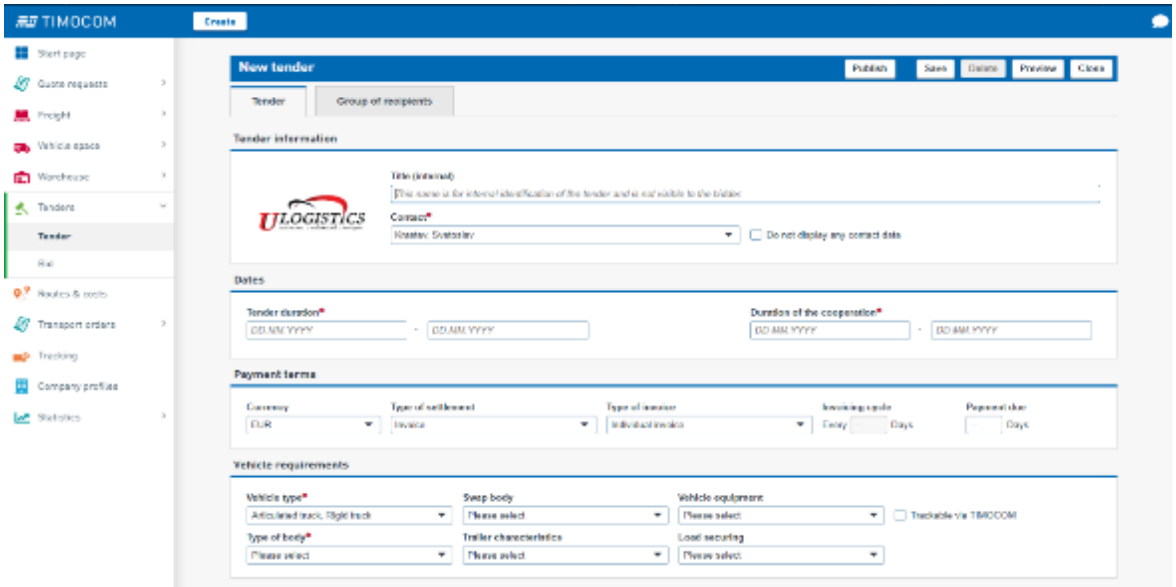


Figure 61: Creating new tender

The shippers should fill in a detailed information regarding the duration of the tender, payment terms, vehicle requirements, routes, transport frequency etc.



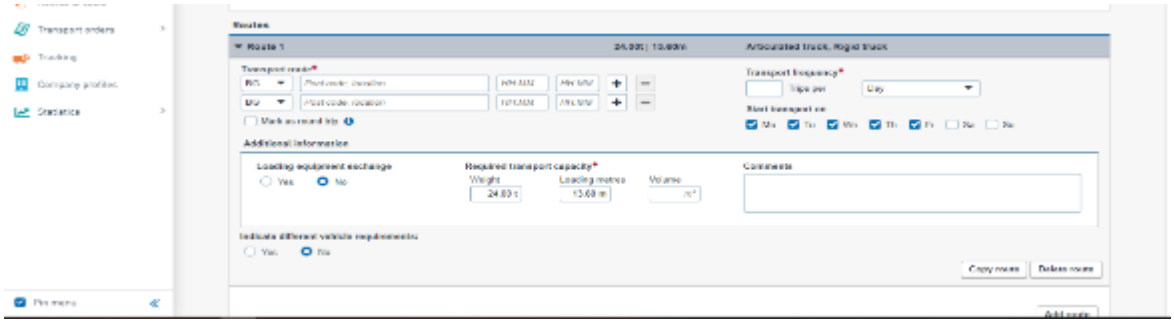


Figure 62: Tender information form

On the next menu, the shipper can check all the bids received from the carriers, to whom he had sent the tender application. The bids are classified into an organized view format where for any offer the value and the relevant messages of the carrier are shown.

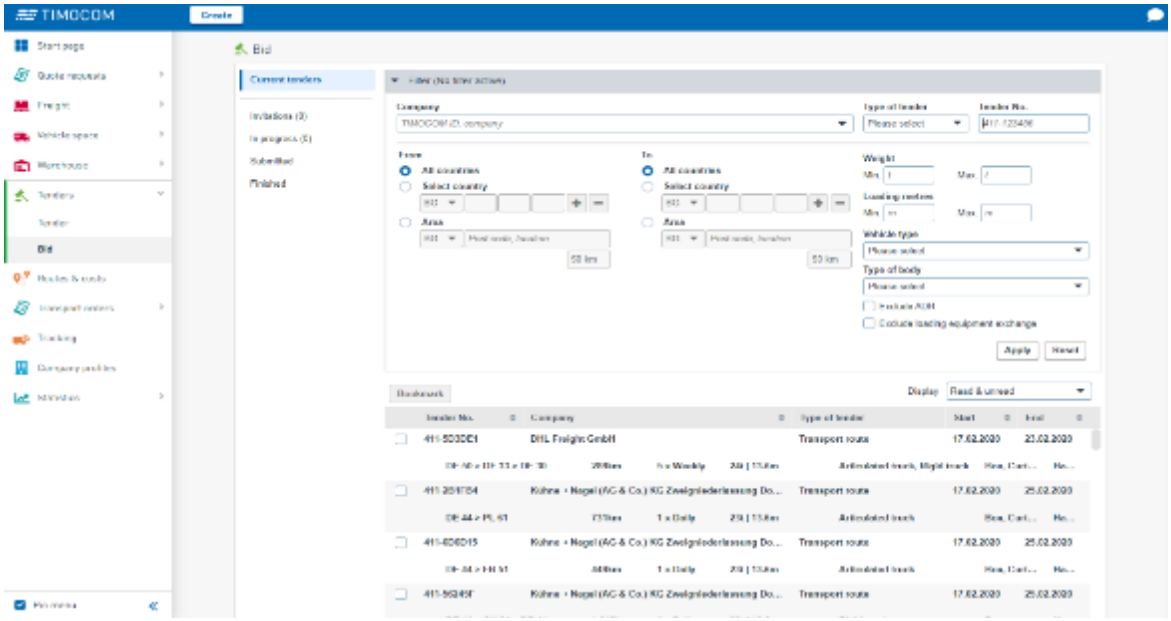


Figure 63: List of bids on current tenders

From the list of bids, the shippers can choose the offer which fulfills their needs. When the desired bid is selected, the system automatically sends a relevant e-mail to the respective carrier, informing him that the offer and the details of transport are accepted by the shipper.

Users of the platform can look up or search for a particular company. They should scroll the list, select by initial letter or set a name or desired criteria in the search engine. The results shown will depend entirely on the data submitted by the users. On the right side of the list of companies there are fields providing detailed search options.

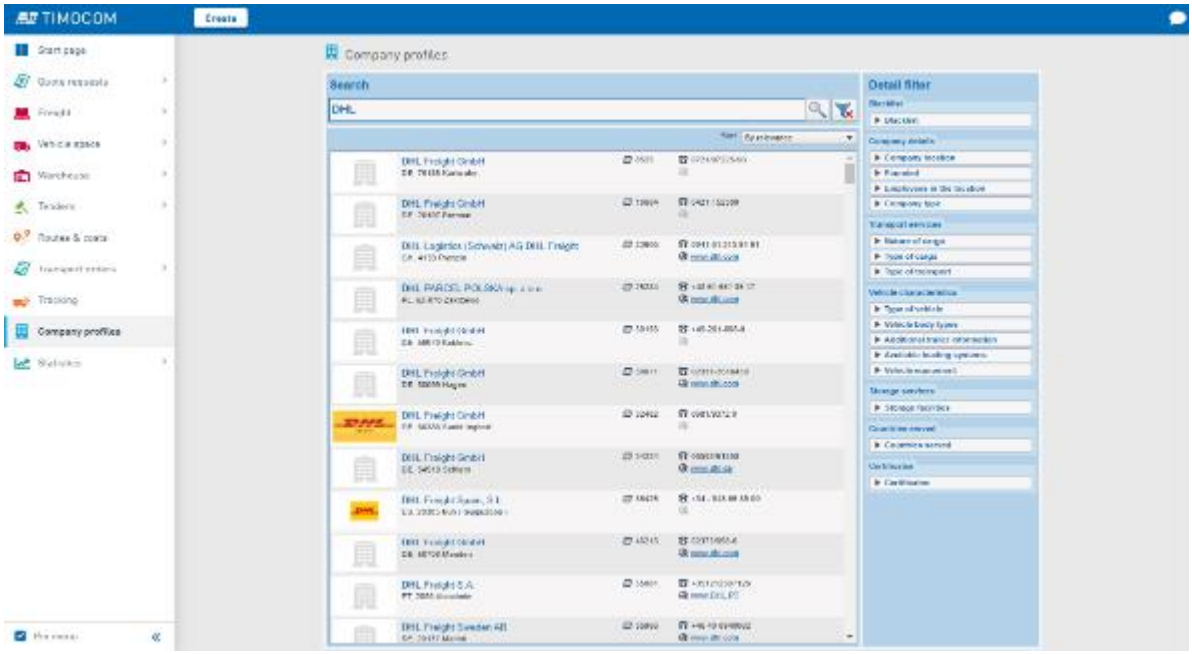


Figure 64: Companies profiles and information

The platform TIMOCOM provides mobile applications for its subscribers to cover their needs on the go, as well. The apps have the same menus as those in the web-based platform

3.6.4 Structure of the platform and services provided

The following figure shows the structure of the platform "TimoCom" including all the individual subsystems as well as the functions they provide to both shippers and carriers.

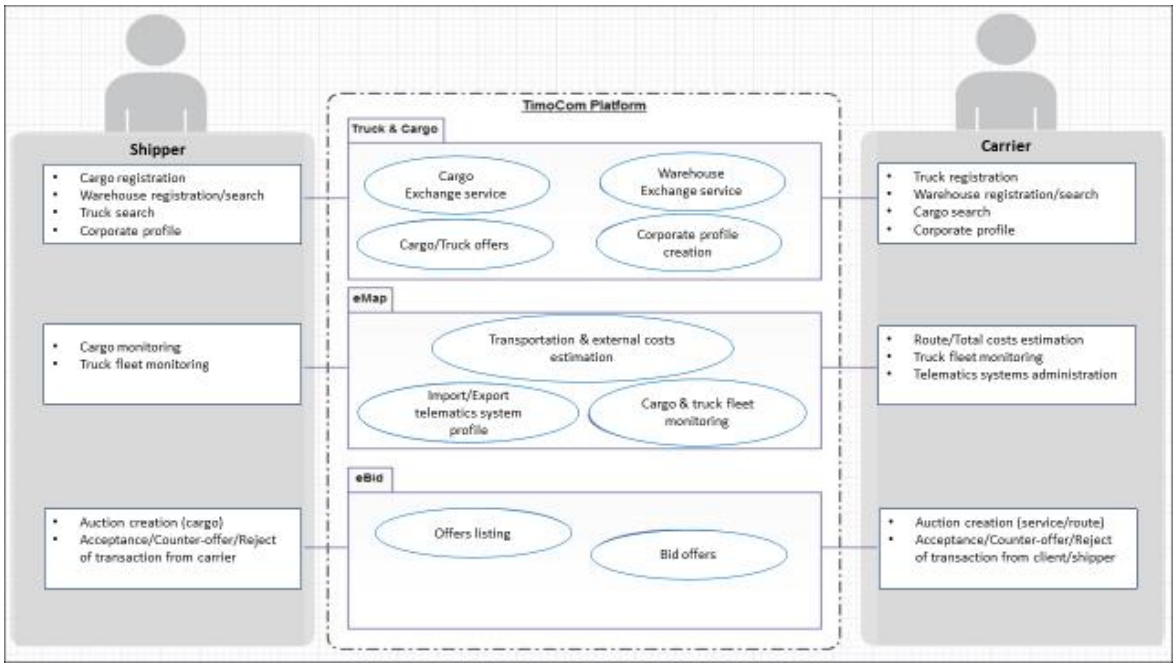


Figure 65: Structure of the platform and schematic illustration of the subsystems and services provided to the users - shippers and carriers

4 Freight Exchange Platforms in Greece

4.1 Summary of current freight transport services applications in Greece

The economic development of the country, as well as the processes of globalization and European integration have led to a significant increase in the demand for freight transport, respectively increase in the volume of shipments. Greece has always been a major freight transport path towards the Central European zone, Middle-East and North Africa due to its geographical position and historical experience on goods transportation.

During the last 40 years, freight transportation schemes and investments, especially in road and maritime freight transportation have been made. Although due to the financial crisis started in 2009 and lack of digital transformation in key areas of freight exchange operations, there have been few active web-based freight exchange applications offered for commercial use. But since 2011 there have been created several members forums and online applications to assist national key freight exchange players. One of the oldest and most mention-worthy physical example of a freight transport stakeholders pool is an initiative of the Association of Exporters of Northern Greece (presented below). Additionally, the most widely used freight exchange platform in Greece, the Nestcargo platform, will be presented in thorough detail.

4.1.1 Members Forum by the Association of Exporters of Northern Greece in Greece

This was an initiative by the Association of Exporters of Northern Greece, published in 2012 (Association of Exporters of Northern Greece, 2012).

More specifically, the Association of Exporters of Northern Greece, after finding that many of its members were seeking cooperation for groupage and shipping their products abroad, created a Forum in which the members' interest in collaborating in this field could be published. For the convenience of interested parties, it suggested to its members to provide as much detail as possible, such as:

- means of transport,
- special transport conditions (refrigerator, container, etc.),
- quantity, weight, and volume,
- destination,
- time of loading (specific date and / or time of departure), and
- name of contact person and contact details (Association of Exporters of Northern

Greece, 2012).

This service was supposed to be restricted to the members of the Association of Exporters of Northern Greece and, therefore, it cannot be considered a platform that connects the shippers and the carriers. It is included here for informational reasons.

4.2 Existing Freight Exchange Platforms in Greece

4.2.1 Methodology

After the review of the state of the art of the existing platforms, the main attributes of them were identified, and a questionnaire among the transportation companies in Greece was completed in order to have some insights regarding their awareness and preferable levels of the platform that will be developed by SCOPE project.

Nevertheless, such a survey is planned to be realized regarding the actual platform that will be designed by the project, and the experience gained by this one will be used to optimize the next one.

Initially, the respondent had to answer whether they know of other existing platforms and in which categorization would allocate them. Additionally, if they participate or not to such platforms. After that, five (5) questions followed in order to investigate the reasons that they would prefer or not a new freight exchange platform. Subsequently, it is stated whether they should participate in such a platform, developed in the framework of the project.

The questionnaire was as simple as that, and the respondents did not need to remember anything. The questionnaire guided the respondents from one step to the other automatically. There was no “correct” or “wrong” answer, as every answer is subjective. Answering the questionnaire would not take more than 5 minutes. Only one answered per company was required.

4.2.2 Data Analysis

The questionnaire was filled by more than 20% of the transportation companies that initially is electronically sent. The pool of the transportation companies was derived from Greek chambers database. During the following data analysis, a brief insight regarding each answer is demonstrated.

Question 1: Do you aware of any Existing Freight Exchange Platform?

Answer:

Yes
No

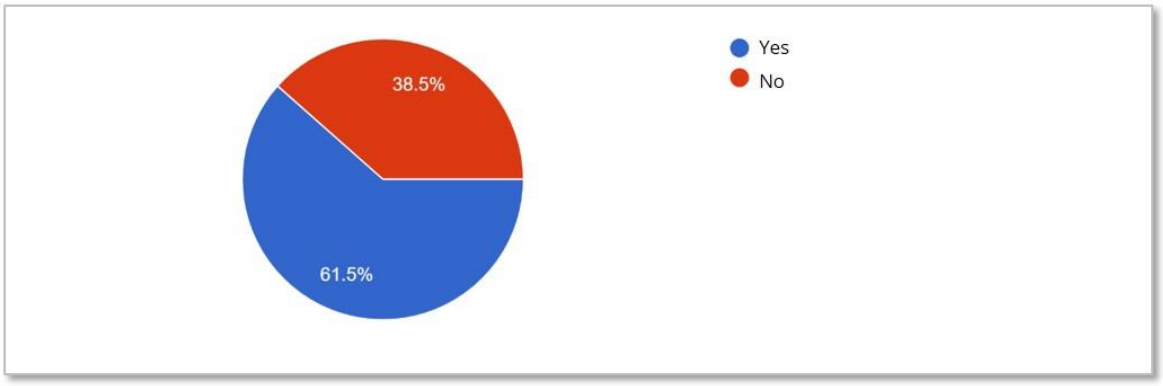


Figure 66: Awareness of Existing Freight Exchange Platforms

As it is shown from the above figure 66, almost the two third of the respondents, are aware of existing freight platforms. This finding, remarks the fact that Greek transportation companies search for new and innovative tools in order to maximize their service quality and maximize their profits. Moreover, it is show the adaptability and the familiarity of the Greek transportation sector with web based applications and ICT tools.

Question 2: The Platform that you aware of, belongs to one of the following categories?

Answer:
Informative repositories (forums/channels)
Freight planning services
Cargo/Truck booking platform
Auction platform
Advanced freight services

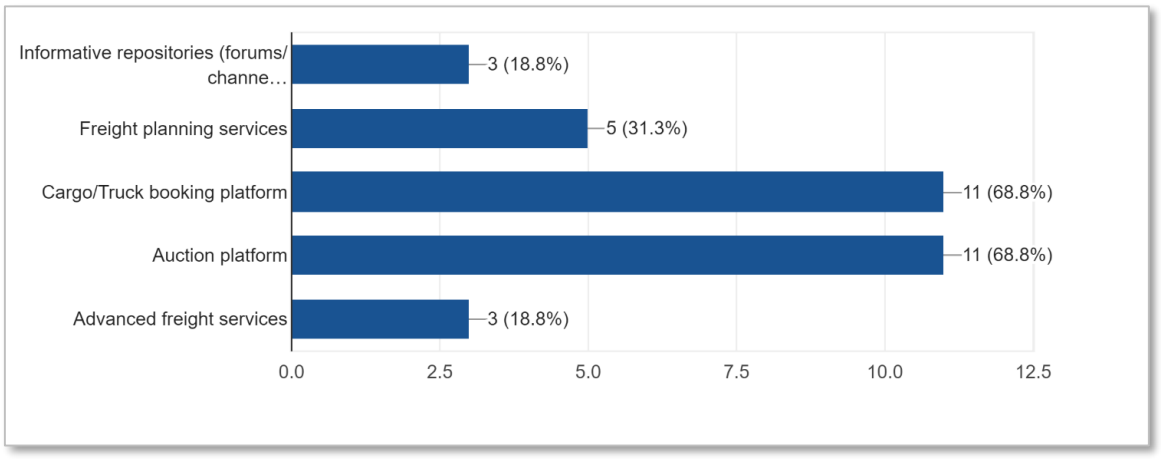


Figure 67: Categorization of Freight Exchange Platforms

As it is shown from the above figure 67, the above two third of respondents are more familiar to both "Cargo/ Truck booking platform" and "Auction Platform", following by "Freight planning services". This finding, acknowledges the fact that Greek transportation companies are looking for how they could expand their customers and how they could participate in a more extending market and gain from a bigger pie of the market. A market that it is unknown from them.

Question 3: The platform that you aware of, operates in Greece or Abroad?

Answer:
Greece
Abroad

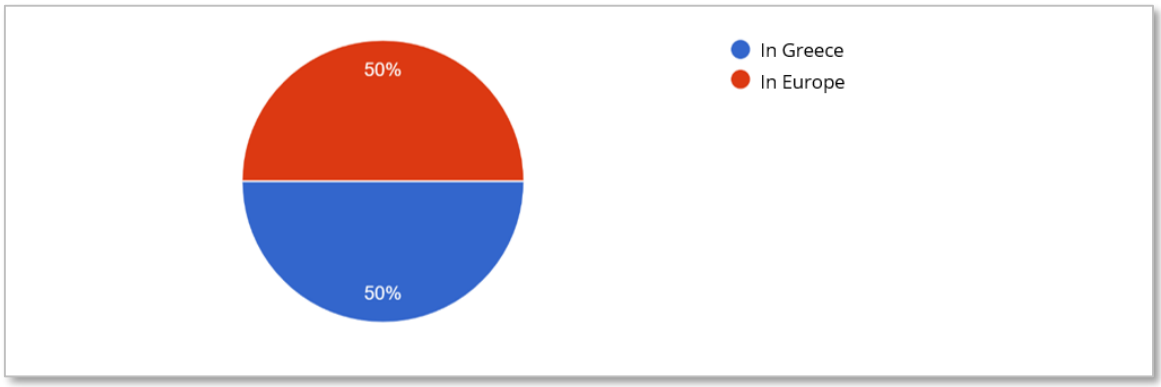


Figure 68: Geographically Operation of Freight Exchange Platforms

As it is shown from the above figure 68, the responses are equally shared. The responders are equally aware either Greek or foreign freight exchange platforms. This finding, of course, could mean that Greek transportation companies do not searching for such platforms on

abroad but mainly in Greece, since such platforms are existing and traditionally used more often on abroad than in Greece. This argument is further supported by the fact that in Greece, there is only one productive platform, providing the mentioned services.

Question 4: Do you utilize and / or be a member to any of the mentioned Freight exchange platforms?

Answer:
Yes
No

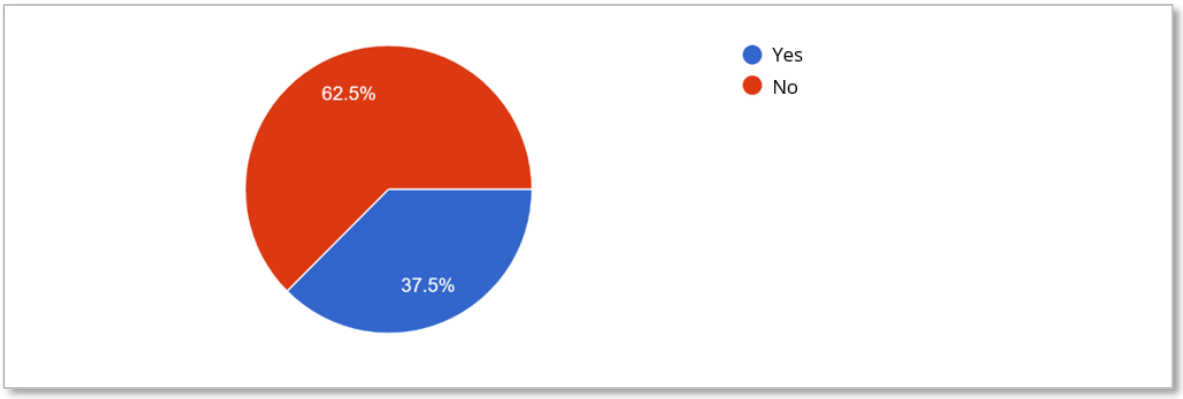


Figure 69: Utilization and /or Membership in Freight Exchange Platforms

As it is shown from the above figure 69, only one third of the respondents are using or are currently members of such freight exchange platforms. This automatically remarks that only the half of the companies that are aware of such platforms, in fact, they are making a step forward and utilizing them. This could highlight that probably the transportation sector is searching for innovative tools that could enhance their work, but they are simultaneously hesitating to be a member of that ecosystem, especially, if the platforms are based on abroad, because they evaluate that they will not have any added value in their providing services.

Question 5: What are the reasons why you do not use / are not a member of any of these freight exchange platforms?

Answer:
Exceeded Cost
Do not Cover our Services
No added value
Inadequate staff

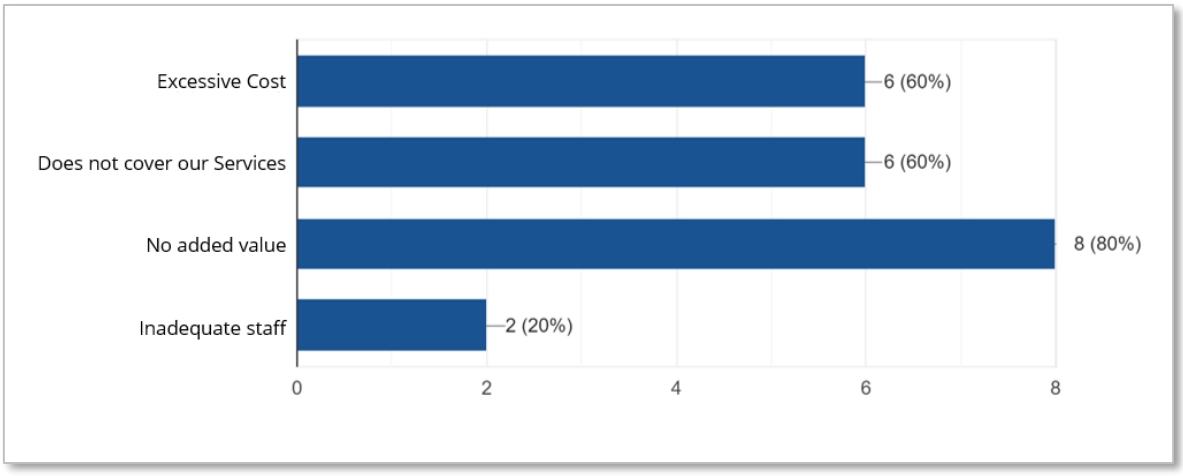


Figure 70: Reasons for not Using / not being a Member in Freight Exchange Platforms

As it is shown from, the above figure 70, confirms the previous figure 69, since 80% of the respondents argue that be a member of a freight exchange platform will not add any value to their existing services and subsequently to their profit maximization. With highly percentage figures (60%), they rank the other two consecutive answers, "Excessive Cost" and "Not Covering our Services".

Question 6: What are the reasons why do you use / are a member of these freight exchange platforms?

Answer:
New customers
New market
Additional service
Other: Filling the truck in an highly remoted area to avoid lost km.

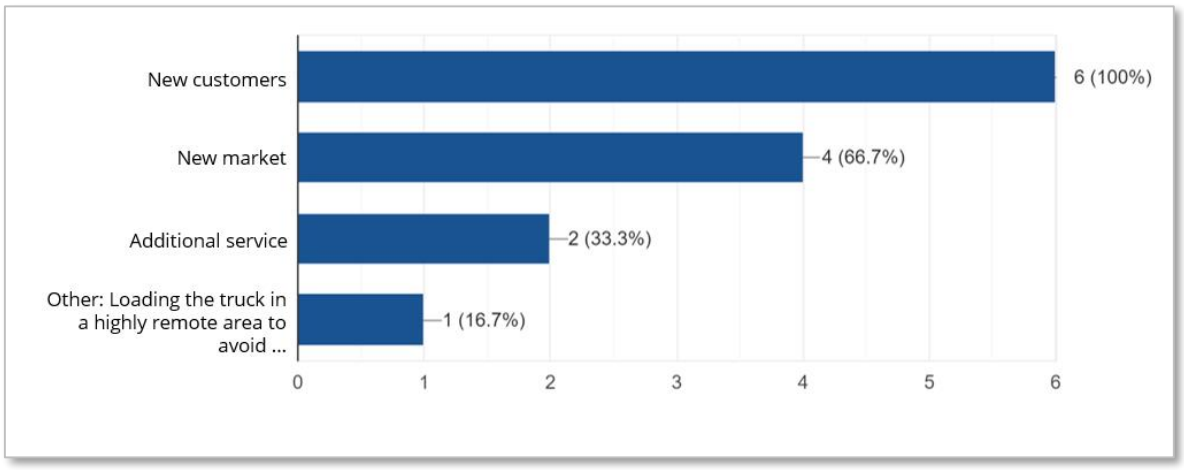


Figure 71: Reasons for Using / being a Member in Freight Exchange Platforms

As it is shown from, the above figure 71, the major perspective that Greek transportation companies foreseen for using / being a member in freight exchange platforms, is to approach "New Customers". Additionally, two third of the respondents, are looking forward to enter to a "New Market". These findings, are highlighted form the beginning of the survey, since Greek transport companies from one hand provide their services with the traditional way but on the other hand they are anxious regarding new tools and applications and simultaneously they are not convinced that they could have any added value form using them.

Question 7: Are you satisfied with the use of the platform?

Answer:
Yes
No

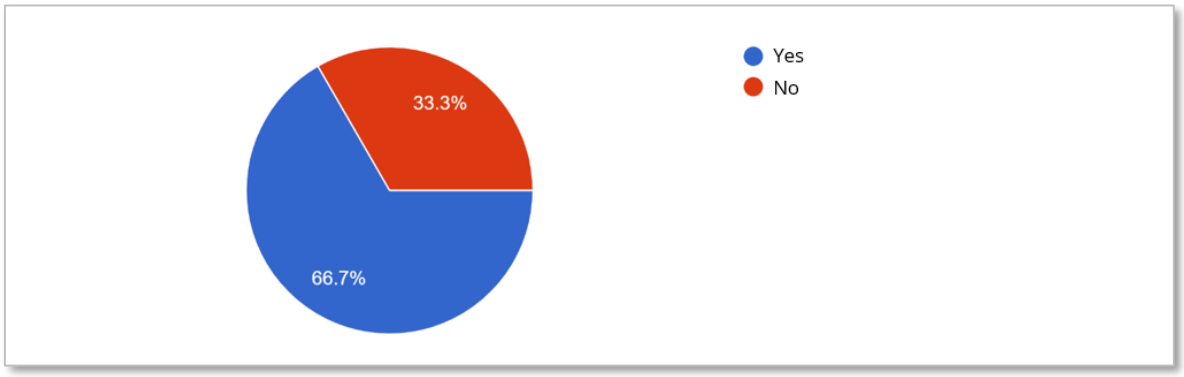


Figure 72: Satisfaction of Freight Exchange Platforms Usage

As it is shown from, the above figure 72, the respondents that answered "yes" in the question if they are using or be a member of such platform, they answer in a proportion of two third

(66,7%) that they are satisfied from the mentioned platforms. This finding should obviously remark, that even if they are not predicting that they will earn additional profits from the platforms usage in the short run, they consider that they should be a part of the ongoing evolution of digitalization of their providing services with a strategic scope that in the near future, the market will turn to a structural change and will adopt these new ICT tools and web applications.

Question 8: What would you like to change or add to the features / capabilities of the platform that you are using in order to be more efficient?

Answer:
Optimal price rate for both the traders
Multiple shipments within Greece

As it is shown from, the above table, which is the only one "open" question of the survey, the respondents answered their favorable features and / or capabilities that such platform should embed in order to be more effective and efficient. These answers highlight equally the "Optimal price rate for both the traders" and the "Multiple shipments within Greece". These findings remark the fact that the transportation sector needs a solution that could be "price sensitive" and the platform could provide the necessary balance to the market. Additionally, they acquire extra flexibility and focused provision of their services to each and exclusive geographical point in Greece.

Question 9: Would you be interested for a presentation of the freight exchange platform that will be developed during the SCOPE program?

Answer:
Yes
No

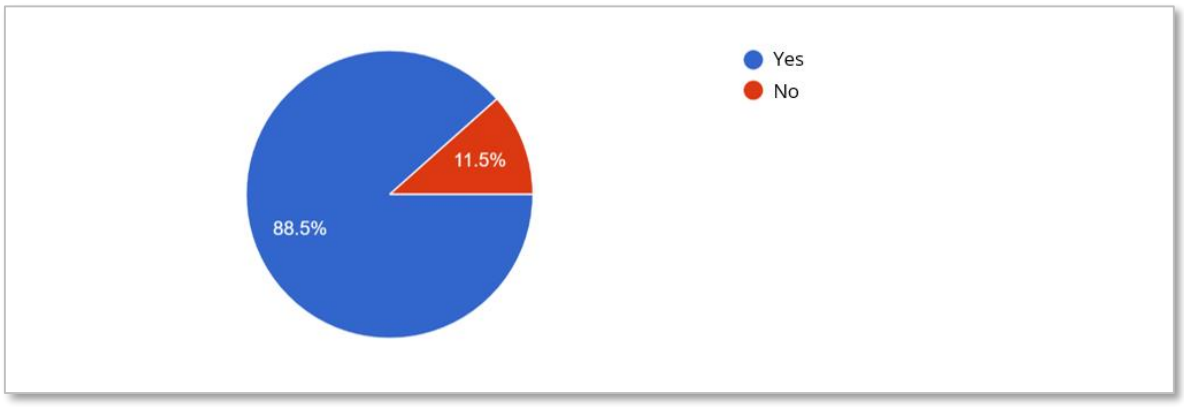


Figure 73: Interesting for SCOPE Freight Exchange Platform presentation

As it is shown from the above figure 73, it is highly ranked the interesting of Greek transportation companies for a presentation regarding the SCOPE freight exchange platform. This finding is following the pattern that they should be a part of the ongoing evolution of digitalization of their providing services with a strategic scope that in the near future, the market will turn to a structural change and will adopt these new ICT tools and web applications. Moreover, as it is shown in the initial questions, the respondents seem to prefer Greek own solutions, so SCOPE platform could be penetrated to the Greek transportation sector.

Question 10: Since the freight exchange platform that will be developed through the SCOPE program, serves your needs and covers you with its capabilities, would you be interested in using it?

Answer:
Yes
No

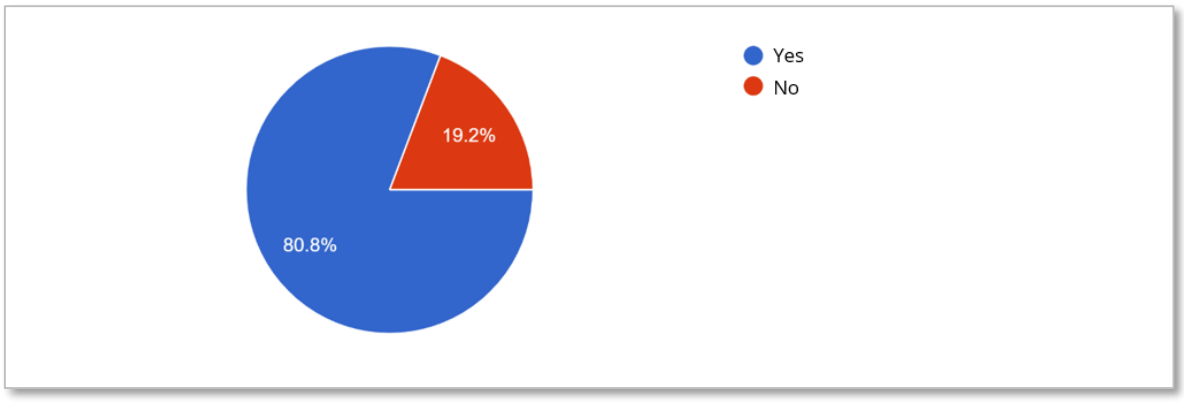


Figure 74: Interesting in using the SCOPE Freight Exchange Platform

As it is shown from the above figure 74, it is highly ranked the interesting of Greek transportation companies for using the SCOPE freight exchange platform. It summarizes the previous findings of the survey. Greek transportation companies would like to participate in such web applications and tools, especially if it is a solution that is developed from a Greek owned company, even if they do not predict for short-term benefits.

4.2.3 SWOT Analysis

The SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) is a very useful tool for the summary presentation of the results of the analysis of internal and external environment. Its ultimate goal is to contribute to the definition of the strategic directions of an Organization and or a project. In the SWOT analysis, after being understood and analyzed, the internal strengths and weaknesses (strengths - weaknesses) are related to the external opportunities and threats that arise from its external environment.

The successful implementation of this analysis turns a specific strength (advantage) into "capability". Weaknesses, on the other hand, end up becoming "constraints", must seek to translate their weaknesses into strengths and even capabilities by investing strategically in key areas and effectively linking different key areas. The identification of strengths and weaknesses, opportunities and threats is a key tool for the strategic planning, as it identifies categories of possible objectives:

1. Utilizing the strengths and opportunities to create a comparative advantage.
2. Addressing weaknesses and risks to avoid comparative disadvantage.

Categories of the 4 cases - points of the analysis can be mentioned as follows:

Strengths	Weaknesses
Technology oriented service	Lack of suitable staff
Web application	Lack of executives vision
Strong distribution network	New operating costs
Greek owned platform	
Easy of use	
Opportunities	**Threats**
Penetration in new market	Technological changes
New customers	Changes in market trends
Cost reduction	Price elasticity

Freight / cargo complementarity	

4.2.4 Conclusions

A questionnaire among the transportation companies in Greece was completed in order to have some insights regarding their awareness and preferable levels of the platform that will be developed by SCOPE project. The questionnaire guided the respondents from one step to the other automatically. There was no "correct" or "wrong" answer, as every answer is subjective. Answering the questionnaire would not take more than 5 minutes. Only one answered per company was required. The questionnaire was filled by more than 20% of the transportation companies that initially is electronically sent. The pool of the transportation companies was derived from Greek chambers database.

As it is shown from the above data analysis, the following conclusions are sum up:

- Almost the two third of the respondents, are aware of existing freight platforms and especially are more familiar to both "Cargo/ Truck booking platform" and "Auction Platform", following by "Freight planning services". Moreover, they are equally aware of either Greek or foreign freight exchange platforms.
- One third of the respondents are using or are currently members of such freight exchange platforms and the 80% of them argue that be a member of a freight exchange platform will not add any value to their existing services and subsequently to their profit maximization. Moreover, the major perspective that Greek transportation companies foreseen for using / being a member in freight exchange platforms, is to approach "New Customers".
- Two third (66,7%) that they are satisfied from the mentioned platforms. Moreover, the respondents answered their favorable features and / or capabilities that such platform should embed in order to be more effective and efficient. These answers highlight equally the "Optimal price rate for both the traders" and the "Multiple shipments within Greece".
- It is highly ranked the interesting of Greek transportation companies for a presentation regarding the SCOPE freight exchange platform. Moreover, it is highly ranked the interesting of Greek transportation companies for using the SCOPE freight exchange platform.

4.3 Nestcargo platform

Truckbird Private Company (PC) is a startup company founded in 2014 in Greece. A combination of youth entrepreneurship and many years of experience from the co-founding company PLANNING SA resulted in creating nestcargo, the online marketplace that brings

in touch shippers with carriers. The company is expected to deal with similar activities in the Transport and Logistics sector in the future and is expanding in neighboring markets. The company has won several awards and distinctions in a national and international level and since 2016 the National Bank of Greece has invested in the company (Truckbird, n.d.a).

Truckbird vision is to create a pan-European cargo marketplace that reduces "empty routes" in road, sea, and air transport and also contributes towards the elimination of transport's carbon footprint. Therefore, it created a business tool (nestcargo platform) that creates value for the international transport industry, while aiming to create new jobs (Truckbird, n.d.a).

Nestcargo platform was founded in September 2013 (indeed earlier than Truckbird PC as at that time the founders Ioannis Papageorgiou and Dimitrios Andrianopoulos were known as FR8 [Proto Thema, 2015]) as a cargo marketplace that brings in touch shippers with carriers. With nestcargo, companies can find trustworthy transport shipping companies to ship their goods. Whether it is road, sea or air cargo transport, nestcargo's global network of carriers may help every company to find the right carrier at the right price to transfer their goods (Nestcargo, n.d.).

Figure 75: Nestcargo platform logo (Truckbird, n.d.b).

Truckbird has an impressive awards' portfolio for nestcargo:

- SXSW 2015: Greek Delegation.
- Best Company Award in the MIW competition: Transportation, Logistics and Shipping sector.
- Transport & Logistics Awards: Youth Entrepreneurship Award.
- NBG "i-bank Innovation & Technology" Competition: 2nd prize.
- Get In The Ring 2014: The Investment Battle.
- Ennovation 2013: 1st prize.
- Incubated at Eurobank and Corallia's "egg - enter•grow•go".
- Athens Startup Weekend 2103: 1st prize (nestcargo, n.d).

Figure 76: Nestcargo awards (Truckbird, n.d.b).

4.3.1 Shippers

Truckbird's nestcargo slogan for the shippers is "Transport Made Easy: Get quotes for international transport from the leading freight transport and forwarding companies". It promises instant quotes for the client's company imports and exports and the possibility to select the right carrier in the most quick and efficient way by uploading the shipments and letting nestcargo do the rest, saving valuable time and lower the client's company transport costs (Truckbird, n.d.b).

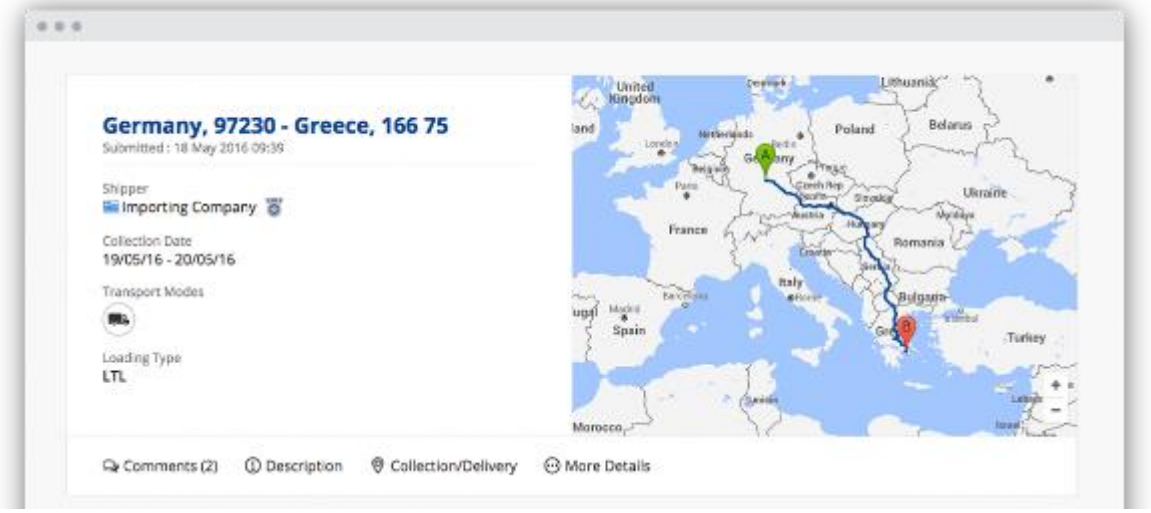


Figure 77: Nestcargo platform for shippers (Truckbird, n.d.b).

Concerning instant quote collection, Truckbird promises no more back and forth emails and telephone calls with carriers, as nestcargo helps the shipper to find the right carrier in the easiest way possible; all the client has to do is to upload the shipment and carriers will give quotes in real time. In brief, Truckbird promises that the client will be 50% faster at finding the right carrier, upload shipment in under 3′, and be able to contact every carrier directly through the online messenger (Truckbird, n.d.b).

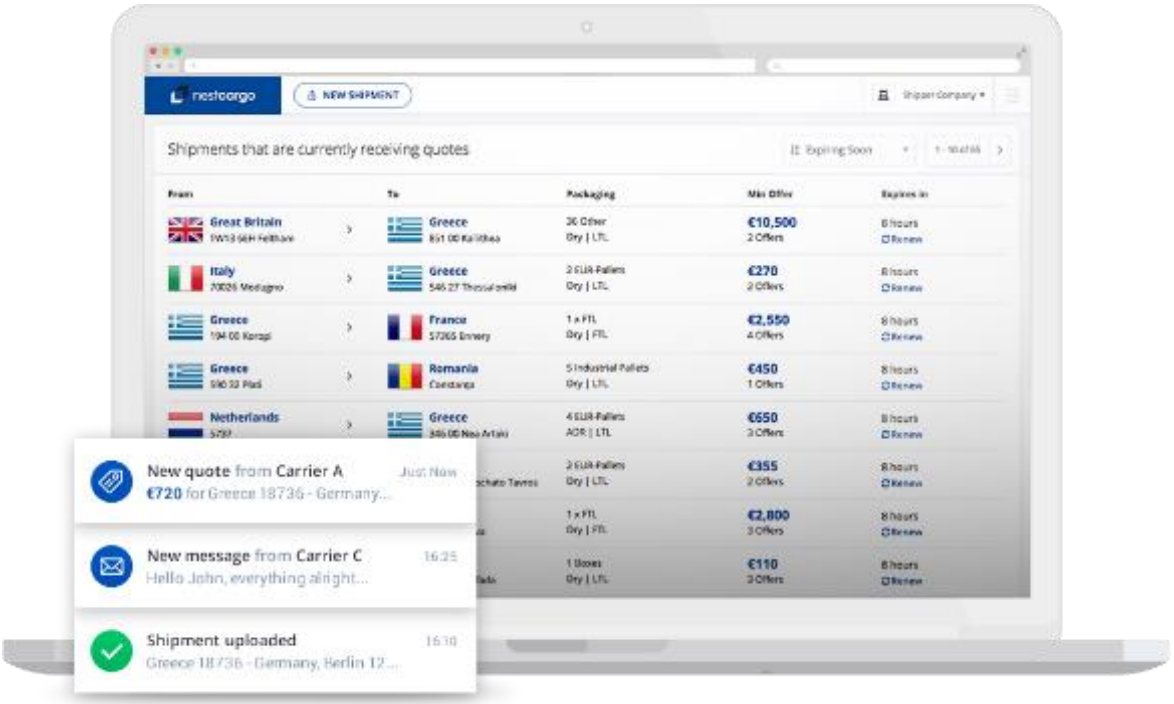


Figure 78: Nestcargo platform for shippers: quote collection (Truckbird, n.d.b).

Concerning less transport costs, Truckbird promises that the shipper will save up to 30% on company's transport costs, as carriers give their best quote based on their availability and excess capacity, so that the client can choose from the most competitive quotes in the marketplace. In brief, Truckbird promises 30% less transport costs, dynamic quoting in real time, and combination of optimum modes of transport (Truckbird, n.d.b).

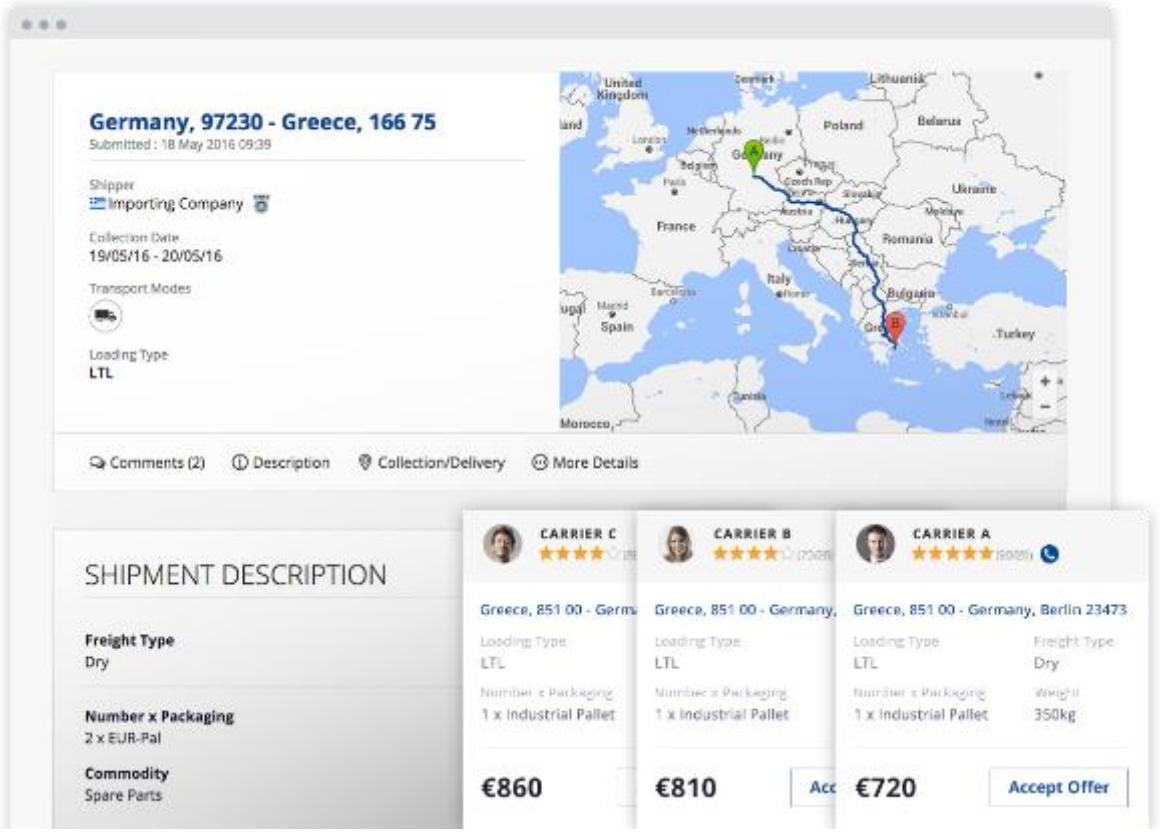


Figure 79: Nestcargo platform for shippers: less transport costs (Truckbird, n.d.b).

Concerning global network of carriers, Truckbird promises that the nestcargo platform helps the shipper to find the right carrier for any kind of shipment. Whether the shipper wants to ship one pallet or full truck/container loads, nestcargo's global network will provide the optimum transport solution. In brief, Truckbird promises road, sea, and air transport services, specialized carriers for all kinds of shipments, and global coverage of international destinations (Truckbird, n.d.b).

According to Truckbird (n.d.b), every carrier has a cumulative rating score based on previous transactions made through nestcargo and the shipper can view a carrier's profile to see detailed information, company verification documents, and testimonials from other clients. Trucking companies and freight forwarders have company profiles with contact details and a short description of their services. All companies provide the required documents to certify the quality of their services. These documents are always visible, for the client to make an informed decision.

Nestcargo platform has been presented in several media, such as:

- Proto Thema (2015),

- Kathimerini (Deligiannis, 2014),
- The New York Times (Kitsantonis, 2014),
- MIT Technology Review (MIT Enterprise Forum, 2015), and
- Naftemporiki (2014) (Truckbird, n.d.b).

Truckbird (n.d.b) offers five (5) shipments free-trial of nestcargo to shippers.

The pricing policy for shippers is as follows (Truckbird, n.d.c). All registered shippers enjoy:

- Five (5) free shipments.
- Global network of carriers.
- Road, sea, and air transport services.
- Rated transport and freight forwarding companies.
- Detailed profiles and track record of carriers (Truckbird, n.d.c).

After the five (5) first free shipments, nestcargo charges 1% commission on the lowest quote of every shipment that receives at least two (2) transport quotes. Minimum charge is €2 and maximum charge is €10 (Truckbird, n.d.c).

With nestcargo the shipper can lower transport costs due to the dynamic, real-time quoting; save 50% of time at finding the right carrier, as carriers come to the shippers instead of the other way around; find trusted carriers that have been rated by other shippers; and have instant communication with carriers through the online messenger (Truckbird, n.d.c).

4.3.2 Carriers

Truckbird's nestcargo slogan for the carriers is "Transport Made Easy: Join nestcargo and gain instant access to hundreds of international shipments". It promises loads that suit carriers' needs, user friendly platform, rated profile, and growing their clients base (Truckbird, n.d.d).

Concerning loads that suit carriers' needs, Truckbird promises to carriers that they will find groupage and full truck/cargo loads to increase their company's total turnover, whether they own a transport or freight forwarding company, as importing and exporting businesses upload shipments daily for international road, sea, and air transport. In brief, Truckbird promises that the carrier will find new importing and exporting companies, less than truck/cargo loads and full truck/cargo loads, and road, sea, and air transport requests (Truckbird, n.d.d).

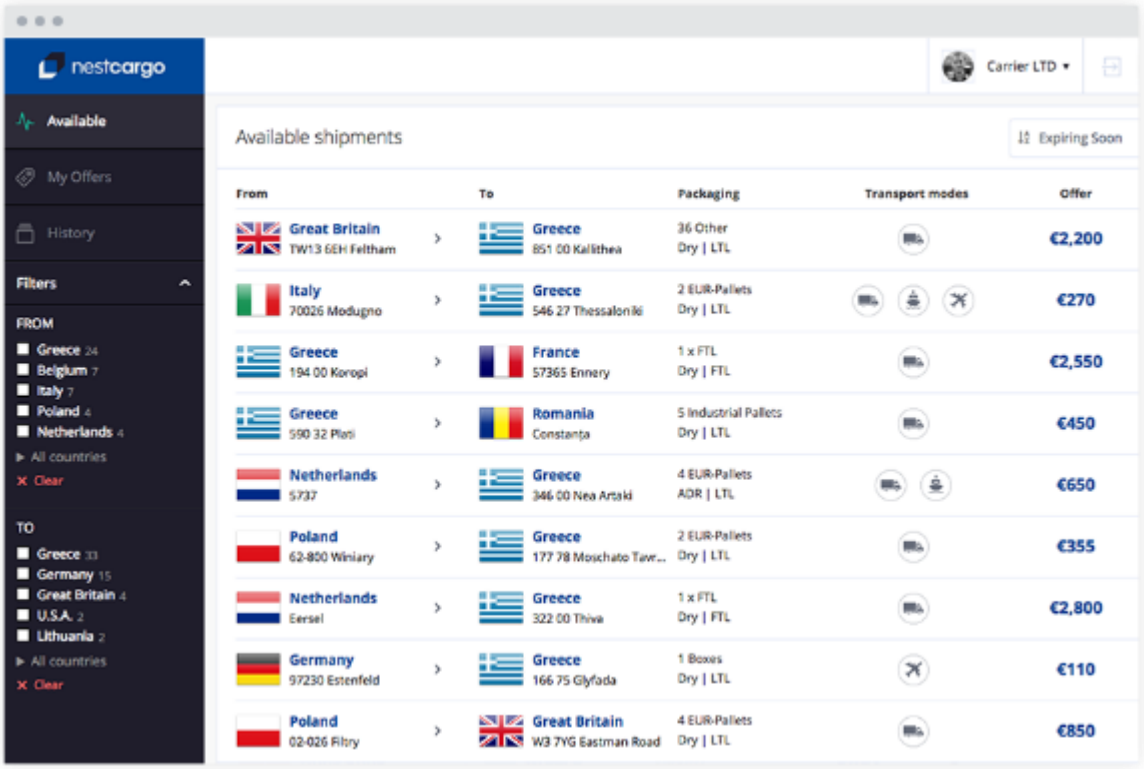


Figure 80: Nestcargo platform for carriers: loads that suit carriers' needs (Truckbird, n.d.d).

Concerning user friendly platform, Truckbird promises to carriers that they will find loads that match their needs and the ability to quote in real time. In brief, Truckbird promises that the carrier will have instant email notifications on shipments the carrier is interested in, the ability to give instant quotes, without the endless back-and-forth calls and emails, the ability to contact every shipper directly through the online messenger, and the ability to close deals efficiently and save valuable time (Truckbird, n.d.d).

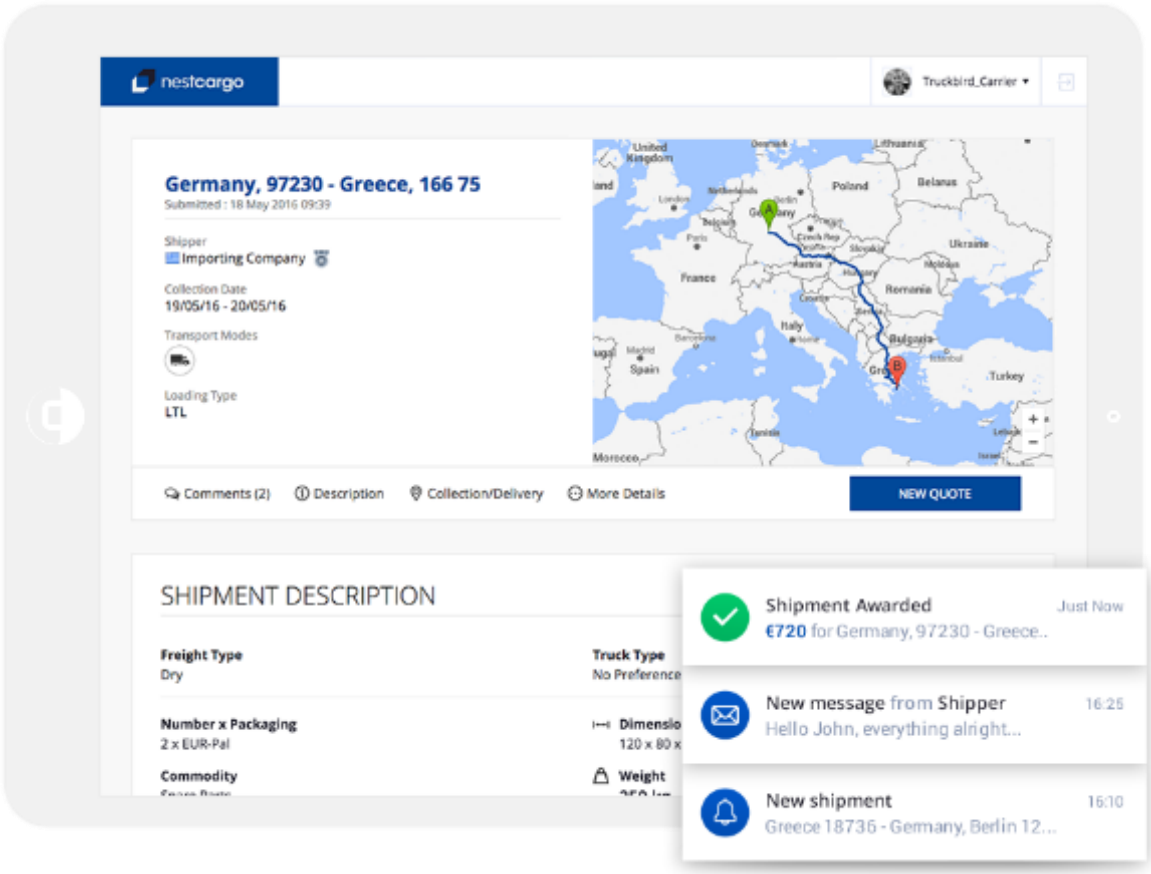


Figure 81: Nestcargo platform for carriers: user friendly platform (Truckbird, n.d.d).

Concerning rated profile, Truckbird promises to carriers a profile that will receive ratings and testimonials from shippers that have worked with the carriers in the past, to increase their credibility, and close more deals; that it will provide details of the carriers company and promote their services through their company's profile; and upload their company's verification documents and certificates, and become a verified partner in nestcargo's marketplace (Truckbird, n.d.d).

Concerning growing their clients' base, Truckbird promises to carriers that they will increase their company's total turnover, expand their client base, and effectively manage their contacts through nestcargo's online platform. In brief, Truckbird promises that the carrier will increase revenues from additional shipments, will lower the "empty" routes by quoting shipments until the last moment, and will find new clients in a national and international level (Truckbird, n.d.d).

Truckbird (n.d.d) offers 14-days free-trial of nestcargo to carriers.

The pricing policy for carriers is as follows (Truckbird, n.d.e):

Nestcargo gives to the carriers access to road, sea, and air transport shipments with a 14-day free trial. There are monthly and annual subscription plans, as follows (Truckbird, n.d.e):

- €59/month: one (1) mode of transport. Only one (1) mode of transport between road, sea, and air transport. Recommended for trucking companies in international road transport. Annual subscription is offered for €50/month.
- €79/month: two (2) modes of transport. Any combination of two (2) modes of transport. Suitable for freight forwarders that operate mostly in road and sea or sea and air cargo transport. Annual subscription is offered for €67/month.
- €89/month: three (3) modes of transport. All transport modes (road and sea and air). Best for large enterprises that want to have access to all shipments and are interested in having an overview of the market. Annual subscription is offered for €76/month (Truckbird, n.d.e).

There are premium prices offered for the carriers and want access also as shippers, after contact and negotiation (Truckbird, n.d.e).

All of subscription plans for carriers include the following (Truckbird, n.d.e):

- Access to unlimited shipments: per transport mode.
- Filter shipments and notifications: based on carrier's custom preferences.
- Instant email notifications: for new shipments, progress of quotes, and contact details of shippers.
- Instant communication: with shippers through the online messenger (Truckbird, n.d.e).

5 Freight Exchange Platforms in Bulgaria

5.1 Summary of current freight transport services applications in Bulgaria

The economic development of the country, as well as the processes of globalization and European integration have led to a significant increase in the demand for freight transport, respectively increase in the volume of shipments. With regards to this, and on the basis of the main national forecasts (MTITC, 2017) for continuing increase of the volume of freight transport both national and international, the general conclusion is that it is necessary for the state to invest in the development of the necessary new infrastructure and smart platforms to ensure the quality and safety of freight transport.

On the other hand, the structural changes in the national economy over the last 30 years require a study of the smart services that have an impact on the supply and demand of freight. The deregulation of the freight transport after 1990 led to significant changes in customer requirements to the services provided by the transport operators and freight forwarding companies. In parallel with increasing the degree of consolidation of shipments, transport prices gradually decreased, and demand increased. The reasons for these changes are due to the fact that shippers, producers and retailers have begun to change their production and distribution systems in order to reap the benefits of cheaper and better-quality transport services.

The research on the demand for freight transport services is very important in order to predict the volume of transport and the volume of the cargo operations carried out by the transport and forwarding companies. On the other hand, one of the most important factors, providing better environment for transport services is the application of freight exchange and auction platforms.

5.2 FEP best practices in Bulgaria

5.2.1 Speditor.NET" platform"

The "Speditor.NET" platform (http://www.freightmail.com) has been developed in Bulgaria and is a separate operation platform. It provides a large number of services both at the state level, national level and throughout European Union. Speditor.NET is the most popular platform amongst Bulgarian freight forwarders and transport operators (Speditor.NET, 2020).

The home page of the platform provides up-to-date news and events throughout Europe in the scope of transport, summary of the number of the new offers, announcements and discussions for the day and even the actual fuel prices of different petrol stations for the major types of fuel (fig.

82).

The main menu consist of several sub-menus as follows: Personal information in the diary; Who is here? – the user could check the presence of the other shippers and carriers; Order – to create new orders; Mail; Settings; Chat; Information by countries; Exchange; Partners; Discussions; Subscription; Announcements; Companies; Contacts; Guide; FAQ; News; and Exit.

Figure 82: Speditor.NET home page

The platform only supports matchmaking and contracting but it does not offer opportunities for real bidding (auctions). At first, each user of the platform has to be registered in order to be able to use the full functionality of the platform. The annual subscription fee for Bulgarian companies is 480 BGN and respectively 205 EUR for the foreign companies.

The potential users should fill-in a registration form. The correct and complete presentation of the users depends on what information they provide. In order a company to be activated, it is necessary, after filling out the form, to have to send scanned copies of documents of legitimacy (certificate for registration of the legal person in the Registry Agency; Certificate/card from THE NRA for registration of your company for VAT; License/for Transport Art. 62, para 5 (4) of the Labor Code for the person who makes the application for registration in cases he/she is not a partner or manager of the company, last invoice and application for the registered telephone numbers) by e-mail to: register@Speditor.NET . Thus, the platform guarantees that only a real and stable companies will enter the transport exchange and the risks of fraudulent orders will be minimized. After filling out the form and checking for correctly entered data the users receive a confirmation.

The initial registration allows registering only one user from a company. A new user profile to a company could be created from the Settings menu in the platform.

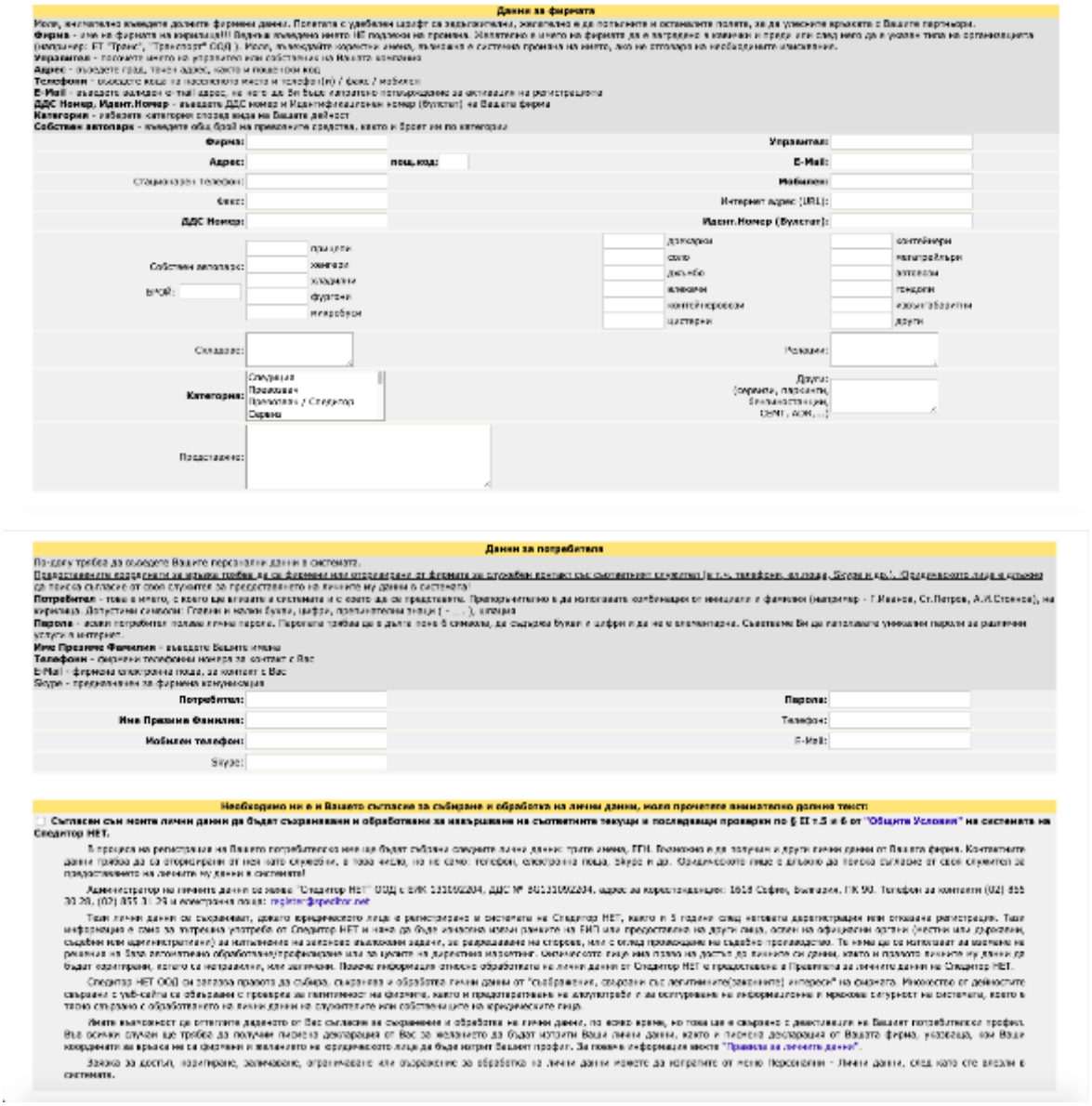


Figure 83: Registration form of Speditor.NET platform

Entry cargo and available truck

The platform Speditor.NET is completely automated freight exchange for publication of loads and transport ordering, with possibilities for searching of freight and transport by selected criteria.

The Exchange makes it possible to search for cargoes or trucks, as well as to order. The offers of the users reach simultaneously to all other users in the system. This saves considerable amount of money and time.

Figure 84: Exchange menu

The user could choose between different menus such as all offers (he/she could see all the offers at the Exchange at the moment), i.e. cargo offers for internal transport, personal offers of itself and the offers for international transport (export and import).

Figure 85: List of offers for cargo at the Exchange

Figure 86: List of cargo offers for internal transport

Figure 87: List of users' offers for cargo to be transported

He/she could search for a freight (cargo) both for internal and international transport. Usually, the freight forwarders use this option to search for cargo for their clients – transport companies, seeking for reverse cargo. They should fill out the form by providing following information:

- Country of origin;
- Country of destination;
- The period of load;
- Type of cargo;
- Quantity of the cargo;

- Length of the cargo;
- Type of vehicle necessary;
- Company etc.

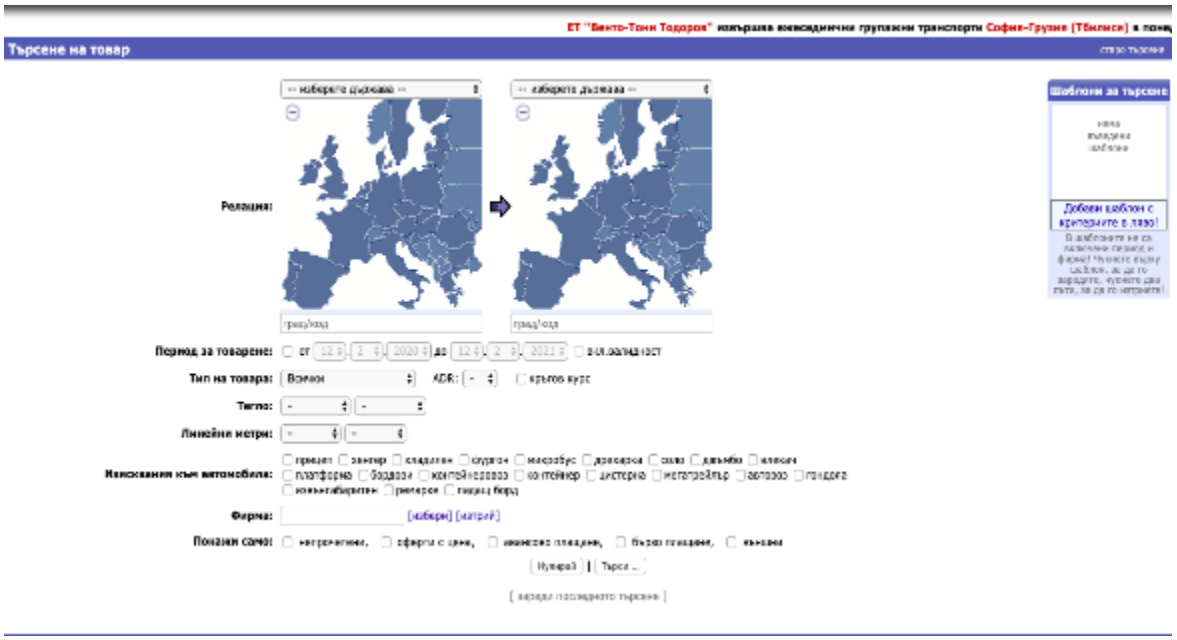


Figure 88: Cargo search form

To leave an offer in the Exchange menu, the user could add cargo. He/she should provide necessary information about the cargo such as: Route of transport (country of origin and city, country of destination and the respective city; date of loading; type of cargo; gross weight of cargo; volume; dimensions of the consignment; linear length; deadline for delivery; price and other specific requirements. The user should add a period of validity of the offer as well as the type of the consignment such as refrigerated, ADR or round trip.

For each offer a discussion could be added in which to give more information or ask for price and additional details.

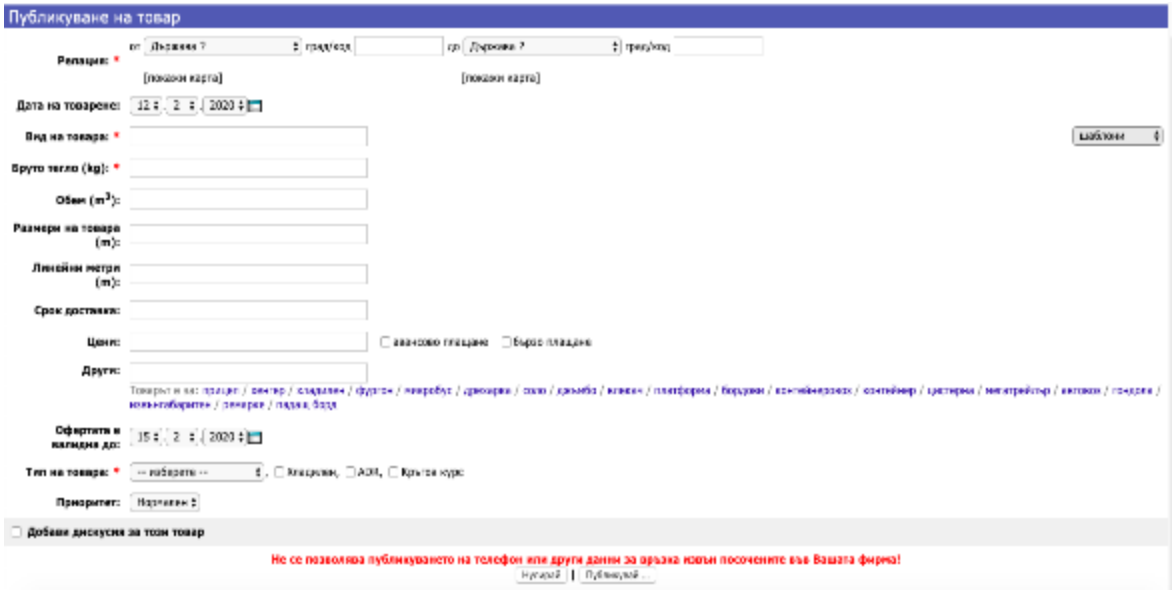


Figure 89: Submitting offers for cargo

As additional options the exchange has a type of cargo/transport and priority. If the offer is urgent a red exclamation mark will be flashing in the menu. To consider or to publish offers for transport (trucks) in the Exchange the user can select a "Transport" from the home menu of the Exchange.

Figure 90: Search for transport in the Exchange

A window will open with a brief description of the offers.

Figure 91: List of offers for transport at the Exchange at certain moment

In order to examine the details of the offer he has selected; the user must click on it. At the top is the name of the user who left the offer. By clicking on, the user will open its info and he/she may choose to send him a direct offer via the option "Send offer/Request". For convenience, when a specific offer is opened, the user could see full contact details of the user who posted the offer, as well as information about the company to which he is registered.

Figure 92: Offer for freight transport

Like for the cargo menu, the user could choose between different submenus such as all offers for transport (he/she could see all the offers for transport at the Exchange at the moment), i.e. offers

for internal transport, offers for international transport (export and import), own offers.

Figure 93: Offers for internal freight transport

Figure 94: Offers for international freight transport

The information necessary to search for import transport offers is related to the following criteria: country of origin, period for loading, load capacity, volume of cargo, type of vehicle, type of transport (groupage, complete, bulk etc.), company.

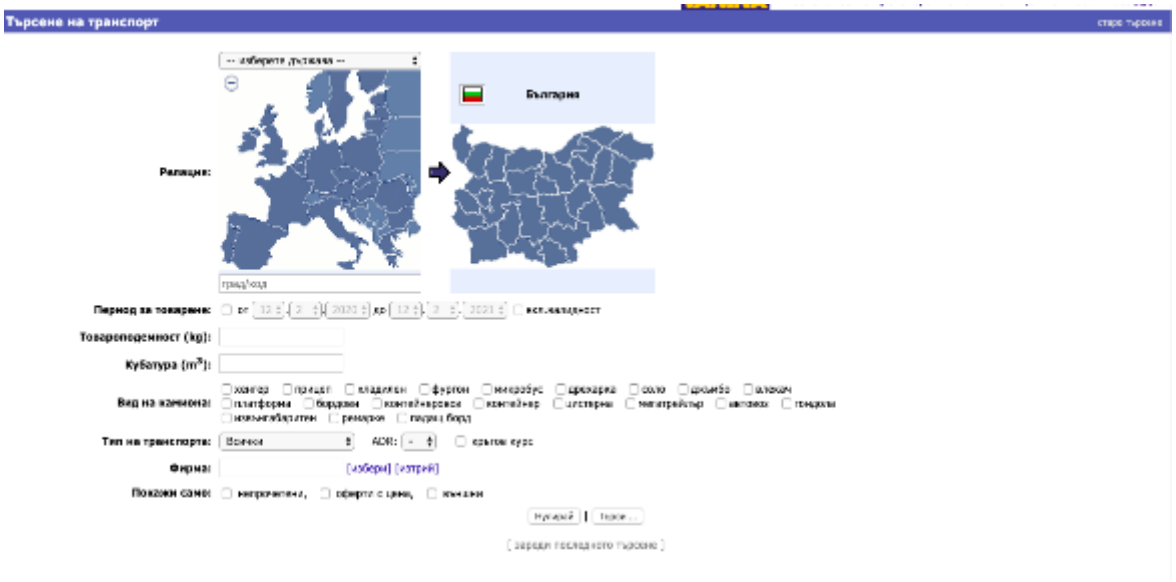


Figure 95: Search for import freight transport

Likewise, the information needed to search for export transport is the same as for the import one.

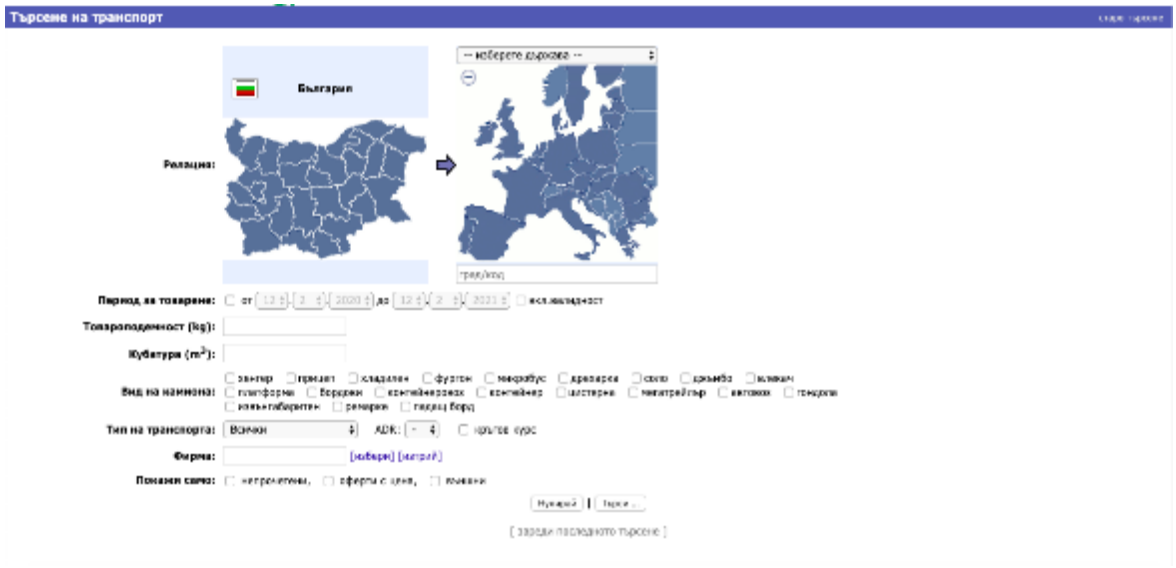


Figure 96: Searching for export freight transport

The users could check their own offers for transport. In the case presented, the user don't have any offers at certain moment we used the platform.

Figure 97: User's own offers for freight

If the user does not want to view all the offers one by one, he/she can input his/her criteria for transport or cargo as from the main menu of the exchange selects "Search Freight/transport". The system provides the ability to search by destination, cargo type, loading period, load capacity, type of transport, type of vehicle, company or only in the offers that haven't been checked.

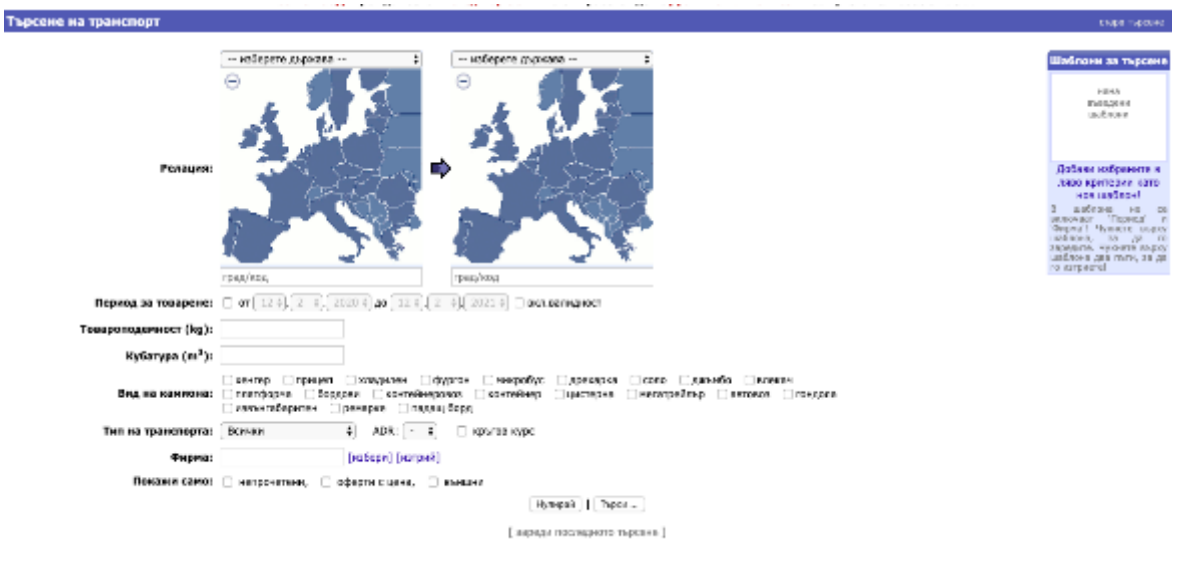


Figure 98: Search for freight

If the user wants to see only the last published offers, in the Exchange menu he/she should select "Last offers". He/she has the opportunity to choose the destination, he is interested in and see the offers published in the last 30 minutes, 1 hour, as well as the older offers.

The personal assistant in the exchange gives the user the opportunity to be notified of new offers on predefined criteria.

To leave an offer for transport in the Exchange menu, the user could add offer. He/she should provide necessary information about the transport such as: Route of transport (country of origin and city, country of destination and the respective city; type of truck; volume; loading capacity; dimensions of the truck; price and other specific requirements; readiness for loading. The user should add a period of validity of the offer as well as the type of the consignment such as refrigerated, ADR or round trip. The user could make his/her offer a priority one.

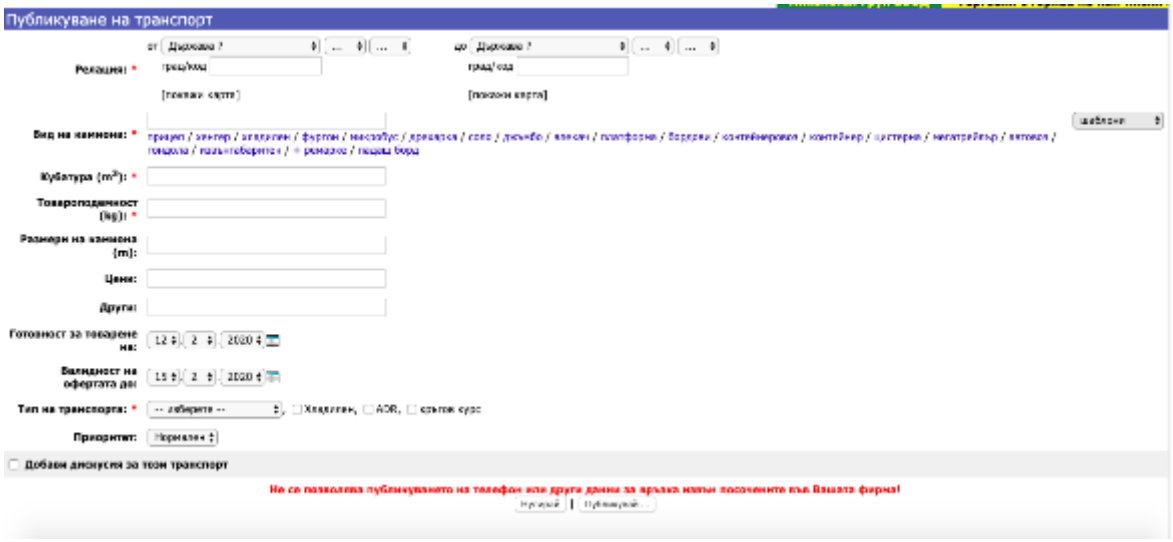


Figure 99: Submission form for freight transport

For each offer a discussion could be added in which to give more information or ask for price and additional details.

The users (shippers and transport operators- carriers) could search for cargo and/or transport, they could exchange messages and offers, they could negotiate over the conditions of transport and finally, the request sending (ordering) procedure starts with respect to the load which wants to be transferred.

Figure 100: Transport request form

To contract a transport service, the respective user should complete the form below. The shipper and the transport company should fill in their addresses in the form of email addresses. Then, the shipper fills in the drop in/off zones and dates of receipt/delivery of cargo, equipment that may

potentially be required to have to enable the loading process (e.g. crane), other details regarding the cargo transfer and the code name of the load. The system allows the shipper to declare more than one load.

There is a possibility for users to personalize their offers (contracts) by adding their own clauses. They can also store stationery for future use by creating an archive of sent orders and the created stationery.

Да
На вниманието на Г-н

ЗАЯВКА - ДОГОВОР
за автомобилен превоз на товари

С настоящата Заявка Ви възлагаме извършването на транспорт както следва:

Вид на автомобила - бордови , с размери: , с рег.No:

1. Дата на товарене: / час
2. Адрес на товарене:
3.1. Обмитяване износ:
3.2. Обмитяване внос:
4. Получател:
5. Адрес на доставка:
6. Вид на стоката:
7. Срок доставка:
8. Маршрут:
9. Бездепозитно време : от явяване на товарен / разтоварен пункт.
10. Договорено навло: лева
11. Условия на плащане: 30 дни след получаване на оригинално ЧМР и фактура
(Моля коригирайте горните данни, ако е необходимо)
12. Платец: "ДЕСПРЕД" АД ДДС № ЕИК:

13. Автомобила да има валидна CMR застраховка и всички необходими документи за извършването на настоящия транспорт.
14. В автомобила да има копани и стоката да бъде добре укрепена по време на превоза.
15. Превозвача е отговорен за всички щети възникнали по време на превоза.
16. Шофьорът да следи за целостта на опакомката и правилното подреждане на стоката и в случай, че има забележки относно натоварването и опакомката да ги запише в графа 18 на CMR:"**Резерви и забележки на превозвача**".

Долните полета са опция, ако не напишете нищо в първото поле (вдясно до поредните номера) - няма да излезнат в резултата
Други:

17. Неустойки и рекламации:
18. Особени разпореждания:
19.
20.
21.
22.
23. За тази заявка са валидни всички клаузи на конвенция CMR.

ЗА ПРЕВОЗВАЧА:
/подпис и печат/

Figure 101: Order/ Contract form for transport services

Customizing a "Request for transport" allows the user to add a company logo and print. To do this, the main user must upload the logo and print from settings. For all transport-related topics, a discussion menu is provided, where users can ask questions and discuss them with colleagues.

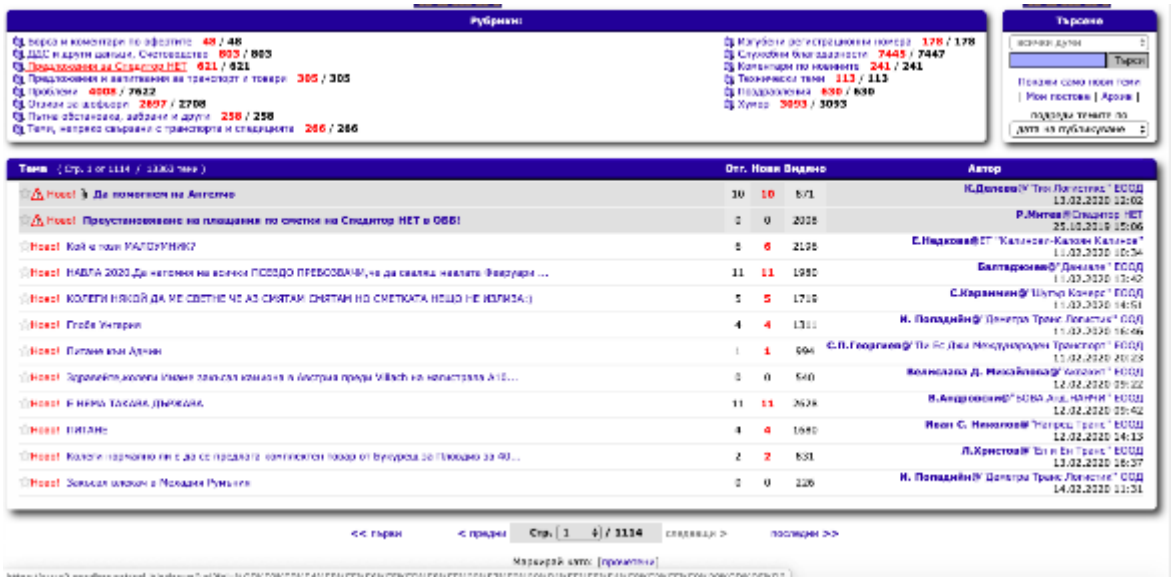


Figure 102: Discussion topics

Another option provided by the platform is the possibility of submitting ads related to transport and forwarding. If the user sells, seeks to purchase or replace trucks, trailers, parts, equipment and others, also if he offers or looks for a job as a driver, forwarder or other transport related activities, he/she may search for the advertisements and offers and respectively he/she may post a notice thereof.

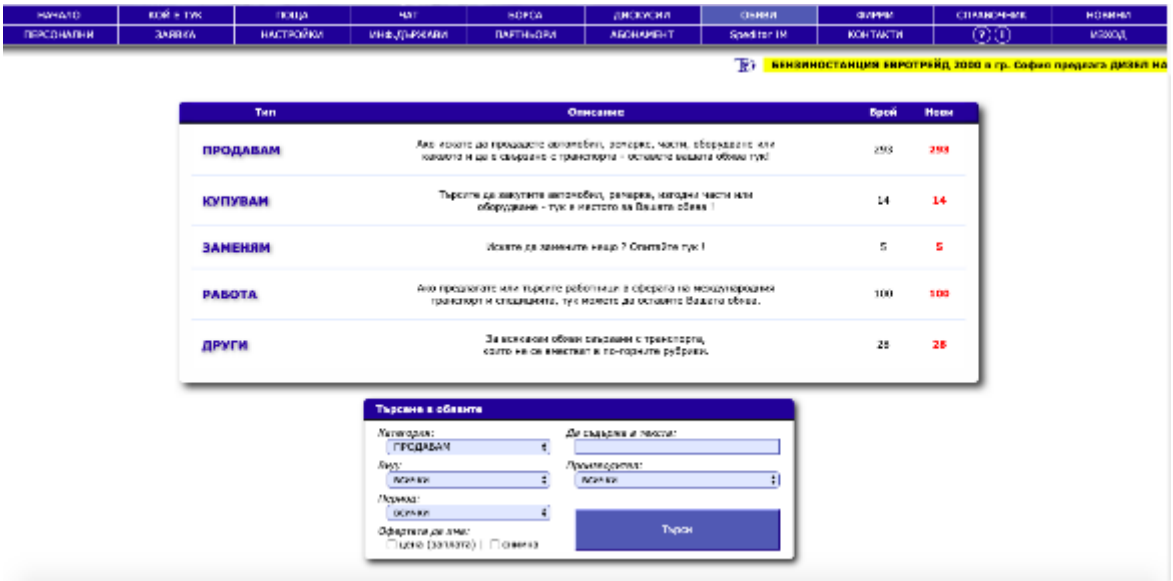


Figure 103: Advertisements in the platform

The platform provides a list of registered companies. If a user wants to look up or search for a particular company, he /she can use this option. The user should scroll the list, select by initial letter or set a name or desired criteria in the search engine. The results shown will depend entirely

on the data submitted by the users. On the right side of the list of companies there are the names of registered users from a company.

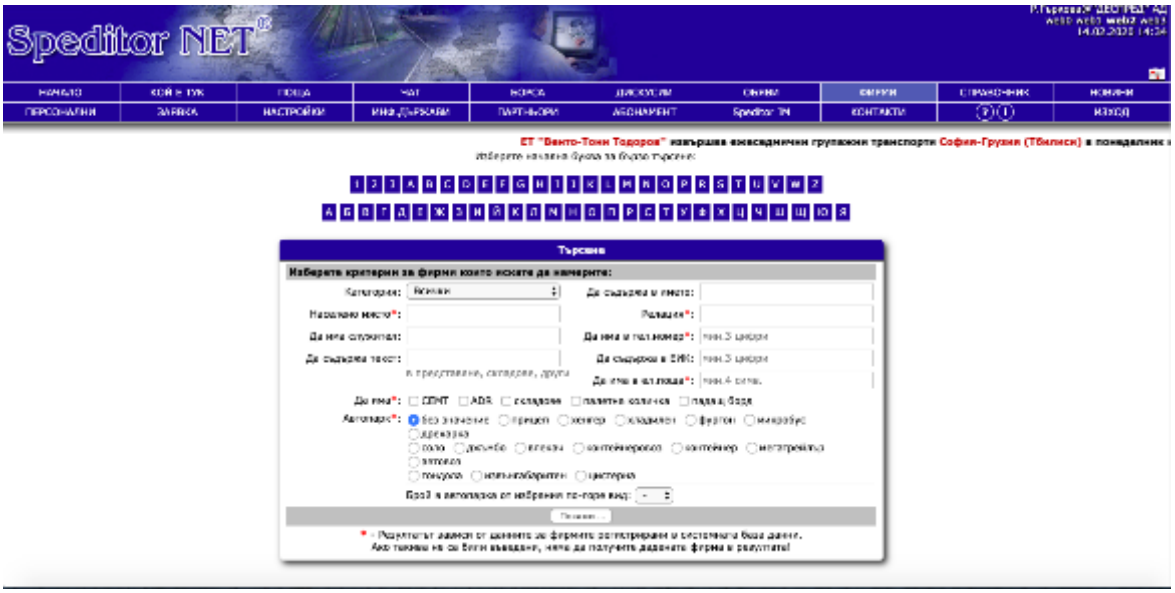


Figure 104: Looking for a registered company

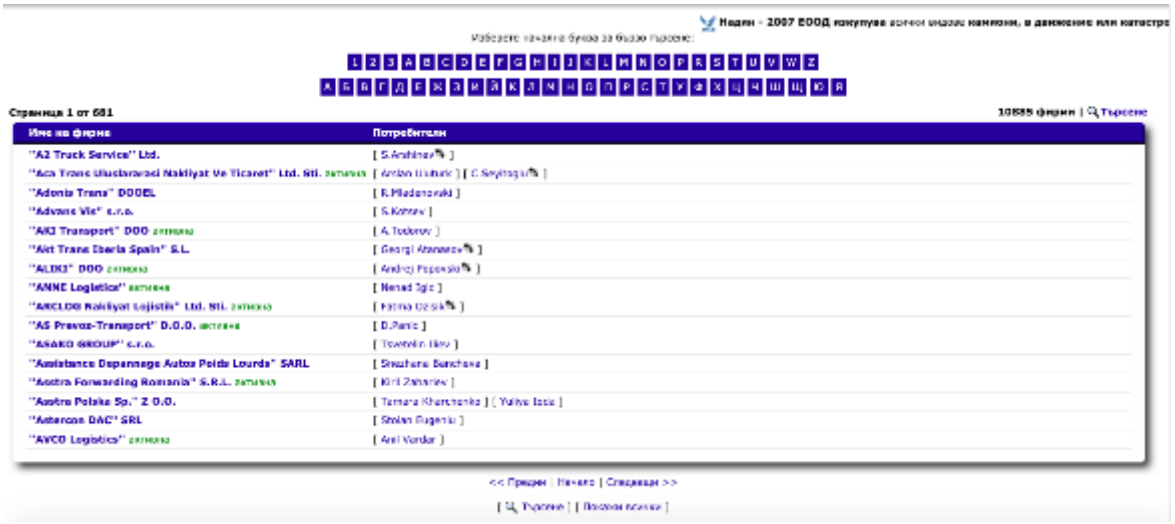


Figure 105: A list of registered companies by alphabetic order

The platform suggests business support guides, related to different topics such as regulations, customs rules, systematized information by country, useful phone numbers and addresses in different countries, holidays, fuel prices, tolls, trade rules, certificates' requirements, visa regimes and embassies etc., where for each country there is updated information on weekends, summer and annual traffic bans, tolls, fines, etc.

Figure 106: Guides by countries

The platform provides as well useful internet addresses and links sorted by categories such as websites of different transport institutions and organizations, international organizations, news and media, mobile operators, online trade, web portals and browsers, legislation, postal codes, accounting services, software providers, financial services etc.

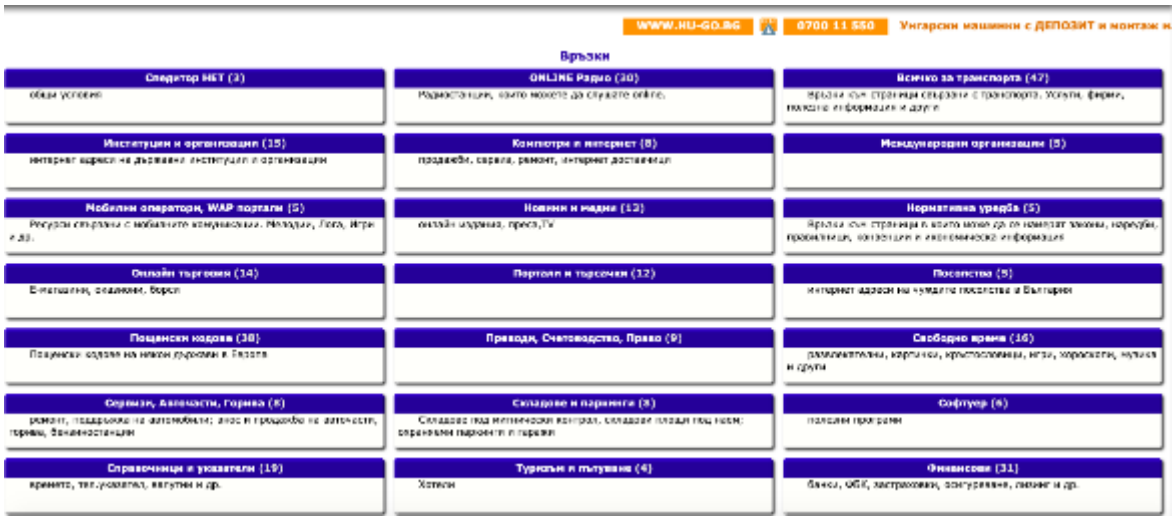


Figure 107: Useful links

There is a possibility for the users to add links so they can share with other important addresses and links.

Exchange messages between shippers and carriers

The platform provides an instant messaging for the users. They could find the profile of the

company to which they want to leave the message via the search engine and select "Send internal mail". A window "Compose New message" will open, and then they could and submit their message. Thus, all the registered users from the respective company could read the received letter. This way the users can make an enquiry, offer, invitation or regular correspondence.

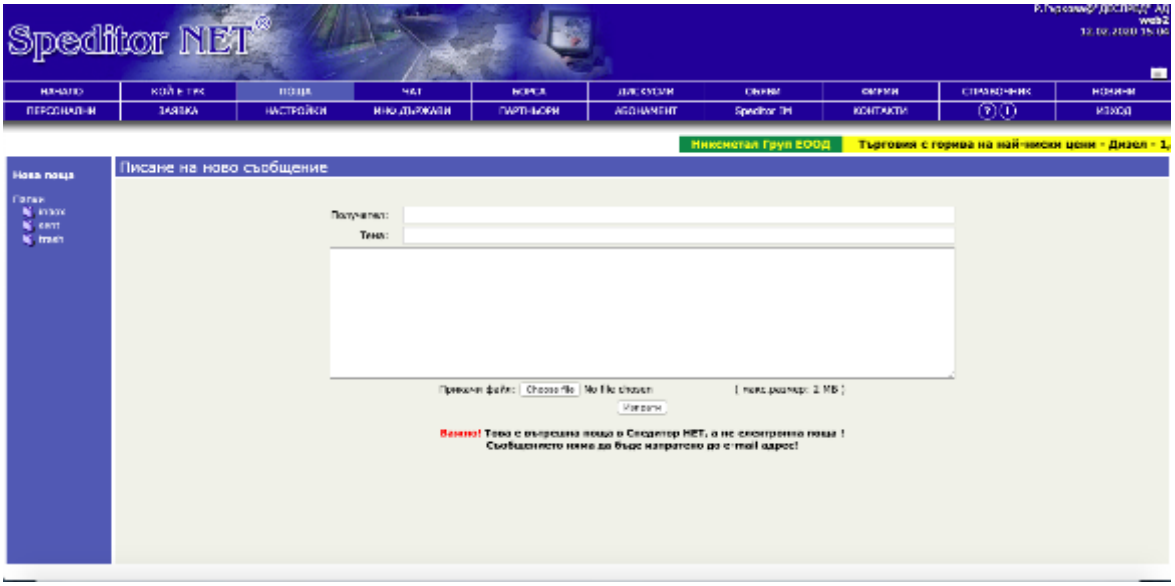


Figure 108: Creating new message

If users want their messages to be received only by a certain person from this company, in the company's information they will see how many and which of its employees are registered. Select your preferred partner and open your personal info. In the same way, leave your message on it. Your message will be received immediately and if the user is online he will be able to read it at the moment and answer you.

Figure 109: Mail inbox

In general, an E-Assistant notifies the users about new mails.

The platform provides chat function as well. It supports online conversation in real time with an opportunity to communicate simultaneously with many users both in general conversation, and in person.

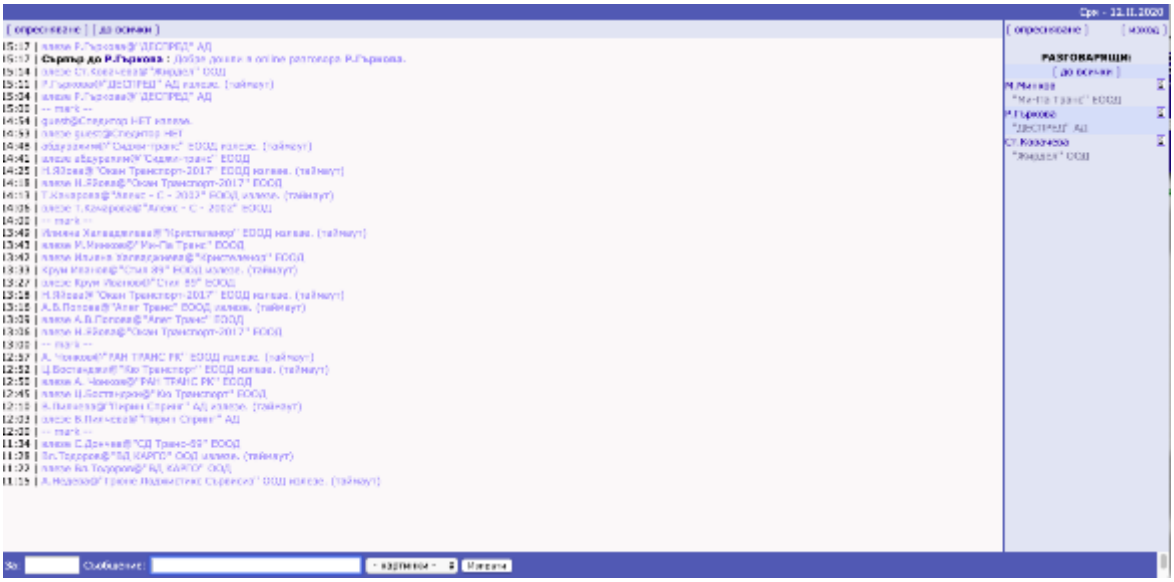


Figure 110: Chat room space

The user's messages appear in the general conversation visible to everyone. If they want to have a personal conversation with one of the users present in the chat, they have to select from the list of users in the right-hand section and click once on its name.

If the user they want to contact at the moment is not in the chat room, the user can invite him to the conversation. To do this, he/she has to open "Who's here" section and he/she will see the invitation icon "Call in the conversation", click on it and confirm the invitation. Up to three minutes, the electronic assistant will notify the user that there is a call.

Login access software and mobile app

The platform Speditor. NET has login access software and mobile app, that provide convenient and fast communication with partners; notification of new offers, mail, discussions, announcements; notification of hot offers from the assistant; and Quick View and search for offers in the exchange.

The application Speditor.NET Instant Messenger (SIM) provides the users with an opportunity for quick and easy communication with their partners in real time. They could get instant browsing and search the latest listings from the exchange, follow the new discussions, announcements and their mail! Speditor.NET Instant Messenger can notify the users about the hot deals they are interested in.

- *Installation*

To install a SIM for the first time, the user can download the current version from the link on the left-"Download Speditor NET Work & Joy". The installation process is extremely easy, the user only needs to enable the steps to run one after the other.

By right-clicking on the icon next to the clock or on the bottom left corner of the main window shown above, where the user's status is displayed-Online or Offline, he/she can display the main menu (see picture below).

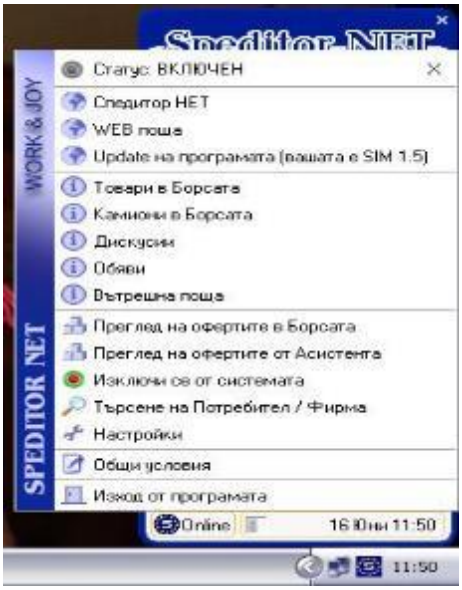


Figure 111: Mobile app main menu

- *Settings*

By opening the menu and selecting Settings, the user has an option to change certain settings for the program operation.

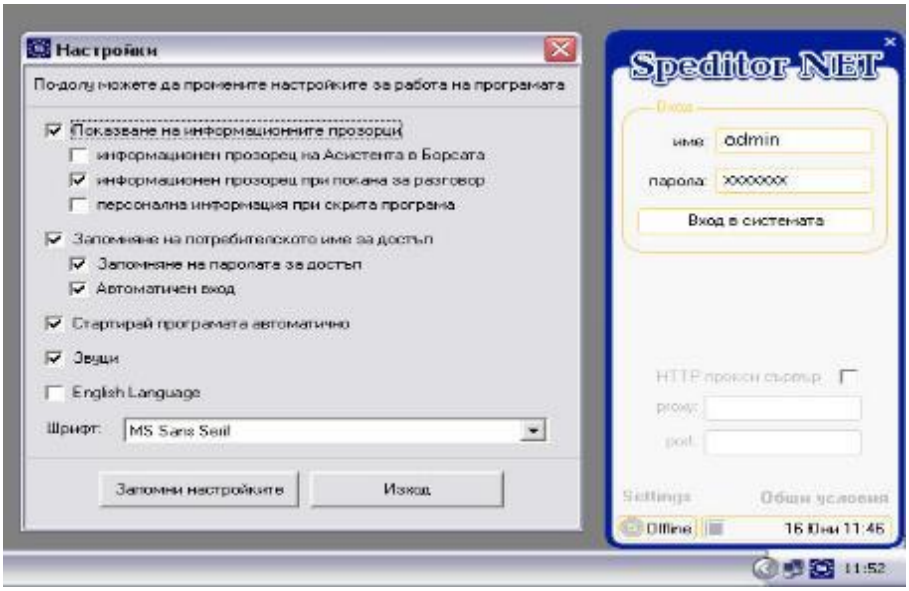


Figure 112: Settings for the mobile app

The user could select and configure the individual options in a way that will be convenient for hem/her. He/she has the option to select the information windows that he/she want to display, to remember his/her username to access the application, to choose in which language (Bulgarian or English) he/she would like to include the program, as well as other features.

- *User/Company search*

While working with the SIM app the user has the opportunity to quickly and easily search for users or companies from all registered in the platform. To do this, he/she has to select "Search for user/company" from the main menu. In the window that will open he/she can do his/her search (see the figure below). The user could specify the name he/she wants to find and select what he/she is looking for - a user or a company. The results found will be displayed on the right side of the window.

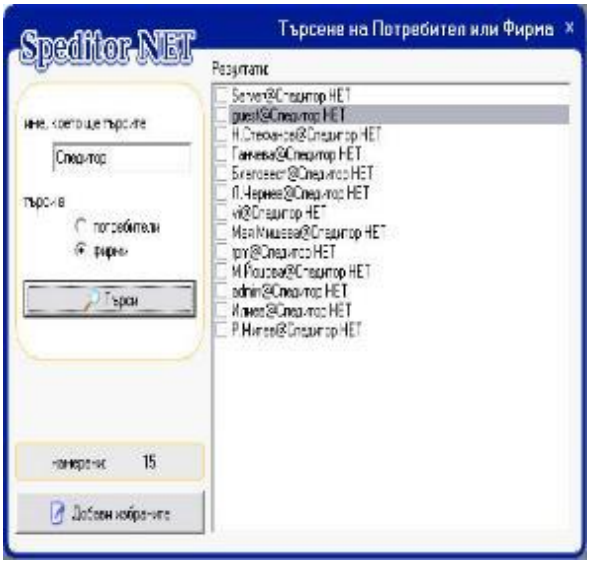


Figure 113: Searching for other users

If there are any users/companies that the user would like to be added to his/her list of contractors, he/she has to select the given users/companies from the list and click on the button "Add selected". By pressing the right mouse key on the results, the user will see information about the given user (see below).

Figure 114: Information about other users

- *Instant messages with other users*

When any of the users added to one's user list is online, he/she can have a conversation with them.

Apart from as a message, the user can set the sending of his/her text as an internal mail as well.

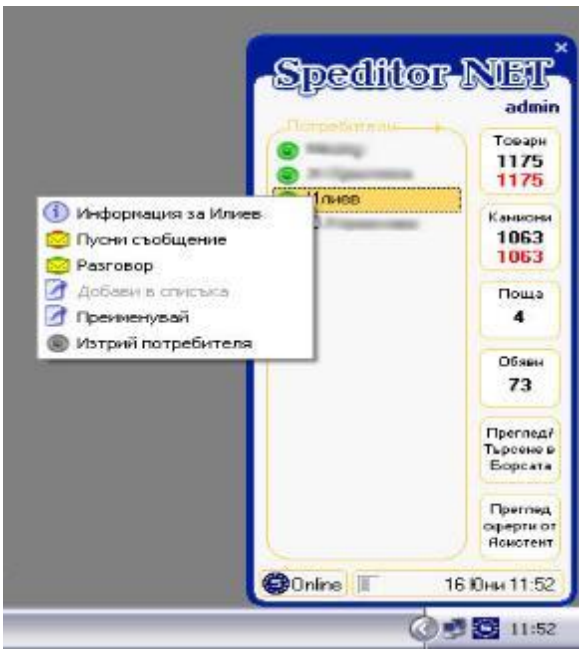


Figure 115: Instant messaging vie mobile app

In the window open, at the top the user has the opportunity to quickly access his/her mail, notepad and organizer, as well as to the home page of the platform.

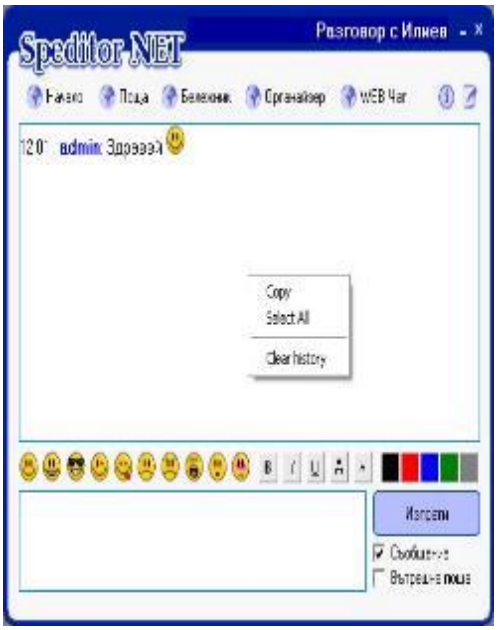


Figure 116: Messaging window

In addition to choosing the option to chat with a user on the list of added users, one has the option to view its profile, send a message or delete it.

- *Searching for offers in the exchange*

To search in the exchange the user has to open the menu ‘Search in the freight exchange’. In the window that opens, the use has to select the type of demand-load or transport, the route and the type of cargo/transport (see the figure below).

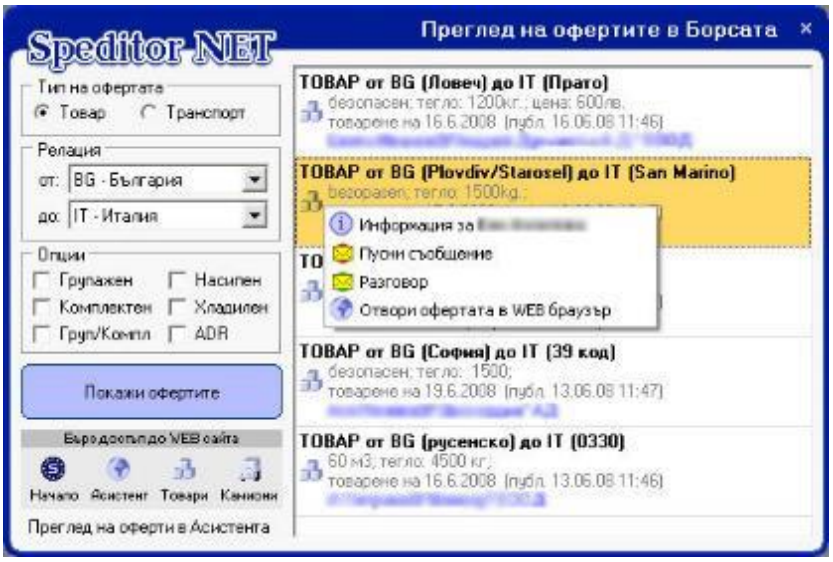


Figure 117: Freight exchange search

Once the list of offers is loaded, the user can view them and opens the offers or directly to send a message to the user who posted the offer.

- *View/search offers from the assistant*

The user should select the button "View assistants’ offers" form the main menu (see below).

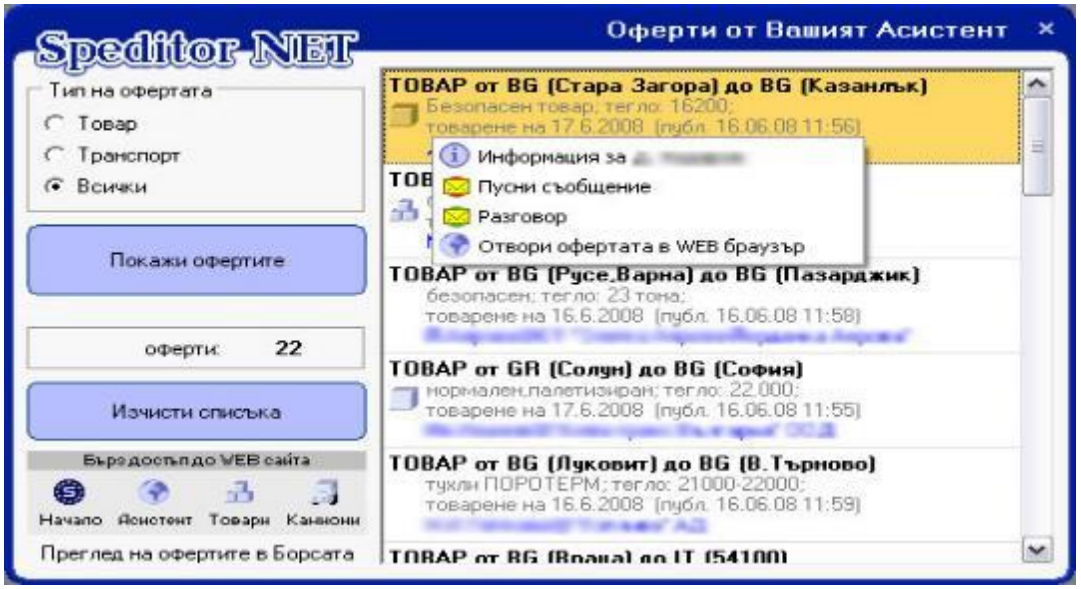


Figure 118: Assistant’s offers menu

In the window that opens, he/she should select the type of the offer he/she is interested in - freight, transport or all fields. Once the list of offers is loaded, the user can view them and open the

selected offers in a Web browser or directly send a message to the user who posted the offer.

5.2.2 "Trans.eu" road transport platform

The Trans.eu platform (https://www.trans.eu) is a transport exchange platform with modern tools facilitating transport management. Over 6 000 shippers offer cargo, 25 000 carriers create Community and 9 000 freight forwarders actively use the platform. The platform is relatively new, but it quickly gains users among the Bulgarian transport and forwarding companies.

The Trans.eu platform require a subscription. The monthly access price is 109 EUR and the annual fee is 981 EUR.

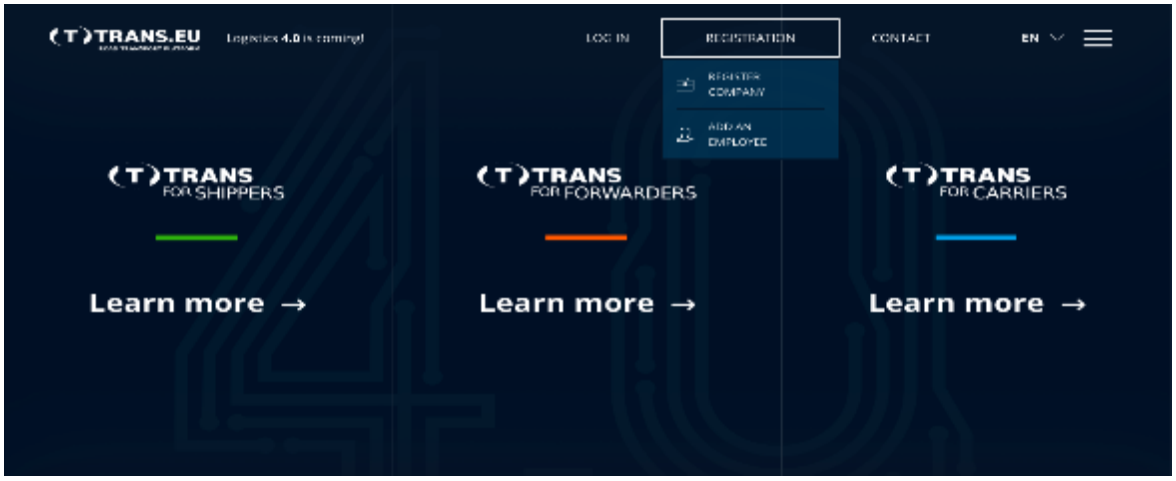


Figure 119: Trans.eu main page

The platform provides three different products with tools dedicated to shippers (Trans for Shippers), forwarders (Trans for Forwarders) and carriers (Trans for Carriers). It consists of covered covers the specification of the work of the target group and automates the management of road transport. The Platform includes a transport exchange, enabling the publication of available loads and vehicles to the Trans.eu community.

Shipper services

The platform Trans.eu introduced modules that not only systematize work, but also require quick orientation in the current state of all freight sent by users' offers.

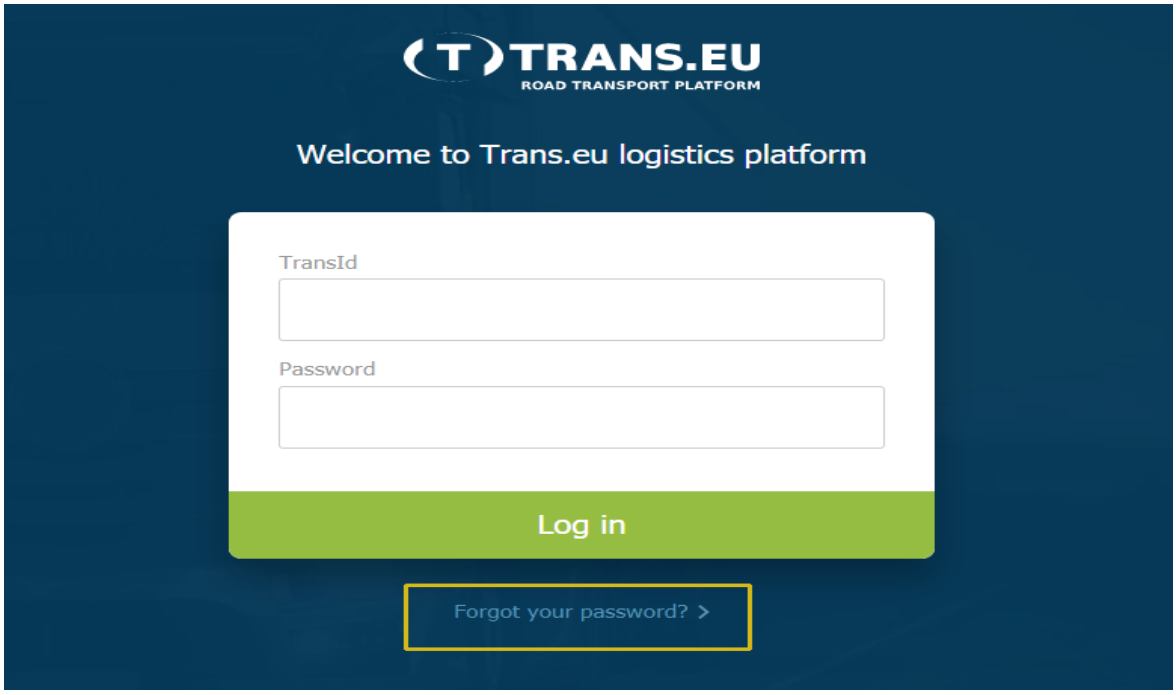


Figure 120: Login page of Trans.eu Platform

The Shippers module is where the shippers add load offers and publish on the Exchange or they send offers to selected operators or forwarders. The platform provides for the shipper offers with actual prices as well as an easy and fast carrier search. The international community of transport companies allows faster finding of a carrier.

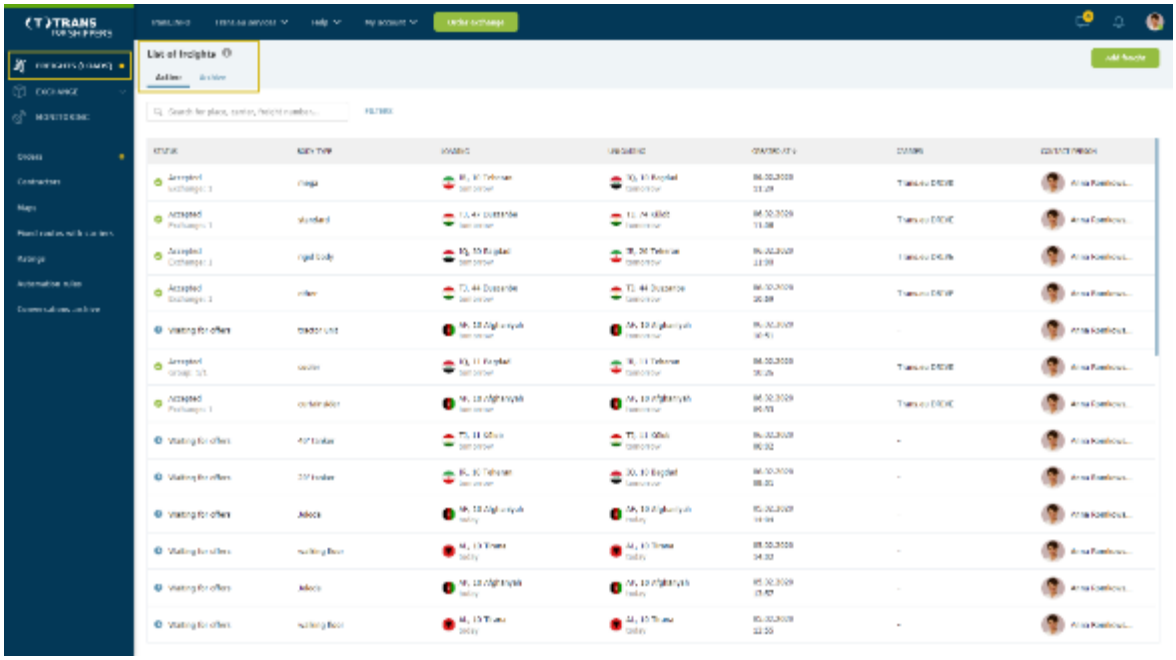


Figure 121: Loads exchange offers

The first step is to complete the required information about the freight consignment. Freight is a

place where the user has access to all transport offers issued by him/her. One glance is enough to check at what stage his/her proposal is.

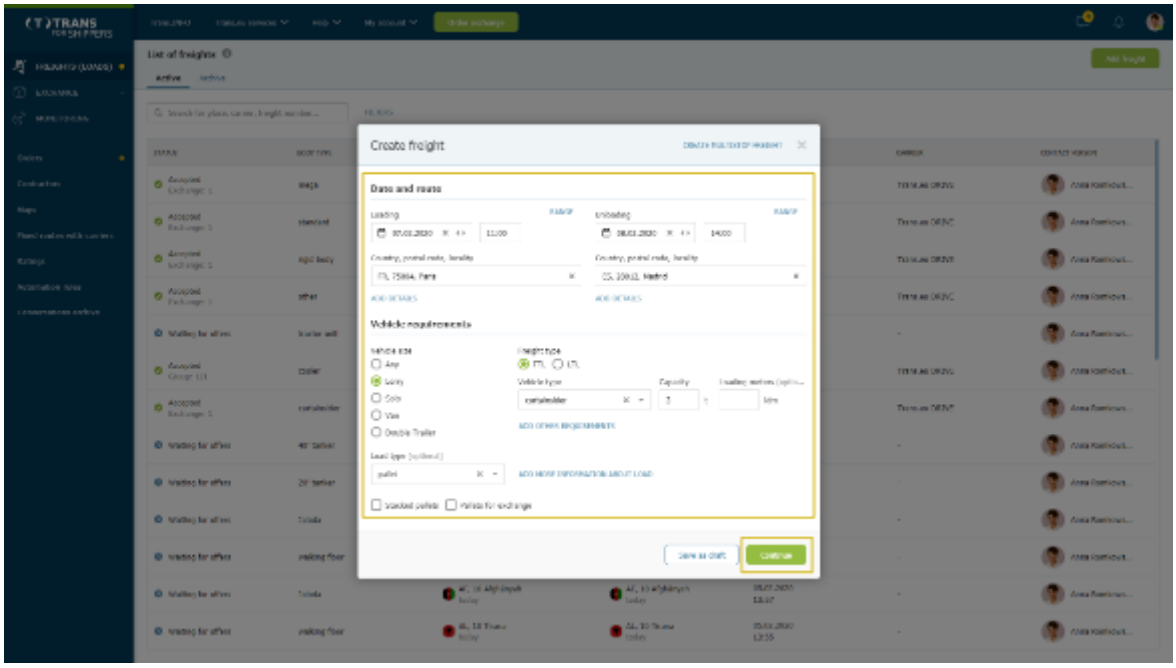


Figure 122: Creating new offer for freight

The users can choose who to send the freight to:

- Fixed routes - if the freight matches one of them, the user can publish it according to its conditions;
- Contractors - this option allows the shipper to choose the groups to which the freight will go. He/she can create groups in the contractors' module.
- SmartMatch - is an algorithm thanks to which the freight will be sent to companies best suited to the load.
- Exchange - the freight will be published on the freight exchange.

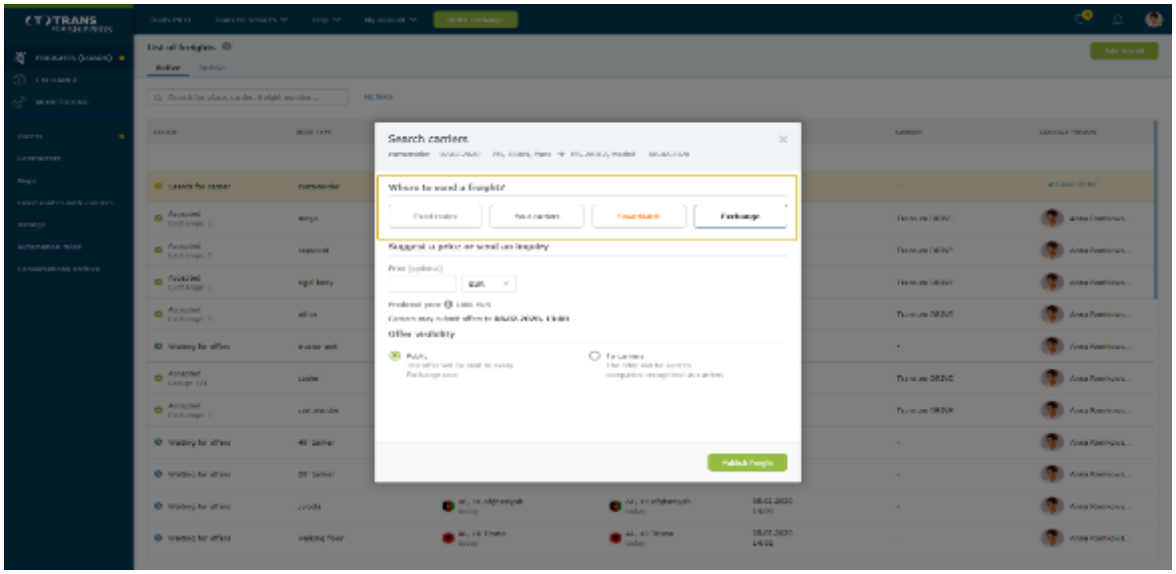


Figure 123: Searching for carriers

The shipper should specify the price and the expiry date of the offer, and then publish the freight.

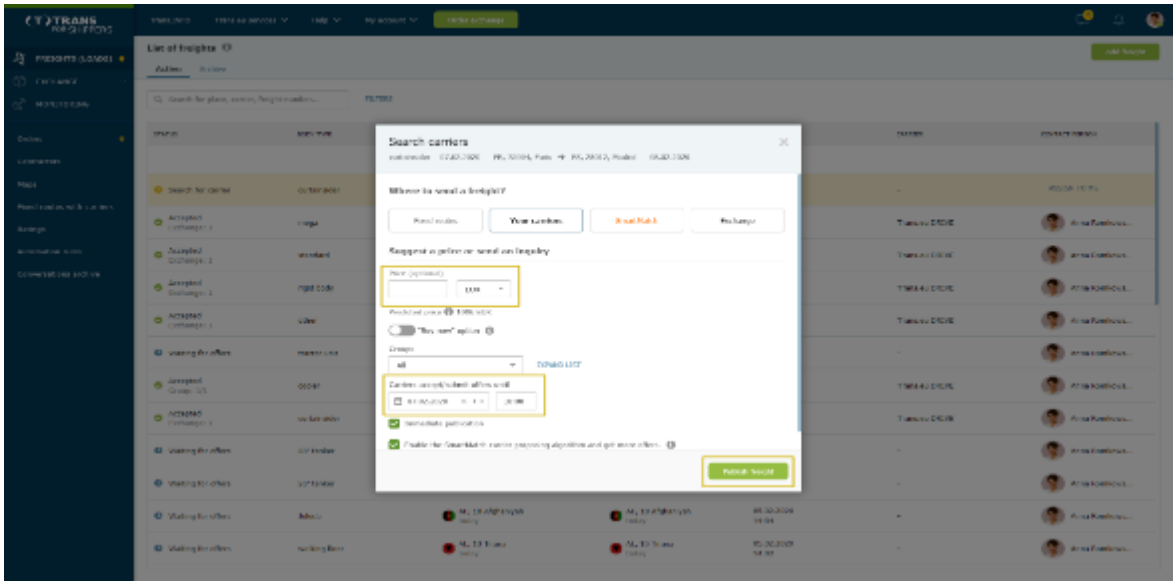


Figure 124: Specifying the price of the offer

After sending an offer, the shipper can wait for reply. Respectively, he/she can reject, accept or negotiate the offer. The platform provides access to the full negotiation history.

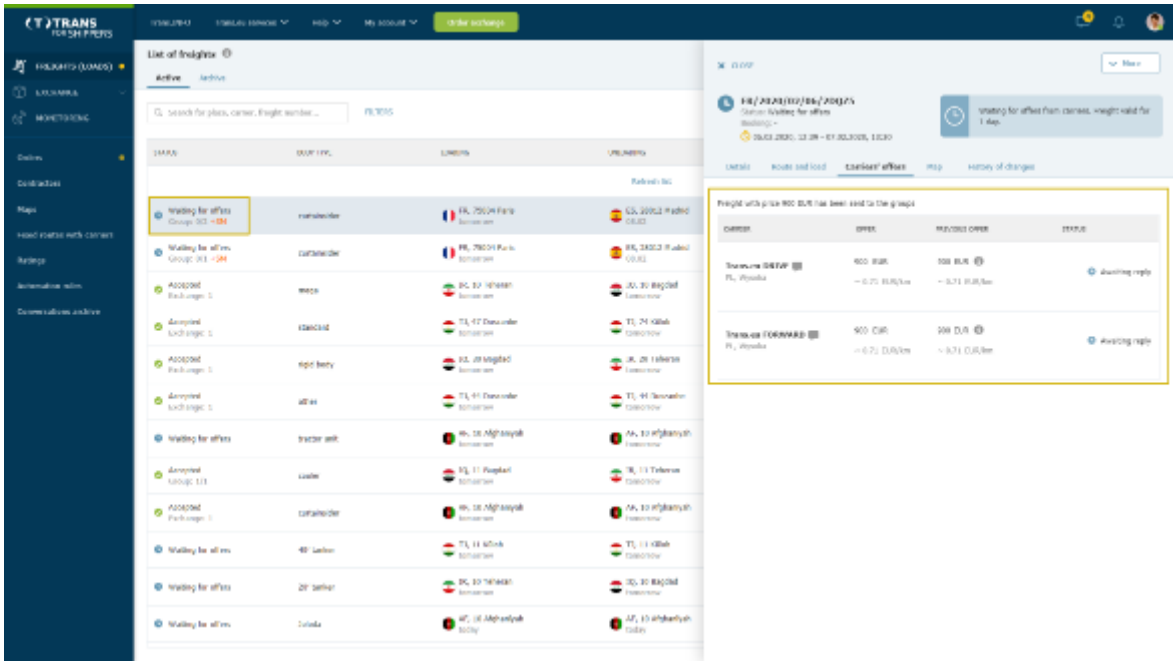


Figure 125: List of freight offers

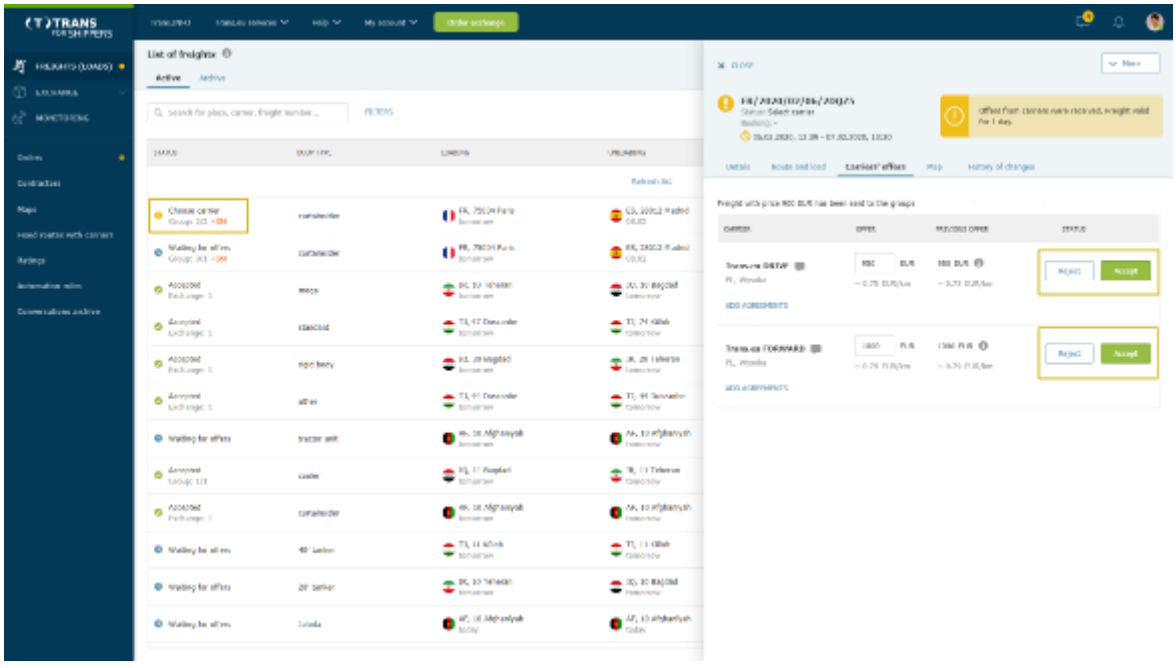


Figure 126: List of negotiations on offers

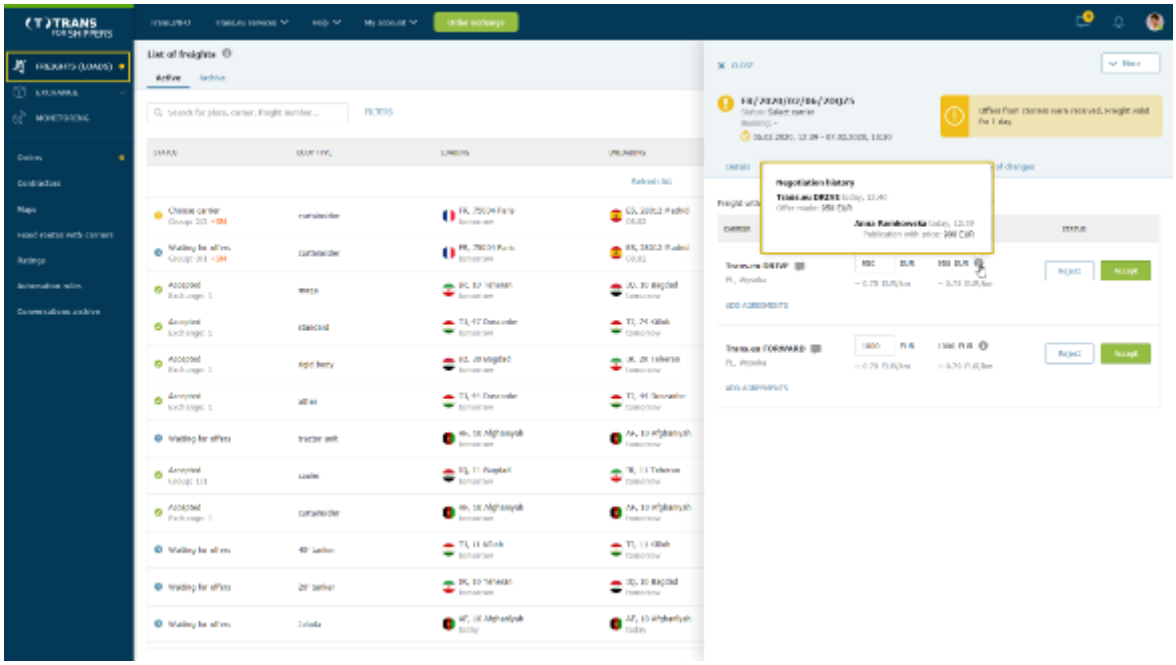


Figure 127: Negotiations history

When the parties accept the freight, the remaining proposal receives status completed.

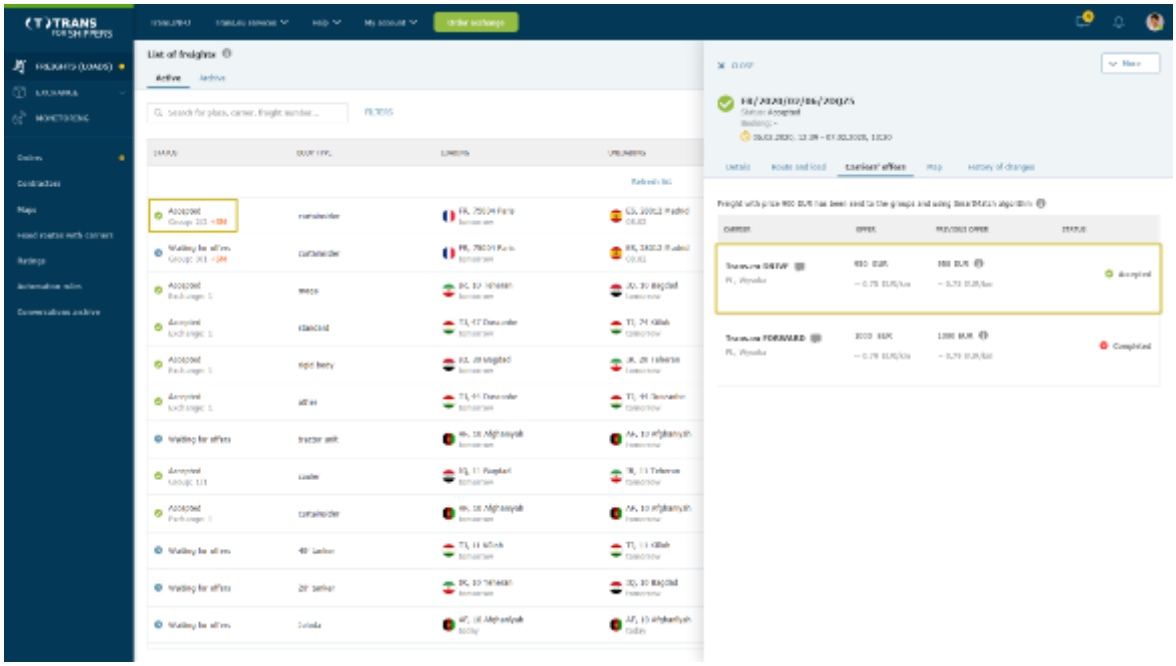


Figure 128: Accepted offer

Another important service provided by the Platform is cargo monitoring, that allows the shippers immediately to see on the map events such as: loading, unloading, stay or change of route.

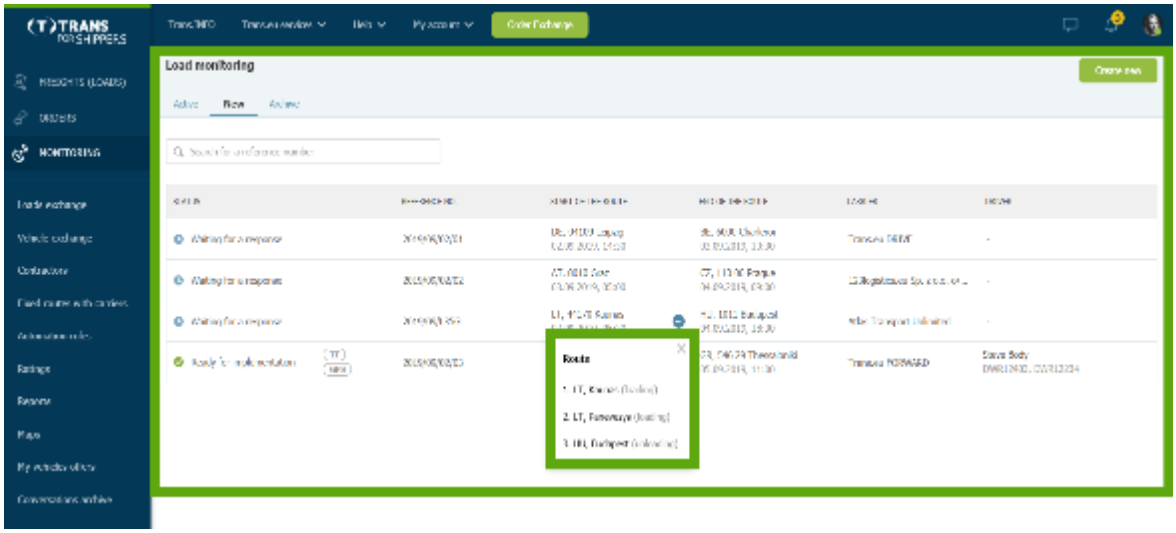


Figure 129: Load monitoring

As an ordering party, the shipper can require a cargo monitoring from his/her subcontractors, and he/she can check what is happening on the route directly from the Platform.

When the offer is accepted, the shipper can find a new task in the list that he/she can send to the carrier. After approving the monitoring task by the carrier, the shipper can complete details e.g. driver name, information about the vehicle. From this moment the shipper will be up to date with what is happening with his/her load.

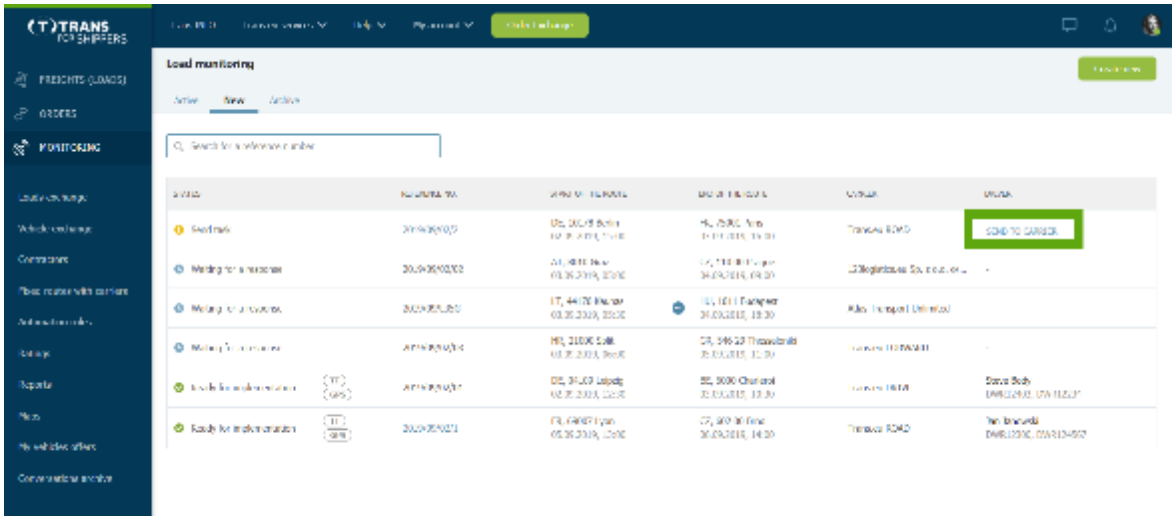


Figure 130: Load monitoring – load status

In the Monitoring module, in the Active tasks tab, the shipper can find information about the progress of the task. Monitoring starts 30 minutes before loading.

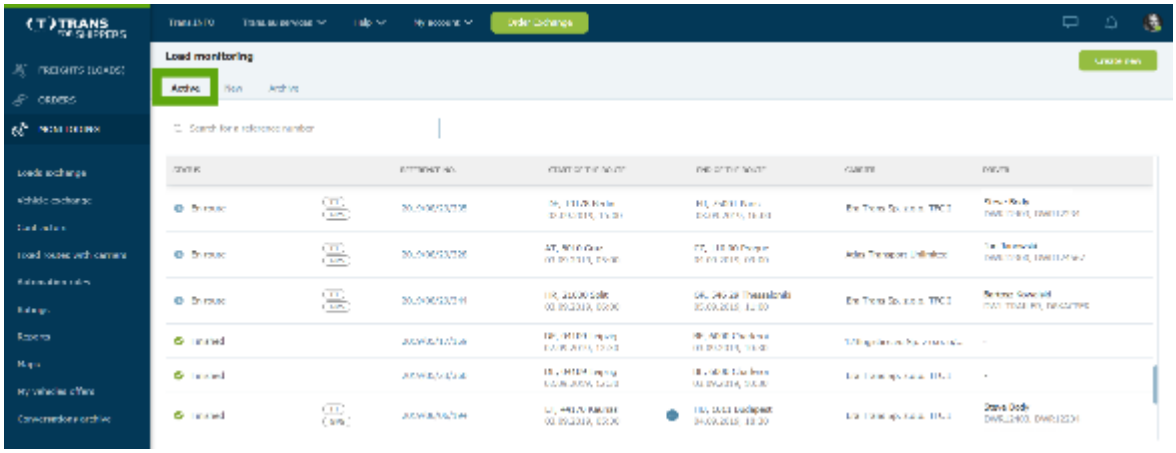


Figure 131: Active monitoring tasks

If something unexpected happens on the route, the shipper will receive an alert containing a description of the incident and information about the expected delay. He/she can view a detailed list of events in a new window. Here the shipper will find information about each activity related to the carriage.

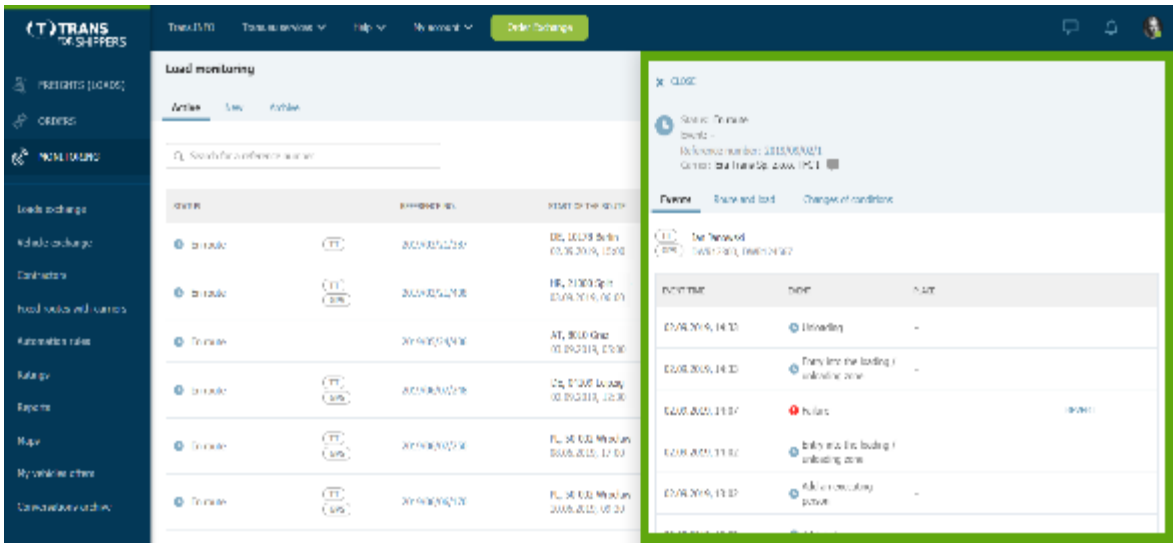


Figure 132: Load monitoring – events and incidents

The signal is switched off when the vehicle enters the unloading zone and:

- after leaving the last operation zone;
- 30 minutes after entering the last zone of operations, if the vehicle has not left it;
- 24 hours after the last planned step, if the vehicle did not appear in the last zone of transit.

Then the monitoring task changes the status to Finished and the respective offer can be found in the Archive.

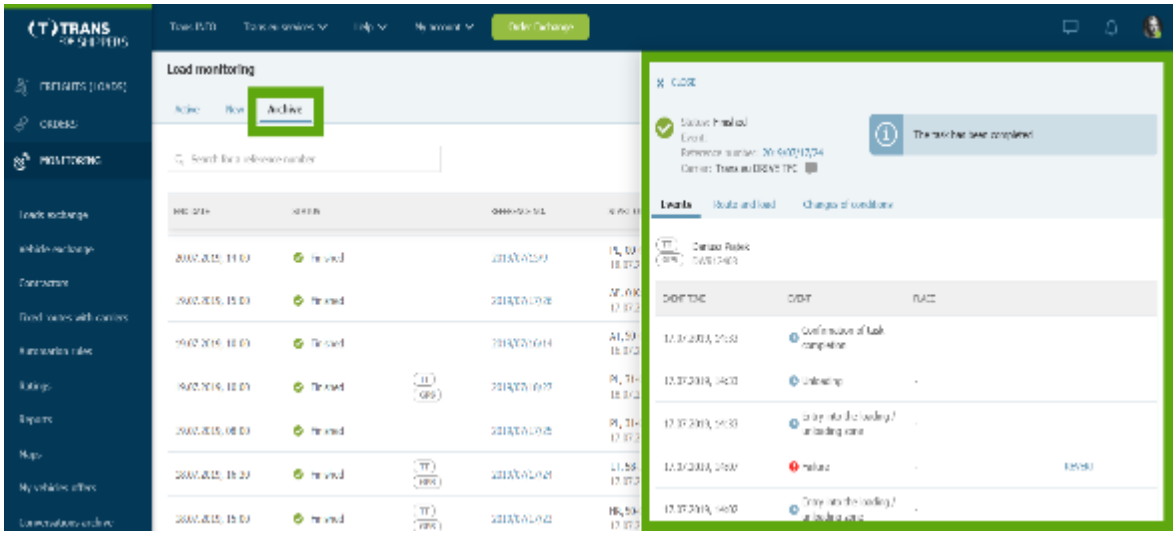


Figure 133: Offers archive

Thanks to the ability to monitor the load, the shipper has quick access to current information about what is happening with his/her cargo.

In the Contractors module, the shipper can build groups of carriers to whom he/she send freights. The possibilities of creating groups are endless. The user chooses the criteria and carriers according to his/her needs and goals, e.g. companies for a specific area or type of building.

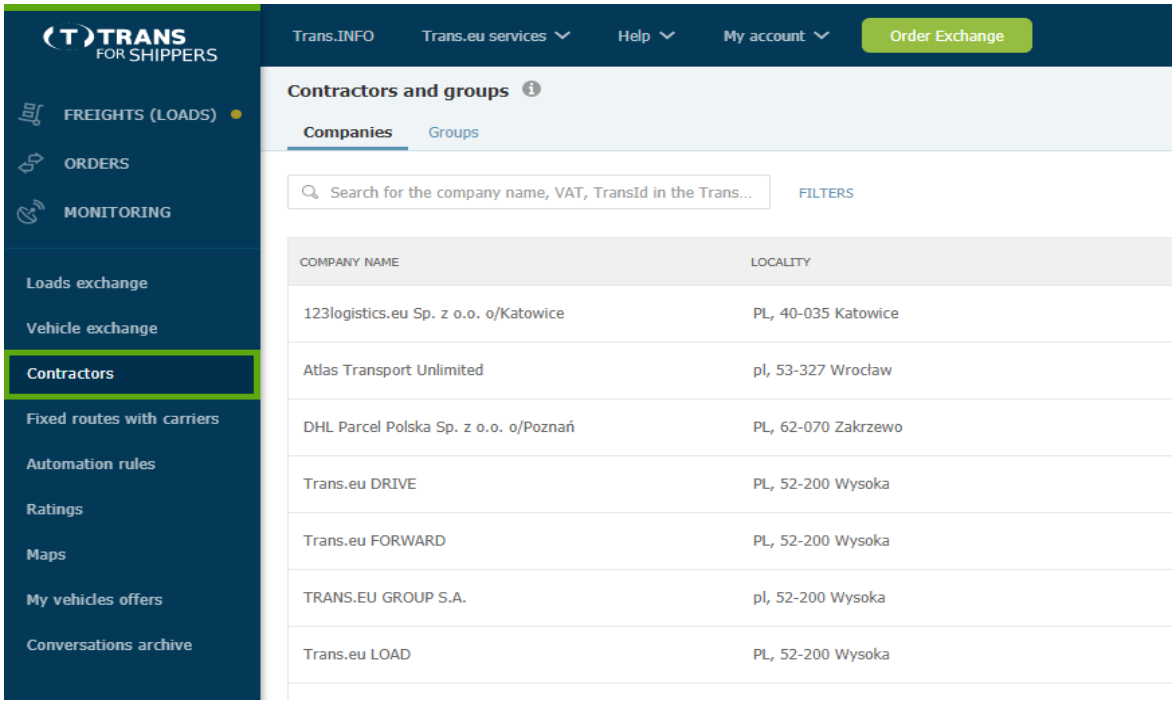


Figure 134: Contractors module

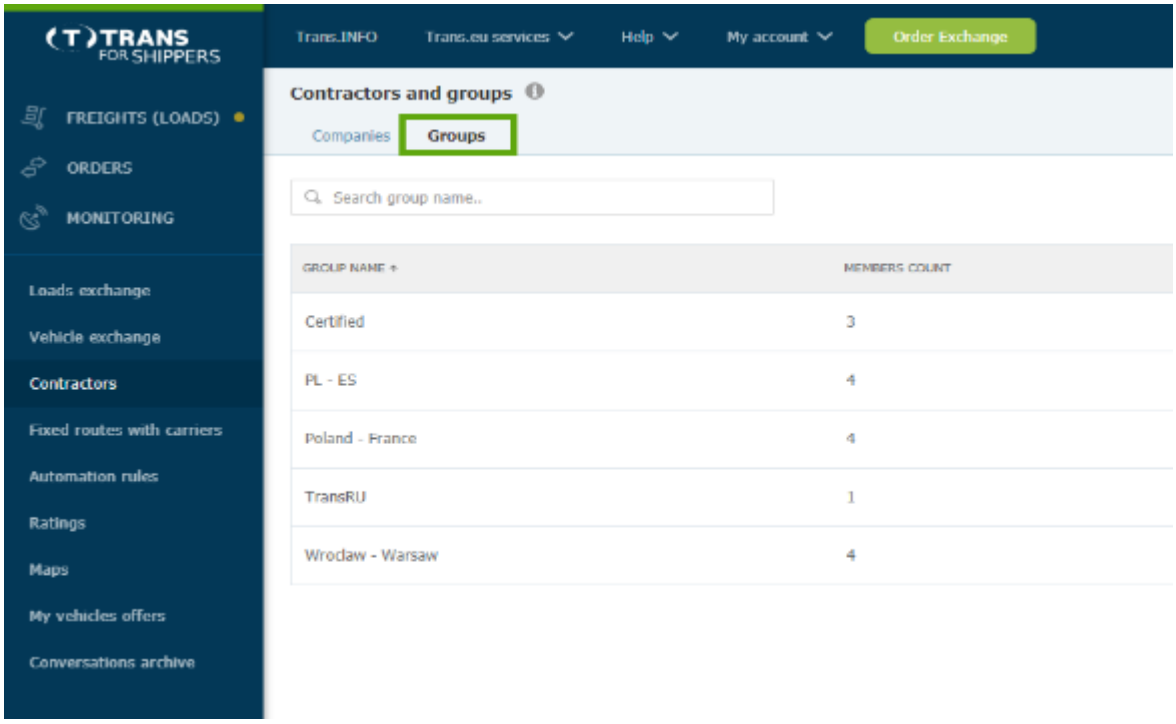


Figure 135: Groups in the Contractor module

One carrier can belong to several groups - it all depends on the users' needs. For each company in the group, the shipper can choose the contact person to whom he/she will send freight proposals. Thus, he/she can quickly send freight only to selected contractors. When publishing a freight, the shipper decides who should receive the cargo proposal.

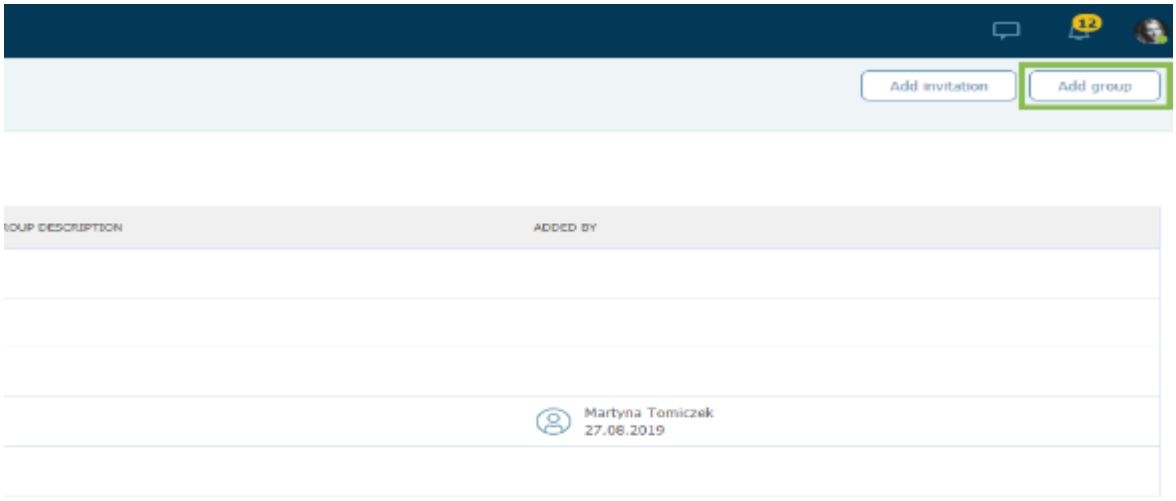


Figure 136: Creating groups in the Contractors module

The platform provides an option of creating automatic rules. They are the best way to attract

carriers to carry out orders in an almost maintenance-free manner. Thanks to the rules, the shipper can decide who and in what order will receive freight offers.

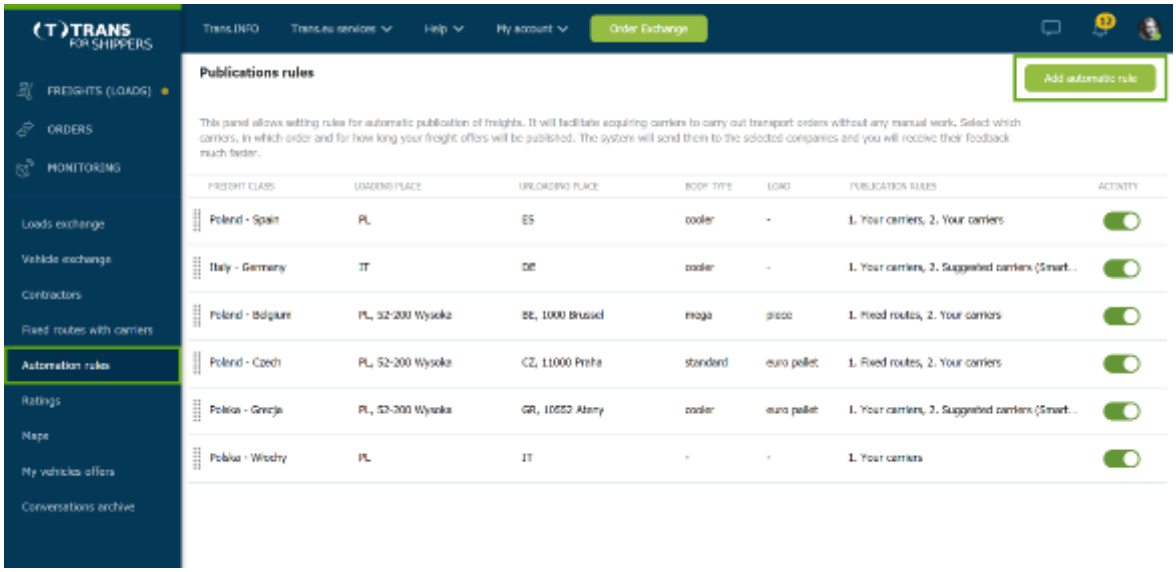


Figure 137: Publication of the automatic rules

Adding an automatic rule means filling out a short form, including the name the rule, add loading and unloading place details and describe the characteristics of the freight. When completing the form, the shipper should consider the load parameters as the rule will work correctly if these parameters match those of the freight the shipper wants to publish using the rule.

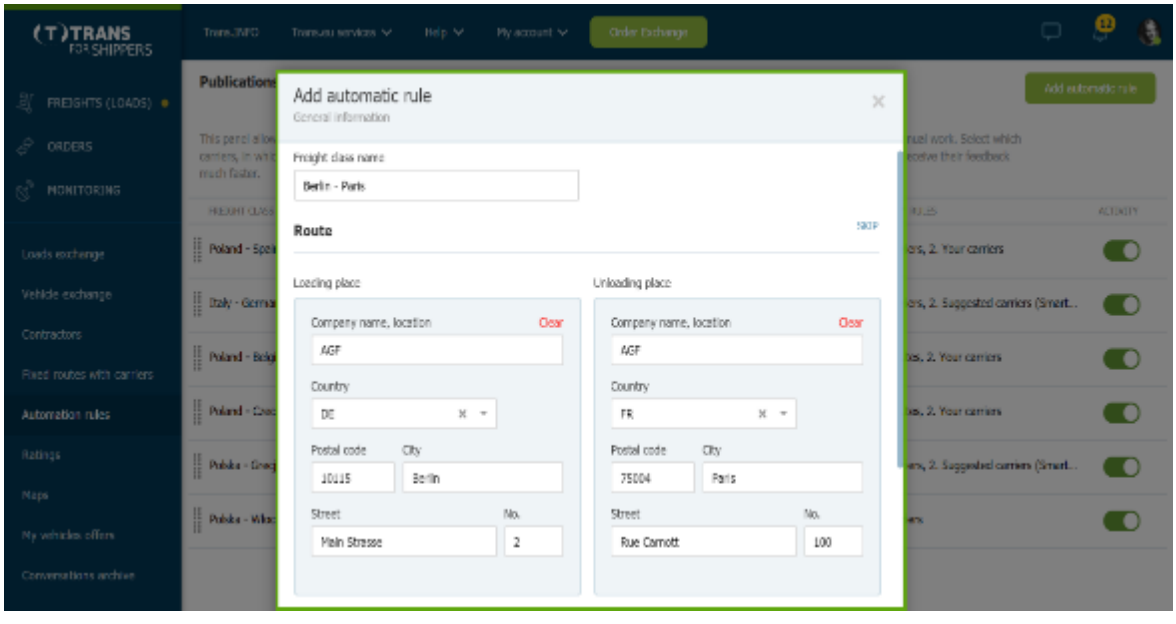


Figure 138: Adding automatic rule form

The name of the automated rule is visible only to the shipper and his/her colleagues so, he/she should try to make it easy to identify. Going to the order of publication it's up to the shipper how

this order will look like and whether he/she will use all or selected publishing options.

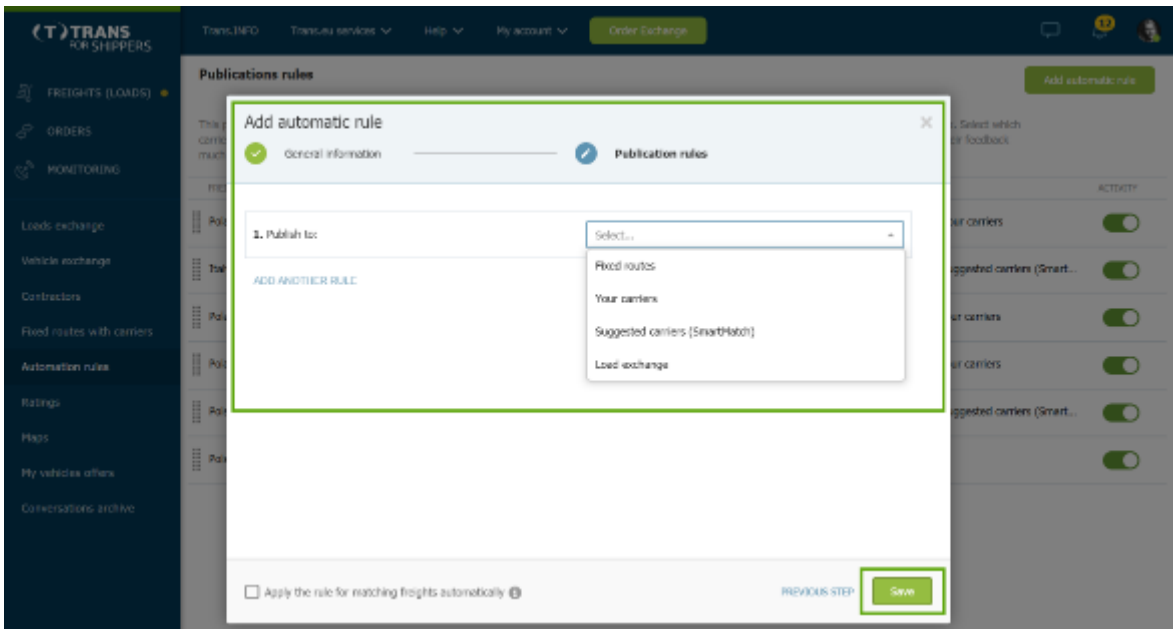


Figure 139: Publication order

The shipper can choose between:

- Fixed routes - set if the shipper has agreed conditions for cooperation with contractors (on the given route) and such information has been saved in the "Fixed routes with carriers" module.
- Your carriers - set if the contractors include companies that can potentially carry out freight.
- Proposed carriers (SmartMatch) - set if the shipper wants the SmartMatch intelligent algorithm to match his/her freight proposal with proven carriers and send them an offer.
- Loads exchange - set it if the user wants his/her offer to reach Trans.eu loads exchange.

The Trans.eu Platform provides a rating system for the users. Everything is done so that the assessment system best reflects the real quality of cooperation with the contractor and supports in making the right decisions.

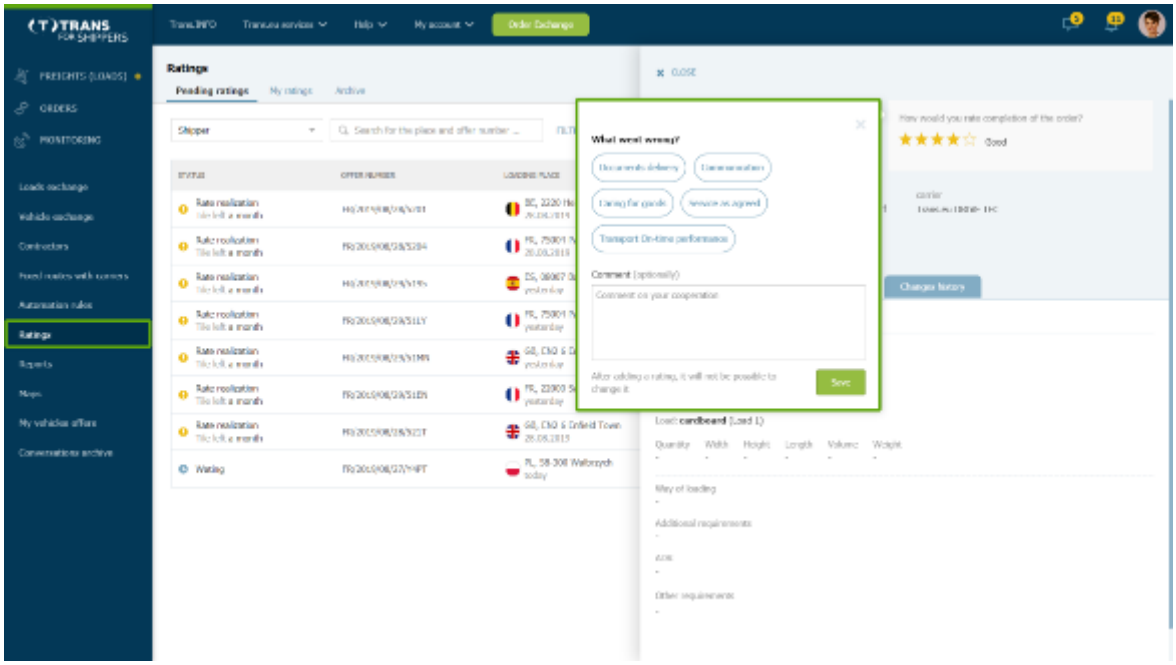


Figure 140: Rating module

Every transaction concluded on the Platform is subject to assessment - thanks to this information on the quality of cooperation with companies will always be up-to-date and reliable. A star rating system on a five-point scale, where 1 means unsatisfactory, and 5 very good. If the assessor does not issue the highest score, he can use the tags and indicate one of the areas where something went wrong: delivery of documents, communication, care of the goods, compliance of the service with the arrangements, timeliness. The contractor has a chance to respond to the assessment, if he disagrees with it - he can give a one-off answer. Both companies have 30 days for evaluation of cooperation in order processing (they do not have to wait until the payment deadline),

The Carrier may report a payment problem regarding each transaction concluded on the Platform and each accepted freight within 120 days of the date of unloading. Such notification affects the payment assessment rate of the contractor, who may respond to the notification.

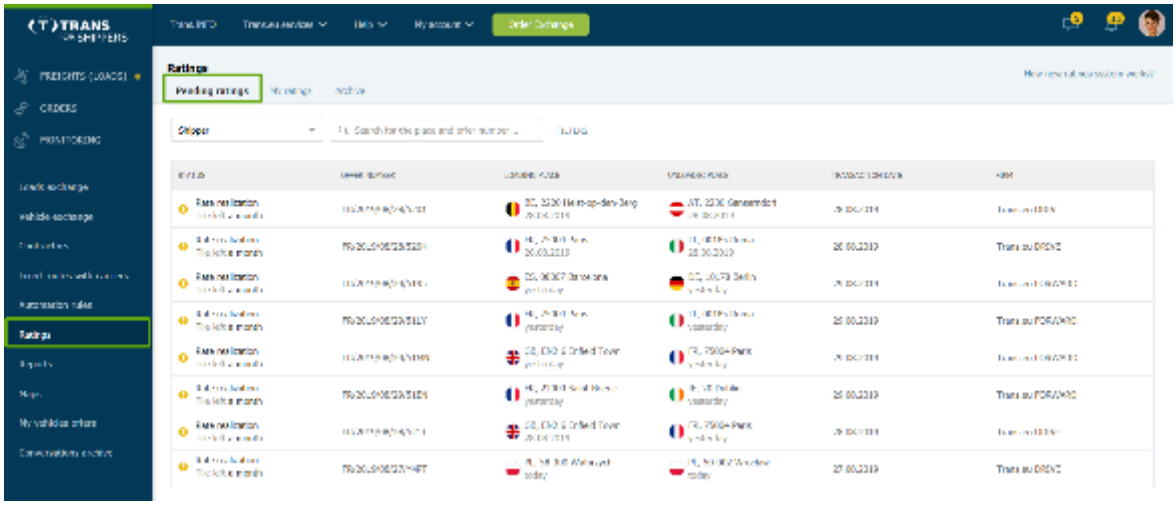


Figure 141: Pending ratings

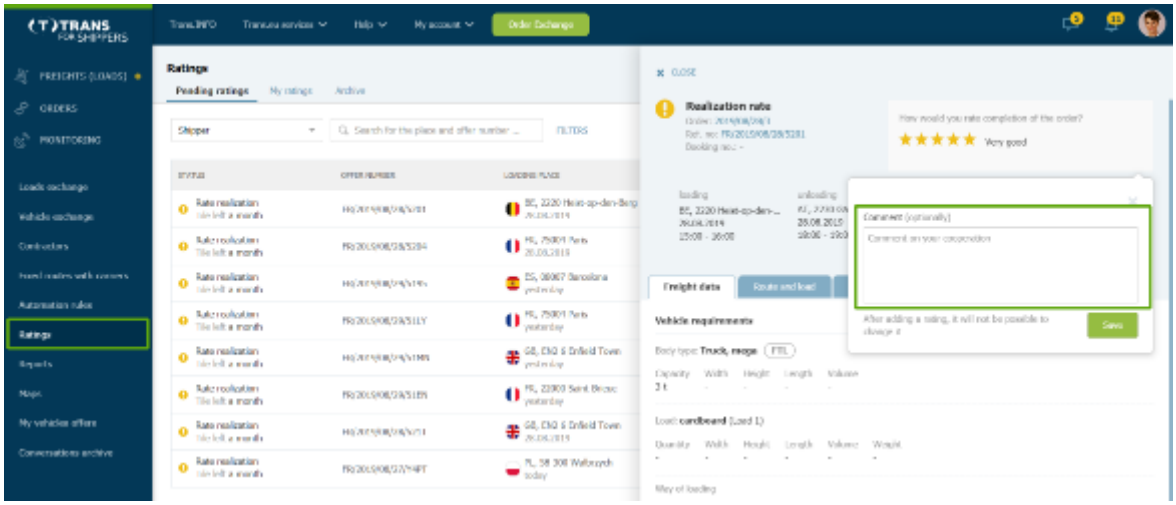


Figure 142: Comments on ratings

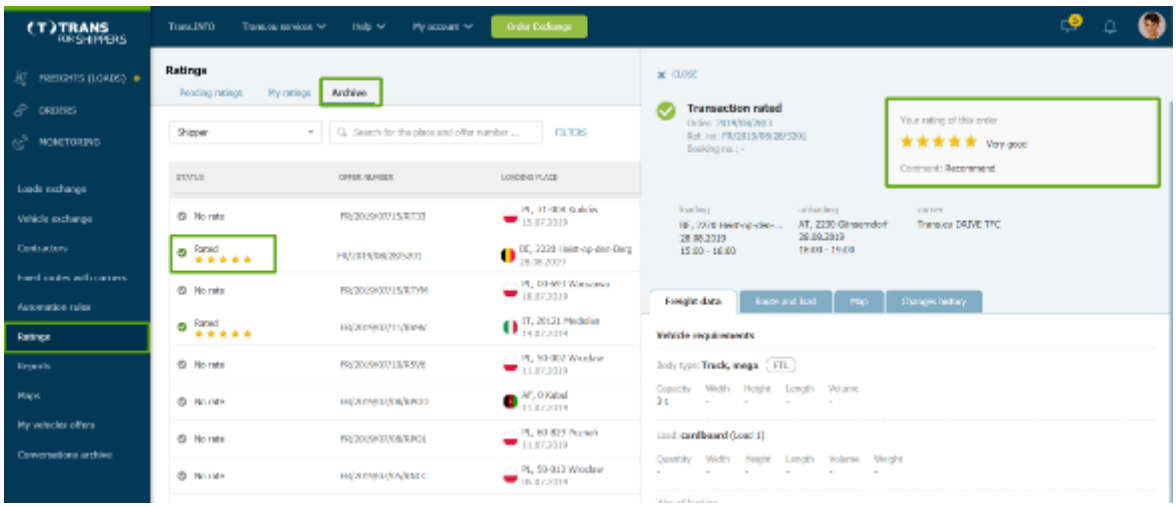


Figure 143: Rated transactions archive

Another important module of the Platform is the TransRisk module. TransRisk is an indicator of a company's payment credibility, which presents the current situation of the company and aims to facilitate risk analysis and make decisions regarding cooperation with contractors. It is a dynamic product whose algorithm calculates daily data from several sources.

TransRisk is displayed on a 5-point scale:

- Super payer,
- Very good payer,
- Good payer,
- Mediocre payer,
- Poor payer.

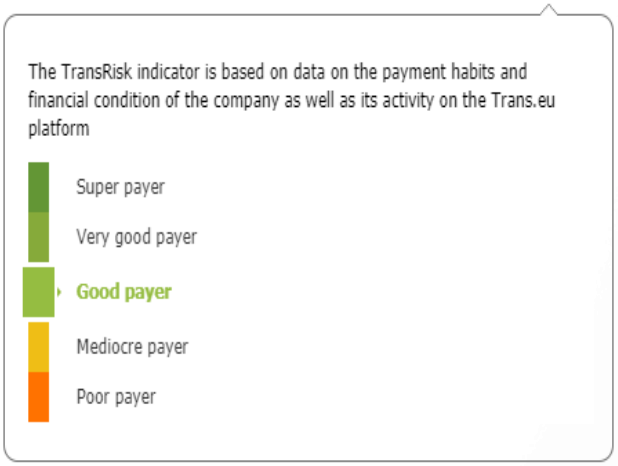


Figure 144: TransRisk indicator

To ensure product dynamics and indicate the current situation of the company, the final result is mainly influenced by data from the last 90 days. In this case, we are talking primarily about data coming directly from the Trans.eu Platform. However, the algorithm also includes data from external sources, such as e.g. credit rating agencies. On the other hand, companies that want to take care of their credibility can also provide the latest data about their business to the algorithm (Trans.eu, 2020).

The most important factors affecting TransRisk are:

- Payment habits (debt exchange, debt collection cases),
- Activity on the Trans.eu Platform (transactions concluded, evaluations received),
- Financial data (current indicators and trends of changes, financial security),
- Relations (capital and personal),
- Basic data (including legal form, internship on the market, internship in Trans.eu).

Although the ratings from contractors affect TransRisk, it is worth to notice that this is only one of many factors and these are two different products. Ratings are subjective opinions issued by contractors, while TransRisk is an algorithm based on a large number of factors, and the most important of them are the company's payment habits.

Forwarders services

The menu of the platform provides an opportunity for load monitoring. “Trans for Forwarders” menu is easily associated with any type of telematics on the market.

The platform provides security and evaluation system as well. Only verified companies have access to the exchange. The rating system allows the users to check how other users evaluate their cooperation.

The first menu in the Trans for Forwarders module is ‘**Freight received**’. This is a place where the forwarders can negotiate offers with both shippers and carriers. Here they will find loads proposals sent.

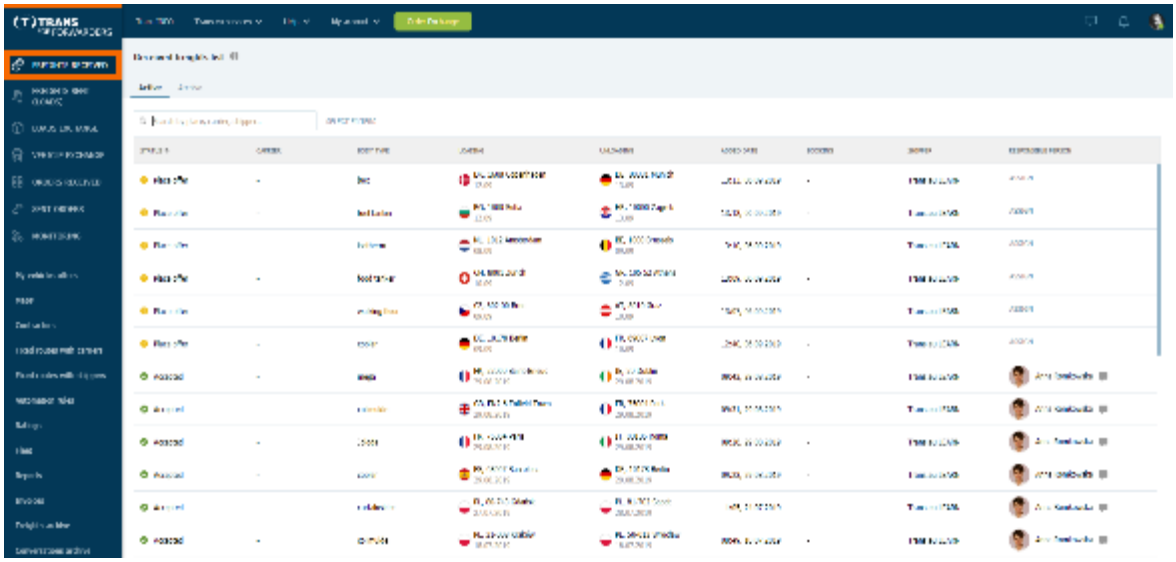


Figure 145: Received load proposals

Freight handling is intuitive and includes 2 situations:

- *Negotiations with the client*. Start by reading the information about the offer – the forwarder will find everything that he/she needs in one place.

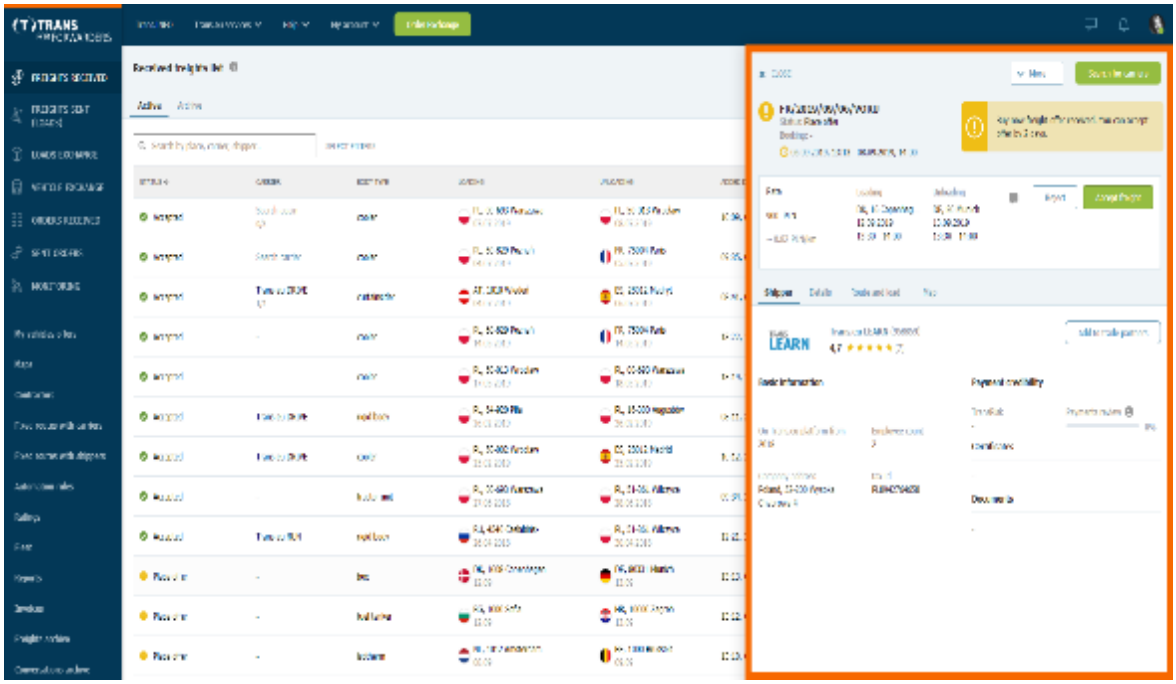


Figure 146: Received freight list

Freights proposals published in 'Buy now' mode can be rejected or accepted.

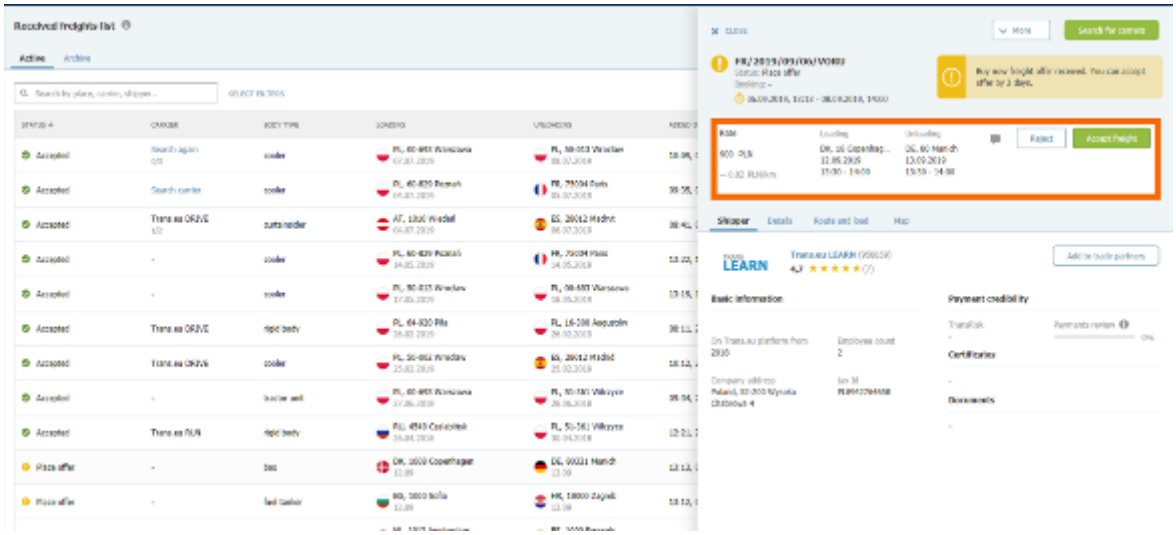


Figure 147: Accepting or rejecting freight proposals

For other freight, the forwarder can accept the rate or change it to start negotiations. He/she has access to negotiation history.

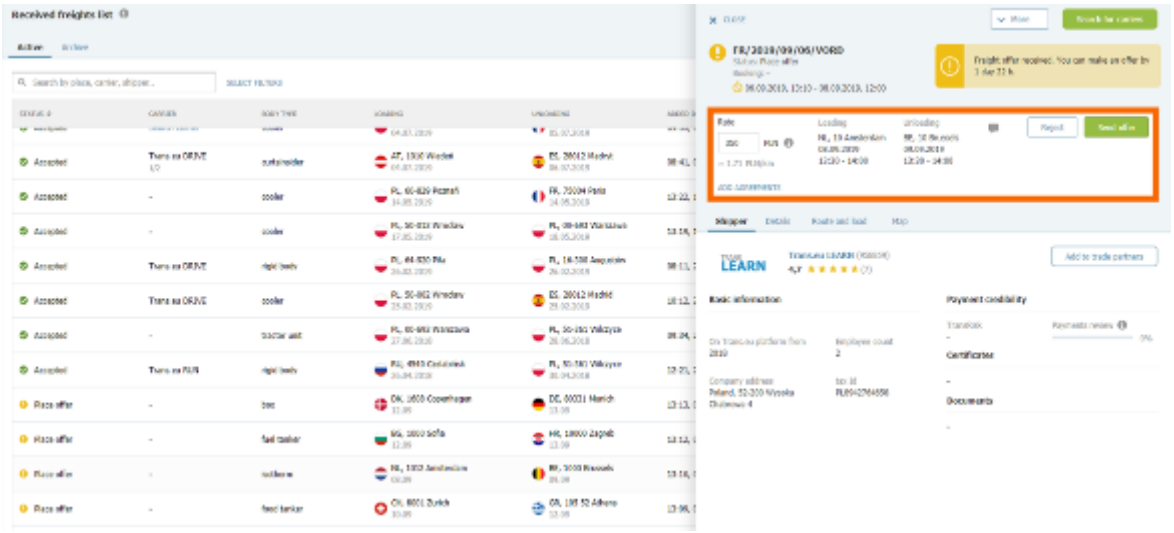


Figure 148: Starting negotiations

- *Tripartite negotiations: with the shipper and the carrier*. After analyzing the details of the offer from the shipper, start looking for carriers.

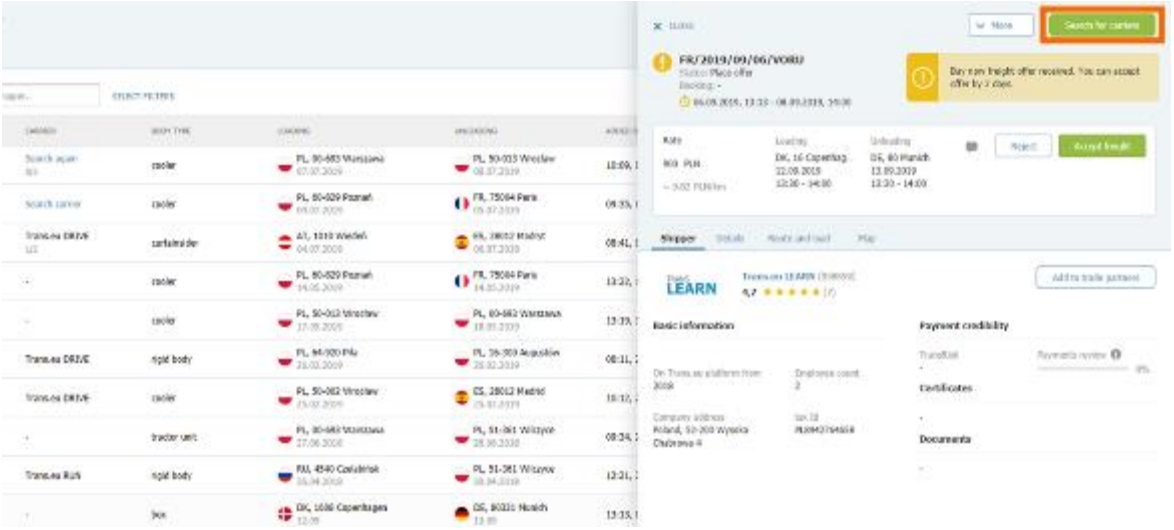


Figure 149: Starting tripartite negotiations

The forwarder can customize the publication mode to his/her own needs. If the freight matches one of his/her fixed routes, the forwarder can publish it according to its terms. In other cases, he/she can decide whether to wait for the contractors' suggestions or give them his/her proposal.

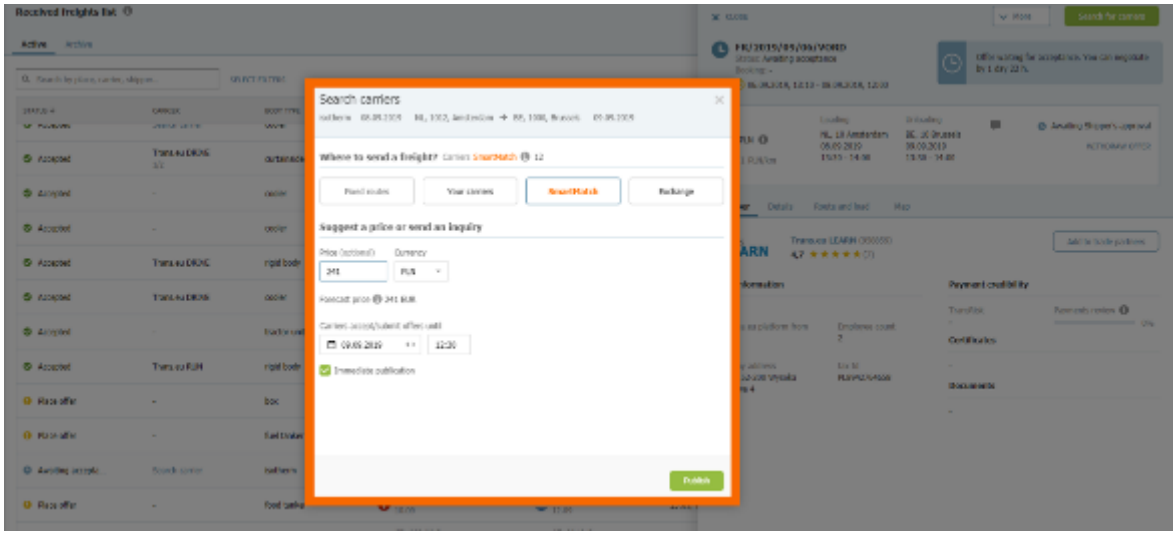


Figure 150: Carriers search

The users of the platform can choose who to send the freight to. The first option allows them to choose the groups to which the freight will be sent. They create groups in the Contractors module. If the users don't have fixed groups of carriers, they can use the algorithm. Freight will be sent to companies best suited to the load. The third option is publication on the Loads Exchange.

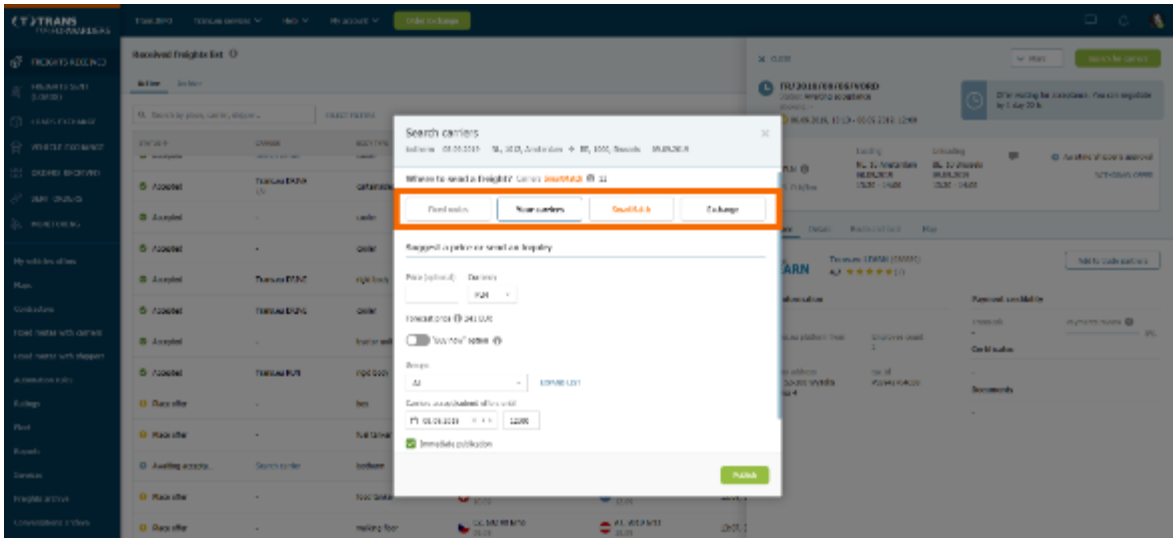


Figure 151: Forwarders' order in freight exchange

The forwarders can specify the price and currency, select the carriers and publish the freight. The statuses show what is happening with the offer. The users can find all offers submitted by contractors in one place. In the same window, they can conduct negotiations with the shipper and analyze their history and conduct a conversation.

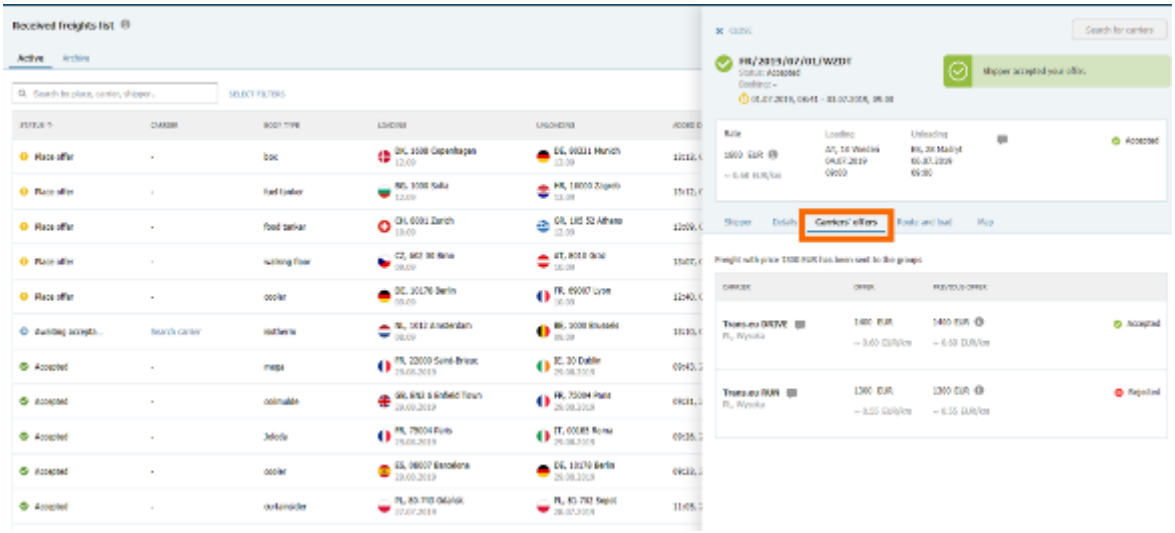


Figure 152: Carriers offers list

When all the parties of the transaction accept the terms, the freight changes its status to Accepted. The next step is handling the Order.

The **Freights sent module** is a place where the forwarders have access to all transport offers issued by them. One glance is enough to check at what stage their proposal is.

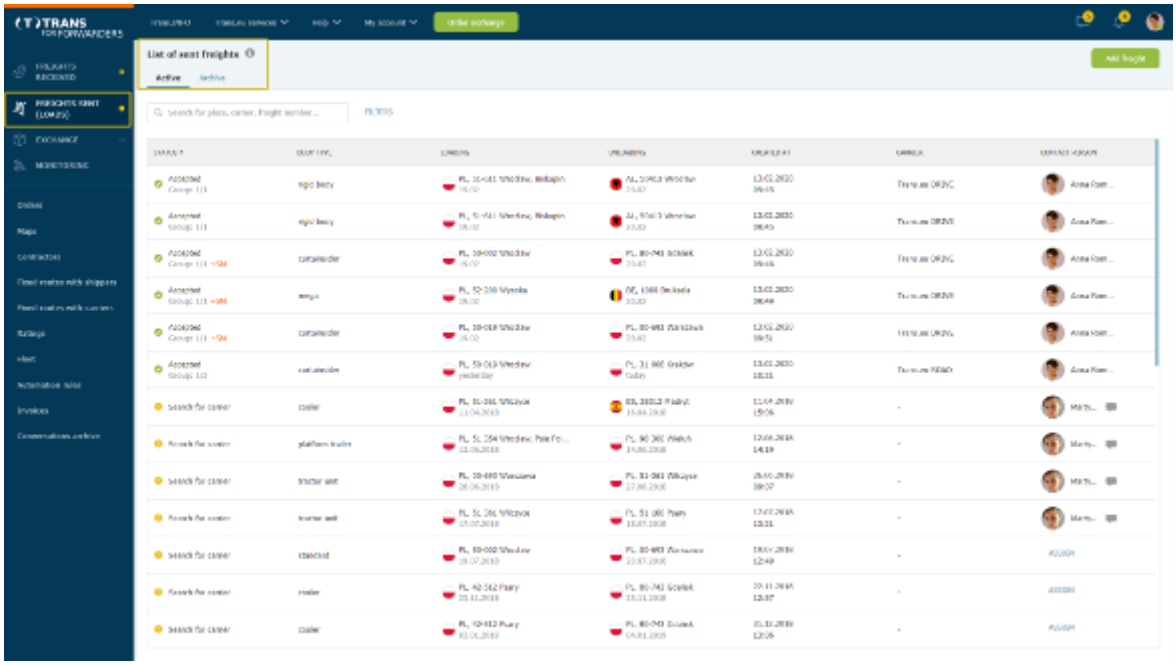


Figure 153: List of sent freights

The users can add freights by completing the required information about the date (loading and unloading) and the route (countries of origin and destination), vehicle requirements (size, type, capacity), type of freight (FTL or LTL), load type (pallet, bag, barrel etc.).

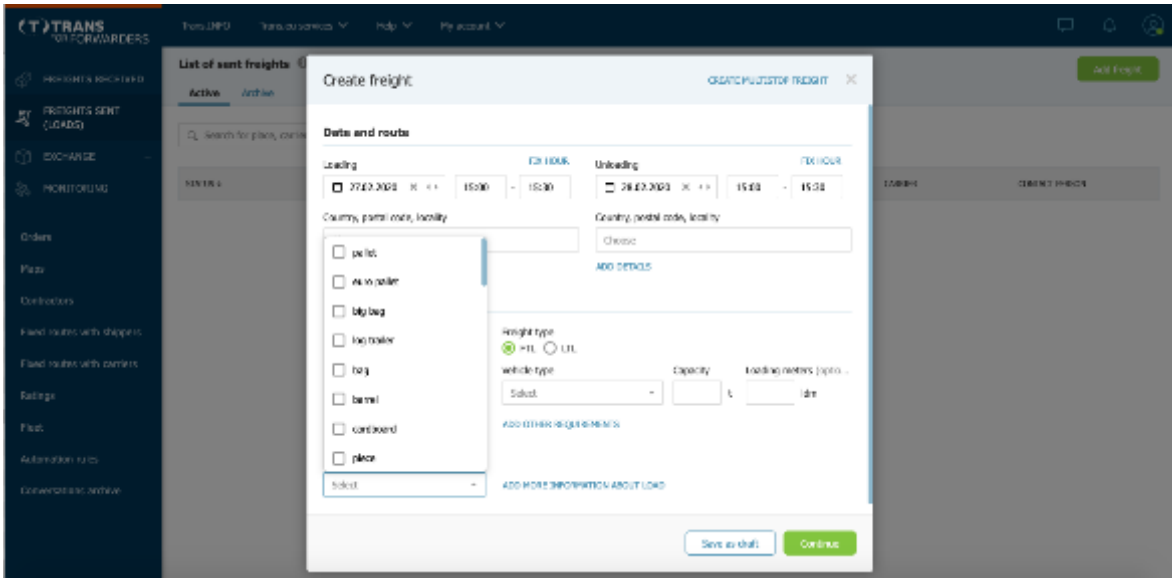


Figure 154: Creating freight offer

Just as in the shippers' module, the forwarder can choose who to send the freight to:

- Fixed routes - if the freight matches one of them, the forwarder can publish it according to its conditions.
- Carriers - this option allows the forwarder to choose the groups to which the freight will go. He/she can create groups in the contractors' module.
- SmartMatch - is an algorithm thanks to which the freight will be send to companies best suited to the load.
- Exchange - the freight will be published on the freight exchange.

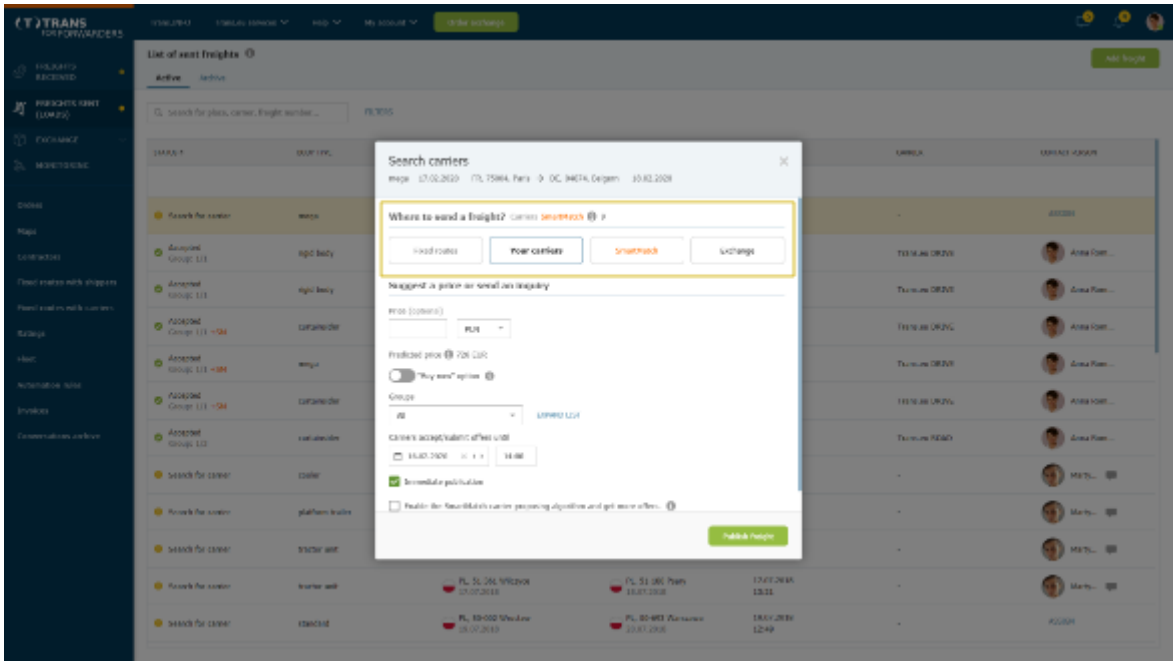


Figure 155: Choosing who to send the freight offer to

The forwarder should specify the price and the expiry date of the offer and then he/she could publish the freight offer.

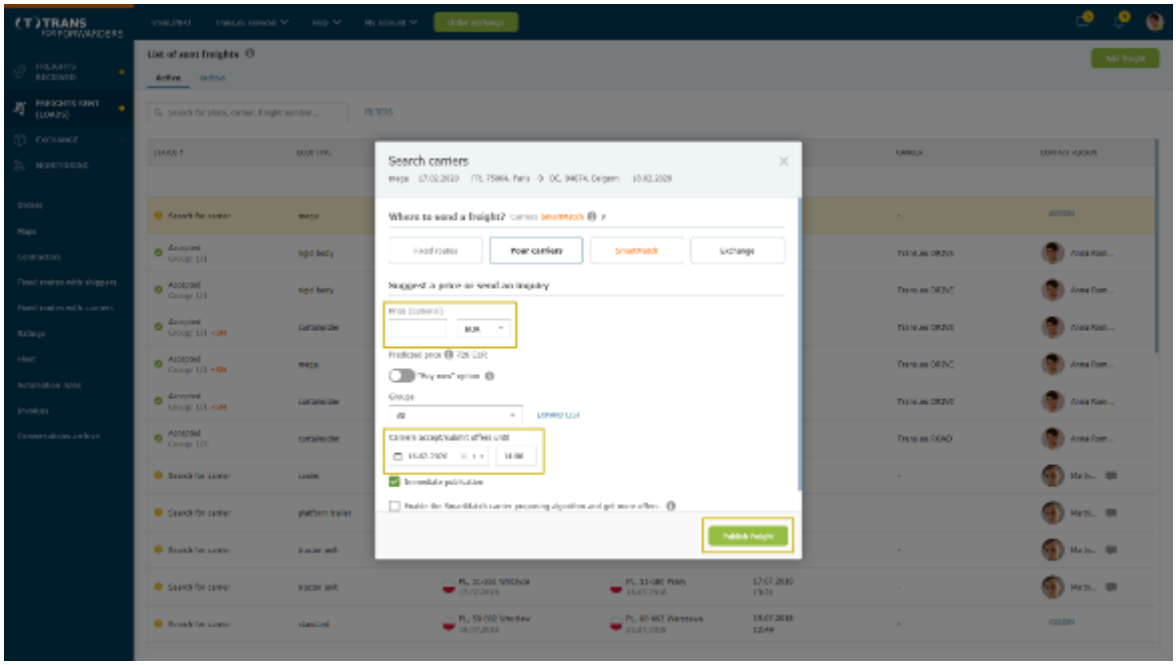


Figure 156: Specifying the price and the expiry date of the offer

Next steps in freight handling offers look exactly like in the Shippers module. Status ‘Awaiting offers’ means that the offer has been sent to contractors and none of them has yet responded to the offer.

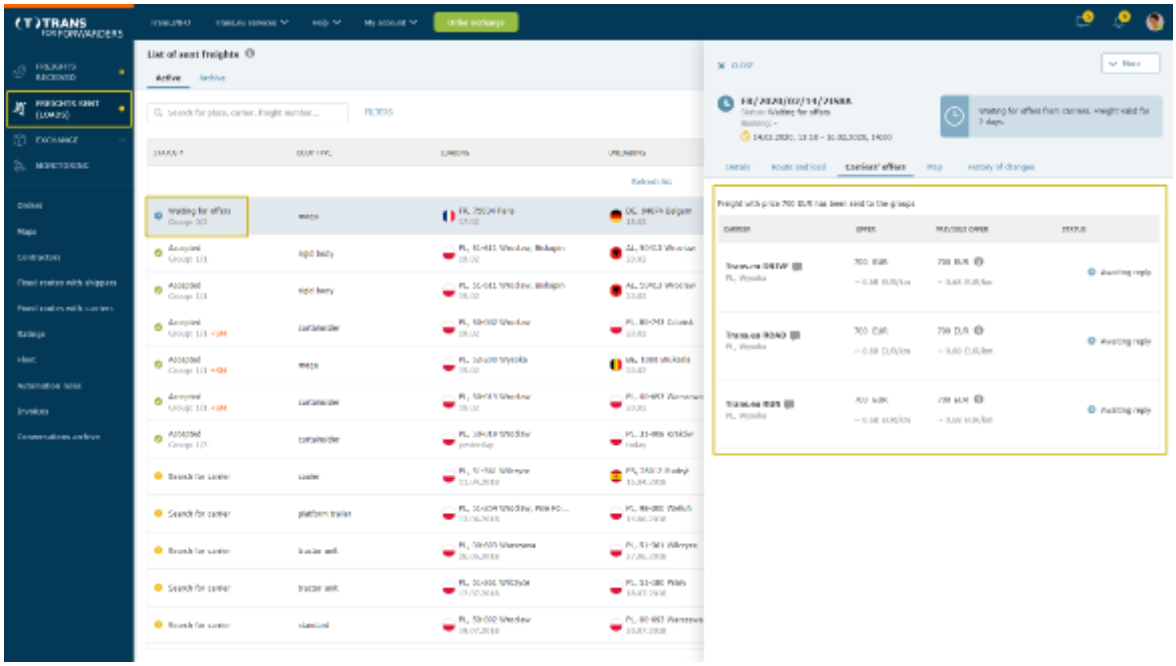


Figure 157: Waiting for offers

Changing the status to ‘Choose carrier’ means that the forwarder received a response from at least one contractor. He/she can reject, accept or negotiate the offer.

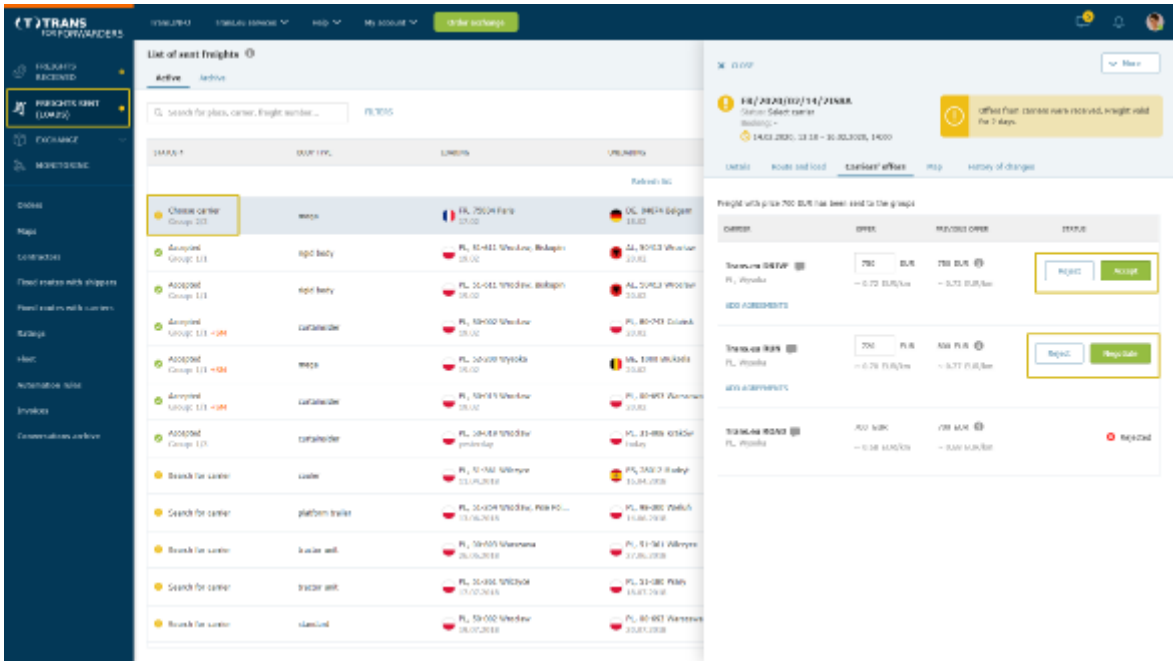


Figure 158: Receiving offers from carriers

The forwarder has access to the full negotiation history.

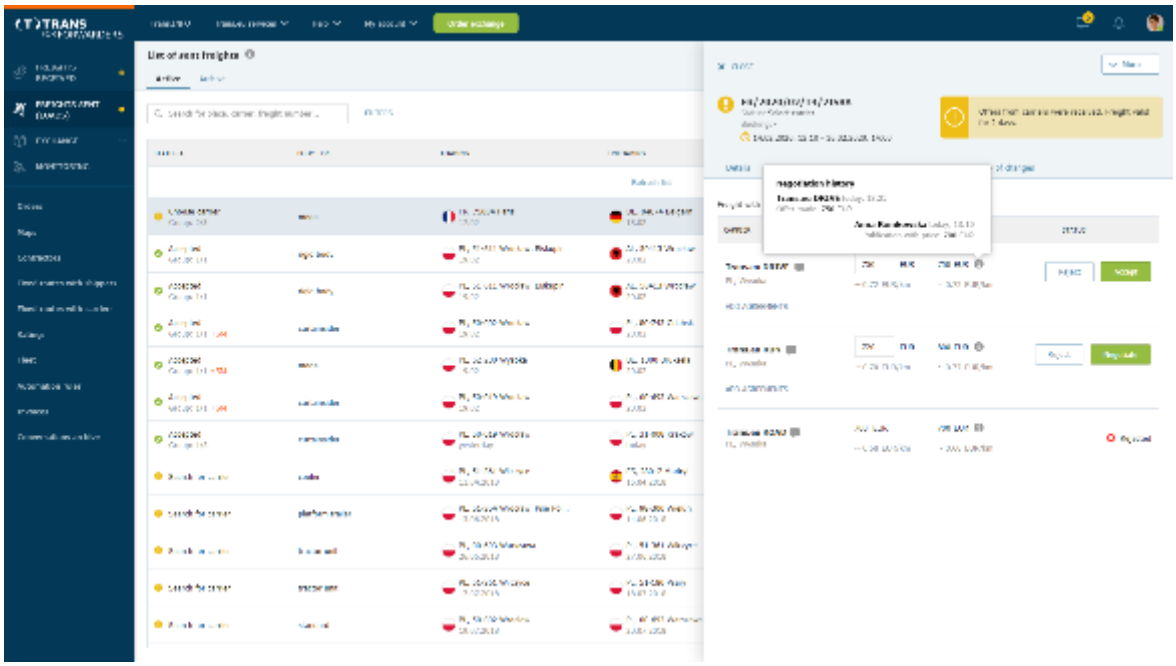


Figure 159: Negotiations’ history

Freight suggestions can also be canceled or copied and republished.

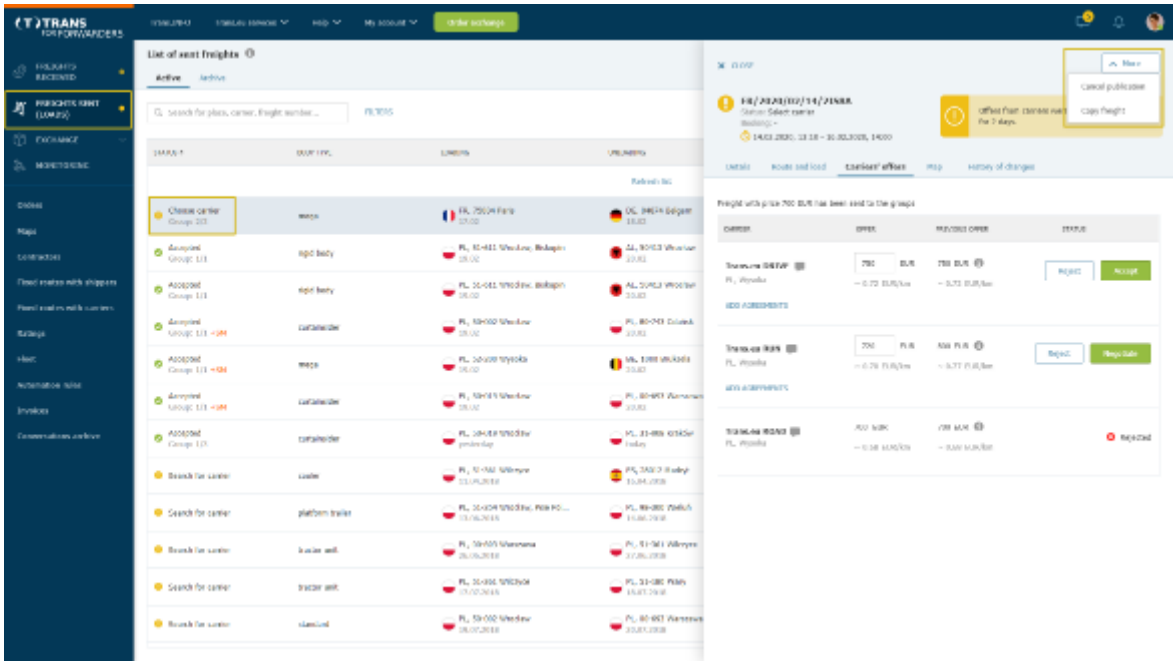


Figure 160: Cancelling or republishing freight offers

When the parties accept the freight, the remaining proposal will receive status accepted.

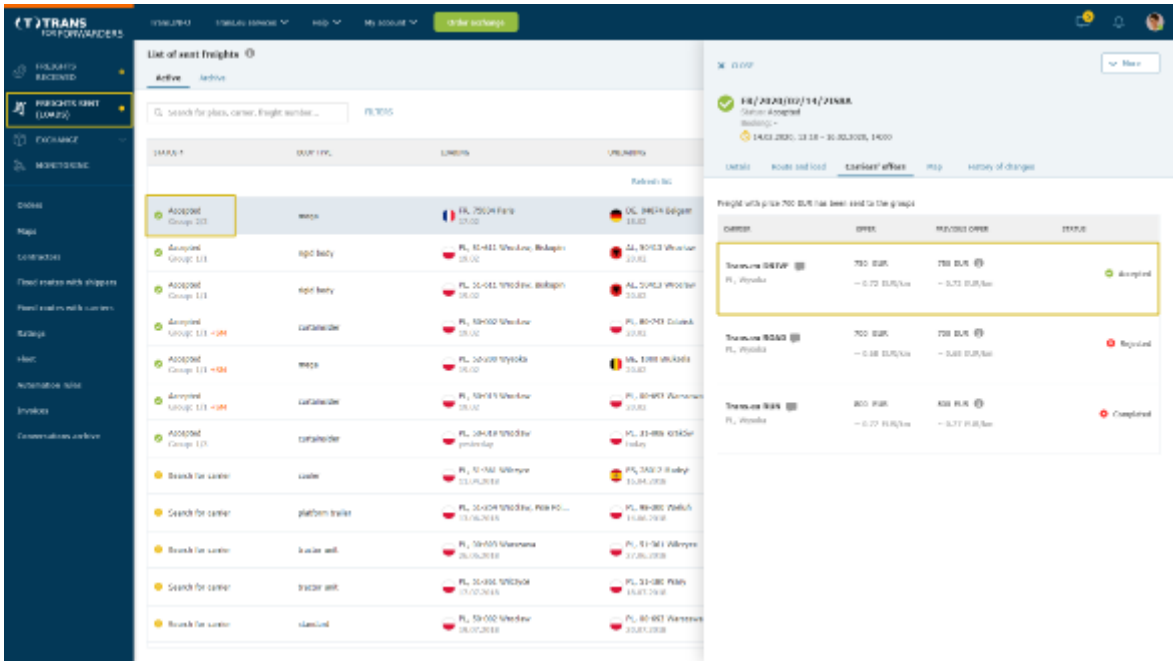


Figure 161: Accepted freight offer

The next step that can be taken on the Platform is the service of the order. Just as in the Shippers module, the forwarders can build groups of carriers to which they will send freight. The possibilities of creating groups are endless. The users choose the criteria and carriers according to their needs and goals, e.g. companies for a specific area or type of building etc.

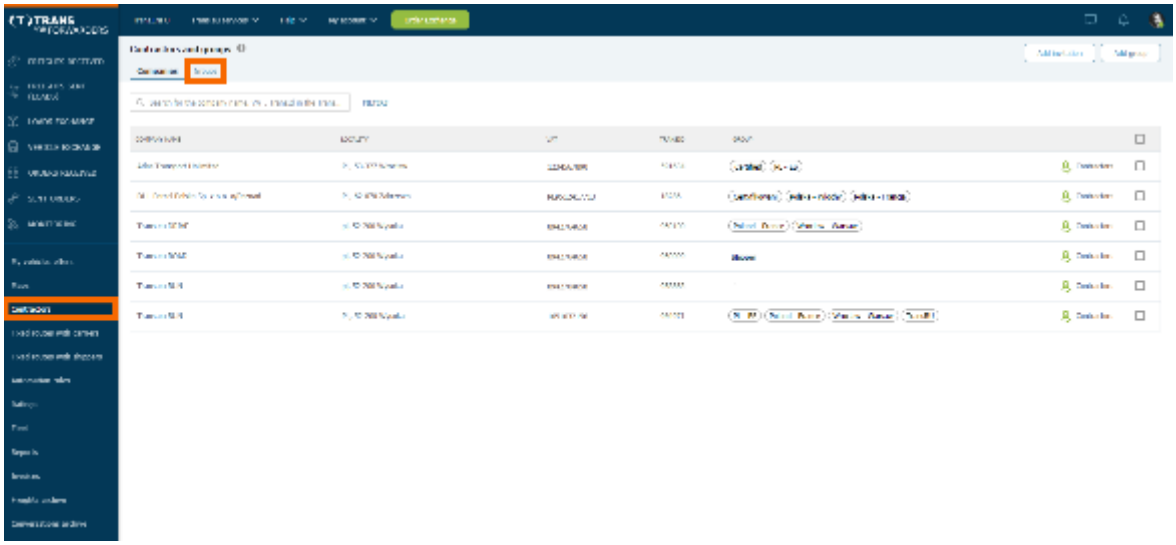


Figure 162: Contractors and groups list

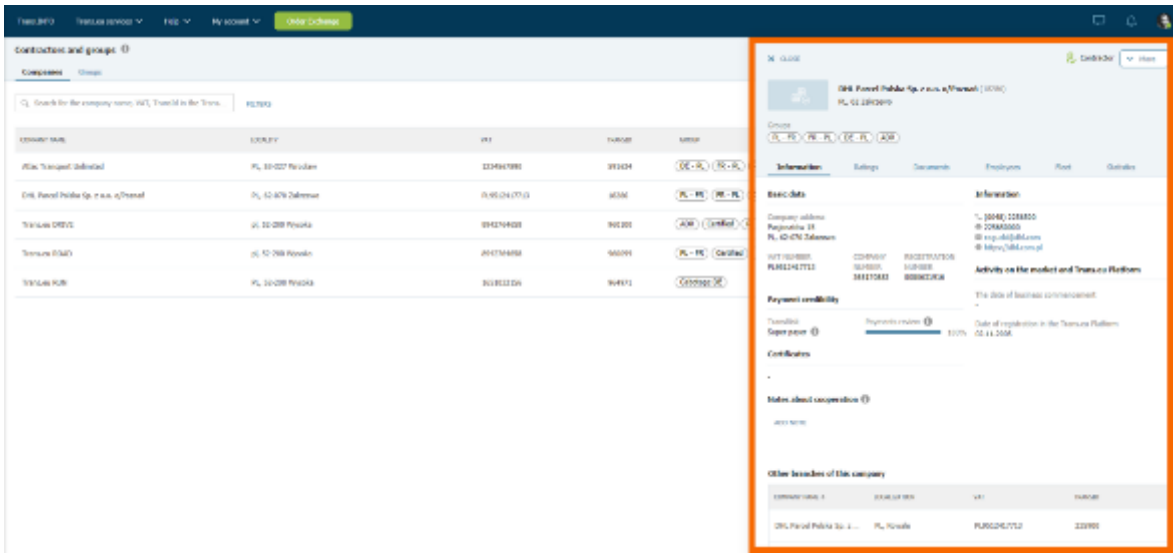


Figure 163: List of contractors' companies

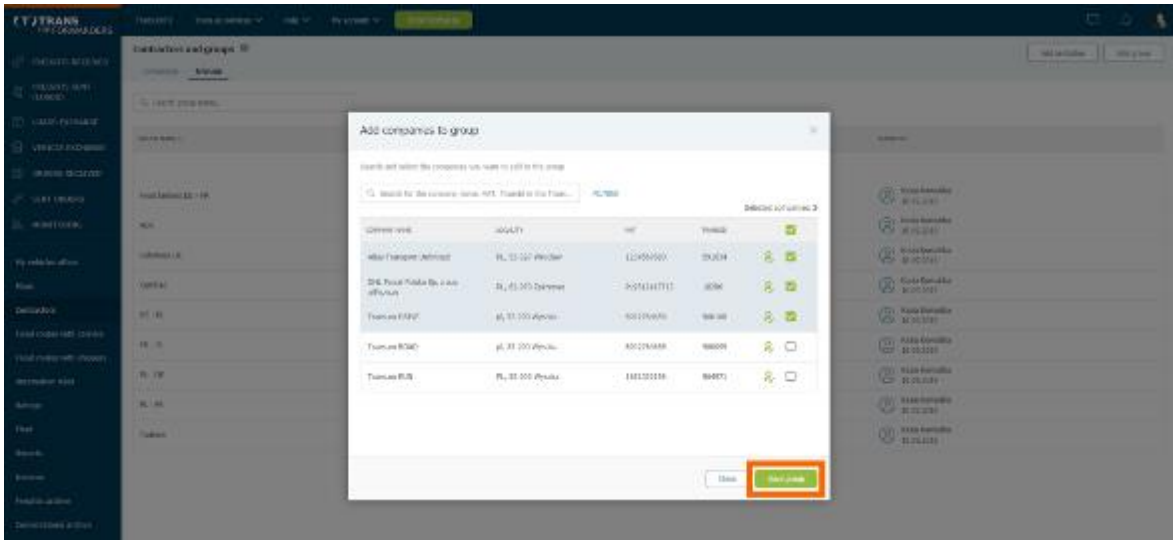


Figure 164: Creating new group of contractors

As an ordering party, the forwarders can require a cargo monitoring from their subcontractors, and they can check what is happening on the route directly from the Platform by using the Monitoring module the same way as shippers. They can use the Rating and TransRisk functions described in the previous section, as well.

Carriers services

In the Freights module the carriers can find various load offers. Depending on the type of load, they can accept, reject or negotiate the offers.

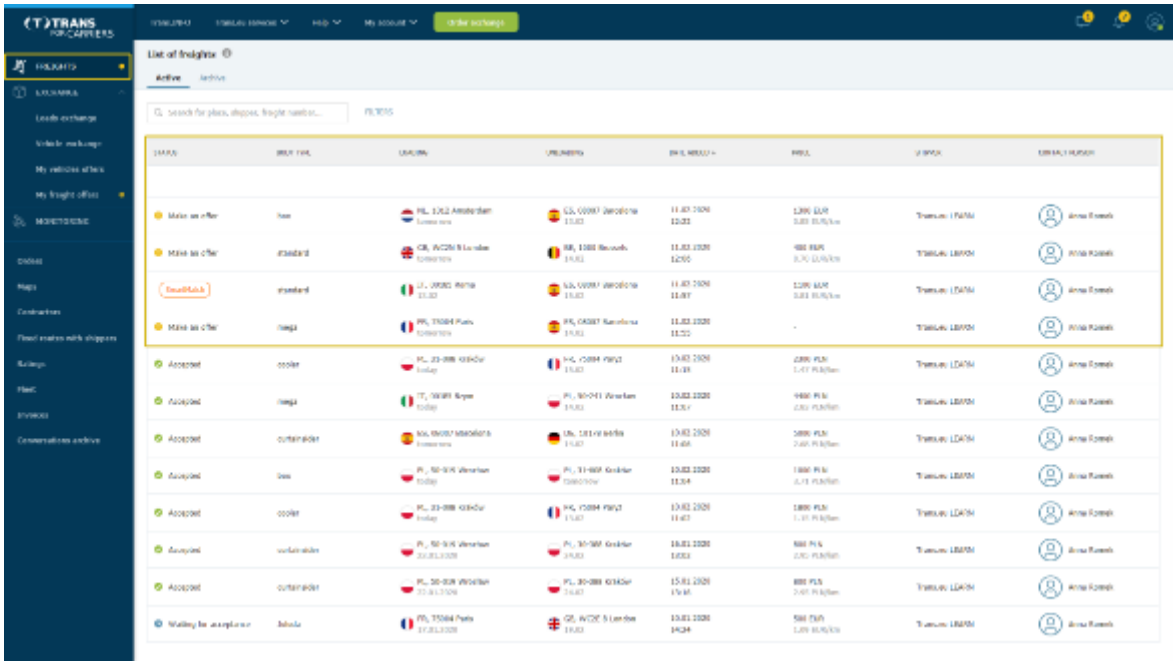


Figure 165: List of freight offers for carriers

The carriers can accept or reject offers in the ‘Buy Now’ mode.

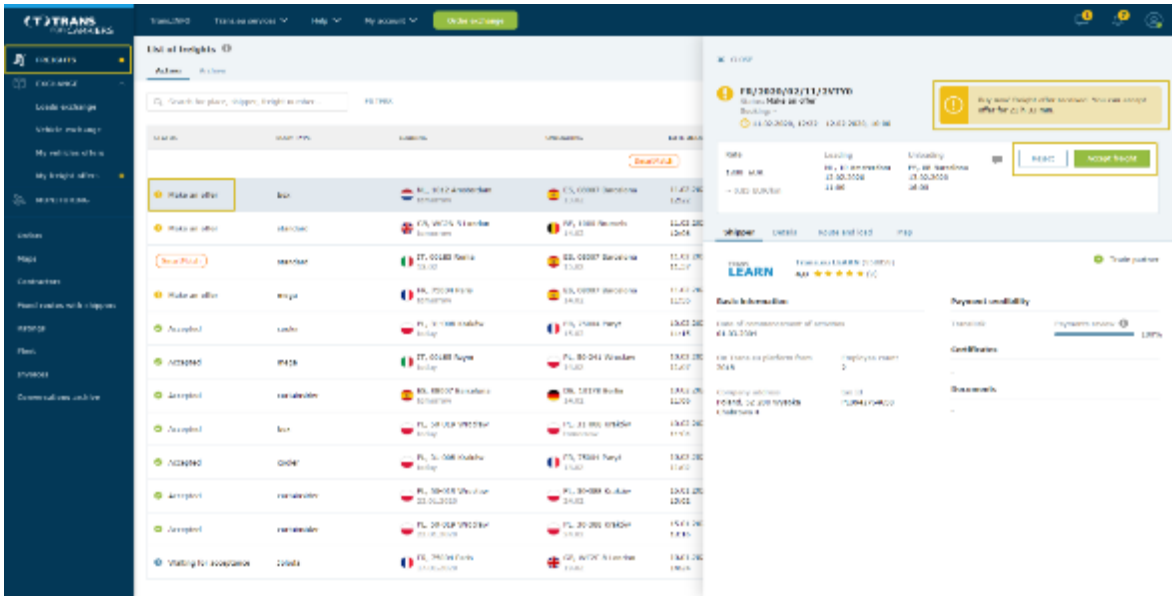


Figure 166: Accepting or rejecting offers in ‘Buy Now’ mode

They can reject, accept or negotiate offers with a price proposal, as well.

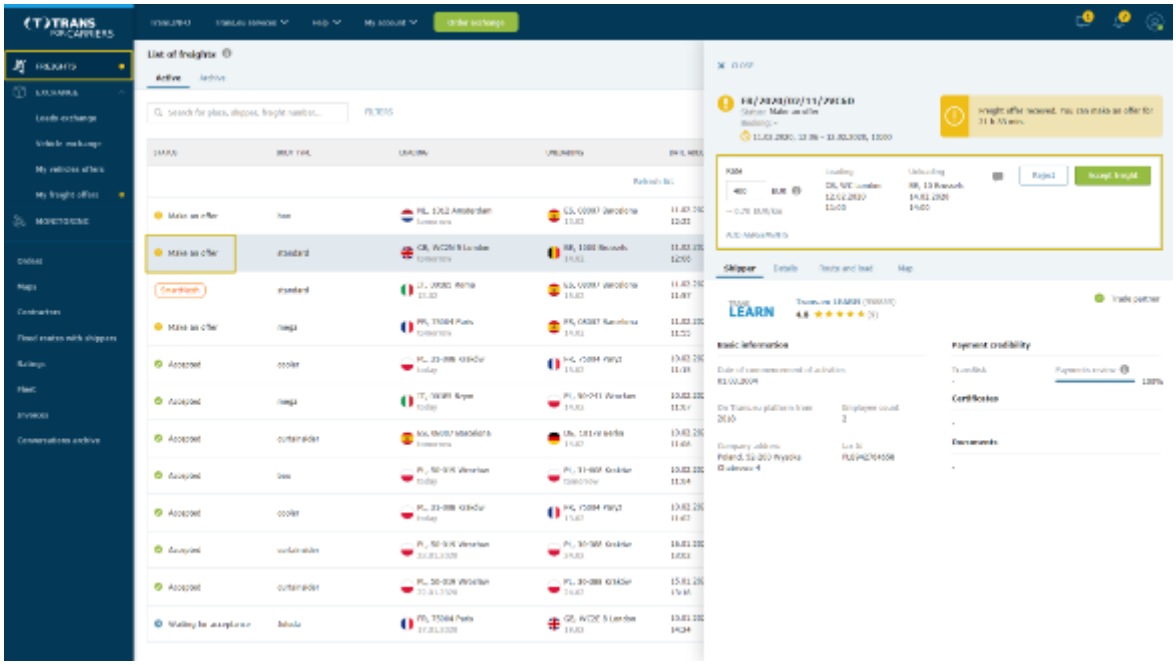


Figure 167: Accepting, rejecting or negotiating offers with a price proposal

If the carrier decides to negotiate, he should enter his rate in the "Rate" field and select the "Negotiate" button to send his proposal to the contractor.

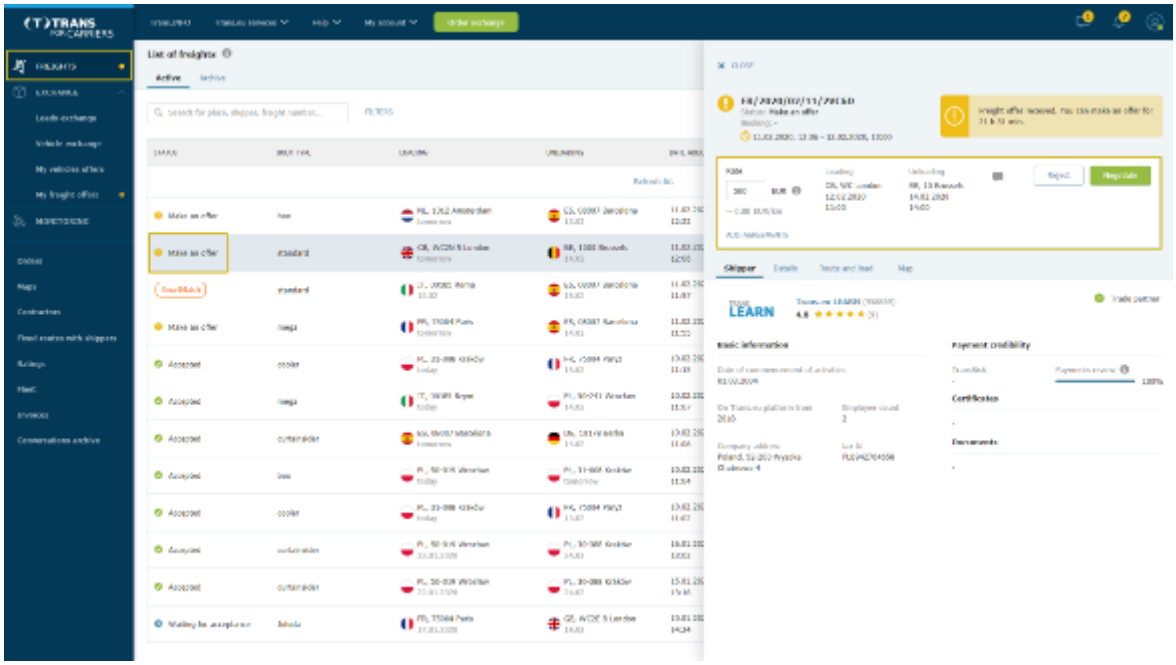


Figure 168: Sending a proposal for transport

The SmartMatch proposal means that the offer has been matched by an algorithm that has analyzed the carrier's company and fleet data.

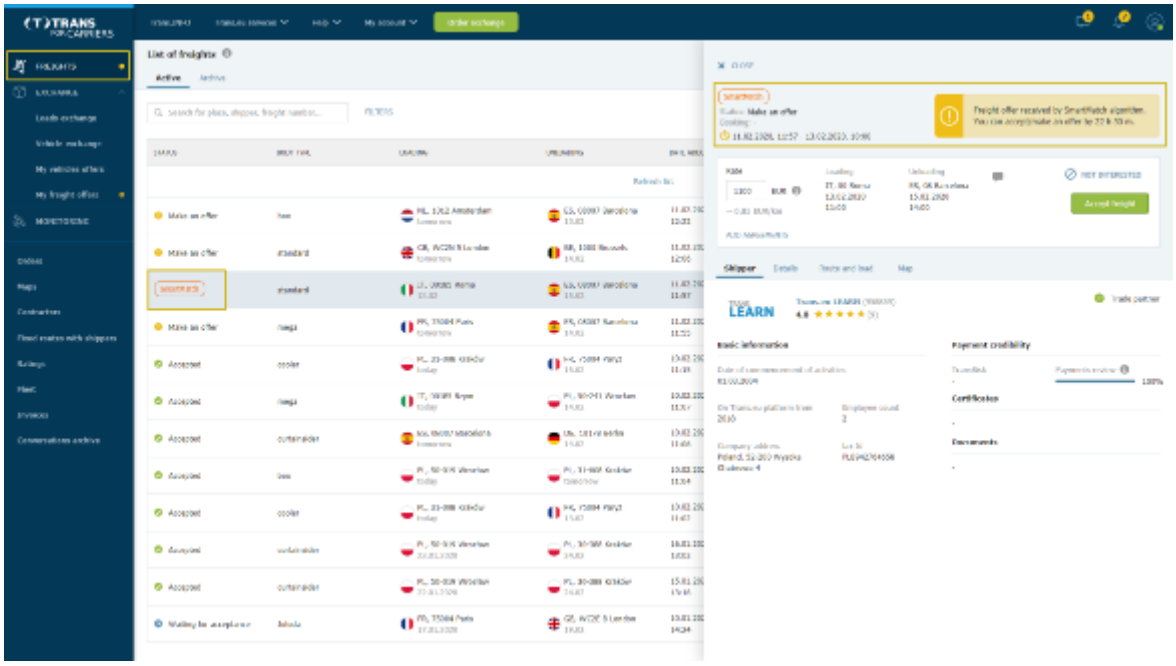


Figure 169: Sending a SmartMatch proposal

The carriers can negotiate, accept or reject such an offer (checking the "Not interested" option) indicating the reasons. As a result, subsequent proposals will be better tailored to their business.

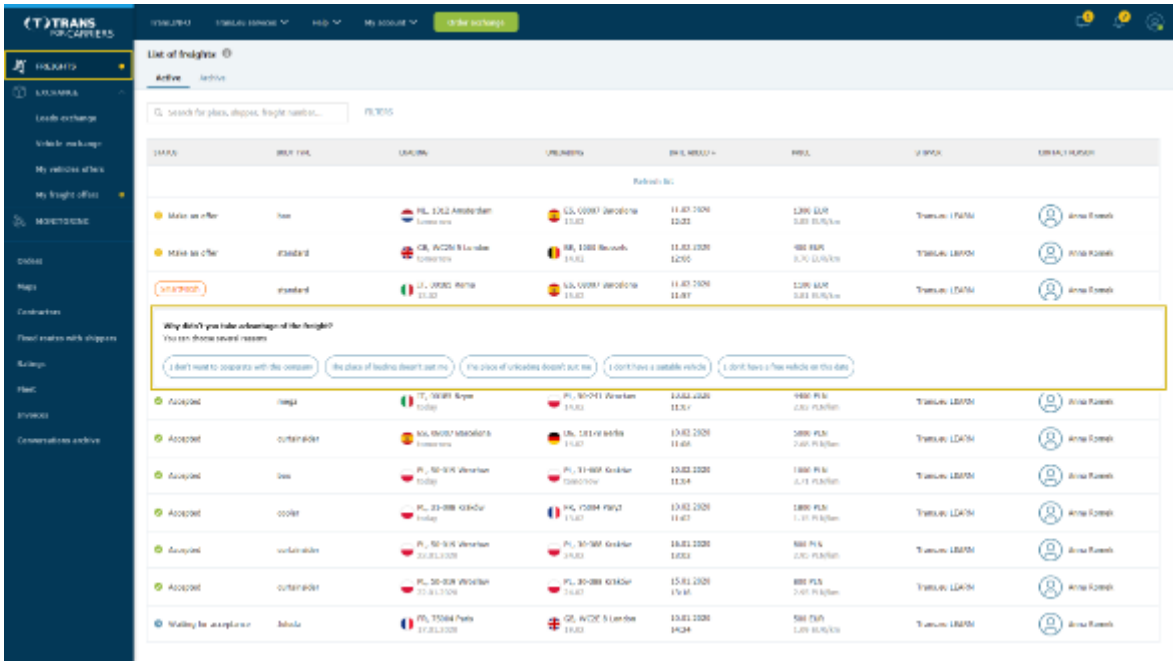


Figure 170: Indicating reasons for rejecting offers

In the menu offers without a given price could appear. It is a sign that the contractor is waiting for the carrier's offer.

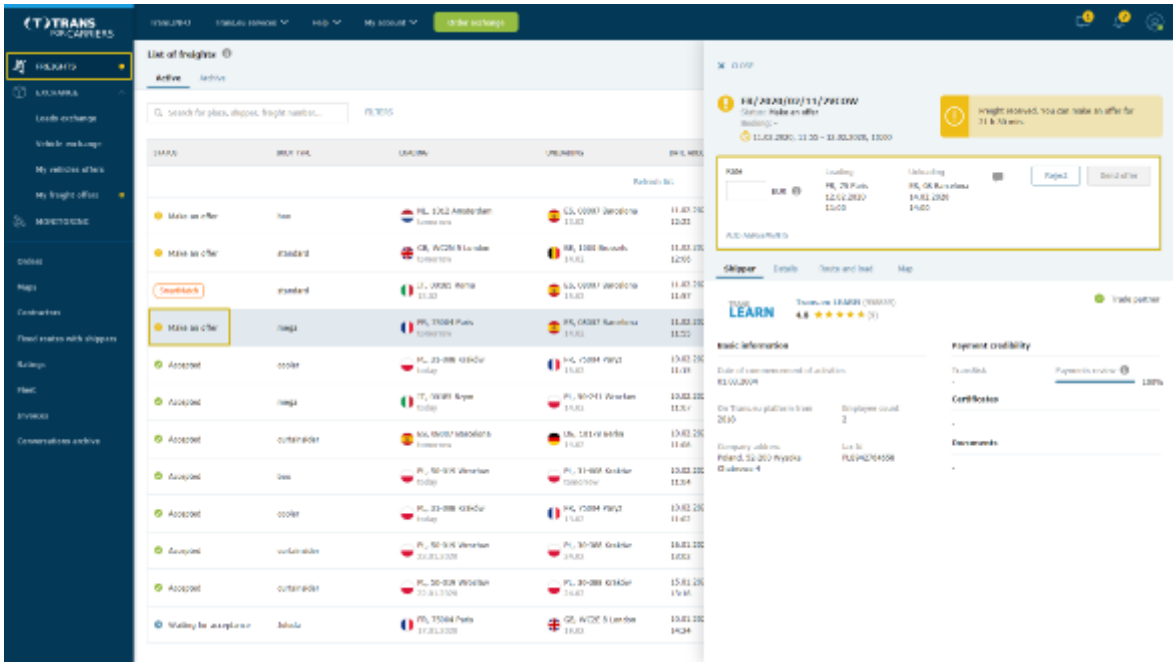


Figure 171: Making a price offer to shippers

The carriers could negotiate offers by entering their freight rates and send them to the contractor.

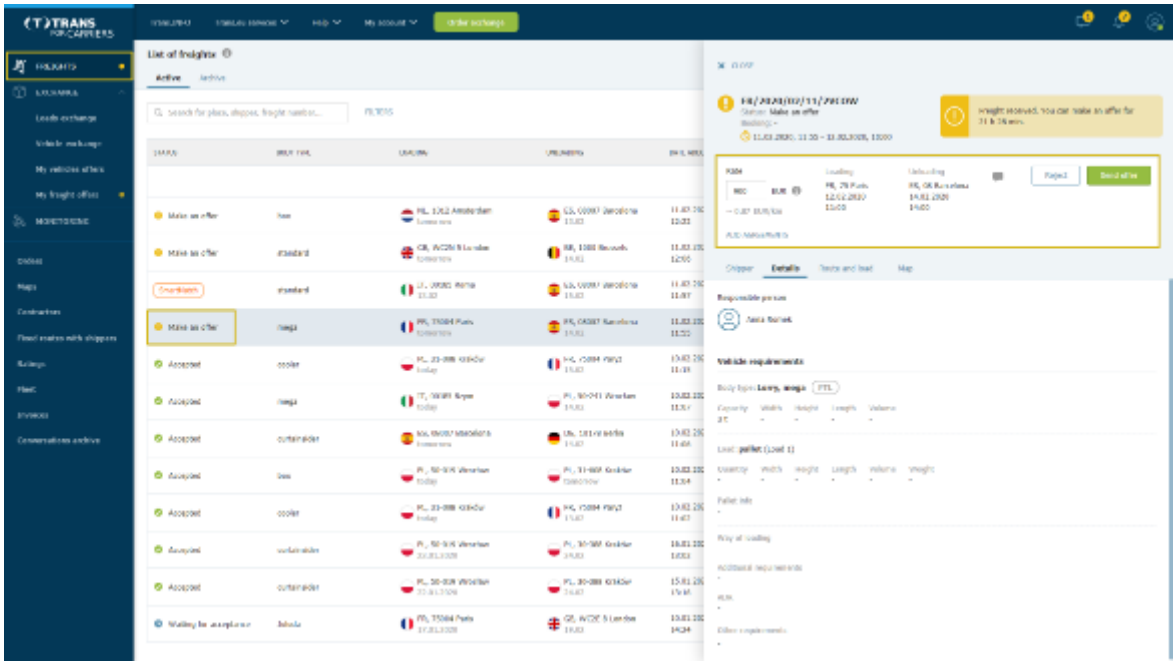


Figure 172: Negotiating offers

The status ‘Waiting for acceptance’ means that the contractor has received the carrier’s offer, and he should wait for his reply.

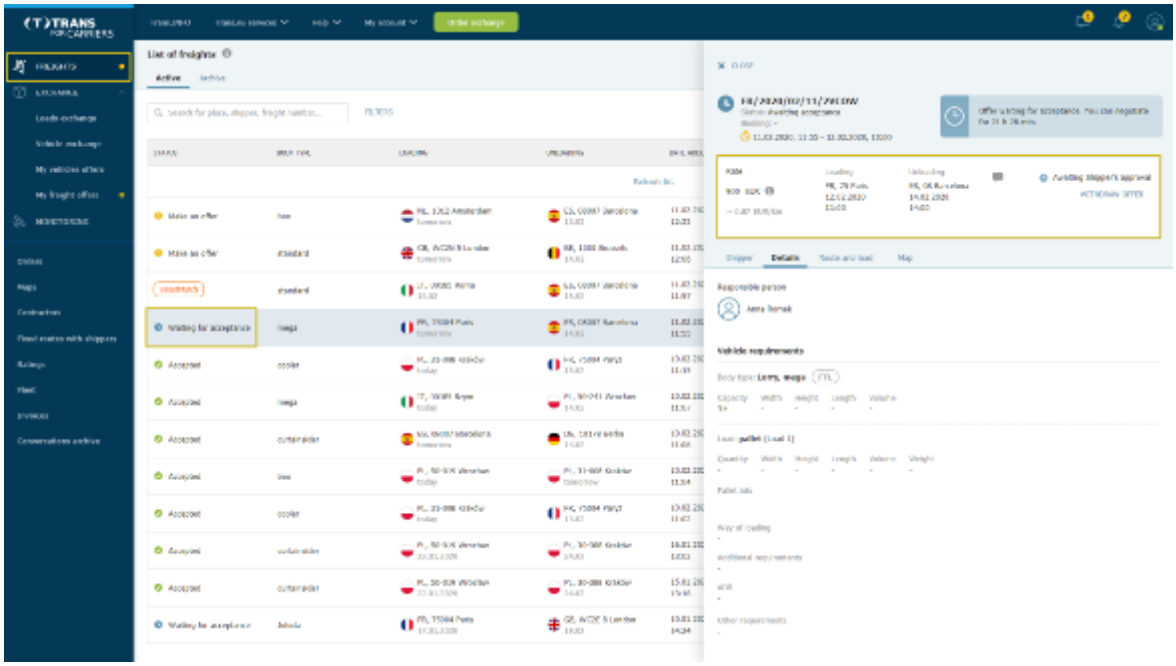


Figure 173: Waiting for the acceptance of an offer by a contractor

If the contractor decides to negotiate, the carrier will see his suggestion in the freight windows. If necessary, the carrier can analyze the negotiation history and specify the details of the arrangements using the messenger.

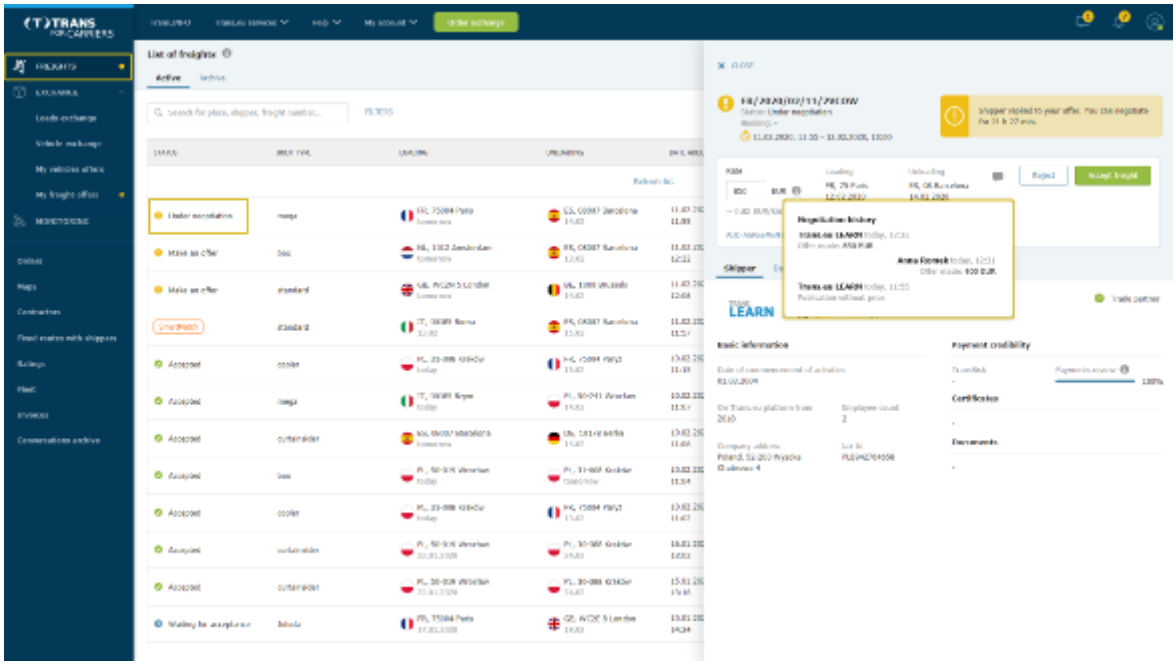


Figure 174: Negotiating history

If the client's proposal suits the carrier offer, the last can accept the freight.

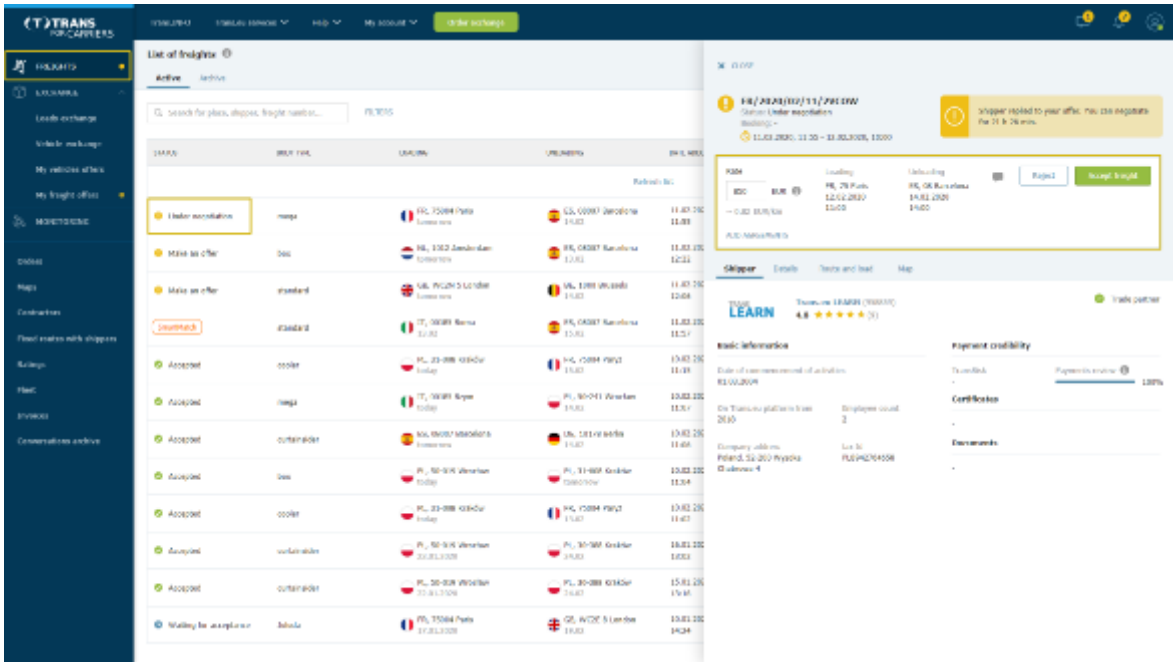


Figure 175: Accepting an offer

The status ‘Waiting for acceptance’ means that the contractor has received the carrier’s response.

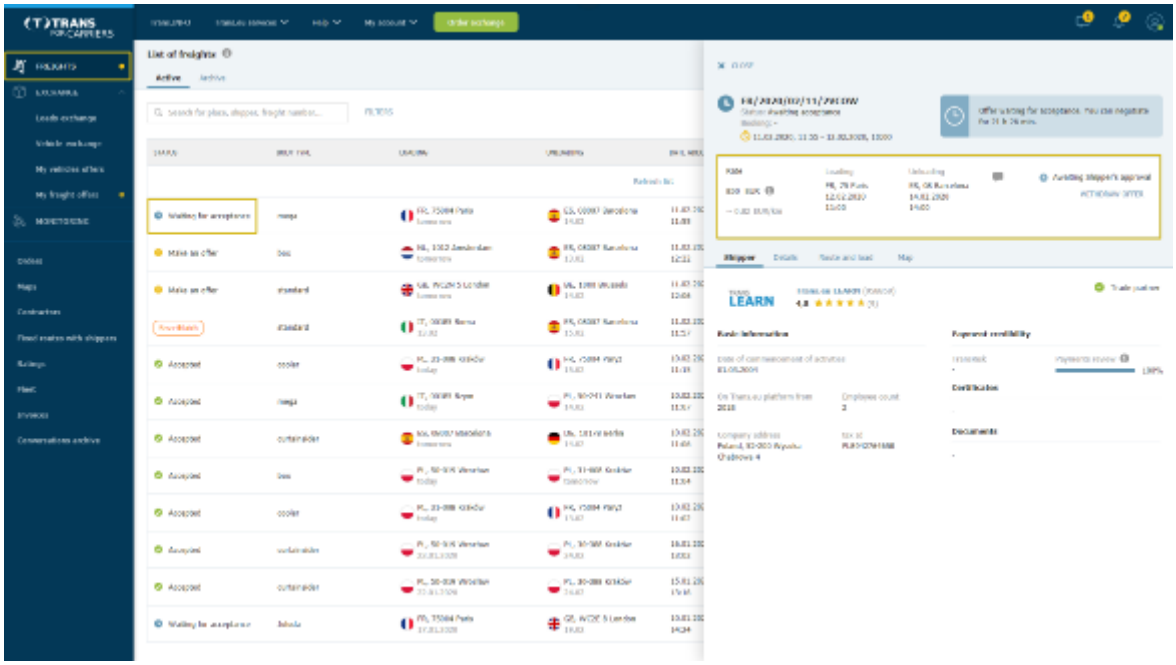


Figure 176: Waiting for acceptance of the offer

Changing the status to ‘Accepted’ means that the contractor has finally approved the transaction.

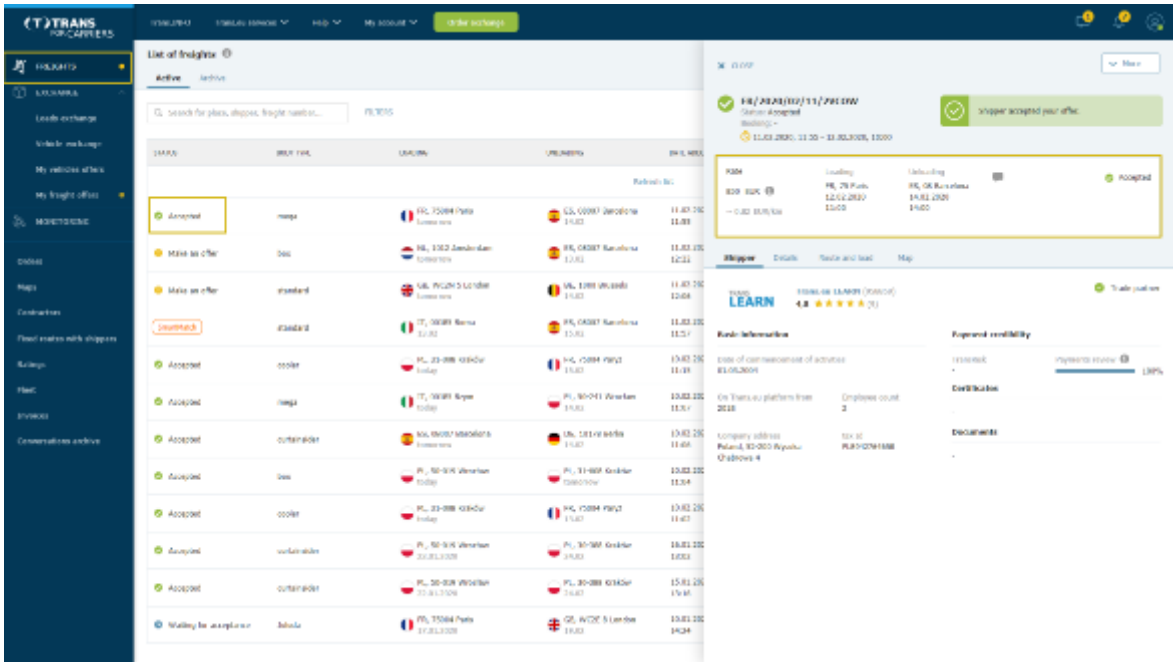


Figure 177: Approved transaction

Finally, the carrier can issue a transport order directly from the Platform. The Platform provides loads exchange as well. The modern design allows to reviewing offers faster. The filters offer the possibility to select multiple (up to 10) loading/unloading locations. When submitting an offer, it is possible to indicate many body types —t his reduces the number of duplicate offers and increases the transparency of the exchange.

Loads exchange is available in the left navigation bar. Clicking on the module will take the carrier to offer table.

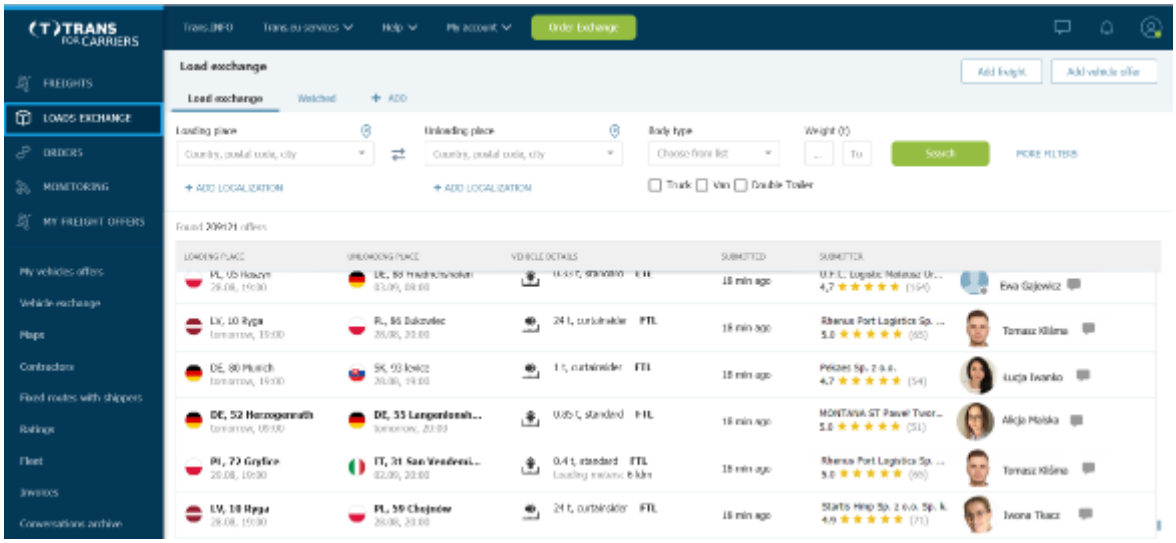


Figure 178: Table with load exchange offers

The list of offers is constantly updated. Offers are automatically deleted after the unloading date. Offer details and information about the company are available after clicking on the offer line.

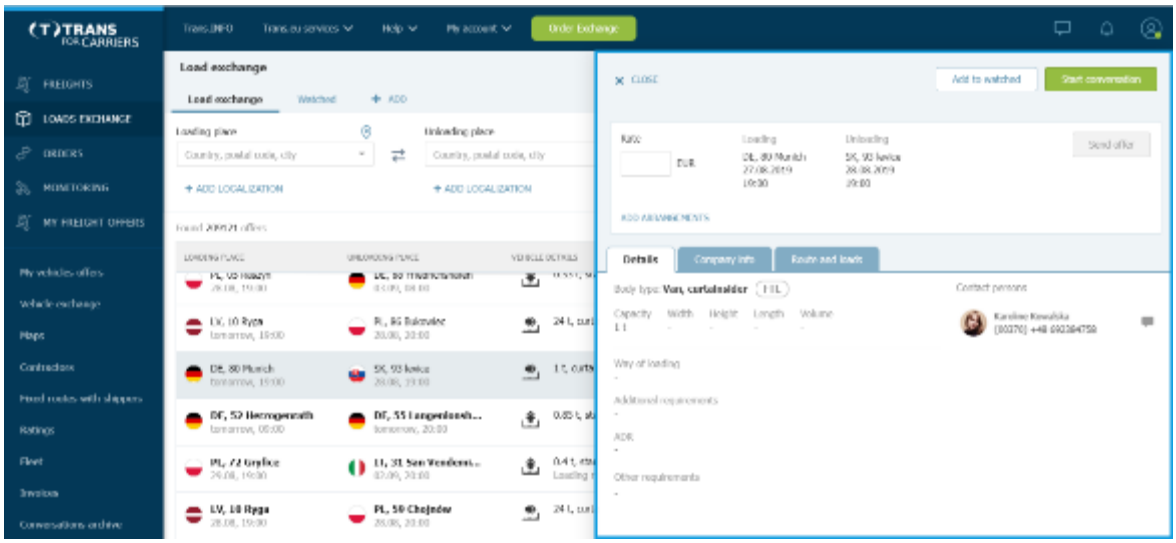


Figure 179: Offer details

The carriers can set filters for all the parameters they are interested in. To do this, they should use the quick filter menu at the top of the list.

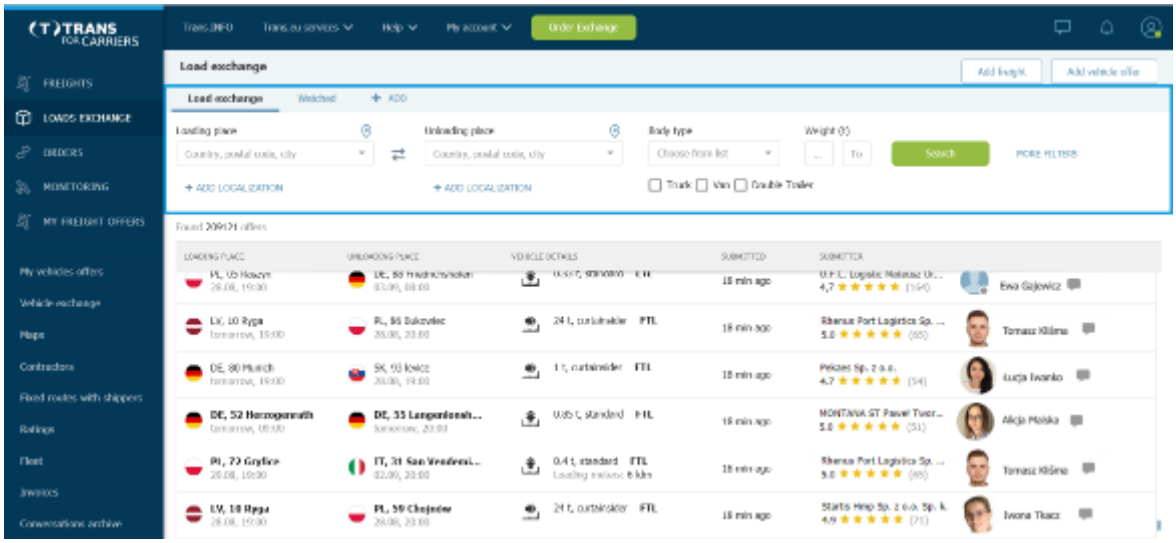


Figure 180: Setting filters in the load exchange

The carriers can use many additional filters (e.g. loading type: FTL - full, LTL - incomplete loading) by clicking "More filters".

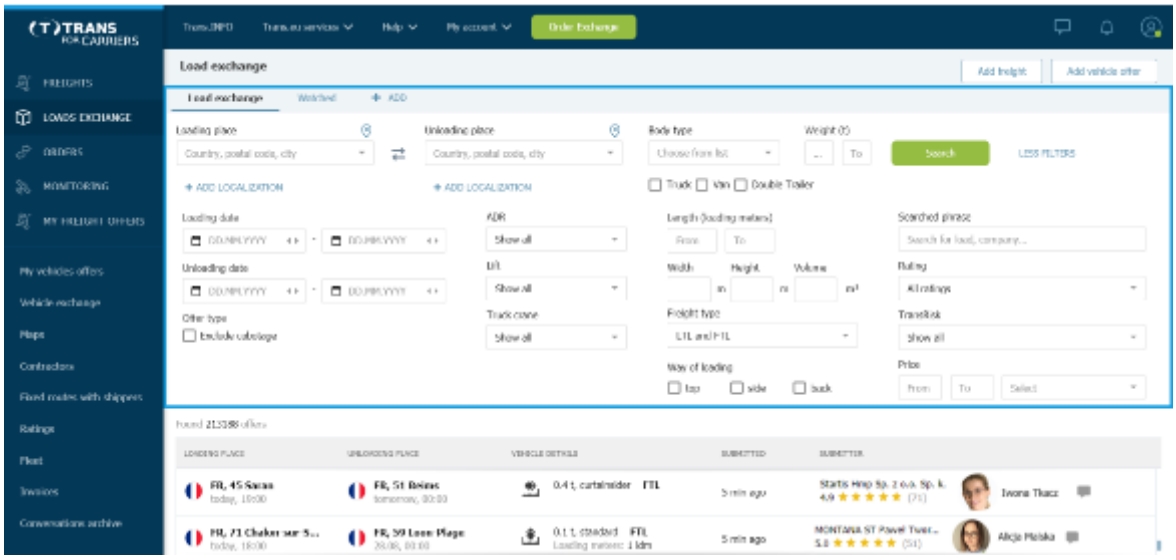


Figure 181: Using additional filters

The users can easily watch each offer they are interested in. This can be done in the window with the details of the offer. Selected offers are available in the Watched tab in the upper panel of the Loads Exchange module. After the offer expires, it will be removed from the list.

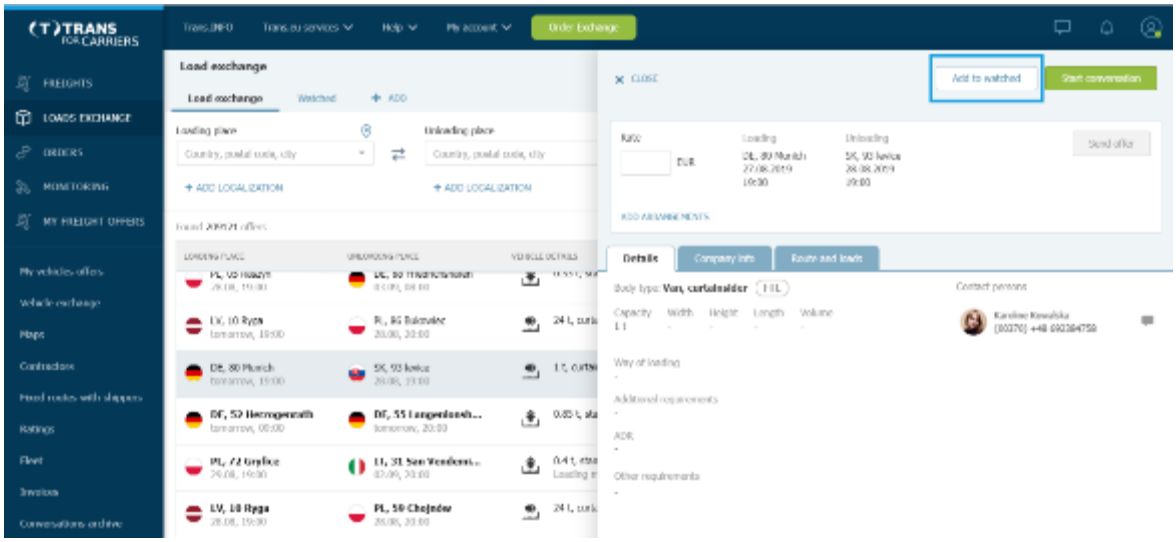


Figure 182: Detailed information about the offers

The carriers can conclude transactions and negotiate the terms of the offer. Negotiations of offers submitted on the new loads exchange take place in the details of the offer window (in this case the messenger is used only for conversation). After entering the rate, the optional offer validity time and additional arrangements, the carrier should click the "Send offer" button. The applicant will immediately receive the offer and see it in his freight management panel.

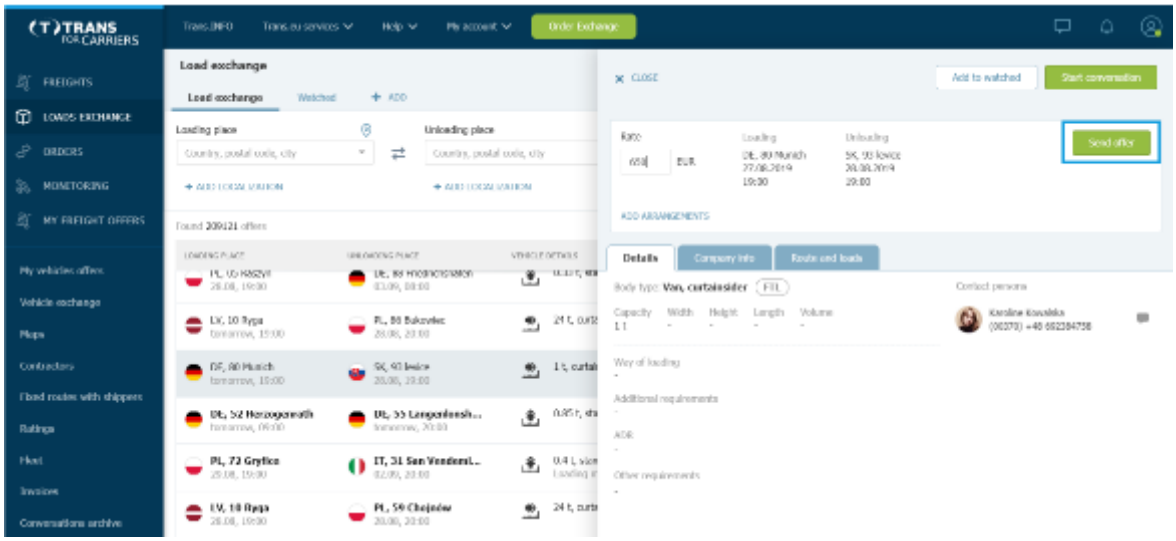


Figure 183: Sent offer

Another option provided by the tool for carriers is to monitor the sent offer and status of negotiations in the Freights module. Here the user can also withdraw his offer or continue to negotiate the rate.

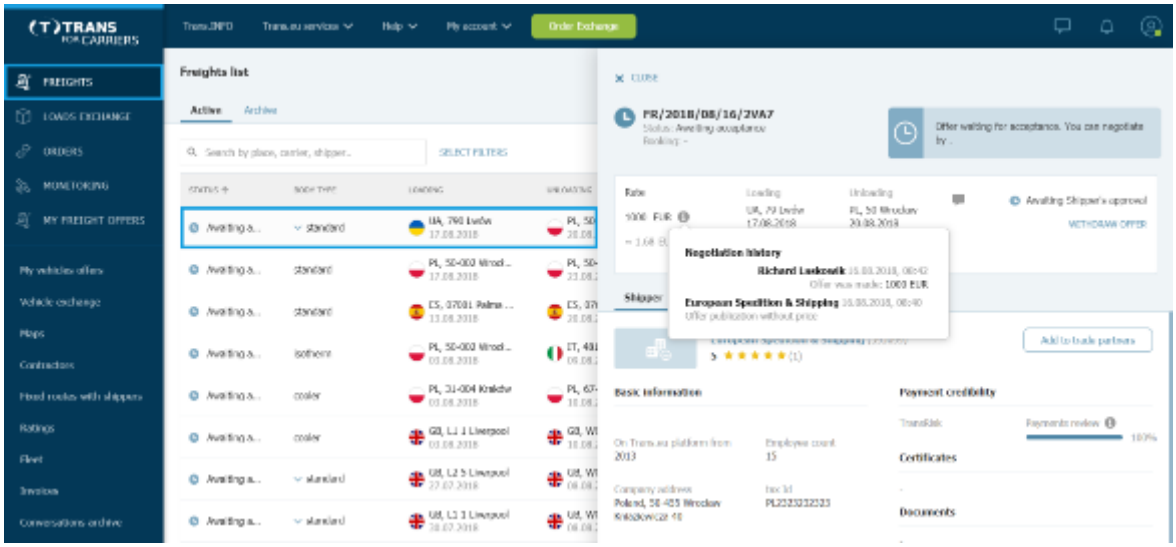


Figure 184: Negotiating history

Once the requesting party has accepted the offer, the transaction may be considered as concluded. Further processing takes place in the Orders module.

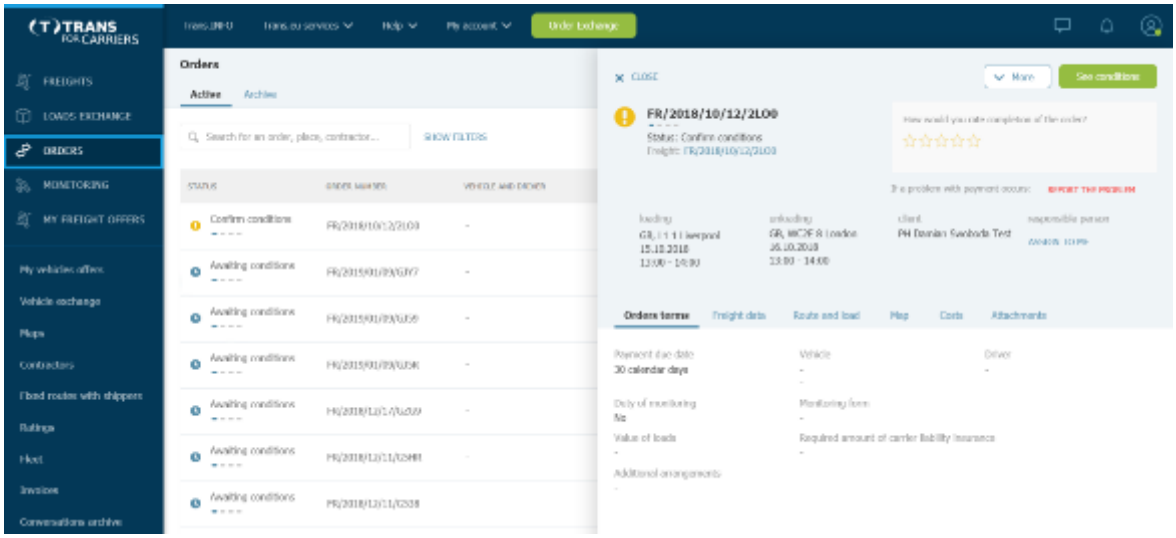


Figure 185: Confirmed order and order terms

It is possible to rate each transaction. The Ratings module is available in the left navigation bar.

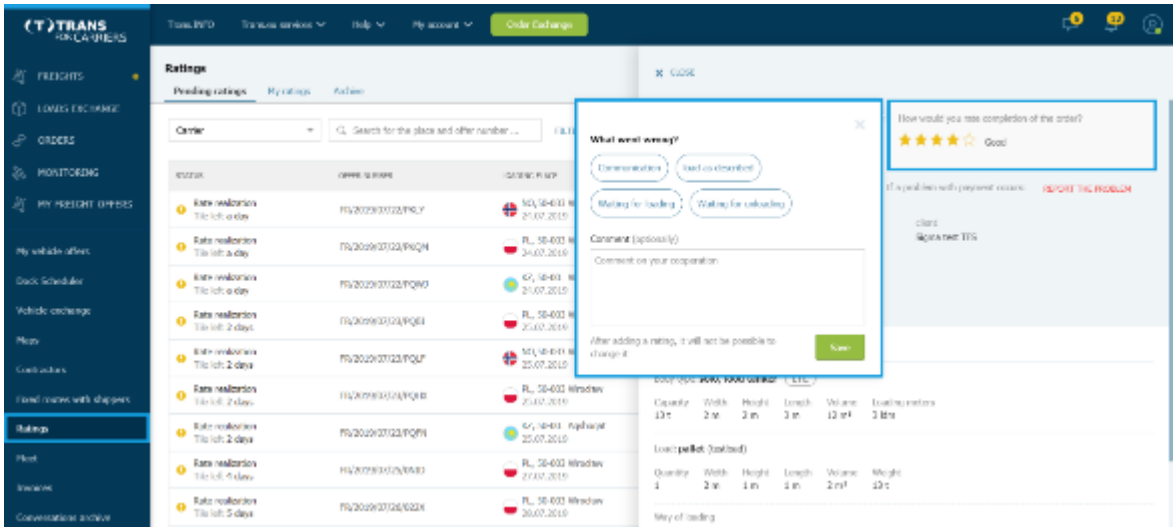


Figure 186: Rating transactions

Using the Platform, the shipper can ask the carriers to provide load monitoring to track the transport route and its statuses on an ongoing basis. In such a case, the carriers will receive a monitoring task. To take full advantage of the possibilities offered by the Monitoring module they should follow these steps:

- refill information about their fleet (in the Fleet module),
- create drivers accounts (on the top bar in the My Account tab),
- install the TransTask application on the drivers' phones.

The carriers could accept the monitoring task by going to the Monitoring module, selecting the New tab, getting familiar with the details of the task, and accepting or rejecting it.

If they reject the monitoring task, they have to share the reason with the client. The task will go to the Archive tab and their contractor will receive a response.

Monitoring principles

The telematics signal from devices associated with the task will be available to the client 30 minutes before its implementation. The contractor will receive information on the status of the transport and the position of the vehicle on an ongoing basis. A detailed list of events can be found in the Monitoring module.

If something unexpected happens on the route, the driver can send information to the carrier using the Trans Task application. The carrier will receive an alert containing a description of the event and information about the delay anticipated by the driver, which he can terminate in the system. Using the application, the driver will also confirm unloading entry and completing carriage. Then the status of monitoring will change to Finished.

Sharing location data in a task is interrupted (stopped) when the vehicle enters the unloading zone as well as: after leaving the last operation zone; 30 minutes after entering the last zone of operations, if the vehicle has not left it; 24 hours after the last planned step, if the vehicle did not appear in the last zone of transit. Then the monitoring task changes the status to Finished.

Thanks to the ability to monitor the load, the contractor has quick access to current information about what is happening with the cargo.

Adding vehicles

The carriers can **add a free vehicle** from their fleets to the Vehicle Exchange and increase their chances of finding a load quickly. Forwarders and shippers will contact them if the vehicle offer matches their needs.

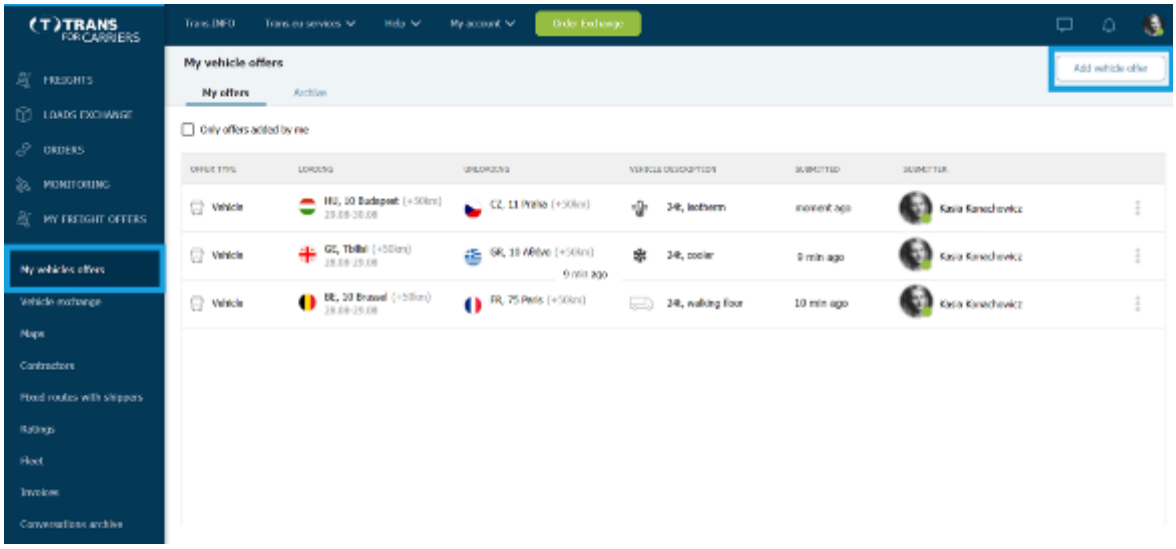


Figure 187: List of vehicle offers

The carrier should fill in the form with the vehicle parameters such as vehicle size, vehicle type, capacity, loading meters, loading and unloading areas and dates.

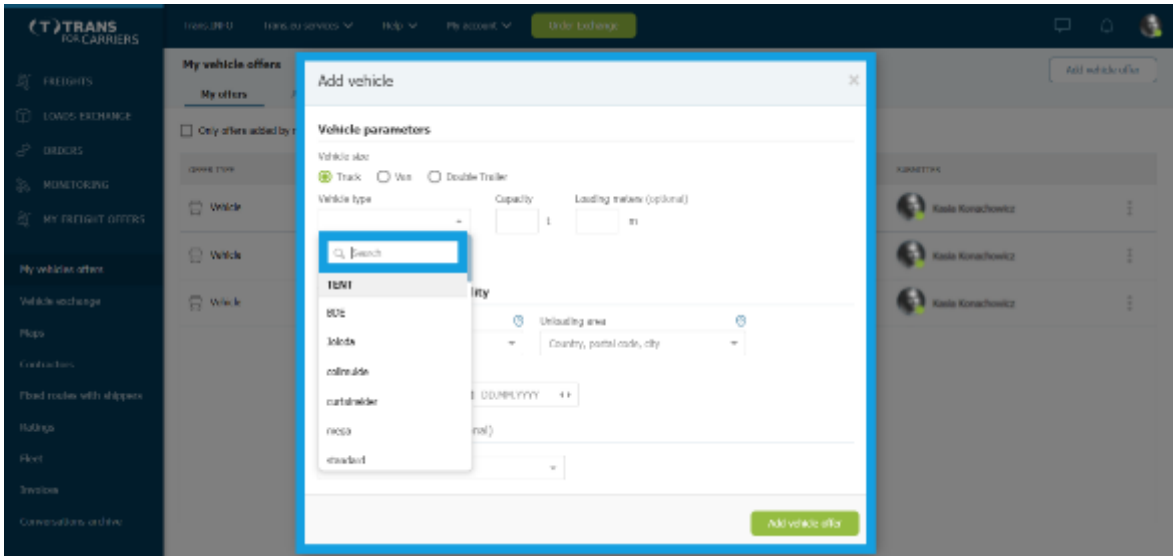


Figure 188: Adding vehicle offer

They can add time and area of accessibility by entering locations manually or using the map view.

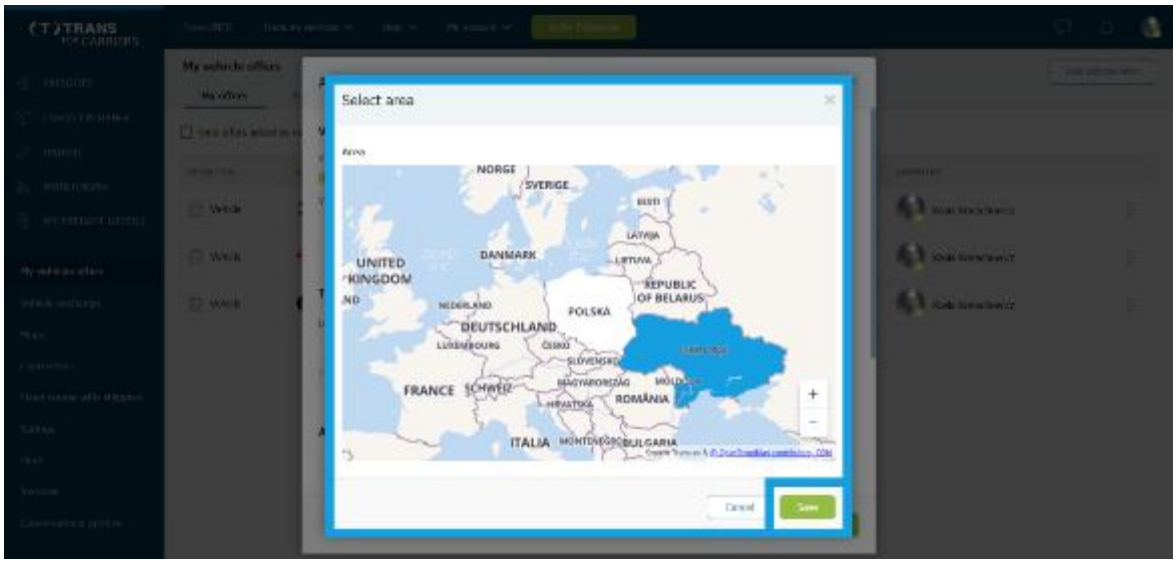


Figure 189: Defining the area of accessibility

The entries of free vehicles the carrier adds are published directly on the 'Vehicle Exchange', which he can find under the My vehicle offers module in the bar on the left.

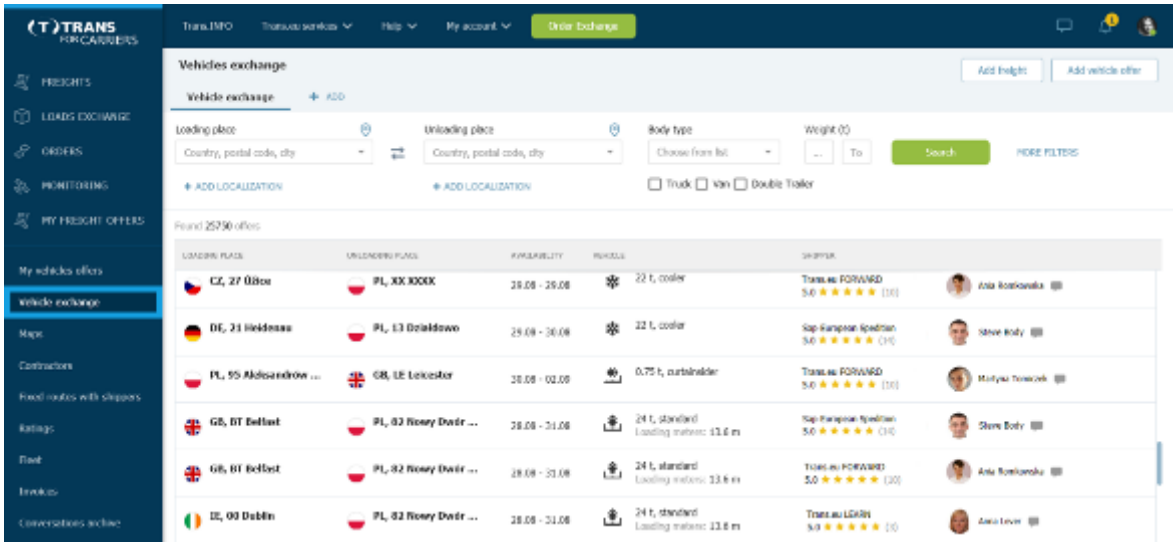


Figure 190: Vehicle exchange list

Just like in the Shippers and Forwarders tools, every transaction concluded on the Platform is subject to assessment - thanks to this information on the quality of cooperation with companies will always be up-to-date and reliable.

A star rating system on a five-point scale, where 1 means unsatisfactory, and 5 very good. If the assessor does not issue the highest score, he can use the tags and indicate one of the areas where something went wrong: delivery of documents, communication, care of the goods, compliance of the service with the arrangements, timeliness etc.

The contractor has a chance to respond to the assessment, if he disagrees with it - he can give a one-off answer. Both companies have 30 days for evaluation of cooperation in order processing (you do not have to wait until the payment deadline).

The Carrier may report a payment problem regarding each transaction concluded on the Platform and each accepted freight within 120 days of the date of unloading. Such notification affects the payment assessment rate of the contractor, who may respond to the notification.

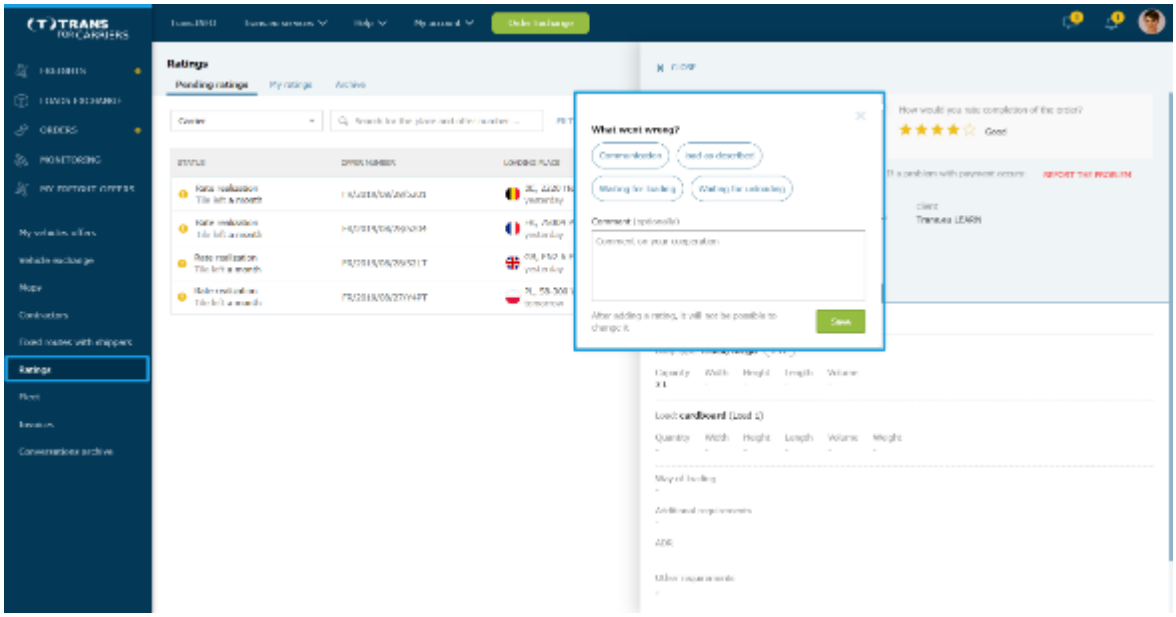


Figure 191: Ratings menu

Finally, the carriers can use the TransRisk tool just the same manner as shippers and forwarders do.

Exchange messages

The platform offers a convenient instant messenger to match details on contracting transport services. This is an easy way to determine all the details of the transaction.

Messenger is a tool for current communication with counterparties. It allows to exchange the necessary information and transaction arrangements. The messenger has 3 basic tabs: Contacts (the list of your contacts), Contexts (your conversations grouped by subjects) and Recent (the history of your recent calls). The contact list and recent conversations work similarly to the version being installed. Both, the list of contacts and recent conversations are similar to the installation version.

One of the features on the Trans.eu Platform is Contexts, i.e. grouping conversations on specific topics (received offers, sent offers, orders). This allows the users to browse a large number of enquiries about the offers more easily.

The messenger has a functional look. It is adapted to solutions commonly used on large social networking platforms.

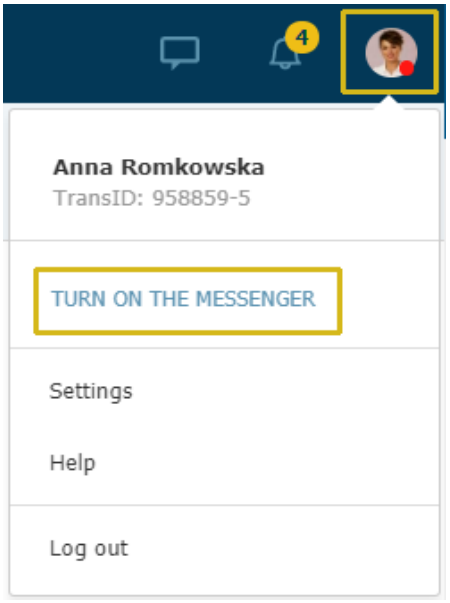


Figure 192: Messenger

It permits to search for goods and add offers of loads and vehicles by region. The carriers and the shippers no longer need to add vehicle offers or load offers separately for each country. It is enough to add a quote to a region to increase the chance of finding a partner. Just as quickly they could find an offer of cargo in a given region.

The functions of the menu in this section could be quickly refreshed and the user could sort bids. Respectively, the expired bids are automatically deleted. Search is facilitated with many additional filters, e.g. ADR, LTL, van, truck, tandem etc.

6 Freight Exchange Platforms in Albania

6.1 Summary of current freight transport services applications in Albania

Transport companies in Albania principally use the TimoCOM and Cargoagent.net platforms. The structure and the potential network provided through these platforms makes them preferable for all Transport companies that use e-commerce. These platforms contain information for trucks and loads on the freight exchange and the transport and logistics registered on the site. In either platform one may find links for trucks and loads divided by domestic, trans-national and international transportation, by truck type etc.

Transport and logistics companies with free trucks can find international or domestic loads from and to countries in Europe, the Balkans, Asia, the European Union, Africa or domestic loads in United Kingdom, the Balkans etc reaching a total of 78 countries. Additionally, these platforms provide a transport guide not only for Albania, but also for its neighbors such as Macedonia, Greece, Montenegro, Serbia.

During this chapter the Cargoagent.net platform is analyzed as it is the one that provides targeted information about transport and logistics in the other countries on the Balkans and more (e.g. Turkey, Romania, Greece, Serbia, Bulgaria, Bosnia and Herzegovina) and transport and logistics companies catalog for any of these countries.

6.2 Cargoagent.net platform

The CargoAgent platform is mainly operated by logistics companies of the Balkan countries (Macedonia, Serbia, Albania, Montenegro, Kosovo, Bulgaria, Turkey), also by logistics companies or clients from other European countries. Operations' requirements relate to FULL TRUCK (FTL) or GROUPAGE (LTL) loads. It's a free of charge platform. So anyone can register without monthly or annual payment. You are given the opportunity to open an account, where you can enter the contact details of the company you represent. Through this platform, the possibility is created for many entities that issue their requests for transport in the form of auctions, as well as it gives the opportunity to many transport or logistics companies to find cargo and the opportunity to offer. The logic of operation of this platform is almost the same as TimoCom. The platform has four chapters dealing with the supply and informative aspect of transport required.

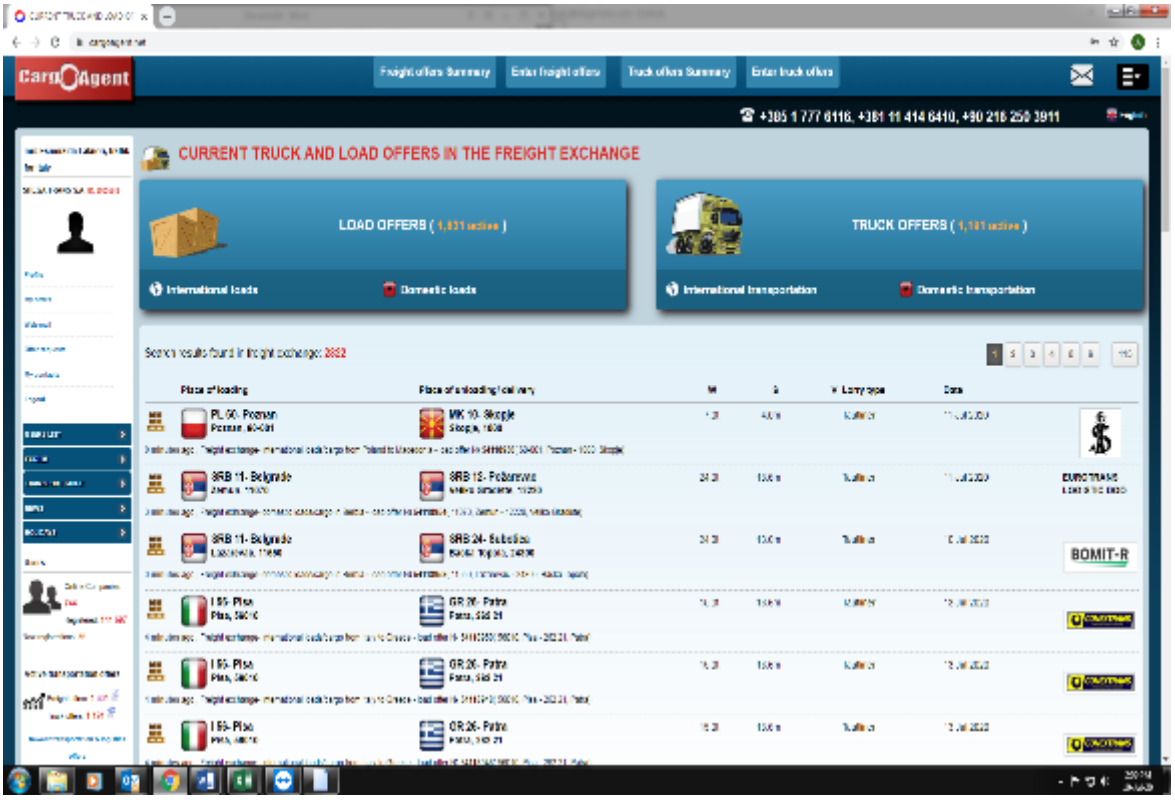


Figure 193: Cargoagent.net homepage

At present there are 141,746 companies registered at the platform, whereas Albanian companies registered and platform users are 269. The platform also provides the numbers of online users and the new entry companies. The platform provides a summary number of freight offers and truck offers.

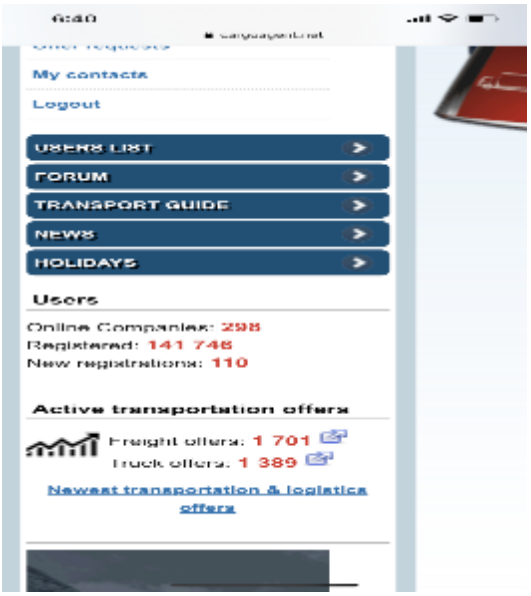


Figure 194: Registered users numbers & active transportation offers section

At first the platform requires a registration for all the companies that agree to use it. The platform provides a user name and a password for every certified user. Once logged in your data are easily verifiable from all other certified users and the exchange becomes easier and more convenient in terms of time. The platform is designed principally for the tuck transportation of merchandise. The platform has divided offers even on the basis of the type of transport trucks that are required for the desired service. The trucks required vary from:

- Tautliner
- Mega
- Box Refrigerators
- Minibus
- Gondola
- Dumper
- Truck with trailer
- Flatbed truck
- Curtainsider
- Lowbed-Flat Rack
- Container 20’ 40’ 45’
- Truck below 7.5 t
- 13,60 Platform
- Semi type truck
- Bus type trucks
- Van type trucks

Figure 195: International transportation truck types list

6.2.1 Freights offers summary

In this chapter you can see all the requirements for transportation from one place to another. The addresses, dimensions and type of trailer needed to perform this transport are specified. Options you can choose the place where you want to upload and the place where you want to download. The communication is then carried out via emails to the applicant and the carrier. There are two types of requests for international cargo in the freight exchange and domestic loads too.

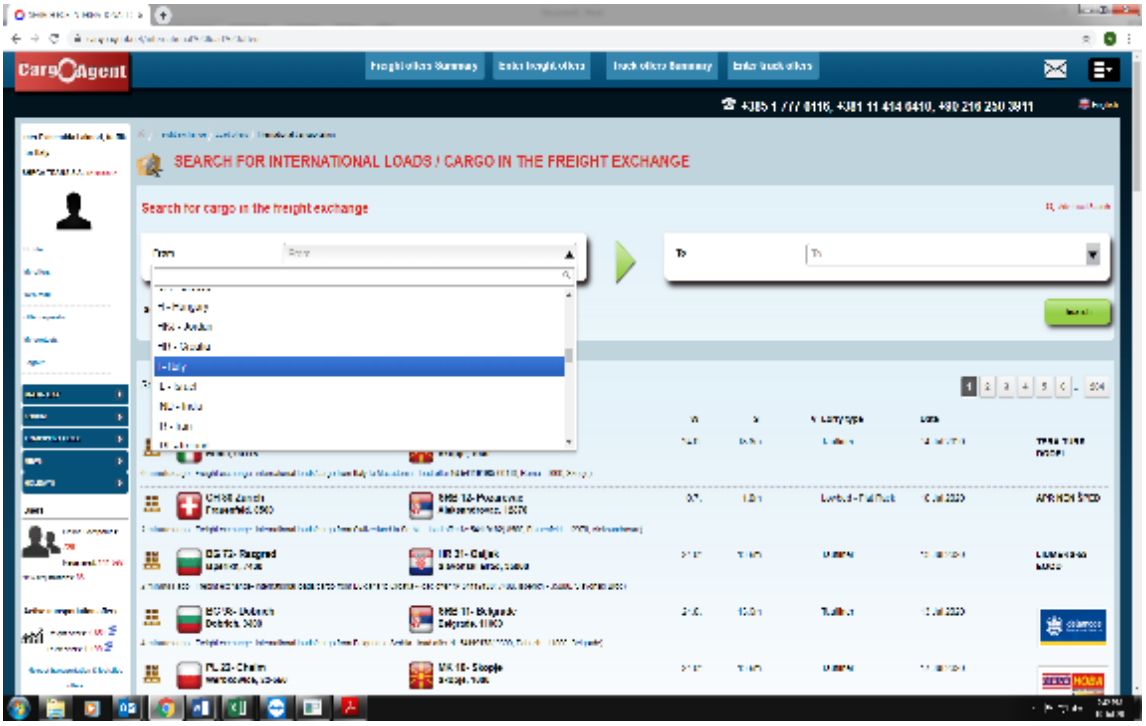


Figure 196: Search tool for international cargo loads

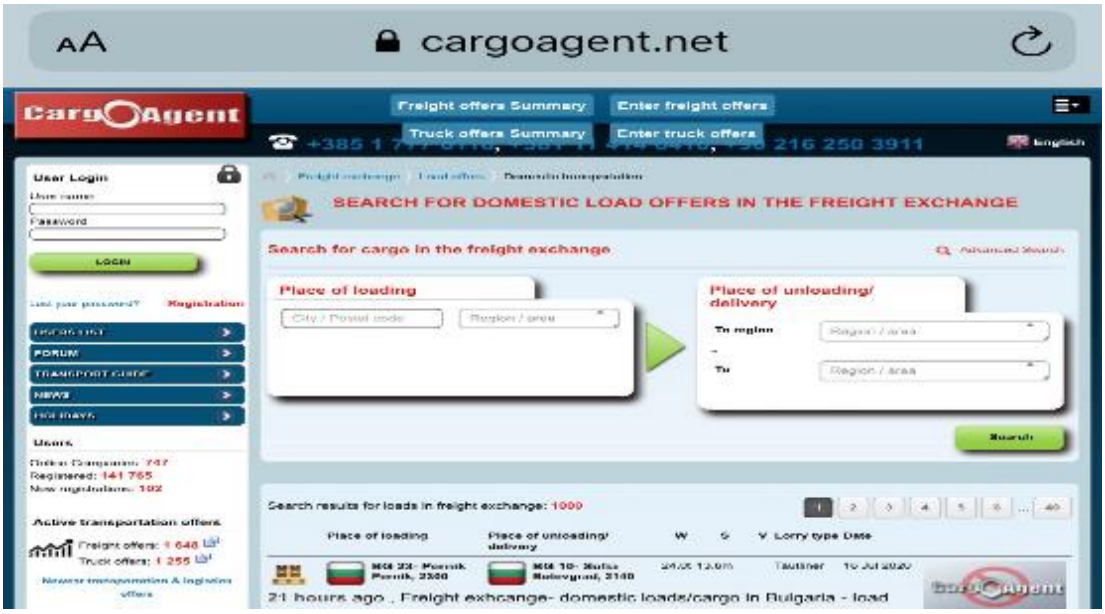


Figure 197: Search tool for domestic cargo loads

6.2.2 Freight offers registration

This chapter is designed for offerors who want a specific transportation to be done. In this chapter it is possible to enter the data of the load that is required to be transported, where are the data of the place of loading, unloading, date of loading, data of the vehicle required for transport. This request

is then displayed in the list of requirements. The offers are divided into international and domestic offers.

In the session the data required are

- Place of loading
- The dates in which the transport should be loaded and shipped to the destination country/place
- Companies should also put the truck requirements in terms of size, volume and gross weight
- The full load or partial load of a truck should also be specified.

Besides these standard requirements, the offerors' may insert additional information on the load characteristic, and other special requirements they might have in terms of the specifics of the materials that are transported or road requirements.

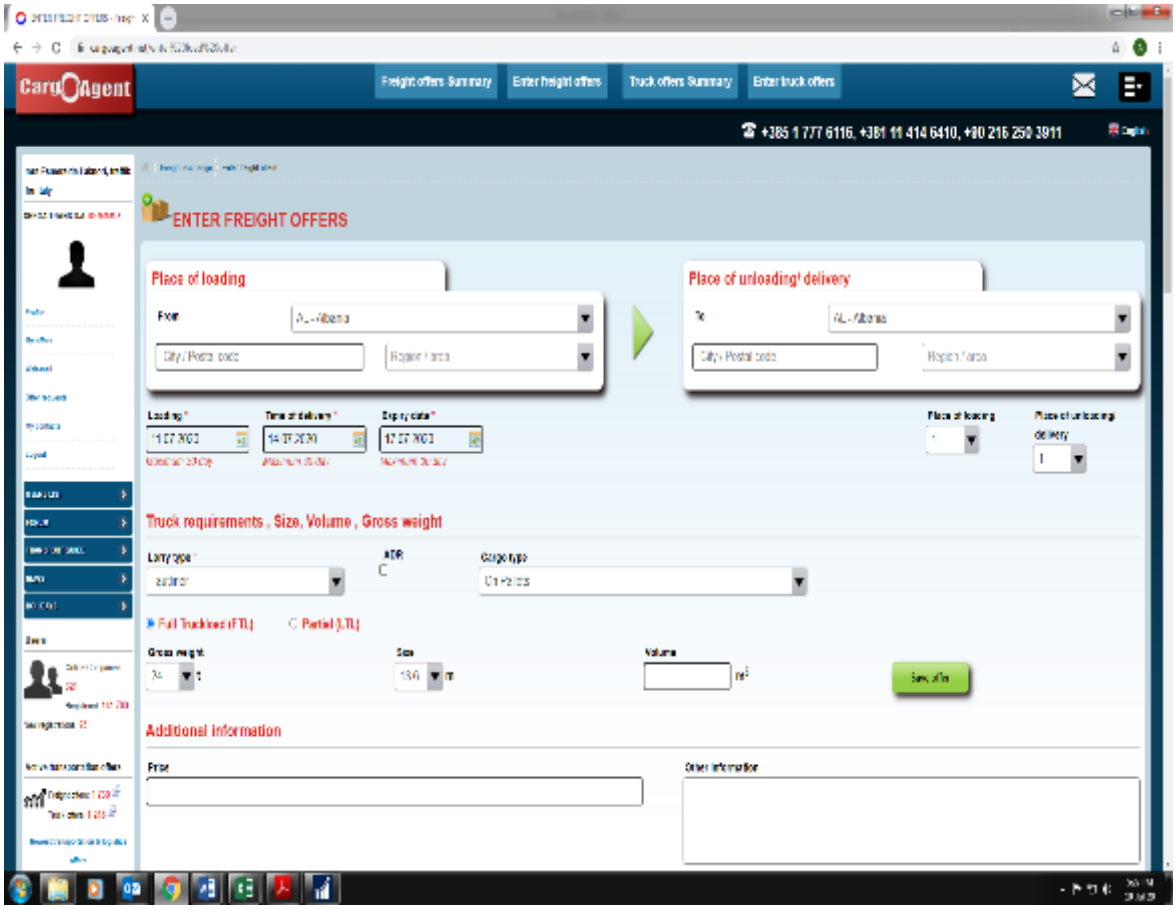


Figure 198: Posting freight offers section

6.2.3 Truck offers summary

In this chapter, there is a list of free vehicles that are located in the respective countries (address, state) waiting for a load. As well as the place where the vehicle is required to go for unloading. In

this way, entities or other logistics companies look at the availability of free tools located in different places, to facilitate and speed up the process. The search is made easy of you search for specific types of transport based on the place of origin and destination being domestic or international. The search is further detailed by the time by which the offers have been posted.

Again as in previous chapters the offers are divided in international and domestic. From what is observed the Albanian companies are more in search of the international transport offers that offer themselves.

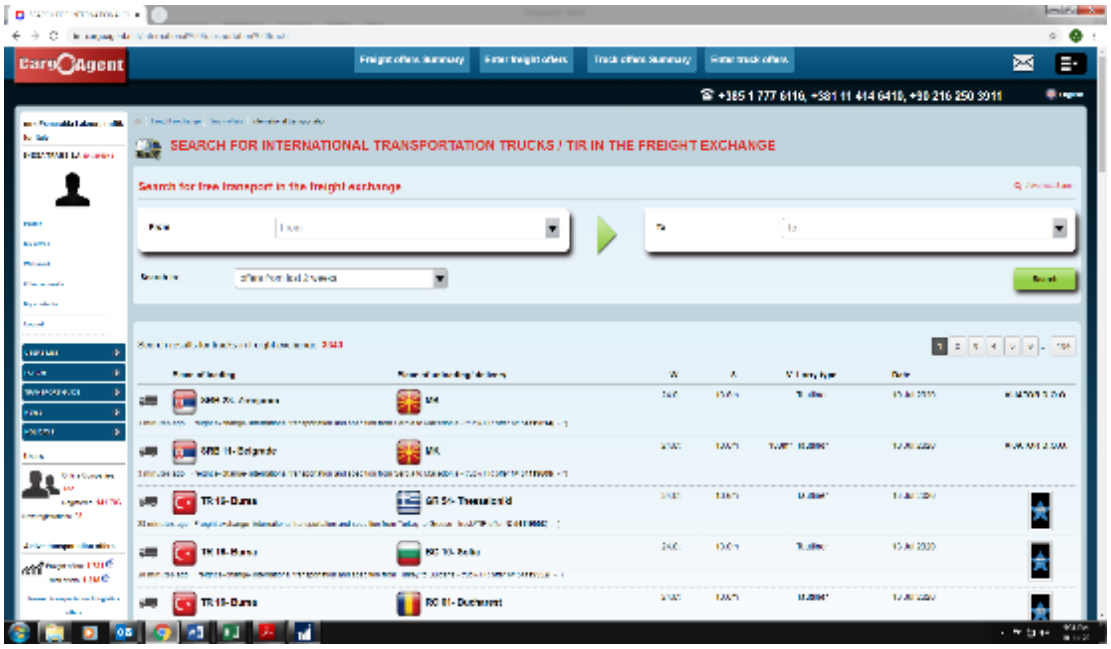


Figure 199: Search tool for international route trucks

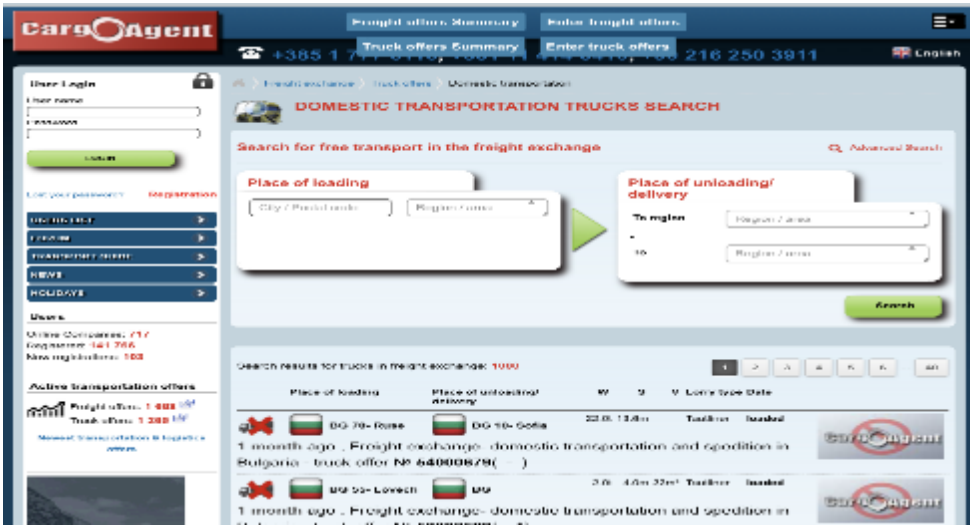


Figure 200: Search tool for domestic route trucks

6.2.4 Truck offers registration

As we have emphasized before the offers are divided into loads and truck offers. This chapter serves for transport companies where they put the data of their free means. The information that should be provided by offerors are:

- Place of loading and place of unloading specifying in both cases the what region/area those places belong to
- When it can be ready to ship and what's the expiry date
- Information on the size, volume and the loading capacity of the truck required
- Other information in case of particular loads or types of transport

In case the offeror does not like any company based on the previous experiences the offerors has a special option of the offer visibility. Thus it may hide the offer from unwanted viewers.

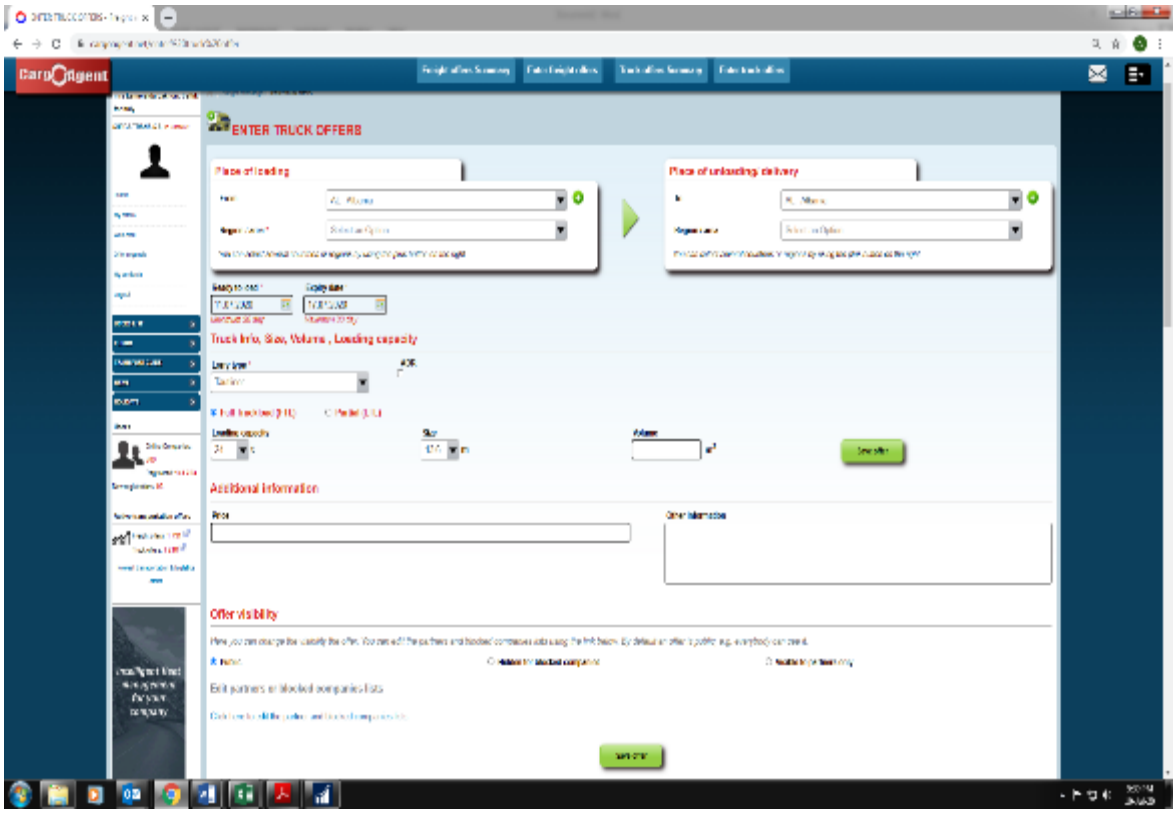


Figure 201: Truck offer registration

6.2.5 Company/Users profile

The platform provides a special section with all the companies' registers and their contacts divided by countries. Therefore, it is a viable mean also for networking and future contacts for those who can perform other operations beyond the platform.

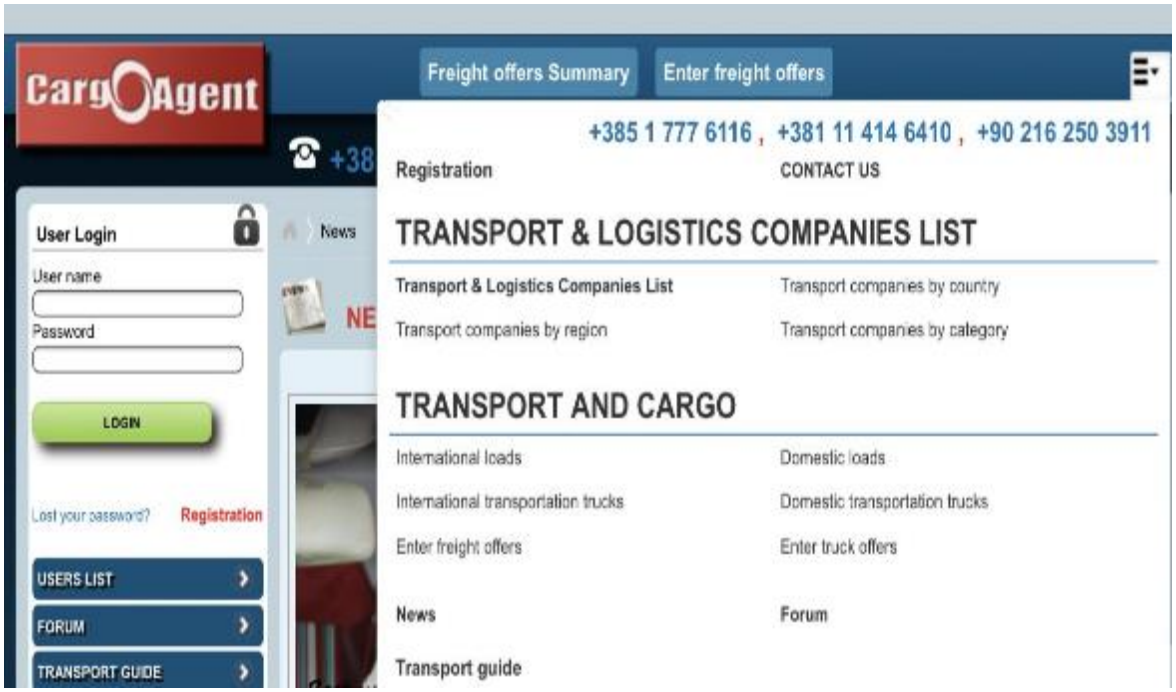


Figure 202: User profile contact information

6.2.6 Structure of the platform and services provided

The following figure shows the structure of the platform "Cargoagent.net" including all the individual subsystems as well as the functions they provide to both shippers and carriers.

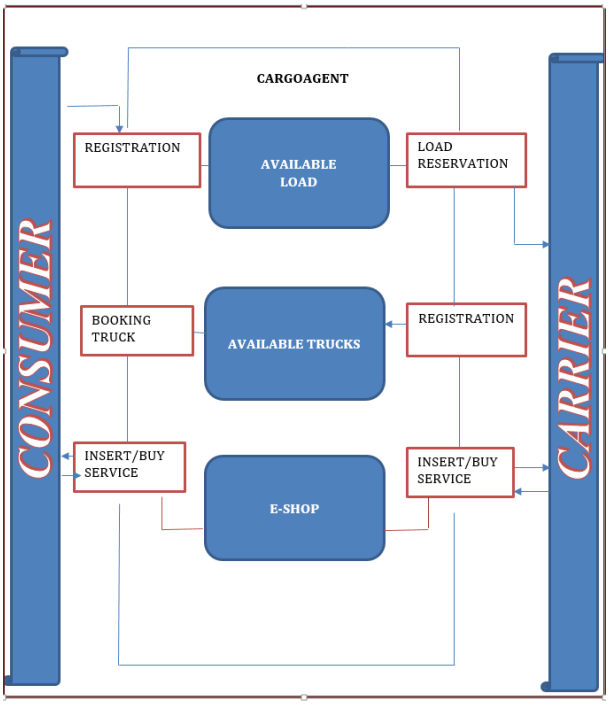


Figure 203: Structure of the platform and schematic illustration of the subsystems and services provided to the users - shippers and carriers

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ANNEX A – State-of-practice applications detailed list

Categories		
1	Informative repository/ forum (just posting)	21
2	Freight planning services (route planning, cargo space management, cargo/truck tracking, etc.)	18
3	Cargo/ Truck booking platforms	17
4	Freight auction platforms	4
5	Advanced freight services	6
	contains mobile app	18
	Desktop software	48

	1	**Cargo House** http://www.cargohouse.com.ua/	Ukraine & Global
	2	**SeaRates** https://www.searates.com/	USA
	3	**Kuebix** https://www.kuebix.com/	USA
	4	**Container Auction.com** https://containerauction.com/	USA
	5	**Freight Quote** https://www.freightquote.com/	USA
	6	**Freight Match by zoom2u** https://www.freightmatch.com.au/	Australia
	7	**Amber Road** https://www.amberroad.com/	USA
	8	**Wise Tech Global** https://www.wisetechglobal.com/product/ecommerce	Australia
	9	**Supply Vision** https://www.supply-vision.com/	USA
	10	**Talcasoft** http://www.talcasoft.com.au/product/avance.castle	Australia
	11	**Cargo. LT** https://www.cargo.lt/asp/index_guest.asp	Baltic, Russia & Europe
	12	**Cargo Bay.de** https://cargo-bay.de/new/en/new	Germany
	13	**Cargo Core** http://www.cargocore.com/en/european-freight-exchange	Czech Republic & Europe

	14	**CargoNexx** https://www.cargonexx.com/en	Germany
	15	**Cargorent.de** https://www.cargorent.de/?cn-reloaded=1	Germany
	16	**Courier.net** https://www.courier.net/index.php	Germany
	17	**e-kurier.net** https://www.e-kurier.net/en/index.php	Germany
	18	**EU logis** https://www.eulogis.com/	EU
	19	**Fracht Portal** https://www.frachtportal.net/	Germany
	20	**Coyote Logistics** https://www.coyotelogistics.com/	Netherlands
	21	**Get Transport** https://gettransport.de/	Germany
	22	**LKW online** http://www.lkwonline.de/	Germany
	23	**Transport Auftrag.net** https://www.transportauftrag.net/home	Germany
	24	**Transporti.net** http://www.transporti.net/eng/index.asp	Croatia
	25	**Wtransnet** https://www.wtransnet.com/en/#	Spain
	26	**My Carrier Resources** http://www.mycarrierresources.com/index-1.html	UK
	27	**DAT** https://www.dat.com/brokers	USA
	28	**CargoBid** https://www.cargobid.org/	Switzerland
	29	**Neelami** https://www.neelami.co.in/	India
	30	**Cyberfreight** https://cyberfreight.com.au/	Australia
	31	**Freightlink reload** https://www.freightlinkreload.co.uk/	UK
	32	**Freight X** https://www.freightx.com.au/	Australia
	33	**Vamaship**	India

		https://www.vamaship.com/	
	34	**Nyshex** https://www.nyshex.com/en/	USA
	35	**Shipnext** https://shipnext.com/	USA

	36	**Truckspace.co.uk** http://www.truckspace.co.uk/	UK
	37	**Teleroute** http://teleroute.com	Belgium
	38	**Box24** http://www.box24.de	Germany
	39	**CargoAgent** http://www.cargoagent.net/	UK
	40	**CargoTrans** http://www.cargotrans.net/	Slovenia
	41	**Coolload** http://www.coolload.com/	UK
	42	**NGL NEXTStop** https://www.nextgeneration.com/hosted-saas-software.html	USA
	43	**FREE CARGO** http://www.freecargo.com/	USA
	44	**Find Loads – Find Trucks** http://www.findtrucks.com/ - http://www.findloads.com/	USA
	45	**Freightmail** http://www.freightmail.com	USA
	46	**GeoTrans** http://www.transport.md/	Moldova & EU
	47	**HAULAGE Exchange** http://www.haulageexchange.co.uk/	UK
	48	**Internet Truckstop** http://truckstop.com/	USA
	49	**TRUCKINGPLANET** https://truckingplanet.com/	USA
	50	**Speditor.NET** https://speditor.net/	Bulgaria
	51	**123LOADBOARD** http://www.123loadboard.com/	USA
	52	**TRANS.EU** https://www.trans.eu/pl/	Poland, Romania, Bulgaria

	53	**TRANSPOBANK** http://www.transpobank.it/	Italy
	54	**XPRESSTRAX.COM** http://www.xpresstrax.com/	USA
	55	**Free Freight Search** https://freefreightsearch.com/	USA
	56	**COMFREIGHT** https://comfreight.com/	USA
	57	**ExpediteLoads.com** http://www.expediteloads.com/	USA & Canada
	58	**FREIGHTFRIEND** http://www.freightfriend.com/	USA
	59	**HaulHound** https://haulhound.com/	USA
	60	**LOADSEARCH** http://www.loadsearch.com/	USA
	61	**PickATruckLoad.com** http://www.pickatruckload.com/	USA
	62	**TRUCK IT SMART** https://www.truckitsmart.com/	USA
	63	**Trulos Transportation** http://www.trulos.com	USA
	64	**NestCatgo** http://nestcargo.com/el/	Greece
	65	**Timocom** http://www.timocom.de/Smart-Logistics-System	Germany
	66	**FREIGHTS** https://www.freights.online/	UK & Greece