



Eco-friendly, safe and
economically feasible
energy concepts and
technologies for
European Inland
Shipping

The Eurotire Case 2016

Case Study

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Introduction

Monday morning! The noise of the cars from the main boulevard in Drobeta Turnu Severin gives a pain in Andrei's ears. He rides on his bicycle to office every morning. Something is wrong on this morning. What could it be? Did he forget to turn off the lights at home? "Oh I remember! Tomorrow, I have to present a solution for the transportation of our new products to the Russian market. Where was the location? Oh, Tosno!". Now, he has only one thought on his mind. "What will be the main issue? The overall dimension of the tires, the weight, ...? I will ask my colleague. For sure, he will help me to solve this issue".

Andrei was fascinated by engineering since he was a child, probably a legacy of his father. He worked side by side with his father in small projects related to electrical driving of some cranes located in the Port of Drobeta Turnu Severin. Now, as a full engineer, at one of the biggest employers in his city, Andrei is in charge of logistics operations for the transportation of giant tires from his company to the clients.

Dedicated to Mining. This philosophy is found at the heart of everything we do. Eurotire is the emerging global brand among OTR tire manufacturers. We own and operate two state-of-the-art tire design and manufacturing facilities to produce both radial and bias products. We're dedicated solely to the mining industry, providing crucial tire and rim services and focus on your strategic mining projects in growth markets where professional service providers are hard to find.

Our customers range from the smaller start-up companies to some of the world's richest mining operations; from the lesser-known specialist vehicle makers to major name manufacturers of haul trucks and loaders. We are anywhere your mining operation takes you.

At Eurotire, we believe in going "beyond boundaries" in the mining industry to assist you in achieving your goals. We help you realize solutions while exploring the possible in the face of impossibilities. Increasing output, decreasing downtime, proving value and improving safety... these are our goals.



Figure 1: A typical product¹

The logistics department of Eurotire consisted out of two people: Dorel Pasat was the department manager, while Andrei worked as logistics engineers. Their tasks included the organisation of the entire transportation-process of the products from the manufacturer to the end user. They have to find the best solution for transporting the tires in order to save time and money for their company and clients.

Dorel Pasat was one of the first employees of Eurotire. Since 2006, when a private investor decided to buy the former tire manufacturer ANVELOPE SA, he worked for the company. He started as a mechanical engineer and for a few months his task was to supervise the implementation of new technologies into the production process. Later, when the producer signed contracts with end users from other countries, Dorel has been designated by the management of the company to lead the logistics department. Until 2014, he was alone in the logistics department and all transport operations were run through an expedition house selected by the company's management. However, after a management analysis, the director council decided to do all these arrangements using their own resources. It was a real opportunity for Andrei to apply for a job and after the job-interview he started to work with Dorel. He tried to learn as much as he could from his older colleague and boss. Now, he is responsible for the transport operations of the

¹ Source: Eurotire.

products from Romania to Eastern Europe and Middle East. The Russian market has become more and more important and therefore he has elaborated a transport strategy to this country. He already discussed possible transport strategies with Dorel but he still has to elaborate a transport strategy which can be presented to the management.

Actual situation

Finally he arrived at his desk. He waited for the computer to boot and after that he opened the Email-inbox folder. A lot of emails appear on the list. “Ok, first is first! I will read the emails regarding the exports for this month first”. After a short time, he becomes a little bit nervous due to one of the latest emails. The subject of the email rises in his eyes: *Export to Russia*. “Ok, this is not good. I do not know anything about transports to the Russia. Now I have to talk with Dorel about the best solution for transporting the tires to Tosno, Russia”.

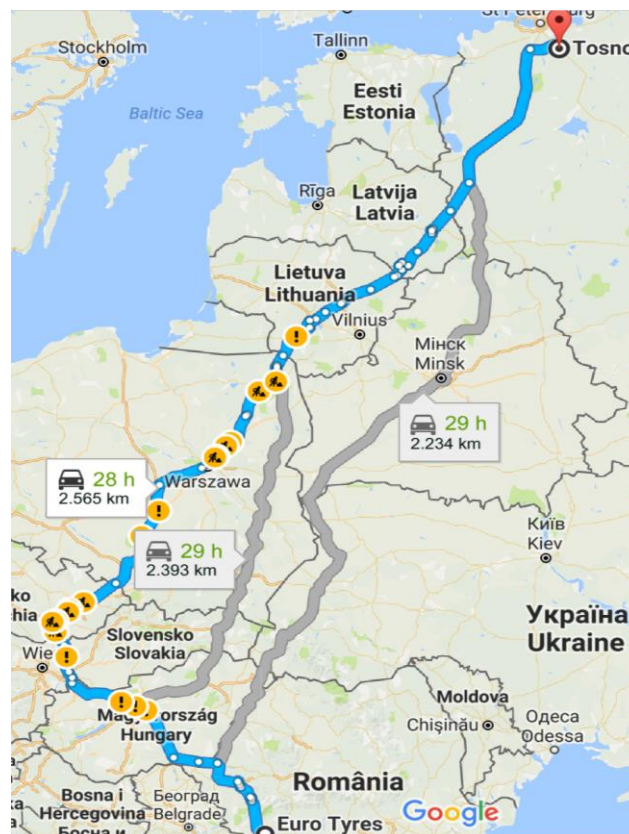


Figure 2: Geographical map²

² Source: Google Maps

Dorel is sitting at his desk, reading the technical specs of the new products. “Have you already found a solution for transporting the new tires to the Russia? You have to keep in mind that the tires are much bigger than the last lot! Therefore transport by truck is very difficult” he said. “Take a look to this map. You will see that we can transport the products with different modes. Which transport mode will suit to our goal in your opinion?” Andrei looked at the map and he knew that he has to calculate which transport mode is more efficient for this particular customer.

“Wow, this is not a joke! We have many possibilities to transport our tires. At the first glance I am tempted to choose road transport because it is the most common used transport mode for our transports in Romania. However, we have the Danube River and we are located on shore with the necessary logistic equipment in our yard. Could that be a solution?” Dorel starts smiling. “Now you are thinking like a real engineer. I like your approach and here you can find a comparison of truck, train and inland vessel in regard of their external costs”.

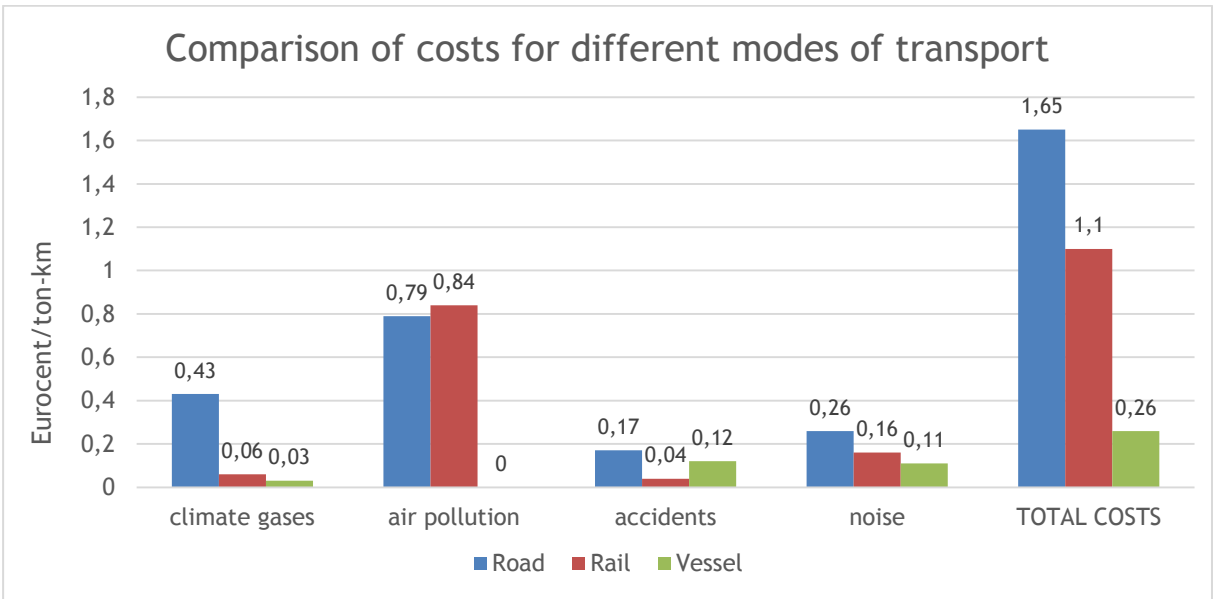


Figure 3: External costs of different modes of transport.³

“Yes I saw a similar comparison during my studies. However, those numbers are old and I am glad that you have updated information. I remember that the costs related to road accidents were lower.” - “Yes you are right, but in Romania in the past five years road

³ Source: PLANCO Consulting & Bundesanstalt für Gewässerkunde, 2007

transport has increased with the growth of the local economy. That explains the high costs for accidents. The roads in Romania aren't in the best shape and the lack of motorways are influencing the delivering time. Sometimes accidents happened. On the other hand one of the most important issues is related to pollutant emissions" said Andrei. He was very proud that he knew about the latest developments in the field of pollutant emission reduction. "The figure shows that the costs, concerning the level of pollutant emissions, is almost zero for vessel transport. If we compare the level of the pollutant emissions from naval engines with the quantity of products we will be transporting, we will understand that the naval transport is the most eco-friendly transport mode." - "Yes, your statement is correct, but don't forget the costs for accidents. You can see that the railway transport is the cheapest transport mode in this context. It is safer and you can also transport a large mass of products. However, according to these figures, the inland waterway transport is the cheapest solution for transporting our product. But, is this transport mode suitable for our particular case?"

Andrei is thinking about what to say. He doesn't want to give a rash answer. He knows that he has to explain the best solution to Dorel and to the management on the next day. "Ok, Dorel. I will study the new product specs and I will prepare a transport strategy for the particular product. I have to do some calculations and check if we have good transport connections between Drobeta Turnu Severin and Tosno concerning the different transport modes."

What Andrei is now expected to do

Andrei has to solve a problem with more variables. He thinks to the entries data in order to find the best technical and economical solution. He wrote the following variables he has to consider on a paper:

- Technical specs
- Number of products
- Modes of transport
- Delivering time
- Eco-friendly transport

"This is not very easy! I can eliminate only delivering time from my problem. This is the first export and our client's demand doesn't specify a delivering time." He opened the file with the technical specs of the tire to see two important values: overall dimensions and

the weight of the product. This values will help him to calculate the transport. Next step is to check on Google Maps to find out the transporting routes from Drobeta Turnu Severin to Odessa. He has to choose between rail transport, road transport and naval transport or to combine them in order to obtain the optimal solution.

Tasks

Imagine you are Andrei, when working on the following tasks. Use the online blog provided on the learning management system "ILIAS" to document the progress of your work and share information with your colleagues.

Date	Tasks
1 st Lecture and Technical Visit	<ul style="list-style-type: none"> • Technical visit at the company Eurotire Manufacturing • Case will be handed out.
Self-study	<ul style="list-style-type: none"> • Analyse the case and the information provided within it. • Identify the advantages and disadvantages of different transport modes and compare the transport modes in regard of the transportation of giant tires, as mentioned in the case as well as consider possible ways of transportation based on the trans-European transport network TEN-T.
2 nd Lecture and Technical Visit at Romanian Naval Authority and Port of Drobeta	<ul style="list-style-type: none"> • 10 minutes presentation, including transport strategy draft • Questions for the representatives of the two institutions regarding the IWT transport using existing port capacities
Self-study	<ul style="list-style-type: none"> • Based on the feedback you get, work out the eco-friendly transport strategy for Eurotire in details as mentioned in the case. Use of the technical specs provided within the case. • Create a well-structured presentation of 20 minutes and prepare for a following 10 minutes discussion t
3 rd Lecture	<ul style="list-style-type: none"> • Presentation of the strategy (20 min.) and discussion (10 min.).

Recommended Links:

Homepage of company (Eurotire):

<http://www.eurotire.net/>

European Commission: Mobility and Transport

http://ec.europa.eu/transport/index_en.htm

TEN-T, European Traffic Geography, Google Maps

<http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html>

<https://www.bmvit.gv.at/service/faktenblaetter/tent.pdf>

http://www.inlandnavigation.eu/media/33990/Map_Europe_VIA_2014.pdf

<http://www.unece.org/fileadmin/DAM/trans/doc/finaldocs/sc3/ECE-TRANS-SC3-144r1e.pdf>

<http://www.european-waterways.eu/e/index.php>

https://www.google.ro/?gws_rd=ssl#q=maps

Container types and sizes

<http://www.icontainers.com/the-different-types-of-containers/>

<http://www.marineinsight.com/know-more/16-types-of-container-units-and-designs-for-shipping-cargo/>

http://www.tis-gdv.de/tis_e/containe/inhalt2.htm