

LOGISTIC AND TRANSPORTATION CHALLENGES IN EDUCATION

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Abstract. This work presents some logistics and transportation issues that were solved by 3 different student groups from 3 different European entities, which are:

- the STC Group, from The Netherlands, made of 12 students;
- the FHOO Group, which comprised a number of 10 students and
- the IMST Group, made of 12 students.

Keywords: transport, logistics, workgroup

1. Introduction

The challenge for the Dutch group consisted of transporting a big variety of construction materials, from the manufacturers to the building site of a hospital (fig. 1).



Fig. 1. The hospital construction site
(Source: Google Images, 2018)

The main issue was that the construction materials needed to be in time so that the construction itself won't be delayed. So they had to prepare a logistic strategy for the materials will be brought on site on the shortest way.



Fig. 2. The route for the transportation of the construction materials
(Source: GoogleMaps, 2018)

The Romanian group had to find a solution to transport some giant tyres (fig. 3) used in the mining industry, from the factory located near Drobeta- Turnu Severin to Tosno, Russia.



Fig. 3. Example of a giant tyre
(Source: Google Images, 2018)

First of all, they needed to evaluate the distance and the transportation routes, then the way of transport, the number of each type of tyres that can be fitted to a way of transport and also all the documents that need to be done, according to the legislation from each country. The optimum and the fastest transportation route for the giant tyres is presented in figure 4.

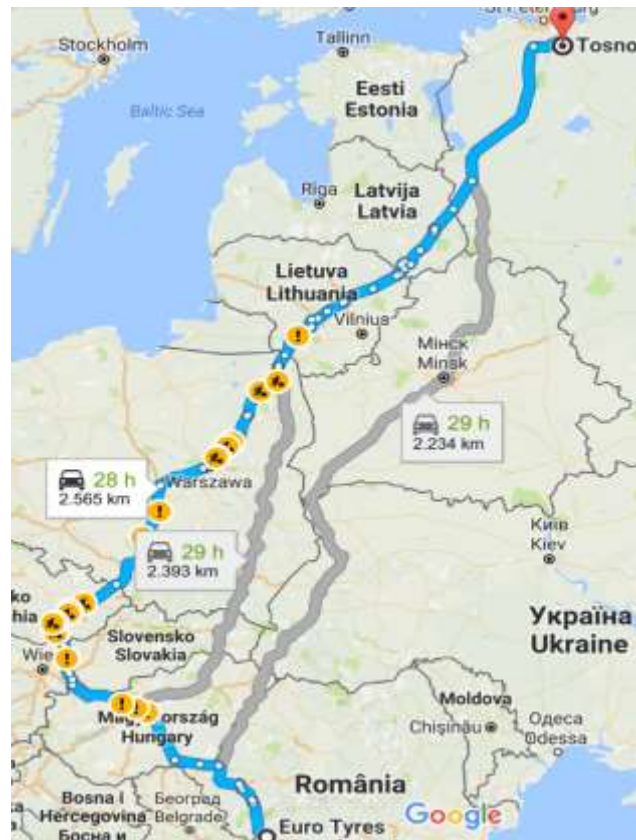


Fig. 4. The route for the transportation of the giant tyres
(Source: GoogleMaps, 2018)

2. Discussions

At the final event, which was held in Vienna, in April 2018, each entity of the consortium was represented by 2 students, which had to work together, as a unitary group. They were challenged to find the most convenient solution for transporting some agricultural machines from a factory located in Enshaffen, Austria, to Boryspil, Ukraine. It was about transporting different types of machines like: sowing machines, disc harrows, ploughs, mowers and rake machines.

The biggest challenge of the workgroup was represented by the sowing machines (figure 5), whose oversized dimensions imposed special transportation conditions (W = 8500 kgs, L = 8.5 m, W = 3.0 m and H = 3.2 m). One solution for this machines could be to disassemble it so they could be more easily transported.



*Fig. 5. Sowing machine
(Source: Poettinger company)*

The working group took into account 3 scenarios for the transportation of the agricultural machines. All of them are highlighted in figure 6. These were:

- scenario 1 (given by the yellow arrows): transport the machines by truck from the Poettinger factory through Austria, Hungary, Poland and Ukraine, directly to the factory in Boryspil, near Kiev;
- scenario 2 (given by the dark blue arrows): transport the machines by truck from the factory to the Enshaffen multi-modal terminal, load them on a train lining and transport them via Czech Republic, Poland and Ukraine, until the factory near Kiev;
- scenario 3 (given by the light blue arrows): transport the machines by truck from the factory to the Enshaffen multi-modal terminal, load them on barges, transport them on the Danube all the way to the Black Sea, then load them on a maritime ship, unload the machine to Odessa then load them on a train line with the final destination at the Boryspil factory.



*Fig. 6. Different modes of transporting the products
(Source: GoogleMaps, 2018)*

3. Conclusions

At the end there was presented the case in front of people from different countries' Ministries of Transportation, representatives from the European Union, CCNR, logistic companies and different stake-holders. The results were unanimously embraced by the audience, and especially from the representatives of the European Union.

The better logistic solution found by the students was to transport the machines by truck from the factory to the Enshaffen multi-modal terminal, load them on barges and use the inland waterway transport all the way to the Black Sea. Then transport them by the sea to Odessa and then use the train to deliver them to the Poettinger subsidiary from Boryspil.

4. References:

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