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The key role of international road transport in the economic integration of the Moldovan economy into the EU economic circuit

International Transport Thesis

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The country's boarders are mostly made up by the two large rivers that run along: Prut and Dniester. The first is 716 km in length and the second is 640 km. The section for navagation of large vessels is of respectively 40 km and 556 km. As such in comparison to Moldova's other forms of transport (these being railway, air and road) water transport is negligeable as the total volume of passangers and goods is very low. However things might change once the petroleum terminal at Giurgiulesti is completed, as currently the infrastructure in the area only allows for storage of gasoline and diesel; as water transport has its advantages such as being *greener* and relatively cheaper.

Moldova's first railway was built over 147 years ago. Currently the railway transport plays a significant role in Moldovas import and export economy, as for the longest time that was the only way to travel and transport goods with. It still partially is a very accessed method, as it allows for large volume to be moved, mainly between the ex-soviet states. This is because these countries use a different gauge from Central and Western Europe. As such a brake-of-gauge is required when two different gauge lines meet; which is the boarder with Romania. It can take a minimum of 3 hours for a simple passanger train with under 10 cars to have all of its gauges replaced. This makes it very time inneficient for the transport of goods via train from Moldova towards the west; also considering that during this gauge change the cars move violently back and forth to properly fit and allign. Compared to neighboring and EU Accession countries, Moldova has an on par rail network density.

There are four airfields in total in Moldova, of which only one is used for international connections; located in Chisinau. It transports about 2 000 tons of cargo per year on average, which makes it a very small airport by volume.

For these reasons road transport is the key method of cargo transportation which will help Moldova grow and establish itself in the European market.

1.2 Scope

The dissertation paper is a case study on the Republic of Moldova's road transport, how its economy could benefit and also bring it closer to becoming fully integrated in the European market, in terms of competitiveness and presence. I will be doing this by:

- Reporting the most up-to-date information regarding road transport and its logistics
- Analyzing the gathered information
- Comparing the fleet of trucks in Moldova to a EU member state's
- Present the technological level, its progress and evolution
- The environmental impact and the imposed requirements and movement towards *greener* vehicles.
- Analyzing the how road transport will benefit Moldova's economy at going forward

Soviet nations, i.e. the Republic of Moldova. Where it still can be seen on a daily basis running in the capital of Chisinau and very likely around the country; mostly for daily deliveries to and fro stores and shops. As well as being used by the fire department or for military soldiers traveling from location to location.

The original basic ZiL-130 model has a fuel consumption of 38 liters for every 100 kilometers traveled. As previously mentioned, due to its simplicity in design and popularity there has been created the ability to replace the original 6 liter V8 petrol engine with high emissions to much more economical and greener diesel engines. Engine's with an "s" because there are very many models of engines, with different horsepower and fitting in different European emission standards[7], the best diesel engine having the least amount of toxic emissions of Nitrogen Oxides, Carbon Monoxide, THC, NMHC and PM is a Euro 3 engine variant. With mileage ranging from the lowest at 17 to the highest being 25 liters per 100 kilometers, this depending on the power of the engine (150 all the way up to 185 BHP).

A secondary benefit from the diesel engines is the exceptional increase in torque. Torque is the power that the wheels exert onto the ground, therefore the higher the torque figure, the more powerful the acceleration. Diesel engines due to their construction and operation have naturally a significantly higher toque than petrol engines. This is particularly helpful in trucks, which have the tendency to be slow, due to their large weight. This is distinctly important for the ZiL-130 since the roads in the countryside are not as of high quality as the asphalt in the city; include mud, dirt and uneven terrain and a truck can get stuck easily and have difficulty in driving off.

- The regular petrol engine gives the truck 43 Newton meters
- The replaced diesel engines offer up to 73 Nm.

Clearly the diesel engine offers a quiet significant benefit to the truck, in addition to the reduced level of emissions and reduced fuel consumption.

[7] European emission standards have presently 4 classifications, with two more recently proposed and still in discussion. The classification starts from Euro 1, which has the highest emissions and as the level of NOx drops by grams per kilometers (g/km) the Euro figure increases to 2, 3 and 4. Euro 4 having the lowest emissions and as such being the best figure. Currently Euro 5 and 6 are being drafted.

- Where possible, the top freight companies who have access to multiple methods of transport, tend to combine shipping, as to reduce their companies' emissions.

- Proper vehicle selection must be made by the trucking company, as to maximize freight space needed for transport of its cargo, so as to not have a truck too weak power wise to move the weight of the cargo or so powerful that too much energy is wasted on nothing.

- Changes in truck development also bring forward new technological alternatives, such as the development of hybrid diesel-electric trucks, so as to not always rely on diesel trucks.

- Improvements in powertrain (engine, transmission, differential, etc.) design, in order to have better fuel economy and increase fuel efficiency. Such braking systems which recharge the car battery while braking.

- Quickest routes must be selected in order to lower the distance a truck must travel, which will save the company fuel consumption money and also reduce pollutants produced.

- Tyre companies are pressured into developing better and more fuel efficient tyres for trucks and trailors.

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