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PRELIMINARY REPORT

Key Impacts on Environmental Improvements in Case of Road Transport Companies

Siniša Arsić
Telekom Srbija AD, Belgrade, Serbia, sinisaars@telekom.rs

Velibor Peulić
Pan-European University Apeiron, Faculty of Business Economics, Banja Luka, Bosnia and Herzegovina; velibor.peulic.logistika@outlook.com

Dragutin Jovanović
Pan-European University Apeiron, Faculty of Business Economics, Banja Luka, Bosnia and Herzegovina; djovanovic@politehnika.edu.rs

Miloš Arsić
Faculty of Economics and Engineering Management, University Business Academy, Novi Sad, Serbia, misaarsa@yahoo.com

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Abstract: This research includes the analysis of key impacts on environmental improvements, which are engaged in road transport of cargo or passengers. The basic assumption of this paper is that the level of fulfilment of environmental standards (measured by decreasing emissions of harmful gasses) is largely conditioned by the external influences, such as business strategy, performance or logistics management activities. The main goal of this paper is to theoretically identify key impact in the case of transport companies when it comes to potential for improvements of environmental indicators. Improvements for the living environment can be caused by fleet renewal, tighter vehicle lifecycle management and via different government regulations. Key findings suggest that the fact whether a road transport company does business internationally. Future research involves extending this sample of road transport companies to all Balkan countries, who are members of the EU or are candidate countries. Additionally, future research should be including additional environmental indicators that are not conventionally measured during vehicle inspections.

Keywords: logistics, road transport company, sustainability.

INTRODUCTION

In the case of road transport companies, small profit margins and large competition cause a drastic increase (larger than ever before) in the number of routes driven and ship-ments being delivered. More often than not it occurs that efficient fuel savings, emissions decrease, are not prioritized at all in road transport companies [1], followed by the fact that there are no incentives helping haulers to become more efficient.

The largest share of freight transport in Europe is recorded in the case of road transport companies (among rail, air, water and other types), with companies from Germany and Italy who are recording the biggest turnovers [2].

Several EU targets have been set to reduce the environmental impacts of transport in Europe, including its greenhouse gas emissions. The transport sector's targets are part of the EU's overall goal to reduce greenhouse gas emission by 80-95% by 2050.

Finally, studies show that top tier transport companies position their peak performance goals according to successful management of these indicators of business performance [3], but also in combination with all other important indicators.

MATERIAL RESULTS FROM LITERATURE REVIEW

In [4] was defined several most important indicators of operational performance, dividing them by process - procurement, manufacturing, warehouse, delivery and transport, delivery and post-sales service. Previous research papers considered various indicators of operational performance, which can distinguish and measure success between transport and logistics operations.

During the last 20 years, several authors analysed the majority of important indicators of operational performance of cargo carriers, such as capacity and on time delivery [5], covered distance measured in kilometers and finally productivity measured through the amount of transported cargo or number of passengers over time, lead time for domestic market [6]. On the other hand, in [7] found, in the case of large trucks operating in Spain,

that maximizing gross load of vehicles (up to 44 tonnes per truck) causes a decrease in number of deliveries, and indirectly influence lowering emissions into the air.

Inter-city bus operators can add or remove routes between cities relatively easy, al-lowing them to enter different European markets on a short-term test basis, or to modify type of passenger transfer service rapidly as markets change and emerge. In [8] supports this correlation between attracting new passengers and increasing number of totally new buses in fleet.

In [9], there was conducted an efficiency evaluation of bus transport companies with and without taking into account environmental emissions, concluding that most research assumed that profit maximization strategy was limited by neither environmental emissions nor government regulations, and that efficiency meas-urement and productivity analysis have been rarely analyzed before. Consequently it is not clear whether larger fleets (companies with more than 250 employees) are modernized quicker and more often (innovation cycle is shorter), and are indirectly causing decreased emissions towards the environment.

In a study [10], it is suggested that heavy-duty vehicles (cargo transport trucks) are one of the most significant contributors to emissions and air polution in transport of goods outside cities (in contrast to light duty vehicles being the most common type). Additionally, heavy-duty vehicles are interesting for environmental topics also because of the type of cargo they are carrying, since dangerous cargo is entirely related with large trucks.

Fuel consumption per km presents on its own a very important indicator of influence towards the environment, and various efforts are made to improve that parameter, as previously analysed in [11].

Another very important indicator (often avoided by business decision makers) includes emissions of CO2 (measured in total number of kilograms per km). According to [12], emissions of harmful gas such as CO2 grew by 27% over the last 30 years, and account for majority of all transport-caused emissions in the last few years.

Figure 1. displays key targets for reduction of harmful gas emissions until 2050.

Taking into account a wider time horizon, the situation regarding emissions of road transport carriers is even worse, since it has drawn attention to a record growth of emissions caused by road transport, from majority of total emissions in the 20th century, to almost three quarters in the first decade of 21st century. Figure 2. indicates that most significant reduction of emissions is due to happen in the case of vans and cars.

Marginal cost analysis handled in [14] initiated a concern whether smaller road transport companies are even able to consider fleet modernization and investment in ecology projects. Overall (CO2, NOx) emissions from worldwide road transport activities are projected to increase by double until 2050 [15], opposed to the fact that CO2 emissions in Europe are predicted to drop almost by a half in the next 10 years [16]. Also, near zero reduction in emissions is desired until 2050, and around 80% reduction from overall transport (commercial and private) [17].

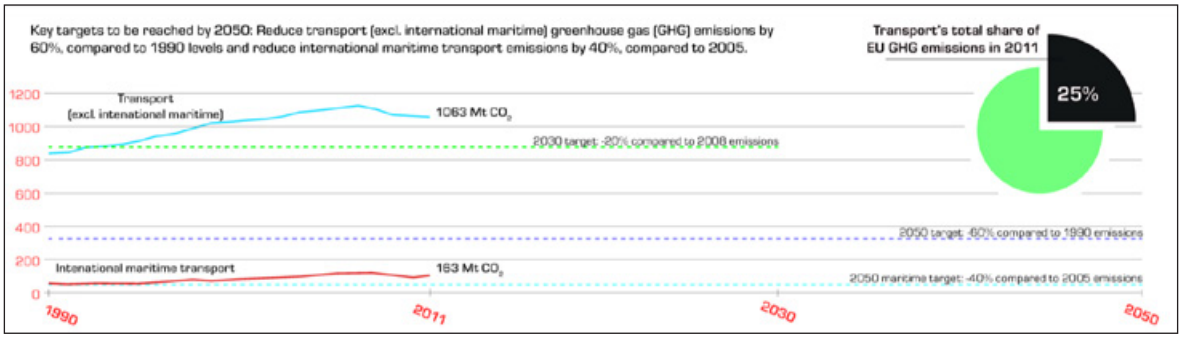

Figure 1. Share of total emissions due to transport activities [13]

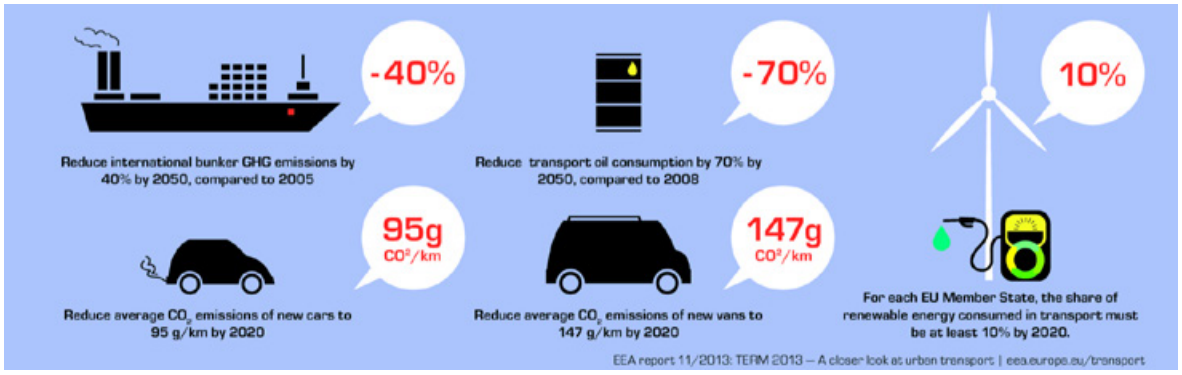

Figure 2. average reduction of emissions as the main effect of environmental impact [13]

Therefore, it is very clear from a strategic point of view that transport businesses need to align their investment plans with EU trends and predictions. For the purpose of this re-search, it is not clear whether it is easier to commit to environment protection goals when doing business at large, and hard to think about it when counting every penny spent and every mile crossed.

CONCLUSION

Taking into account everything analysed throughout this paper, in order to comprehen-sively understand the problem, the existing rationale about impact on the environment can be adequately expanded with the following, that key impacts are oriented around profitability and expansion of fleet (trucks). Mixed with key indicators of operational performance (fleet size and internationalization), findings show that companies doing business locally tend to be oriented towards profitability (with less investments in new fleet), while larger are focused on fleet modernization and achieving greater success on international markets (all of this leads to incumbent environmental improvements). But, further analysis is certainly necessary, to be able to fully understand the perspective for the whole region (majority of neighbour countries are in the EU).

There is a clear gap left for further research since there is a clear preference of the EU for further expansion and integration, at least in terms of business relationships with West Balkans countries. Another iminent contribution of future research is to establish more knowledge about road transporters who operate outside large supply chains, their approach to logistics management, as well as to describe additional examples from Serbia as one of countries outside EU with the prospect of becoming moderately developed with regard to sustainability.

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