# D2.3 AEOLIX GLOBAL NEEDS AND REQUIREMENTS

## Lead Beneficiary: IRU Projects

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Full deliverable available here: http://aeolix.eu/deliverables/

This document presents an analysis of the logistics and freight transportation market in Europe in terms of economic figures, operations, mode performance, type of cargo transported, modal split, main corridors and cost break-down. This report is a contribution to the effort to position AEOLIX in these markets, and provide the necessary context within which the project and its 3 main outputs will operate after the project's end.

This deliverable aims at providing the reader with all the necessary information to fully assess the magnitude and importance of the logistics and freight transportation market and provide all the details that differentiate each mode from the others. In doing so we try to reveal each particular mode's potential, in a multi-modal supply chain perspective. In addition, this deliverable describes the results of an extended online survey and Delphi study on future trends and drivers that will influence the freight transportation and logistics industry, concluding on those that will significantly impact the area within which AEOLIX is positioned.

Even though the results presented in this deliverable are of interest from a more general point of view, they are primarily supporting the design process with in the AEOLIX project. When designing and developing a complex architecture like the AEOLIX platform, insight into the domain that is to be supported is crucial.

The importance of logistics has been elevated enormously in the globalized economy as it represents the backbone of highly complex and globally extended supply chains, which require the efficient, cost-effective and reliable flow of goods and information. However, although the availability of statistics and other sources has increased in the last couple of years, there is still a lack of systematic and consistent data in the field of transport and logistics – especially at a pan-European / global level.

It is of utmost importance to address the environmental footprint of road freight transport operations as they are dominating the sector. It is evident that pollution reduction will hardly come from shift to rail or other modes of transport; although the latter might have a huge potential in serving the 'less pollution cause', there is a chance that this potential remains largely unexplored in the years to come. Given agreements at EU and global level (COP21), actions, policies, strategies and solutions towards reducing road transport environmental footprint will need to be at the crux of the short-term agenda. This fact also allows AEOLIX and other similar efforts to fulfil their potential and explore the extent to which innovative technological solutions can contribute to environmental objectives.

Through this study a need for more coherent, consistent and apparent reporting of data by European Union member states (MS) and the European Commission (EC) itself was identified. In general, there are several data sources that require money to allow access to their datasets or information, making it either very difficult or impossible to gain an understanding on certain aspects. Yet, this is fully to be expected; the majority of the cost-protected datasets and information are market sensitive, and concern business companies and enterprises themselves and the way they operate.

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The structure and framework for this open data sharing still needs to be standardized in order to ensure an environment of security to a sufficient degree. How feasible this can be in an era of competition, remains to be seen.

Some of the key conclusions of the Delphi study, are summarised below:

- E-commerce, Digitalization, and Green Logistics are the most impactful drivers for freight transportation and logistics

- Digitalization and E-Commerce are assessed by the experts as those likely to occur/ impact freight transportation and logistics in the next 3 years' maximum. Blockchain and automation on the contrary are believed to not be impactful/disrupting until after at least 5 years.

- Green Logistics is mainly associated with the price of eco-friendly products, government rules and regulations and advancement of technologies.

- The adoption of E-commerce solutions is dependent on product types, regions or countries and the settings (b2b or b2c) in which they are provided. However, the pace has increased exponentially during the last couple of years, and it is anticipated to move even faster in the coming years.

- Automation in confined areas is easier than in cities. However, regulations such as worker's protection legislation and public road safety regulation, the level of societies prone to technology use, and a country's strength within a specific sector are important factors. Compared to fully-autonomous vehicles, truck platooning is expected to be more likely to happen and to happen earlier.

- Although IoT and big data have potentials for many sectors, the value of it can't be fully realized due to the lack of capacity and unwillingness to share data.

- Electric vehicles will gradually penetrate the market. During this gradual penetration the cost, infrastructure development and adoption by the market are big concerns.

- Sharing economy has been around for quite some time. Despite low technology matureness level and frauds in the past, many industry players especially SMEs are getting a fair market share.

- 'Rebound effect' can be of critical importance here, not only because of cheaper sustainable technology but also because of higher customer expectations for e-commerce deliveries.

- Big data is absolutely crucial for automation. However, making it useful through automation is a big challenge.