



Willingness to Pay for Increased Visibility in Trucking Operations

Colombia and Chile

Report for the



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Executive Summary

Visibility in road freight transport is important for logistics, customer service, security, the environment, and public policy. This work discusses in how far technology adoption has progressed in Latin America, and in how far, why and if shippers perceive such progress as a value added which repercutes in a greater willingness to pay for road freight transport services that offer high(er) visibility, using the markets of Colombia and Chile as case studies.

There seems to be common agreement in literature that technology will lead to greater visibility in logistics systems and across the transport modes. This research in a first step defines the, units, dimensions and granularity of visibility in road freight transport and discusses the differences of expectations and use of visibility depending on the stakeholder along the supply chain. Thus, revealing the relevant differences among stakeholders and identifying usually ignored stakeholders such as insurance companies that are found to have a significant influence on the use of technology, at least for the case of Colombia. The conceptual discussion develops a clear distinction between the implementation and use of technology and the (strategic) use of derived data (output) from using that technology.

Based on the definition of visibility and after defining the specific characteristics of Colombia. The question on willingness to pay for visibility and use of technology in road freight transport in Colombia is addressed. This research conducted a choice-based experiment with 170 transportation companies. The choice-based experiment is complemented with a quantitative survey of transport companies in Colombia, as well as qualitative interviews in Colombia and Chile with transport companies, shippers and technology and visibility providers.

The results show that willingness to pay for GPS services in Colombia is substantially higher than market prices for such services. For example, transport companies are willing to pay 600 dollars extra for hiring a truck with a GPS instead of a truck with no GPS, even though the cost for a truck to rent a GPS is only 10 dollars for a 3-day trip. A rather unexpected result is that according to the survey, 96% of trips in the formal sector use a GPS. However, the wide implementation of GPS in long-distance road freight transport is confirmed in interviews with technology providers, shippers and companies .

The study discovers that the almost universal use of GPS in the Colombian long-distance road freight transport sector. The high willingness to pay for GPS services is significantly influence by the conditions and requirements set by insurance companies. These require GPS records for a wide range of products, routes in order to be able file insurance claims for accidents, contaminated products, or theft. Interviews with transport companies and shippers revealed that security and contamination are important sources of concerns among carriers, transport, and insurance companies.

These concerns about security and cargo contamination are also consistent with the high willingness to pay for other visibility services, such as geofencing (600 dollars on top of GPS) and armed guards (260 dollars). The apprehensions for security and contamination are also consistent with the high willingness to pay assigned to the reputation of drivers. Shippers and carriers are willing to pay one thousand dollars less for a trip if they learn that a transport company or driver has a bad reputation,

and two thousand dollars more for a trip if they learn that a transport company or driver has a good reputation.

While a clear willingness to pay for standard technology can be found, the spread and need of technology providing wider dimensions of visibility (temperature, humidity, vibration etc.) beyond location is confined to specific products. In these case the level and dimensions of visibility are defined by the shippers (and insurance companies) in order to comply with supply chain integrity expectations.

The interviews during this research revealed that most firms, despite using technology, do not utilize visibility to optimize their logistics. Further, most transport firms and carriers do not make use the data generated by the use of technology data for business analytics. The use and analysis of visibility reports and data in the great majority is limited to situations where accidents, contaminated products, or theft occurred. This gap between the use of technology and the use of technology generated data reveals that digitalization in the road freight sector is progressing due to external pressures (i.e. insurance companies, governments), but not driven by an intrinsic interest of the sector to improve its performance or competitive situation.

In the current situation significant volume of data are produced and remain in their raw form without adding any further value to the transport service itself or the wider logistics process or supply chain. This situations was also confirmed for Chile, where surprisingly the use of technology was less spread among the sector than in Colombia. A lesser pressure of insurance companies on the use of visibility technology is among one of the explaining factors.

Overall the adoption of technology for visibility in the road transport sector mainly concerns mature technologies, advanced IoT solutions or relevant big data analysis are only present in the case of large international companies present in the local market. Thus, in comparison to road freight transport markets in other OECD countries a technology gap in the use of advanced technologies comes to the foreground.

Future research should focus on understanding why transportation firms, carriers and the public sector make so little use of the already available visibility data for logistics or business analytics. The understanding of the strategic use of this information for improving operating, economic and environmental performance is a prerequisite for creating willingness to pay for the use of more advanced technologies.

The combination of high willingness to pay and low prices, together with the universal use of GPS, suggest that the market for visibility services is competitive. There seems no need for public policy to incentivize the use of GPS among carriers and transportation companies. In particular, there is no need for public subsidies or regulations that induce the use of GPS in trucks. However, the focus should move towards incentives for the strategic use of visibility data in logistics and business analytics to build the groundwork for the adoption of more advanced IoT technologies. A key effort lies in the capacity building in the road freight transport on how to generate and strategically use new insights from available big data.

Greater cooperation between the road freight transport sector, technology providers, government and academia to construct a platform that allows sharing and analysis of visibility data can be a first step to reveal the added value of this information. The example of the Urban Freight Transport Observatory (OTUC, Spanish acronym) in Chile provides a possible way forward to create such a platform. In the case of Colombia, the data captured by the National Register for Freight Shipments (Registro Nacional de Despacho de Carga – RNDC) from the Transport Ministry in combination with the data from technology provider, structured and analysed in an observatory, comparable to the

Chilean OTUC would deliver significant advances in the use of visibility data. Such observatory would allow a) to create visibility of road freight transport operations and performance from strategic viewpoint for supporting policymaking; b) to produce new knowledge on the valued added through visibility for all stakeholders, and c) to educate and build new capacities in the road freight and logistics sector. Ultimately, the willingness to pay for visibility of shippers and other stakeholders , derives from the knowledge on the value added that can be generated from using and combing the data generated from technology for strategic decision-making.