


Chapter 7

Data Science in Cargo Transportation: Change in Driver Behavior After the Implementation of a Telemetry Tool

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ABSTRACT

Data science applications have the potential to offer improvements in business communication and collaboration through data science applications. In view of this premise, this chapter analyzes the behavioral changes of the drivers resulting from the implantation of a telemetry tool. A case study was carried out in a medium-sized company in the logistics and cargo transportation segment in the Belo Horizonte, Brazil. The technique used for data collection was documental. This implementation allowed identifying a radical change in drivers' behavior, resulting in reduced average speed, abrupt acceleration, abrupt braking, excessive g-force cornering, and the use of "banguela" (coasting). In this way, the tool proved to be a competitive advantage since this change in behavior increased employee safety, eliminated costs, and improved the company's image before the population.

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INTRODUCTION

The scenario in which companies currently operate is becoming increasingly competitive. Aiming to stand out in this market, companies incessantly search for innovative alternatives by means of new consumer goods, new production methods, new forms of industrial organization, and even new markets.

According to Kim and Mauborgne (2005), companies need to imagine beyond traditional competition, because only then will they see new opportunities to develop their business and obtain more profits. However, they need to create their own markets.

Transport and logistics services have a fundamental role in this context since they act as a link between raw material suppliers and manufacturers, traders and final consumers, and can be the competitive differential that companies need, making the logistics chain more productive, efficient, and attractive to consumers, and bringing something to surprise them.

Road cargo transport has its trucks as the company's main equipment, as they intensively perform the company's core activity, making deliveries under various conditions and situations that involve many risks in the field, especially the risk of traffic accidents.

Transport and logistics companies look for skilled professionals to drive their vehicles in order to avoid accidents, preserve them, and use as little fuel as possible. Such measures aim at the effectiveness of the operations, producing the maximum at the lowest possible cost to ensure profitability for the organization.

The activity of a transport and logistics company effectively occurs in the field, i.e., out of the managers' field of vision, allowing drivers' autonomy and the anonymity of their actions, contributing factors to behavior that goes against security.

According to Tomaél et al., (2005), to ensure high levels of efficiency, productivity, and competitiveness in organizations, it is indispensable to constantly seek innovation, whether by creating and developing new products and processes or working on diversification, quality, and the implementation of advanced technologies.

In this context, having reliable information at the right time and in the right hands is a great competitive advantage, as it will serve as support for managers to make decisions, allowing them to efficiently manage external operations while ensuring the necessary productivity within the expected safety standards.

Data science applications have the potential to offer improvements in business communication and collaboration through data science applications. Therefore, telemetry proves to be a strong ally in this context. The telemetry system is designed to capture information from the distribution vehicles and translate it into information that reflects drivers' behavior. Besides presenting all the geolocation information in real time, the system also supplies the managers with information about speeds outside the established limits, driving in rain, braking and accelerating above the

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