

TRANSPORTATION COST REDUCTION AND COMPETITIVE ADVANTAGE THROUGH DEFENSIVE DRIVING PROGRAMS

*Mihai CIOC¹
Florin IONIȚĂ²*

ABSTRACT

Though defensive driving is a relatively new concept in Romania, there are many companies that use such programs to improve their transportation system. The desired benefits primarily aim the reduction of fleet operating costs associated with the repair, maintenance and fleet renewal grade, and also with the employees' remuneration based on specific Key Process Indicators (KPI). Secondly, integrating such programs in the CSR framework, companies (both companies with large fleets and companies in the automotive industry) benefit from improved market image, including a higher degree of traffic safety for drivers and a much stronger legal protection in health and safety, in the situations caused by the occurrence of unfortunate incidents involving undisciplined driving staff. This paper addresses the economic dimension of defensive driving programs as innovative solutions to reduce costs and increase competitiveness.

KEYWORDS: *Defensive driving; KPI; cost reduction; business processes*

JEL CLASSIFICATION: *R40; D24*

1. INTRODUCTION

Defensive driving is a relatively new concept in Romania, whose advantages are only capitalized by a limited number of organizations, especially multinational companies that are using defensive driving programs as a part of their CSR strategy. They do that both for improving their market image and for optimizing the logistics and transport costs in order to increase the staff productivity. Given that defensive driving courses are also advanced tools for assessing driver skills, such programs can provide a strong base for establishing KPIs (Key Performance Indicators) for transportation activities (e.g. compliance with the standardized fuel consumption, human resource allocation, fleet usage, etc). In the following sections we will demonstrate that the integration of defensive driving programs in company policies provide premises for gains in economic efficiency.

2. ANALYSIS OF INSTITUTIONAL FRAMEWORK

From the legislative and institutional point of view, defensive driving program implementation is encouraged by at least **three official documents**:

- a. *Law no. 319/2006* on safety and health of employees at work and Government Decision no. 1425/2006 approving the rules for the application of Law no 319/2006. These laws define specific performers, tasks, means of production and working environment, and also provide rules governing the movement of company fleets.

¹ The Bucharest University of Economic Studies, Romania, mihaicioc@gmail.com

² The Bucharest University of Economic Studies, Romania, ionitaf@hotmail.com

- b. *Government Decision no. 355/2007* on the supervision of employees' health, File no. 142, which provides the content of medical examinations for staff in professional driving of machinery and other vehicles.
- c. *Law no. 40/2011 on the Labor Code*, art. 193, 194 and 195, which stipulates provisions regarding the obligation of the employer to ensure participation in training programs for all employees (at least once every 2 or 3 years, depending on the number of employees) and to organise training courses. The law states the obligation of companies with more than 20 employees to have a plan of preparation and training activities for their staff.

At international level, in the European Union there is a continuous concern towards implementing the concept of defensive driving, as demonstrated by the adoption (*European Commission, 2011*) of the European policy "*Towards a European road safety area: policy orientations on road safety 2011 - 2020*", which states "*the establishment of a structured and coherent cooperation framework which draws on best practices across the Member States, as a necessary condition to implement in an effective manner the road safety policy orientations 2011-2020*". Moreover, according to the World Health Organization, one of the main factors that influence the quality of life is the life expectancy of citizens under the direct influence of road safety and the incidence of road accidents.

In Romania, the strategic vision in defensive driving is outlined by the *National Road Safety Strategy 2011-2020*, approved by the Government and developed in the context of Romania's accession to the European Union, whose main objective is to reduce the number of accidents by 50% in the period 2013-2020 comparing to the period 2003-2013. This document makes direct reference to the need for defensive driving courses, at least in the context of the introduction of compulsory defensive driving programs and counseling for drivers with violations. The strategy also argues the necessity of "*modern centers for safe driving training and testing covering polygons which can be held skid control samples, aquaplaning, braking curve and impact simulation, rollover response and traffic simulation*". According to the same strategy, "*these pilot centers will provide access to voluntary practical learning courses with professional instructors using the principles of responsible leadership*". Therefore, this research not only correlate with existing regulations and requirements but also has a direct contribution to the implementation of European directives at national level, with a major impact on increasing road safety. The objectives of the National Strategy are doubled at tactical level by the primary objective of the Inter Ministerial Council for Road Safety established according to GD 901/2008, which states "*ensuring an overall conception and coordination at the national level, based on national road safety strategy and national program of priority actions to implement the strategy, in order to improve road safety*".

Finally, the social impact of defensive driving becomes very clear in Romania, given the fact that Romania ranks last in Europe in terms of fatalities per 10 million km of road driven (*European Commission, 2010*). According to the same study, there is a growing trend in the number of serious accidents in Romania, unlike the decreasing trend in the European Union. This situation confirms the results of another report (*Romanian Police, 2012*), according to which the number of serious accidents has increased by 10.4% in 2012 compared to 2011. The defensive driving program integration is even more important, as from the statistics mentioned above it results that 95 % of serious accidents recorded in 2012 in Romania took place by the drivers' fault. In these conditions, we can emphasize that the impact of defensive driving programs cannot be measured only in value units or cost reduction but, most important, in the number of lives saved. In the social plan, defensive driving programs can be easily associated with the concept of *eco-driving*, tackling the environmental sector.

Regarding the innovative dimension of the defensive driving sector, even that in Romania this type of business is still a *green field*, we can nevertheless identify some notable results of Research & Development in the field, such as the frontal impact simulator for drivers, the dual control vehicle for learning control skidding, or the simulator for drivers (*OSIM Deposit no. a-2011-00673/15.07.2011, 2012*). The use of devices for simulation of extremes traffic conditions is not yet new. In some states, such as Germany, it is mandatory to obtain driving license by testing the

candidate behavior in the situation of rollover accidents. In other countries from Western Europe, defensive driving courses are also mandatory for certain categories of drivers. However, given the broad typology of extreme situations that may occur in traffic and the great diversity of concrete situations that depend on the perception of the drivers involved, the need to create conditions close to real and continuously improve effective behavior of scenarios and simulation requires an advanced technological approach and incorporating them into their structure elements, allowing simulation of various traffic situations based on the experience of driving professionals.

3. ANALYSIS OF BUSINESS FRAMEWORK

In economic terms, an important trend of the defensive driving market is the generalization of car acquisitions by financial or operational leasing programs, practice encouraged in recent years by the full deductibility of VAT.

According to statistics (*The Association of Operational Leasing Companies in Romania, 2013*), there is a tendency supported by the companies that own medium or large size fleets, namely to reduce the costs of administration and operation of these fleets. The easiest strategic option to reduce costs is the complete or partial outsourcing of the fleet to operational leasing companies. One of the most common concepts is *Sale & Lease Back*, which involves the sale of the fleet by a leasing operator, followed by fleet rental through operational lease. From this type of contract arise some costs usually associated with accidents (insurances, compensations, repairing, franchises etc) that must be kept to a minimum.

These costs exclusively aimed fixed assets, namely vehicles. In charge with the safety of the car fleet are the drivers. Thus, we appreciate that companies using medium and large fleets as well as the leasing operators will reconsider their attitude towards defensive driving courses, putting pressure on the driver, but also on those who are responsible with fleet management.

Regarding the size of the market in relation with the number of existing driving licenses, the most important market segment is represented by drivers aged between 31 and 50 years, holders of approximately 2.5 million licenses. More than one million driving licenses belong to drivers between [21-30] and [51-70] together.

As mentioned, an important component of the value chain in the defensive driving market is the operational leasing sector, so it is relevant for this study to emphasize the evolution of the operational leasing market in the period 2009-2012 (*The Association of Operational Leasing Companies in Romania, 2013*) (Figure 1). Our information covers a fleet of approximately 43,500 units managed by operational leasing companies in 2012.

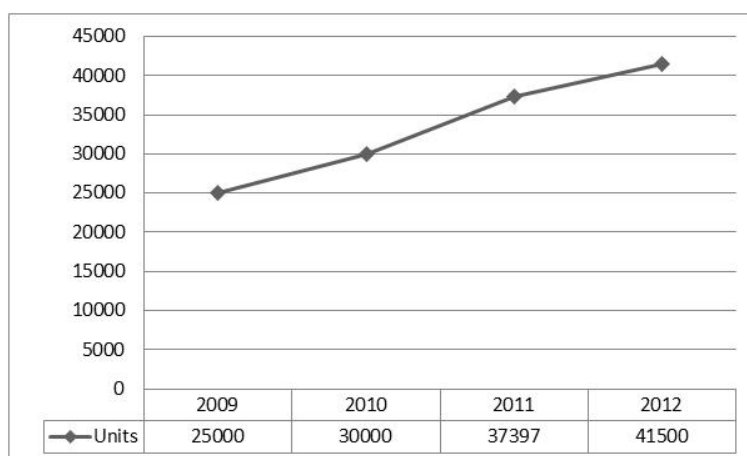


Figure 1 Evolution of operational leasing in the period 2009 – 2012

Source: authors

Regarding the market of defensive driving programs, its **main feature** is oligopolism, which means a reduced number of suppliers and the existence of a large number of potential clients. The defining characteristic of oligopolistic markets is that once the number of suppliers which entered the system increases, the market tends to become very specialized, and some of the competitors will redirect themselves to other market segments. So, after a while, the demand of the market will be satisfied by only few suppliers that will be able to survive in this sector, tending to oligopoly market.

The research was based on a market study made in 14 of the most important suppliers (companies, sport clubs or associations) operating in the market of defensive driving training, sport steering and other related services. Analyzing the ownership of these organizations, a **second characteristic** featuring the competitive environment is the fact that entrepreneurs are generally active or retired rally drivers.

The **third characteristic** of the competitive environment, judging from the perspective of the main target market (companies that uses defensive driving as a component of their development strategy), is that the competition in the secondary market is prevailing the detriment of the competition on the main target market. This phenomenon can be explained by the specific market barriers of the defensive driving sector, primarily from the technological point of view, because practical training requires a high level of equipment with modern equipment and training simulators, unlike for example, pilot courses, which require only the existence of a car and an experienced pilot, which generally is the same person with the entrepreneur.

Meanwhile, we can identify a growing interest of from the authorities regarding the defensive driving sector, as a solution to prevent car accidents. Thus, with the growing concern of the authorities and with the development of the National Strategy of Road Safety, several players of the defensive driving market have developed intense marketing plans to attract a greater number of companies.

Given the above, it can be estimated that the maturity of the market allow for all the defensive driving competitors to attract a large number of new customers.

4. TRANSPORTATION COST REDUCTION AND COMPETITIVE ADVANTAGE THROUGH DEFENSIVE DRIVING PROGRAMS

The economic impact of defensive driving programs is manifested primarily in the following types of companies:

- **Companies with medium or large sized fleets**, mainly by reducing the costs associated with operating fleet repair, maintenance, fleet renewal grade, salary and bonus system for drivers, etc. On the other hand, such companies benefit from improved market image, including an increase of traffic safety for drivers and a much stronger legal protection in health and safety (SSM), in the situations caused by the occurrence of unfortunate incidents of indiscipline driving staff.
- **Insurance companies**, whose total or partial compensation costs declines when the drivers skills are improved through defensive driving programs.
- **Companies in the operational leasing sector** represents another category of direct beneficiaries, considering the advantage of extending the fleet obsolescence through defensive driving.
- **The suppliers of the defensive driving sector**, considering the fact that they can develop products and services for the relevant market, thereby contributing to the added value of the national economy, and also to the dynamism and modernization of defensive driving sector in particular, and road safety, generally.

From the above set of beneficiaries, relevant for this research are the **companies with medium or large sized fleets**, included in the category of direct beneficiaries. In Figure 2 we present an example of integrating a defensive driving program in the strategy of the transport logistic-system, using the BPMN 2.0 technique, for a typical company in the retail sector.

Table 1 Estimated improvement of KPIs based of defensive driving programs

No.	KPI (Key Performance Indicators)	Estimated improvement of KPIs	The impact of defensive driving programs
1.	Fleet global usage (%)	2-5%	Efficient driving techniques
2.	Fuel consumption reduction (%)	5-10%	Economical driving and eco-driving, resulting in fuel consumption reduction
3.	Average transportation time	5-10%	Optimizing average time for shipping, transport and delivery operations
4.	Average stationary time at POI	2-5%	
5.	Average time of effective driving	5-10%	
6.	Average time of expedition	2-5%	
7.	Average time of delivery	2-5%	
8.	Volume transported per hour	1-2%	
9.	Return on the volume transported	2-7%	Fuel consumption reduction, route optimization, improvement of fleet usage
10.	No. of accidents /100.000 km	75-100%	Development of driving skills in difficult traffic conditions

Source: authors

The proposed KPI model can be used both for evaluating the transportation efficiency and as a basis for implementing a performance management model for company drivers, including both an assessment system and a salary and bonus system.

Finally, we must emphasize that among the beneficiaries of defensive driving programs we can identify a distinct segment, namely the automotive companies, which, in addition to the economic benefits described above, will benefit from the improved performance of motor vehicles or assemblies, as well as reducing the risk of accidents caused by mechanical factors (due to improvements resulting from testing and applied research carried out in defensive driving programs).

5.CONCLUSIONS

This paper addresses the economic dimension of defensive driving programs as innovative solutions to reduce costs and increase competitiveness. Considering the large number of companies who could benefit of the advantages of defensive driving, we appreciate that defensive driving has a very high growth potential in Romania. In the same time, the defensive driving market has a powerful multiplier effect because the specific training activities are repetitive (at least once every 2 or 3 years, depending on the number of employees), according to legislative requirements like the law regarding the safety and health of the employees at work or the Labor Code.

Another conclusion which comes out of this study is that Romania has a great innovative potential, as demonstrated by internationally registered patents or existing training bases, including modern equipments for simulating collisions and rollover, skidding machine control, brake system tests etc. Finally, this research demonstrates that the impact of defensive driving on the organizational transportation systems shows an average improvement of relevant KPIs by 3-5%, which makes defensive driving an important instrument in terms of organizational performance.

REFERENCES

- ASLOR (The Association of Operational Leasing Companies in Romania) (2013). *Press release regardind the evolution of the operational leasing market*. Retrieved September 5, 2013, from <http://www.aslor.ro/news/piata-de-leasing-operational-11-crestere-in-2012>.
- ETSC (European Transport Safety Council) (2012). *A Challenging Start towards the EU 2020 Road Safety Target 6th Road Safety PIN Report*. Retrieved September 5, 2013, from http://www.etsc.eu/documents/PIN_Report_6_web.pdf.
- European Commision (2003). *Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003 on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers, amending Council Regulation (EEC) No 3820/85 and Council Directive 91/439/EEC and repealing Council Directive 76/914/EEC*, Official Journal L 226 , 10/09/2003 P. 0004 – 001.
- European Commision (2010). *Towards a European road safety area: policy orientations on road safety 2011-2020*, European Commision, Brussels, 20.7.2010 COM(2010) 389 final. Retrieved September 5, 2013, from http://ec.europa.eu/transport/road_safety/pdf/com_20072010_en.pdf
- Government Decision no. 1425/2006 approving the rules for the application of Law no 319/2006* (2006). Retrieved September 4, 2013, from <http://www.mmuncii.ro/pub/imagemanager/images/file/Legislatie/HOTARARI-DE-GUVERN/HG1425-2006.pdf>
- Government Decision no. 355/2007 on the supervision of workers' health, File no. 142* (2007). Retrieved September 4, 2013, from <http://www.mmuncii.ro/pub/imagemanager/images/file/Legislatie/HOTARARI-DE-GUVERN/hg355-2007.pdf>.
- Government Decision no. 901/2008 on the constitution of Interministerial Council for Road Safety* (2008). Retrieved September 4, 2013, from <http://www.lege-online.ro/lr-HOTARARE-901-2008-%2897091%29.html>.
- Law no. 319/2006 on safety and health of workers at work* (2006). Retrieved September 4, 2013 from http://www.sigurantamuncii.ro/pages/legis/legea_319-2006.pdf.
- Law no. 40/2011 on the Labour Code, art. 193, 194 si 195* (2011). Retrieved September 4, 2013 from <http://www.legex.ro/Legea-40-2011-111290.aspx>.
- OSIM Deposit no. a-2011-00673/15.07.2011 (2012). *Frontal impact simulator for drivers*, OSIM Official Bulletin no. 4/2012.
- OSIM Deposit no. a2011-00674/15.07.2011(2012). *Dual control vehicle for learning control skidding*, OSIM Official Bulletin no. 4/2012.
- OSIM Deposit no. a2011-00675/15.07.2011(2012). *Simulator for drivers*, OSIM Official Bulletin no. 4/2012.
- Romanian Government (2013). *National Strategy for Road Safety 2013-2020*. Retrieved September 12, 2013, from http://www.mt.ro/transparenta/2013/aprilie/3_12%20Anexa.pdf.
- Romanian Police (2012). *Activity Report*. Retrieved September 12, 2013 from <http://bv.politiaromana.ro/info/index.php?id=16>.