

ROMANIAN AUTOMOTIVE INDUSTRY – ANALYSIS MADE FROM THE INTELLECTUAL CAPITAL PERSPECTIVE

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Abstract

Starting from the fact that nowadays, automotive companies have bigger revenues due to their investments in technology and innovation, as well as hiring high-skilled labor force, the aim of this research is to analyze the Romanian automotive industry from the perspective of intellectual capital and economic performance. After presenting its latest evolution, this paper carries out an analysis made from three different perspectives: human capital, infrastructure assets and market and intellectual property assets. Based on the results, in the last part of this article, a SWOT analysis of intellectual capital on Romanian automotive industry is sketched out.

Keywords *Automotive industry, Intellectual Capital, SWOT Analysis, Romania*

JEL classification: *L62, O34*

1. Introduction

The relationship between the intellectual capital and the performance of organizations determines the specialists from the academic and economic environments to discover new characteristics of the analyzed concept. In this sense, the concept of intellectual capital refers to a determinant factor for the performance of different companies, on one hand, and on the other one, to the results of the transformation process of organizational knowledge.

In a broad sense, the notion of intellectual capital refers to what is generally known as the companies' intangible resources, including human

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resources, but also those resources that refer to organizational capability, as well as those linked to the relation with internal and external environment (Edvinsson and Malone, 1997).

As Holt and Holt (2010) have noticed, the intellectual capital includes four categories of intangible assets, namely:

- **Market assets:** are those assets that result from the beneficial relationships between the organizations and the market. These market assets include: brands, market segments, distribution channels, contracts of assignment, licensing or franchising, etc. These assets provide competitive advantages to a specific company;
- **Infrastructure assets:** technologies, processes and procedures, databases. These assets help organizations to work properly;
- **Intellectual property assets:** copyright, patents, industrial designs, brands, know-how, etc.;
- **Human values:** abilities, expertise, skills of the employees, etc. These assets are crucial for the companies, because they belong to each employee and not to the organization itself. Companies have the role of stimulating individual and collective creativity in order to boost its value.

Automotive industry includes all the companies and organizations that perform activities in motor vehicles manufacturing, designed both for freight and passenger transport. Therefore, this industry includes car components and sub-assemblies manufacturers and also car service centers and fuel stations. Currently, the automotive industry is one of the most important industries and has a major influence on the global economy.

The real challenges for the companies from the automotive sector are a more dynamic competitiveness on the global automotive market, the constant changes that take place on it, the customers' demanding requests; facing these challenges means that these companies have to struggle to achieve innovation, but they also have to reduce production costs and the period of time needed for launching new products, so that they would survive on the market. Only the companies that will manage to achieve processes' optimization and portfolio expansion will cope with the fierce competition from this sector and will set the new trends in the automotive industry. Gaining new skills for the human resources represents a top priority for the automotive companies. At global level, new trend is highlighted – the creation of functional partnerships between the automotive companies, on one side,

and the education system and local communities, on the other side. The European automotive industry plays a determinant role in achieving the major goal of the Lisbon Strategy, that of raising competitiveness of the EU, thus turning into the most competitive economy at world level.

This research is mainly focused on analyzing the Romanian automotive industry from the perspective of intellectual capital and economic performance. When organizations intent on increasing their market value, they have the option of taking into consideration the intellectual capital that, although it might seem an abstract concept in economy, might be defined, by extrapolating the definition of human capital, as „an estimation of a person's ability to produce income by labor” (Di Bartolo, 1999).

2. Romanian Automotive industry

In the context of an upward trend economy, the Romanian automotive industry is characterized both by general enthusiasm created by the foreign capital infusion and the advance of Romanian automotive parts manufacturers.

Romania has a long tradition in automotive manufacturing. There were automotive plants in Mioveni, Craiova, Câmpulung-Muscel, Timișoara and Brașov. Before 1989, a series of motor vehicles were produced, such as: Lăstun (Dacia 500), Renault 12 (Dacia 1300, 1310), Olcit, the ARO range, up to heavy trucks, both for the internal market, but mainly for the external one. Following 1994, when Daewoo bought the automotive manufacturing plant from Craiova, it has started the production of Cielo, Espero, Nubira and Matiz vehicle models which lasted up to 2006. Launching the first 100% Romanian design car, Dacia Nova, definitively marked the year 1995 and also pointed out the moment when the local producer Dacia transformed into a manufacturing and strategy center.

After the 1989 Revolution, several big automotive companies like Audi, Mercedes, Hyundai, Volvo, Toyota or Peugeot have attempted producing cars in Romania, but their attempts failed; these companies established their plants in countries like Hungary, Czech Republic, Slovakia due to their economic stability and tax incentives granted to foreign investors, by the local governments.

According to the data from the Romanian National Trade Register Office, the Romanian automotive industry has an extremely high degree of concentration. Today, is dominated by two large companies: the French group Dacia-Renault and Ford, the American one. From all the automotive

manufacturing plants that existed before 1989, only 2 have survived: Mioveni and Craiova.

The statistics reveal a certain evolution in the case of Romanian automotive sector, in the last years, despite the obvious economic crisis and internal market decrease. During the Foreign Investors Forum, held in October 2014, Constantin Stroe, President of ACAROM (the association of automotive manufacturers from Romania) presented some up-to-date information on the Romanian automotive industry, as well as its evolution forecasts for the next years, in context of world automotive sector development. Based on that information, we estimate that the automotive manufacturing sector plays a major role in Romania – although Romania has only 2 automotive manufacturers, these companies have reached European Top 10.

Based on the data provided by authorized, local institutions that refer to Romanian automotive industry, we estimate that the Romanian presence on the market is barely perceptible, covering only 0.5% from the world production. For the period between 2013-2020, the specialists' forecasts anticipate an annual growing rate of the global production of 3.6%. By 2020, is estimated that the production will reach 105 milion vehicles and approximately 58% out of these will be produced by emerging countries (Stroe, 2014). The direct consequence of a growing vehicle production would be the development of automotive components' global market.

Following this observation, we estimate that there is still room for growing in the case of Romanian automotive industry due to the fact that Romania offers a series of very attractive conditions for foreign manufacturers, unlike other European states. At this point, it is worth mentioning the low cost of labor, just like the existence of a talent pool that includes specialists like engineers, designers or IT specialists.

Over the years, we have noticed that the automotive components sector has extended and diversified its product range, manufacturing technologies, as well as the geographic location of the companies that are active on the automotive market, so currently there are over 600 local suppliers of automotive components, with a total of 203,600 direct employees (Stroe, 2014). According to ACAROM, in Romania, the labor cost in the local automotive manufacturing industry is 4.7 euro/hour. There are 150 foreign automotive and sub-assemblies companies that have manufacturing plants in Romania. In this research it is worth mentioning that a part of these companies

also have research, development and innovation activities in Romania (R&D&I).

Analyzing statistical data on the local suppliers of automotive components, we notice that this part of the economy is very dynamic, fast growing, diversified and benefits from foreign direct investments at the level of technologies and innovations. All these aspects set favorable conditions for positive, future evolution of the automotive components' industry.

The local industry of automotive components mostly relies on multinational companies from Germany, France, Sweden and even Japan. Based on the turnover registered in 2011, the top 10 automotive components manufacturers from Romania were: Continental, Autoliv, Michelin, Schaeffler, Takata Petri, Pirelli, SEWS, Bosch, TRW Automotive Safety Systems, Leoni Wiring Systems Rom (Cotu, 2013).

3. Human capital in the automotive industry

Romania represents an interesting destination for business development in the case of foreign manufacturers from the automotive industry, more exactly automotive components and sub-assemblies. The main reason for choosing Romania is the low cost of labor force, 4.7 euro/hour, as presented before, unlike in other European countries.

There is a big discrepancy between the hourly cost of labor in automotive industry in France, Germany and Romania. Thus, the highest cost exceeds 30 euro/hour, while in Romania is 6 times less. This fact represents an advantage in contrast with the European competitors, but is unfavorable for the local workforce. Keeping low labor costs in the Romanian automotive sector is part of the automotive manufacturers and suppliers policy, because any wage increase affects directly the production cost. The companies have to keep a reasonable balance between any wage increase and raising productivity for staying competitive on the market.

It is true that in 2014, we noticed an increment of the hourly cost of labor, but this is a barely noticed one, reaching 4.9 euro. We consider that increasing automation would have positive effects on employees, because the hourly cost of labor would increase. This is the main reason for which in the European developed economies, there is a high hourly cost of labor in the automotive industry – these countries have invested large amounts of money in adopting new technologies that increased productivity.

Lack of productivity is one of the critical points of Romanian automotive industry, especially in the case of automotive components' manufacturers. For example, in 2013, in Romania there were 111,000 employees in the automotive components' industry, this number being exceeded only by Poland that has 116,300 employees, in the same industry. Even so, the turnover of Romanian automotive components' industry reaches the last position, after Czech Republic, Poland, Hungary and Slovakia (Vladimir, 2015).

The official data from ACAROM show that the labor of a Romanian automotive industry employee brings an annual profit of 50,000 euro, while a German one brings 269,000 euro. In the case of our direct competitors, the situation is favorable to them in what the labor productivity is concerned. So, in Hungary the annual productivity/employee reaches 133,000 euro, while in Slovakia is 136,000 euro.

The lack of productivity of the workers from the automotive industry, especially of those from automotive parts sector, is influenced by the fact that many companies have reached a critical point in their technological capability; many of these technologies are outdated and cannot meet the quality and productivity standards imposed by the automotive industry.

4. Infrastructure assets

The cost of utilities, next to the low labor cost, represents a positive point for foreign direct investments in Romania, because this cost influences directly the production cost.

Among the countries that have automotive industries, Romania has a privileged position in the case of electricity costs for industrial consumption – the energy price/kwh is close to the one from Poland and much less than the one from countries like: Slovakia, Czech Republic, Hungary and Germany. This is the main reason for which large, international companies from automotive and automotive parts industry have chosen Romania for setting production plants.

In the same time, Romania has the lowest cost of natural gases for industrial consumption, from the countries subjected to this analysis. Comparing prices, we notice that there are considerable cost discrepancies between Romania and countries like Poland, Czech Republic, Hungary and Slovakia, (from a price of 11.1 euro/GJ up to 16.8/GJ) which will determine international suppliers and manufacturers to choose Romania over the other

countries. In France and Germany, these prices are almost double, so that is why manufacturers have chosen to relocate their plants in countries with low costs of utilities.

5. Market assets and intellectual property

Scientific research and technological development represent the main creative activities, that generate market assets and intellectual property, thus leading to economic and social progress.

According to the study carried out by the National Institute of Statistics (INS) regarding INNOVATION IN ENTERPRISES IN THE BUSINESS ENVIRONMENT, during 2010-2012 (as cited by Nedelcu et al., 2014):

- 20% of the enterprises improved their products, their processes, and their management or marketing methods;
- 50% of the innovative companies developed their innovations within their own enterprise;
- Only 7.4% of the innovative enterprises had cooperation agreements for innovative activities;
- Most innovative SMEs registered in the South-East Region (36.1%) and the North-East Region (31.7%);
- In 2012, the ratio of expenses for the internal research and development activities has almost doubled.

In Romania, the companies with R&D&I activities or those that own intellectual property on some assets may benefit from 2 tax incentives (Nedelcu et al., 2014):

- *Accelerated depreciation* (maximum 50% of the asset's fiscal value may be amortized in the first year of use);
- An additional deduction for eligible expenses that refer to research-development activities. From February 2013, this deduction was increased from 20% to 50%.

Research-development activities receive 0.5% of Romania's GDP and the system of fiscal incentives is in full progress and so Romania ranks the 48th position in the top of the most innovative countries in the world, just like the Worldwide R&D Incentives Reference Guide 2013–2014 shows. (Enache, 2014)

Comparing innovations at the level of the whole economy for the period between 2010 and 2012, with the ones from 2008-2010, we observed

that 20.7% of the companies had innovation in the first period, which means a decrease with 10.1% next to the previous period.

In the period between 2010-2012, in the case of manufacturing transport vehicles, trailers and semi-trailers, the innovation had only 38%, less than half of the innovation share in the tobacco products' manufacturing industry (80%). We estimate that the automotive industry has a great potential of innovation, but there is a strong need for incentives for the automotive companies that carry on such activities.

This research revealed that there are some obstacles for the companies that carry out innovative activities. The main obstacle is the lack of trained staff, followed by the lack of financial support (most of the companies cannot afford the investment in innovation activities), the economic risks (fear of failing in getting a new product or service); organization and management rigidity; lack of information on new technologies.

6. Conclusions

Poor labor productivity, especially at the level of automotive components' industry, lack of abilities necessary for the innovative needs of automotive companies, as well as the lack of sectoral coordination for raising innovative competitiveness of automotive industry represent true vulnerabilities of the Romanian automotive industry as a whole. Drafting and creating a viable development strategy for raising competitiveness of the automotive industry on world market also means taking into consideration these vulnerabilities. So the best way to follow is the one of new skills and abilities and, most of all, the competitiveness based of intangible assets, such as the intellectual capital. Development of automotive industry based on design and innovation must be encouraged because it leads to raising sectoral competitiveness. Promoting partnerships, alliances and cooperation platforms between the automotive companies and public institutions, such universities, colleges, research institutes, would prove to be favorable.

The new vision on Romanian automotive industry has in view creating a functional competition pole, based on high-end technology, an innovation system of competition centers between different universities, but also a large range of suppliers and development of coherent branding strategy for the whole automotive sector. We agree with the idea that another important step would be the gradual trend of locating in Romania small branches of research centers, that belong to important automotive manufacturers, that later

would turn into really modern RDI. The development strategy in the automotive industry should take into consideration the gap between innovation, applicable to industry, and the economic environment. Intellectual property should also be taken into consideration, so that its management would be part of the Romanian automotive industry set of values.

Having a competitive advantage on the international automotive market, means that the Romanian industry should own high-quality, innovative products, that would make the difference between it and long tradition automotive producers. Achieving this goal means that the local automotive industry has to create a stable and coherent frame that would bring real improvements in the innovation sector, especially in what the following aspects are concerned: innovation capability, financial resources for RDI activities, quality standards of the institutions involved in scientific research, partnerships between universities and companies, investments in new technologies, availability of local specialists and researchers, taste for using innovation patents in automotive sector; this industry is crucial to Romanian economy.

This research has concluded that, for the moment, at least in Romania, there are not clear, individual models for measuring the efficiency of human capital in national economy strategic domains such as automotive industry, IT&C, electronics. At the international level, these types of models have been successfully implemented in the case of financial services (banks, insurance companies); these are the companies in which the intellectual capital is highly praised. The reason for this is simple – the output of these institutions consists in an assembly of intellectual capital. For example, a simple bank loan represents setting in practice an idea initially sold to bank clients.

This is the reason why we consider of maximum importance the development of adequate models for measuring the intellectual capital in automotive industry. Nowadays, automotive industry, just like banks, does not sell simply cars, but highly-complex, very modern products meant to meet the consumers' highest demands. Today, the client seeks the very concept of car, rather than the actual car, which would include innovative and demanding design and the latest technologies that would turn today's car in tomorrow's legend.

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