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ANALYSIS OF SUPPLIER NETWORKS IN BRAZIL'S TRUCK INDUSTRY

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The aim of this paper is to discuss some of the results of a research carried out at two truck manufacturers and two of their autoparts suppliers in Brazil, based on an analysis of the supply network. These two manufacturers' operate according to significantly different productive systems. The first assembler has a high level of vertical integration and uses the traditional supply system. In contrast, the second assembler has little vertical integration and its operations are based on the modular system. The two suppliers in question are large business enterprises basically supplying electronic and mechanical/electronic components and systems – in the case of the first, and structural components (complete chassis) – in the case of the latter, to both assemblers. The research structure was designed to allow for comparisons of how suppliers with dissimilar supply structures serve assemblers operating under different production systems and having distinct suppliers relationship policies. The information concerning the companies studied here was obtained through interviews and visits to their plants. The two supply systems are compared based on a supplier network analysis. For methodological purposes, each assembler has its own supply network.

According to a wide bibliographical revision, the supplier network analysis includes structural and relational aspects (Rowley, Behrens, e Krackhardt, 2000; Granovetter, 1985; Burt, 1992; Uzzi, 1997). The structural aspect involves the supplier's position within the group of suppliers. Any supplier occupying a privileged position within the network's structure can obtain information, resources, status and knowledge. The relational aspect involves the quality of the relationship between the assembler and its suppliers. The higher the quality of the relationship, the greater the trust, the more accurate and relevant the information and the higher the level of control between the actors. Several authors consider that these two aspects of the network – structures and relationships – can be positively correlated with organizational performance. The analysis of these networks is underpinned by Economic Sociology, Organizational Theory and Political Science. A core issue is how the structural position and the type of exchange

process influence the activities, resources, coordination, performance and strategic behavior of the companies involved.

This theoretical background is extremely important for the analysis of the Brazilian automotive industry due to the establishment of new productive arrangements. The modular consortium and industrial condominiums allow for the repositioning of several suppliers in the network's overall structure. The actors' position in a given network provides strategic benefits through the optimization of relationships. Moreover, this new structural position encourages new patterns of relationship between assemblers and their suppliers in Brazil's automotive industry. The network approach today is gaining increasing importance as a result of the widespread restructuring of production that organizations are undergoing. In this context, supplier network configuration has become a central element both to achieve competitive advantage and to analyze supply systems.

Some of the conclusions of this research work, which are highlighted in this paper, deal with three major issues. The first is the capacity for control that assemblers exert over their suppliers. This control is closely connected with the coordination and behavior of the actors involved. The relations between assemblers and autoparts suppliers are more interdependent in the modular system, implying greater coordination of activities and control of supplier behavior. The assembler's control capacity ranges from primary requirements – certifications, financial and technological capacity – to informal mechanisms of coordination of social networks, culminating in the incorporation of reciprocal standards by which the actors abide.

The second issue involves the capacity of diffusion of technical and managerial knowledge resulting from the introduction of the new productive arrangements. In the modular system there is an exchange of experiences that results in a greater diffusion of techniques and knowledge among actors. According to several statements, the modular system encourages both the diffusion of techniques among suppliers and technical and managerial learning for the assembly of the modules that make up the truck.

The third issue discusses the possibility of modular consortium suppliers to exercise greater powers of decision and negotiation with the assembler. In the modular system, the decision-making process is based entirely on a consensus between assemblers and their first tier suppliers. The degree of interdependence between assembler and suppliers is extremely high in the modular consortium, thus allowing for autoparts supplier interference in decisions and in negotiation processes in a variety of situations.

This paper, therefore, seeks to elucidate the complex set of changes occurring in the relations among the actors of the worldwide automotive industry and their consequences on the aforementioned issues. It also offers a theoretical framework to analyze the configuration of the supplier network, broaching issues that are at the core of the discussions of several specialists of the sector.

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