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11-13 Juin 2003 (Ministère de la Recherche, Paris, France)

GLOBAL PRODUCT CONCEPT AND THE SUPPLIERS INVOLVEMENT: A CASE STUDY IN THE HEAVY TRUCK INDUSTRY

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Automotive companies share a common pattern of changes in the latest years. New market demands and new product concepts made R&D costs unable to rely on another system than a full scale global product concept. Nowadays, companies are increasingly distributed worldwide and the design activity is being assigned between them and their suppliers.

A need of intense communication arrives when developing a project and companies must coordinate and make compatible the exchange of data and information among all actors involved. The improving performance of information and communication technologies, the improving functionality of Internet applications and the decreasing costs in connections have supported the full scale global product concept adopted by several automakers.

The substitution of a local product concept by a global product concept was followed by the substitution of many local suppliers by a few global ones. The whole range of automakers´ new requirements has also demanded a deep restructuring of the remaining suppliers in order to cope with mandatory global performance goals. In this way, many traditional automakers' suppliers have also made substantial investments to increase the presence and performance level of their production processes on a global basis. Specially in the 90`s, several traditional automakers headquarters´ suppliers have improved or installed new plants for supplying automotive subsidiaries in Latin America.

Following these changes, new categories of relationships between suppliers and automakers were established. In parallel, many classification and evaluation systems have been created to cope with the new global supply chain structures.

The evaluation of the relationship of automotive companies' supply basis is a central issue, when analysing most of the changes which have occurred in the last decade. This paper

includes an example of systems used for classification and evaluation of relationships between an automaker and its suppliers.

AIMS AND DELIMITATION

We have chosen the heavy truck industry for our case study. This sector requires special attention because concentrates many special assembly components, preventing them from being interchangeable with the ones used in the light vehicles, and is subjected to unique functionality demands, coming from special customers (companies and professional drivers) which expect real tangible benefits in their operations. A truck is seem as a professional tool and its performance (reliability, fuel consumption, power, load capacity…) is continuously measured and compared. Furthermore, this heavy truck market represents the upfront technology level in the high scale automotive industry.

Concerning basic supply requirements, most of the heavy truck makers follow demands already existent and developed by the biggest automakers. These basic demands are so related to automotive quality standards (as EAQF,VDA, AVSQ, QS, TS…), as well as to global environmental standards (as ISO 14000…), logistics systems (EDI), general supply contracts, etc. Furthermore, internal standards were created to classify and evaluate new and current suppliers.

CASE STUDY: CLASSIFICATION AND EVALUATION CRITERIA USED FOR SUPPLIERS OF AN EUROPEAN TRUCK MANUFACTURER

Based on an existent survey regarding supplier evaluation at an European heavy truck company we will propose a short comparison regarding the similarities and differences observed in supplier relationship classification and evaluation in Europe when compared to the Latin American market.

One singular fact which shall be observed, while analysing this company's supplier basis relationship development, is the presence of a lower number of components variants than usually found at other similar companies. The early introduction of a "Modular Product System Concept" has allowed this company to have a front position in the simplicity and efficiency of several operations, and, among them, procurement.

Later described in the academic literature as the "generic bill-of-material", this concept makes able to specify the bill-of-materials structure only once of all variants of a product family, enabling the avoidance of redundancy. The company reports that this system has a cost effect of 50% reduction in parts. The system enables the company to meet the widest product variant demands with the minimum number of components. Naturally, the minimum number of components, the maximum the possibility of similarity between suppliers components and processes globally.

Suppliers Classification Criteria

In accordance with Söderlund E, Widestadh S (2002), suppliers are globally classified into five different categories (fig.1), based on the degree of involvement and value added in the product development process. These categories are: Catalogue, Labour, Mature, Development and Joint Venture.

A supplier with products normally existent at catalogues is called a Catalogue Supplier and the level of involvement with the supplier is minimal. A Labour supplier has a bigger extent of involvement in the product development process, but its relationship with the automaker is limited. Following, a so called Mature supplier is usually developing components after receiving functional specifications from the truck manufacturer and has full involvement in the product development process. Finally, Development and Joint Venture suppliers are involved both in the product development process and in the development of the process itself. The relationship between automaker and supplier is usually the biggest for these last classifications. The Joint-Venture supplier, is even involved in the product development process of the whole product and its relationship duration is designed to be the longest existent with the automaker.

In this sense, a supplier relation with a engine injection system supplier is characterized by a much higher degree of involvement, so called "Joint-Venture" supplier, with extreme sharing of information, risks and rewards than a relation with a, so called, "Catalogue" supplier, supplying catalogue items.

This relationship classification is used globally and frequently discussed in global meetings. No further developments have seem to be needed for local applications.

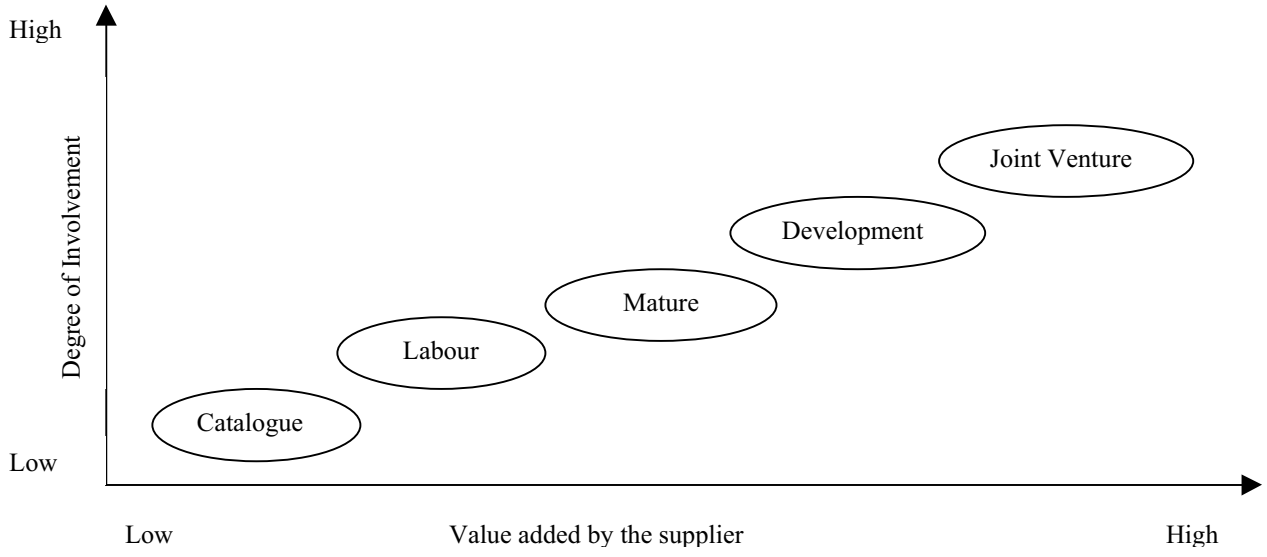

Fig. 1. Supplier classification. Source: Söderlund E, Widestadh S (2002)

Suppliers Evaluation Criteria

Common basic demands for supplier qualification are set by practically all the major automotive companies, with minor differences. In the company studied, these demands for suppliers initial qualification were: QS 9000 and ISO 14000 certifications; a quality plan in accordance with the automaker standards; ability to conduct product audits and being capable of report their numbers, relating deviations and corrective actions; ability to conduct capability studies and process control in accordance with the automaker standards; EDI capability; ability to measure delivery reliability and report present situation and corrective actions when requested.

After the fulfilment of these basic demands, a supplier still has to be evaluated in accordance with the automaker ´s Supplier Evaluation Model, the so called SEM. The SEM is a qualitative measurement internal standard, used on a global basis, with many questions which should be answered by different functional areas inside the company. The answers to these questions will provide the automaker with a presentation sheet (see fig. 2), which will be used for a further overall analysis of the supplier. Additionally, the SEM is also used for continuous evaluation and improvement of current suppliers.

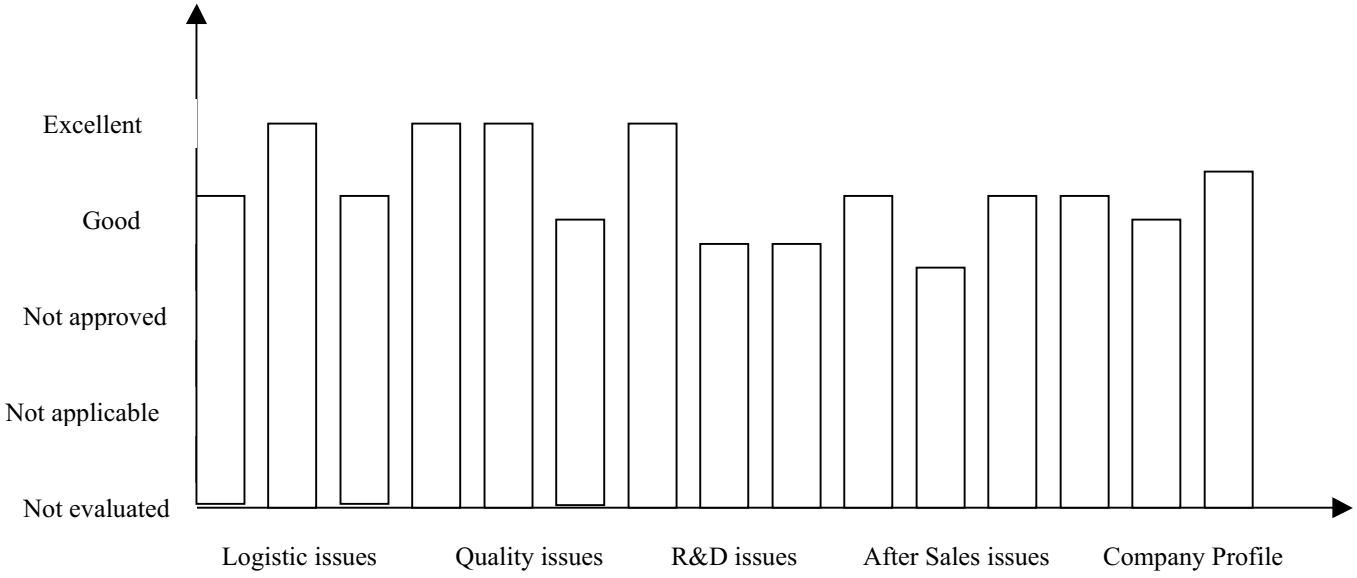

Fig. 2. SEM presentation sheet (an adapted example). Source: Söderlund E, Widestadh S (2002)

An interesting aspect when analyzing global automotive suppliers relationships is the difference existent between their headquarters and their Latin American operations. Major differences are oriented, among other factors, by the economical and environmental differences, and by the suppliers new production models adopted in their new local production sites. These differences can lead to further considerations regarding improvements in evaluation systems.

Considering the case studied, in the Latin American market, additionally to the full usage of the same standards and SEM evaluation system mentioned above, a local on-line database, called "Supplier Management Report" was developed to provide a fine tracking of special requirements existent for local suppliers. Main reason for this is the higher need of operational flexibility in an environment usually subjected to more frequent economic variations.

A full version of each local supplier management report is available in the company's Intranet and a partial version available to each current qualified supplier in a restricted area of the company's Internet homepage. This Internet restricted homepage shows on-line quantitative information regarding several suppliers' performance indicators. The availability of on-line performance indicators has proved to be an important and effective mean in the daily communication for the improvement of key points, critical for the local maintenance of a strategic high quality supply chain.

CONCLUSIONS

The global product concept has been responsible for substantial changes in the global automotive supply basis. The shift of product concepts from local to global have impacted substantially the way automotive companies headquarters and its subsidiaries manage the logistics supply chain. A new configuration of global suppliers, some of them deeply involved in the automakers product development, has created the need of new supply management classification and evaluation.

Following the huge investments made by global automotive suppliers in Latin America in the 90´s, product and process basic quality demands are equal for qualified suppliers, independently on their global geographical location. In fact, this has been one of the main positive points of a global product concept since its introduction in the Latin America market by the automakers. Starting new plants from the ground and introducing upfront management techniques, many of these suppliers could even benefit with further improvements in their global standard processes. These improvements, mainly based on previous experiences in their older plants, were made more easily in their new Latin American plants, due to the opportunity of changing process design since its drawing phase.

In the case studied, the usage of a standard supplier evaluation model has made possible to establish a common company's language for global communication and actions regarding improvements in the logistics supply chain. Between several advantages of this procedure, it can be mentioned the creation of a unique and global way to rank suppliers and the adoption of global standard actions to solve any type of deviation. The existence of a shared centralised source, with visualized information about all suppliers, can be able to bring many improvements, starting from the quality of the global procurement communication.

Although most of the global tools have shown their good effectiveness in integrating the automotive companies supply management systems, some peculiarities can be taken into consideration in the further improvement of these systems on a global basis. The related successful experience with the Latin American supplier management report, used initially to cover particular market needs, but later proving to be a powerful on-line interface with the local supply basis, was able to integrate the functionality of a basic database to a powerful Internet interface, using the already available company's homepage.

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