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## **SUPPLY CHAIN QUALITY MANAGEMENT: A MODEL OF VENDOR RATING**

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### **ABSTRACT**

The present work aims at presenting a Vendor Rating model developed by an Italian company (Gamma) that produces technologically advanced components with high precision, for industrial milling, drilling and cutting, for a wide range of materials and manufacturing sectors. Through the description of Gamma case study this research has the objective of defining a model to improve companies' management and quality within the supply chain.

**Keywords:** supply chain management, lean supply chain, vendor rating model.

### **INTRODUCTION**

To compete successfully in today's challenging business environment, manufacturing companies ought to be able to effectively integrate internal functions within a company and effectively link them to the external operations of suppliers and supply chain members (Agus and Hajinoor, 2012). Since a key feature of present day business is the idea that it is supply chains that compete, not companies, and the success or failure of supply chains is ultimately determined in the marketplace by the end consumer (Agarwal et al., 2006), the development of a Vendor Rating model can be seen as a tool that allows companies to obtain a competitive advantage over competitors. In fact an effective vendor rating system allows the assignment of penalties or rewards, it identifies on which suppliers it has to address for audits and improvement plans, with which it is better to end the relationship or, on the contrary, to establish a relationship of integration and direct involvement.

The Vendor Rating application fields can undoubtedly cross the manufacturing enterprise boundaries; Secchi et al., (2015) introduced it within the Store Management. The process of suppliers' evaluation can take place ex ante or ex post by monitoring over time the services provided. The criteria used for evaluation of the store may include indicators such as reliability and delivery times, reliability of volumes, the purchase price and sale of products, support of promotional activities, the purchase conditions, and conditions for payment.

The research has been developed with a qualitative approach, based on a longitudinal single case-study of Gamma, Italian company in the mechatronic sector. The case study allowed for examining in depth the Vendor Rating model developed, analyzing changes in company behavior, internal processes and relevant actors and variables (Yin, 1984). Two semi-structured interviews have been carried out to the company's Quality Manager in September 23<sup>rd</sup>, and October 31<sup>st</sup>, 2016. Relevant secondary data were also used, such as company reports and the web site.

## RESULTS AND CONCLUSIONS

For the development of the Vendor Rating model, Gamma has chosen to use the following indicators: Non Quality Supply Index (NQSI); non-compliant codes; average days of in advance or late supplies; not-accurate codes (it similar to the second indicator, but it refers to the level of service and therefore to the days of in advance or late supplies).

Starting from the data concerning the supplier, the four indicators were then processed and obtained with VLOOKUP and Microsoft Excel Pivot tables. Subsequently, the observations collected for each indicator and regarding the total suppliers have been organized along the curve of the cumulative frequencies. This has been done in order to identify clusters in the data and to create three classes assigned to each indicator, as it can be seen from Figure 1. A value of 18 not complying codes, for example, indicates a B class supplier for that given indicator.



Fig. 1 - Cumulative frequencies of non-complying codes for each supplier

The classes are compiled from observations of a month, quarter, semester or year of reference. Using these classes a standard for the evaluation of subsequent periods can be created. For each of them it is assigned a score, which added to that of the other indicators determines the final score of the supplier.

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