

# **SUPPLIERS QUALIFICATION AND EVALUATION: PROPOSITION OF A COMMON PROCEDURE FOR A MULTINATIONAL COMPANY**

Mary Yamaguti  
João Amato Neto

*Production Engineering Department of the Polytechnic School of University of São Paulo (EPUSP) – Brazil; Av. Almeida Prado, 531, ZIP 05.508-900, São Paulo, Brazil;  
e-mail addresses: [mary.yamaguti@gmail.com](mailto:mary.yamaguti@gmail.com); [amato@usp.br](mailto:amato@usp.br)  
Phone: 55 (11) 3091 5363; Fax: 55 (11) 3091 5399*

## **Abstract**

In a multinational company, there are often common suppliers to many subsidiaries, but the exchange of information between countries that use the same suppliers is not easy. The existence of a similar evaluation process is then essential to efficiently explore the suppliers evaluation results generated by different subsidiaries, particularly for common suppliers. This paper proposes a suppliers qualification and evaluation procedure for “Company Alpha”, a multinational company specialized in industrial gas production.

**Keywords:** Purchasing, Suppliers qualification and evaluation, Harmonization of procedures

## **Introduction**

Amongst all its consequences, markets globalization has increased the competition between companies. Requirements on products and services with higher quality and lower prices made companies review the organization of their complete supply chains.

The performance of suppliers then became a key factor, and the purchasing department became a strategic nod inside organizations.

In this context, the importance of suppliers qualification and evaluation is recognized by many companies.

Knowing the benefits of qualification and evaluation procedures, most of the subsidiaries of “Company Alpha”, a multinational company specialized in industrial gas production, have already developed a supplier evaluation system. However, the procedures adopted were defined separately by each subsidiary, which does not help sharing the information concerning suppliers across the whole company.

Indeed, in a multinational company, there are often common suppliers to many subsidiaries, but the exchange of information regarding them is not easy. So as to efficiently explore the suppliers evaluation results generated by different affiliates, especially for common suppliers, it is thus essential to have a similar evaluation process.

A suppliers qualification and evaluation procedure for “Company Alpha” is therefore proposed here with the aim of harmonizing the practices and relationship between its buyers and suppliers.

An introduction to the work is provided, describing the company in which the work was developed and its context, followed by a brief literature review of the main subjects discussed. Then, the methodology used and the work developed are explained.

Some suggestions of possible improvements on the proposed tools are provided in the conclusion, which also introduces the next steps to the effective implementation of the developed process.

### **Company description and context**

“Company Alpha” is a multinational specialized in industrial gas production. Being one of the industrial gas leaders for many years, it recently faced an increase in competition after reorganizations and merging of its main competitors.

The company is present in more than 70 countries today through 150 subsidiaries. Its activities are divided in four main business lines, according to the activities and size of its customers, such as medical, electronic and industries.

The purchasing department is considered strategic within the company: The amount of annual purchases represents more than 60% of group sales. There are many projects developed within the purchasing department in order to improve performance and reduce the total cost of products.

The company developed its own industrial management system to harmonize the operation management within the group and guarantee that procedures are formalized and homogeneous to all subsidiaries. One of its requirements directly affects purchasing departments: Suppliers of critical products and services must respect safety and liability specifications and strategic suppliers have to be qualified and evaluated by a formal process.

### **Literature review**

In this section, a literature review of the main subjects discussed is presented and used as a base to support this study and to justify the relevance of the subject.

#### *Strategic function of the purchasing department*

Markets globalization and technological advances in many sectors such as telecommunications, logistics and transportation had as a consequence the internationalization of competition between companies.

Efforts for increasing the quality of products and services and for reducing costs became a matter of survival for most companies.

As the production process of products and services does not end inside the organization, depending on its suppliers, their performance reflects the efficiency and profitability of the company (MARINHO; AMATO NETO, 2001).

Moreover, the fact that the amount of purchases in a manufacturing company represents 50 to 60% of total sales (BALLOU, 2005) is one of the reasons that sets supply management as a relevant function of business administration.

In this context, purchasing functions, previously linked to routine activities within a company (FURTADO, 2005), are now considered a strategic department, able to contribute to the improvement of products quality and costs reduction.

Harmon (1993) also states that the implementation of appropriate strategies in purchasing can contribute to the improvement of a business management seeking competitive advantages.

#### *Supply chain management*

Suppliers contribute to the overall performance of the supply chain.

According to Sarkar and Mohapatra (2006), a poor supplier performance may affect the performance of the whole chain. The supply chain management is therefore a strategic role of the purchasing department. In a strategic context, the main strategic activities of buyers for the supply chain management are:

- Search and selection of suppliers;
- Supply strategic segmentation;
- Optimization of the number of suppliers;
- Development of the suppliers;
- Seeking partnerships and long-term relationships with suppliers;
- Suppliers qualification and evaluation.

#### *Suppliers qualification and evaluation*

Qualification is a process in which the supplier's abilities to meet its customer requirements in different aspects are verified, such as financial, technical, environmental, etc.

Dobler and Burt (1996) recommend the use of preliminary questionnaires and visit to suppliers to obtain the necessary information to the qualification process.

Questionnaires may include questions about the supplier's financial situation, structure (number of employees, production capacity, etc.) and performance (sales history, level of defects, environmental quality certificates, etc.).

According to Furtado (2005), the visit to the supplier's plant is the most effective way to verify the information provided or to acquire the information wanted by the buyer to evaluate suppliers. As it generates costs for the company, the visits should be limited to the evaluation of strategic or critical suppliers.

Suppliers evaluation is a process of measuring the effective performance of the supplier, once purchase orders are consolidated (DESMA, 2003).

The presence of a formal evaluation system for qualification and evaluation procedures allows the buyer to systematically verify suppliers' potential and real performances in an impartial and professional way (DESMA, 2003).

#### *Suppliers qualification and evaluation criteria*

From a research on suppliers qualification and evaluation criteria suggested by the literature, it can be said that they are numerous and their use and importance depend on the industrial sector and the strategic level of suppliers to be evaluated.

Weber et al. (1991) compared 74 academic articles about supplier's selection processes published since the 1960s. Their main findings were that most of the articles analyze more than one criterion, and the main criteria discussed in the literature are price (80%), delivery (59%) and quality (54%). Therefore, the purposes in evaluating a supplier are manifold.

Recently, Sarkar and Mohapatra (2006) published a study that assumes two important dimensions of evaluations: performance and capability. Supplier's performance represents the short-term effects to achieve supply chain objectives, while supplier's capability represents the long-term effects.

In this paper, supplier's capacity assessment refers to supplier's qualification and performance assessment refers to the term supplier's evaluation.

According to Sarkar and Mohapatra (2006), the criteria used in suppliers qualification are mostly qualitative, while quantitative criteria are present when evaluating suppliers. The measurement and ratings of qualitative criteria often have a subjective character, which leads to questioning the reliability of the evaluation system.

It is necessary to increase the objectivity of the assessment systems, from the use of quantitative criteria and the formalization and standardization of rating given to the qualitative criteria.

**Methodology**

The methodological approach used is based on a case study as it enables to obtain further details surrounding the process under study: The harmonization of suppliers qualification and evaluation processes within a group.

According to Yin (2001), the main characteristic in this case study method is the fact of being generalized to theoretical propositions, and not to populations and universes. The generalization to the theoretical proposition is exactly the subject intended by the work, which makes the case study the ideal instrument to attain its target.

Yin (2001) affirms that the case study is research within its real context, and therefore is suitable for researches in organizations. Another point that makes us consider the case study as the ideal methodology for this work is the possibility that the research offers new reflections or theories.

**Project development and results**

The development and results of the project are divided into 2 different phases: a first phase of research, studies and data collection and a second phase of definition of the common procedure. The project is divided into 5 steps, detailed in the following paragraphs.

*Step 1: Study of initial situation of qualification and evaluation at “Company Alpha”*

Through interviews with experienced buyers and a survey with purchasing managers from all subsidiaries worldwide of “Company Alpha”, much information about the qualification and evaluation process was collected.

The survey questionnaire is composed by 23 general questions about criteria and procedures used by subsidiaries and were sent by e-mail to 76 purchasing managers.

According to the results of the questionnaires, 90% of subsidiaries have already established a formal suppliers qualification and evaluation procedures. However, each evaluation system is different and, in many cases, does not consider some evaluation criteria required by the purchasing direction, such as sustainable development.

The chart below summarizes the qualification criteria which are currently used by subsidiaries:

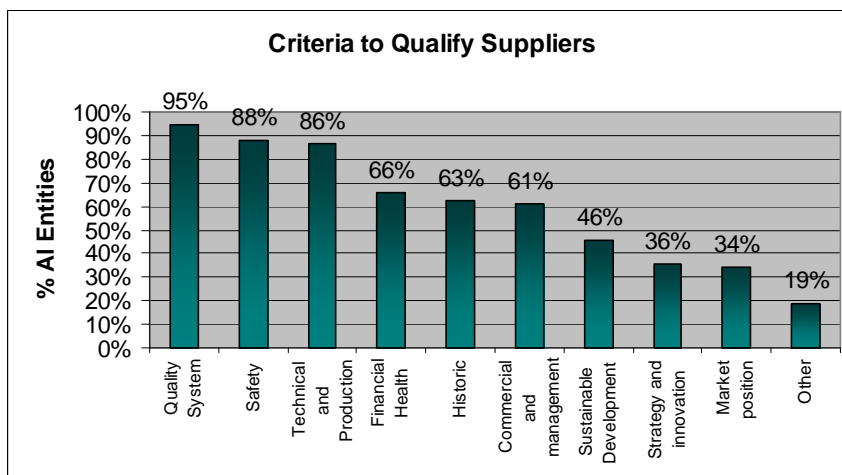


Figure 1 – Criteria used by subsidiaries to qualify suppliers

The group's policy requires that all critical or strategic suppliers are qualified. Even if 20% of suppliers are considered critical by most of the subsidiaries (63%), they answered in the survey that less than 5% of their suppliers were qualified through a formal process.

Many subsidiaries do not have formal procedures to rate suppliers during assessments while evaluation results and ratings have a subjective character and may even reflect the mood of evaluators. The purchasing direction questions the efficiency of evaluation processes in use at subsidiaries.

In such cases, the assessment is not realistic as it is not made in a professional manner, so it does not present great value for the company.

The chart below summarizes the evaluation criteria currently being used by subsidiaries:

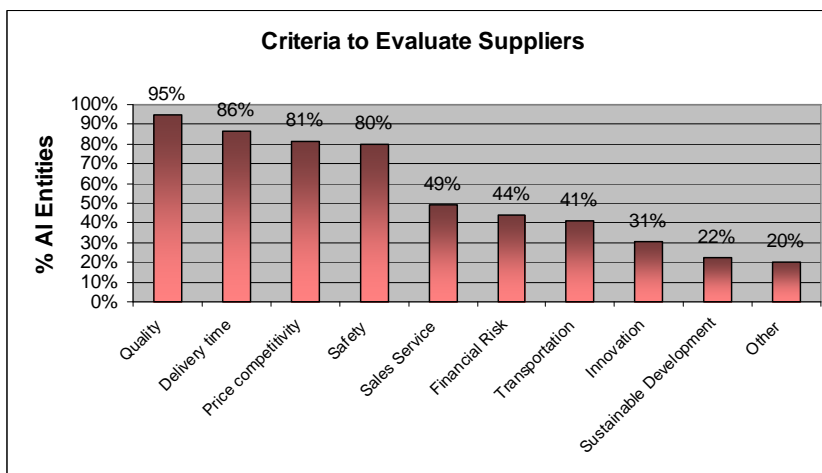


Figure 2 - Criteria used by subsidiaries to evaluate suppliers

Claiming lack of time and resources, only 44% of subsidiaries evaluate their strategic suppliers at least once a year.

The quantity and frequency of assessments are directly related to the importance given to the purchasing functions by the subsidiaries. This varies according to their location, size and type of activity (business line).

Indeed, the reduced number of qualified and evaluated suppliers is due to the complexity of the evaluation procedures adopted by subsidiaries and their lack of resources to efficiently and regularly perform qualifications and evaluations. Moreover, it was noticed that buyers do not give much importance to assessments and that they do not consider these procedures as a priority activity.

#### *Step 2: Study of qualification and evaluation activities in other companies*

In order to increase the company knowledge before defining the common procedure, a research was conducted about qualification and evaluation activities practiced by other companies in different industry sectors.

Santin and Cavalcanti (2004) stated that there is no optimal procedure to qualify or evaluate suppliers. Companies develop different procedures adapted to the requirements of their activities.

Evaluation criteria vary with suppliers activities and, in some cases, with the strategic importance of suppliers.

Quality is always evaluated in any process, no matter the industry sector of buyers and suppliers.

*Step 3: Analysis and conclusions from steps 1 and 2*

It was noticed that companies use up to five different criteria in the evaluation process. The use of a large number of criteria can increase the complexity of evaluations, as the company does not focus the evaluation on a specific strategy and the objectives of evaluations are not clear.

It is necessary to take into consideration the particularities and requirements of the activities of each subsidiary during the definition of the group procedure.

As there are common values and criteria such as quality and safety in the entire group, it is possible to harmonize at least part of the procedures. It was decided to develop a general procedure, to be applied by most subsidiaries.

Some criteria for evaluation will be common to the group and others may be added, according to the needs of each subsidiary.

This project is focused on critical and strategic suppliers. Therefore, the questionnaires and criteria were defined to evaluate these types of suppliers.

*Step 4: Definition of qualification and evaluation procedures*

In order to include the specific needs of “Company Alpha” and simplify the identification of critical and strategic suppliers, the company defined some criteria that summarize the characteristics of ‘bottlenecks suppliers’ and ‘critical strategic suppliers’ from the matrix classification developed by Handifield et al (2000).

Some of the criteria defined to select critical and strategic suppliers are: Suppliers of critical components (listed by safety, health and environment department), suppliers’ economical dependency, suppliers working in exclusivity contracts, products with impact on production process, etc.

The suppliers qualification process is illustrated in the chart below:

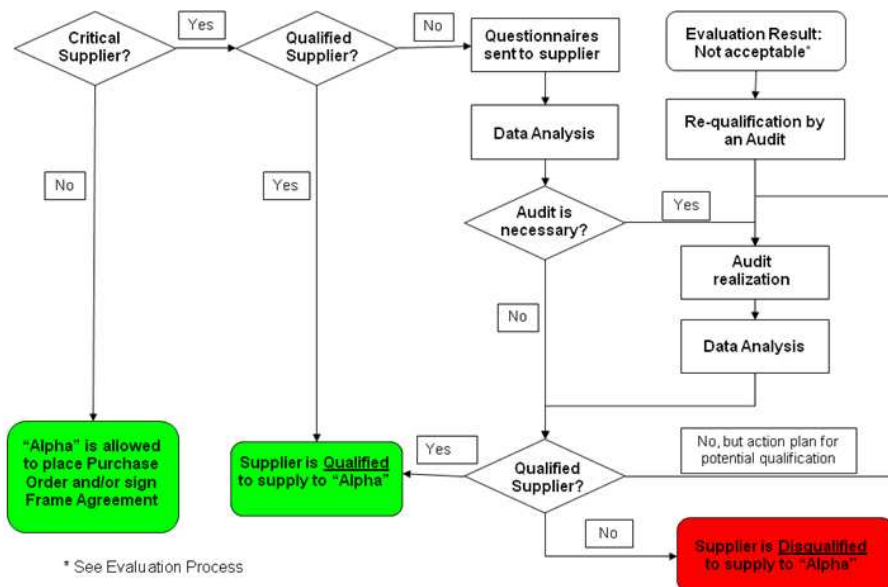


Figure 3 – Suppliers qualification process

Once the critical and strategic suppliers are identified, the company has to check if they are already qualified. If not, they must be qualified through the group qualification process to continue supplying “Company Alpha”.

First, the company sends a questionnaire to the supplier to obtain the necessary information to the qualification process. Then, the answers to the questions are analyzed

and a decision is taken: (i) qualify the supplier; (ii) disqualify the supplier or (iii) conduct an audit. Once a supplier has been audited, the company must also decide between qualifying or disqualifying the supplier.

Questionnaires and models developed by different subsidiaries were used as a basis to define the group qualification questionnaires. Two questionnaires were defined. The first one to be sent to all critical and strategic suppliers and the second one to be used during an audit visit.

There are eliminatory questions in qualification questionnaires. If a supplier does not satisfy one of the company's essential requirements expressed by an eliminatory question, it has to be disqualified from working with "Company Alpha".

Both questionnaires are composed by questions about general and financial information of suppliers, their markets, strategies, research and development department, safety, health, sustainable development position, quality management, logistics and services, production organization and capacities, etc. Technical and specific requirements of each activity or country are not considered in the questionnaires and must be added by subsidiaries.

Unlike the qualification, the evaluation process requires more resources to collect and record the necessary data to analyze suppliers' performance, as the investigated information must be collected on a regular basis and must come from "Company Alpha".

To reduce the number of suppliers evaluated, only the most critical suppliers and the ones working frequently with the company will be evaluated. Suppliers to be evaluated are selected from a list of qualified suppliers, already considered critical and strategic.

The suppliers evaluation process is illustrated in the chart below:

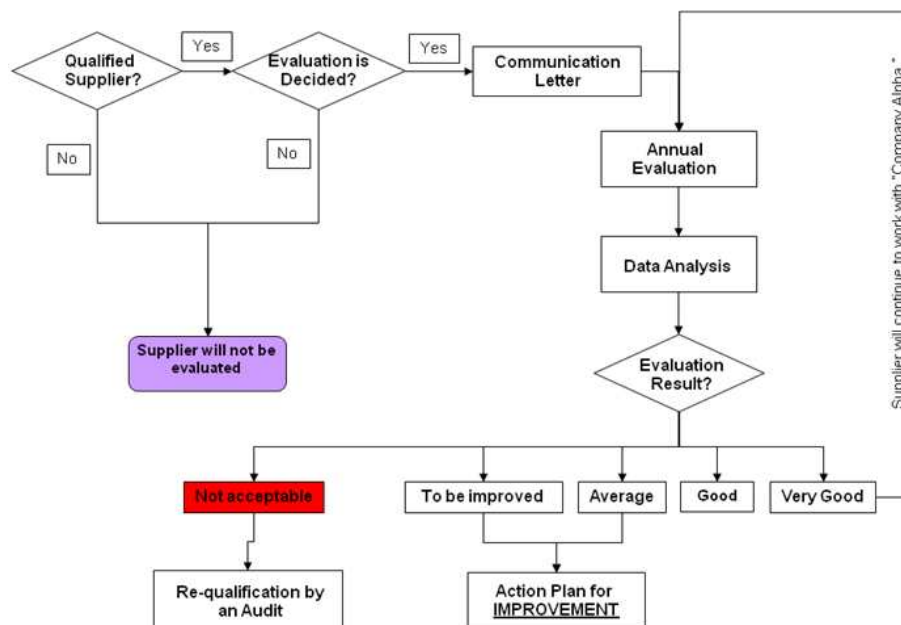


Figure 4 – Suppliers evaluation process

Before the evaluation, suppliers are communicated the assessment process and the evaluation criteria through a communication letter sent by the company. Having suppliers agreement on the evaluation process is important in order to have their participation on eventual improvement plans.

Because of its simplicity, the linear weighting method is the most popular method to evaluate suppliers (DE BOER; LABRO; MOLARCCHI, 2001) and it is the one applied

by “Company Alpha”. In this method, a weight is ascribed to each criterion, according to its importance. Rating on criteria are multiplied by their respective weights and summed to obtain a single global score for each supplier.

Depending on their global score, suppliers will be classified: “Very good”, “Good”, “Average”, “To be improved” and “Not acceptable”. Suppliers classified as “Not acceptable” have to be re-qualified to continue working with “Company Alpha”.

As the importance of criteria and consequently their weights depend on the subsidiaries activities, each of them can define the weights for each criterion.

Three criteria are common and mandatory to the whole group: quality, purchasing (price), logistics and services (delivery, lead times). The other criteria suggested by the purchasing direction are: sustainable development, safety, innovation and financial risk.

In addition to purchasing, other departments must actively contribute in the process to obtain a complete evaluation, since the suppliers are in contact with various departments of the company.

In order to make the rates of qualitative criteria more objective, a list of rates was established according to possible situations that describe the suppliers’ position.

*Step 5: Approval and validation of procedures by the purchasing and other departments*  
The process presented in step 4 is already the approved one. Before the validation of the procedure, some changes suggested by purchasers and people from other departments concerned by the work were made.

It is important to have their approval in order to have their participation in the effective implementation of the project.

Meetings and conferences were conducted to approve the project and its dynamics is presented in the next section.

## **Project analysis**

This section presents an analysis of the project developed at “Company Alpha”.

### *Need and research of an e-tool shared between subsidiaries*

The implementation of an integrated information system and a common e-tool to share information about suppliers represent a real need to the success of the project.

The purchasing direction started to search potential suppliers for an e-solution.

Some companies supply complete solutions for supplier relationship management (SRM), including frame agreement managements, qualification and evaluations.

In order to be used by most subsidiaries, “Company Alpha” listed some specifications to be respected by the software: To be accessible online, to manage progress plans, to compare evaluation results of supplies of the same purchasing family or category, to be available in many languages, to have a technical support at least in English.

### *Structure and dynamics of meetings and decision making processes*

It is essential to communicate to the subsidiaries and validate the process in order to get their acceptance and ensure the implementation of a common procedure. With this purpose, several meetings were held with representatives of each business lines of “Company Alpha” and with group specialists in safety and quality.

All participants confirmed that there is a real need to harmonize the qualifications and evaluations procedures of the group. However, due to the important number of people involved in such a project, there is a risk of divergence of opinions, dissolution of the debate and eventually only getting a limited decision taken. Therefore, it is



important to guide the opinions of participants in order to obtain a conclusion to the project.

The comments of each person were noted and participants were individually contacted after meetings in order to clarify suggestions and critics and complete the common procedure.

In a phase when criteria and procedures are being developed, several meetings with few participants were more productive and allowed to collect more information and ideas to the project than in a meeting with many people.

The great difficulty in harmonizing qualification and evaluation procedures is to consider the particularities of each activity within the company. It was important to consider the existing procedures in the subsidiaries, so that the ones that had already developed their own procedures would not have to completely change their current procedure to adapt to the new model proposed by the group.

It is also necessary to impose part of the group procedure, such as the scoring system and some evaluation and qualification criteria, to harmonize it. As there were common points identified in all qualifications and evaluations procedures, it was decided to get all these points together, turn them into compulsory actions in the procedure and have the subsidiaries adding their specific requirements to the procedure.

It is hard to define the optimum point between a common and specific part to the subsidiaries in the procedure: It cannot be too closed and limited to changes, because implementing it in some subsidiaries would not be possible, and it cannot be too flexible either, as it would hinder the common analysis of suppliers results, straying from the original objective of the project.

### **Summary and conclusions**

In a context in which purchasing functions become strategic in a company, while customer requirements, product standards and regulations increase, there is a real necessity to manage and control suppliers through qualifications and evaluations.

The aim of this project was to create a common procedure to be used by all worldwide subsidiaries of “Company Alpha”, taking into consideration the characteristics of each company’s activities.

To solve the problem, a procedure composed by two parts was defined: (i) a common and compulsory part to all subsidiaries and (ii) a specific part to meet the particular requirements of each subsidiary.

Once the procedures are harmonized, it will be possible to invest in a common e-tool to be shared among the subsidiaries in order to simplify the execution of qualifications and evaluations.

Establishing a “universal” qualification and evaluation procedure is not possible, as it is necessary to adapt the procedure to the context and activity of the company in question.

The benefits in harmonizing qualification and evaluation procedures are many. It allows the subsidiaries to communicate about their suppliers, reducing buyers work on suppliers which were already submitted, qualified and evaluated by others subsidiaries.

There are still some improvements to be made in the project, such as a simplification of the qualification questionnaires which were initially developed to evaluate large-sized suppliers and adapting them to the small and medium suppliers, as requirements may not be the same according to the company’s size.

Once the procedures are harmonized, the success of the project will highly depend on the willingness and commitment of people and teams involved in this process.

### *Next steps:*

The project developed at “Company Alpha” has not been implemented yet. The next steps before the effective implementation of this work are: (i) Testing the procedures defined in one of the subsidiaries; (ii) Selecting a software supplier and implementing qualification and evaluations e-tools; (iii) Training the purchasing managers, to familiarize them with the available tools and procedures; (iv) Defining a person responsible for the harmonization project at each subsidiary and (v) Identifying the needs in human resources to implement and execute the new procedures.

### **References**

- BALLOU, R. H. (2005) *Business Logistics Management*. 5<sup>th</sup> Edition. Prentice Hall, New Jersey.
- BRUEL, O. (2007) *Management des Achats: Décisions stratégiques, structurelles et opérationnelles*. Economica, Paris.
- DE BOER, L.; LABRO, E.; MORLACCHI, P. (2001) “A review of methods supporting supplier selection”, *European Journal of Purchasing & Supply Management*. No.7, pp75-89
- DESMA. (2003) *Le processus d'évaluation de la performance fournisseur: à la recherche d'une méthodologie*. Collective research, IAE Grenoble.
- DOBLER, D. W.; BURT, D. N. (1996) *Purchasing and Supply Management*. 6<sup>th</sup> Edition. MacGraw-Hill, New York.
- FURTADO, G. A. P. (2005) “Critérios de seleção de fornecedores para relacionamentos de parceria: um estudo em empresas de grande porte”, 2005, 131p. Dissertação (mestrado) – Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo.
- HANDIFIELD, R. B.; KRAUSE, D. R.; SCANNELL, T. V.; MONCZA, R. M. (2000) “Avoid the Pitfalls in Supplier Development” *Sloan Management Review*, Vol. 41, No. 2, pp35-49
- HARMON, R. L. (1993) *Reinventing the warehouse: world class distribution logistics*. Free, New York.
- KRALJIC, P. (1983) “Purchasing must become supply management”, *Harvard Business Review*, Sept-Oct, pp109-117.
- MARINHO, B. L.; AMATO NETO, J. (2001) “Gestão da Cadeia de Fornecedores e Acordos de Parcerias” in AMATO NETO, J. (Org.) *Manufatura Classe Mundial: Conceitos, estratégias e aplicações*, Atlas, São Paulo.
- SANTIN, R.; CAVALCANTI, O. (2004) “Qualificação de fornecedores na indústria farmacêutica”, *Infarma*, Vol. 16, No.11-12.
- SARKAR, A.; MOHAPATRA, P. K. J. (2006) “Evaluation of supplier capability and performance: A method for supply base reduction”, *Journal of Purchasing and Supply Management*, No.12, pp148-163.
- WEBER, C. A., CURRENT J. R., BENTON W. C. (1991) “Vendor selection criteria and methods”, *European Journal of Operations Research*, No.50. pp2-18.
- YIN, R. K. (2001) *Case study research, desing and methods*. 2<sup>nd</sup> Edition, Sage Publications, Newbury Park.