

# Efficient Selection and Evaluation of Suppliers: A Model for a Microenterprise in the Textile Sector in Lima, Peru

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**Abstract**—In Peru, the textile sector has experienced a decline in recent years and generates a significant number of direct and indirect jobs. One of the main causes of this is a destabilized supply chain, and supplier management is one of the main obstacles. To improve the fulfillment of the orders of the companies with their final customers, be competitive and to establish a balance and good agreements with their suppliers in a situation of uncertainty, with this study a supplier management model has been developed. It is based on Supply Chain Reference Model and Supplier Potential Matrix which give the framework to evaluate those suppliers who can help to streamline the supply chain. The success of the study is reflected on savings and time reduction for the procurement process.

**Keywords**—supply chain, supply chain operation reference, selection and evaluation of suppliers, management model, microenterprises

## I. INTRODUCTION

Microenterprises in Peru represent the bulk of the business demographics (94.9%) [1]. However, have the shortest average life span in the market and in terms of sustainability, they are the weakest. The manufacturing sector, for example, ranks fifth in relation to the number of companies that have been terminated in Metropolitan Lima [2]. In addition, it is one of the sectors that has presented the greatest decrease with respect to gross value added, -2.3%, and the textile and leather industry specifically presented -6.7% [3]. The factors that generate this situation are diverse, among them the inadequate management of the supply chain, or the adequate monitoring of suppliers, terms that are more used in large or medium-sized companies due to the complexity of their application and the demand for knowledge. Therefore, the objective of this article is to develop a simplified model to efficiently manage suppliers in microenterprises. This will be done based on the Supply Chain Operations Reference Model (SCOR) and the Supplier Potential Matrix (SPM), supported by matrices for the proper management, evaluation and selection of suppliers along the supply chain.

## II. STATE OF THE ART

Supplier management for micro and small enterprises in developing countries can be a great challenge during, especially, the communication process in a purchasing relationship, even more so when negotiating with leading suppliers, since this relationship can affect the operation of the company, as the same objectives are not pursued. For this, it is recommended to use networking to improve your disadvantaged position [4]. Also, supplier flexibility decants

positively on the innovation performance of a product, it is recommended to invest in the relationship with suppliers [5]. Collaboration with suppliers can also generate new product development projects, which has a positive impact on the innovation performance of companies, however, the contribution of both parties should be recognized in such a way that they work together and in a complementary way [6].

In order to establish a guideline for supplier evaluation and selection criteria, and to measure their performance under cost and distribution performance criteria is used the SCOR model [7]. The SCOR model is a framework for defining evaluation standards and bases for negotiation with the supplier. Also, a hybrid decision making model based on the mentioned model to review the final selection of textile suppliers was developed [8]. They also indicate that in the textile industry, the supplier management process for the logistics area is necessary due to competition. In addition, the willingness to change suppliers decreases. Long-lasting relationships with suppliers depend on compliance and satisfaction of performance standards set by the company [9]. The Supply Chain Council suggests that at least one metric per attribute should be considered in order to improve the decision-making process. Likewise, it is possible to analyze SC from different perspectives because level 2 metrics serve to analyze level 1, then, improvements or gaps in level 1 performance can be explained by analyzing the performance achieved with level 2 metrics [7].

### A. SCOR Model

The purpose of applying the SCOR model is to have a guide to be able to structure a model adapted in such a way that it is simple, easy to understand, so that an association of people, microenterprises, understand these guidelines as a basis in their organization can have high benefits as it grows in the market. Likewise, it will allow these entrepreneurs to connect with suppliers and to follow up with them to fulfill their orders on time. The SCOR model is based on a hierarchical structure of performance metrics related to 5 attributes [9]; Reliability, Responsiveness, Agility, Cost and Efficient asset management.

### B. Suppliers Potential Matrix

One of the first studies in this area is the classic work of Kraljic, which is known in the literature, in the purchasing and supply section, as the “purchasing portfolio matrix” (PPM), this matrix has a focus on supply and has been used as a decision tool by many organizations over the years.









transportation and supply reception trips, this would reduce the carbon footprint produced by transportation and reduce environmental pollution, thus contributing to the fight against global warming.

#### CONFLICT OF INTEREST

The authors declare no conflict of interest.

#### AUTHOR CONTRIBUTIONS

The argumentation had been developed for both authors, Katya Cornejo (author 1) and Ninuzka Muñoz (author 2). First phase of the investigation had been worked by Author 2, the paper research, the analysis of literature by Author 1, and the value definition of a model focus on microenterprises by both. Also, the writing and design of the activity flow and approval of the final version was worked jointly and in equal parts. Finally, Katya C. had focused on structured the methodology to teach entrepreneurs the model proposed, and Ninuzka M. had designed the graphic Model I oriented to a better understanding of readers.

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