Chapter 9
On Aggregative Methods of Supplier Assessment

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Abstract This chapter focuses on the field of decision-making processes in connection to the supplier assessment in a logistics chain. This chapter also describes the meaning of supplier assessment, through which companies can minimize their production costs that arise while waiting for missing parts in a manufacturing process. The substance of the work is the description of a method developed for the combined supplier assessment based on the evaluation of the quality of supplied products, adherence to time schedules, and delivery of the agreed quantity. Finally, in this work the benefits of the assessment method used are mentioned.

Keywords: Supplier assessment · evaluation criteria · supplier selection · logistics · schedule of quantity · time schedules

9.1 Introduction

The dynamic character of the current business environment forces managers to examine and control their relationships with suppliers in the context of complex supply chains. A supply chain can be characterized as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Its importance as a research theme arose with the appearance of so-called of demand-driven manufacturing and distribution strategies.

In this context the main role of supply-chain management (SCM) is to effectively and efficiently manage the material flow in the supply chain. Obviously, supply-chain management can be defined from a number of angles. Considering the
objectives of this article, the relevant one is the definition according to which the supply-chain management emphasizes the overall and long-term benefit to all parties on the chain through co-operation and information sharing (Gunasekaran and Ngai [1]). One of the crucial functions of SCM is supplier relationship management (SRM), the aim of which is to reduce direct and indirect costs, improve quality, and speed responsiveness to customers. Supplier relationship management focuses generally on the coordination of all interactions with a supply base, such as contract negotiation, supplier assessment, and sourcing. Supplier assessment has become increasingly important for manufacturing companies due to the need to obtain real competitive advantages, whilst failure in supplier selection can lead to significant operational and financial consequences (Yang and Xu [2]).

The performance of suppliers can be assessed from different viewpoints. The work will present the following methods of supplier assessment:

1. Approaches to the supplier assessments according to the adherence to time schedules will be investigated. These assessments along with an assessment of product’s quality are ordinarily required for meeting the quality management system standards in the car industry.

2. The main emphasis is put on the proposed supplier assessment procedure in terms of the adherence to quantity stipulations, which extends the options of the supplier assessment and thereby allows a more complex method of assessment of suppliers’ performance and reliability.

The chapter is organized as follows. Section 9.2 describes a wider literature context on supply-chain collaboration and the meaning of supplier management. Section 9.3 discusses issues related to specific aspects of supplier assessment and selection criteria. Section 9.4 consists of the focal part of the chapter and is oriented to the alternative techniques of supplier assessment. In the final section of this work the economic effects are summarized and conclusions of the assessment method used in this study are stated.

9.2 Research Background and Motivation

In the framework of the process of semi-finished product and subcomponent procurement, probably the most important decision is the selection from a range of potential suppliers that are competent to provide the required material and/or service. According to Elram [3], the procurement process in which the management of relations with suppliers takes place can be divided into: the preparatory phase (usually the creation of a decision-making unit), identification of potential suppliers, examination and selection of suppliers, establishment of relationships, and the evaluation of relationships. The third phase by these steps has been designated for this study.

When making selection decisions, the team in charge considers a wide range of criteria. The criteria include the overall time of supply, timing of supplies,