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Relativism in the Approach to Managing Supply Chain Maturity

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Abstract

Over the past 30 years, a number of models supporting assessment processes and development of supply chains have emerged. Such models make it possible to analyse the existing state of processes in the supply chain and represent a source of guidance for streamlining these processes. Clear assignment of a certain level of maturity to a given supply chain can be a real challenge, when only part of the criteria for classification is fulfilled. The main scientific purpose of the paper is to propose an advanced statistical non-classical method as an approach to interpreting data from research projects on the supply chain maturity. The method of classification trees has been used and presented in this paper as a tool to achieve reasonable and valuable findings. The procedure of non-classical statistical analysis of the supply chain maturity level in conjunction with an array of variables is intended to standardize the inference on the maturity of supply chains.

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1. Introduction

With the development of the concept of supply chain management, both on theoretical grounds and in business practice, more and more questions and doubts arise about the effectiveness of its implementation. The specific nature of solutions for supply chain management determines numerous organizational, competitive, financial, but above all

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mentality-related challenges. They effectively limit the popularity of the idea of an organized and coordinated cooperation in the supply chain. The specific implementation gap also affects the relatively low assessment of the concept on the grounds of economic practice. Businesses (especially in emerging economies) mostly expect new business solutions to provide fast results with minimal time and financial resources which certainly cannot be guaranteed by the concept of supply chain management. Hence simple, less systemic improvement solutions are chosen. Meanwhile, the lack of activity in terms of supply chain management results in loss of the potential for its implementation, and for organizations that are more aware and open to the idea, creates unfavourable conditions, in the form of low competence of subcontractors in the supply chain.

The described problems in commercializing the theory of supply chain management are challenged by the authors of the tools aiming to evaluate and improve the process of supply chain management. Over the past 30 years, a number of models supporting assessment processes and development of supply chains have emerged on the grounds of the theory. Since the development of supply chains is identified with the concept of integration, improvement and maturity, supporting models are linked with those terms.

Supply chain maturity models (also referred to as models of excellence and supply chain integration models) indicate what factors are necessary, and how their links are to be used for to be able to obtain the full integration of the supply chain. In the literature there are several supply chain maturity models. Such models frequently make it possible to analyse the status quo in terms of processes in the supply chain; they also represent a source of guidance for streamlining these processes, allowing achieving higher levels of excellence in the supply chain. Models pursuing these objectives include: Five-level Compass Integration Model [1]; Supply Chain Maturity Model by Ch. C. Poirier* [2, 3]; Supply Chain Development Model by A.T. Kearney [4]; The Supply Chain Process Management Maturity Model – SCPM3 [5]; The Supply Chain Management Maturity Model [6]; Levels of Supply Chain Integration by D. Kempny [7]; Five Graded Forms of Cooperation Between Enterprises in the Supply Chain by D. Kisperska-Moroń [8]; Supply Chain Excellence Model by Baraniecka and Rodawski [9]; Supply Chain Evolution Model PRTM/PMG [10]; Gartner's Maturity Model [11].

Overview of the aforementioned models reveals their diversity in approach to the subject of achieving maturity of the supply chain. Although the authors of all the models relate to the principles of supply chain management and emphasize the importance of the partnership, however, they perceive the source of progress in other factors. The excellence of the supply chain can be characterized by: cooperation, sharing information, trust, partnership, distribution of technology or changes in management of processes (from management of processes in the company to the integrated supply chain management), [12].

From a methodological point of view in assessing the maturity of supply chain using model solutions, applying a range of criteria or evaluation areas, it is indicated that the achieved level of maturity is the one that dominates in the responses. Although the idea of modelling implies simplification of the inference in assessing the maturity of the supply chain, it is worth considering a less deterministic approach. The individualized assessment is further supported by the fact that the evaluation criteria included in the models are not always equally important for achieving the objectives of supply chain management.

The authors encountered the discussed problem during the first attempts at inference on the degree of maturity of Polish companies' supply chains using the Poirier model. The real challenge turned out to be the clear assignment of a given supply chain to a certain level of maturity, when only part of the criteria for classification was fulfilled. The authors solved the problem then pointing to the multi-level of the chain (without deeper analysis of different areas of maturity in the supply chain). And although the described solution seems logical, the authors continue to search for other, more advanced ones. Hence the main purpose of the paper is to propose an advanced statistical non-classical method as an approach to interpreting the findings on maturity of supply chains using maturity models. One such approach is statistical analysis using the method of classification trees presented in this article.

This method has been used in the assessment of supply chain maturity made on the basis of the most popularized model, which is the Poirier model. The analyses undertaken in the rest of the paper are an attempt at validation of the Poirier maturity model in the most demanding control environment, which is the business practice, using the most

* In literature there is another term for the Poirier Model, i.e. the CSC Framework Model.

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