

## Supply Chain Design: Criteria Considered in Decision Making Process

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**Abstract :** Prior research on facility location in supply chain is mostly focused on improvement of mathematical models. It is due to the fact that supply chain design has been for the long time the area of operational research that underscores mainly quantitative criteria. Qualitative criteria are still highly neglected within the supply chain design research. Facility location in the supply chain has become multi-criteria decision-making problem rather than single criteria decision due to changes of market conditions. Thus, both qualitative and quantitative criteria have to be included in the decision making process. The aim of this study is to emphasize the importance of qualitative criteria as key parameters of relevant mathematical models. We examine which criteria are taken into consideration when Czech companies decide about their facility location. A literature review on criteria being used in facility location decision making process creates a theoretical background for the study. The data collection was conducted through questionnaire survey. Questionnaire was sent to manufacturing and business companies of all sizes (small, medium and large enterprises) with the representation in the Czech Republic within following sectors: automotive, toys, clothing industry, electronics and pharmaceutical industry. Comparison of which criteria prevail in the current research and which are considered important by companies in the Czech Republic is made. Despite the number of articles focused on supply chain design, only minority of them consider qualitative criteria and rarely process supply chain design as a multi-criteria decision making problem. Preliminary results of the questionnaire survey outlines that companies in the Czech Republic see the qualitative criteria and their impact on facility location decision as crucial. Qualitative criteria as company strategy, quality of working environment or future development expectations are confirmed to be considered by Czech companies. This study confirms that the qualitative criteria can significantly influence whether a particular location could or could not be right place for a logistic facility. The research has two major limitations: researchers who focus on improving of mathematical models mostly do not mention criteria that enter the model. Czech supply chain managers selected important criteria from the group of 18 available criteria and assign them importance weights. It does not necessarily mean that these criteria were taken into consideration when the last facility location was chosen, but how they perceive that today. Since the study confirmed the necessity of future research on how qualitative criteria influence decision making process about facility location, the authors have already started in-depth interviews with participating companies to reveal how the inclusion of qualitative criteria into decision making process about facility location influence the company's performance.

**Keywords :** criteria influencing facility location, Czech Republic, facility location decision-making, qualitative criteria

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