



# A GDSS based approach for the assessment of customer needs in industrial markets

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Received 10 April 2002; accepted 1 October 2002

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## Abstract

Need assessment is a critical success factor of product development in all companies; developing the right product requires an accurate understanding of customer needs. All available information about customer needs should be carefully assessed in the early phases of product development.

In this paper we study the usefulness and usability of a Group Decision Support Systems (GDSS) in the assessment of customers' needs in industrial companies. We studied two real-world need assessment cases carried out in cooperation with a Finnish telecommunications company. These cases focused on the assessment of the lead users' needs for new types of applications based on wireless technologies. GDSS technology offered many benefits for promoting the assessment of industrial customer needs. These case experiences will be described more profoundly in this paper.

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*Keywords:* Customer needs; Group Decision Support Systems; GDSS; Lead users; Industrial markets

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## 1. Introduction

The most successful product innovations are initiated as a result of the correct perception of user needs. Developing the right product requires an accurate understanding of customer needs. The economic success of manufacturing companies depends on their ability to identify the needs of their customers and to quickly create products that meet these needs and that can be produced at a low cost. The accuracy of development activities

can be ensured using need assessment. Accuracy refers to the use of precious resources for those development activities which most increase customer satisfaction.

Need assessment is an activity with which customers' needs are gathered and analyzed, and that assures that the company will operate to satisfy these needs. All available customer need information should be carefully assessed in the early phases of product development and utilized effectively in the development of new products. The need assessment process should include phases which support effective group work in order to ensure that all critical information on customer needs is assessed by the customers themselves and

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also inside the company. Therefore, systematic and competent methods and tools for need assessment are necessary.

This study is based on two need assessment cases made in cooperation with a Finnish telecommunications company at the Group Decision Support Systems (GDSS) laboratory of the Department of Industrial Engineering and Management at Lappeenranta University of Technology (LUT). In these cases, the authors have utilized the so-called innovative “lead user” customers. Lead users are people, whose present needs will become common in the market place in the future. In the literature on this topic, there are many examples of how lead user analysis has helped in finding new customer needs for industrial companies, which operate in markets where new technologies make it difficult for the customer to articulate their needs (e.g. von Hippel, 1988; von Hippel et al., 1999).

This research reviews the possibilities of the face-to-face GDSS in customer need assessment. The purpose of this study is to clarify the real advantages and problems of GDSS in need assessment. This research helps to understand the factors and limitations which should be taken into consideration when utilizing GDSS and focuses on the need assessment of industrial companies that operate in business-to-business markets and the telecommunications business.

Methodologically this study uses the constructive approach. The constructive approach was very suitable for this research because the main target of the study was to design and test a framework in a real-life context. The logic in the constructive approach is to design a new construct and test its applicability in real-life cases. The main goal in the constructive approach is to build new constructs that are tied into the current doctrines and theories. This construct may be a model, plan, scheme or other construct designed for purposes of management problem solving. The results of the research are evaluated based on the newness and applicability in the progress of scientific knowledge. Demonstration and validation of practical usability is also important in evaluating the results. The research is usually carried out with limited empirical material, for instance a limited number

of cases, which are studied in great detail. Detailed study gives the researcher a profound understanding of the cases and all the means needed to demonstrate accurate observations of the phenomena (Olkkonen, 1994; Mäkinen, 1999).

## 2. Customer need assessment in industrial markets

Successful product development requires a profound knowledge of the customers and their needs. According to several studies (e.g. Holt et al., 1984; Cooper, 1993; Rothwell, 1992), product development projects that are based on carefully defined customer needs are more likely to succeed than those based on new technological opportunities. In addition, by carefully clarifying and defining customer needs and demands in the early phases of product development, large and time-consuming changes can be avoided at the later stages of the development work, which can significantly reduce the total time required by development activities (Urban and Hauser, 1993; King, 1989; Cohen, 1995).

Need assessment refers not only to the gathering but also to the structuring and analysis of customer needs with the aim of creating useful information on customer needs for the development of new products; to be useful, information on customer needs has to be in a form that can be easily communicated and, furthermore, should be considered useful and trustworthy by the persons in R&D who need it (Adams et al., 1998; Gupta and Wilemon, 1988).

Need assessment tends to vary, depending on whether the product is intended for industrial or consumer markets, and the market type is one of the major determinants when selecting suitable need assessment tools for an organization (Holt et al., 1984). For instance, in industrial markets, there often exist well-established relations between manufacturers and customers and direct personal contacts with key customers are a valuable source of information for need assessment, and because the number of customers is usually rather small and the products are complex, the statistical methods commonly used for analyzing consumer markets are not always the most useful for need

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