

# Ten tools for customer-driven product development in industrial companies

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## Abstract

Need assessment is a critical success factor of product and business development in all companies. In this paper we present 10 tools for customer-driven product and business development for companies producing industrial products. The tools help to clarify the needs and objectives of customers and to ensure that customer needs are considered when making development decisions in the different phases of product development. These tools were developed in a two-year project with small and medium-sized companies. In our paper we describe important requirements for the development of the tool set, give a short description of the tools and their usability, and introduce different practical ways to support the selection of tools. © 2001 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

Successful product development demands profound knowledge of customers and their needs. In this paper we present a set of 10 tools for customer-driven product and business development for companies producing industrial products. The developed tools help to assess customer's needs and competitive situation, to determine targets for product concepts, and to manage the different phases of product development ensuring the competitiveness of planned product concepts. By product development we mean here all the concrete development and management activities

to accomplish new or improved products. The emphasis of our paper is in the management of the early phases of product development.

Many companies wish or claim to be customer oriented. Customer-driven product development is, however, a demanding and difficult task. The voice of the customer should be taken into account in all the phases of product development, both in definition and design phases [1]. Therefore, customer-driven product development requires proper customer need assessment, which has been tailored for this purpose.

Need assessment for product development is a systematic activity of gathering and clarifying customer needs, determining product characteristics based on the clarified needs and ensuring that all the important needs will be fulfilled. The links between need assessment and product

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development are analyzed in more detail in Section 2.

Need assessment is a critical success factor of product and business development [2–6]. In industrial markets suppliers can have a significant impact on their customers' performance. Customers require increasingly more benefits and an active role from their suppliers. For these reasons, suppliers cannot be content to do no more than what customers demand in their orders, but they must also carefully assess their customers' present and future needs. Increasingly, intensive international competition emphasizes the importance of careful customer need assessment.

Especially in manufacturing industries companies can form long business chains. A business chain consists of all the companies from which parts, machines and services needed for the final products are delivered, including also customer's and company's important stakeholders, the opinions and requirements of which may affect the development of a product. In this paper, we generally use the word 'company' to refer to an industrial organization that develops and supplies products for its customers.

Customers' needs as well as the competitive situation and the company's goals must be clarified in the very early phases of product development. In this way, the product development can be productive and make the greatest possible contribution for the whole company. Careful, systematic need assessment helps to focus development efforts and reduce the need for future design changes. Based on the results of careful need assessment, product development can produce more competitive products that fulfill important customer needs better than competitors or provide totally new benefits for customers.

In spite of the importance of need assessment for product development, need assessment is often implemented in an unsystematic and unorganized way in companies producing industrial products. This is partly a consequence of a lack of proper tools and lack of information about using them. According to Holt et al. [4] methods for need assessment are poorly developed compared to more technical tools for product design. Need assessment in industrial markets is carried out util-

izing mainly existing relations with customers during every day contacts [4]. Free-form discussions are one of the most common ways to assess customer needs in industrial companies. Some companies, however, use guidelines and outlines to make such discussion more effective. Pilot projects with customers are also an important way to analyze customers' needs for industrial products. Still, there is a strong need for systematic need assessment methods in the product development of industrial companies.

Many commonly used need assessment methods have originated from statistics and market research. Urban and Hauser [7] describe how different market research methods can be utilized in product development. In many cases, traditional market research does not provide sufficient understanding of user needs for industrial product development [4]. Many traditional market research methods are more aimed for marketing and consumer products than product development of industrial products and they are not so suitable, as such, for industrial product need assessment.

The purpose of this paper is to introduce need assessment tools developed particularly for companies producing industrial products. Our set of tools was developed with small and medium-sized companies producing industrial products in a two-year Technology Development Center Finland (TEKES) funded project between 1993 and 1995.

The goal was to develop a set of easy-to-use tools, considering the characteristics of industrial product development and important need assessment-related problems of industrial companies, to help companies to clarify customers' needs for product development and to manage product development ensuring that development efforts aim at fulfilling these needs. The set of tools was aimed to increase the effectiveness of product development and promote the co-operation between companies and their customers.

Useful methods for need assessment and product planning were screened from the literature and both Finnish and foreign companies as well as universities. Potential methods were tested and evaluated. The selected methods were further developed to better support customer-driven product development in industrial companies. The result

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