Contemporary Quality Function Deployment for Product and Process Innovation

Towards Digital Transformation of Customer and Product Information in a New Knowledge-Based Approach
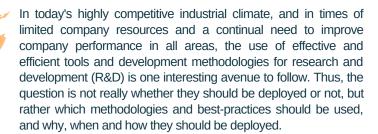
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World Scientific

by
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In today's highly competitive industrial climate, and in times of limited company resources and a continual need to improve company performance in all areas, the use of effective and efficient tools and development methodologies for research and development (R&D) is one interesting avenue to follow. Thus, the question is not really whether they should be deployed or not, but rather which methodologies and best-practices should be used, and why, when and how they should be deployed.

Contemporary Quality Function Deployment for Product and Process Innovation: Towards Digital Transformation of Customer and Product Information in a New Knowledge-Based Approach introduces the reader to the industrial use of the Quality Function Development (QFD) methodology in product and process innovation. Customer, product, and production data related to each product family will be digitized in the matrix structures used in this methodology, and be made accessible, more transparent, and visible, thus facilitating a holistic product information perspective. Moreover, using this information in the creation of Integrated Knowledge Platforms (IKPs), supporting more digitalized product and process innovation work processes, will speed up product development and capture vital information to be used in your next-generation product innovation projects. From an overall company perspective, the well-proven ability of the QFD methodology to stimulate cross-functional product innovation will guide product innovation towards a new knowledge-based approach in its enhanced digital transformation and use of integrated customer, product, and production information.

Using the QFD methodology, you will learn how to create a retrievable and accumulated digitized company knowledge base, coupled with improved company communication. You will get better decision support, assisting in the development of better product specifications, and resulting in better products, and ultimately leading to improved customer satisfaction. The adoption of the QFD tool and matrices in building such well-structured knowledge-based platforms (IKPs) related to individual products or product families is the heart of the matter and the "hidden gem" of QFD methodology use.

The book aims to serve as a manual introducing the methodology and how to use it, offering a guiding framework, and being a handbook for the methodology's industrial use for both newcomers and product developers. Furthermore, it offers new perspectives on a more efficient and effective use of the QFD methodology for the seasoned practitioner. This book can also serve as a textbook for students in all disciplines of the natural sciences, innovation management, product design, and engineering. Each part of the book concludes with a number of questions that can be used as learning instruments in lecturing and for more advanced tutorials.

Readership: Scholars in innovation and technology management; university students in the disciplines of technology, engineering and business administration; product innovators and managers of product innovation in manufacturing industries and the process industries.

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About the Author

Professor Dr Thomas Lager, is an affiliated Professor at Mälardalen University, School of Innovation, Design and Engineering in Sweden. He is the General Manager of blinab "boutique" management consultancy in Sweden, in the area of Management of Innovation and Technology in the Process Industries.

He holds an MS degree in Mining Engineering from the Royal Institute of Technology in Sweden. He has a PhD in Mineral Processing, and a PhD in Business Administration and Economics from Luleå University of Technology. He was previously Professor and Chair in Innovation Management at University Mohammed VI Polytechnique in Morocco, and an affiliated Professor at Grenoble Ecole de Management in France. He was formerly Adjunct Professor and Director of the Centre for Management of Innovation and Technology in the Process Industry at Luleå University of Technology in Sweden. He has served 15 years in the Process Industry mainly in Sweden and Africa.

The content of this book is not only based on the author's own research in Innovation Management but also relies extensively on the author's industrial experiences as a facilitator of the QFD methodology in various sectors of the process industries. As Visiting Researcher invited by Professor Takao Fujiwara to Toyohashi University of Technology in Japan in the year 2000, the author also had the privilege of having the late Professor Yoji Akao as his mentor and prime supporter in the development of the *Multiple Progression QFD (mpQFD) system*. Now, the author wants to follow in Professor Akao's footsteps by further developing the industrial use of the methodology to enhance company product innovation capabilities. The combination of profound theoretical insight with operational industry best practice in the use of the QFD methodology is the hallmark of this book.

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