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Cost-cutting QFD Applications 2009

Cost-cutting QFD: How to Reduce Non-value Added Costs in Goods and Services

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Since the 1960s, QFD has been used by companies around the world and in numerous industries to add quality, value, and customer satisfaction during the design and development of new products and services. Through a linked series of analytic tools, the Voice of the Customer can be deployed into design, build, and delivery specifications and identify the critical tasks to achieve them. Though most QFD studies focus on improving customer satisfaction by increasing the functionality or performance of the product, in these difficult economic times, "low cost" and "price" have become important elements in purchasing decisions. Price being defined as cost plus profit, traditional cost cutting approaches include value engineering to reduce design cost or lean activities to reduce manufacturing waste. QFD can offer an additional approach that enables companies to remove functions and performance that add little value to customers, bringing features in line with the benefits they give the customer — as defined by the customer. This paper re-visits Cost Deployment, which was integrated by Dr. Akao in late 1970s but has never gained much traction outside Japan, as well as reviews additional tools that companies can use for Cost-Cutting based on Reverse-QFD, Value Engineering, and others methods.

Consumer Branding & Marketing 2009

Why We Drink Beer: Using QFD, Kansei, and AHP to Understand How Consumers Identify with Brands

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There are numerous approaches for understanding consumer motivation and insight. This paper explores the application of new product development methods such as Quality Function Deployment, Kansei Engineering, and Analytic Hierarchy Process to assist sales and marketing groups to better understand how customers feel about the products they buy. QFD is a Japanese created approach to translating the voice of the customer into product functional requirements, kansei is a Japanese created approach to identify product sensory attributes that affect consumer emotions and image, and the AHP is an American created method to determine priorities based on human decision making modes. The authors have applied these techniques to learn about how the image that Thailand's premier beer, Singha, is perceived by consumers in the U.K. to apply the findings for future marketing and branding campaigns.

Food Industry / Process Industry 2009

The Use of QFD to Develop a New Food Offering with a Cross-functional Team from Consumer Behavior to Formulation and Production

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This paper reports an application case study by a food products company using QFD's consumer-centric processes to enhance its existing product development process to develop a new food offering. While the service aspects of this offering have been previously published, this paper focuses on the food product itself, and how QFD for a transforming chemical process (mixing and baking) differs from that of an assembled product or human process. Traditional tools such as the House of Quality (HOQ) as well as some of the tools of Modern QFD were integrated in this study as well. This paper discusses, with examples, several of the steps necessary to focus the project and delivery channel, identify customers and their needs and preferences, and then work step-by-step through the process of the food product end characteristics, intermediate batch characteristics, ingredients and process parameters, and key manufacturing and final production quality control points. Sales impact is also discussed.

Gemba Study / Multi-national Corporations 2009

Globalizing Gemba Visits for Multinationals

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There are approaches to improving a company's new product development process by improving bits and pieces, but a more thorough impact is accomplished with a chain of well integrated methods in an educational package including certified skill levels. QFD is used by companies to better understand the spoken and unspoken customer needs and their priority, and then translate them into product requirements, assuring quality throughout the design, manufacturing, and after-sales phases. The traditional QFD tool set focuses on time consuming matrices, called 'houses,' but in today's lean businesses, the resources available to do this depth of analysis are reduced. Furthermore the matrices have often overshadowed the true soul of QFD, i.e. drive customer needs through the whole process. More efficient methods have been introduced by the QFD Institute under the guidance of Dr. Yoji Akao, the founder of QFD. For a manufacturer with a worldwide presence, especially, translating the Voice of the Customer was found to take on cultural in addition to linguistic imperatives. Sandvik Coromant is a leading manufacturer of metal cutting solutions with worldwide presence, with a long history of innovative products. The company has put forward a goal to reduce by half the time from identifying customer needs to achieving peak sales. This paper will focus on the going to the customer's Gemba (or machine shop in our case), one of the methods in modern Blitz QFD® methods and discuss the differences of applying Gemba in different countries and cultures where Sandvik Coromant is active.

Industrial Product Development / Training 2009

Thinking Outside the (corrugated) Box

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We've done all right in the past but need to do better going forward... How can we get new designs to the market place that hit the critical specification targets? How can we make the lives of our sales force so easy that all they need to do is sit back and take orders because our customers are coming to us rather than us trying to convince them that our products will add value to their processes? This paper shares this company's experience in the initial training and applications of QFD and House of Quality (HOQ) matrix approach on a project to design a new industrial product for the corrugated box industry. It reports chronologically on the steps that the company took to obtain training and then implement QFD, including planning Gemba visits, data translation into a Voice of the Customer Table, use of A-1 table, E-series tables based on the 4-phase QFD approach, and noun/verb function analysis. The paper finally discusses the success as well as the areas for future improvement, including an insight on how to introduce the HOQ based QFD into a small company and what pitfalls to avoid.

Research - Lean Methods 2009

Lean QFD: Evolving QFD for a Lean Six Sigma World

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Lean Six Sigma is becoming even more popular than Six Sigma. The next step in the evolution of QFD is both to add QFD to Lean, and apply Lean to QFD. This paper explores what QFD can do for Lean, and what Lean can do for QFD. This will result in a Lean QFD well suited for Lean Six Sigma. The House of Quality matrix is used as an example, resulting in a Lean House of Quality.

Beyond Lean: Evolving into a Super Talent Factory

Yong Yin, Visiting Scholar, University of Texas at Dallas, USA; Kathryn E Stecke, Ph.D., Ashbel Smith Professor of Operations Management, School of Management, University of Texas at Dallas, USA; Ikou Kaku, Ph.D., Professor, Akita Prefecture University, Japan

This paper introduces a new-to-the-word, emerging manufacturing organization called "seru." *Seru* is a next-generation, lean manufacturing concept that has been taken up by some of major Japanese manufacturers in recent years but it is still largely unknown outside Japan. *Seru* is an inheritance and evolution of Toyota's lean philosophy and Sony's one-man production organization, but it is more efficient and flexible than lean when applied to industries such as electronics and auto components, bringing huge benefits. By using historic cases of many global leading companies (Ford, GM, Toyota, Sony, Canon, NEC and others), this paper provides an overview of various evolutionary processes of manufacturing organizations over the history and then it explains what the "*seru* system" is and how to create and apply it and the important future impacts of *seru* for industries.

Research2009 – Rough Set Theory and Kansei

Using Rough Set Theory to Efficiently Implement "Choice of Domain" Step in Kansei Engineering

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Kansei Engineering is a customer-oriented, product development approach which maps customers' emotional values into product design. Identifying the consistent groups of customers based on their emotion is an essential part of the "choice of domain" step in Kansei engineering.

This paper presents a method to identify the most influential users' characteristics on different customers' Kansei when there are inconsistencies of preferences within groups of people in a heterogeneous market for a specific product. These users' attributes can be used as the bases for customer grouping in Kansei Engineering. This paper will introduce the proposed method and its validation through an application to website examples to identify multiple consistent sets of groups of users.

2009 Appendix: Bonus Case Studies

Consumer Encounters: Improving Idea Developments and Concept Optimization. *by Cathy Rings & Brian Barton, Home Products Division, Rubbermaid Inc.; Glenn Mazur, QFD Institute*

Kansei Engineering for Commercial Airplane Interior Architecture. *by Jeanne Guerin, Payloads Concept Center, The Boeing Company*

The Application of Quality Function Deployment (QFD) to Design a Course in Total Quality Management (TQM) at the University of Michigan College of Engineering. *by Glenn Mazur, QFD Institute*