



TRANSACTIONS FROM
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Automotive / Build-to-print Suppliers 2008

Value Based Product Development - Using QFD and AHP to Identify, Prioritize, and Align Key Customer Needs and Business Goals

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In order to distinguish ourselves from the competitive pack, it is becoming increasingly important to seek a deeper understanding of value-driving customer needs during the early stages of product/process development. Although automotive suppliers are often asked to be creative and lean, we still often build strictly to given specifications. We receive data in the old "build to print" paradigm but we are often required to design in a more creative and lean one. To address this dichotomy and break away from the costly design-build-test iterative loop, QFD suggests that we seek an understanding of customer's needs beyond the requirements specification and incorporate that understanding into the final product. This case-study reports how TRW Automotive has utilized QFD and augmented it with the Analytical Hierarchy Process to develop a working model for project leaders to prioritize and focus their design efforts effectively.

Defense 2008

Use of QFD & Technology Road Mapping to Develop a Mobile Data Collection System

Dr. Kim Stansfield, Programme Manager, CSC Computer Sciences Ltd., UK; Jeff Cole, Security Architect, CSC Computer Sciences Ltd., UK.

The work described in this paper considers the systems engineering procedures used to select and design a 'mobile data collection' sub-system of a larger enterprise application development project for a UK government client. A critical aspect addressed by the sub-project was to identify mobile devices that allow field operators to systematically log material found in-the-field such that all subsequent results of treatment and analysis could be linked to the item in an auditable manner. The customer required that the system integrator identify suitable devices meeting the requirements of the various customer stake-holders, and recommend the best fit, preferably a single device. The focus of this paper is to illustrate the benefits of combining QFD processes with the Technology Road Mapping (TRM) process described in the European Industrial Research Management Association (EIRMA) report, Technology Road Mapping Delivering Business Vision. The structured framework incorporating Voice of the Customer methods, QFD, TRM and Pugh Matrix allowed the supply team to rapidly identify the priority critical to quality characteristics for the system and its components, and to develop the engineering requirements from which design concepts could be developed.

Quality Function Deployment at Lockheed Martin MS2

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Since its inception, QFD has become a comprehensive tool for keeping customer focus at the forefront of any design activity. Flexible and tailor-able, QFD has also been adopted by our government customers which utilize the method for everything from contractor selection to technology assessment. At Lockheed Martin, QFD has been deployed in multiple areas from technical kick-offs to manufacturing process validation. This presentation will show a variety of QFD implementations at Lockheed Martin MS2, including power supply design efforts as well as several other hardware examples. Lessons learned from these QFD deployment efforts will also be summarized and reviewed. QFD techniques that integrate Parameter Diagrams, Boundary Diagrams and FMEA have now become part of mainstream QFD use. This presentation will also review how Lockheed Martin MS2 utilizes these Design for Six Sigma Tools in an integrated fashion to verify robustness and identify risks in its products and processes.

Healthcare Insurance / Financial Products 2008

Predicting Future Health Insurance Scenarios using Quality Function Deployment (QFD) and Analytic Hierarchy Process (AHP)

Carey Hepler, QFD Black Belt®, Innovation Director, Blue Cross Blue Shield of Florida, USA

Election years breed uncertainty especially when the incumbent president and vice president are not seeking office. The 2008 U.S. presidential elections have additional healthcare related urgencies due to the impending retirement of the Baby Boomers and the shifting winds of global competitiveness. While forecasting the election outcomes is beyond the scope of this paper, just as many businesses do, Blue Cross Blue Shield of Florida (BCBSF) wants to anticipate how the next administration and congress might set new healthcare policy in order to begin planning for and implementing new processes for their members, providers, and business decision makers. To achieve this, this project used a combination of QFD, AHP, and other forecasting tools to look at possible 2008 election and policy outcomes and what new opportunities might be created to service both their traditional members as well as the uninsured in the State of Florida. The identified scenarios can be used to map and prioritize different market segments, formulate key customer needs into value propositions, determine strengths and weaknesses in their current competencies and capabilities, and then initiate service quality projects to begin improving those areas where customers will need them most. Several quality methodologies have been used to design successful products.

Using QFD to Understand, Prioritize, and Develop Solutions to Address the Future Needs of Customers

Kathy Hines, QFD Black Belt®, Innovation Leader, Blue Cross Blue Shield of Florida, USA

As the United States health insurance model continues to evolve, with increasing financial responsibility falling on the consumer, the opportunities for new and different interactions with the health insurance company are sure to follow. Consumers are already very savvy when it comes to evaluating alternatives in other industries and it's only a matter of time before the health care industry is also comparatively shopped like many other commoditized products and services. BCBSF must continue to evolve to create a service experience that enables and empowers members in their decision-making efforts. This project utilized the QFD methodology to

anticipate the changing needs of consumers and how service might evolve. The requirements for the project included: Understanding the future-state of the industry; Anticipating and prioritizing future member needs as a result of new industry pressures; Developing a well defined goal for the service organization; Identifying solutions that target member needs; Validating solutions from the member's perspective; Selecting the best solution(s) given benefits and constraints; and Implementing solutions that are most valuable to the member and continue to differentiate BCBSF.

QFD Research 2008

KEYNOTE: QFD in Europe: State-of-the-art and Case Studies

Georg Herzworm, Ph.D., Universität Stuttgart, certified QFD-Architect of QFD Institut Deutschland, Germany; Dipl. Wirt.-Inf. Sixten Schockert, Universität Stuttgart, certified QFD-Architect of QFD Institut Deutschland, Germany.

The presentation will provide an overview on the state of the art of QFD in Europe. The first part covers a general analysis of QFD applications in Europe based on a literature review with focus on contributions in quality journals and past national and international QFD symposia. The underlying assumption of this analysis is that there may exist regional distinctions in the dissemination of QFD and in the industries QFD has been applied. The second part of the talk will present selected case studies from various representative industries like the automotive, the software and the service sector. Companies involved in these QFD applications include among others the Volkswagen Group and T- Systems.

Shipping Industry 2008

Customer-driven Process Improvement in a Shipowner Company: Modern QFD Approach

Aysun Kapucugil Ikiz, QFD Green Belt®, Research Assistant, Dokuz Eylul University, Turkey; Guzin Ozdagoglu, Research Assistant, Dokuz Eylul University, Turkey

Business operations can be broken down into development phases which require multiple business functions and processes to make a new product or service a reality. Success in one customer-driven design process is not sufficient unless every other phase of the operations is analyzed from a customer expectations point of view. That way, successful process can take root within an organization. Quality Function Deployment (QFD), a known requirements analysis technique for service/product design, can be also useful for redesign or reengineering business operations and processes. The main scope of this study is to analyze the operations of a commercial shipping line company to identify improvement opportunities. This paper reports a detailed requirements model of the operation process and improvement areas based on a 'gemba' analysis of internal customers and critical incident reports by external customers.

Software / IT 2008

Getting AHEAD: Applying AHP for Software Technology Evaluations

Karen Smiley, QFD Black Belt®, Principal Consulting Software Engineer; Elizabeth Kielczewski; and Qingfeng He, ABB Corporate Research, USA

Evaluations of software technologies and components can be complicated, and are easily influenced by acknowledged or latent technology biases. The Analytic Hierarchy Process (AHP) is a natural choice for neutralizing these biases, and bringing greater objectivity to the evaluations. This paper reports on an industrial case study for software technology evaluation which complemented the Software Engineering Institute's (SEI) Attribute-Driven Design (ADD) technique by applying AHP for importance ratings and for comparing the prototype implementations. We present our Attribute Hierarchy-based Evaluation of Architectural Designs (AHEAD) methodology, our findings, and our analysis of the evaluation. This project is a pilot application of Modern QFD in the Requirements Engineering research led by a provisional QFD Black Belt®.

2008 Appendix I: Bonus Case Studies

Defining Customer Needs for Brand New Products: QFD for Unprecedented Software Development, by Richard Zultner, Zultner & Company, USA

Future Combat System Concept Development: Integrating Service and Product Requirements in QFD, by Kirk Kirkpatrick, Lockheed Martin Missiles and Fire Control; Maj. Shel Jones, US Army; Glenn Mazur, Japan Business Consultants, Ltd.

QFD to Direct Value Engineering in the Design of a Braking System, by Jim Dimsey, Hayes Brake, USA, et. al.

QFD Addresses The Role of NATO Tactical Aircraft, by Suzanne Bergman, McDonnell Douglass Corporation, USA

2008 Appendix II: Abstracts of Papers from Symposia on QFD 1989-2008