



TRANSACTIONS FROM
THE SYMPOSIUM ON
QUALITY FUNCTION DEPLOYMENT

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2013: The 19th International & 25th N. American Symposium on QFD (ISBN 1-889477-25-7)

Global QFD 2013

Keynote: Global QFD — From Japan to the World

Yoji Akao, Ph.D., Japan

Since its conception in Japan in 1966, QFD continues to advance and spread across the world. In this keynote, the global history of QFD is presented, recalling each inaugural training and project that Dr. Akao personally was involved. These include the 1981 introduction to South Korea, Taiwan (1882), USA (1983), Italy (1988) and many so other countries..

Keywords: Comprehensive QFD, Global QFD

A Critical Analysis of the Turkish Literature on QFD

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This study serves as a knowledge base for the researchers by offering a holistic reference on the current state of QFD applications in private sectors as well as QFD research in academic field in the Turkish region. With economic activities rapidly globalizing and competitive pressure mounting, this knowledge will be a competitive differentiator for developing nations such as Turkey as they will compete more on the global stage. A comprehensive project has been planned to identify the level of awareness and prevalence of QFD methodology, the purpose of use, implementation levels and difficulties, and analysis, based on the literatures produced between 2000 and 2012 in Turkey from both private sector and academic sources.

Keywords: Quality Function Deployment (QFD), Literature Review, Turkey

Top technology is not all we need for a successful business: QFD logic, methods and tools — Dutch experience

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This paper reports a pilot project in The Netherlands, the utilization of QFD for business development. It will share the Dutch experience of customer centered marketing campaigns based on the VOC and modern QFD, as well as the logical, systematic, and interactive link between commercial and technology teams in one organization.

Keywords: Modern QFD, Business Development, Business Analysis, VOC

Industrial Design 2013

Towards QFD-based Industrial Design

Prof. Dr. Wolfram Pietsch and Prof. Dr.-Ing. Andreas Gebhardt, Aachen University of Applied Sciences, Germany.

Customer Orientation is achieved within QFD by a systematic approach. Within industrial design, requirements of the customer are also analysed and deployed with the power of artistic creativity, less with a systematic or qualitative approach. The paper proposes the integration of QFD and industrial design through a case study, leading a tentative framework for QFD-based Industrial Design.

Keywords: Customer-Oriented, Industrial Design, Conceptual Integration, Conceptual Map, Design Concept, Product Catalogue

IT Architecture / Security / Software QA 2013

QFD and Requirements Prioritization: A Survey on Security Requirements for Cloud Computing

Prof. Dr. Georg Herzwurm; Norman Pelzl, Dipl.-Wirt.-Inf.; Benedikt Krams, Dipl.-Kfm. (FH), M.Sc. of University of Stuttgart - Chair of Information Systems II (Business Software), Germany.

Prioritization is an essential task within QFD, and QFD is highly suitable for the development of Cloud Computing (CC) applications where non-functional requirements play a main role. Many of them are security requirements, often the main concern for CC investments. This paper introduces the usage of QFD for Cloud Computing (CC). In this research, CC security requirements were prioritized by pairwise comparison, showing that not all security requirements are equally important. With this finding, the appropriate usage of QFD for CC development will be discussed.

Keywords: QFD, Requirements Prioritization, Security Requirements, Cloud Computing

Application of QFD to the Symptom Analysis of Input-device Software Defects

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The traditional function/regression tests following the design specification do not adequately ensure software quality, due to the evaluation complexity posed by various input-device software such as USB, wireless communication device, sensor, LCD display technologies, etc. This paper proposes a better method for evaluating and analyzing software defects by correctly assessing the symptoms of original causes of failures and identifying the relationships between the operations and subjects through the use of the function deployment tables and state transition tables. This feeds back not only reliability but also functionality to the quality evaluation.

Keywords: Software QA, QFD, FTA, Symptom Analysis, Test Coverage, Evaluation Deployment

Evaluating User Needs in a Web-based Learning Environment

Prof. Aysun Kapucugil-Ikiz, Ph.D., QFD Green Belt® and Guzin Ozdagoglu, Ph.D., QFD Green Belt® — Dokuz Eylul University, Department of Business Administration, Turkey

Although the users of a web-based Learning Management Systems (LMS) are typically invisible to the systems developers and administrators, understanding their needs has high priority in order to develop and implement effective virtual learning services that meet diverse expectations of the users. This paper shows using QFD for identifying the user needs that are vital to LMS and translating them into architectural characteristics of the system. Include a case study of a local LMS platform in Turkey.

Keywords: QFD, SOA, Online Learning, Customer Process Model, Gemba Visit table, AHP, CVT, MVT, Turkey

Improvement of University e-Portfolio System in Consideration of Students' Demands

Masanobu Yoshikawa, M.E., Kohei Nitta, M.B., Yoshimichi Watanabe, Ph.D., and Hisakazu Shindo, University of Yamanashi, Japan.

Using a QFD approach, demand analysis and factor analysis were performed for the successful introduction of e-Portfolio system for a public university in Japan. By analyzing the students' demands and factors of an existing software, the researchers were able to turn the e-Portfolio system software into an information infrastructure that can be fully utilized by students for effective introspective study and efficient completion of their study plans.

Keywords: Quality Assurance in Higher Education, e-Portfolio, Requirement Analysis, Software Development

Software Development Method Based on Twin Peaks Model with QFD

Yoshimichi Watanabe, Ph.D., Masanobu Yoshikawa, and Hisakazu Shindo, Ph.D., University of Yamanashi, Japan.

In software system development, it is important to analyze the stakeholder's requirements and design the architecture. One proposed method for this is the twin peaks model which intertwines software requirements and architectures to achieve incremental development and speedy delivery. The researchers used QFD to clarify these relationships in hope to propose more efficient software development.

Keywords: Software Development, Requirements, Architecture Design

New Product Development 2013

Quality Function Deployment for New Product Development: Transforming Waste to Worth

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Barley grain is a waste product from the customer's production process and typically sold as pet food. By incorporating our innovative product, we have developed a new kind of eco-friendly construction material that adds value both in function and for the customer's brand image. This paper reports an application of QFD in this NPD, most challengingly in eliciting the needs from psychological elements and deploying them into design specifications, development process, sourcing, and other considerations for successful product rollout.

Keywords: Gemba visit, VOC table, HoQ table, Design of experiment, Concept Test

Application of QFD for the Development of An Organic Product: A Pilot Study

Paulo Augusto Cauchick Miguel, Ph.D.; Jaqueline de Fátima Cardoso, Ph.D. researcher; Nelson Casarotto Filho is an Associate Professor of Federal University of Santa Catarina (UFSC), Brazil.

This paper reports a pilot QFD application for the development of an organic product. The paper presents a conceptual model which consists of four matrices for the development of an organic fruit jelly. The main adaptation is in the first matrix to include major actors in the production supply chain. The first results indicate the feasibility of the proposal for food development.

Keywords: Product Development, Organic Products, QFD

Manufacturing 2013

Study of Applying QFD to Modularity Strategy

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Japanese manufactures are excellent at developing integral type products, such as cars and complicated machines that need fine tuning (e.g. Semiconductor manufacturing machines). However, many products are currently shifting toward modular systems, and this is where Japanese manufacturers are weak at establishing logical architectures and rules needed for modularity. This paper defines a better modular product architecture by using QFD to arrange many complex issues such as customer needs, cost, technology, manufacturability, serviceability etc. and simulates them through a series of matrices.

Keywords: QFD, Modularity, Modular, Integral-type

Starting QFD for Clothing Manufacturers in Hong Kong

Catherine Y. P. Chan, Ph.D., QFD Black Belt®, Hong Kong QFD Association; Gail Taylor, Institute of Textiles and Clothing at The Hong Kong Polytechnic University, Hong Kong, China.

Some 20 years ago the Hong Kong clothing manufacturers only had to deal with the sewing or knitting of the samples for fashion designers. Today they are expected to provide technical design

services as well as sample development process. The increasing degree of abstractness and the shift from quantitative to qualitative nature of technical data have created many communication problems. This paper identifies the areas in which QFD can help Hong Kong clothing manufacturers in development and design and also explore the effective QFD approaches.

Keywords: Clothing Manufacturers, Apparel Industry, QFD, Hong Kong

Service Quality 2013

A Study of Service Quality Improvement Using the Theories of Nonverbal Communication, FMEA and QFD

Kazushi Nagai and Tadashi Ohfuji, Tamagawa University, Japan; Masamitsu Kiuchi, Ph.D., Josai University, Japan.

This study discusses how to improve the service quality. Study of service industry presents unique challenges because of soft issue measurements such as quality evaluation and service quality. With this in mind, the authors propose a quality improvement process specifically for service industry and will show a case study using non-verbal communication, FMEA, and QFD.

Keywords: Service Quality Improvement, QC story, QFD

Keynote: "QFD for Membership Organizations — Practicing What We Teach"

Glenn H. Mazur, QFD Red Belt®, Executive Director - QFD Institute, USA; Academician / Treasurer - International Academy for Quality.

Dr. Armand Feigenbaum, appreciating the power of quality thinking in transforming the post-war economies of Europe and Japan, planted the seeds in 1966 for the International Academy for Quality (IAQ), a membership organization that facilitates an international exchange of information about quality in order to promote quality throughout all nations. The IAQ's growing membership in developing nations means that member needs have to be periodically assessed and incorporated into future activities, beyond its original missions. Following the footsteps of the QFD founders, late Dr. Shigeru Mizuno and Dr. Yoji Akao, the author (an elected member of IAQ since 2010 and the Secretary and Treasurer since 2013) has proposed to current President Janak Mehta, that QFD be used to reassess current member needs and plan future programs. The study began in 2013 with a survey to members regarding their "likes" and "wishes" about IAQ membership and for suggestions for the future. This paper will explain the QFD process being used for this assessment, including the data from the responses, as well as the results to date and ongoing improvements to the organization.

Keywords: Quality Function Deployment (QFD), Modern Blitz QFD®, Voice of Customers (VOC), Membership Organization, Service Quality

QFD for activating a workplace Ba—Part 2

Koji Tanaka, Tokibo, Co., Ltd., Japan.

The various components of QFD draw out member's tacit knowledge through 'Ba' (the workplace gemba). In order to achieve this, the 'Ba' must be invigorated with changes that encourage the individuals to express and share his/her tacit knowledge. This paper, a sequel to the author's 2012 presentation, examines the relationship between QFD and 'Ba' from the viewpoint of cognitive engineering and social-psychology and show some examples of his company's practices.

Keywords: Service Quality Improvement, QC story, QFD

Supply Chain 2013

Modern QFD Application on a Supply Chain to Become Green

Askin Ozdagoglu, Ph.D., QFD Green Belt®; Banu Atrek, Ph.D., QFD Green Belt®— Dokuz Eylul University, Faculty of Business, Turkey.

Increasing concerns for resource scarcity and global pollution beseeches us for more environmentally friendly practice in supply chain management. This study is based on the voice of customer (VoC) data collected from the aluminum accessories industry located in Izmir, Turkey. Using the Modern QFD's maximum value table, the VOC were deployed into technical characteristics that are essential for the greener practices of the sector's supply chain management. This project is going to provide the academicians an insight into usability of Modern QFD and to the industry professionals the methods for extending their green activities.

Keywords: Modern QFD, Supply Chain, Green Practice

Transportation 2013

Application of QFD within a Co-opetition Network of Public Transport Organizations

Dipl. Wirt.-Inf. Sixten Schockert, German QFDID certified QFD-Architect; Prof. Dr. Georg Herzwurm; Dipl.-Kfm. techn. Andreas Helferich, Universität Stuttgart, Germany.

The paper reports a QFD application case study from a project funded by the German federal ministry of Education and Research. Public transport organizations are competitors as well as cooperative partners. In this setting of co-opetition we apply QFD, with the vision of offering passengers seamless transportation services. The paper presents the necessary adaptations and extensions of QFD as well as lessons learned.

Keywords: QFD, Public Transportation, Competitive Cooperation

Methods 2013

A Statistical Engineering Approach to Codifying the Voice of the Customer

Thomas Scripps, Scripps & Associates, USA.

This paper proposes a way to create a logical flow for the Voice of the Customer processing by codifying a series of tools into a linear statistical engineering roadmap, in order to populate the conventional House of Quality matrix that uses "whats" and "hows" approach. The proposed method is explained with hypothetical data and examples.

Keywords:

Often organizations act on a situation without fully determining the true needs of stakeholders that would reveal the important context or unstated factor, leading to inadequate solutions or even exacerbated situations. This occurred several years ago. QFD Gemba study revealed the largest and unexpected hindrances to the current learning environment in the library media center. These observations and customer verbatims were translated into true needs and fully ordered using paired comparisons in the Analytic Hierarchy Process (AHP). Finally, the highest ranking needs were evaluated on a systematic level, addressing potential causes for concern such as difficulties of implementation, perception of teachers and students, as well as resources like cost, time and effort.

Keywords: Blitz QFD®, gemba visits, VOC translation, AHP, ISACS review, defining customers, elementary school, learning environment