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Chemical Industry 2010

The Process of New Product Development to Assure Customer Satisfaction and Create New Business Opportunity in Chemical Industry

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This paper reports a QFD application in the chemical industry, specifically how QFD helps understanding of latent customer needs and incorporating them in the company's new product development and quality assurance process, leading to better customer satisfaction and business growth for both the company and their customers and creation of new market opportunities. A House of Quality matrix (HoQ), Design of Experiment (DOE), Process Failure Mode and Effect Analysis (PFMEA), Hazard Analysis (PHA), and Quality Assurance process charts were used, as well as product design review (DR) techniques for assuring product safety and liability from the initial development process.

Keywords: Solid Surface, QFD, Design of Experiment (DOE), Product Hazard Analysis (PHA), Process Failure Mode, and Effect Analysis (PFMEA)

Consumer Products 2010

KEYNOTE: A Case Study on the Development of a Folding Bicycle

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An overview of QFD will be presented by a founder of QFD. QFD's intrinsic framework for the Knowledge Management and basic steps of QFD are shown through a student project for developing a folding bicycle.

Keywords: Quality Function Deployment (QFD), Comprehensive QFD, Knowledge Management
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Education 2010

QFD-based Curriculum Development Model for Industrial Training

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The basic principles of QFD were adopted to develop an industrial training curriculum model for service-oriented manufacturing industries in Hong Kong. Recognizing the importance of dually meeting job performance requirements and knowledge needs of the incumbents, the model is characterized by the performance-focused as well as learning-oriented approaches, based on the Voice of Customers from both employers and individuals, as well as the dynamics of trainers who make use of their subject-matter expertise to suggest the kinds of industrial knowledge for meeting the defined performance needs vs. course developers who make use of his/her professional knowledge to synthesis the derived subjects into an effective and coherent curriculum. Affinity Diagram, VOC Table, and AHP were used as the tools for assisting the operation of the model.

Keywords: QFD, Curriculum Development, Industrial Training, Vocational Training

Development of Educational Structure for Business Students in Quantitative Methods Area

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This paper addresses how to align the educational structures of the business school program at Dokuz Eylul University in Turkey with the Bologna Process, an European higher education reform through international cooperation and academic exchange. To facilitate mobility of academic talents and offer broader access to high-quality higher education as aimed by this initiative, it is essential to have a systematic methodology to figure out the knowledge, skills, and competency requirements with respect to stakeholders' requirements and transform them into the commonly accepted professional and learning outcomes. The insights from this study can help other universities see how to perceive their stakeholders' requirements and deploy them into their curriculum by expanding the scope to the other areas in all disciplines.

Keywords: Bologna Process, European Higher Education Area, QFD, Curriculum Development, Business Administration, Quantitative Methods

Curriculum Planning for Education in Enterprise Resource Planning Systems

Lars Oliver Mautsch, Georg Herzwurm, Ph.D., Benedikt Krams, and Sixten Schockert of Universität Stuttgart, GERMANY

Enterprise Resource Planning (ERP) is nowadays dominated by the major software producers and tends to be product-driven and solution-oriented. This research presents an approach for planning a more customer-oriented education in ERP software through the use of QFD techniques and by focusing on the most valuable modules within an education. Matrix consistency rules are applied so as to ensure identified customer requirements are met by the service offering of the university and to avoid wasting of scarce resources. A House of Quality (HoQ) matrix and pair-wise comparison are among the methods that will be shown.

Keywords: Enterprise Resource Planning, Education, Curriculum Planning, QFD

Government 2010

An Application of ANP together with Conjoint Analysis to Political Decision Making in Local Government

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This paper proposes an application of Analytic Network Process (ANP) and Conjoint Analysis (CA) in a local government decision-making process concerning the use of public land for establishment of a community IT activity center, in an attempt to make policy making and executing in this Japanese prefectural government more transparent and improve accountability of political decisions, to better serve its diverse constituents.

Keywords: Municipal Policy Making, Analytic Network Process (ANP), Conjoint Analysis (CA)

Healthcare 2010

DREAM/QFD to Re-design Staff Service Excellence at Rutland Regional Hospital Systems

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As a regional medical facility, the goal of Rutland Regional Health Systems is to develop standardized processes and clear expectations for how they serve their customers. Through working to apply quality thinking, the hospital team has identified the non-clinical areas needing improvements such as the way they deliver care to the patients, staff behaviors, words, body languages and different team coordination. This presentation will share an on-going project that demonstrates this hospital's commitment to understanding what is important to their patients and bringing fresh improvements in the delivery of patient care and the mind-set of healthcare professionals through the use of QFD (Quality Function Deployment) and DREAM (Design/Redesign Effectiveness Assurance Method).

Keywords: Quality Function Deployment (QFD), Analytic Hierarchy Process (AHP), Service Excellence, Healthcare, Voice of the Customer (VOC), Design/Redesign Effectiveness Assurance Method (DREAM)

QFD to Re-design New Physician Orientation and Induction: Connecting New Physicians into a Healthcare Community

Jill Jesso-White, QFD Green Belt®, Rutland Regional Medical Center, USA; Glenn H. Mazur, QFD Red Belt®, QFD Institute, USA and ICQFD

The physician induction process is an interactive process beginning from the recruitment of a physician and continuing over the first year to help him/her as well as the doctor's family adjust to both the medical and broader community environment. Its success is crucial to physician retention and development of a happy work force that can ultimately affect better patient care. This project shares our ongoing efforts to build a better process of orienting and inducting new physicians in our hospital and community, by using Modern QFD tools and Voice of the new physician feedback.

Keywords: Quality Function Deployment (QFD), Analytic Hierarchy Process (AHP), physician orientation, healthcare, Voice of the Customer (VOC), Design/Redesign Effectiveness Assurance Method (DREAM)

IT 2010

Complex IT Systems Design Using Both Traditional QFD and Blitz QFD®

Kim Stansfield, Ph.D., QFD Black Belt®, CSC Computer Sciences Ltd., UK; Jeff Cole, Six Sigma Black Belt, CSC Computer Sciences Ltd., UK; Glenn H Mazur, QFD Red Belt®, Japan Business Consultants Ltd., QFD Institute, USA and ICQFD

This paper shows the benefits of traditional and Modern QFD approaches applied to align design complex IT Systems to meet customers' priority business needs. The uniqueness of this paper is the comparative study of Traditional QFD vs. Modern QFD - a rare opportunity in real business applications - in Complex IT System design and the revelation that how the associated prioritization and value analysis techniques in the latter bring alignment with business drivers - a key issue for IT Systems design today. First, it discusses Traditional QFD supported by other Six Sigma Methods, namely Boundary Analysis, Supplier, Input, Process, Output, Customer (SIPOC) and Critical To Quality Characteristic Analysis, and Prioritization using Pair-wise Comparison. It then demonstrates how inclusion of Blitz QFD® methods brings a level of clarity to customer and stakeholder value for the Business Solution and Business Architecture on which IT Systems are developed.

Keywords: Blitz QFD®, Traditional QFD, IT Systems, Design

Value-based Pricing as Origin for New and Further Development of IT-Products - Usage of Quality Function Deployment and Target Costing for Customer-oriented Pricing

Georg Herzwurm, Ph.D. and Sixten Schockert, Universität Stuttgart / QFD Institut Deutschland e. V., GERMANY; Benedikt Krams and Lars Oliver Mautsch, QFD Institut Deutschland e. V., GERMANY

By applying QFD and Target Costing approaches, we can use derived pricing strategies and thereby achieve cost reduction in the customer-oriented, value-based pricing of IT-products. This paper considers not only established IT products but also software as a service, business and delivery model where software is distributed via the Internet without the need of installation on a client. Setting prices, therefore, is very challenging. For new development of IT products, this presentation will show an approach of combined usage of QFD and Target Costing to monitor the ex-post of IT development projects. For further development of IT products, the approach can be used to derive pricing strategies to be communicated into the market.

Keywords: QFD, Target Costing, Software Development of IT Products (SaaS), Value-based Pricing, Pricing Strategies

Taming IT Infrastructure Library (ITIL) with QFD

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Professionalization of IT Services gained increasing attention in business and academia supported by the emergence of the process-oriented ITIL, a de-facto international standard for IT Service Management. The current version of ITIL comprises of total 1343 pages. An extensive employment of such a complex framework may lead to over-regulation. ITIL currently specifies only 'Whats'; it must detail the 'how' if it is to be implemented in business environment, but this would increase complexity. This issue has been addressed within a large telecommunication enterprise, solved with a complex QFD deployment, and validated within a pilot project. This presentation will show the specific toolset and tailoring process geared to IT service management.

Keywords: IT Infrastructure Library (ITIL), Stakeholder Analysis, Audit, Pareto, Portfolio

Enhancement of QFD Tool "T2T" and Its Application for Sightseeing Contents

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This paper reports the functional enhancement of T2T, a QFD tool that was developed by the authors at Yamanashi University in Japan to simplify the construction of the Japanese Quality Chart, using the quantification method called QM3. The presentation will discuss the enhancement, challenges, and an example of its application in an online sightseeing information project.

Keywords: QFD tool, Quantification method, Two-way tables, Sightseeing contents

Logistics 2010

A Holistic Model for Structuring requirements Considering the Degree of Requirements' Fulfillment and Its Implementation for Data Processing

Priv. Doz. Dr.-Ing. Robert Refflinghaus, Prof. Dr.-Ing. Horst-Artur Crostack, and Dipl.-Kff. Sandra Klute of Dortmund University of Technology, GERMANY

When planning and developing intra-logistical facilities, many stakeholder requirements with different weightings have to be considered in the early stages of QFD. This paper presents a holistic multidimensional structuring model including feedback. Using an example of a roll conveyor, an appropriate structure for a productive transfer into QFD is presented, along with an overview of the developed model and its dimensions, including the requirements concerning surroundings, information, reference object, the weighted level of performance and customer satisfaction.

Keywords: Requirements, Stakeholder, Multi-dimensional Model

Computer-aided Method for Automatic Identification of Effect Relations between Requirements on an Intra-logistics Facility

Dipl.-Ing. Constanze Kolbe, Dr.-Ing. Horst-Artur Crostack, and Priv. Doz. Dr.-Ing. Robert Refflinghaus of Dortmund University of Technology, GERMANY

While planning an intra-logistics facility, a huge number of requirements from several stakeholders are emitted. Effect relations are occurring among requirements, according to technical correlation and trade-offs between stakeholders. This study will present a new computer-aided method which enables an automatic cognition of requirement relations and evaluation based on their negative or positive effects. The method has been implemented as a software system for establishing technical-functional requirement category.

Keywords: Requirement, Requirement Relation, Intra-logistics Facility, Quality Function Deployment

Marketing 2010

QFD for planning the Marketing Mix

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This paper presents an application of QFD in marketing and product planning. It shows QFD as a tool for product managers for mediating between product development and marketing interests, especially with focus on planning the marketing communication activities. Two case studies are shown to illustrate QFD's capability to mediate / integrate product management and the mutual benefit of QFD use in marketing. Tools used in these examples include message-means-matrix and IT product compass.

Keywords: Product Management, Marketing Mix, IT, Case Studies

The Customer's Way: Know what to do because you know why you do it

David Mitchell, Eaton Corporation, USA; Daniel Walker, River's End Consulting, USA

Eaton, a global technology leader in electrical and industrial systems for aerospace, hydraulics, and vehicles, uses a phase gated product development cycle. During the initial deployment, the project team had experienced a gap in the ability to systematically identify essential customer wants and needs and to convert those into product requirements. This paper describes how they were able to gain clear directions by developing survey questions for each stakeholder that resulted in excellent feeder stock information for QFD House-1.

Keywords: Customer Wants and Needs, Quality Function Deployment, Voice of the Customer, Question Guides, Affinitization, Survey, House of Quality

An Efficient Customer Group Selection for Quality Function Deployment

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This paper proposes a Rough Set-based approach to efficiently identify the consistent user classes whose perceptions on functional and non-functional requirements of a product play an important role in effective product design. Rough Set is a powerful mathematical approach which can identify redundant data and is effective in handling non-linear and non normal data commonly used in human evaluations such as QFD. This approach is helpful for companies that rely on traditional market segmentation to initiate and implement QFD projects, as it provides a mean to redefine primary customer groupings whose perceived satisfaction lead to purchasing decisions. A case study of website design is used to illustrate the approach.

Keywords: QFD, Rough Set, Customer Segmentation, Market Segmentation, Customer Groupings

QFD Implementation 2010

KEYNOTE: Integrating QFD into Phase-Gates Product Design

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Quality approaches to new product development as a pipeline for commercialization has been growing in recent years. Methods such as Stage-Gate®, Design for Six Sigma, Design for Lean Sigma, and others have been helping organizations structure their techniques. QFD has been recognized by all these methods as an important tool set within the process, but exactly what QFD tools to use and when to use them must be determined on a case-by-case basis by custom-tailoring the QFD process to the organization and the development process being used. This paper shows how to expertly integrate QFD into different processes and different companies, through similarities and differences in each. The discussion will include the characteristics of Stage-Gate®, Design for Six Sigma (DFSS), Design for Lean Sigma, and how to truly benefit from these and other New Product Development (NPD) techniques by efficiently and correctly integrating QFD through customization into your unique NPD process and business strategy.

Keywords: Stage-Gate®, Design for Six Sigma (DFSS), Design for Lean Sigma, Integration of QFD (Quality Function Deployment), QFD Customization, New Product Development (NPD), Quality Methods

Efficient Way to Advance Policy Management Using QFD

Koji Tanaka, Kanjie Associates Inc., Knowledge Management Society of Japan, JAPAN

The management system for achieving fiscal year targets is called policy management. It is employed by many Japanese companies and relies on daily management of improvement activities by managers and workers. This paper reports the use of business function development in the policy management system to make the job functions visible for more efficient and effective targets setting.

Keywords: Job Function Deployment, Policy Management, Control Item

The Fusion of QFD and Next Generation PLM including Systems Engineering

Tadao Nakamura, Competency Center Division, Dassault Systemes K.K., JAPAN

This paper introduces the integration of QFD and the latest Product Lifecycle Management (PLM) tools in Japan, including Systems Engineering. The most important element in successful product development is the human activities that cannot be done automatically by software. QFD plays an important role in offering the means for multi-discipline workers to relate to a development project in analyzing the requirements and organizing defined information that are important for the course of PLM.

Keywords: QFD, PLM (Product Lifecycle Management), Systems Engineering, CAD, PDM (Product Data Management), CAE, MBE (Model-based Engineering), Requirement Management, VR (Virtual Reality)

QFD for the Company's Sustainable Growth — A trial of the new QFD training in Japan

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

In 2007, the authors presented a concept named e7-QFD (evolution 7-QFD) for uniting QFD with other statistical methods such as design of experiments, Taguchi method, etc. that called for construction of Quality Management System centered around a Japanese Quality Table (an initiative they named Sus-QFD). This was driven by the authors' research on helping Japanese companies apply QFD more smoothly. This paper discusses the progress with a case study example from the current House of Quality-based QFD training by Japan's trade group JUSE and the authors which this research aims to improve by using customer complaints as the source data.

Keywords: evolution7-QFD, Sustainable growth QFD, QFD training

A Critical Analysis of QFD Application in Brazil after 20 Years of Its Application

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This paper will discuss QFD applications by the academics and industry practitioners in a developing country. It offers a critical analysis of the types of matrices, scales, Voice of Customer and other tools that are often used in QFD applications in Brazil and the future opportunities for improvement.

Keywords: Brazil, QFD application, voice of customer, matrices, scales

QFD for Effective Business Process Design (II)

Hideaki Haraga, Innovation Advancement Center, Konica Minolta Technology Center, Inc., JAPAN

In 2008, the author reported the knowledge workers' method of designing a business process by relating job-assurance elements that progressed from a high-ranking target to job functions. The method, however, had a weakness that required deployment of objectives into individual job assurance items, resulting in a big matrix. This paper reports improvements where assurance items of each job are extracted precisely and efficiently, leading to not only quality assurance but also a method of revamping internal operations such as planning, design, and prototyping.

Keywords: Job Function, Assurance Items, Job Function Deployment, Business Process Design

Reliability 2010

Visualization of Attainment Levels of Design

Hiroyuki Okamoto, Engineering Process Innovation Planning Center, Ricoh Company, Ltd., JAPAN

This paper reports a trial to make visible the levels of design attainment in the design phase. A QFD matrix, wisdom, and information about past failures and so forth were used to identify content omissions in verification, so as to prevent design imperfection from resulting. The degree of risk from a quality loss originating from imperfect design was evaluated and used to guide the manager's decision.

Keywords: Attainment Levels, Risk, Visualization, QFD, Excel Application

Service 2010

Prevention of Recurrence and Preventive Measures of Service Quality Problem

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What is recurrence prevention and how to grasp the facts concerning service quality failures and how to devise countermeasures, how to prepare Standard Operating Procedures as the preventive measure against service quality failures? These are explained through actual cases and the relation to the QFD concept.

Keywords: Recurrence Prevention, Preventive Measures, Service Quality Problems, Failure Mode Analysis, SOP, Visual Manual, Principles of Handling Claims, QA in Service Sectors

Strategy 2010

Developing a Church Growth Strategy through QFD, AHP, and Balanced Scorecard Strategy Mapping

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In order to flourish, today's church must be extremely focused with both its mission and prioritized objectives, and also capable of adjusting quickly as this landscape changes, just as in any business and organization. As such, it is important to have a repeatable process to develop, implement, and maintain an effective long-range plan. In the case of a church or any community activist group or non-profit organization for that matter, such a planning process is an exercise typically accomplished by an ever-changing mix of volunteers who must make sense of a vast, diverse, and sometimes precarious Voice of Customer landscape. This case study shares a Michigan church's application of Modern QFD tools, Analytic Hierarchy Process (AHP), and Balanced Scorecard® approaches to derive the customer needs from church Gemba feedback and Customer Voice Table (CVT). The needs were then "affinitize" and made into a hierarchy diagram where AHP was applied to determine relative priorities with respect to the highest level objective of achieving sustainable church growth.

Keywords: Quality Function Deployment (QFD), Analytic Hierarchy Process (AHP), Service Excellence, Healthcare, Voice of the Customer (VOC), Design/Redesign Effectiveness Assurance