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Automotive 1989

Vehicle Wiring QFD, D. Carter, K. Hasenstab and S. Schafer, *Electro-Wire*; R. Uroda, *Ford B&AGO*.

The QFD core team consisting of design engineering, advanced systems engineering, product engineering, and QA from Electro-Wire and Ford reports their pilot QFD efforts. The project involved application of QFD in the design, manufacturing, and assembly of the wiring harness for an entire vehicle. The objectives were to learn QFD methodology, establish foundation for future vehicles and impact current vehicle. The paper reports the steps taken and the resulting benefits.

Pre-Planning a Total Product: The Key to Success in Complex Product Development Situations, C. W. Kurowski, *Chrysler Motors*. Utilization of QFD sometimes resulted in a very long customer requirements list. This adds complexity to product planning and development of large and complex products. Using QFD as a tool to help systemize the total process plan, a macro "Pre-Planning QFD" has been developed to organize data to determine the two or three important product characteristics that will enhance the product for increased customer satisfaction. This paper explains this new concept and matrix.

QFD: A Systems Approach to Brake Design, T. J. Bodell and R. A. Russell, *Kelsey-Hayes Company*. Kelsey-Hayes began using the concepts of the QFD process in 1986 and had done a couple of studies on developed components. A new vehicle program at one of the Big Threes directed them into the next study, which turned out to be a complete systems QFD study encompassing new products as well as all of the KH products. The paper reports their progress to date in the on-going initiatives.

Front End Accessory Drive Design - A QFD Approach, R. Ahoor, *Ford/Engine Product and Manufacturing Engineering*. The front end accessory drive belt drive system was chosen for a QFD study, because of the extremely challenging performance and warranty objectives. This paper reports the benefits of the QFD experience specifically as it applied to the modular engine program, including the relationship of QFD to the use of engineering tools such as simulation program, design of experiments and cross-functional team approach for system design.

SMC Truck Hood, M. Gavoort and G. Marcel, *Rockwell International*; Greg MacIver, *Ashland Chemical*. This paper provides an insight to Rockwell International Automotive Operation's philosophy and approach to QFD highlighting the SMC Truck Hood project. This project illustrates the organizational commitment necessary to successfully implement QFD. How QFD and existing product development procedures were integrated is explained.

QFD: A Road Map for Survival in the 1990's, D. Makie, *Masland Industries*. Why can the Japanese introduce a new vehicle in half the time and with superior quality than the U.S. auto companies? A large part of the answer seemed to be QFD. For this reason, Masland employed QFD as a strategy for survival in the 1990's. This case study, the company's second QFD efforts, involved the development of a full floor carpet system. This reports explains how QFD principles were put to work in a step-by-step fashion and what they have learned through the process.

General Industry 1989

Developing Tree Structures that Include Qualitative Characteristics, J. Naughton, *Expert Knowledge Systems*. QFD and the Seven Management Tools offer means to acquire, organize, and use the essential information needed to satisfy customer quality requirements. As these approaches are used beyond manufacturing application, there is an increased need to deal with a greater volume of qualitative information. The quantitative information techniques must be supported with additional techniques in order to effectively build trees and other forms of information organization. This paper describes an overall approach to techniques for the inclusion of qualitative information in QFD projects.

Lessons Learned in Applying QFD, J. Moran, *Polaroid Corporation*. This paper reviews four QFD projects: A new product in development, a new product in the final design stages, a program to specify system design requirements to a vendor, and internal review of a human resource development program to deliver training. It then reports the lessons learned in applying QFD to these diverse programs.

Useful Enhancements to the QFD Techniques, H. Vannoy, *AC Rochester*. This paper reports a QFD case study involving a catalytic converter. The steps of the QFD process taken are illustrated.

QFD: A Flexible Management Tool, R. C. Blaine, D. W. Burden and N.E. Morrell, *The Budd Company*. This paper provides examples of the flexibility of QFD as a management tool beyond the new product design concept. Facts based on experience and opinion resulting from observations focus on why a technique with the powerful potential of QFD is often difficult to initiate, and frequently impossible to sustain through a satisfactory conclusion. It deals with recognizing a valuable concept and making it work within your environment.

Medical Device 1989

QFD in the Development of a New Medical Device, J. R. Rodriguez-Soria, *Ernst & Whinney*. This QFD case study covers the development of a new medical device, the first QFD application at this healthcare manufacturer. The case presents the unique aspects of connecting the Voice of the Customers, a customer model and building of the House of Quality.

Telecommunication 1989

QFD: A Systematic Approach to Product Definition, *D. Thompson, AT&T Bell Laboratories*. AT&T began exploring the potential of QFD in 1986. Since then, they have studied the concept and applied the first phases of the QFD approach to several projects with very positive results. This paper provides a brief background of QFD in Japan and the U.S., and focuses on the company's experience with QFD through three case studies involving a network reconfiguration software system, network monitoring software for internal AT&T use, and a large system composed of software and hardware used in telephone central offices.

Computer & Software 1989

Implementing QFD at TI: What Worked and What Didn't, *R. Porter, Texas Instruments*. Successful implementation of QFD requires a cultural change. This report traces the steps Texas Instruments took to implement QFD across the Materials & Controls Group worldwide. It highlights the "management process" with emphasis on the role of the Management Quality Improvement Team, training, revision to the Design Control Procedure, and synergism across the organization. Case studies from operations in Europe, Asia, and the United States are referenced to highlight the major specific outcome of the QFD project.

Thrill Your Customer, *K. Shaikh, Hewlett-Packard*. Although Hewlett Packard has found QFD to be valuable in developing a highly complicated software product. This case study shares how the QFD process was modified to meet the need of the software development team. It describes the benefits and advantages of using QFD for software products at Hewlett Packard. Difficulties and ways to alleviate barriers as well as some intangible fringe benefits to the organization resulting from use of this process is also discussed.