

## **Practical Quality Function Deployment**

The Quality Function Deployment (QFD) Workshop is a "hands on" and interactive session designed to address both theory and practice of QFD. QFD is a systematic methodology focused on understanding and *deploying* the "voice of the customer" into every aspect of the product and service offering; thereby, increasing the customers perception of value. Embedded in the QFD process, the House of Quality (HOQ) provides a template used to prioritize and correlate articulated customer requirements with associated product specifications and competitor performance. The QFD Workshop will provide a step-by-step process to extract customer requirements obtained through interviews and surveys. Subsequently, the workshop will lead participants through the application of customer information to evaluate competitive offerings and synchronize both product and service offerings with expectations of the marketplace. Participants will learn the activities behind the completion of each portion of the House of Quality and apply proven techniques to interpret the information; evaluating customer requirements, assessing competitive position and identifying areas of untapped opportunity to drive the customer's perception of value. Participants "learn by doing" as they are facilitated through the application of the each key supporting method. Designed to satisfy the needs of the practitioner; participants will learn and apply the important aspects of the process using business scenarios and example data derived from actual projects. At the conclusion of this session, participants should have a clear understanding of the overall QFD methodology as well as intricacies associated with effectively planning for, and executing, the House of Quality as an integral part of a comprehensive new program or service strategy. A course manual and QFD planning template will be provided to participants as well as a list of reference material. The course manual will include illustrative examples of key methods taught during the workshop. The planning template will highlight key process steps as well as the critical path for implementation.

### **Course Instructor**

Robert F. Taylor is currently an independent consultant with 15 years of industry experience applied to the development of new products in the electronics and industrial equipment sector; delivering in excess of \$150MM in annual revenues across business served. Mr. Taylor has contributed in roles ranging from Design Engineer through Engineering Management and, during his career, has authored and deployed over 10 "hands on" workshops focused on practical methodologies to improve New Product Development. He brings to the classroom Engineering Design and Project Management experience, an in depth understanding of the product development process and an appropriate level of Education. He received his BE Degree in Mechanical Engineering from Manhattan College and MS in Manufacturing Systems Engineering from Lehigh University.

### **Course Contents:**

#### **Introduction to Practical Quality Function Deployment**

1. Welcome
  - A. Introductions
  - B. Participant Expectations
  - C. Scope and Course Content
2. History, General Description and Objective of QFD
3. Relevance to New ISO Standard
4. Definitions and Terms

#### **Overview of the "House of Quality"**

1. Introduction to "House of Quality"
2. Key Elements of the Top Level House of Quality
  - A. Customer Inputs
  - B. Product/Service Specifications
  - C. Competitive Benchmarking

3. QFD Critical Path Plan – Illustrated
  - A. Necessary Prerequisites
  - B. Opportunities for Concurrent Effort
4. Questions and Discussion

#### **QFD Execution Phase I – Obtain "Voice of the Customer"**

1. Market Definition
  - A. Specify Target Market Segments
  - B. Identify Key Competitors
2. Qualitative "Voice of the Customer"
  - A. Team Preparation and Participation
  - B. Developing the Survey
  - C. Implementing Customer Visits
  - D. Organizing VOC Information
3. Implementing the Quantitative Survey
  - A. Survey Guidelines
  - B. Designing the Survey
  - C. Methods for Obtaining the Data
4. Review Execution Phase I
  - A. Key Elements of Phase I
  - B. QFD Critical Path Plan

#### **QFD Execution Phase II – Internal Specification Validation**

1. Develop Product/Service Specifications
  - A. Focus on Functionality
  - B. Establish Performance Measures
  - C. Define Units and Desired Optimum
2. Competitive Benchmarking
  - A. Quantitative Testing
  - B. Measured Versus Perceived Performance
3. Review Execution Phase II
  - A. Key Elements of Phase II
  - B. QFD Critical Path Plan

#### **QFD Execution Phase III – Establish Customer Centric Specifications**

1. Complete the House of Quality
  - A. Mathematical Approaches to Model "Relative Product Value"
  - B. Establish Critical Performance Measures
2. Identify Performance Gaps and Opportunities
  - A. Functional "Best in Class"
  - B. World Wide Gap – Opportunity
  - C. Perceived Performance Gap
    - i. Competitive Advantage (temporary)
    - ii. Competitive Disadvantage
3. Define Product Platform and Option Opportunities
4. Establish Customer Centric Performance Targets
5. Review Execution Phase III
  - A. Key Elements of Phase III
  - B. QFD Critical Path Plan

### **QFD Execution Phase IV – Design Deployment**

1. Establish Overall System Architecture
  - A. Define Subsystems
  - B. Correlate Product Functionality with Subsystems
  - C. Design Concept Selection
2. Subsystem Decomposition
  - A. Correlate Subsystems and System Performance Measures
  - B. Establish Subsystem Performance Targets
  - C. Planning for Potential Subsystem Level Faults
3. Component Decomposition
  - A. Correlate Components with Subsystem Performance Targets
  - B. Identify Critical Components and Specifications
  - C. Evaluation of Component Level Failure Modes
4. Review Execution Phase IV
  - A. Key Elements of Phase IV
  - B. QFD Critical Path Plan

### **QFD Execution Phase V – Process Deployment**

1. Prerequisites For Process Deployment
  - A. Manufacturing Process Routing Defined
  - B. Process Capability Understood
2. Process Decomposition
  - A. Correlate Critical Components with Manufacturing Processes
  - B. Evaluate Process Capability Against the Design
  - C. Develop Manufacturing Quality Plan

### **Practical Quality Function Deployment – Summary Review**

1. QFD Critical Path Plan
2. Review of Key Concepts
  - A. Preparing for Implementation
  - B. Obtaining Voice of the Customer
  - C. Design and Process Deployment
3. Supporting Quality Tools – Overview & Timing
  - A. Pugh Concept Selection
  - B. Target Costing
  - C. Triz Theory of Inventive Problem Solving
  - D. Fault Tree Analysis
  - E. Failure Modes and Effects Analysis
  - F. Statistical Process Control (Cp, Cpk)
4. Benefits and Limitations of the Process
5. Course Evaluation