Quality Function Deployment

Listening to the Voice of the Customer

QFD

- What are the *qualities* the customer desires?
- What *functions* must the product serve, and what functions must we use to provide the product or service?
- Based on our available resources, how can we *best provide* what our customer wants?

Benefits of QFD

- Shorter development cycles
- Trade-offs are made in design, strategically, rather than in the market, tactically.
- Lower costs, increased productivity
- Documentation orientation
- Team involvement and commitment at the design stage

QFD: The Visual Planning Matrix

- **The House of Quality links:**
    - Customer requirements
    - Design requirements
    - Target values
    - Competitive performance

QFD: An 8-step Process

1 Product planning - voice of the customer

2 Prioritise and weight the voices of the customer

3 Competitive evaluation (Benchmarking)

4 Design process - what capabilities do we have?

5 Design - how do our capabilities match the customers' needs?

6 Design - what trade-offs do we make in design?

7 Process planning - key processes identified from the planning matrix

8 Process control - output from step 7 provides the basis for process control.

The Customer's Voice

- Solicited information
- Unsolicited information
- Quantitative information
- Qualitative information
- Structured information
- Random information

QFD Tools

- **Affinity diagram**
  - Creative tool used to organise a lot of qualitative data

- **Inter-relationship digraph**
  - establishes relationships between and among causes

- **Tree diagram**
  - Classification tree of the ideas in the affinity diagram

- **Matrix diagram**
  - Maps the voice of the customer against the company capabilities required to meet the customer need.

Summary … 1

- QFD is a continuous improvement tool that brings the voice of the customer into the design processes.

- QFD was originally developed in the Kobe shipyards in the 1960s.

Summary … 2

- QFD yields a number of benefits:
    - Customer focus
    - Time efficiency
    - Teamwork orientation
    - Documentation orientation

Summary … 3

- Customer information falls into two categories: input and feedback.
- Input: before the fact
- Feedback: after the fact.
- Both can be further classified into:
  - Solicited or unsolicited
  - Quantitative or qualitative
  - Structured or random

Summary … 4

- QFD Tools:
  - All the traditional quality tools
- In addition:
  - Affinity diagram
  - Interrelationship digraph
  - Tree diagram
  - Matrix diagram

Summary … 5

- Affinity diagrams promote creative thinking
- Interrelationship digraph identifies relationships among ideas
- Tree diagram identifies tasks to be accomplished to achieve a goal
- Matrix diagrams identify the relationships between capabilities and customer needs.

Summary … 6

- **Steps for implementing QFD:**
  - Form the project team
  - Establish monitoring procedures
  - Select a project
  - Conduct a startup meeting
  - Train the team
  - Develop the matrices