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