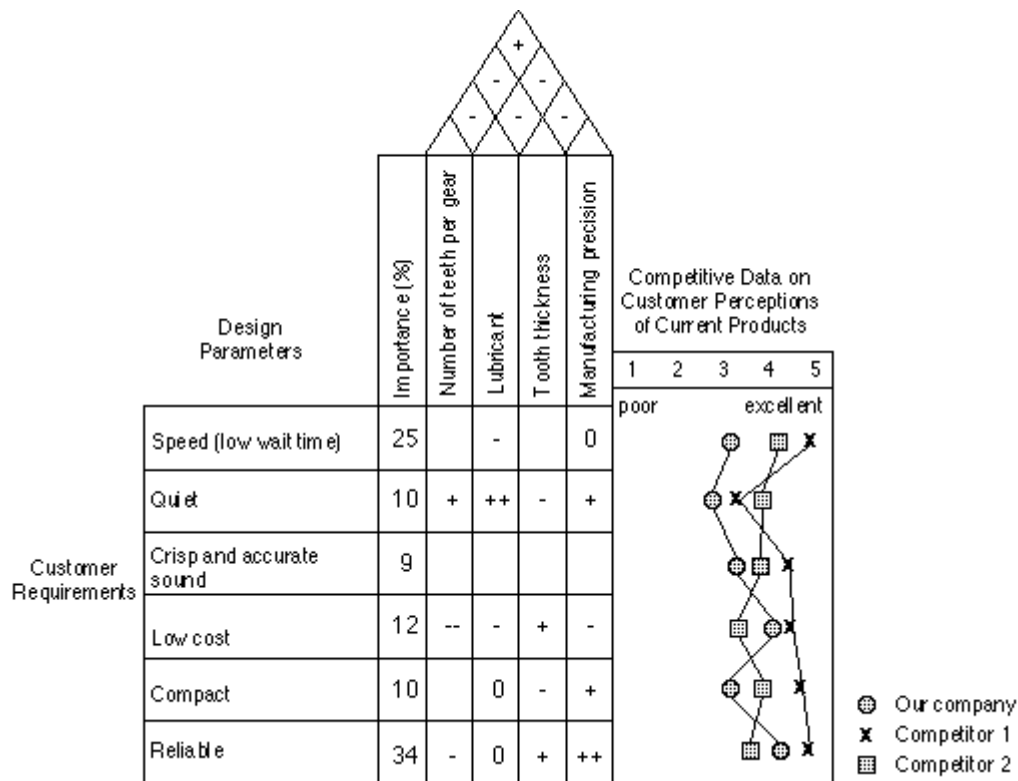


# Quality Function Deployment

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Quality Function Deployment, or QFD, is a method used to identify critical customer attributes and to create a specific link between customer attributes and design parameters. Matrices are used to organize information to help marketers and design engineers answer three primary questions:

- What attributes are critical to our customers?
- What design parameters are important in driving those customer attributes?
- What should the design parameter targets be for the new design?

The organizing framework for the QFD process is a planning tool called the "house of quality" (simplified example above). Working as a team, design engineers and marketers first establish critical customer attributes for the product. These attributes become the rows of the central matrix of the house of quality. The team may group attributes into broader categories in order to simplify planning and analysis.

In the example above, six attributes have been singled out for analysis: speed, quiet operation, crisp and accurate sound, cost, size, and reliability. The team now establishes weightings that represent the relative importance of each attribute from the customers' perspective. The complete set of weightings adds up to 100%.

The second step is to establish the critical design parameters that drive system performance (in measurable terms and directly linked to customer attributes). In the example these are: number of teeth, lubricant, tooth thickness, and manufacturing precision.

The third step is to fill in the body of the central matrix. Each cell represents a potential link between a design parameter and a customer attribute. This "relationship matrix" indicates both the direction and strength of the relationship.

The fourth step focuses on customer perceptions of the company's existing product as compared to its competitors. This may give insight into market problems and opportunities. The fifth and last piece of analysis is the interaction or relationship between design parameters. In the cells of the "roof" matrix is indicated the strength and direction of the interrelationships among design parameters.

## References

- Wheelwright. S. C. and Clark. K. B., 1992, Revolutionizing Product Development, The Free Press, New York.