

Qualify Function Deployment (QFD)

Problem

How to select “how”'s to meet a “want”'?

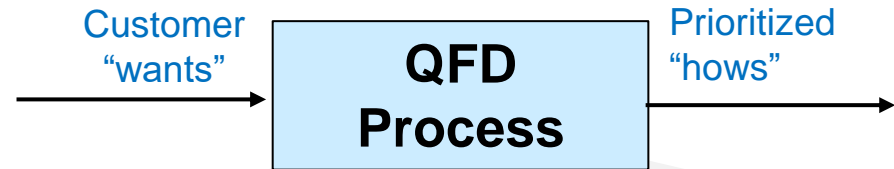
Difficulty

Some training required

Quality Function Deployment (QFD)

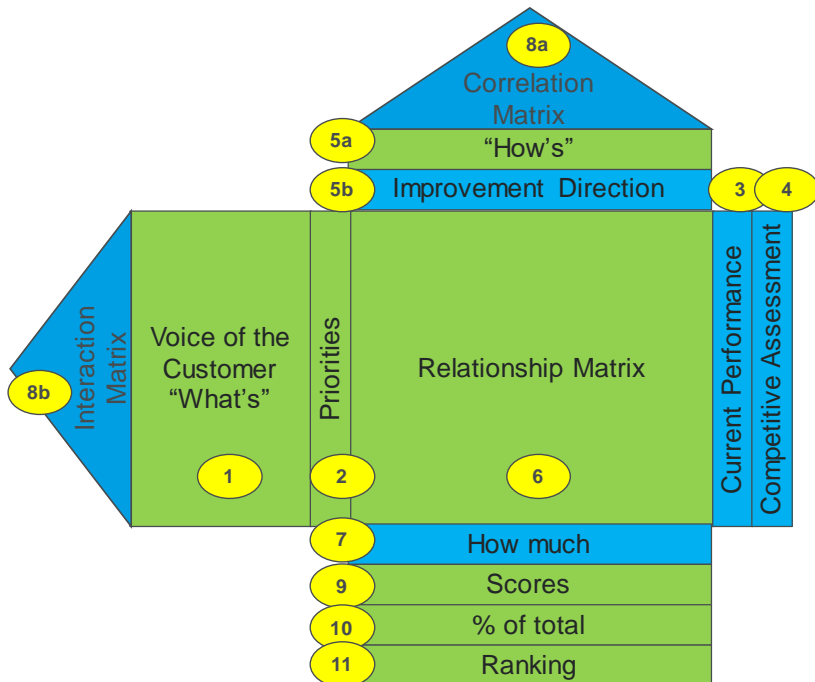
translates a customer’s “wants” (“What does the customer want?”) into “hows” (“How can we satisfy the customer wants?”).

- A weighted decision matrix is used.
- The “hows” are prioritized



Process

1. Determine the customer’s “What’s”
2. Determine the customer’s priority ratings
3. *Determine current performance*
4. *Determine competitive assessment*
5. Define the “How’s”
6. Determine how well a “How” meets a “What”
7. *Establish Measurable Targets for “How’s”*
8. *Complete Correlation and Interaction Matrices*
9. Compute the Score for each “How”
10. Compute percentages and rankings
11. Determine the final result



The green elements are the minimal elements for a QFD. The blue elements are optional.

Minimal

Optional

QFD – Example – Planning a vacation

Example: selecting a vacation

- **What's:** cost, child friendly, novelty
- **How's:** go to the beach, go skiing, go to Disneyland, travel internationally, day trips from home

Follow the minimal QFD steps listed at the right

- For steps 2 and 5, use values of {1,3,9} for simplicity
- For step 6, a large score is preferred to a smaller score

Minimal QFD process steps

1. Determine the customer's "What's"
2. Determine the customer's priority ratings
3. Define the "How's"
4. Determine how well a "How" meets a "What"
5. Determine how well a "How" meets a "What"
6. Compute the Score for each "How"
7. Compute percentages and rankings
8. Compute percentages and rankings
9. Compute percentages and rankings
10. Determine the final result

2: Ranking: most important is child friendly. A larger number is a better choice

Customer "what's"	Priority	Hows				
		beach	skiing	Disneyland	travel	day trips
Cost	1	9	3	1	1	9
Child friendly	9	9	3	9	1	3
Novelty	3	1	3	3	9	1
Scores		93	39	91	37	39
% of total		31%	13%	30%	12%	13%
Ranking		1	3	2	5	3

1: what the customer wants

3: These are the different possible "how's"

5: For the "cost": travel is expensive (bad) so it is a "1", the beach is inexpensive (good) so it is a "9" ... a larger number is a better choice.

9: These are the scores divided by 299

6: These are the mathematical "inner product" of each "how" with the priorities. For example: $93 = 1 \cdot 9 + 9 \cdot 9 + 3 \cdot 1$. The total of the scores is 299.

10: This row has ranked the above row ("% of total") values. The best options, "beach" and "Disneyland," have close scores and a more detailed analysis of these two "hows" should be made.

QFD – Notes

Slide 1

- QFD is also known as the “house of quality”
- A QFD takes
 - What a customer wants (called “whats”)
 - Potential solutions (called “hows”)
 - A prioritization of the “whats”
 - An assessment of how well each “how” satisfies each “what”And, using numerical values. creates a prioritization of the “hows.”
- A complete QFD appears very complicated (11 steps). There are books written on how to create a QFD.
- A minimal QFD has only 7 steps, and is easy to implement.

Slide 2

1. Normally, the values in a QFD are from scale of 0 to 10, we use the values {1,3,9} for simplicity
2. In this example:
 - A customer cares about 3 things ... each is weighted differently.
 - A customer has 5 possible solutions ... each solution has a single value which assesses how well it achieves each of the 3 things the customer cares about
3. After creating the priorities (step 2) and the assessment (step 5), the rest is mathematics.