



Quality Function Deployment

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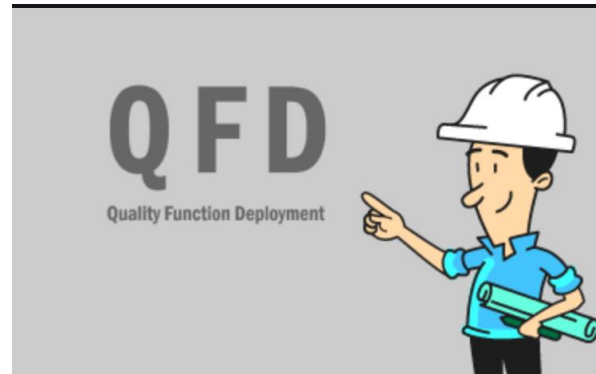
Course: KPE/MNKIM

Date: 11/05/2021



Definition

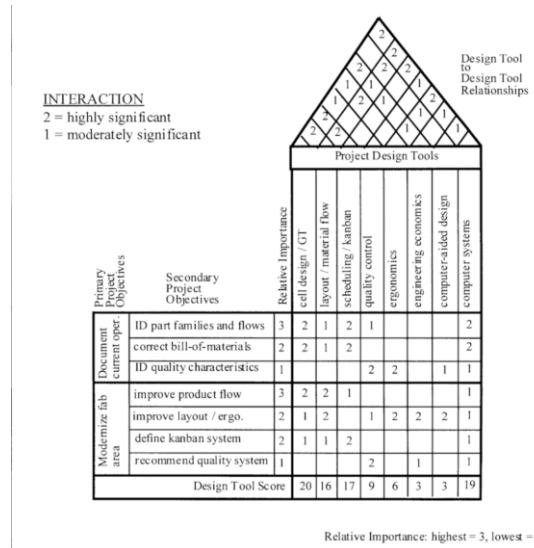
- QFD: is “an overall concept that provides a means of translating customer requirements into the appropriate technical requirements for each stage of product development and production”(Sullivan, 1986).
- QFD combines quantitative and qualitative analysis
- The voice of the customer is analyzed.



Source: Alvarez Arteaga,
Areli, 2020

Definition

- The technique of QFD is based on a series of matrices which convert customer needs into specifications.
- It sometimes generates another matrices.
- This planning plan is used in the field of services and in manufacturing.



Source: L. Carrano, Andrés, 2006

Brief history

- QFD was developed in Japan by Yoji Akao in the 70s, at Mitsubishi's Kobe ship-yard site.
- Between 1977-1984 was adopted by Toyota.
- In 1980s it was introduced in USA.



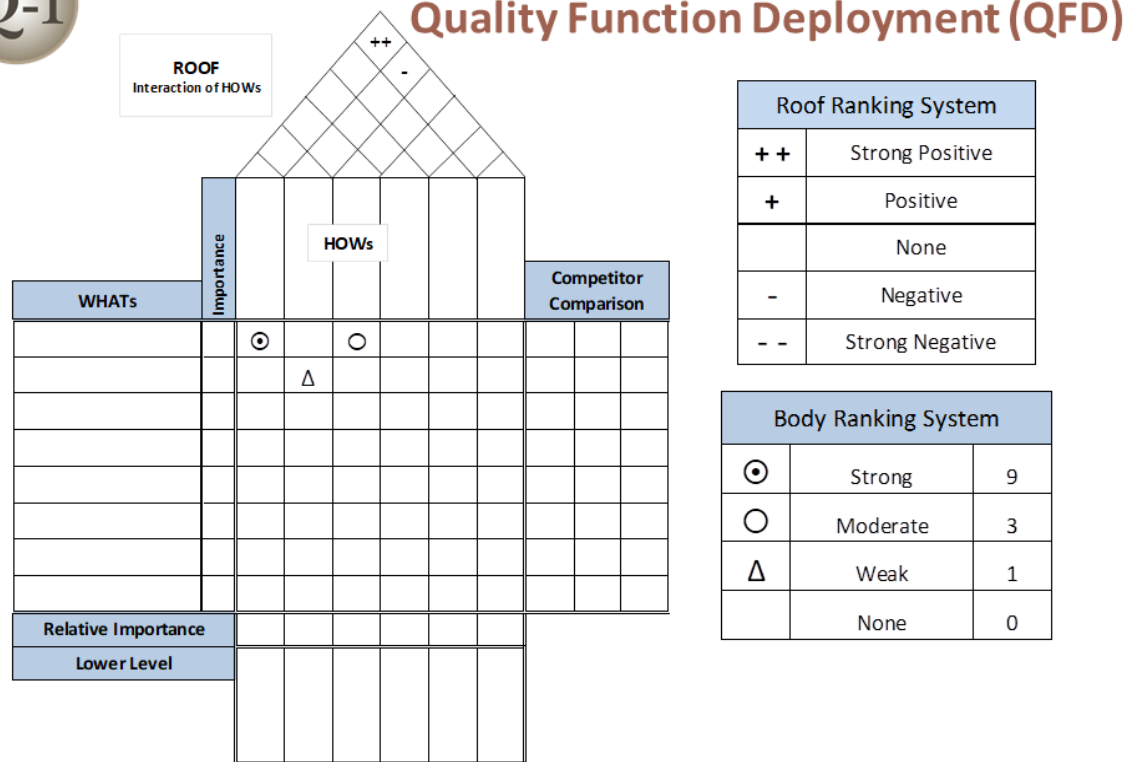
Source: Master's of Lean and Sigma, 2020



The House of Quality

- One core definition that all Houses should follow.
- 4 parts : the What's, the How's, the Roof & the middle.

Q-1



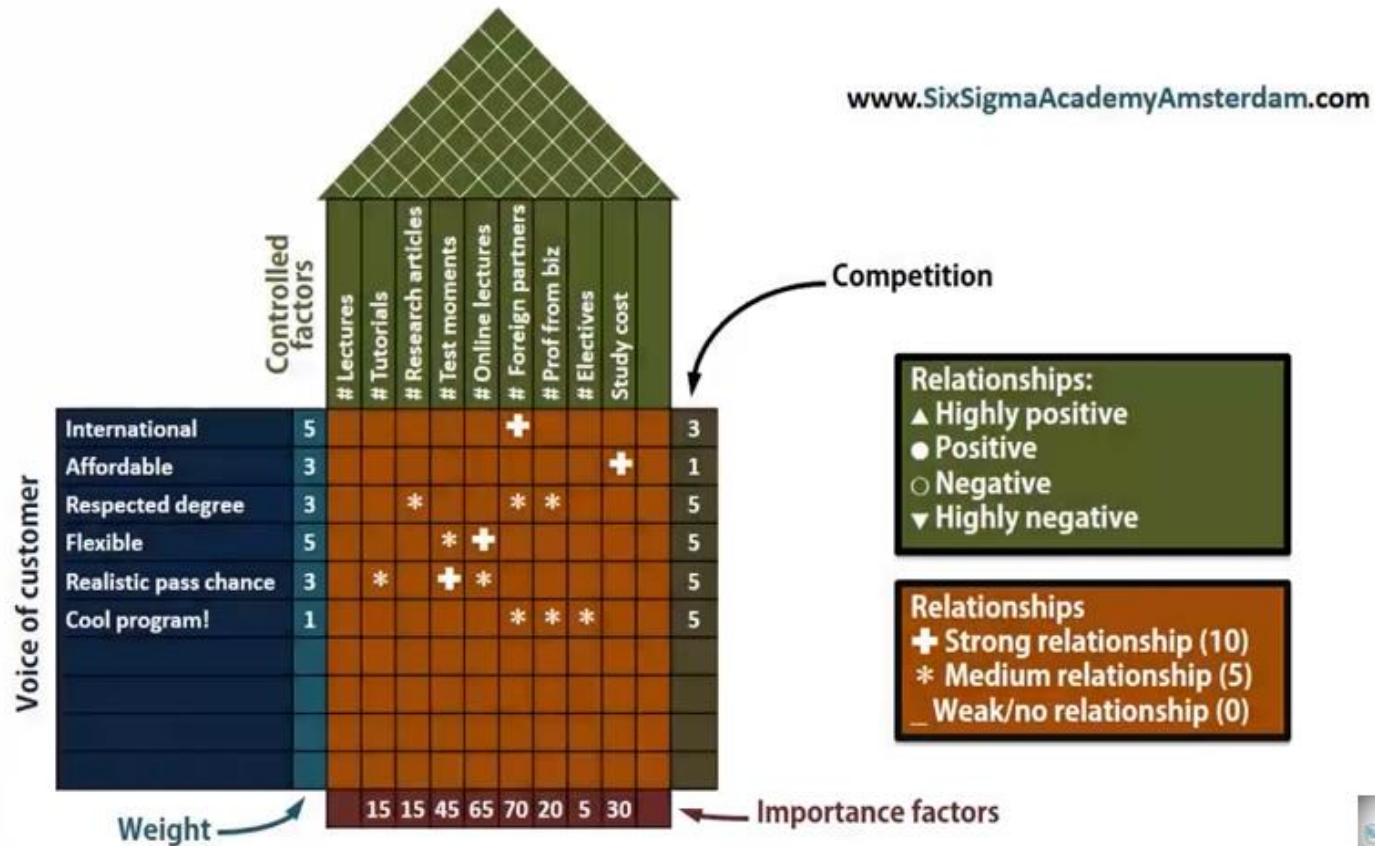
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Source : Quality-one.com, 2015

How it Works?

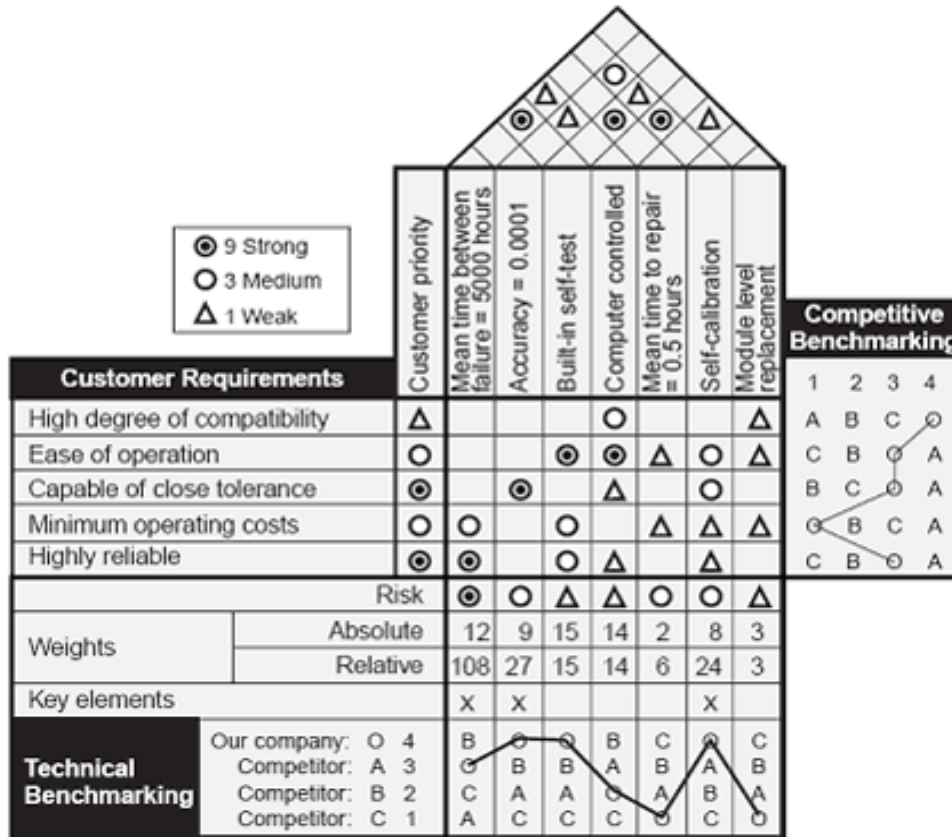
Example of designing a business administration degree in one university



Source : Six Segma Academy Amsterdam, 2019

The Core of QFD

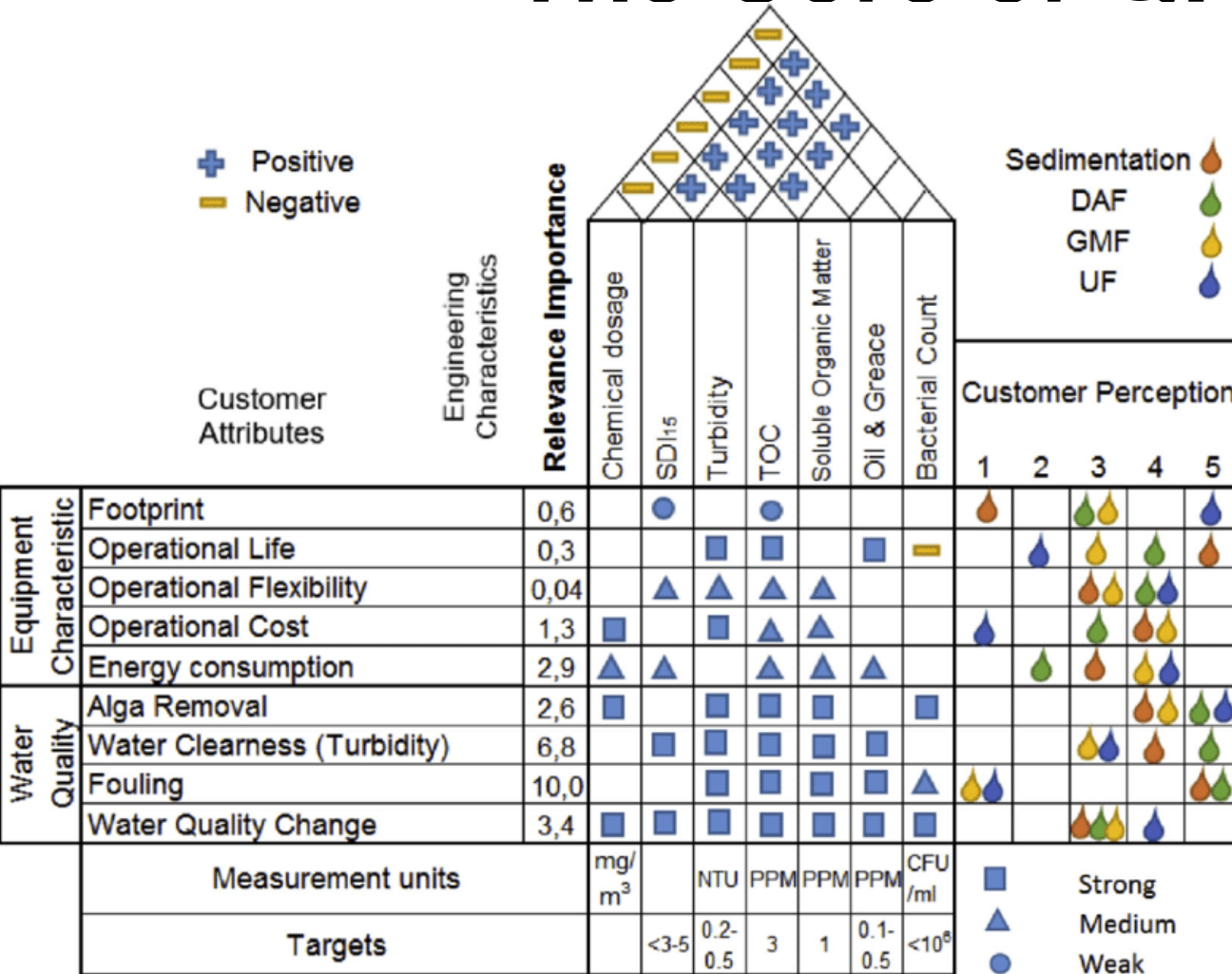
- The “House of Quality”.
- Multiple versions of House existing : no universal definition.



- Different symbols.
- Competition part is separate with 3 competitor (A,B,C).

Source: Jack B. ReVelle's, Quality Essentials, 2004

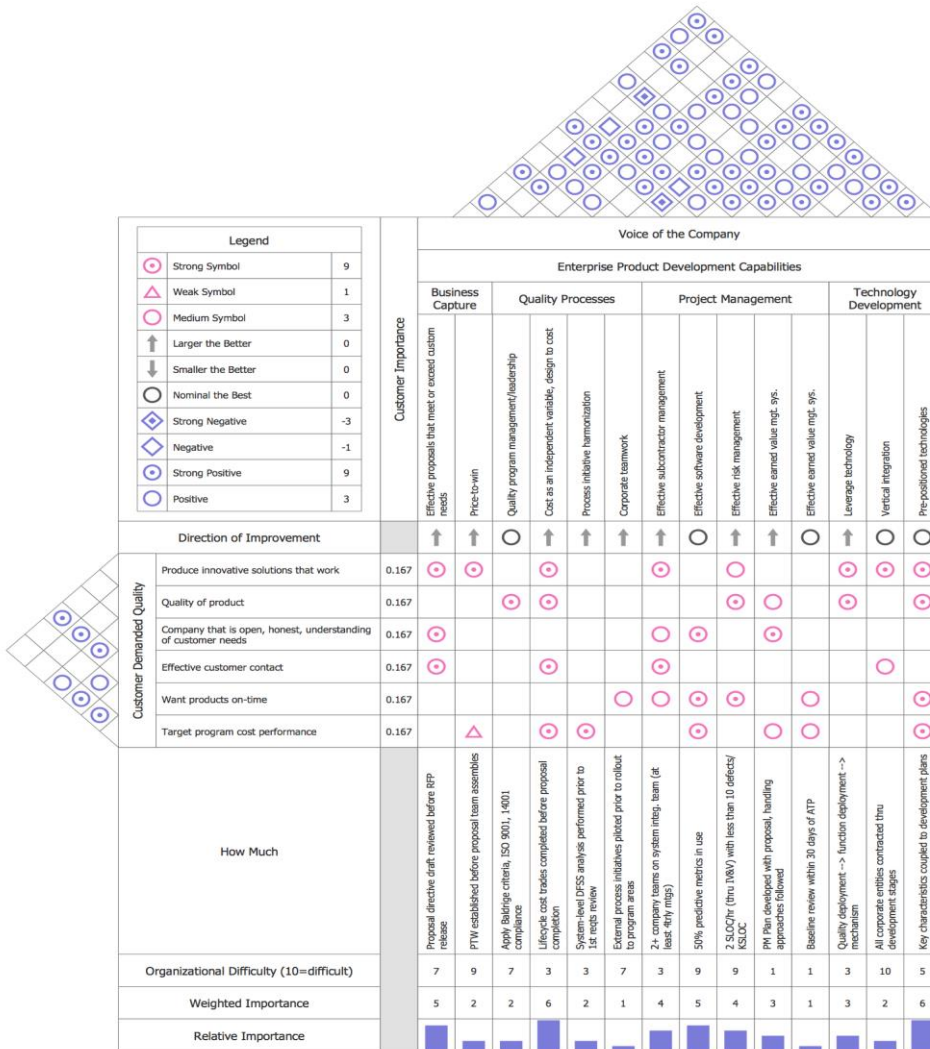
The Core of QFD



- The customers needs are separated in two parts.
- Left side represents the customer perception.

Source: Research Gate, 2017

The Core of QFD



- Roof on the « What's » to see the relation between customers needs

Source: Concept Draw, 2016

Benefits and Limits

Benefits	Limits
Continuous improvement	The qualitative nature of the method makes it more difficult
Marketing tool	Sometimes: customer needs \neq technical needs
Improves interfunctional communication	Interfunctional communication can be difficult
Better analysis of complaints	It's based mainly on qualitative data
Better understanding of the client	The need to analyse big amount of data
Focus on teamwork	Previous training
Makes an interrelation between costs and customer needs	Slowness of performing QFD analysis

Source: own processing

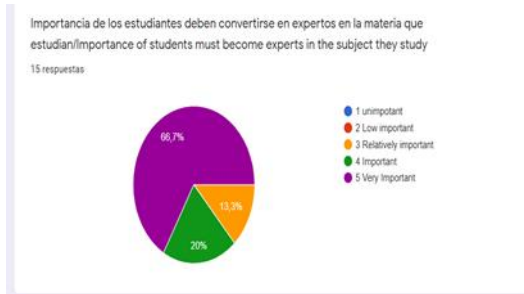
Practical example

Data collected by personal interviewes.

Three types of questions.

Sampling: Spanish Erasmus student.

We asked for student needs.



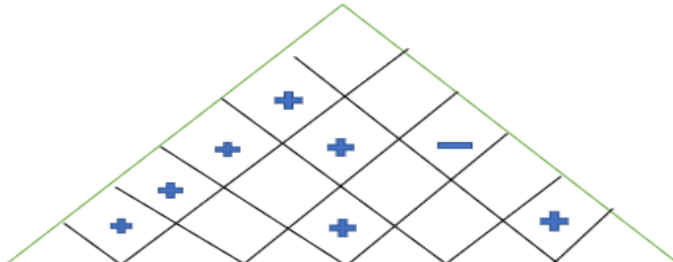
Importancia de los estudiantes deben convertirse en expertos en la materia que estudian/Importance of students must become experts in the subject they study

- 1 unimportant
- 2 Low important
- 3 Relatively important
- 4 Important
- 5 Very Important

Importancia de la relación entre tener buen equipamiento y la evaluación se base en el rendimiento del alumno/Importance of the relationship between having good

- 1 Very less related
- 3 Relatively related
- 5 Very related
- 0 Not related





Technical requirements	Customers importance/Raw value degree	Percent of customers importance	Branches must enter should be included in specialist subjects	Good technical equipment (computers, wifi)	Qualified teachers	Lessons must be focus on not only in theoretical aspects	A good library or any other type of source that provides students with the necessary resources	Human relationships	Competitive Analysis: UMU
Customers needs									
Students must become experts in the subject	5	16.6%	5	5	5	1	3		5
Evaluation should be based on performance	5	16.6%	1		5	3	3	1	4
Lessons should be in preparation for graduate and doctorate	4	13.3%	5	3	5	5	5		5
The number of students should be reduced	1	3.3%				3		3	3
Elective courses should be given	3	10%	5			5	3		1
Lessons must be practical	4	13.3%	5	5	5	5	5	3	5
Accessibility by public transport	3	10%						5	1
Have an accommodation or residence that adapts to university life	4	13.3%		5			3	5	1
Proper college parties	2	6.6%						5	4
Importance	Absolute		85	87	90	58	91	65	
	Relative		17.86%	18.28%	18.90%	12.18%	19.12%	13.65%	



Practical example

We find the customer needs by a personal interview, then we tried to find the technical requirements needs for the accomplishment of the voice of customer.

Firstly, we calculated the percent of customer importance to find the most important one for the customers, then we sum the columns of such technical requirements for the same goal.

We measure the interrelation between the technical requirements and made a comparison between another competitor. Both data are not related with the calculation, however, they would be important.

Practical example

- Legend:
 - Customer importance:
 - 1: unimportant
 - 2: Low important
 - 3: Relatively Important
 - 4: Important
 - 5: Very important
 - Interrelation of customer needs and technical requirements:
 - 1: Very least related
 - 3: Relatevely related
 - 5: Very related
 - 0: Not related

Conclusion

The most important customer needs are **“students must become experts in the subjects”** and **“Evaluation should be based on performance”**.

The most important requirement, related to the needs of students is **“a library where they can find useful information”** with a 19.12%.

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