

QFD-House of Quality-Guide for Product Development

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ABSTRACT

The QFD process and the House of Quality is one of the efficient ways to convert the customer needs to technical descriptor and technical descriptors to customer needs. This way team can convert the needs which take the things to higher level of customer delight. Japanese manufacturer are using a tool to understand and plan the product design, improve its quality and continuously working towards the customer centric approach. The House of Quality is used for planning the product's functional and physical design of various products like home appliances, consumer electronics, equipment and many other products. It has various steps which starts from customer needs to final mapping and rating the needs and technical descriptors. The process discussed is improved and applied in various projects and even repeated iteration for same project. Thus the whole QFD is designed to convert the voice of customer to voice of engineers. QFD is the systematic way to make the market need translated into engineering descriptors, and then to market specifications. This whole process of QFD and House of Quality is ensure the translation of customer needs delivering and reaching the higher level of customer delight.

Keywords: QFD, House of Quality, Product Development.

Japanese manufacturer are using a tool to understand and plan the product design, improve its quality and continuously working towards the customer centric approach. The Quality Function Deployment tool more specifically called as House of Quality is used for planning the product's functional and physical design of various products like home appliances, consumer electronics, equipment and many other products. Nowadays this tool has also started being used in various other products and services to make them more focused on the customer needs and requirements. House of Quality is thus a way or tool which develops the conceptual map to facilitate the inter-functional planning and improvise the communication. It basically focuses on the skill and resources available within the organization and their coordination. The House of quality starts its focus from design and leads finally towards marketing of goods. The core principle of House of quality is the belief that all the products and services should be developed and designed in such a manner that they completely or at least closely fit into the customer's requirement.

David Garvin Pointed out that the parameters which consume associates with quality are numerous and diverse and hence it becomes very difficult and challenging for the manufacturer to develop and manufacture such a product which incorporate these features. In an organization the organization and specially top level executives need to understand that the inter-functional team coordination has huge benefits as the results of customer survey goes to designer desk and R&D plans reached to engineers. Thus house of quality is the tool which maps the customer requirements into the technical requirement and hence leads

towards a well-designed product for customer as per customer.

House of Quality-How to Build

There are various ways and forms to build the house of quality and its adaptability towards the adoption of requirements makes it one of the most reliable and efficient tool to use. To build the house of quality the main and the prime most important thing is to focus on its convention. Though there is nothing which is very difficult or very particular about the development of house of quality, rather it is something to be learned and understand. In its widely accepted format it contains six major components including customer requirements, technical requirements, planning, and relationship matrix between the features, correlation, priorities and targets. The House of Quality takes following steps to be built for any product

1. Customer Requirements - "VOC"-“Voice of the Customer”

The initial step in a Quality Function Deployment is to finalized what market segments will be examined during the process and to ascertain who the customers are. The team then gathers information from customers about their requirements. To evaluate and understand the data collected the company usually tries to employ certain tools like Decision Tree, affinity diagrams etc. Quality Function Deployment, in design phase, ensures that customer needs are considered and understood properly. This step involves collecting and understanding the wishes, needs and wants of customer related to any product or service. It is essential and necessary step identifying potential opportunities in terms of excitement needs.

2. Mandatory Requirements

All the products at majority have certain requirements which are directed by the authorities or top management. These may be some Statuary requirements or some stringent requirements.

3. Importance

The next step includes the ratings collected by the customer on the scale of 1-5. These ratings play an integral role in the matrix building which depicts and develops the relationship between the requirements and technical features.

4. Ratings-For Competition

Competition is an integral and important component of product development, thus it has to be understood clearly. Further it is essential for product planner to understand how customer is rating the competition. This understanding plays a critical role in competitive advantage. During this phase it is very important in QFD to ask and take feedback from customer about the product and service features in comparison to competition.

5. Voice-Technical Voice- “ Engineer Voice”

In this phase the characteristics or attributes about the product or services which can be quantified against the competition. This technical specification may or may not exist in the organization but in this phase these have to be measured in a way to find that whether the product or service is meeting the needs of the customer

6. Improvement

In this phase a team has to define the way and strategy to determine the direction and scope of improvement for technical specification

7. The Relationship

The next step in the sequence is to understand the relationship between what customers wants and what are the abilities of the company to meet those specified needs. The team also has to understand and clearly project the degree of relationship between the technical attributes and customer needs. The degree of relationship is called strength, it may be weak, moderate or strong, and generally team follows the value conventions as 1, 3, and 5.

8. Organizational Capability

In this step the design attributes are rated as per the difficulty level to implement them by organization. There may be some characteristics which are in conflict with each other whereas some may support or complement with each other.

9. Compare and Target

During this phase the technical team of QFD start comparing its technical attributes with close

competitors and set the target value for each and every technical characteristics to be achieved and set as base values.

10. Roof Creation

It is the most scenic step of QFD as this develops the roof where impact and correlation is depicted among the each technical descriptor and their relation to customer need. The step provokes the team to highlight the strong negative relationships and motivate them to remove the contradictions.

11. Final Stage

In this stage the team calculates the absolute value for each of technical attributes and generates its importance. It is the multiplication of cell value and the ratings given by the customers which then sums up to full columns. This clearly indicates the best, important and least important technical attribute required to be mapped for the customer need.

Conclusion

The process discussed is improved and applied in various projects and even repeated iteration for same project. Thus the whole QFD is designed to convert the voice of customer to voice of engineers. QFD is the systematic way to make the market need translated into engineering descriptors, and then to market specifications. This whole process of QFD and House of Quality is ensure the translation of customer needs delivering and reaching the higher level of customer delight.

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