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The 'Post QFD' Crisis!

What next after QFD?

The manufacturing world has globally transitioned from detecting, controlling and assuring quality in products and services to meeting and exceeding customer expectations. The importance of listening to customers and incorporating the characteristics they specify into products has time and again been highlighted. Many including the CEO and those directly interacting with customers speak of its importance.

Undoubtedly, the customer is important in the quality value chain. Most organizations however, question whether there is a structured way of understanding customer requirements? Whether the organization can actually incorporate these needs into the products? Quality Function Deployment (QFD) does just this.

The matrix!

QFD is a systematic and structured approach that helps an organization to formulate clear action plans. These plans should essentially incorporate customer needs or alterations in the existing products or new products being developed. QFD involves the creation of a series of charts that help collate information in a simple yet comprehensive manner. This popular matrix is called 'The House of Quality'. The matrix is centered on the needs voiced by the customers.

The question...

Theoretically, QFD is a series of at least four matrices. The first matrix describes the relation between customer requirements and design requirements. While the rows are categorized based on the customer requirements, the columns are based on key performance indicators.

The second matrix has a list of the selected performance indicators from the first matrix. The team identifies product characteristics, technology, or actions that could help them improve the performance indicators.

In this manner the top features selected from the previous matrix are identified and carried over to the next for discussion and evaluation. The voice of the customer drives the entire process.

While this is technically correct, practically it is highly unlikely. Developing the first house of quality matrix takes about two days to a week. Developing the other three matrices would be a tedious job. Moreover, practical situations suggest that the first matrix by itself provides 80 to 90% of the required learning. Most organizations therefore stop the QFD process with the first matrix.



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If it is not to follow the theoretical approach, the question that haunts organizations is “What next after the first matrix?”

Experts indicate that there are several other ways, some complicated and some simple. All these are tried and proven ways to support the post QFD process. Few such approaches include:

1. Prioritize performance indicators:

A typical initial House of Quality comprises customer needs and performance indicators in the rows and columns respectively. Consider a House of Quality matrix with about 20 to 25 rows and 50 to 60 columns. Organizations need to prioritize these key performance indicators according to their importance and the business needs. Once prioritized, out of the approximately 60 performance indicators, about 15 to 20 of them are selected. Most teams instinctively decide which of these performance indicators would have a considerable impact on the overall process quality. Apart from these high priority indicators, some require just a little effort to improve process quality significantly. Such indicators are identified and worked upon along with the others.

For instance, an electrical company had listed 52 performance indicators. Apart from the prioritized performance indicators it selected one that was 43rd in the list. This issue required only a minor variation in the policy for resolving a chronic problem.

2. Delegate tasks

The selected performance indicators should be department specific as in relate to manufacturing, administration, research, designing, IT and so on. Each of these performance indicators is then allocated to an individual who would be responsible for its execution. This will reduce the onus of organizational improvement on a single individual.

Consider the case of a company that required advanced IT application for a control system in a new facility. The application required both hardware and software compatibility, which no single team in the organization could provide. To address this need the company identified a separate department for IT and allocated its responsibility to that department. By taking such a stand it justified the importance that the IT application demanded.

A typical work allocation process consists of identifying a responsible individual for each task. After identification it is important that he is briefed about the team’s expectations. This entire process can be avoided if he belongs to the initial QFD team. Being part of the QFD team he would have been present through the discussion and will hence understand the process demands better.

3. Evaluate indicators

After the performance indicators are prioritized and the right ones selected they have to be evaluated. This facilitates the next plan of action. The process of indicator evaluation can be made easy by addressing common issues that are bound to arise. Some of these could be:

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- a) Assigning the right performance indicator to the right individual.
- b) Determining the current value of the performance indicator.
- c) The desired value of the performance indicator. The desired value can be analysed using measures like process bench marking, and reverse engineering.
- d) The approach to be adopted to reach the desired value. This issue can be resolved by referring to the House of Quality matrix as well.
- e) The resources required to bring the performance indicators from their current value to a desired value.
- f) A careful estimation of the probable selling price of the product that is reengineered.

4. Analyze cost benefits

The indicator evaluations once carried out help companies make an exhaustive cost benefit analysis. Once the evaluation is complete, each of the columns produces a cumulative number at the bottom of the matrix. These cumulative numbers could be interpreted in terms of value adding points. The degree of this number will directly reflect upon the cost benefits that could be achieved by improving the performance indicator.

The ratio of the benefit and the concerned costs incurred make a perfect cost benefit analysis. The development team can make an analysis based on the transaction currency used so that the results are evident both for the development team and the company. This will aid the team in making logical tradeoffs between various kinds of performance indicators enlisted.

For instance, consider the case of a matrix that has several performance indicators enlisted. In one such cost benefit analysis of performance indicators ‘X’ and ‘Y’ revealed the following figures

	X	Y
Value adding points	8000	1500
Costs incurred	4 million	500k
Time period	2 years	6 months

It is interesting to note that the indicator ‘Y’ ranks way down the priority list. The analysis provided the team comparable characteristics, based on which the tradeoffs could be decided. Merely considering the benefit point would have misled the team. The time period required also provided the team with a clear distinction between the issues to be addressed first.

Consider the case of a manufacturer producing equipment for medicinal purposes. Based on the cost benefit analysis, the manufacturer could easily distinguish between indicators that are to be addressed immediately and those that involve long time period. Based on this they could strategically plan their research and development process. They chalked out a plan to launch their product in three different phases with each one having advanced features in the second and third versions.



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Stay focused!

QFD is undeniably a complex and time-consuming process. Stopping at the first house of quality and following any of the above-mentioned approaches to sustain and improve the quality further is justified. After the implementation of QFD and creating the first house of quality, the task of the employees is evident. Therefore, they need to adopt the approach they have been following with the same enthusiasm as they had in the initial stages of the deployment.