

Why we need matrices in QFD

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ABSTRACT

Why we need Matrices in QFD.

When QFD was born, the House of Quality (HoQ) as a tool was an important integral part of using QFD. The HoQ was derived from the “fish-bone” diagram, which was one of the most important “new 7 tools” to identify all potential factors causing one effect.

Sometimes, the meaning of QFD was identical to the HoQ and reverse.

Over the past years, especially the matrices inside of the HoQ became criticized regarding of:

- time consuming in handling large matrices.
- Wrong input = expensive wrong results.
- Calculation issues regarding the summaries.
- No acceptance from the R&D departments (no new findings).
- Coming up were new approaches of QFD without using matrices like “Blitz-QFD” (Richard Zultner)

But in the last couple of years, there is a revival of the QFD matrices. Especially shown in companies, using QFD for more than a decade.

Reasons for this is:

- R&D complaints regarding increasing and complicated dependencies of different Customer Requirements (C.R.) to all different technical features. They are looking for a method, which are able to handle these dependencies and deploy it.
- By an improvement of the technical features, the positive or the negative influences to the technical features are unknown in the early stage of development.
- To solve the negative influence (conflicts, contradictions) later on is very expensive, time consuming and, if detected only at the customer side, it damages the image.
- The request today to develop new, innovative products and the upcoming of new tools like TRIZ now offers QFD to address contradictions and to be open for inventive products.
- The handling of large matrices was improved by new techniques.
- The teams are able to “read” the matrices (like a picture) and are not relying on “math” numbers.

The paper will demonstrate three different matrices inside of the House of Quality:

1. The new QFD-Q-Plan to detect the most important Customer Requirements and why are they important, including the contradictions in regard of a wrong input.
2. The matrix between C.R. and Technical Features only to find out the “bottle necks” and the need of new ideas (no compromises), if improvement is requested.

3. A new approach to calculate the degree of dependencies between the importance weights in the new QFD-Q-Plan by using the Mahalanobis-Metric.

The paper will discuss in various case studies the experiences, the acceptance in marketing and R&D and the success of the products by using matrices. But it also includes these open questions, which are still left.