House of Quality Analysis for a Notebook

Pedro Alonso Condessa and Murillo Stein

November 27, 2023

Abstract

The House of Quality is a powerful tool used in Quality Function Deployment (QFD) to systematically translate customer requirements into product characteristics. This document presents a House of Quality analysis for a Notebook computer, including the prioritization of functional characteristics based on customer requirements and the calculation of priority values using QFD methods.

1 Introduction

The House of Quality is a fundamental concept in Quality Function Deployment (QFD) that allows organizations to align their product development process with customer requirements. In this analysis, we will examine the House of Quality for a Notebook computer, focusing on Customer Requirements (CR), Functional Characteristics (FC), their interactions, priority weights, and calculated priority values.

2 House of Quality Matrix

The House of Quality matrix is a visual representation of the relationship between Customer Requirements and Functional Characteristics. The matrix below illustrates this relationship, including priority weights and calculated priority values.

Customer Requirements (CR)	Processor Speed	Weight	Battery Capacity	Material Quality	Cost of Production	Priority Weights
Performance	9	2	5	3	4	0.30
Portability	2	9	3	4	2	0.20
Battery Life	3	1	9	2	5	0.25
Durability	4	5	2	9	3	0.15
Affordability	5	3	4	6	9	0.10
Priority Values	4.7	3.7	5.05	4.35	4	-

The values in the table represent the level of dependency between each Functional Characteristic (FC) and Customer Requirement (CR). For instance, "Processor Speed" (an FC) highly depends on "Performance" (a CR), so we have a value of 9 in the corresponding cell.

3 Calculating Priority Values

The priority values for each Functional Characteristic (FC) are calculated using the QFD method:

$$\text{Priority of FC} = \sum_{\text{all CR}} (\text{Value of interaction between FC and CR} \times \text{Weight of CR}) \tag{1}$$

In this equation, we sum the products of the value of interaction between FC and CR and the weight of CR for all Customer Requirements to determine the priority of the Functional Characteristic.

4 Conclusion

The House of Quality analysis provides a structured approach to prioritize functional characteristics based on customer requirements. In our analysis of the Notebook computer, we have identified the priority values for each Functional Characteristic, which can guide product development efforts. This information helps ensure that the product aligns with customer expectations and market demands.

By using the House of Quality, businesses can systematically translate customer needs into actionable steps for product design and development, ultimately leading to more customer-centric and successful products.