

DEVELOPMENT OF A WEB APPLICATION FOR AUTOMATING THE QUALITY FUNCTION DEPLOYMENT (QFD) PROCESS

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In today's competitive environment and high consumer demands for product quality, technologies that effectively transform customer needs into product specifications are gaining importance. One of the key methods used by Mitsubishi back in 1972 [1] is Quality Function Deployment (QFD). This method provides a systematic approach to quality planning at all stages of the product life cycle, contributing to the creation of a competitive, consumer-oriented product.

The software implementation of this method in the form of a web application will simplify the QFD process, provide quick access to data and convenient visualization of results, which will improve the final quality of products.

To implement the client part of the application, React.js was chosen in combination with the Material UI component library. This combination allowed us to create pages with an attractive design and dynamically updated content, which is critically important for building a matrix. After all, its structure involves constant changes as a result of user decisions and actions. The Node.js platform is responsible for the functioning of the server side. It allows you to extend the functionality by installing and integrating various tools, including Prisma ORM for working with databases.

Working with the web application involves the gradual passage of eight stages of planning a new product within the framework of the quality function deployment technology. After creating an account and logging into the system, the user creates a new product project, adds customer requirements, assigns them an importance rating, and also enters the corresponding technical specifications. After that, the system automatically generates a QFD matrix.

Having opened a project from the list of available ones, the user can interact with the QFD model. By clicking on the corresponding cells and selecting options from the list, he can assess the relationship between customer needs and technical requirements, fill in the correlation matrix of technical requirements. Based on the entered data, the system will automatically calculate the importance rating for each technical requirement. The user can also add a competitor study and assess the competitiveness of his own project.

To analyze the results, a visual representation of the distribution of customer requirements, the importance rating of technical requirements, and comparative analysis by criteria in the form of diagrams is available. The system provides the user with access to a separate page with step-by-step instructions for working with QFD.s.

References:

1. Менеджмент якості в аспекті конкурентоспроможності об'єктів : навч. посібник / М. П. Грінченко, О. В. Лобач, М. А. Гринченко; за ред. проф. І. В. Кононенка. – Харків : НТУ «ХПІ», 2016. – 144 с.