



IMPLEMENTATION OF QUALITY FUNCTION DEPLOYMENT ON E-BEKAL AS CASHLESS PAYMENT TO ENHANCE THE QUALITY OF BOARDING SCHOOL SERVICES

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Abstract:

This research aims to determine the attributes of the E-Bekal application for students to determine the level of satisfaction of students and guardians of students using the Quality Function Deployment (QFD) method. This research uses a qualitative approach through interviews and observations to obtain technical parameter data. Furthermore, the information data on the attributes of the E-Bekal service obtained from the students and the students' guardians was analyzed using the Quality Function Deployment (QFD) model and the House of Quality (HOQ) matrix. The results of this research explain that there are priorities for developing and improving E-Bekal, namely: 1. Integration with Islamic boarding school financial systems, 2. Detailed and accurate transaction recording, 3. Implementation of strong security protocols, 4. Real-Time Transaction Notifications and Confirmations, 5. Using various commonly used payment methods. 6. Development of the NJ santri e-supply application. Penelitian ini bertujuan untuk mengetahui atribut-atribut aplikasi E-Bekal santri untuk mengetahui tingkat kepuasan santri dan wali santri dengan menggunakan metode *Quality Function Deployment (QFD)*. Penelitian ini menggunakan pendekatan kualitatif melalui wawancara dan observasi untuk mendapatkan data parameter Teknik. Selanjutnya data informasi atribut pelayanan E-Bekal yang diperoleh dari santri dan wali santri dianalisis dengan menggunakan model *Quality Function Deployment (QFD)* dan matrix *House of Quality (HOQ)*. Hasil dari penelitian ini menjelaskan bahwa terdapat prioritas pengembangan dan perbaikan E-bekal adalah sebagai berikut: 1. Integrasi dengan sistem keuangan pesantren, 2. Pencatatan transaksi secara rinci dan akurat, 3. Implementasi Protokol keamanan yang kuat, 4. Notifikasi dan Konfirmasi Transaksi secara Real-Time, 5. Memakai Berbagai Metode Pembayaran yang umum digunakan. 6. Pengembangan aplikasi e-bekal santri NJ

Keywords: *Quality Fuction Deployment, Cashless Payment, Pesantren*

INTRODUCTION

In its development, Islamic boarding schools have demonstrated adaptability to the changing times by integrating technology (Chotimah et al., 2023), such as using the internet for information access, remote monitoring, and more. The advancement in technology opens opportunities to develop more efficient and modern payment systems (Subagiyo, 2019), including the use of non-cash or cashless payment methods.

E-Bekal is a cashless payment concept developed specifically for the needs of Nurul Jadid Islamic Boarding School (Hamzah et al., 2019). Utilizing information and communication technology, E-Bekal aims to simplify and enhance the efficiency of

financial management in the boarding school (Rizal et al., 2021) while providing convenience to students and parents.

Technological progress also has a significant impact on economic development, involving various parties, including Islamic boarding schools (Hafid, 2021). Boarding schools need to adapt to technological and informational advancements to progress economically in line with the times. As an example, Nurul Jadid Islamic Boarding School initiates the Card E-Bekal NJ program to meet the demands of the modern era (Syarifah, 2023). This program is designed to help students easily access services provided at the boarding school. Specifically, Nurul Jadid Islamic Boarding School introduces the electronic payment transaction function called E-Bekal as part of its solution (Saifuddin, 2023). In practice, the development of this electronic money product has positively contributed to facilitating financial transactions for students.

Furthermore, E-Bekal also plays a role in controlling students' expenses. Lailatus Syarifah explains that E-Bekal has a constructive and significant impact on controlling student spending, with an influence of 83.7%. This indicates that the presence of E-Bekal can increase students' buying interest and meet their daily needs.

According to Hamzah, strengthening the economy of boarding schools through the digitization of business units with the presence of E-Bekal consistently contributes. Additionally, using E-Bekal facilitates the cooperative members financially, contributing income to the boarding school in the region. This research also describes the Parents' Cooperative providing necessities for students in the Az-Zainiyah area, supporting daily needs and infrastructure at the boarding school (Hamzah, 2019).

The E-Bekal program also makes it easier for parents to control students' finances. The program helps minimize cases of lost money (theft/missing savings) within Nurul Jadid Islamic Boarding School. The establishment of the E-Bekal Program is a response from the boarding school to the input from parents, providing ease for them and minimizing negative aspects in managing student expenses in the millennial era through modern technology (Rizal, 2021).

Currently, attention to customer satisfaction and loyalty is growing (FoEH & Niha, 2022). Complex needs, especially in boarding school services, lead to various efforts to meet the needs and desires of students and their parents as customers. Each service needs to focus on customer satisfaction and loyalty. The method used can involve providing value and satisfaction to customers through service quality and technology usage. If customers are satisfied with the provided service quality and technology, it can create commitment to the boarding school service. However, if customer satisfaction decreases, improvement efforts are needed.

Therefore, in the continuous improvement effort for E-Bekal Education services, Nurul Jadid Islamic Boarding School requires a consistent and sustainable process of improvement, planning, and enhancement of academic services oriented towards customer satisfaction (customer satisfaction). One method for planning quality improvement that adheres to these principles is the implementation of the Quality Function Deployment (QFD) method. QFD is a customer-oriented quality improvement method that identifies the Voice of Customers (VOC) used as the main input in creating the House of Quality (HOQ). The application of the QFD Method to E-Bekal is expected to greatly assist the management in carrying out the quality functions of the boarding school service to students and their parents. This research is also expected to provide quality characteristics that will serve as a reference for all management and educational processes at Nurul Jadid Islamic Boarding School.

RESEARCH METHODS

The data collection method in this research involves using questionnaires distributed to students in the boarding school and parents of students through both offline and online communication. Additionally, interviews are conducted as a method of interactive discussion with the management of the E-Bekal program, specifically regarding responses or feedback that will be utilized for quality improvement efforts within the E-Bekal service at Pondok Pesantren Nurul Jadid. The data processing

method employed is Quality Function Deployment (QFD), serving as an approach to enhance the quality of services at Pondok Pesantren Nurul Jadid.

RESULTS AND DISCUSSION

The priority of attributes based on the level of importance for each attribute of the E-Bekal service for students is presented in Table 1. This order indicates what aspects are prioritized and most crucial for students and parents towards the types of service attributes obtained at Pondok Pesantren Nurul Jadid. If the Importance Level values are the same for one or more E-Bekal service attributes, the order of importance is assigned the same number. This is based on the assumption that these E-Bekal service attributes are equally important to both students and parents.

Data on gaps and expectations received by students are needed to determine priority attention to the educational service attributes expected to be improved. The gap value is the difference between the received value and the expected value. The detailed conditions of the gap for each E-Bekal service attribute at Pondok Pesantren Nurul Jadid can be seen in Table 2.

The stages that can be undertaken to design improvements in the quality of E-Bekal services for students at Pondok Pesantren Nurul Jadid are as follows: Formulating customer desires through technical parameter interactions using Voice of Customer (Whats) and List of Technical Responses (Hows). This research combines the House of Quality (HoQ) and Quality Function Deployment (QFD) methods; therefore, the author compiles service attributes into the Voice of Customer (matrix Whats) and the List of Technical Responses (Hows).

Table 2. Interaction of Consumer Desires with Technical Parameters

Kebutuhan "What"	Technical "How"	Integrasi dengan sistem keuangan pesantren	Pencatatan transaksi secara rinci dan akurat	Implementasi Protokol keamanan yang kuat	Notifikasi dan Konfirmasi Transaksi secara Real-Time	Memakai Berbagai Metode Pembayaran yang umum digunakan	Pengembangan aplikasi e-bekal santri NJ
Integration with the financial system		○					
Recording transactions and financial history			●				
Transaction security			○	○			
Transaction Notifications and Confirmations				●	●		
Support for Various Payment Methods		●				○	
Ease of Use							●

Matrix Korelasi (Correlation Matrix), In this matrix section is where the term House Of Quality originated, as it resembles a house with a roof. The correlation matrix

may be the least used in HOQ, but this space is very helpful for designers in the next phase of a comprehensive QFD project. By establishing relationships between "HOW" items. As shown in the table below:

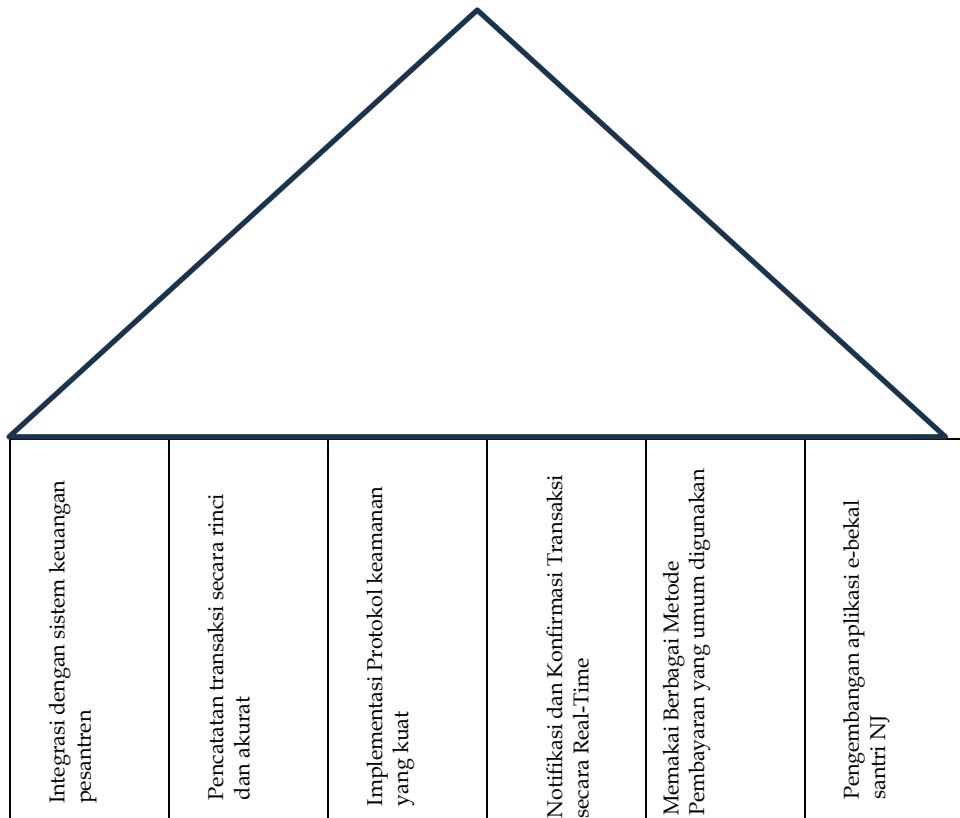


Figure 2: Discovering the Correlation Matrix

Calculation of Customer Satisfaction Performance Value, Customer Satisfaction Performance is the assessment of satisfaction from parents and students regarding how well the products provided by Pondok Pesantren Nurul Jadid are and will serve as a reference in the development of desired customer service products. This Customer Satisfaction Performance is obtained based on the results of interviews with students and their parents at Pondok Pesantren Nurul Jadid. The interview results can be seen in table 4.2 as follows

Tabel 3
Customer Satisfaction Performance

No	Service attributes	Customer Satisfaction Performance		
		Performance		
		Number of Respondents	Total Respondent Answers	Average
1	Integration with financial system	20	75	3,75
2	Transaction recording and financial history	20	80	4
3	Transaction security	20	75	3,75
4	Transaction notifications and confirmations	20	80	4

5	Support for various payment methods	20	90	4,5
6	Ease of use of the e-supply application	20	100	5

Importance To Customer, Importance to customer contains information about the products prioritized by customers. Data on Importance to Customer is obtained from the ranking of customer satisfaction performance. The results can be seen in table 4.3 as follows:

Table 4
Priority Order of E-Bekal Service Attributes

No	Service attributes	Customer Satisfaction Performance	Urutan Prioritas
1	Integration with the Pesantren financial system	3,75	6
2	Transaction recording and financial history	4	4
3	Transaction security	3,75	2
4	Transaction notification and confirmation	4	3
5	Support for various payment methods	4,5	5
6	Ease of use of the e-supply application	5	1

Determination of Goals. In this study, the goal values range from 1 to 5, representing the highest values on the measurement scale used (Likert scale). These values are obtained after discussions with the students and their parents. This is because the goal value is an achievement set as a benchmark for the success of the design improvement efforts for the vegetable and grass waste chopper machine product.

Table 5
Determination of Goals

No	Service attributes	Goal
1	Integration with the Pesantren financial system	5
2	Transaction recording and financial history	4
3	Transaction security	5
4	Transaction notification and confirmation	4
5	Support for various payment methods	4
6	Ease of use of the e-supply application	5

Calculation of Improvement Ratio, The improvement ratio value indicates a measure of the effort made by the admin in improving each customer needs variable. The

method used in calculating this improvement ratio value is by comparing the target value of customer satisfaction to be achieved. The calculation of the improvement ratio can be formulated as follows:

$$IR = \frac{\text{Goal}}{\text{Customer satisfaction performance}}$$

Table 6
Improvement Ratio

No	Service attributes	Improvement Ratio
1	Integration with the Pesantren financial system	1,33
2	Transaction recording and financial history	1
3	Transaction security	1
4	Transaction notification and confirmation	1
5	Support for various payment methods	0,88
6	Ease of use of the e-supply application	1

From the results of the House of Quality (HOQ) matrix research above, the desires of students and parents in the form of service attributes are translated into technical language by university management in the form of technical parameters. The following is a discussion of the results of the implementation of Quality Function Deployment (QFD) research in an effort to improve the quality of the E-Bekal Santri NJ service at Pondok Pesantren Nurul Jadid using the House of Quality matrix:

Degree of Importance of Service Attributes, Based on the questionnaire results, there are 6 service attributes that are very important, including: ease of using the E-Bekal application, transaction security, transaction notification and confirmation, transaction recording and financial history, support for various payment methods, and integration with the Pesantren financial system.

Matrix of Customer Wishes and Technical Parameters, Technical parameters are translations of customer desires into a development language by university management. Out of 17 student and parent desire/expectation attributes, the management has determined 6 types of technical parameters. These technical parameters are considered sufficient to improve services according to the desires of students at Pondok Pesantren Nurul Jadid. The relationship between student desires and technical parameters is strong and moderate. For example, a strong relationship occurs between the transaction security attribute (attribute 3) and technical parameters 2 and 3. This is because detailed and accurate transaction recording is crucial to ensure accurate tracking of every financial activity. When transactions are recorded in detail, it not only facilitates financial monitoring and analysis but also serves as a foundation for the effective implementation of security protocols. The implementation of strong security protocols, such as data encryption and dual authentication, provides the necessary protection layers to safeguard recorded financial information. Transaction security is essential because through this process, sensitive data including payment details and personal financial information can be well-protected. Thus, a good correlation between transaction security, detailed transaction recording, and the implementation of strong security protocols can create a secure, efficient, and reliable electronic payment ecosystem for all users.

Target Values, Target values for each service attribute are given points 4 and 5 so

that services can be provided well, even exceptionally well.

Improvement Ratio Values, For comprehensive improvements based on the above improvement ratios, values above 1 are for: integration with the Pesantren financial system and implementation of account and transaction security.

CONCLUSION

The development of the quality of pesantren services through E-Bekal for students at Pondok Pesantren Nurul Jadid, using the Quality Function Deployment (QFD) method, is conducted by examining the desires of students and parents (Voice of Customer - VOC) and translating them into technical language (technical characteristics). After data processing and discussion in the research, several conclusions can be drawn:

Several service attributes needed by the E-Bekal admin, based on the QFD method, include 6 desired attributes for students and parents: ease of using the E-Bekal application, transaction security, transaction notifications and confirmations, transaction recording and financial history, support for various payment methods, and integration with the pesantren's financial system.

Several E-Bekal techniques for students at Pondok Pesantren Nurul Jadid in improving the quality of pesantren services are: 1. Integration with the pesantren's financial system, 2. Detailed and accurate transaction recording, 3. Implementation of a strong security protocol, 4. Real-time transaction notifications and confirmations, 5. Use of various commonly used payment methods, 6. Development of the E-Bekal application for NJ students.

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