
HOW TO MEASURE CLIENT SATISFACTION WITH SERVQUAL MODEL APPLICATION: A CASE STUDY FROM PT. SARHIF BROTHER

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Abstract

This study aims to analyze and develop an information system for service quality and client satisfaction at PT. Sarhif Brother, which still uses manual methods for service evaluation, assessment, and questionnaire distribution. The process of developing the information system follows the waterfall model, which includes system requirement analysis, system modeling through context diagram, data flow diagram, and entity relationship diagram. The system implementation uses PHP programming language and MySQL as the database management. The service quality measurement analysis uses the servqual model. The system testing uses blackbox testing, while the system evaluation is based on a questionnaire with data processing and measurement using Likert scale. Based on the case study, the system can display the total table, average table, improvement suggestions, and service quality calculation results quickly.

Keywords: Information system - service quality - client satisfaction - Seroquel model

Introduction

Each company basically has a motive to achieve big profits (Abdullah, 2017), but the general trend is corporate often ignore the value of assets from customers or clients (Khadka & Soniya, 2017), which has an important role, namely helping the company's business and sustainability to achieve these goals, so that with this neglect the attention and service to clients is reduced. But over time service quality has become an important topic and discussion given its significant correlation with profits, cost savings and market share (Merkert & Assaf, 2015; Talluri et al., 2013). The service sector of the manufacturing industry is no exception, however, there is a growing consensus that client satisfaction is an important indicator of service quality and many companies are looking for ways to transform client service and maintenance through their quality improvement initiatives. (Al-Damen, 2017). But of course to be able to provide superior quality of service is a process that is not easy to realize, an important process that must be built by the organization is a process for clients and every managerial level in the company must pay attention to understanding the behavior of consumers who use their services. How consumers perceive and how consumers evaluate services is an important input in the process of building superior service quality (Emerson, E. McGill & Mansell, 1994).

This could have happened to PT. Sarhif Brothers (SHB) as a company engaged in the sale and marketing of agricultural and plantation products, especially coffee and pepper black in Kotabumi North Lampung, where if the company only focuses on fulfilling mass demand and distribution of agricultural commodities without being accompanied by handling media for service evaluation and maintenance of distributors or clients, what happens is that there is no increase in the amount of production due to decreased product demand from distributors for the lack of interest from end users. Based on observational studies and interviews conducted by the author, PT. Sarhif Brother in analyzing service quality on client satisfaction is still done manually using Ms. Excel. By referring to these problems, the authors find opportunities that can be offered for handling client satisfaction and the impact of computerized service quality that can be applied to PT. Sarhif Brother. Based on the description above, this study aims to analyze and design a servqual-based client satisfaction information system with a case study at PT. Sarhif Brother so as to produce an analysis information system prototype to determine the factors or dimensions of service quality that have an influence on the level of client expectations with reference to the dimensions of servqual service quality..

Literature Review

Information Systems

An information system is a system within an organization that meets the needs of daily transaction processing, supports operations, is managerial and strategic activities of an organization, and provides certain external parties with the necessary reports. (Jogiyanto, 2005: 11)

Service quality

Service is one of the main activities at PT. Sarhif Brothers as a measure of success.

According to Ratminto and Winarsih (2007: 2): Service is an activity or series of activities that are invisible that occur as a result of interactions between consumers and employees or other things provided by service-providing companies that are intended to solve consumer problems or customer

Customer satisfaction

Very tight business competition is required to win the competition, namely business actors in various fields must be able to provide satisfaction to their customers, by providing products that are of better quality, lower prices, faster product delivery and better service than their competitors.

According to Sedarmayanti (2009: 264) Customer satisfaction is the level of one's feelings after comparing the performance (results) that are felt in accordance with their expectations. The level of satisfaction is a function of the difference between perceived performance and expectations

Research Methodology

The method used in this study is a qualitative approach, in which the researcher seeks to understand social phenomena in depth and holistically by being directly involved with the subject and research context and being flexible and open to changing or adjusting the research design based on new findings that arise during the research process, by emphasizes meaning, interpretation, and subjective experience (Aspers & Corte, 2021). Data analysis techniques through a qualitative approach are carried out through interviews to collect detailed information and offer insights from the feelings and opinions of the participants (Mwita, 2022), especially the nature of the variables studied. The variables in this study are independent variables (service quality of PT. Sarhif Brother) and dependent (client satisfaction of PT. Sarhif Brother). In evaluating the built system prototype, usability testing was carried out using a simple regression method, namely a quantitated qualitative approach (Sugiyono, 2014) through distributing questionnaires with variable measurement data processing techniques using a Likert scale.

The research stage is a series of processes or stages that are carried out in conducting research (Gelling, 2015). The stages in this study can be seen in Figure 1. In determining the factors (dimensions) of service quality in the form of a client satisfaction questionnaire using the Service Quality (Servqual) model which the service quality (Servqual) model has five dimensions of service quality that affect client satisfaction, including: Tangibles Dimension, Responsiveness Dimension, Assurance Dimension, Emphaty Dimension, and Realibility Dimension. Meanwhile, the dependent variable is the dimension of client satisfaction. The design of this questionnaire statement refers to the Parasuraman Zeithaml Berry method. The design of statements on the client satisfaction questionnaire can be seen in Table 1 below:

Table 1. Questionnaire Statement Design

Determinant		Statement
Tangibles	1	PT. Sarhif Brother has a good and sufficient fleet to distribute products
	2	PT. Sarhif Brother has good supporting facilities, such as a Hotline for orders and complaints.

	3	PT. Sarhif Brother is always equipped with visually appealing materials related to its services, such as related to its services, such as brochures or catalogs.
Realibility	4	If the company promises to do something at a specified time, they will keep their promise, such as the delivery time of goods delivery.
	5	If a client has a problem, the company will genuinely help solve it, such as returned goods and payment of accounts receivable.
	6	The company delivers its services right from the start
	7	The company provides its services according to the time promised time.
	8	The company always seeks solutions for its clients.
Responsiveness	9	The company informs its clients when the ordered goods will be will be delivered.
	10	The company provides prompt service to its clients.
	11	The company always tries to help its clients, such as in ordering and shipping ordering and delivery.
	12	The company will never ignore a response from its clients, such as delivery complaints, return complaints, orders, and bonuses.
Assurance	13	The behavior of the company's employees and management is able to make its clients trust them clients to trust them.
	14	The company's clients feel safe in their transactions.
	15	The company's employees and management are consistently polite to clients.
	16	The company's staff and management have sufficient knowledge to to answer questions.
Emphaty	17	The company always pays good attention to its clients.
	18	The company always puts its clients' interests first.
	19	The company always understands the needs of its clients.

Result and Discussion

Overview The conceptual analysis of system design on the service analysis information system and client satisfaction of PT Sahrif Brother can be seen in Figure 1 below.

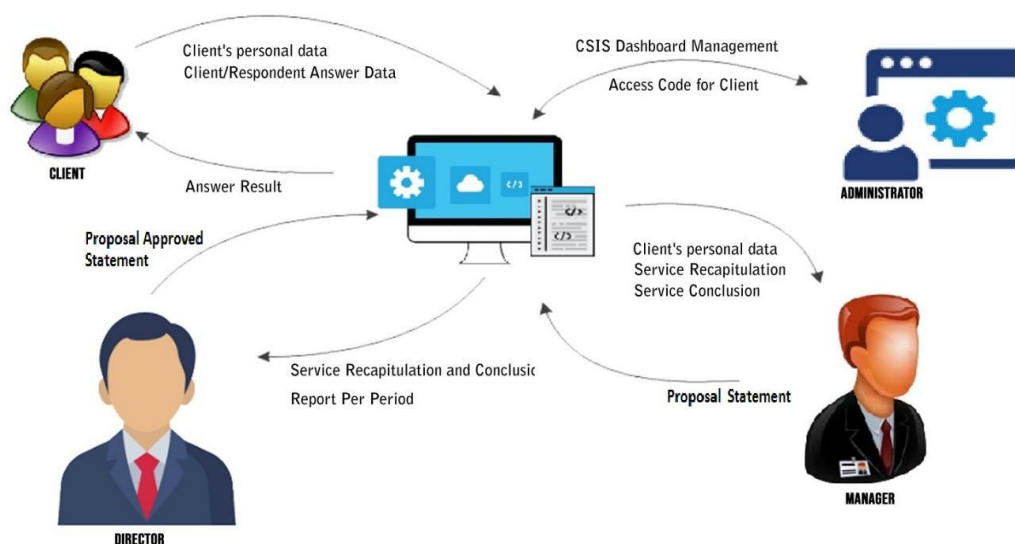


Figure 1. Conceptual Model

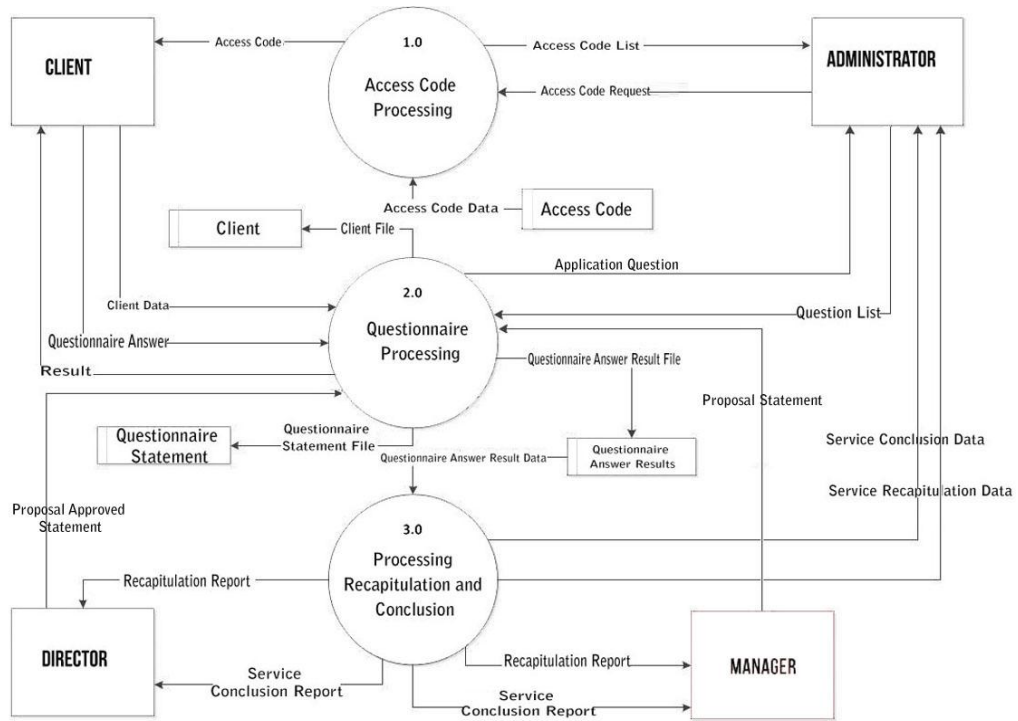


Figure 2. DFD Level 0 CSIS

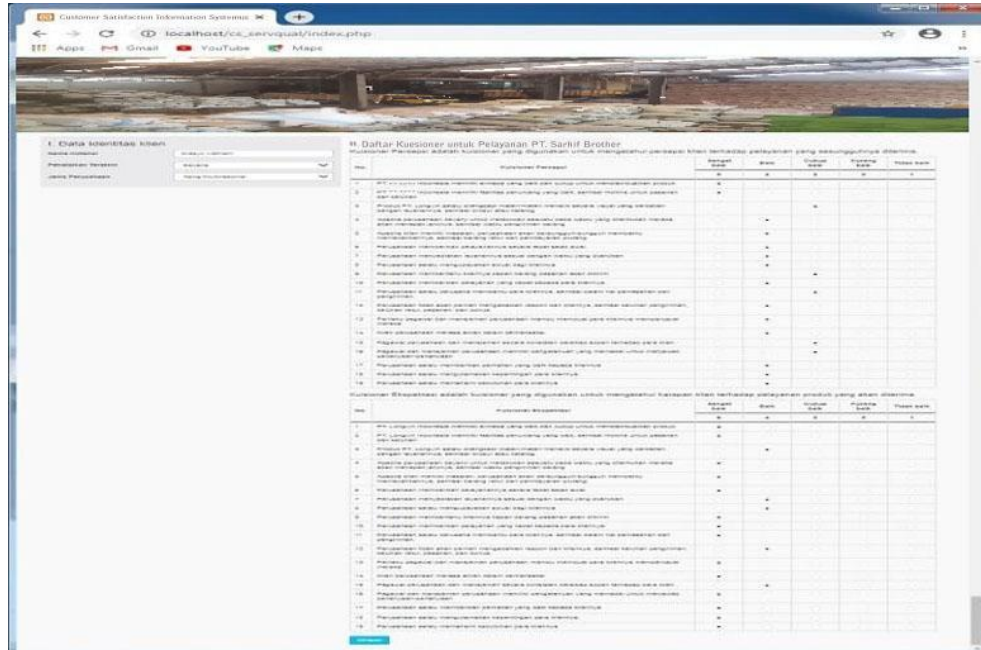


Figure 3. Client Questionnaire

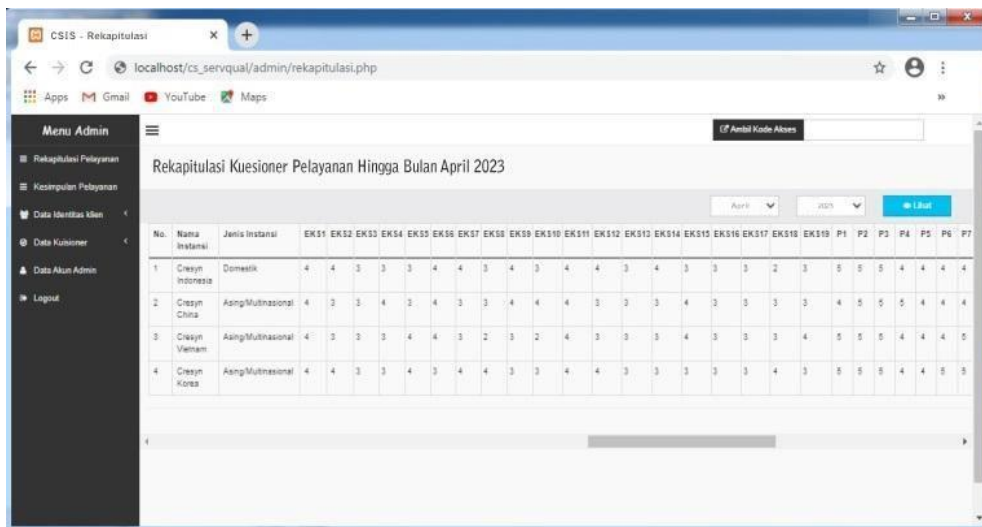


Figure 4. Service Questionnaire Recapitulation

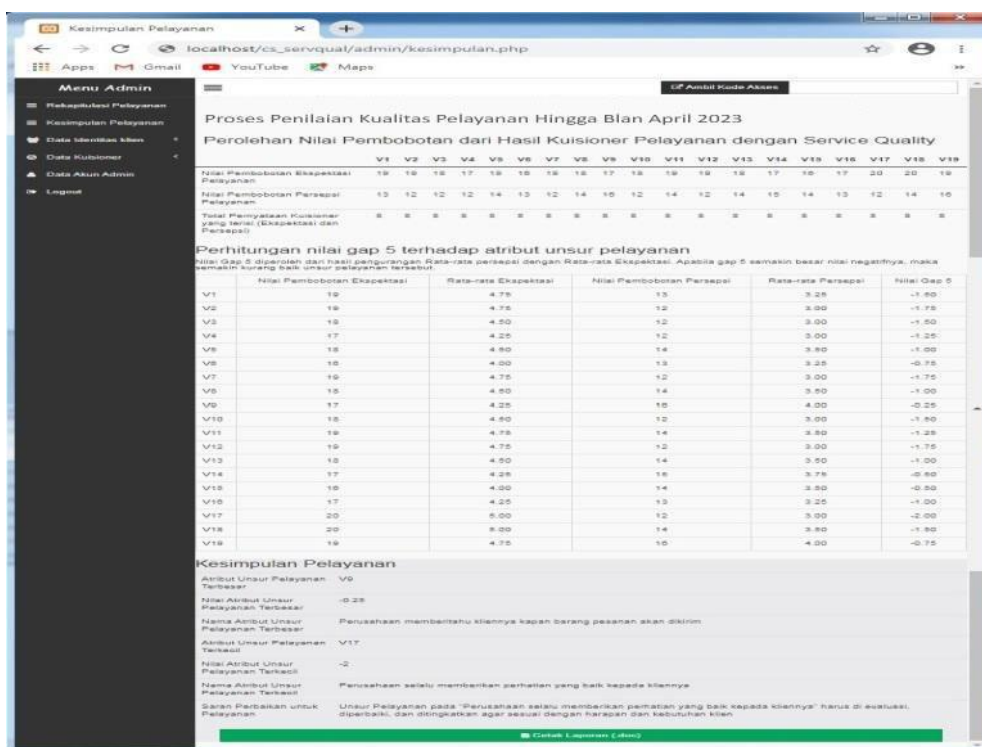


Figure 5. Summary of Service Results

Conclusion

Research in determining variables for data processing through analytical techniques with a qualitative approach is carried out through interviews, especially the nature of the variables studied, namely the independent variable (service quality) and the dependent variable (client satisfaction). The approach through analysis of service quality to client satisfaction is still running manually. It is necessary to design a servqual-based client satisfaction information system which is expected to produce an analysis of an information system prototype to determine the dimensions of service

quality. The results of this study are expected to help improve service quality and customer satisfaction related to agricultural and plantation products of PT. Sarhif Brothers.

References

- Bengio, Y., Courville, A., & Vincent, P. (2013). Representation learning: A review and new perspectives. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 35(8), 1798–1828. <https://doi.org/10.1109/TPAMI.2013.50>
- Dinov, I. D. (2018). Data science and predictive analytics: Biomedical and health applications using R. In *Data Science and Predictive Analytics: Biomedical and Health Applications using R*. <https://doi.org/10.1007/978-3-319-72347-1>
- Du, G., Zhang, J., Luo, Z., Ma, F., Ma, L., & Li, S. (2020). Joint imbalanced classification and feature selection for hospital readmissions. *Knowledge-Based Systems*, 200, 106020. <https://doi.org/10.1016/j.knosys.2020.106020>
- Galli, S. (2020). *Python Feature Engineering Cookbook*. Packt.
- Gárate-Escamila, A. K., Hajjam El Hassani, A., & Andrès, E. (2020). Classification models for heart disease prediction using feature selection and PCA. *Informatics in Medicine Unlocked*, 19. <https://doi.org/10.1016/j.imu.2020.100330>
- Ghorbani, R., Ghousi, R., Makui, A., & Atashi, A. (2020). A New Hybrid Predictive Model to Predict the Early Mortality Risk in Intensive Care Units on a Highly Imbalanced Dataset. *IEEE Access*, 8, 141066–141079. <https://doi.org/10.1109/ACCESS.2020.3013320>
- Goldstein, B. A., Navar, A. M., Pencina, M. J., & Ioannidis, J. P. A. (2017). Opportunities and challenges in developing risk prediction models with electronic health records data: A systematic review. *Journal of the American Medical Informatics Association*, 24(1), 198–208. <https://doi.org/10.1093/jamia/ocw042>
- Haq, A. U., Zhang, D., Peng, H., & Rahman, S. U. (2019). Combining Multiple Feature-Ranking Techniques and Clustering of Variables for Feature Selection. *IEEE Access*, 7, 151482–151492. <https://doi.org/10.1109/ACCESS.2019.2947701>
- Jensen, P. B., Jensen, L. J., & Brunak, S. (2012). Mining electronic health records: Towards better research applications and clinical care. *Nature Reviews Genetics*, 13(6), 395–405. <https://doi.org/10.1038/nrg3208>
- Latif, J., Xiao, C., Tu, S., Rehman, S. U., Imran, A., & Bilal, A. (2020). Implementation and Use of Disease Diagnosis Systems for Electronic Medical Records Based on Machine Learning: A Complete Review. *IEEE Access*, 8, 150489–150513. <https://doi.org/10.1109/ACCESS.2020.3016782>
- Le, T. M., Vo, T. M., Pham, T. N., & Dao, S. V. T. (2021). A Novel Wrapper-Based Feature Selection for Early Diabetes Prediction Enhanced with a Metaheuristic. *IEEE Access*, 9, 7869–7884. <https://doi.org/10.1109/ACCESS.2020.3047942>
- Max Kuhn, K. J. (2019). *Feature Engineering and Selection: A Practical Approach for Predictive Models*. (Chapman & Hall/CRC Data Science Series) 1st Edition. Panesar, A. (n.d.). *Machine Learning and AI for Healthcare*.
- Polyzotis, N., Roy, S., Whang, S. E., & Zinkevich, M. (2018). Data lifecycle challenges in production machine learning: A survey. *SIGMOD Record*, 47(2), 17–28. <https://doi.org/10.1145/3299887.3299891>
- Poongodi, T., Sumathi, D., Suresh, P., & Balusamy, B. (2021). Deep learning techniques for electronic health record (EHR) analysis. *Studies in Computational Intelligence*, 903, 73–103. https://doi.org/10.1007/978-981-15-5495-7_5
- Shickel, B., Tighe, P. J., Bihorac, A., & Rashidi, P. (2017). Deep EHR: A survey of recent advances in deep learning techniques for electronic health record (EHR) analysis. *arXiv*, 22(5), 1589–1604.
- Weiskopf, N. G., Hripcsak, G., Swaminathan, S., & Weng, C. (2013). Defining and measuring completeness of electronic health records for secondary use. *Journal of Biomedical Informatics*, 46(5), 830–836. <https://doi.org/10.1016/j.jbi.2013.06.010>
- Xiao, C., Choi, E., & Sun, J. (2018). Opportunities and challenges in developing deep learning models using electronic health records data: A systematic review. In *Journal of the American Medical Informatics Association* (Vol. 25, Nomor 10, hal. 1419–1428). <https://doi.org/10.1093/jamia/ocy068>
- Yan, K., & Zhang, D. (2015). Feature selection and analysis on correlated gas sensor data with recursive feature elimination. *Sensors and Actuators, B: Chemical*, 212, 353–363. <https://doi.org/10.1016/j.snb.2015.02.025>
- Zheng, A., & Casari, A. (n.d.). *Feature Engineering for Machine Learning*.