

# **TAP N' TAKE (TNT): QUEUE MANAGEMENT SYSTEM WITH KIOSK FOR PANSEAT TAGAPO RESTAURANT**

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## **ABSTRACT**

The study focused on the development of the Queue Management System with Kiosk for PansEat Tagapo Restaurant. With increasing customer demand and a reputation as one of the top pancit establishments in Santa Rosa, PansEat Tagapo aims to elevate the quality and efficiency of its queue and ordering processes by integrating and centralizing its Point-of-Sale system. The research aimed to identify the operational processes utilized by PansEat Tagapo in terms of queue management, staff management, and sales tracking. Also, the study aimed to identify existing processes, assessing the impact of manual procedures on the speed of service, and evaluating the current system's reliability, maintainability, usability, and efficiency. Through these objectives, the study identified both the strengths and weaknesses of PansEat's existing manual procedures, providing a foundation for the development of a more efficient POS management system.

Quantitative type of research methodology was used for the study and for the sampling method the researchers used the probability method. Through a combination of observational studies and customer evaluations, it becomes apparent that while the restaurant demonstrates proficiency in certain service aspects, significant challenges arise from reliance on manual processes, leading to delays, customer discontent, and operational inefficiencies. This study underscores the importance of embracing technological advancements, such as self-ordering kiosks and point-of-sale systems, to optimize operational performance and enhance customer satisfaction. Recommendations include the implementation of modernized systems, proactive maintenance strategies, comprehensive staff training initiatives, and encouragement for future researchers to seek additional information to fortify their perspectives. By addressing these identified issues and implementing the recommended actions, PansEat Tagapo can elevate its operational effectiveness and ensure sustained success in the dynamic restaurant industry landscape.

**Keywords:** *Polytechnic University of the Philippines, Bachelor of Science in Information Technology, Queue Management, Point-of-Sale System, Self-ordering Kiosk, PansEat Tagapo Restaurant*

## **Introduction**

The importance of innovation and adaptability in the restaurant sector, with a special emphasis on the changing environment of technological integration. By acknowledging the importance of technology in improving efficiency and customer experience, the article sets the stage for the investigation of a specific technical advancement: the Queue Management System with Kiosk for PansEAT Tagapo Restaurant. By outlining the challenges faced by restaurants in a competitive market, emphasizing the importance of developing a unique selling proposition to

attract and retain customers.

This problem statement emphasizes the significance of addressing issues related to branding, marketing, and efficiency. It emphasizes the necessity for restaurants, like PansEat Tagapo, to continuously innovate to meet evolving consumer expectations and to remain competitive in the industry.

The PansEat Tagapo Restaurant sector, acknowledging the larger trend of technology adoption in restaurants and the radical influence it has had on operational operations and consumer relations. However, there is a lack in the research regarding the unique demands and issues encountered by Filipino restaurants such as PansEat Tagapo. This gap emphasizes the importance of smart solutions that address the specific needs of such businesses, notably in terms of process optimization, customer experience enhancement, and improving resource management.

The implementation of a Queue Management System with Kiosk specifically designed for PansEat Tagapo Restaurant as a solution to bridge the identified gap. By integrating self- service kiosks with the restaurant's operations, the system aims to shorten the ordering process, enhance order accuracy, minimize wait times, and improve efficiency. Therefore, the researcher provides the framework for PansEat Tagapo Restaurant for further investigation into the implementation, advantages, and consequences of this novel approach in the context of PansEat Tagapo Restaurant.

### ***Research Problem and Objectives***

1. Investigate the existing operational processes employed by PansEat Tagapo Restaurant concerning queue management, staff management, and sales tracking.
2. Evaluate the impact of the standard manual ordering procedures on the speed of service at PansEat Tagapo Restaurant
3. Assess the current system of PansEat Tagapo Restaurant based on the criteria of reliability, maintainability, and efficiency.
4. Propose strategies to enhance the operational efficiency and effectiveness of PansEat Tagapo Restaurant's systems for queue management, staff management, and sales tracking.

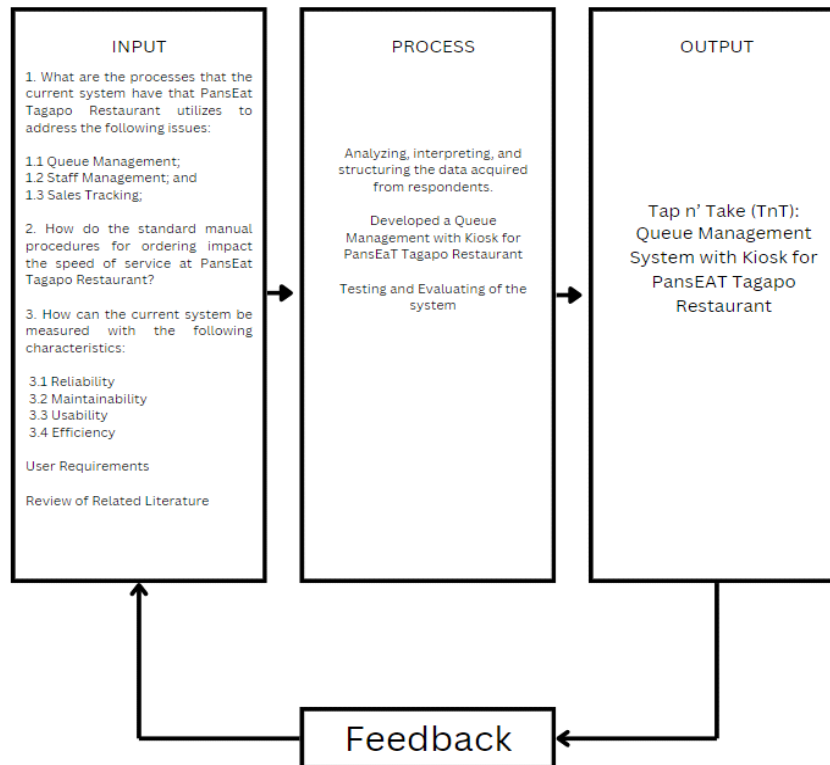
### ***Research Framework***

The PansEat Tagapo Restaurant currently utilizes a manual system for staff management, queue handling, and sales tracking, impacting service speed. The study aims to evaluate the existing system's performance in terms of reliability, maintainability, usability, and efficiency. User requirements are gathered through interactions with stakeholders, including owners, staff, and customers. A review of literature and related studies provides insights for comparison and improvement.

Data collected is analyzed to create a tailored Queue Management system for PansEat Tagapo

Restaurant. Development incorporates insights from the analysis, and rigorous evaluation ensures compliance with set standards. The Tap n' Take (TnT) Queue Management System with Kiosk is implemented, and feedback from customers, staff, and owners is sought to assess effectiveness and identify areas for improvement.

**Figure 2. Conceptual Framework**



### ***Research Significance***

The significance of this study lies in the impact of queue management, staff management, and sales tracking within a restaurant setting. By identifying the inefficiencies and challenges associated with manual processes, this research contributes to the body of knowledge by emphasizing the importance of embracing technology to meet evolving consumer expectations and achieve operational excellence.

### ***Scope and Limitations***

The study aimed to implement a Point-of-Sale Management System at PansEat Tagapo Restaurant to streamline manual processes and improve operational efficiency. The system addressed order taking, transaction processing, sales tracking, kitchen side queueing, receipt generation, and sales reporting, focusing on enhancing overall efficiency. However, limitations included the inability to facilitate cashless payments due to technical and regulatory constraints, and a lack of integration between the administrative POS system and the kiosk. The research evaluates the impact of these functionalities on operational efficiency and customer satisfaction, providing insights into the effectiveness of the implemented system.

## ***Review of Pertinent Literature***

In today's competitive restaurant industry, the environment is constantly changing due to the introduction of new technologies and evolving consumer demands. Simply offering good food at reasonable prices is no longer enough to guarantee success. With the rise of technology and changing consumer expectations, restaurants must adapt and innovate to stand out in the market and build lasting relationships with their customers. (Kim 2020)

The increasing competitiveness in the restaurant sector emphasizes the necessity of utilizing modern technology to fulfill customer needs efficiently. Self-service kiosks (SSKs) have gained popularity as a strategic adaptation to this competitive environment. El Said (2019) underscores this trend and stresses the importance of integrating technology, especially SSKs, into restaurant operations. The adoption of automated systems like POS and SSKs recognizes the crucial role of technology in improving both customer satisfaction and operational effectiveness within restaurants.

Additionally, Lawal (2022) highlights the considerable advantages that Point-of-Sale (POS) systems bring to businesses. The transactional efficiency facilitated by POS systems not only decreases expenses but also allows for comprehensive record-keeping. Conversely, Kim (2019) indicates that the perceived value obtained from kiosk interactions positively affects customer satisfaction and behavioral intentions. Satisfaction with POS and SSKs significantly influences behavioral intentions. Integration of these technologies in the food industry improves management efficiency, notably enhancing service speed, leading to better customer experiences and satisfaction.

## **Methodology**

### ***Research Design***

The researcher employed a descriptive-quantitative research design to systematically examine the implementation process and identify the underlying issues within the context of enhancing the Queue Management system at PanSEAT Tagapo Restaurant with Kiosk technology. Descriptive research emerged as an effective approach for gathering comprehensive information about specific groups involves a interviews, observations, surveys, and questionnaires to gather quantitative data on various aspects of the PansEat Tagapo restaurant's operations. The collected data will be analyzed to gain insights into the efficiency, effectiveness, and user experience of the current system at PansEat Tagapo Restaurant. The researchers delved into the development and evaluation of the proposed systems, aiming to provide a clear understanding of their methodology and statistical analysis for effective implementation. Through the presentation of data summarizing respondent profiles and experiences, the study evaluated challenges encountered and the efficacy of the proposed system.

### ***Research Locale***

This study was conducted at PansEat Tagapo Restaurant. It was chosen by the researchers as the locale of the study since it is one of the best panciterias in Barangay Tagapo, Santa Rosa Laguna. The study collected data through various means involves interviews, observations, surveys, and questionnaires and was completed at the respondents' convenience.

### ***Population and Sampling Design***

This study was conducted at PansEat Tagapo Restaurant using a probability sampling method. Respondents, including the restaurant owner, staff, and customers, were chosen based on the daily minimum and maximum counts of combined customers and staff. The approach aimed to ensure a meaningful sample size that captures diverse perspectives on the Queue Management System, considering the varying backgrounds and expectations of participants.

### ***Research Instrument***

This research utilized various instruments for data collection, including questionnaires, interviews, and observation. Two separate questionnaires, consisting of five questions each, were administered to 20 customers and eight staff members of PansEat Tagapo Restaurant. Interviews with the owner, Ms. Leamor Maingat, provided crucial insights into the current system's management of staff, queues, and sales tracking. Observation of the manual ordering process at the restaurant was conducted without interference to gather additional data. This comprehensive approach aimed to inform the development of a queue management system with a kiosk tailored to the restaurant's needs.

### ***Data Gathering Procedure***

The data gathered by the researcher followed a set of rules. The researchers initiated data collection by distributing formal letters to the respondents, serving as the primary means of contact and outlining the objectives of the data collection. Subsequently, interviews with the owner provided detailed insights into the current management procedures, addressing issues such as system effectiveness and customer satisfaction. Additionally, in-depth observations were conducted to assess areas needing improvement, including the ordering and point-of-sale systems. By employing a combination of questionnaires, interviews, and observations, a comprehensive understanding of the Restaurant Management System at PansEat Tagapo was achieved, enabling analysis and recommendations for enhancing the effectiveness of the Queue Management System.

### ***Management and Treatment of Data***

The researcher utilized Microsoft Excel for precise calculations and complex statistical analysis, employing specific methods and tools. The analysis, relying on essential statistical formulas, focused particularly on the weighted mean to uncover hidden complexities and patterns in the data. This method, used 2 to 4 times, facilitated a clear understanding of the central tendencies in participants' responses, enhancing overall comprehension of the dataset.

## **Results**

### ***Current processes implemented***

PansEat Tagapo Restaurant heavily relies on manual processes for queue management, staff management, and sales tracking. For queue management, orders are handwritten and processed manually, leading to delays during busy periods. Staff members juggle multiple tasks, resulting in slower service and dissatisfaction among customers. Sales tracking involves manual recording by the cashier, leading to potential inaccuracies and operational inefficiencies.

### ***Speed of Service***

Staff and customer perceptions regarding order processing speed varied, with some expressing satisfaction while others were dissatisfied. Observations revealed that manual processes, particularly in order processing and staff management, contributed to unsatisfactory service speed in most instances. Overall, there is a clear need to improve manual processes to enhance service efficiency at the restaurant.

### ***Reliability, Maintainability, Usability, and Efficiency***

The restaurant has faced challenges with reliability, as fluctuations in sales tracking and queue management during busy periods have impacted customer satisfaction. While staff management is commended, the reluctance to adopt modernization raises concerns about the restaurant's long-term viability and competitive edge. The labor-intensive manual tasks lead to delays, highlighting the need to refine operational procedures. Additionally, usability issues during peak hours emphasize the importance of enhancing the current systems.

### ***Strategies in Implementing the Queue Management System with Kiosk***

Critical factors, including stakeholder engagement, technology infrastructure, user experience design, data security, staff training, maintenance protocols, customer feedback mechanisms, and continuous improvement processes, are identified as essential for implementing an effective Queue Management System with Kiosk. Addressing these factors is key to creating a strategy that supports the successful implementation of the Queue Management System with Kiosk. By strategically addressing each of these factors, organizations can maximize the efficiency and effectiveness of queue management processes.

### **Discussion**

The research findings illustrate a concise and significant summary of the main conclusions and discoveries. It offers a brief overview of the research's aim, scope, and the important concerns addressed by the researcher. PansEat Tagapo's current system needs improvement, particularly in queue management, staff management, and sales tracking. A 6-day observation revealed dissatisfaction, especially during peak hours, indicating specific issues affecting operational effectiveness. The owner recognizes the need for technological solutions to enhance efficiency. Manual processes are slowing down the speed of service, crucial for customer satisfaction and repeat visits. The current system is considered inefficient, with difficulties in manual ordering and slow payment processes during busy times. Improvements in these areas are crucial for optimizing operational performance and maintaining a user-friendly interface.

The study offers four recommendations to address the identified issues. A key suggestion involves establishing a comprehensive maintenance plan for the new system, incorporating regular updates, checks, and either a dedicated maintenance team or outsourcing. The active

collection of user feedback is deemed crucial for continual improvement, ensuring the system's longevity and effectiveness.

Another proposal advocates for the implementation of technological tools like self-ordering kiosks, POS devices, and kitchen monitors. These technologies aim to enhance operational efficiency by reducing waiting times and minimizing errors, contributing to the modernization of the restaurant.

Furthermore, the study suggests conducting comprehensive training sessions for PansEat Tagapo staff to facilitate a smooth transition to the proposed system. Special emphasis should be placed on key components, particularly sales tracking, providing detailed instructions for proficient use of the point-of-sale system. Investing in staff training is seen as essential for improving operational efficiency and enhancing customer satisfaction.

Lastly, the study offers guidance for future researchers, encouraging them to explore additional reliable information beyond the document. Future researchers are advised to align their theories with the study's findings to strengthen their perspective, with a clear emphasis on the importance of avoiding plagiarism and upholding ethical research practices.

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