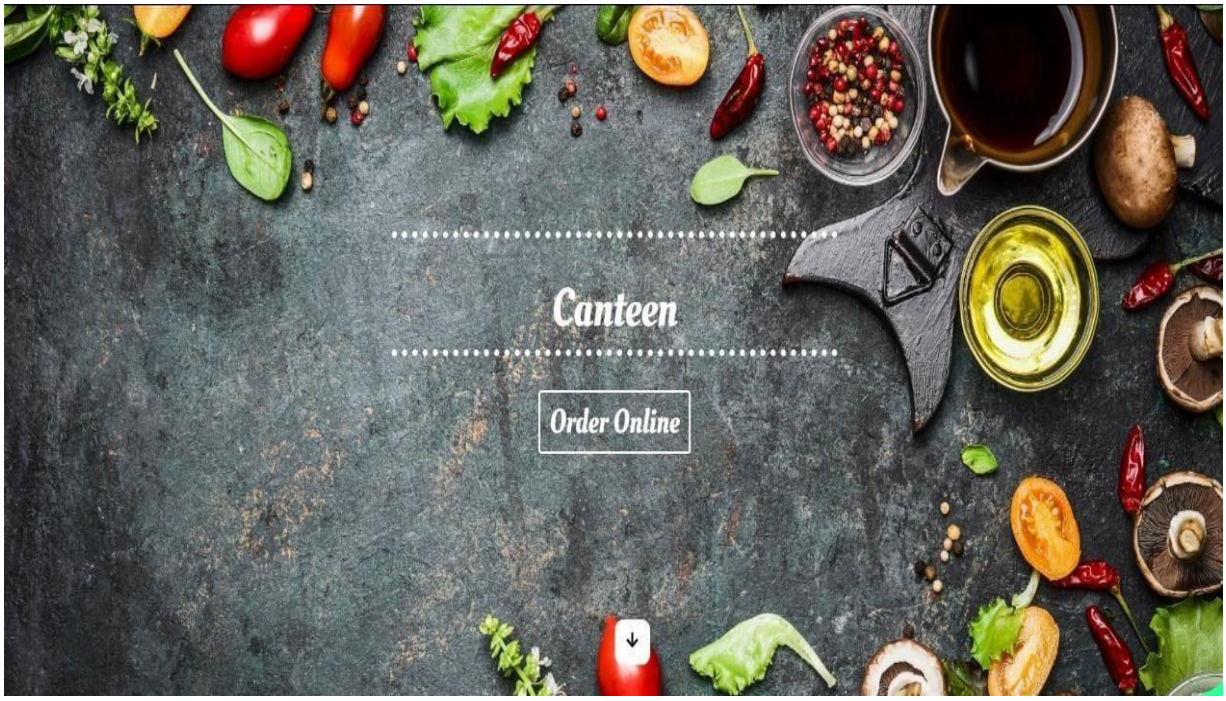
Digital Canteen Optimization



Project Title – Optimizing Canteen Operations Using Digital Solutions

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1.0 Executive Summary

The "Digital Canteen Optimization" project aims to transform and optimize the operations of an office canteen by integrating digital solutions. The project addresses key operational inefficiencies such as long wait times, excessive food waste, high operational costs, and employee dissatisfaction. By implementing a suite of digital tools including mobile apps for pre-ordering meals, data-driven meal demand forecasting, queue management systems, and an overall streamlined workflow, the project intends to improve the overall employee experience and significantly reduce costs associated with canteen operations.

This project is a response to the growing demand for more efficient, sustainable, and user-friendly solutions in workplace dining services. The ultimate goal is to create a seamless, cost-effective, and satisfying canteen experience for employees, thereby contributing to better overall productivity and morale.

1.1 Project Overview

The Digital Canteen Optimization project is designed to address critical inefficiencies in the day-to-day operations of company canteens. The project will focus on automating and optimizing the food service process, from ordering to meal delivery, by using a digital platform. Employees will be able to pre-order meals via a mobile app, select a pickup time, and reduce the time spent in queues. The canteen will use demand forecasting powered by data analytics to ensure the right amount of food is prepared, cutting down on food wastage and unnecessary inventory. Furthermore, the project will introduce digital tools for better canteen staff management, improving scheduling and reducing labor costs.

By streamlining these processes, the project seeks to reduce the overall time spent by employees on meal breaks, ultimately increasing their productivity and satisfaction. The overall operational cost of running the canteen will also decrease due to better food management, reduced waste, and optimized staffing.

Key Features of the Project:

- **Pre-ordering & Pickup Management**: Employees can order food in advance, choose their preferred pickup time, and reduce wait times.
- **Demand Forecasting**: A data-driven system that predicts meal demand, preventing overproduction and reducing food waste.
- **Queue Management**: Digital systems to monitor and manage queues, ensuring employees spend less time waiting.
- **Mobile Interface**: An easy-to-use mobile application for meal selection, payment, and scheduling.
- **Real-time Analytics**: Data and reports on meal trends, employee preferences, food waste, and operational efficiency.

1.2 Objectives and Impact

Objectives for Canteen Optimization:

The primary objectives of the "Digital Canteen Optimization" project are to streamline canteen operations, enhance employee satisfaction, and reduce operational costs through the integration of digital solutions. Specifically, the project aims to:

- **Reduce Commute and Queue Times**: Implement a mobile app that allows employees to pre-order meals and select pickup times, minimizing the time spent commuting to and from the canteen and reducing wait times during peak hours.
- **Minimize Food Wastage**: Develop a system that accurately forecasts meal demand using historical data, ensuring the right quantity of food is prepared, thus reducing waste and associated costs.
- **Optimize Operational Costs**: Leverage data analytics to improve resource management, optimize staffing levels during peak and non-peak hours, and manage inventory efficiently, ultimately lowering the cost of operations.
- **Enhance Employee Experience and Satisfaction**: Provide employees with an easy-to-use platform for meal selection and customization, improving the quality of their dining experience and overall workplace satisfaction.
- **Implement Efficient Canteen Management Tools**: Introduce systems for real-time tracking of food orders, queue management, and employee preferences, ensuring the smooth functioning of the canteen and improving staff efficiency.
- **Improve Data-Driven Decision Making:** Enable managers to access reports and analytics on meal demand, employee satisfaction, food waste, and operational efficiency to make informed decisions.
- **Foster a Sustainable Canteen Model:** Integrate sustainable practices such as reducing food wastage, promoting eco-friendly packaging, and offering healthier meal options, aligning with the company’s corporate social responsibility (CSR) goals.

Impact for Canteen Optimization:

- **Increased Employee Satisfaction**: Less time spent waiting for meals, more variety, and the convenience of mobile ordering will improve overall employee satisfaction.
- **Cost Reduction**: Reduced food waste, more efficient labor usage, and better inventory management will lead to a significant reduction in canteen operating costs.
- **Better Resource Utilization**: The system will optimize food production and staffing, ensuring that the canteen operates more efficiently with fewer resources.
- **Enhanced Brand Image**: By implementing a tech-driven solution that enhances employee welfare and reduces environmental impact, the company’s reputation as a modern, efficient, and sustainable workplace will be strengthened.

1.3 Expected Outcomes

Expected Outcomes for Canteen Optimization:

The expected outcomes of the "Digital Canteen Optimization" project are measurable improvements in efficiency, cost reduction, and overall employee satisfaction. These outcomes include:

- **Time Savings for Employees**: Employees will spend less time commuting to and waiting in line for food, leading to increased productivity and satisfaction. The mobile app for pre-ordering meals will ensure that they can quickly pick up their meals at the scheduled time.
- **Reduced Operational Costs**: By accurately forecasting meal demand and optimizing staffing levels, the canteen will see a reduction in food wastage and labor costs, contributing to significant operational savings.
- **Increased Employee Satisfaction and Morale:** The user-friendly mobile app, along with better meal variety and timely service, will contribute to improved employee morale and a more positive workplace culture.
- **Decreased Food Waste**: Through demand forecasting and real-time inventory management, the amount of excess food prepared will decrease, significantly reducing waste and improving cost efficiency.
- **Streamlined Operations**: The integration of a digital solution will automate many of the canteen's manual processes, such as order taking, meal preparation scheduling, and queue management, leading to smoother operations and fewer errors.
- **Improved Canteen Management:** The canteen management team will have access to real-time analytics on food orders, staffing needs, and customer preferences, enabling data-driven decisions that improve efficiency and the quality of service.
- **Better Resource Allocation**: With optimized meal production and efficient staff management, the canteen will utilize resources more effectively, improving both the financial and operational health of the canteen.

2.0 Introduction

The Digital Canteen Optimization project is a forward-thinking initiative aimed at addressing inefficiencies in traditional canteen operations. The project focuses on leveraging digital solutions to streamline processes, reduce operational costs, and enhance the dining experience for employees. With growing demands for time-efficient and sustainable solutions in workplace environments, this project seeks to align canteen operations with modern technology while improving employee satisfaction and organizational efficiency.

2.1 Background of the project

Canteens in corporate settings play a critical role in employee welfare by providing meals and a space to recharge during work hours. However, traditional canteen operations face numerous challenges:

- Long queues during peak hours waste employees' time and reduce their break time.
- Overproduction of food leads to significant food wastage, impacting sustainability and increasing costs.
- Lack of streamlined processes results in operational inefficiencies, such as inaccurate staffing and resource allocation.

These challenges contribute to employee dissatisfaction, low productivity, and increased operational expenses. With the rise of digital transformation across industries, there is an opportunity to modernize canteen operations through technology.

This project emerges from the need to create a more efficient and employee-friendly canteen system that minimizes waiting times, reduces food waste, and improves cost management while supporting sustainability goals. By integrating digital tools like mobile apps, demand forecasting systems, and queue management solutions, this initiative aims to address these issues effectively.

2.2 Purpose of the project

The primary purpose of the Digital Canteen Optimization project is to transform the traditional canteen experience by integrating innovative digital solutions. These solutions aim to:

- **Enhance Employee Experience**: Minimize waiting times through pre-order and scheduling systems.
- **Reduce Operational Inefficiencies**: Improve canteen staff scheduling and inventory management.
- **Achieve Cost Savings**: Lower food wastage by forecasting demand more accurately. Reduce unnecessary labor costs by aligning staffing with demand.
- **Increase Organizational Productivity**: Enable employees to spend less time in queues and more time focusing on their work or enjoying their breaks.

2.3 Scope of the project

The Digital Canteen Optimization project focuses on transforming the company's canteen operations by implementing digital tools and systems to address existing challenges like long waiting times, food waste, and high operational costs. The scope outlines the specific activities and areas that the project will address to ensure a successful implementation.

In-Scope Activities:

- **Digital Solutions Development:**
  Mobile application for pre-ordering, meal customization, and payment.
  Queue management and scheduling system to streamline meal pickup.
  Data analytics tools for demand forecasting and inventory management.

- **Stakeholder Engagement:**
  Understanding the needs of employees, canteen staff, and management.
  Providing training for canteen staff to use the new systems effectively.

- **Operational Enhancements:**
  Streamlining food preparation and delivery processes.
  Optimizing staff scheduling and resource allocation.

- **Performance Monitoring and Feedback:**
  Establishing metrics to measure employee satisfaction, operational efficiency, and food waste reduction.
  Using feedback mechanisms to refine the solution over time.

Out of Scope Activities:

- **Canteen Infrastructure Changes**: Physical redesign or construction of new canteen facilities is not included in this project.
- **Expansion to Other Locations**: The project is limited to a pilot implementation in one corporate canteen and does not cover rollout to other locations at this stage.

3.0 Problem Statement

The current operations of the company's canteen face significant inefficiencies that negatively affect employees and the organization. These inefficiencies result in employee dissatisfaction, lower productivity, food wastage, and increased operational costs. The Digital Canteen Optimization project aims to address these challenges by introducing digital solutions to streamline canteen operations.

3.1 Identified Issues in Current Operations

- **Long Waiting Times**: Employees spend excessive time commuting to the canteen and waiting in queues during peak hours.
  This disrupts their break schedules and often causes delays in returning to work.
- **Food Wastage**: Lack of accurate demand forecasting leads to overproduction of meals.
  Leftover food results in unnecessary waste, impacting sustainability goals.
- **Inconsistent Meal Quality**: High demand during peak times often leads to hurried preparation, affecting meal quality and employee satisfaction.
- **Limited Employee Engagement:** Employees have no clear way to provide feedback on meals or services, resulting in unmet expectations.
- **Lack of Transparency**: Employees lack visibility into meal options, availability, and estimated waiting times, leading to frustration and uncertainty.

3.2 Impact on Employees and Organization

Impact on Employees:

- **Reduced Satisfaction**: Long queues and inconsistent meal quality lower morale and diminish the canteen experience.
- **Lost Time**: Excessive waiting times cut into employees' break periods, affecting their ability to recharge and relax.
- **Health and Wellness**: Limited meal choices and hurried services may compromise employees' dietary preferences and health.

Impact on Organization:

- **Lower Productivity**: Time lost in queues reduces overall employee efficiency and focus during work hours.
- **Increased Costs**: Food wastage and poor resource management result in higher operational expenses.
- **Negative Work Environment:** Employee dissatisfaction with the canteen affects overall workplace morale and retention rates.

4.0 Project Objectives

The Digital Canteen Optimization project is designed to enhance canteen operations through the adoption of digital solutions. It aims to address inefficiencies, improve employee satisfaction, and reduce operational costs while promoting sustainability.

4.1 Specific Goals

- **Improve Employee Experience**: Enable seamless meal ordering and pickup processes via a digital platform.
  Reduce waiting times during peak hours by implementing a pre-order and scheduling system.
- **Reduce Food Wastage**: Optimize meal preparation to align with real-time orders and minimize leftovers.
  Enhance inventory management to reduce spoilage and overproduction.
- **Increase Operational Efficiency**: Automate manual processes like order-taking, payment, and queue management.
  Improve resource allocation, including staffing and raw material planning.
  Reduce errors in meal preparation and delivery by leveraging digital tools.
- **Boost Employee Satisfaction and Morale**: Ensure timely and hassle-free access to meals, allowing employees to utilize their breaks effectively.
  Provide a feedback mechanism for continuous improvement in services.
- **Achieve Cost Efficiency**: Reduce labor and material costs through better planning and process automation.
  Minimize food waste and associated disposal costs.

4.2 Key Performance Indicator (KPI)

- **Employee Experience Metrics:**
  Average Queue Time: Measure the reduction in waiting times during meal pickups.
  Employee Satisfaction Score: Use surveys to gauge satisfaction levels with the digital canteen system.
  Feedback Volume: Track the number of feedback submissions to ensure active engagement.
- **Operational Efficiency Metrics:**
  Order Accuracy Rate: Monitor the percentage of correct orders delivered without errors.
  Staff Productivity: Measure the efficiency of staff in handling orders and managing resources.
  Time Saved: Compare the time taken for meal preparation and delivery before and after implementation.
- **Cost and Waste Metrics:**
  Reduction in Food Waste: Monitor the percentage decrease in leftover or discarded food.
  Cost Savings: Measure the reduction in operational costs (e.g., food, labor, and utilities).

5.0 Methodology

The methodology for this project involves a systematic approach to gather insights, design solutions, and implement a streamlined digital system for canteen operations. Below is a breakdown of the methodology:

5.1 Research Approach

The research approach involves a combination of primary and secondary research methods to thoroughly understand the challenges faced in canteen operations and identify opportunities for improvement through digital solutions.

5.1.1 Primary Research

primary research is conducted through a simulated collection of responses and observations designed to represent real-world insights into the canteen's operations. This approach allows for experimentation with potential solutions such as digital menus or pre-order systems without having to rely on actual data collected from employees or canteen staff.

This data is collected through simulated surveys and interviews, designed to mirror the feedback and challenges that employees or canteen staff might face.

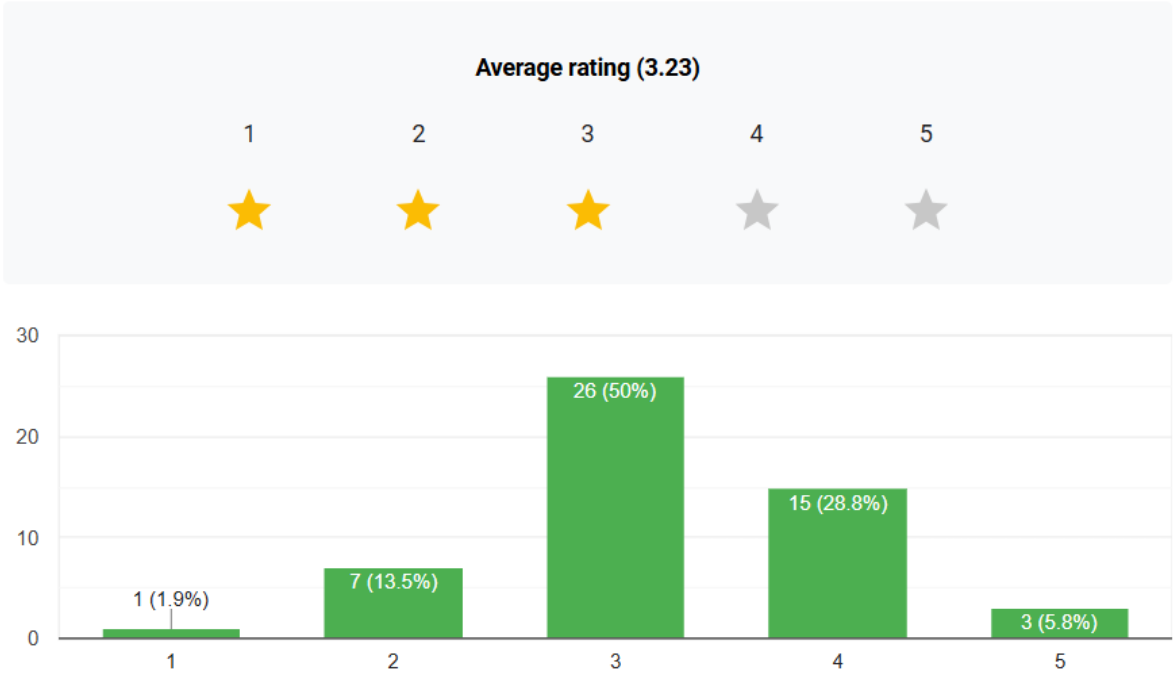
5.1.1.1 Survey

The purpose of the survey in this project is to gather insights and feedback from employees regarding their experiences and challenges with the current canteen operations. The survey aims to identify key issues such as long wait times, food quality, satisfaction levels, and preferences. By collecting this data, the survey helps in understanding employee needs and expectations, which will guide the development and implementation of digital solutions like pre-order systems, menu updates, and payment options to optimize the canteen operations and enhance overall employee satisfaction.

- Survey Methodology
  - **Survey Target**: Employee and canteen staff.
  - **Sample Size**: 60 participants (Mock Data)
  - **Format**: Online Survey Via Google Forms.

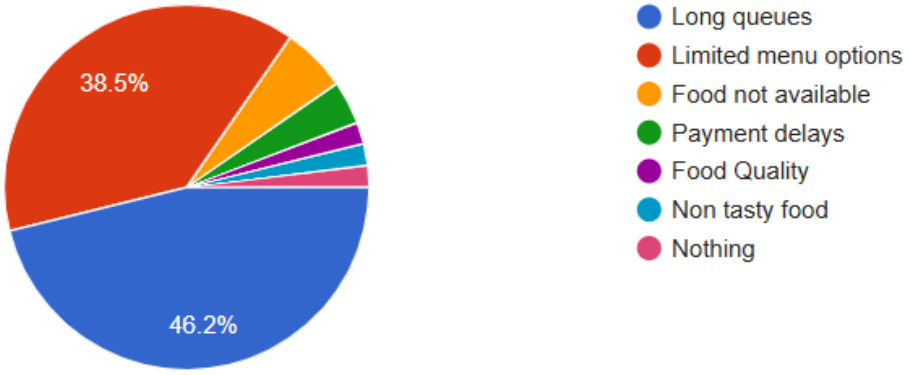
- **Key Findings from Employee feedback**

"Figure1: Employee satisfaction with current canteen service"



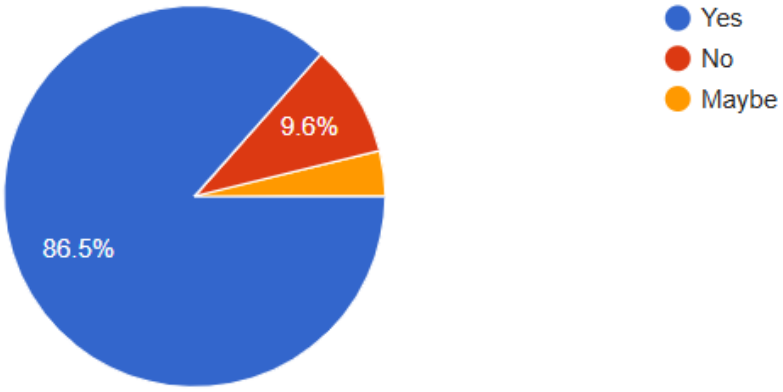
Satisfaction Rating	Percentage of Respondents
Very Satisfied (5)	5.8%
Satisfied (4)	28.8%
Neutral (3)	50%
Dissatisfied (2)	13.5%
Very Dissatisfied (1)	1.9%

"Figure 2: Common challenged faced by Employees in the canteen"



Challenges	Percentage
Long queues	46.2%
Limited menu options	38.5%
Food Not Available	5.8%
Payment delays	3.8%

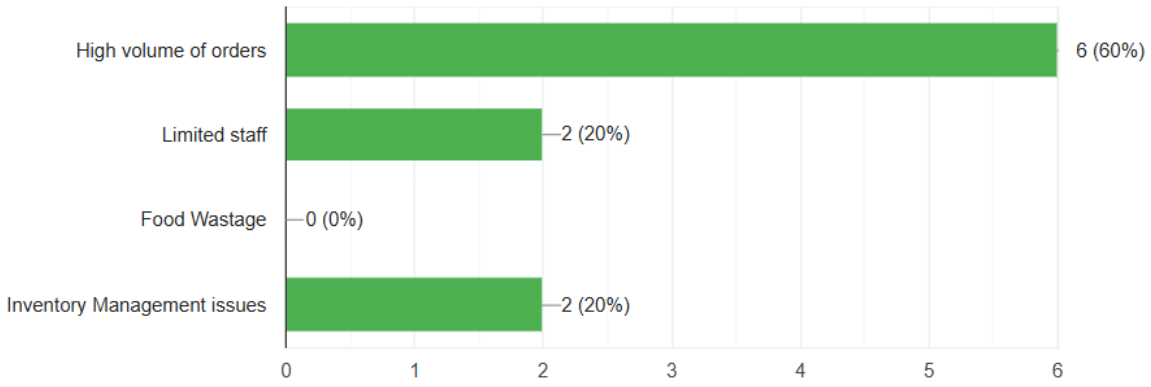
"Figure 3: Pre-Orders meals Via Mobile app"



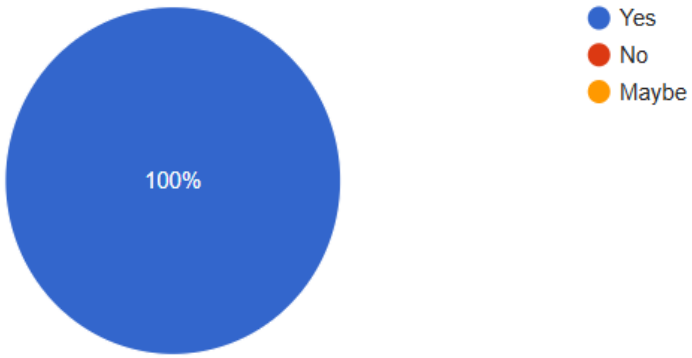
- Conclusion
  - 46.2% of employees identified long queues as their main Challenges.
  - 86.5% of participants expressed interest in Pre-ordering meals Via a mobile app.

- **Key findings from Canteen staff Feedback**

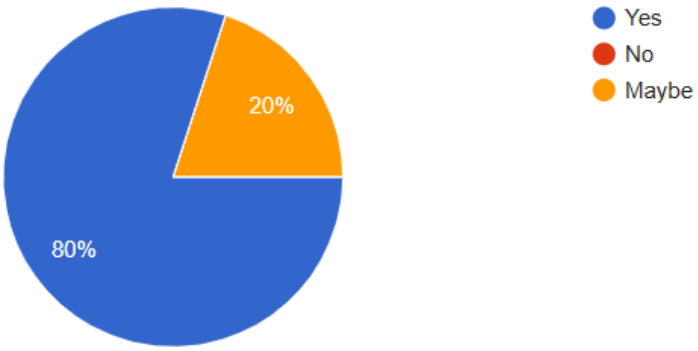
"Figure1: Common issue faced by Canteen staff During pick hours"



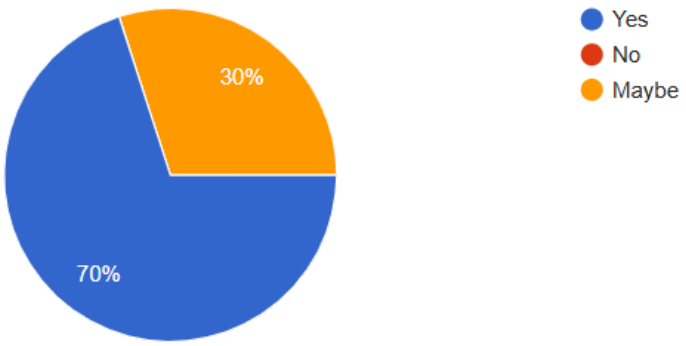
"Figure 2: Digital system for Order management



"Figure 3: Canteen staff suggestion on Pre-Ordering system



"Figure 4: Digital system helpful for tracking and reducing food wastage"



- Conclusion
  - 60% of Canteen staff faced challenge during peak hours is "High volume of orders"
  - 100% of canteen staff expressed interest in digital system for Order management.
  - 80% of canteen staff pre-ordering system helps to reduce pressure on staff.
  - 70% of canteen staff find helpful to have a digital system to track and reduce food wastage.

5.1.1.2 Interview

The purpose of the interviews was conducted to gain deeper insights into the challenges faced by employees and canteen staff and to explore potential solutions for optimizing canteen operations.

- Interview Methodology
  - **Interview Type**: It's a structure interview and its conducted face-to-face. Each interview lasted approximately 10 minutes.
  - **Participants**: 5 employees are regular users of the canteen who experience operational issues.
    1 canteen staff member who involved in food preparation and management and 1 manager.
  - **Procedure**: A structured interview framework was developed with predefined questions.
    Participants were invited through Calls and scheduled for interviews.
    Interviews were conducted face-to-face, lasting approximately 10 minutes each.
    Notes and key insights were recorded during each session.

- Interview Framework
  - For Employees:

Section	Details
Introduction	Thank the participant and explain the purpose of the interview.
Questions	1. Can you describe your usual canteen experience? 2. What specific challenges do you face during peak hours? 3. How would you feel about pre-ordering meals through an app? 4. What additional features would you like in digital canteen system?
Follow-Up	Ask for examples like any stories to elaborate on their challenges.
Conclusion	Summarizing feedback and thank them for their time.

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- For Canteen Manager

Section	Details
Introduction	Thank the participant and explain the purpose of the interview.
Questions	1. What challenges do you face in managing inventory and reducing food wastage? 2. How do you currently handle peak-hour operations to meet demand? 3. What are the key metrics you track to evaluate the canteen's performance? 4. What features would you prioritize in a digital platform to support your operations?
Follow-Up	Ask for examples like any stories to elaborate on their challenges.
Conclusion	Summarizing feedback and thank them for their time.

- For canteen staff:

Section	Details
Introduction	Thank the participant and explain the purpose and assure them their feedback is valued.
Questions	1. What is the most challenging part of managing the canteen during busy hours? 2. How do you currently estimate meal preparation quantities? 3. Have you faced issues with food wastage? If yes, why? 4. Would a digital solution for order tracking and management make your job easier?
Follow-Up	Investigate for specific examples of Inefficiencies.
Conclusion	Summarizing feedback and thank them for their time.

Digital Canteen Optimization

- Key Findings

Present finding in a summary table:

Interviewee	Name	Role	Challenge	Suggested solutions
Employee 1	Ashwini	Software engineer	Long Waiting times	Pre-order meals
Employee 2	Sonali	Software engineer	Long Waiting times	Pre-order meals
Employee 3	Pratik	HR	Limited meal options	Customized/personalized meal options
Employee 4	Chinmay	Associate	Food Unavailability	Improve inventory management
Employee 5	Rahul	Team Lead	Long waiting times	Pre-order meals
Staff Member	Milind	Worker	Food wastage	Real-time inventory tracking
Canteen manager	Sanjay	manger	Food Wastage	Real- time inventory

I found some of the challenges are faced by employees and Canteen staff member:

- **Employees**: They Mention common challenges like long waiting times or lack of pre-ordering options.
- **Canteen Staff Member**: Highlight operational issues like food wastage or difficulties tracking orders.
- **Canteen manager**: Highlight food wastage and inefficiencies during peak hours

- Insight
- **Employees**: Supported a mobile application for pre-ordering meals.
- **Canteen staff member**: Emphasized the need for better inventory tracking system to reduce wastage.
- **Canteen Manager**: Implementing real-time inventory tracking and analytics can empower managers to make data-driven decision, reducing wastage and improving overall operational efficiency.

5.1.2 Secondary Research

Secondary research involves studying existing data and industry trends to support and validate the findings from primary research.

- **Industry Analysis**: Reviewed case studies and reports on digital canteen systems and technologies.
- **Competitor Analysis**: Analyzed digital solutions implemented in similar organizations.

5.1 Data Collection Process

- Survey Desing:
  - Created a survey targeting employees and canteen staff.
  - Questions included areas like satisfaction, challenges, and suggestions for improvement.
  - Data collected using online tools such as Google Forms.

- Interview Process:
  - Structured interviews conducted Face-to-face.
  - It involves 5 employees and 1 staff member as a participant and its lasted long for 10 minutes each.
  - Focused on qualitative insights, such as staff operational pain points and employee expectations.

5.2 Tools and Technology Used

- **Survey Tools**: Google Forms for designing and distributing the survey.
- **Analysis Tools**: Excel or Google Sheets for analyzing quantitative survey data. Power BI/Tableau for creating dashboards and data visualizations.
- **Draw.io**: Process flow diagram

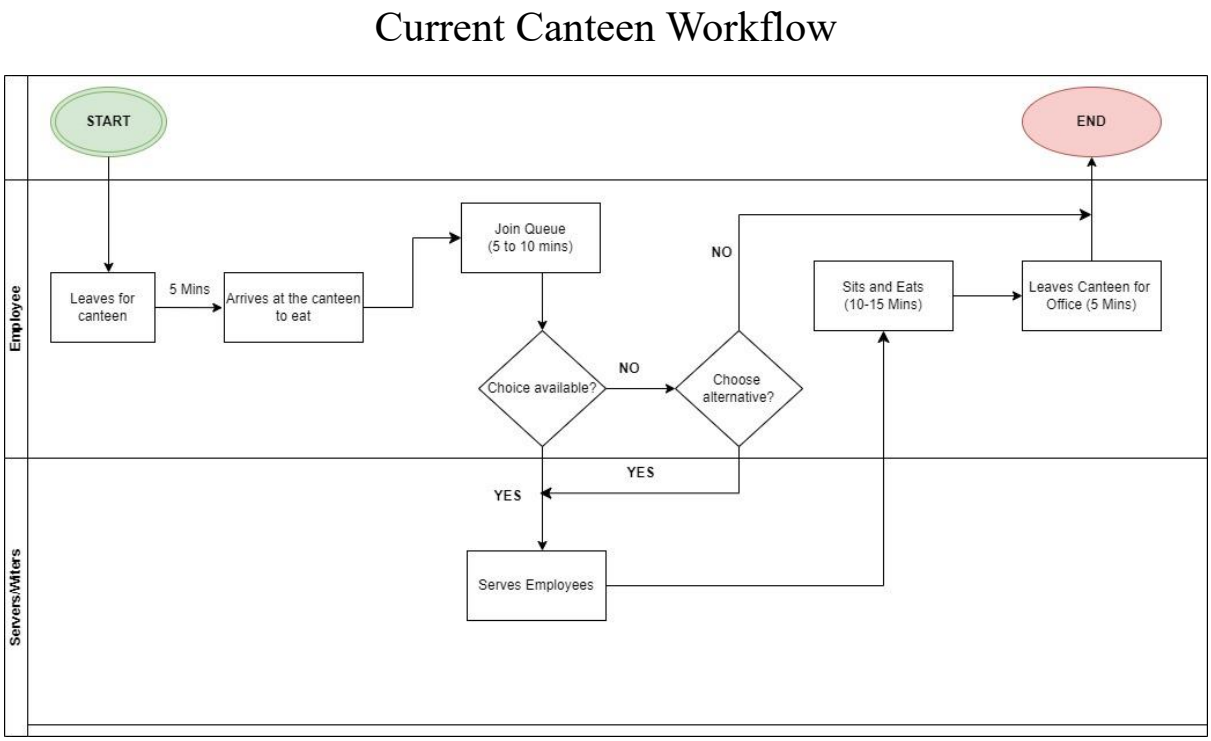
6.0 As-Is and To-Be Analysis

This section will highlight the current state of operations (As-Is) and the proposed optimized state (To-Be) to address identified challenges. Here's I can structure and display it effectively:

6.1 As-Is (Current state of operation)

The As-Is analysis examines the current state of the canteen's operations, highlighting inefficiencies like long waiting times, food wastage, and manual inventory tracking. It identifies the bottlenecks in the existing workflow, such as peak-hour crowding and lack of pre-ordering options.

6.1.1 As-Is Diagram:

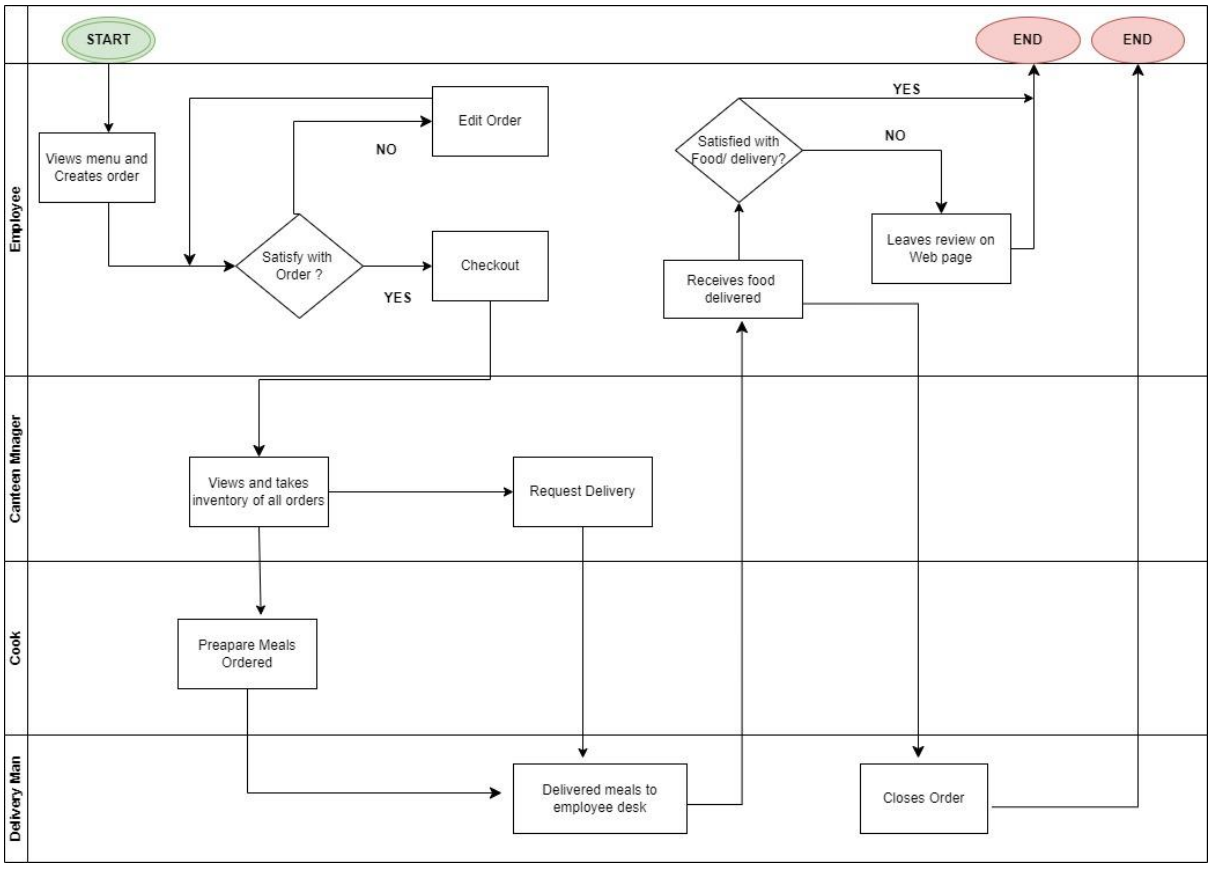


6.2 To-Be (Optimized Future State)

The To-Be analysis envisions the optimized future state, leveraging digital solutions to streamline operations. It proposes features like pre-ordering through an app, automated inventory management, and real-time order tracking to improve efficiency, reduce wastage, and enhance employee satisfaction.

6.2.1 To-Be Diagram:

Optimized Canteen Workflow



6.3 Comparison of As-Is and To-Be Process:

Aspect	Current (As-Is)	Optimized (To-Be)
Queue	Long queues during peak week	Schedule pickups for eliminates queues
Order accuracy	Error in manual order handling	Digital orders ensure accuracy
Employee satisfaction	frustration due to delays and limited choice	Provide seamless and customized experience for employee
Operation costs	High due to inefficiencies	Low operation cost due to better resource management
Food waste	Over production leads to wastage	Demand forecasting minimize the wastage

7.0 User Stories

User stories describe the main needs and expectations of the people involved in the project. They help understand how the system should work to solve specific problems for employees, canteen staff, and management. This section is essential for creating a system that focuses on the users and their requirements.

EPIC	USER STORY TITLE	MOSCOW	USER STORIES	ACCEPTANCE CRITERIA
Employee function	Menu Viewing	Must	As a user I want be able to view menu so that I can plan my meals for the day	User can access the full daily menu via the app or website
	Pre-order meals	Must	As a user I want to be able to create a pre-order so that I can avoid waiting in long queues	User can pre-order meals through a digital platform
	Healthy food options	Must	As a user I want to have healthy food options so that I can make better dietary choices	Healthy food options are displayed at the top of the menu
	Order Edit	Must	As a user I want to be able to edit my orders so that I can make changes if needed before it is prepared	System allows users to edit orders within a predefined time frame
	Order Checkout	Must	As a user, I must be able to check out my orders so that I can confirm and pay for the order	System allows to user to check-out the orders for make a payment
	Order history	Should	As a user I want to be able to view my order history so that I	System displayed a dedicated order history section

			can track my past purchases	accessible from the main menu
	Feedback	Should	As a user I want to be able to leave feedback about my order so that I can share my experience and help improve the services	System must allow users to provide feedback after an order is completed
	Support	Should	As a user I want to have access to order support, so that I can resolve any issues or queries related to my orders	User should be able to contact support directly through the app or website
	Notifications	Should	As a user I want to receive notifications when my order is ready so that I can contact to the delivery person	Users ae notified when their order is ready for pickup via app or SMS
	Order Status	Would	As a user I want to check the status of my order, so that I can know when it will be ready for pickup or delivery	Users should be able to view the current status of their order
	Delivery Person	Would	As a user I want to be able to view the delivery person so that I can view profile which includes name, photo and number	User can see the profile of the delivery man
Canteen staff member function	Real-time order	Must	As a canteen staff member, I want to see real-time order updates so that I can prioritize	System must provide real-time updates for new orders and changes to existing ones

			meal preparation.	
	Streamlined system	Should	As a canteen staff member, I want a streamlined system to track pending orders so that I can manage my tasks effectively	System should display a clear list of pending orders with details
	Daily inventory	Must	As a canteen staff member, I want to receive daily inventory so that I can prepare sufficient food without wastage	System should send daily alerts for inventory level like high demands items
Canteen management functions	Order view	Must	As a manager, I want to view all orders in the system so that I can monitor meal preparation, order status and make adjustment if necessary	Manager can view all active and past orders via system, app or website
	Food wastage	Must	As a manager, I want to track overall food wastage so that I can implement cost-saving measures	System should automatically track food wastage
	System performance	Must	As a manager, I want to monitor system performance and resolve issues so that digital platform remains efficient	Manager should be able to review past performance data and identify trends and issues
	Discounting	could	As a manager, I want to offer discount on order so that	System should allow the manager to apply discount

			employees can make choices	on specific orders
Delivery person functions	Notification	Must	As a delivery person, I want to receive real-time notifications of new orders so that I can promptly begin preparing and delivering meals	System should send s real-time notification to the delivery person when a new order is placed
	Delivery details	Must	As a delivery person, I want to be able to view the delivery details of employees, so that I can prepare and deliver the order correctly	System should display all necessary order details of employees
	Closing orders	Must	As a delivery person, I want to be able to close order once delivered, so that system shows order is complete	System should allow the delivery person to close the order once the meal has been handed over to the recipient.

8.0 Challenges and Risks Assessment

The success of the digital canteen optimization project depends on recognizing potential risks during the improvement process and creating effective strategies to address them. This section highlights the main risks and provides practical solutions to ensure smooth implementation and lasting success.

8.1 Challenges and mitigation strategies:

Risk category	Potential Risks	Mitigation Strategy
Operation Risks	Resistance to change among employee and staff	Conduct workshop or training session to ease transition
	Workforce required training on new tools	Provide step by step training and user-friendly document action
	Disruption during implement actions	Implement the system in phases to minimize operational impact
Technical Risks	System downtime during peak week	Conduct thorough system testing before deployment
	Cybersecurity threats or data breaches	Use encryption firewalls and regularly security audits
	Integration issues with existing tools	Work with experience vendors for seamless integration
	Scalability issues during high demand	Opted for cloud-based solutions to support scaling requirements
Process Risks	Inaccurate data entry by users	Implement automated validation checks for data input
	Errors food preparation due to system reliance	Maintain manual overrides and backup processes for critical operations
	Low user adoption of pre-order or feedback features	Run awareness campaign for highlighting the system benefits

9.0 Expected Outcomes

The Digital Canteen Optimization project aims to enhance both the employee experience and operational efficiency within the canteen. The expected outcomes include improvements in employee productivity and satisfaction, as well as overall operational efficiency and cost savings.

9.1 Employee productivity and satisfaction

- **Employee Productivity**: By minimizing the time employees spend waiting for food, they can devote more time to their work. A more efficient canteen system allows employees to eat quickly and return to their tasks, which may lead to higher productivity levels throughout the day.
- **Employee Satisfaction**: The project is expected to significantly improve employee satisfaction by providing a streamlined and efficient canteen experience. Features like a digital ordering system, pre-ordering meals, and shorter queues will reduce waiting time and make the food purchasing process more convenient. This will lead to a better overall experience.

9.2 Operational Efficiency and Cost Saving

- **Operational efficiency**: The digital canteen system will optimize various aspects of the canteen's operations, including order management, inventory tracking, and meal preparation. Through real-time data, the system will help track inventory more accurately, ensuring that the canteen only orders and prepares what is necessary. This will reduce food wastage, improve inventory management.
- **Cost Savings**: By reducing food wastage, improving inventory management, and optimizing staff resources, the digital solution is expected to generate cost savings for the canteen. For example, knowing exactly how many meals are ordered and prepared will lead to fewer leftovers and wastage. Additionally, efficient staff management can reduce labour costs.

10.0 Conclusion and recommendations

- Conclusion

The Digital Canteen Optimization project successfully identifies and addresses key challenges in the current canteen operations. The proposed solution focuses on enhancing employee satisfaction, streamlining canteen staff operations, and improving overall management efficiency. Key improvements include reduced wait times, better inventory management, and minimized food wastage.

- Recommendations
  - Train canteen staff to efficiently use the digital system.
  - Regularly update the menu and inventory in the system to avoid discrepancies.
  - Implement a feedback loop to gather ongoing suggestions for system improvement.
  - Monitor system performance and resolve technical issues proactively to ensure smooth operations.

11.0 Appendices

11.1 Updated process flow Diagrams

Updated workflow has been covered in section 6.2.1

- **As-Is Process**: See Section 6.1.1 for a detailed view of the current manual process.
- **To-Be Process**: See Section 6.1.2 for the improved digital workflow.
- **Comparison of As-Is and To-Be**: See section 6.3

11.2 Documentation

Document Name	Purpose	Link to full document
Elicitation Techniques (Survey, Interview)	Gather insights to define and prioritize project requirements.	View Techniques
User Stories	Provide clear, user-centered requirements	View User-Stories
Jira Board	Jira board is visually track and manage tasks, user stories and workflows in an organized manner.	View Jira Board

12.0 References and Resources

- Resources
  - **Workflow Diagrams**: Draw.io for creating As-Is and To-Be workflows.
  - **Documentation Tools**: Microsoft Word, Google Docs.
  - **File Sharing**: Google Drive, for collaboration and storing project artifacts.