

Majors: SCM

Major/No: BBA21

**Improving Supply Chain Efficiency through Forecasting and Digital Inventory
Management: A Case Study of Sunlight Bakery.**



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Spring 2026

FINAL PROJECT APPROVAL SHEET

Open Defense Examination

Open Defense Date --- / --- / ---

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I. ACKNOWLEDGEMENT

First of all, we would like to thank Allah the Almighty for giving us the knowledge, skills, and perseverance to complete this project.

We are very thankful to our supervisor, Ms. Javeria Aftab, for her guidance and support throughout our research. Her expertise and encouragement have been key to our work on this innovative topic.

We would like to thank our parents, siblings, batchmates, friends, and respected teachers whose support and encouragement motivated us throughout this project. They have all been an integral part of our success.

I especially want to appreciate and show my gratitude to Sunlight Bakery, which helped us a lot in providing useful insights on how the supply chain functions in their organization. We have addressed the key challenges faced by the organization in our FYP.

Finally, we are grateful to Bahria University, Islamabad Campus, for providing us with a platform to publish our work. We are grateful for the opportunity and support from our esteemed institute.

II. ABSTRACT

The operational activities and supply chain problems of a bakery business, “Sunlight Bakery,” located in Pakistan, that sells cakes, pastries, breads, cookies, and customized bakery products to individual and commercial customers were explored in this project. The study revealed that several key challenges exist: variation of demand, complexity of customized orders, inventory management problems, limited storage space, and manual operational processes. The external factors, such as fluctuations in raw material prices, seasonal fluctuations in demand, growing competition in the market, and power outages, and internal factors such as the limited use of technology, non-automated inventory systems, and limited production space, all further compound the problems. The study suggested practical and cost-effective solutions such as improved demand forecasting methods and digital order and inventory management systems. The recommendations are intended to increase operational efficiency, reduce waste, enhance supply chain performance, and improve customer satisfaction. The findings of this research may be useful for small and medium-sized bakery businesses in Pakistan.

EXECUTIVE SUMMARY **10**

CHAPTER 1: INTRODUCTION **12**

1.1. BACKGROUND OF THE COMPANY SUNLIGHT BAKERY	12
1.2. PROJECT OBJECTIVES	12
1.3. COMPANY PROFILE	13
1.4. PRODUCTION PROCESS	13
1.5. PRODUCT RANGE	14
1.6. DEPARTMENTS OF SUNLIGHT BAKERY	15
1.6.1. PRODUCTION DEPARTMENT:	15
1.6.2. PROCUREMENT DEPARTMENT:	15
1.6.3. SALES AND RETAIL DEPARTMENT:	15
1.6.4. INVENTORY AND STOCK MANAGEMENT DEPARTMENT:	15
1.6.5. FINANCE AND ACCOUNTS DEPARTMENT:	16
1.6.6. QUALITY CONTROL (QC) DEPARTMENT	16
1.7. STAKEHOLDERS OF SUNLIGHT BAKERY	16
1.7.1. CUSTOMERS	16
1.7.2. SUPPLIERS	17
1.8.1. OWNER / MANAGING DIRECTOR	18
1.8.2. PRODUCTION MANAGER	18
1.8.3. SALES MANAGER	18
1.8.4. FINANCE MANAGER	18
1.8.5. SKILLED WORKERS	18
1.8.6. NON-SKILLED WORKERS (CLEANING AND HELPERS)	19
1.9. PROBLEM IDENTIFICATION	19
1.9.1. MATERIAL PROCUREMENT IS IMPACTED BY POOR FORECASTING OF DEMAND	19
1.9.2. MANUAL RECORD KEEPING IS CAUSING INVENTORY MANAGEMENT FAILURES	20
1.9.3. ORDER COMPLEXITY AND DEMAND VARIABILITY IN ONE-OF-A-KIND ORDERS	20
1.9.4. POOR STORAGE CONDITIONS RESULTING IN PRODUCT DETERIORATION AND INVENTORY	20

CHAPTER 2: LITERATURE REVIEW **21**

2.1. DEMAND FORECASTING INACCURACIES AND THEIR IMPACT ON PROCUREMENT AND SUPPLY CHAIN RESPONSIVENESS.	21
2.2. INADEQUATE STORAGE PRACTICES AND THEIR IMPACT ON INVENTORY SPOILAGE AND SUPPLY CHAIN WASTE.	22
2.3. WEAK SUPPLY CHAIN ALIGNMENT AND INVENTORY INEFFICIENCY.	23
2.4. THE DISRUPTION OF ENERGY SUPPLY SYSTEMS CREATES PROBLEMS THAT AFFECT BOTH INVENTORY STORAGE METHODS AND PRODUCTION OPERATIONAL SPEED.	24

CHAPTER 3: CHALLENGES & SOLUTIONS
26

3.1. CHALLENGES:	26
3.1.1. MATERIAL PROCUREMENT IMPACTED BY POOR FORECASTING OF DEMAND	26
3.1.1.1. Seasonal and Occasional Demand Fluctuations Are Not Accounted For	26
3.1.1.2. Poor Demand Forecasting Process	27
3.1.1.3. Expiry and Quality Risks:	27
3.1.1.4. Cannot monitor ingredient intake and waste rates.	27
3.1.1.5. Restricted employee training around forecasting techniques:	27
3.1.2. MANUAL RECORD KEEPING CAUSING INVENTORY MANAGEMENT FAILURES	28
3.1.2.1. Common Stock Count Errors:	28
3.1.2.2. Time-Consuming Stock Audits	28
3.1.2.3. Delayed Stock Level Reporting	29
3.1.2.4. More employee workload and too much paperwork	29
3.1.2.5. Lack of Inventory Reports for Informed Business Decision Making	29
3.1.3. ORDER COMPLEXITY (DEMAND VARIABILITY) CUSTOMIZATION	29
3.1.3.1. lack of available and consistent skilled staff	30
3.1.3.2. The complexity of orders increases during festive seasons	30
3.1.3.3. Does not have a history of orders there are some limitations on predicting future demands	31
3.1.3.4. Sourcing of special ingredients for custom orders is not available.	31
3.1.3.5. Limited Adaptation to Changing Customer Design Preferences	31
3.1.4. INADEQUATE STORAGE CONDITIONS THAT RESULT IN DETERIORATION AND PRESERVATION OF THE PRODUCT	32
3.1.4.1. Limited Cold Storage Capacity Restricting Perishable Inventory	32
3.1.4.2. Refrigeration stability will be affected	32
3.1.4.3. The ingredients that speed up the spoilage process.	33
3.1.4.4. Temperature Instability Due to Frequent Power Outages	33
3.1.4.5. Limited storage capacity will prevent buffer stock and bulk inventory from being held.	33
3.2. SOLUTIONS	34
3.2.1. SOLUTION MATERIAL PROCUREMENT IMPACTED BY POOR FORECASTING OF DEMAND	34
3.2.2. SOLUTION FOR MANUAL RECORD KEEPING CAUSING INVENTORY MANAGEMENT FAILURES	35
3.2.3. SOLUTION CUSTOMIZED ORDER COMPLEXITY CREATING DEMAND VARIABILITY	36
3.2.4. INADEQUATE STORAGE CONDITIONS LEADING TO PRODUCT DETERIORATION AND INVENTORY PRESERVATION	37

CHAPTER 4: TESTING & IMPLEMENTATION
39

4.1. IMPLEMENTATION	39
4.1.1. MATERIAL PROCUREMENT IMPACTED BY POOR FORECASTING OF DEMAND	39
4.1.2. IMPLEMENTATION FOR MANUAL RECORD KEEPING CAUSING INVENTORY MANAGEMENT FAILURES	41

4.1.3.	IMPLEMENTATION FOR CUSTOMIZED ORDER COMPLEXITY CREATING DEMAND VARIABILITY	44
4.1.4.	IMPLEMENTATION FOR INADEQUATE STORAGE CONDITIONS LEADING TO PRODUCT DETERIORATION AND INVENTORY PRESERVATION	46
4.2.	SWOT ANALYSIS OF SUNLIGHT BAKERY	48
4.2.1.	STRENGTHS (CORE BUSINESS ADVANTAGES)	48
4.2.1.1.	consistent daily production	48
4.2.1.2.	The bakery is situated in a high-traffic area	49
4.2.2.	WEAKNESSES (OPERATIONAL INEFFICIENCIES)	49
4.2.2.1.	A limit on the number of facilities, storage spaces, and storage caps.	49
4.2.3.	OPPORTUNITIES (GROWTH AND EXPANSION)	49
4.2.3.1.	Low expenditure on storage and renewables upgrades	49
4.2.3.2.	Increasing Market Preference	50
4.2.4.	THREATS	50
4.2.4.1.	Increasing energy costs and power outages	50
4.2.4.2.	Competition from Modern	50
4.3.	PESTLE ANALYSIS OF SUNLIGHT BAKERY	51
4.3.1.	P: POLITICAL FACTORS	51
4.3.1.1.	Government Price Controls on Essential Ingredients	51
4.3.2.	E: ECONOMIC FACTORS	52
4.3.2.1.	Rising Operational Costs	52
4.3.2.2.	Losses due to energy disruptions.	52
4.3.3.	S: SOCIAL FACTORS	52
4.3.3.1.	Public Concern for Hygiene and Food Safety is being raised.	52
4.3.3.2.	Reputation Fragility	53
4.3.4.	T: TECHNOLOGICAL FACTORS	53
4.3.4.1.	No DFF or Waste Tracking Tool	53
4.3.4.2.	No CCTV or Storage Security System	53
4.3.5.	L: LEGAL FACTORS	54
4.3.5.1.	Risk of Sudden Enforcement	54
4.3.5.2.	Labor Law Obligations	54
4.3.6.	E: ENVIRONMENTAL FACTORS	54
4.3.6.1.	Weather-Related Spoilage Risks	54
4.3.6.2.	Worker Health and Sustainability Concernsv	54
CHAPTER 5: LIMITATIONS & RECOMMENDATIONS		55
5.1.	LIMITATIONS OF THE STUDY	55
5.2.	RECOMMENDATIONS	55
5.2.1.	GROW DEMAND FORECASTING AND INVENTORY MANAGEMENT	55
5.2.2.	STANDARDIZE CUSTOMIZED ORDERS	56

	9
5.2.3. OPEN UP A PRE-ORDER SYSTEM	56
5.2.4. IMPROVE SUPPLIER CO-ORDINATION.	56
5.2.5. TRAIN EMPLOYEES AND ENHANCE THE FLEXIBILITY OF THE WORKFORCE	56
5.3. CONCLUSION	56
REFERENCES	58
ANNEXURES 1.	59

Executive Summary

Situated in Rawalpindi, a city in the province of Punjab, the Sunlight Bakery is operated locally. This bakery was established by Kashif and Sons four years ago, but maintained its presence in the local markets soon by providing freshly-baked goods at competitive and affordable prices. The business consists of only a retail outlet and a single in-house kitchen producing all of its products. As a single entity, it thus produces, manages, and sells its goods directly to its customers on the premises. The bakery sticks to its core philosophy that revolves around freshness and quality, which are ensured by its direct control over the production and distribution, guaranteeing customer satisfaction and product quality, and its capacity to meet the increasing demand for freshly-baked goods daily, claiming to be proud of baking and providing its products. This research is based on the Sunlight Bakery, a bakery in Pakistan.

The research primarily covers the internal operational activities, supply chain problems, and product conversion activities of the Sunlight Bakery. The focus remained on the major operational problems that Sunlight Bakery is facing, that chiefly include a weak forecasting of demand, difficulties faced to manage customized customer orders, inefficient procurement of basic materials used in production, spoilage of inventory which is mainly due wrong storage practices and lastly the challenges faced to comply with urgent orders within limited time. This research also indicated and analysed the history of the bakery, its production processes, its various product ranges, the quality control procedures it adopts, its inventory management system and supply chain operations, also the main organizational structure indicating its principal stakeholders' participation, and their departmental roles. Additionally, the research included SWOT and PESTLE analysis of these areas to evaluate the internal and also the external business environment of Sunlight Bakery.

The purpose of this analysis was to cover remaining other areas such as inventory management, sales tracking, production efficiency and customer handling to assess and highlight the bakery's potential for its structured growth and improved profitability. The research followed a mixed analysis method to evaluate and improve the working processes of Sunlight Bakery. Most of the data was collected through interviews and discussions with the owner and the staff. The data was also collected through a direct observation of the daily operational processes, including procurement, production, inventory management, sales, and orders. The operational challenges and inefficiencies were highlighted through studying its current systems. Based on the analysis, it was concluded that an improved Bakery Management System was designed, and Microsoft Excel was used to maintain and regulate the inventory control, sales recording, production planning, and stock monitoring. For waste tracking and reporting solutions also, the management had no system but to use MS Excel. This system was checked by comparing the current manual processes with the better digital workflow.