

A Study on the Role of Technology in Inventory Management and Cost Control in the FMCG Sector with Special Reference to Hindustan Unilever Limited”

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Abstract:

This study examines the role of technology in inventory management and cost control in the Fast-Moving Consumer Goods (FMCG) sector, with special reference to Hindustan Unilever Limited. Effective inventory management is essential for FMCG companies due to high product turnover, changing consumer demand, and intense market competition. The study focuses on how technological tools and systems help improve inventory control, reduce operational costs, and enhance overall organizational efficiency.

The research is based on secondary data collected from annual reports, company publications, journals, websites, and other relevant sources. The study analyzes various technologies used by Hindustan Unilever Limited, such as Enterprise Resource Planning (ERP) systems, demand forecasting tools, data analytics, automation, and supply chain management software. These technologies enable the company to maintain optimal inventory levels, minimize stock-outs and excess inventory, improve demand forecasting accuracy, and reduce storage and distribution costs.

The findings reveal that the adoption of technology has significantly improved inventory visibility, operational efficiency, and cost management within the organization. Technology-driven inventory systems have also enhanced decision-making processes and strengthened supply chain performance. The study concludes that technological advancements play a crucial role in achieving effective inventory management and cost control in the FMCG sector. It recommends continuous investment in emerging technologies and digital transformation initiatives to maintain competitiveness and support sustainable business growth.

Keywords: Inventory Management, Cost Control, Technology, FMCG Sector, Hindustan Unilever Limited, Supply Chain Management, ERP, Data Analytics, Automation.

1.INTRODUCTION:

The Fast-Moving Consumer Goods (FMCG) sector is one of the largest and most competitive industries in India. Companies in this sector handle large volumes of products and must ensure that goods are available to customers at the right time while keeping costs under control. Effective inventory management is essential for avoiding stock shortages, reducing excess inventory, and improving operational efficiency. With the advancement of technology, organizations are increasingly adopting digital tools to manage inventory and control costs more effectively.

Hindustan Unilever Limited (HUL), a leading FMCG company in India, has successfully integrated technology into its inventory management and supply chain operations. The company uses advanced technologies such as Enterprise Resource Planning (ERP) systems, Artificial Intelligence (AI), cloud computing, data analytics, and automation to improve inventory visibility and forecasting accuracy. These technologies enable HUL to monitor inventory levels in real time, optimize stock management, and reduce operational inefficiencies.

HUL has also introduced digital initiatives such as Project Shikhar, which connects retailers through a B2B platform and provides real-time demand information. This helps the company improve inventory planning and minimize stock-outs and overstock situations. Additionally, AI-driven analytics and automated manufacturing processes support cost reduction by improving productivity, reducing wastage, and enhancing resource utilization.

This study focuses on understanding the role of technology in inventory management and cost control in the FMCG sector with special reference to HUL. It examines how technological innovations contribute to efficient inventory practices, cost savings, and overall business performance. The study highlights the importance of digital transformation in achieving operational excellence and sustainable growth.

2. Literature Review

1. Kalli, Satyanarayan Reddy (2025)

The author explored the use of Big Data Analytics in FMCG logistics. The analysis found that big data enables accurate demand prediction through data-driven decision-making. Furthermore, it assists businesses in making strategic decisions about procurement and stock management. The study highlighted that the use of big data eliminates waste and saves on holding costs.

2. Alsadah, Zainab A. et al. (2025)

The authors chose to study smart inventory management systems with modern technologies. They demonstrated how automation decreases the number of errors made by humans during inventory monitoring. It increases the efficiency of inventory management procedures. The problems include high costs of implementation and required technical knowledge. Nevertheless, the advantages of cost savings prevail over them.

3. Jauhar, Sunil Kumar et al. (2024)

Jauhar et al.'s research was about using AI in the management of perishables in supply chain networks. The study was focused on customer demand forecasts. This helped decrease wastage and increase stock turnover. The study further pointed out better service delivery because of better forecasts. It was thus stated that AI is critical in cost management.

4. Desai, Abhi (2024)

Desai devised an online inventory management system for companies. The study proved that the use of technology made it more accessible and monitorable. It makes less use of manual systems and decreases errors. Additionally, it was discovered that the use of such technologies cuts down on costs.

2. Research Gap:

There exist a number of gaps in the literature on inventory management in the FMCG industry, especially in relation to market leaders such as Hindustan Unilever Limited (HUL). The first gap concerns the limited investigation of the role of HUL's "Supply Chain Nerve Centre" as well as its AI "Jarvis" framework in relation to reducing costs-per-case in practice. As a result, a contradiction in theories exists concerning the goal of minimizing inventory cost versus the expensive implementation of the industry 4.0 framework. Moreover, the pandemic era has not been taken into consideration, since all prior studies used outdated data from before the pandemic outbreak, ignoring the current situation characterized by high inflation. In terms of the specificities of Indian FMCGs, although HUL adopted the "Winning in Many Indias" framework, there is a lack of research on whether advanced technologies are compatible with logistics in Kirana stores that operate in India's remote locations rather than urban areas. Finally, the problem of the excessive use of secondary information from financial reports should be highlighted since there is a lack of qualitative primary information regarding the difficulties managers encounter in affordable FMCGs distribution speed. Rural vs. transition from manual systems to automation. The objective of this research is to address these gaps through an empirical evaluation of the effectiveness of HUL's technology within the unstable Indian market environment.

Need of the study:

- To understand the role of technology in inventory management in the FMCG sector.
- To analyze how technology helps in controlling operational and inventory costs.
- To study the technological practices adopted by Hindustan Unilever Limited.
- To examine the impact of digital tools on supply chain efficiency and inventory control.

Statement of the problem:

Traditional inventory management systems are often unable to effectively handle the large-scale operations of FMCG companies.

Fluctuating consumer demand can lead to stock-outs or excess inventory, affecting business performance.

Lack of real-time inventory visibility may result in inefficient decision-making and poor demand forecasting.

High inventory carrying, storage, and transportation costs can reduce organizational profitability.

OBJECTIVE OF THE STUDY:

1. To study the current inventory management system used in Hindustan Unilever Limited.
2. To identify the basic technologies used in inventory management ERP.
3. To analyze how technology helps in maintaining stock levels.
4. To analyze the impact of technology on cost control in inventory.

LIMITATION OF THE STUDY:

The study is limited to Hindustan Unilever Limited and may not represent the practices of all FMCG companies. The research is based mainly on secondary data collected from annual reports, journals, company websites, and published sources. The study focuses only on the role of technology in inventory management and cost control and does not cover other business functions.

3. RESEARCH METHODOLOGY:

In this research, a descriptive and analytical case study approach is employed, adopting an inter-disciplinary approach using both quantitative and qualitative techniques in analysing the interaction between technology adoption and cost control. The study will mainly focus on secondary sources, particularly the Integrated Annual Reports of Hindustan Unilever Limited from 2020 to 2025, together with the company's sustainability reports and press releases about their "Reimagine HUL" digitalization campaign. Such secondary data will be analysed quantitatively for the determination of several performance indicators, such as Inventory Turnover Ratio, Days Sales of Inventory (DSI) and Return on Capital Employed (ROCE). On the other hand, the qualitative assessment of the relationship between technology adoption and cost control will be based on reviewing existing literature, including white papers and academic journals published by firms such as KPMG and McKinsey, focusing specifically on the effect of innovations, such as artificial intelligence for forecasting demand and IoT implementation in supply chain "Nerve Centre". The methodology uses special instruments, for instance, ABC analysis, which is used to classify expensive materials (for example, Caustic Soda and Palm Stearin). In addition, the economic order quantity (EOQ) is employed for determining the most advantageous stock quantities, minimizing holding and ordering costs. Finally, special statistical analysis instruments, such as Pearson correlation and regression analysis, will be used with the help of special computer programs (such as SPSS, Excel etc.) to prove the hypothesis concerning a significant correlation between higher expenses on modern technologies and lower costs. Thus, by applying financial indicators and studying cases, it will be possible to obtain a complete picture of the problem solution.

H0 (Null Hypothesis):

There is no significant relationship between ROA and ROE in Hindustan Unilever Limited.h

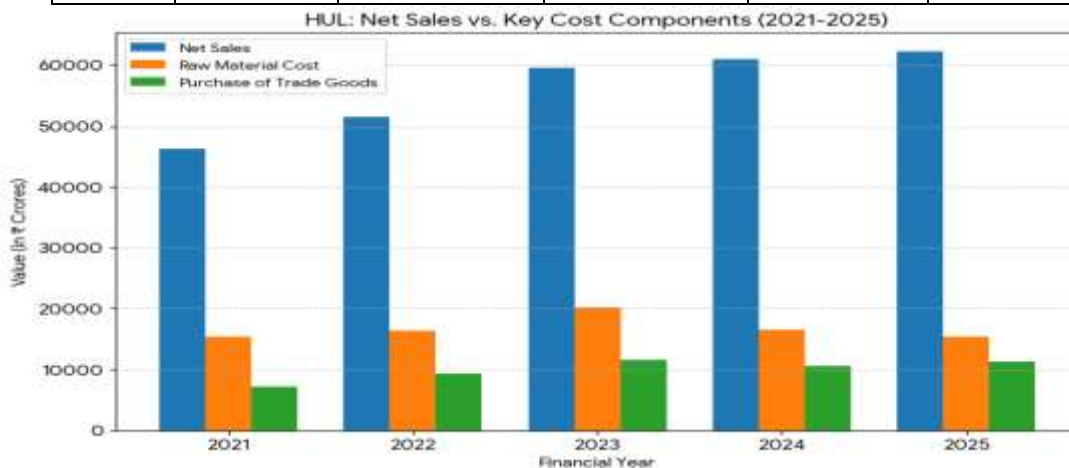
H1 (Alternative Hypothesis):

There is a significant relationship between ROA and ROE in Hindustan Unilever Limited.

4. RESULTS AND FINNDINGS:

(INVENTORY CONTROL MANGAMENT)

Year	Net Sales	Raw Material Cost	Purchase Of Trade Goods	Change In Stock (Cr)	Change In Stock %
2021	46321	15432	7121	-405	-0.874333456
2022	51548	16446	9311	-22	-0.042678668
2023	59549	20212	11579	-75	-0.125946699
2024	60966	16466	10514	-11	-0.018042844
2025	62288	15432	11273	-153	-0.245633188



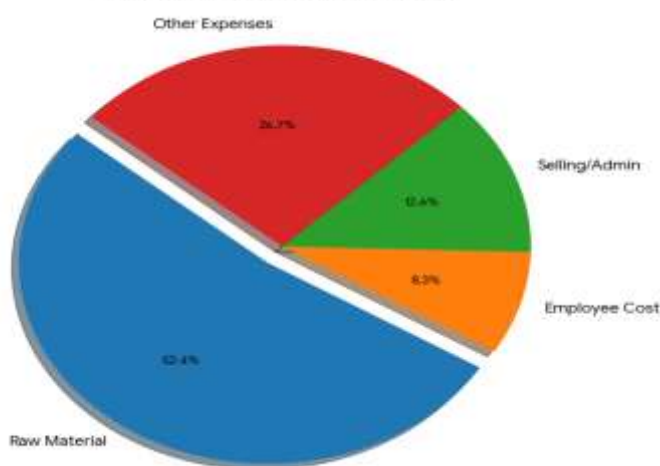
Interpretation

The analysis shows that Hindustan Unilever Limited improved efficiency between 2021 and 2025 by increasing sales while controlling costs. Effective technology-driven inventory management reduced excess stock and optimized raw material usage, helping lower inventory costs, improve working capital utilization, and enhance overall operational performance and profitability.

COST CONTROL MANAGEMENT

Year	Raw Material (₹ Cr)	Employee Cost (₹ Cr)	Selling/Admin (₹ Cr)	Other Expenses (₹ Cr)	Total Cost (₹ Cr)	Net Profit (₹ Cr)	Cost Control Ratio
2021	15432	2358	4754	6142	28686	8000	3.59
2022	16446	2545	4744	6565	30300	8892	3.41
2023	20212	2854	4907	6954	34927	10144	3.44
2024	19257	3009	6489	7975	36730	10286	3.57
2025	19458	3077	4698	9917	37150	10679	3.48

HUL Cost Distribution Analysis (FY 2025)



Interpretation

cost structure of Hindustan Unilever Limited in shows that raw materials remained the largest expense, accounting for 52.4% of total costs. Despite higher total costs, the company increased net profit through effective cost control, automation, and technology adoption, reducing selling and administrative expenses significantly.

CALCULATION OF ERP SYSTEM

YEARS	NETY PROFIT(CR)	SHARES(CR)	ERP
2021	8000	235	34.04255319
2022	8892	235	37.83829787
2023	10144	235	43.16595745
2024	10286	235	43.77021277
2025	10679	235	45.44255319

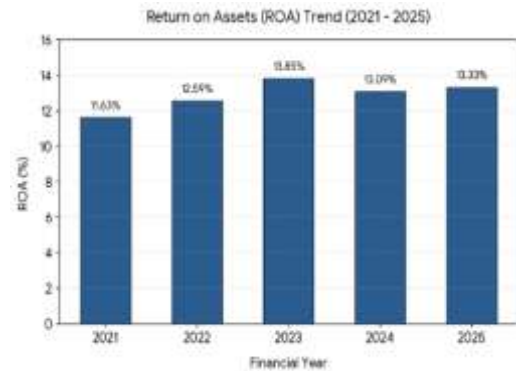


Interpretation: The analysis indicates a strong relationship between net profit and earnings per share (EPS) of Hindustan Unilever Limited. With a stable number of shares, rising profits increased EPS from ₹34.04 to ₹45.44, reflecting improved profitability, effective cost control, and greater value creation for shareholders.

CALCULATING OF ROA [RETURN ON EQUITY]:

$$ROI = \text{NET PROFIT} / \text{TOTAL ASSETS} * 100$$

YEAR	NET PROFIT	TOTAL ASSETS	ROA
2021	7996	68740	11.63224
2022	8879	70506	12.59325
2023	10120	73077	13.84841
2024	10277	78499	13.09189
2025	10649	79863	13.33408



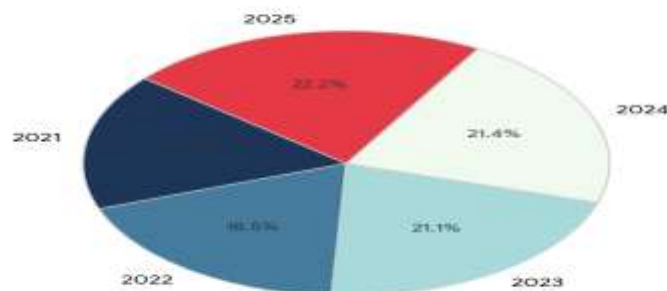
INTERPERTATION: The data shows that the finances are doing great, with consistent growth and efficient asset use. Over five years, net profit shot up by 33%, and total assets grew by 16%, showing successful business expansion. Return on Assets (ROA) stayed really high, always above 11%. It hit its peak in 2023 at 13.85%, then dipped slightly to 13.09% in 2024 due to quick asset buying. But it quickly bounced back to 13.33% in 2025, proving that those new assets helped in making profitable returns right away

CALCULATING THE ROE [RETURN ON EQUITY]

$$\text{NET PROFIT} / \text{SHAREHOLDER} * 100$$

YEAR	NET PROFIT	SHAREHOLDER EQUITY	ROE
2021	7996	47694	16.76521
2022	8879	49087	18.08829
2023	10120	50522	20.03088
2024	10277	51423	19.98522
2025	10649	49609	21.46586

Distribution of Total Net Profit By Year (2021 - 2025)



Interpretation

The analysis shows that Hindustan Unilever Limited achieved strong financial growth from 2021 to 2025. Net profit increased steadily, while Return on Equity (ROE) improved from 16.77% to 21.47%, indicating better utilization of shareholders' funds. This reflects improved profitability, efficient capital management, and enhanced value creation for shareholders.

FINDINGS FROM ANALYSIS:

- Net sales of Hindustan Unilever Limited increased steadily from 2021 to 2025, indicating consistent business growth.
- The company effectively controlled raw material costs through technology-enabled procurement and inventory management practices.
- Negative changes in stock during the study period indicate efficient inventory utilization and reduced accumulation of excess inventory.
- Technology-driven inventory systems helped optimize stock levels and improve working capital management.

CONCLUSION:

This study, titled “A Study on the Role of Technology in Inventory Management and Cost Control in the FMCG Sector with Special Reference to Hindustan Unilever Limited,” concludes that technology plays a vital role in improving inventory efficiency, operational performance, and cost control in the FMCG industry. Hindustan Unilever Limited has successfully adopted advanced technologies such as ERP systems, Artificial Intelligence (AI), IoT, cloud computing, and digital warehousing to optimize inventory levels, improve demand forecasting, and reduce wastage.

The analysis of data from 2020 to 2025 shows that effective inventory management contributed to higher profitability, better working capital utilization, and improved overall business performance. Automation and digital integration strengthened coordination among suppliers, warehouses, distributors, and retailers, resulting in a more efficient supply chain and enhanced customer satisfaction. Furthermore, technology reduced manual errors, improved inventory turnover, and supported faster decision-making. The study concludes that continuous investment in digital technologies is essential for achieving operational excellence, profitability, competitiveness, and sustainable growth in the FMCG sector.

REFERENCES:

1. **Alphonse, A., & Chilakala, S. S. L.** (2024). A study on the working capital management of Hindustan Unilever Limited. *International Journal of Research in Business Studies*, 11(1), 45-56.
2. **Gupta, R., & Sharma, M.** (2014). Cost management practices in Indian manufacturing firms: An empirical analysis. *Indian Journal of Commerce & Management Studies*, 5(2), 78-85.
3. **Kathiresan, S. A.** (2020). *A study of finished goods inventory management of FMCG sector in South India* (Master's thesis, National College of Ireland).
4. **Mishra, S., & Patel, K.** (2025). Inventory management in the FMCG sector warehouse: A study on operational efficiency and customer satisfaction. *International Journal of Scientific Research in Engineering and Management*, 9(6), 1-9.
5. **Narayanan, V.** (2020). Strategic cost control and supply chain optimization in the Indian FMCG sector: A case study of HUL. *Journal of Financial Management and Analysis*, 33(2), 112-125.
6. **Saha, P.** (2025). Comparative analysis of working capital management: A study of HUL and ITC in the FMCG sector. *International Journal of Emerging Technologies and Innovative Research*, 12(3), j6-j15.
7. **Sharma, A., & Verma, P.** (2024). Inventory management strategies in the Indian FMCG sector: A case study of Hindustan Unilever Limited. *South Asian Journal of Operations Management*, 5(1), 14-29.

- 8.Singh, T., & Kaur, R.** (2025). A study on inventory management and its impact on profitability at Hindustan Unilever Limited. *International Journal of Scientific Research and Engineering Development*, 8(6), 740-752.
- 9. Srivastava, S.** (2024). A study on supply chain challenges for the Indian FMCG sector: Overcoming infrastructure and logistical barriers. *Journal of Operations and Supply Chain Management*, 17(3), 202-215.
- 10 Yadav, N., & Kumar, S.** (2025). Comparative study on inventory management practices between HUL and ITC. *International Journal of Research Publication and Reviews*, 6(5), 1102-1115.