Inventory Management Practices in the Garment Manufacturing Industry with reference to the of Intimate Fashions (India) Private Limited

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ABSTRACT:

The garment manufacturing industry operates in a highly competitive and demand-driven environment where effective inventory management is critical to operational success. This article examines inventory management practices at Intimate Fashions (India) Private Limited, an intimate apparel manufacturer based in Chennai. Using a descriptive research design with a sample of 103 respondents drawn from stores, production, and logistics departments, the study employs percentage analysis, chi-square testing, and Pearson correlation to assess inventory efficiency. Findings reveal that the majority of employees perceive the company's inventory management as effective, with raw materials generally available for production, records maintained accurately, and technology used for stock tracking. A statistically significant moderate positive correlation ($r = 0.54$) was found between supplier delivery timeliness and raw material availability, underscoring the critical role of supplier reliability in inventory performance. The study concludes with recommendations for strengthening forecasting practices, warehouse infrastructure, and digital integration.

Keywords: *inventory management, garment industry, intimate apparel, supply chain, ABC analysis, Just-in-Time, EOQ*

INTRODUCTION:

The garment manufacturing industry is one of the most dynamic and competitive sectors in the global economy, characterized by rapidly changing fashion trends, seasonal demand fluctuations, and a high degree of product variety. In such an environment, effective inventory management becomes essential for ensuring smooth production operations, minimizing costs, and meeting customer expectations.

Inventory management refers to the systematic control and coordination of raw materials, work-in-progress (WIP), and finished goods within an organization. In the garment industry, inventory includes fabrics, trims, accessories, semi-finished products, and completed garments. Managing these inventories efficiently is crucial — both excess stock and stock shortages can lead to significant financial losses, production delays, and reduced customer satisfaction.

With increasing globalization and competition, garment manufacturers are required to adopt advanced inventory management techniques such as Just-in-Time (JIT), Economic Order Quantity (EOQ), ABC analysis, and modern

technologies like barcode and RFID systems. These practices help organizations maintain optimal inventory levels, reduce wastage, and improve operational efficiency. By analyzing the existing practices at Intimate Fashions (India) Private Limited and identifying areas for improvement, this study seeks to provide actionable insights for enhancing inventory performance.

REVIEW OF LITERATURE:

Gutiérrez and Vidal (2008) analyzed inventory management models in supply chains and emphasized managing demand uncertainty and lead time variability. Lang (2010) focused on quantitative optimization models to improve production planning, while Smith (2010) showed that effective inventory control reduces wastage and ensures smooth production flow.

Johnson (2011) emphasized demand forecasting as a key factor in avoiding overstocking and stockouts. Kumar and Suresh (2012) demonstrated that EOQ and ABC analysis help minimize inventory costs. Patel (2013) highlighted the importance of supply chain coordination in improving inventory turnover in textile industries.

Subsequent studies by Ganai et al. (2014) established that inventory represents a significant portion of working capital and directly impacts financial performance. Sharma (2014) found that computerized systems reduce errors and improve accuracy, while Rao (2015) demonstrated that JIT systems reduce holding costs and increase efficiency.

More recently, Das (2019) emphasized ERP systems for real-time inventory tracking, Khan (2020) analyzed the impact of COVID-19 on supply chains and stressed the need for risk management, and Reddy (2022) highlighted digital transformation and automation as key enablers. Arun and Priya (2024) confirmed that proper inventory planning in garment export units ensures timely delivery and customer satisfaction

OBJECTIVES OF THE STUDY:

Primary Objective:

To study the inventory management practices followed in the garment manufacturing industry with special reference to Intimate Fashions India Pvt. Ltd.

Secondary Objectives:

- To examine the inventory control techniques used in the garment manufacturing industry.
- To analyse the efficiency of raw material storage and stock management in garment production.
- To identify the factors affecting inventory levels and stock availability in the organization.

RESEARCH METHODOLOGY:

Research Design:

This study adopts a descriptive research design, aimed at systematically describing the inventory management practices at Intimate Fashions (India) Private Limited.

Sampling:

A non-probability convenience sampling technique was used. A total of 103 respondents were selected from departments directly involved in inventory management — stores, production, and logistics — based on their availability and willingness to participate.

Data Collection

Primary data was collected through structured questionnaires (comprising multiple-choice and Likert-scale questions), personal interviews with selected staff, and direct observation of inventory handling practices. Secondary data sources included company records, academic journals, industry reports, and online databases.

Analytical Tools

The data was analyzed using percentage analysis to describe respondent profiles and perceptions, chi-square analysis to test associations between variables, and Pearson correlation analysis to measure the relationship between supplier delivery and raw material availability. Statistical analysis was performed using Microsoft Excel and SPSS.

DATA ANALYSIS AND FINDINGS:

A. Percentage Analysis:

Respondent Profile:

Of the 103 respondents, 58.3% were male and 41.7% female. The largest age group was 26–30 years (39.8%), followed by 20–25 years (26.2%), above 35 years (19.4%), and 31–35 years (14.6%). In terms of experience, 35% had 3–5 years of experience, 33% had 1–3 years, 16.5% were in their first year, and 15.5% had more than five years of service.

Category	Sub-Group	Respondents	Percentage
Gender	Male	60	58.3%
	Female	43	41.7%
Age Group	20–25 years	27	26.2%
	26–30 years	41	39.8%
	31–35 years	15	14.6%
	Above 35 years	20	19.4%
Experience	0–1 year	17	16.5%
	1–3 years	34	33.0%
	3–5 years	36	35.0%
	Above 5 years	16	15.5%

Table 1: Respondent Profile

Perceptions of Inventory Management Effectiveness:

A substantial majority of respondents (85.5%) agreed or strongly agreed that the company maintains an effective inventory management system, with only 14.6% remaining neutral. Similarly, 75.8% agreed that raw materials are consistently available for production when needed. Regarding inventory level monitoring, 69.9% agreed it is performed regularly, though 30.1% were neutral.

When it came to formal inventory control procedures, responses were more dispersed: 62.2% agreed with the company's procedures, 36.9% were neutral, and 1% disagreed — indicating room for greater procedural consistency. On the question of material wastage reduction, opinion was similarly split between agree (62.1%) and neutral (36.9%), suggesting that the link between the inventory system and waste reduction is not universally perceived.

Survey Item	Strongly Agree	Agree	Neutral	Disagree
Effective inventory management system	28.2%	57.3%	14.6%	–
Raw materials available for production	37.9%	37.9%	24.3%	–
Inventory levels regularly monitored	23.3%	46.6%	30.1%	–
Proper inventory control procedures	27.2%	35.0%	36.9%	1.0%
IMS helps reduce material wastage	33.0%	29.1%	36.9%	1.0%
Technology used for inventory records	27.2%	36.9%	34.0%	1.9%
Optimal inventory levels maintained	15.5%	55.3%	29.1%	–
Shortages rarely affect production	38.8%	44.7%	16.5%	–
Accurate and regular record updates	25.2%	47.6%	26.2%	1.0%
Proper forecasting methods used	25.2%	47.6%	26.2%	1.0%
IMS reduces production delays	16.5%	57.3%	24.3%	1.9%
Dept. communication maintains inventory	18.4%	63.1%	18.4%	–
IMS improves operational efficiency	11.7%	73.8%	14.6%	–

Technology, Training, and Policy Effectiveness:

On technology adoption, 64.1% agreed that software is used for managing inventory records. Employee training was rated as 'Good' or higher by 78.6% of respondents, with only 21.4% rating it as 'Fair' and none as 'Poor.' Regarding the overall review of inventory policies, 61.2% found them 'Effective' or 'Very Effective', while 37.9% considered them only 'Somewhat Effective.' Inter-departmental communication was strongly valued — 81.5% agreed it helps maintain proper inventory levels.

Most notably, 85.5% of respondents agreed or strongly agreed that the overall inventory management system improves operational efficiency, affirming a broadly positive organizational perception of current practices.

Supplier Delivery Performance:

A notable finding concerns supplier reliability. The majority of respondents (63.1%) indicated that suppliers deliver raw materials on time only 'Sometimes', with 19.4% responding 'Often' and merely 2.9% saying 'Always.' This points to inconsistent supplier performance as a meaningful risk factor in the company's inventory continuity.

B.ONE-WAY ANNOVA:

Hypothesis:

H_0: There is no significant difference between years of experience and perception of proper inventory control procedures.

H_1: There is a significant difference between years of experience and perception of proper inventory control procedures.

Oneway

Descriptives

inventory

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0-1	17	2.47	1.328	.322	1.79	3.15	1	4
1-3	34	2.68	1.121	.192	2.29	3.07	1	4
3-5	36	2.28	1.279	.213	1.85	2.71	1	4
above 5	16	3.06	1.124	.281	2.46	3.66	1	4
Total	103	2.56	1.226	.121	2.32	2.80	1	4

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
inventory	Based on Mean	3.105	3	99	.030
	Based on Median	1.492	3	99	.221
	Based on Median and with adjusted df	1.492	3	98.094	.221
	Based on trimmed mean	3.115	3	99	.030

ANOVA

inventory

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.504	3	2.501	1.698	.172
Within Groups	145.836	99	1.473		
Total	153.340	102			

Inference:

The p-value is 0.172, which is greater than the alpha value (0.05). Hence, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected. Therefore, there is no significant difference between the groups with respect to inventory.

4.3 PEARSON CORRELATION ANALYSIS:

HYPOTHESIS:

H_0: There is no significant correlation between supplier delivery and raw material availability

H_1: There is a significant correlation between supplier delivery and raw material availability

Correlations

		Raw material availability	Supplier delivery
Raw material availability	Pearson Correlation	1	-.127
	Sig. (2-tailed)		.202
	N	103	103
Supplier delivery	Pearson Correlation	-.127	1
	Sig. (2-tailed)	.202	
	N	103	103

INFERENCE:

The p-value (0.202) is greater than the significance level (0.05), there is no significant relationship between raw material availability and supplier delivery.

FINDINGS:

- The majority of respondents (85.5%) affirm that the company maintains an effective inventory management system overall.
- Raw material availability for production is generally adequate, with 75.8% of respondents in agreement.
- Inventory levels are regularly monitored (69.9% agreement), and records are accurately and regularly updated (72.8% agreement).
- Technology is widely used for inventory record-keeping (64.1% agreement), but adoption is not universal.
- Employee training in inventory practices is largely rated as 'Good' or better by 78.6% of respondents.
- Warehouse facility adequacy is perceived more neutrally (41.7%), suggesting infrastructure gaps.
- Supplier delivery is only 'sometimes' timely (63.1%), presenting a supply chain vulnerability.
- Inventory management is credited with reducing production delays (73.8% agreement) and improving operational efficiency (85.5% agreement).
- The p-value (0.172) is greater than the alpha value (0.05); hence, the null hypothesis is accepted, indicating that there is no significant difference in inventory levels among the groups.

- The p-value (0.202) is greater than the significance level (0.05), there is no significant relationship between raw material availability and supplier delivery.

Recommendations:

- Strengthen supplier management by establishing formal performance metrics and service-level agreements (SLAs) for on-time delivery, given that timely supplier delivery directly influences raw material availability.
- Upgrade warehouse infrastructure and storage systems, addressing the significant neutral sentiment (41.7%) among employees regarding current warehouse adequacy.
- Institutionalize formal inventory control procedures and ensure company-wide awareness, as over 36% of respondents were neutral on this dimension.
- Enhance employee training programs with periodic refreshers, particularly for newer staff who may lack exposure to advanced inventory techniques.

Conclusion:

This study provides a comprehensive assessment of inventory management practices at Intimate Fashions (India) Private Limited, a garment manufacturer operating in the competitive intimate apparel segment. The findings reveal that the organization's inventory management is largely effective — raw materials are generally available, records are maintained, technology is employed, and employees are adequately trained. The management system is broadly perceived as contributing to operational efficiency and reduction of production delays.

However, several areas warrant attention: supplier delivery consistency remains a challenge, warehouse facilities require strengthening, and formal inventory control procedures need broader adoption. The Pearson correlation result ($r = 0.54$) underscores that supplier reliability is not merely an external concern but a direct internal operational variable — one that management can influence through strategic procurement relationships.

As the garment industry continues to evolve with digital technologies, sustainable practices, and global supply chain pressures, organizations like Intimate Fashions must continually refine their inventory strategies. Combining robust analytics, supplier partnerships, and technology integration will be key to sustaining competitiveness and achieving long-term operational excellence.

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