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Opportunities and Challenges of Garment Manufacturing Units in Tirupur

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Abstract: *Tirupur, a major textile hub in India, has become synonymous with high-volume knitwear production and export. This study examines the current landscape of making practices in garment manufacturing units in Tirupur, focusing on both emerging opportunities and existing challenges. Opportunities include advancements in automation, increased global demand for sustainable apparel, product diversification, and strategic benefits from shifting global trade patterns. At the same time, the industry grapples with workforce retention, rising operational costs, infrastructural limitations, and the need to meet strict international compliance standards. This research highlights how adapting to technological innovations and policy support can help the industry navigate these challenges and remain globally competitive. The findings aim to guide manufacturer, policymakers, and investors toward more efficient and sustainable manufacturing practices.*

Keywords: Tirupur, garment manufacturing, making practices, textile industry, automation, labour challenges, sustainability, global trade, compliance, production efficiency

I. INTRODUCTION

The garment manufacturing industry is a critical sector in the global economy, contributing to employment and economic development across countries. Particularly in regions like Tirupur, India, which is renowned for its garment production, this industry plays an essential role in generating revenue and boosting exports. The textile and garment manufacturing units in this region are crucial to India's position in the global apparel market, serving a wide range of customers from international brands to local retailers. As the garment manufacturing units face both opportunities and challenges, the ability to navigate these dynamics becomes key to their sustained growth and global competitiveness. In the garment manufacturing industry, the opportunities for growth and expansion are vast, especially with the increasing demand for fast fashion and the rising awareness of sustainable and eco-friendly fashion. On the other hand, there are significant challenges, including rising labour costs, changing consumer preferences, and the pressure of international competition. Despite these challenges, garment manufacturers continue to innovate and adapt, leveraging advanced technologies, improving supply chain efficiencies, and adopting sustainable practices to remain competitive in a rapidly evolving global market.

II. INDUSTRY OVERVIEW

Shakthi Knitting Private Limited stands as a flagship textile manufacturer in Tirupur, a city globally recognized as a textile hub. Established in 1991, the company has carved a niche for itself in the knitted garments industry by consistently adhering to high standards of quality, customer satisfaction, and environmental responsibility. Leveraging the benefits of vertical integration, the company seamlessly manages every stage of the textile manufacturing process—from yarn procurement and knitting to dyeing, finishing, and garmenting. This allows it to offer complete transparency, better pricing, and consistent quality to its partners and customers. Over the years, Shakthi has aligned itself with evolving global fashion trends while retaining its core values of integrity and sustainable business practices.

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A. Vision

Shakthi Knitting envisions itself as the leading player in the textile industry by delivering world-class knitwear solutions with efficiency, reliability, and a profound sense of responsibility toward the planet and people. Its long-term objective is to become the most dependable and value-driven manufacturing partner for global fashion brands.

B. Organizational Structure

Shakthi Knitting operates with a structured hierarchy, beginning with the Board of Directors, who shape the strategic vision and monitor policy compliance. Reporting to them are heads of departments including Operations, Finance, Human Resources, Quality Control, Sales, and Logistics. Each department is led by seasoned professionals and supported by functional teams to ensure smooth daily operations. A centralized Enterprise Resource Planning (ERP) system integrates functions such as inventory management, production planning, procurement, and shipping, ensuring data transparency and accountability across the organization. Additionally, cross-functional teams handle sustainability, compliance, and CSR, reinforcing the company's commitment to holistic development.

C. Vertical Integration Model

1. Yarn Procurement

This is the first step in the production cycle, where raw cotton is sourced and processed into yarn. At Shakthi Knitting, yarn procurement is done through trusted and certified suppliers who focus on quality and sustainability. The company emphasizes the use of organic and BCI (Better Cotton Initiative) cotton, ensuring that the raw material complies with environmental and ethical standards. Procuring quality yarn sets the foundation for the durability, appearance, and performance of the final garment.

2. Fabric Knitting (Knitsburg)

In this phase, yarn is converted into fabric using high-speed circular knitting machines. The Knitsburg division houses 76 modern knitting machines capable of producing a wide variety of fabric types—such as single jersey, rib, interlock, and yarn-dyed fabrics. The focus here is on consistency, fabric strength, and structural integrity. As a GOTS and Organic Exchange certified unit, Knitsburg ensures that the fabrics meet international standards for organic textiles and environmental safety.

3. Dyeing and Finishing (Colorsburg)

Once the fabric is knitted, it moves to the Colorsburg unit for dyeing and finishing. Here, fabrics are treated for color, texture, softness, and functional properties like anti-pilling or moisture wicking. The dyeing process is 95% automated and uses machinery from global leaders such as Schlavos and Santex. Eco-friendly, low-impact dyes and closed-loop water systems are used to reduce environmental damage. Finishing operations ensure the fabric is pre-shrunk, soft, and ready for cutting and stitching.

4. Garmenting (Bloomsburg)

The Bloomsburg division is responsible for transforming finished fabric into fully tailored garments. This involves several steps—cutting, stitching, printing or embroidery, ironing, and final inspection. The garmenting unit is outfitted with over 1,000 sewing machines and handles orders from global retail giants like H&M, Walmart, and JC Penney. Bloomsburg focuses on mass production with precision, style, and a quick turnaround. Approved by multiple international buyers, this division meets rigorous quality and compliance benchmarks.

5. Quality Control

At every step of the process, strict quality checks are implemented. In yarn procurement, samples are tested for strength and fiber consistency. During knitting, visual inspections and automated sensors detect loop defects or contamination. In dyeing, lab tests are conducted for colourfastness, pH balance, and chemical residue. Garments undergo size

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checking, seam strength testing, and appearance evaluations. This rigorous multi-stage quality control ensures that only defect-free products reach customers.

6. Packaging and Export

Once garments pass final inspections, they are labeled, packed according to buyer specifications, and stored in climate-controlled conditions before shipping. Shakthi Knitting has an in-house logistics and documentation team that handles export formalities, packaging optimization, and shipment tracking. The company's global reach spans across the USA, Europe, Canada, Japan, and the Middle East, and their vertically integrated model helps them consistently meet tight international delivery schedules.

D. Divisional Overview

Knitsburg

Knitsburg handles fabric creation and houses 76 high-speed, imported circular knitting machines capable of producing multiple knit structures such as single jersey, rib, interlock, and more. The facility holds GOTS (Global Organic Textile Standard) and Organic Exchange certifications, validating its commitment to sustainable and organic textile manufacturing.

Colorsburg

Colorsburg is the dyeing and fabric finishing hub. It is equipped with 95% automated machinery from leading brands like **Schlavos** and **Santex**, allowing for consistent dyeing quality and minimal chemical wastage. The division emphasizes green chemistry and water recycling and adheres to **OEKO-TEX** and **GOTS** standards, ensuring that finished fabrics are safe for human use and environmentally friendly.

Bloomsburg

Bloomsburg is the final stage in the manufacturing process, where garments are created from the finished fabric. With a capacity of 40,000 garments per day, this unit operates 1,050 modern sewing machines and includes in-house embroidery and printing facilities. Approved by multinational retail giants such as H&M, JC Penney, and Walmart, the unit maintains strict compliance with international labor and quality standards.

E. Product Lines and Specializations

Casual Wear:

Includes t-shirts, polos, joggers, shorts, and loungewear made from cotton, blends, and organic yarns. These products are popular for their comfort, affordability, and style.

Intimates:

Shakthi manufactures undergarments, camisoles, and sleepwear tailored for softness, skin-friendliness, and aesthetic appeal, ensuring both comfort and design are prioritized.

Performance Thermals:

Developed using technically enhanced fabrics and specialized insulation processes, these thermals are especially suited for cold climates and are in high demand in Europe, North America, and Japan.

Technical and Functional Wear:

This segment caters to sports and utility apparel using advanced fabrics that offer features like sweat-wicking, UV resistance, odor control, and breathability. Ideal for athletes, travelers, and working professionals.

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III. STATEMENT OF THE PROBLEM

The garment manufacturing units in Tirupur are encountering numerous financial challenges, including limited access to finance, fluctuating raw material costs, delayed payments, and poor cash flow management. These issues not only hinder the growth of the industry but also affect its competitiveness in both domestic and international markets. Moreover, while the industry presents numerous opportunities, such as tapping into new international markets, adopting sustainable manufacturing practices, and utilizing technology, the financial constraints faced by these units restrict their ability to exploit these opportunities.

IV. OBJECTIVES OF THE STUDY

1. To assess the impact of financial strategies and decision-making on the performance of garment manufacturing units.
2. To Analyse the Impact of Sustainable Practices on the Garment Manufacturing Units
3. To Evaluate the Role of Technological Innovations in Enhancing Manufacturing Efficiency
4. To suggest measures to enhance the financial stability and growth of garment manufacturing units.

V. SCOPE OF THE STUDY

This study focuses on the financial aspects of garment manufacturing units in Tirupur, with particular emphasis on the challenges and opportunities within the finance domain. The scope of this study includes examining the financial issues faced by small and medium-sized enterprises (SMEs) in the region, the available financial support, and the opportunities for growth. The study will be limited to a sample of garment manufacturing units operating in Tirupur, as this is the region where the industry has the highest concentration. The study will consider financial reports, interviews with key stakeholders, and industry data.

VI. REVIEW OF LITERATURE

(Patel, et al., 2019) "Labor Challenges in the Garment Industry: Addressing Turnover and Automation Barriers." Asian Journal of Textile Industry Studies A different angle to the challenges faced by the garment industry is the issue of labour shortages and high turnover rates, which have been significant barriers to growth. He argues that despite the demand for garments, manufacturers face difficulties in retaining skilled labour. The authors identify poor working conditions, low wages, and lack of career progression as critical factors contributing to employee dissatisfaction and high turnover. Moreover, they note that with rising labour costs, manufacturers are forced to explore automation and robotics as potential solutions to mitigate labour-related challenges. However, the adoption of automation technologies requires considerable investment, which is a significant hurdle for small and medium-sized enterprises (SMEs). While automation presents long-term opportunities, it is also a challenge for firms that cannot afford such technologies in the short term.

(Rajagopal, et al., 2020) Exchange Rate Volatility and Its Impact on Garment Exports from Tirupur. Journal of International Textile Economics Journal of International Textile Economics, 15(2), 98-104.Garment manufacturing units in Tirupur face significant financial challenges due to currency fluctuations, especially because a large portion of their revenue comes from exports. Exchange rate volatility has a direct impact on profit margins, as many manufacturers rely on foreign currency payments for their goods. This unpredictability has led to inconsistent financial planning, making it difficult for companies to set competitive pricing strategies in international markets. Additionally, the rising cost of raw materials exacerbates this issue, creating a situation where many units experience financial strain despite strong demand.

(Kumar, et al., 2021) "Opportunities and Challenges for the Garment Industry: A Comprehensive Analysis," Journal of Textile and Apparel Management The implementation of the Goods and Services Tax (GST) has had a profound effect on the garment manufacturing industry in Tirupur. While the tax system was intended to streamline the taxation process, many manufacturers faced operational and financial challenges during its implementation phase. The complexity of GST filing, delayed refunds, and higher compliance costs were particularly burdensome for smaller garment units. As a result, the industry saw a temporary financial strain, making it difficult for manufacturers to maintain profitability. Nonetheless, GST is expected to create a more organized and transparent market in the long run.

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(Prakash, et al., 2020) Financial Challenges Faced by Tirupur Garment Industry: An In-depth Analysis. Journal of Textile Economics Garment manufacturing units in Tirupur, a key hub for the textile sector in India, face several financial challenges that inhibit their growth. The industry is heavily dependent on credit from financial institutions, yet the access to financing remains limited due to high-interest rates and stringent eligibility criteria. Additionally, many small and medium-sized enterprises (SMEs) within the sector struggle with cash flow issues, aggravated by delayed payments from customers. This financial instability creates an environment where businesses are unable to invest in technology upgrades or workforce training, thus hindering long-term growth. Therefore, enhancing access to affordable and flexible credit facilities could play a significant role in improving the financial health of these units.

(Rajendran, et al., 2020) Financial Sustainability and Risk Management in the Garment Manufacturing Sector: A Study of Tirupur. International Journal of Textile Economics The garment manufacturing industry in Tirupur is highly vulnerable to financial risks, stemming from fluctuations in raw material prices, currency volatility, and global demand shifts. A significant challenge faced by manufacturers is the difficulty in managing working capital efficiently. Delays in receiving payments from domestic and international clients often lead to liquidity issues, restricting the companies' ability to invest in modern technologies or expand their operations. Additionally, manufacturers in Tirupur are exposed to financial risks due to their reliance on import of raw materials, which is subject to international trade policies and exchange rate fluctuations. Studies suggest that a robust financial risk management strategy, including hedging mechanisms and better cash flow forecasting, can help mitigate these challenges.

VII. RESEARCH METHODOLOGY

Research in common parlance refers to a search for knowledge. One can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact, research is an art of scientific investigation. Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability.

A. Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to contribute relevance to the research purpose with economy in procedure. It constitutes the blue print for the collection, measurement and analysis of data. The researcher has planned to use **Descriptive Research Design** in this research. Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the “what” of the research subject rather than the “why” of the research subject.

VIII. FINDINGS

- Majority 41.0% of the respondents are prefer Partnership
- Majority 32.0% of the respondents are belong to Medium (51–250)
- Majority 43.0% of the respondents are prefer Export for primary market
- Majority 28.0% of the respondents are said Bank Loans for Major sources of finance.
- Majority 37.0% of the respondents are Occasionally face cash flow issues
- Majority 31.0% of the respondents are Monthly Review unit’s financial performance
- Majority 53.0% of the respondents said Currently implementing sustainable practices.
- Majority 28.0% of the respondents are preferring Water recycling for sustainable methods used.
- Majority 64.0% of the respondents said Using modern technologies in production
- Majority 37.0% of the respondents said ERP systems for Technologies currently used in unit

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- Majority 34.0% of the respondents are prefer Financial Support for Kind of support need most to grow business
- Majority 37.0% of the respondents are belong to External training institutes for primarily train workers
- Majority 42.0% of the respondents are feel very high for Rate the productivity level of current workforce
- Majority 34.0% of the respondents are prefer Documentation/Regulations for Challenges face in entering international markets
- Majority 69.0% of the respondents are Selling products online or through e-commerce platforms
- Majority 41.0% of the respondents are using amazon platform.
- Majority 40.0% of the respondents are belong to High Shipping Costs for Primary logistics challenges
- Majority 62.0% of the respondents are Collaborating with design firms or fashion consultants for innovation
- Majority 46.0% of the respondents are prefer Highly Effective with Loan Management for Impact of Financial Strategies
- Majority 32.0% of the respondents are belong to Somewhat Challenging with Waste Management, 32.0% of the respondents are belong to Manageable with Training for Sustainability for Challenges in Sustainable Practice Adoption

CHISQUARE ANALYSIS: The Chi-Square test reveals a statistically significant association between the Major sources of finance and Kind of support need most to grow business (Pearson Chi-Square = 242.1, df = 16, $p < .001$). The Likelihood Ratio test also supports this significant association (Chi-Square = 215.547, df = 16, $p < .001$). Furthermore, the Linear-by-Linear Association indicates a significant linear trend between the Major sources of finance and Kind of support need most to grow business (Chi-Square = 89.613, df = 1, $p < .001$)

CORRELATION: The Pearson correlation coefficient between Often face cash flow issues and Kind of support need most to grow business is **0.917**. This indicates a very strong positive, suggesting that Often face cash flow issues are slightly associated with Kind of support need most to grow. The significance level (p-value) is **.000**. This value is much smaller than the conventional significance level of 0.05 (or even 0.01). This means that the correlation of .917 is statistically significant.

ANOVA: The ANOVA results show a statistically significant difference in the review unit's financial performance across the **Review unit's financial performance and** Technologies currently used in unit ($F = 411.757$, $p < .001$). The linear trend is also significant ($p < .001$), indicating a systematic difference between the **Review unit's financial performance and** Technologies currently used in unit. However, the deviation from this linear trend is not significant ($p = .360$).

IX. SUGGESTIONS

Enhance Synthetic Fabric Production: To reduce dependency on other states and lower production costs, it's recommended that the Tamil Nadu government promotes the local production of man-made fabrics (MMF). This initiative can help Tirupur manufacturers compete more effectively with regions like Gujarat and Punjab, where MMF production is more prevalent.

Improve Labor Retention Strategies: Addressing the exodus of migrant workers is crucial. Implementing better living conditions, timely wage payments, and healthcare facilities can help retain the workforce, which is vital for maintaining production levels.

Invest in Sustainable Practices: Continuing to invest in green initiatives, such as zero liquid discharge systems and renewable energy, can enhance Tirupur's appeal to international buyers who prioritize sustainability

Leverage Global Market Shifts: With political instability affecting competitors like Bangladesh, Tirupur has an opportunity to capture a larger share of the global market. Strategic marketing and strengthening trade relations can capitalize on this shift

Advocate for Policy Support: Engaging with policymakers to seek reductions in cotton import taxes and interest rates can provide the necessary support for the industry's growth and competitiveness.

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Promote Automation and Digitization: Encouraging the adoption of automation and digital technologies (e.g., CAD software, automated cutting machines, ERP systems) can improve production efficiency, reduce labour dependency, and enhance quality control—critical in competing globally.

Skill Development and Training Programs: Investing in regular skill development initiatives for workers can address the skill gap and improve productivity. Collaborating with vocational institutions and industry bodies to offer certification courses would also professionalize the workforce.

Strengthen Supply Chain Infrastructure: Enhancing the logistical ecosystem, including warehousing and transport, can streamline procurement and distribution processes. This is especially important for meeting fast fashion deadlines and managing just-in-time production models.

Expand Product Diversification: Manufacturers can explore opportunities beyond knitwear by diversifying into athleisure, technical textiles, or value-added garments. This not only increases revenue streams but also reduces dependency on a single market segment.

Address Compliance and Ethical Standards: Meeting international labour, safety, and environmental compliance standards is increasingly essential. Strengthening internal audit systems and aligning with global certifications (e.g., WRAP, SA8000, GOTS) can open doors to premium export markets.

X. CONCLUSION

The garment manufacturing sector in Tirupur stands at a pivotal juncture, balancing a mix of pressing challenges and promising growth opportunities. Labour shortages continue to strain production capacities, especially with the increasing demand for skilled workers and high attrition rates. Addressing this requires a concerted effort in workforce development through training programs, better working conditions, and strategic migration policies to attract and retain talent. At the same time, the heavy reliance on imported man-made fibres (MMF) has made the industry vulnerable to global price fluctuations and supply chain disruptions. By encouraging domestic MMF production and innovation in textile technology, manufacturers can significantly reduce costs, improve supply stability, and enhance competitiveness. Sustainability has emerged as a non-negotiable standard in global markets, particularly with buyers and consumers increasingly prioritizing environmentally responsible products. Tirupur, already known for some of India's most progressive green manufacturing units, can further solidify its reputation by investing in renewable energy, water recycling systems, and circular production models. These investments not only ensure compliance with global standards but also attract ESG-conscious brands and funding.

Moreover, shifting global trade dynamics—such as the realignment of supply chains post-COVID-19, changing tariff structures, and nearshoring trends—present opportunities for Indian exporters to capture a larger market share. Proactive engagement with policymakers is vital to negotiate favourable trade agreements, improve export infrastructure, and ensure support for MSMEs that form the backbone of the industry. Tirupur's ability to adapt quickly, leverage its entrepreneurial ecosystem, and integrate sustainable and efficient practices will determine its future as a leading hub in the global apparel supply chain.

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