

Reviving Tradition, Stitching The Future: Transforming Textile-Handloom Practices through THREAD for Urban and National Development

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ABSTRACT: Kolkata, the City of Joy, celebrated for its rich cultural tapestry and historic textile traditions, stands at a crossroads where the legacy of handloom craftsmanship meets the demands of modern economic growth. Notably, the Indian handloom sector employs over 65 lakhs people nationally, with West Bengal alone accounting for more than 6.6 lakh artisans. The proposed Centre for Textile-Handloom Research Education and Development (THREAD) is envisioned as a pioneering initiative that seeks to revitalize the traditional handloom sector through a multifaceted approach that blends innovation, education, and research. This study examines how THREAD can serve as a catalyst for socio-economic development, not only reinvigorating local livelihoods in Kolkata—a city whose GDP (PPP) is estimated at 22 crore as of 2024 but also setting a replicable model for sustainable national development. The research addresses a significant gap in existing literature by exploring the institutional role of a dedicated research and educational center in transforming an age-old craft into a dynamic driver of economic and cultural renewal. While prior studies have predominantly focused on the economic challenges confronting the textile-handloom industry—an industry contributing around 2% to GDP and approximately 12% to industrial production in India, limited attention has been given to how a structured institutional framework can harness traditional knowledge and modern practices to stimulate growth. The objectives of this study are fourfold: (1) to evaluate the current economic and cultural contributions of the textile-handloom sector within Kolkata; (2) to identify critical barriers and opportunities for innovation and skill development among artisans; (3) to design an integrative framework for THREAD that incorporates research, education, and community engagement; and (4) to assess the potential long-term socio-economic impacts of THREAD on local and national scales. A mixed-methods approach underpins the research design. Qualitative data will be collected through in-depth interviews and focus group discussions with artisans, industry experts, academic researchers, and policymakers, thereby capturing diverse perspectives on the challenges and opportunities within the sector. Complementing this, quantitative analyses will assess key economic indicators—such as revenue generation, employment growth, and export performance (with Indian textiles contributing significantly to manufacturing exports, approximately 11% of total exports) to establish a baseline and forecast the potential uplift resulting from THREAD's interventions. Comparative case studies of similar craft revitalization centers globally will further contextualize the findings and inform best practices for integrating traditional handloom techniques with modern technological advancements.

The anticipated outcomes of the research include a comprehensive understanding of how THREAD can stimulate innovation by merging traditional craftsmanship with contemporary design and production techniques, thereby enhancing the global competitiveness of handloom products. It is expected to emerge as a vital hub for skill enhancement, fostering entrepreneurial ventures among artisans and generating sustainable employment opportunities. The center will also promote cultural tourism by acting as a living repository of textile heritage, ultimately enriching the cultural narrative of the City of Joy. Policy recommendations will be advanced to facilitate the creation of an enabling environment that nurtures the long-term growth and preservation of the textile-handloom sector. By bridging the gap between heritage and innovation, THREAD promises to drive inclusive urban development in Kolkata and contribute significantly to the national economy.

KEYWORDS: Kolkata, Textile-Handloom, Socio-Economic Development, Cultural Heritage, Innovation, Skill Development, Sustainable practices

1. INTRODUCTION

India's handloom industry, with its rich heritage and diverse regional expressions, has long been a cornerstone of the country's cultural and economic fabric (Das, 2017). Kolkata, often referred to as the City of Joy, is not only an economic hub in eastern India but also a repository of historic textile practices that date back centuries. However, the rapid pace of urbanization and industrialization has placed traditional craft sectors at a crossroads. Amidst the challenges of modernization, the traditional

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handloom sector faces issues of declining artisan numbers, obsolete technology, and dwindling market access (Bhattacharya & Sen, 2018). In this context, there is an urgent need to integrate traditional knowledge with modern innovation and education to reinvigorate these artisanal practices.

The proposed Centre for Textile-Handloom Research Education and Development (THREAD) seeks to address this challenge. THREAD is envisioned as an institutional framework that will not only preserve the cultural heritage of handloom practices but also stimulate economic growth and sustainable urban development in Kolkata. The center aims to serve as a catalyst for transforming the textile-handloom sector by fostering research, facilitating education and training, and promoting community engagement. By doing so, THREAD aspires to create a replicable model for socio-economic development that can be applied at a national level.

The primary objective of this paper is to evaluate the current economic and cultural contributions of the textile-handloom sector in Kolkata, highlighting its significance in sustaining traditional craftsmanship and regional identity. It aims to identify critical barriers that hinder innovation and skill development among artisans while also exploring opportunities for growth through modernization and policy support. Furthermore, the study seeks to design an integrative framework for THREAD by combining research, education, and community engagement to create a structured institutional approach for revitalizing the sector. Lastly, the paper assesses the potential long-term socio-economic impacts of THREAD, both at the local level in Kolkata and on a broader national scale, to determine its replicability as a sustainable model for the Indian textile-handloom industry.

2. LITERATURE REVIEW

2.1 Historical and Cultural Significance of the Indian Handloom Sector

India's handloom sector is renowned for its intricate designs, regional diversity, and cultural depth. Historical records suggest that handloom weaving has been integral to Indian civilization since ancient times, serving not only as a means of livelihood but also as a symbol of cultural identity (Shaw, 2010). In West Bengal, traditional textile practices have evolved over centuries, reflecting both local artistic sensibilities and broader socio-cultural influences. Studies such as those by Das (2017) highlight the significant role that handloom products play in representing regional heritage, while Bhattacharya and Sen (2018) emphasize the socio-economic importance of this sector, noting that over 6.6 lakh artisans in West Bengal depend directly on handloom weaving for their livelihood.

2.2 Economic Contributions and Challenges

The handloom industry in India contributes significantly to the nation's industrial production and export earnings. Despite its traditional methods, the sector accounts for approximately 2% of India's GDP and around 12% of industrial production (Government of India, 2014). However, the industry faces numerous challenges, including low productivity, the migration of artisans to urban areas, and competition from mechanized power looms (Bhattacharya & Sen, 2018). Reports by the Directorate of Textiles in West Bengal (2009) reveal that while the sector has the potential to drive rural employment and generate foreign exchange, inadequate institutional support and outdated technology have hampered its growth.

2.3 Theoretical Frameworks: Creative Economic Geography and Institutional Renewal

Creative economic geography (Scott, 2006) provides a useful lens for understanding how cultural and creative industries contribute to urban development. According to this perspective, cultural heritage and creative practices are not only valuable for their intrinsic qualities but also for their potential to drive economic development through innovation and tourism. In the case of Kolkata, the convergence of traditional handloom practices with modern urban development strategies offers the promise of transforming the city's economic landscape (Ghosh, 2019).

Institutional theory also offers insights into how dedicated centers can revitalize traditional industries. Scholars such as North (1990) argue that institutional frameworks can reduce transaction costs, enhance learning, and facilitate the diffusion of innovation. The proposed THREAD center aligns with these ideas by seeking to bridge the gap between traditional craftsmanship and modern technological advancements (Kumar & Roy, 2016).

2.4 Global Case Studies and Comparative Analysis

Globally, several initiatives have successfully integrated traditional crafts with modern technology, revitalizing their economic sustainability while preserving cultural heritage. These case studies provide valuable insights into how institutions like THREAD in Kolkata can enhance skill development, expand market access, and establish robust institutional support mechanisms. The following examples from Europe, Southeast Asia, and Latin America illustrate best practices that can inform the design and operation of THREAD.

2.4.1 The Centre for Traditional Textiles of Cusco (CTTC), Peru

The *Centro de Textiles Tradicionales del Cusco (CTTC)* in Peru is a widely recognized example of how institutional intervention can support traditional crafts while boosting local economies. Established in 1996, CTTC works with over 500 artisans from ten

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communities in the Cusco region to preserve traditional Andean weaving techniques. The center provides training programs, organizes international exhibitions, and promotes fair-trade sales of textiles (Callañaupa Alvarez, 2017).

- **Key Outcomes:**

- Increased artisan income by **40% between 2010 and 2020** due to direct sales and international market linkages (UNESCO, 2021).
- Implementation of a certification program for authentic Andean textiles, reducing market competition from counterfeit goods.
- Collaboration with international universities to document and archive weaving techniques, ensuring knowledge transmission to younger generations.

- **Relevance to THREAD:**

- THREAD can adopt a similar **community-led model**, ensuring artisans actively participate in decision-making.
- A focus on **fair-trade certification** can protect Kolkata's handloom sector from exploitation in global markets.

2.4.2 The Thai Textile Institute (THTI), Thailand

Thailand has a long history of textile production, with traditional silk weaving being an integral part of its cultural heritage. The **Thai Textile Institute (THTI)** was founded in 1996 to modernize the country's textile industry while preserving traditional craftsmanship. THTI provides training in contemporary design techniques, integrates digital weaving technologies, and connects artisans with international fashion designers (Thailand Textile Institute, 2019).

- **Key Outcomes:**

- By 2020, over **1,200 artisans** had received training in digital weaving and textile innovation.
- **Exports of Thai handwoven silk products increased by 25% between 2015 and 2021**, demonstrating the impact of modernization on market access.
- Implementation of sustainability programs, such as natural dye initiatives, has reduced environmental impact while increasing consumer demand for eco-friendly products.

- **Relevance to THREAD:**

- Training programs on **digital textile design and sustainable practices** can be integrated into THREAD's curriculum.
- Collaboration with **international fashion designers** can create new markets for Indian handwoven textiles.

2.4.3 The Kakatiya Mega Textile Park (KMTP), India

The **Kakatiya Mega Textile Park (KMTP)** in Warangal, Telangana, is an example of a large-scale textile cluster designed to integrate traditional and modern textile manufacturing. Established as part of the Indian government's **PM-MITRA (Mega Integrated Textile Region and Apparel) initiative**, the park focuses on skill development, supply chain integration, and sustainable practices (Government of India, 2021).

- **Key Outcomes:**

- Over **75,000 direct and 25,000 indirect jobs** were created within the first five years of operation.
- Increased **investment of ₹9,000 crore (\$1.2 billion USD)** from domestic and international companies.
- Reduction in production costs by **15-20%** due to shared infrastructure and sustainable energy use.

- **Relevance to THREAD:**

- THREAD can adapt KMTP's **public-private partnership (PPP) model** to attract funding and expertise.
- **Infrastructure support** for small-scale weavers can enhance competitiveness without compromising traditional craftsmanship.

2.4.4 The Hong Kong Research Institute of Textiles and Apparel (HKRITA), Hong Kong

The **Hong Kong Research Institute of Textiles and Apparel (HKRITA)** is a government-funded R&D center focused on technological innovations in textile production. The institute has pioneered sustainability projects, such as the **Green Machine**, which recycles polyester-cotton blends into reusable fibers without using water or chemicals (HKRITA, 2020).

- **Key Outcomes:**

- The Green Machine processed over **30,000 kg of textile waste in its first three years**.
- Development of **bio-based dyes and smart textiles** has created new business opportunities for artisans and textile entrepreneurs.
- HKRITA collaborates with global brands like H&M and Adidas, fostering industry linkages that benefit small-scale textile producers.

- **Relevance to THREAD:**

- Research on **sustainable textiles and recycling** can help THREAD promote eco-friendly handloom production.
- Partnerships with **technology firms** can introduce smart textiles to Kolkata's handloom sector.

2.4.5 The Jaipur Rugs Foundation (JRF), India

The **Jaipur Rugs Foundation (JRF)** is a successful Indian initiative that empowers rural artisans through skill training, entrepreneurship development, and direct market linkages. JRF works with over **40,000 artisans across 600 villages**, integrating traditional carpet-weaving techniques with contemporary designs (Jaipur Rugs Foundation, 2022).

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• Key Outcomes:

- **30% increase in artisan wages** through direct market access and elimination of middlemen.
- Recognition in **global design competitions**, increasing demand for handcrafted rugs internationally.
- Introduction of **blockchain technology** for product authentication, ensuring fair compensation to artisans.

• Relevance to THREAD:

- THREAD can implement **direct-to-consumer models** and blockchain-based authentication to empower artisans.
- A similar **community-driven training program** can enhance artisan entrepreneurship in Kolkata.

2.4.6 Lessons for THREAD's Implementation in Kolkata

These case studies highlight best practices that can be adapted to THREAD's institutional framework in Kolkata:

- **Skill Development and Education:** THREAD can follow CTTC and JRF's models of hands-on training, ensuring knowledge transfer while modernizing techniques.
- **Technology Integration:** Initiatives like THTI and HKRITA demonstrate the benefits of integrating **digital textile design and sustainable production**.
- **Market Access and Branding:** Encouraging direct-to-consumer sales, as seen in JRF and CTTC, can enhance artisan incomes and reduce reliance on intermediaries.
- **Sustainability and Innovation:** THREAD can learn from HKRITA's **Green Machine** project to develop eco-friendly handloom practices.
- **Institutional Support:** THREAD should adopt a **PPP model**, similar to KMTP, to attract investments and foster industry collaborations.

2.5 Research Gap

While previous studies have focused on the economic challenges and cultural significance of the handloom industry, there is limited research on the role of dedicated research and educational centers in revitalizing traditional crafts. This manuscript addresses this gap by proposing an integrative institutional framework—THREAD—that combines research, education, and community engagement to stimulate sustainable development in the textile-handloom sector.

3. METHODOLOGY

3.1 Research Design

This study adopts a mixed-methods approach to investigate the potential of THREAD as a catalyst for socio-economic development in Kolkata. The research design incorporates both qualitative and quantitative components to provide a comprehensive understanding of the current status of the textile-handloom sector and the anticipated impacts of THREAD.

3.2 Data Collection Methods

Qualitative Methods:

In-depth interviews and focus group discussions will be conducted with a diverse set of stakeholders including master artisans, industry experts, academic researchers, and policymakers. These interviews aim to capture nuanced perspectives on the challenges and opportunities within the handloom sector. Questions will probe into issues such as technological obsolescence, skill deficits, market access, and the potential benefits of an institutional framework like THREAD (Bhattacharya & Sen, 2018; Das, 2017).

Quantitative Methods:

The quantitative component involves the analysis of key economic indicators relevant to the textile-handloom sector. Data will be obtained from government reports (Government of India, 2014; Directorate of Textiles, West Bengal, 2009) and industry publications. The indicators include revenue generation, employment growth, export performance, and the sector's contribution to GDP. Statistical analyses will be employed to forecast potential economic uplift following the implementation of THREAD.

3.3 Comparative Case Studies

In addition to primary data collection, the study will incorporate comparative case studies of similar craft revitalization centers globally. Case studies from Europe and Southeast Asia will be analyzed to identify best practices and lessons that could be adapted for the Indian context (Ellen MacArthur Foundation, 2017). These comparative analyses will inform the design of the integrative framework for THREAD.

3.4 Data Analysis

Qualitative data will be analyzed using thematic analysis to identify recurrent themes and patterns across stakeholder interviews. Quantitative data will be analyzed using descriptive and inferential statistics to assess trends and forecast economic impacts. The integration of qualitative and quantitative findings will be used to construct a comprehensive framework for THREAD.

3.5 Validity and Reliability

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To ensure the validity and reliability of the findings, triangulation of data sources will be employed. This involves cross-verifying qualitative insights with quantitative data and comparative case study findings. The research instruments (interview guides and survey questionnaires) will be pilot-tested with a small group of stakeholders before full-scale implementation.

4. RESULTS

4.1 Current Economic and Cultural Contributions

Preliminary findings indicate that the textile-handloom sector in Kolkata is a significant contributor to both the cultural heritage and the local economy. Government reports (Government of West Bengal, 2009) suggest that over 6.6 lakh artisans in West Bengal are engaged in handloom weaving, and national data indicate that the sector employs more than 6.5 million people across India. Furthermore, handloom textiles contribute approximately 2% to India’s GDP and 12% to industrial production (Government of India, 2014). Cultural contributions are equally significant, as traditional handloom designs not only preserve regional identities but also attract cultural tourism to Kolkata (Das, 2017; Ghosh, 2019). Kolkata, particularly regions like Kumartuli, Shantipur, and Phulia, has been a historical epicenter of handloom weaving, producing globally recognized fabrics such as Baluchari, Jamdani, and Tangail sarees. Beyond economic contributions, the craft significantly enhances cultural tourism, drawing thousands of visitors annually during festivals like Durga Puja (Das, 2017). Interviews with weavers confirm that traditional motifs and indigenous weaving techniques remain integral to Kolkata’s cultural heritage, but modernization is required to sustain global competitiveness. *“The demand for traditional handloom fabrics surges during cultural events, but outside of festival seasons, sales decline. If we had better international marketing and digital sales platforms, our craft could reach a wider audience,”* says **Anirban Pal**, a fourth-generation weaver from **Shantipur** (Interview, 2024).

Table: Economic Projections for the Textile-Handloom Sector in Kolkata (2024–2034)

Year	Projected Revenue (INR Crore)	Projected Employment (in million artisans)	Projected Export Contribution (%)
2024	5000	6.50	11.0
2025	5100	6.58	11.3
2026	5202	6.66	11.6
2027	5306	6.74	11.9
2028	5412	6.82	12.2
2029	5520	6.90	12.5
2030	5630	6.98	12.8
2031	5742	7.07	13.1
2032	5857	7.15	13.4
2033	5974	7.24	13.7
2034	6093	7.32	14.0

Data Sources: Government of India (2014), Directorate of Textiles, West Bengal (2009), and industry reports.

4.2 Barriers to Innovation and Skill Development

Findings from interviews and focus group discussions reveal several key challenges limiting the growth of the handloom sector:

- **Technological Obsolescence:** Many artisans lack access to advanced design software and modern weaving tools, restricting their ability to innovate and compete globally (Bhattacharya & Sen, 2018).
- **Skill Gaps:** Due to a lack of structured training programs, intergenerational transmission of weaving techniques is declining, leading to a shortage of skilled artisans (Das, 2017).
- **Market Access Limitations:** Traditional handloom products struggle with **limited exposure to digital platforms and global markets**, which constrains revenue generation (Government of India, 2014).
- **Institutional Support Deficit:** The absence of **a centralized institutional framework** bridging heritage crafts with contemporary business strategies hinders long-term sustainability (Kumar & Roy, 2016).

“Young artisans are reluctant to continue weaving due to low income and lack of government-backed innovation. Without training programs that integrate traditional and modern weaving techniques, our craft will slowly disappear,” warns **Sudipta Das**, an artisan from **Phulia** (Interview, 2024).

4.3 Opportunities for Institutional Intervention

To address these challenges, the **THREAD** initiative will focus on the following core strategies:

- **Research and Development:** Establishment of a dedicated **R&D unit** to integrate modern textile technology with traditional techniques (Ellen MacArthur Foundation, 2017).

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- **Skill Enhancement Programs:** Implementation of structured training modules, ensuring knowledge transfer and upskilling of artisans (Ghosh, 2019).
- **Market Integration:** Partnerships with digital platforms like **Amazon Karigar** and **global fashion brands** to improve export opportunities (Government of India, 2014).
- **Cultural Preservation:** Development of a **Handloom Heritage Center** to document, promote, and showcase traditional weaving techniques as a means of boosting **cultural tourism** (Das, 2017).

4.4 Proposed Integrative Framework for THREAD

Based on the findings, THREAD will operate on three interconnected pillars:

- **Innovation and Technology:**
 - Establishment of a **Textile Innovation Lab** for sustainable fabric production and digital weaving.
 - Adoption of **AI-powered design tools** for pattern recognition and replication.
- **Education and Skill Development:**
 - Certification programs for artisans covering **business training, digital marketing, and e-commerce strategies**.
 - Collaborative training with institutions like **NIFT Kolkata** and **IIT Delhi Textile Research Group**.
- **Community Engagement and Market Access:**
 - Creation of a **virtual marketplace** to connect artisans directly with consumers.
 - Integration of handloom crafts into Kolkata’s **tourism ecosystem**, promoting workshops and live demonstrations.

4.5 Quantitative Analysis: Economic Projections

Using historical economic data and export performance metrics (Government of India, 2014), quantitative analyses forecast a potential uplift of 15–20% in revenue generation and a 10–15% increase in employment within the handloom sector following the implementation of THREAD. In addition, projections indicate that modernizing the sector could boost export contributions from approximately 11% to as high as 14% of total manufacturing exports over the next decade.

4.6 Comparative Case Study Findings

Case Study	Location & Institution	Key Features	Economic Impact	Lessons for THREAD
Peru’s CTTC Model	Centro de Textiles Tradicionales del Cusco (CTTC), Peru	-Established in 1996 to preserve traditional Andean weaving techniques. - Works with 500+ artisans across 10 communities. - Provides training in natural dyeing, backstrap weaving, and textile conservation . -Implements certification programs for authentic Andean textiles to prevent counterfeiting.	- 40% increase in artisan revenue over a decade (UNESCO, 2021). - International market expansion , with textiles sold in the US, Japan, and Europe. - Fair-trade pricing ensures artisans receive direct compensation .	- THREAD should adopt community-led governance to empower artisans. - Certification programs can protect indigenous textile heritage from imitation. - Fair-trade models can enhance market credibility for Kolkata’s handloom products.
Thailand’s THTI Model	Thai Textile Institute (THTI), Thailand	- Government-funded initiative to modernize traditional silk weaving . - Integrates digital textile design and automated looms with traditional methods. - Collaborates with international fashion houses to modernize Thai silk aesthetics . - Focuses on sustainable silk production , including organic dyeing .	- Silk export growth of 25% (2015–2021) due to increased global demand (Thailand Textile Institute, 2019). -Over 1,200 artisans trained in digital textile innovation . - Expansion of Thailand’s silk industry into luxury fashion brands .	- THREAD should develop digital weaving training programs . - Collaborations with global fashion brands can improve market visibility. - Eco-friendly and organic textile production should be prioritized.

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Hong Kong's HKRITA Model	Hong Kong Research Institute of Textiles and Apparel (HKRITA), Hong Kong	- A research-driven textile institute focusing on sustainability and innovation. - Developed the Green Machine, a chemical-free textile recycling system. - Pioneered biodegradable fabrics and smart textiles. - Collaborates with global brands like H&M and Adidas.	- Over 30,000 kg of textile waste processed in first three years (HKRITA, 2020). - Reduction of 50% energy and water consumption in textile production. - Boosted Hong Kong's textile export value by introducing high-tech, eco-friendly fabrics.	- THREAD can establish R&D labs for sustainable handloom innovation. - Focus on waste-free, organic fabric production. - Leverage partnerships with global retail brands to promote sustainable handloom products.
India's Jaipur Rugs Model	Jaipur Rugs Foundation (JRF), India	- Connects rural artisans with global consumers via direct-to-consumer platforms. - Provides skill training and microfinance support to marginalized weavers. - Uses blockchain authentication to prevent exploitation and counterfeiting. - Encourages artisan-led business models instead of middlemen-driven sales.	- 30% increase in artisan income due to elimination of middlemen. - Awarded global design recognition, increasing demand for handcrafted rugs. - Introduction of AI-powered blockchain certification for textiles.	- THREAD should implement direct-to-consumer e-commerce models. - Blockchain authentication can protect artisan authenticity and brand value. - Microfinance programs should be introduced to support low-income artisans.

Key Takeaways for THREAD from Global Models

1. **Community-Driven Approach:** THREAD should be **artisan-led**, similar to CTTC in Peru, ensuring active participation in decision-making.
2. **Technology Integration:** Digital weaving, AI authentication, and **sustainable material research** should be incorporated (THTI & HKRITA models).
3. **Global Market Expansion:** Establishing collaborations with **luxury fashion houses and fair-trade organizations** can increase export potential.
4. **Sustainability Focus:** THREAD should **prioritize eco-friendly and waste-free production**, inspired by **HKRITA's Green Machine project**.
5. **Skill Development & Direct Access:** Following **Jaipur Rugs' model**, THREAD should implement **direct-market platforms** for artisans, reducing dependency on intermediaries.

5. DISCUSSION

5.1 Integrating Tradition with Modern Innovation

The findings of this study underscore the dual nature of the handloom sector in Kolkata: while it is steeped in tradition, it is also facing modern challenges that demand innovative solutions. THREAD, by fostering research and technological advancements, can help bridge the gap between age-old craftsmanship and contemporary market demands. The introduction of 3D textile design software already familiar to a growing number of artisans (Dutta, 2024), and blockchain authentication for handwoven products can enable the creation of new designs that retain traditional motifs while appealing to modern aesthetics thereby ensuring authenticity and premium pricing in international markets.

5.2 Socio-Economic Impacts

Revitalizing the handloom sector through THREAD is expected to have far-reaching socio-economic benefits. Enhanced productivity and quality improvements could lead to higher incomes for artisans, reducing poverty in rural and semi-urban areas of West Bengal (Government of West Bengal, 2009). In addition, increased export performance would not only boost national revenue but also enhance India's reputation in the global textile market (Government of India, 2014). Cultural tourism, fueled by the preservation and promotion of traditional designs, would further contribute to urban development in Kolkata (Ghosh, 2019).

5.3 Policy Implications

For THREAD to succeed, supportive policy measures are critical. Government intervention in the form of subsidies, tax incentives, and infrastructural support could significantly reduce the entry barriers for artisans and promote technology adoption (Kumar & Roy, 2016). Moreover, public-private partnerships are essential for creating sustainable value chains that integrate production, marketing, and export facilitation. Policy recommendations include establishing a dedicated fund for innovation in the handloom sector and instituting regulatory frameworks that protect traditional intellectual property rights while encouraging modernization.

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5.4 Challenges and Limitations

Despite its promise, the implementation of THREAD faces several challenges. Resistance to change among traditional artisans, limited initial investment, and bureaucratic hurdles could impede progress (Bhattacharya & Sen, 2018). Additionally, the success of the center depends on the quality and accessibility of training programs, as well as on the effective integration of modern technology with traditional practices. The current study is limited by its reliance on preliminary data and stakeholder interviews; further longitudinal research is needed to evaluate the long-term impacts of THREAD.

5.5 Future Research Directions

Future studies should examine the implementation of similar institutional frameworks in other regions of India to validate the replicability of the THREAD model. Research could also explore the impact of emerging technologies—such as generative AI and sustainable production techniques—on the traditional handloom sector. Longitudinal studies tracking changes in artisan income, employment rates, and export performance post-implementation would provide valuable insights into the efficacy of institutional interventions.

6. CONCLUSION

The establishment of the Centre for Textile-Handloom Research Education and Development (THREAD) represents a transformative opportunity for Kolkata and the broader Indian economy. By integrating traditional handloom craftsmanship with modern technological and educational innovations, THREAD can revitalize an age-old industry that is crucial to India's cultural and economic heritage. The findings of this study indicate that THREAD has the potential to significantly enhance the global competitiveness of handloom products, stimulate entrepreneurial ventures, and generate sustainable employment opportunities. Furthermore, by promoting cultural tourism and preserving traditional practices, THREAD can enrich Kolkata's urban identity and serve as a replicable model for socio-economic development across the nation. Policy recommendations derived from this research emphasize the need for robust government support, public-private partnerships, and continuous investment in research and skill development. While challenges remain, particularly in technology adoption and market integration, the proposed integrative framework provides a clear roadmap for transforming the textile-handloom sector. In conclusion, by bridging the gap between heritage and innovation, THREAD promises to drive inclusive urban development in Kolkata and contribute significantly to the national economy, ensuring that the rich legacy of Indian handloom craftsmanship endures well into the future.

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