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The role of traditional handcrafting in promoting sustainability: A literature review

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Abstract

The fashion industry is one of the largest and fastest-growing sectors of the global economy, with significant social and environmental impacts. However, the prevailing fast-fashion model leads to overconsumption and serious consequences for both the environment and industry workers. In response to this trend, the slow fashion movement has emerged, promoting a more conscious and sustainable approach to clothing production and consumption. This movement involves a variety of practices, including traditional techniques – such as weaving, embroidery, knitting, felting, and dyeing with natural dyes. In this study, a systematic literature review was conducted to explore how traditional techniques are incorporated into contemporary fashion design and production, and whether these techniques truly support local communities. The findings reveal that traditional techniques are linked to sustainability in the fashion industry; however, they require a significant investment of time compared to fast-fashion cycles, resulting in higher production costs. Thus, despite their promising potential, these techniques contradict the prevailing economic model of development followed in the fashion industry. Ultimately, this study highlights the important role of traditional techniques in promoting sustainability and advocates for integrating these practices in the fashion industry through an alternative economic model.

Keywords: We-economy; Anthropogeography; Clothing handcrafting; Slow fashion; Local communities

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1. Introduction

The fashion industry is one of the largest and fastest-growing sectors of the global economy, with significant social and environmental consequences. The term "fast fashion," which has gained widespread attention in recent years, refers to the rapid production of large volumes of affordable clothing within short timeframes. This approach leads to overconsumption and serious consequences for both the environment and garment industry workers.[1-3] Fast fashion is expanding at an exceptionally rapid pace globally, while simultaneously being criticized by the scientific community for its role in

increasing carbon emissions, depleting natural resources, generating large volumes of waste, and exploiting workers, especially in developing countries.[4-8]

In response to this trend, and as an effort to counteract it, the slow fashion movement has gained prominence in recent years. This concept has gained increasing attention in industry trends and marketing strategies, drawing interest from a wide range of scholars, designers, companies, and consumers. As part of the broader shift toward sustainability, both researchers and professionals across all sectors are paying greater attention to this issue, as they face the ongoing challenge of balancing environmental priorities with business needs.[9] It is difficult to fully describe the concept of sustainability, as it is a complex, multi-layered phenomenon with numerous aspects and interpretations, and lacks a single, universally accepted definition. According to Hethorn and Ulasewicz,[10] sustainable fashion means "no harm done to people or the planet, and that a thing or process, once put into action, can enhance the well-being of the people who interact with it and the environment it is developed and used within."

Sustainable fashion has been examined through several theoretical approaches, which can be categorized into the following three:

- Sustainable growth: The concept of sustainable development emphasizes the preservation of natural resources and the reduction of environmental footprints through responsible production and consumption methods. According to the United Nations Environment Programme's report, *Designing for Sustainability: A Step-by-Step Approach*, sustainability involves the creation of products and services that address societal needs while minimizing environmental impacts throughout their life cycle.[11] In slow fashion, this approach supports the use of natural and recyclable materials, as well as the preservation of local traditions, with the goal of ensuring long-term environmental and economic well-being.[12,13]
- Degrowth: The theory of degrowth rejects the idea of continuous economic growth and advocates for a radical and fair reduction in global production and consumption.[14] It seeks to redirect the current unsustainable trajectory toward a model centered on human well-being and broader visions of alternative futures.[15,16] In the context of slow fashion, this approach promotes small-scale production and the use of local raw materials while limiting overconsumption and the commodification of fashion.[17]
- Post-growth: The concept of post-growth refers to alternative frameworks for understanding development beyond traditional economic indicators, emphasizing well-being and sustainable resource management.[18] It advocates developmental alternatives, often in the form of communities that integrate elements of both "traditional" and "modern" cultures, in opposition to the global capitalist economy and dominant scientific rationalities.[19] In the context of slow fashion, this approach translates into strategies that foster social consciousness and environmental responsibility.

Both degrowth and post-growth share the assumption that continued economic growth is not necessary to achieve environmental integrity and human well-being.[20] They also share common themes – including a critique of the modern (Western) cultural model, an emphasis on autonomy, and a focus on the solidarity-based economy model.[21] Through these concepts, they diverge from the concept of sustainable development and support slow fashion from fundamentally different ideological and strategic perspectives.

In this context, the slow fashion movement has emerged as a growing response, promoting a more conscious and sustainable approach to clothing production and consumption. This movement falls under an umbrella category that encompasses a wide range of practices, along with other dominant movements in the field – such as the cradle-to-cradle principle, functional design based on human needs and ecological principles, alternative sustainable materials (e.g., eco-friendly fibers, recyclable materials), fiber processing methods (e.g., environmentally friendly dyeing techniques), sustainable production methods (zero-waste patternmaking and textile processes, and handcrafting), social responsibility (participatory design, ethical labor practices, activist movements), resource and energy conservation, and production transparency (garment traceability).[22,23] Slow fashion focuses on the quality and longevity of products, thereby enhancing their emotional durability, while also incorporating traditional techniques and handicraft methods that are closely tied to cultural heritage and local economies.[24] Traditional techniques such as weaving, embroidery, and dyeing with natural pigments have deep roots in human history and are increasingly coming to the forefront in response to growing demand and the urgent need for sustainable and ethical production.[25,26]

These techniques promote an alternative approach to the fashion value chain, linking production with the preservation of cultural identities and the support of local economic networks.[27] Many of these techniques originate in countries of the Global South (i.e., the world's developing and least developed countries), including India and various African nations, where local garment production relies on handcrafted work.[28,29] Through the revival of these techniques, slow fashion contributes to

the creation of a more collective economic model, known as the "we-economy," which is based on solidarity and cooperation among communities.[30] The we-economy arises from collaborative and decentralized production, community-based creation, and learning through practical engagement and collaboration, and it fosters social capital through local and global networking.[31]

The we-economy refers to non-sovereign economic relations among participants – including practices such as communing and small-scale, bottom-up production collectivities – that occur at the local level and are grounded in fair and ethical financial relationships among the inhabitants of a shared ecosystem. Several researchers have proposed business model templates that align with this approach, such as those illustrated in Figure 1.[32-34] This economic model promotes the concepts of social justice and economic empowerment for traditional local professions (e.g., artisans and weavers), who participate in all stages of the production process – from sourcing materials to manufacturing finished products.[35]

Although this economic model has gained increasing attention from researchers and policymakers alike, several gaps still remain in the existing literature:

(i) Lack of data on the long-term impact of traditional techniques on sustainability: Although numerous theoretical studies on slow fashion exist, only a few have examined the long-term socioeconomic and environmental impacts of traditional techniques
(ii) Lack of analysis on the integration of the we-economy into the fashion sector: Most studies focus on large brands pursuing ethical transitions, while paying limited attention to local production networks and their potential to contribute to sustainable value chains
(iii) The majority of existing studies on traditional techniques and sustainable fashion primarily focus on individual initiatives related to the circular economy, re-economy, or isolated sustainability strategies. These approaches, although valuable, do not situate traditional craftsmanship within a broader, self-managed framework encompassing economic, social, and ecological dimensions.

Therefore, this study aims to address this gap by incorporating all qualitative characteristics of craftsmanship, not only as a production technique but also as a social process with ethical and ecological implications within local ecosystems. Craftsmanship is not merely a production method – it is a process that shapes community relationships. In addition, local production should not be examined in isolation, but as part of an ecosystem that leverages local resources with minimal environmental impact.

The true challenge lies not merely in preserving craftsmanship but in integrating it into a self-managed, collaborative economic framework. The we-economy provides a foundation for local development where:

(i) Traditional techniques enhance sustainability from both environmental and social perspectives
(ii) Artisans maintain control over the means of production, free from dependence on large chains or commercial pressures

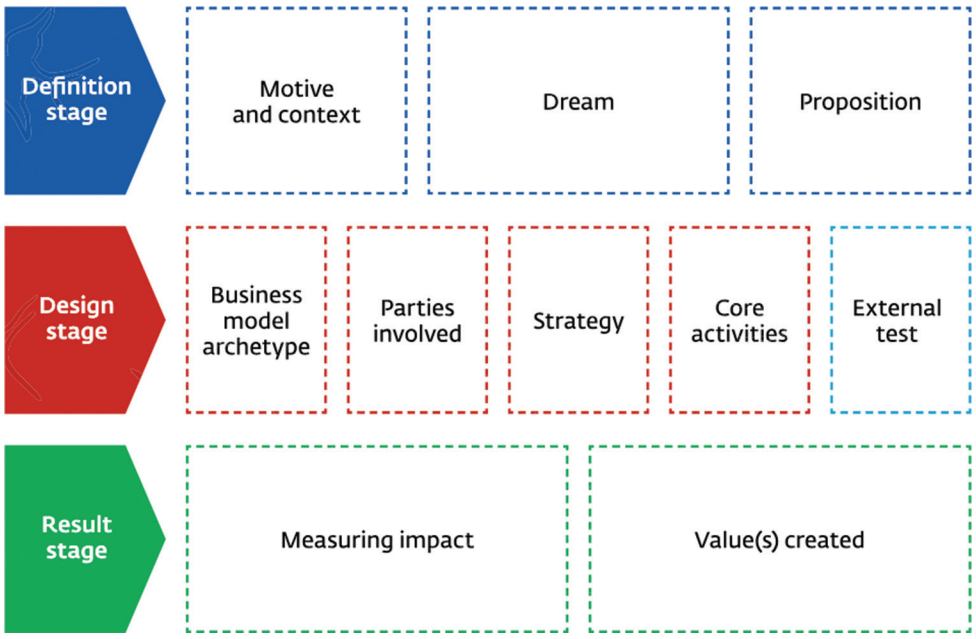

Figure 1. The proposed business model template[34]

(iii) Economic activities are retained within local communities, thereby reducing inequalities.

This study aims to map the utilization of traditional techniques and handicraft practices within the modern fashion industry, examining their connections to value chains, community economic empowerment, and their potential to support alternative economic models. Instead of simply examining how traditional techniques can survive, the study advocates for their integration into a comprehensive, community-organized production and economic management framework.

2. Research objectives

Based on the analysis of the existing literature, the specific objectives of this study are:

- To examine how traditional techniques – such as weaving, embroidery, and dyeing with natural pigments – are integrated into contemporary fashion design and production
- To explore the key regions and methods worldwide where traditional techniques are utilized, including the stages of the value chain and the types of fashion enterprises involved
- To analyze whether, and in what ways, traditional techniques support local communities and contribute to economic development, particularly in developing regions
- To investigate the challenges documented in existing literature, with a focus on those related to the incorporation of traditional techniques into modern fashion systems (e.g., feasibility of industrialization and mass production, cost factors, and the preservation of expertise and authenticity), to synthesize and assess proposed solutions and strategies
- To evaluate the potential of traditional handicrafts as an alternative economic model within the fashion industry, and to inform their role in promoting a more sustainable and ethical fashion sector.

3. Research methodology

3.1. Purpose

The main purpose of this study is to examine and analyze the literature concerning the integration of traditional techniques and handicrafts into contemporary fashion. It aims to evaluate this integration and its acceptance in the international literature, as well as to determine the extent to which this adoption has contributed – or is expected to contribute – to sustainability. This study employs a systematic literature review, a form of secondary research that involves the collection, evaluation, and interpretation of a large number of related studies on a specific topic.[36] The process includes planning, reviewing, analyzing, and presenting findings from the reviewed literature. The goal is to help researchers gain a better understanding of existing studies.[37]

A systematic review differs from traditional literature reviews in that it follows predefined criteria and methodologies for source selection and data analysis. This approach reduces the likelihood of bias and enhances the validity of the conclusions. According to Cooke *et al.*,[38] systematic reviews assist in identifying gaps in existing studies and contribute to developing a clear framework for future research.

The systematic review process includes the stages of defining the research question, formulating a review protocol, selecting sources, assessing the quality of studies, extracting and analyzing data, and finally presenting the findings.[39] This method was employed to produce a well-structured and comprehensive review of the international literature, providing insights into the domain and the trends in existing published research.

3.2. Selection of sources

For a comprehensive review, search, and analysis of sources, this study applied clearly defined inclusion and exclusion criteria to select articles from the vast amount of available literature. To ensure methodological validity and alignment with contemporary developments, only articles published between January 2000 and September 2024 were included. This time frame also served to reduce the scope of the extensive existing literature. Keywords relevant to the research topic were used, including:

(i) "We-economy and handcrafting in fashion." This keyword was utilized to identify studies analyzing how traditional handcrafting supports collaborative economic models. Specifically, the search focused on studies discussing:
   (a) Co-operative fashion and craft workshops
   (b) The role of local communities in sustainable production
   (c) Initiatives promoting ethical and socially equitable practices.

(ii) "Slow fashion and handcrafting techniques." This keyword was used to identify studies examining:
   (a) The integration of traditional techniques into contemporary slow fashion
   (b) Challenges in preserving these techniques amid increasing industrial automation
   (c) Collaborations between designers and traditional artisans to create sustainable and ethical collections.

(iii) "Sustainable textile production." This keyword was applied to identify articles examining:

(a) The impact of traditional techniques on sustainability
(b) Modern adaptations of these techniques (e.g., handmade dyeing with natural materials at an industrial scale)
(c) The role of small-scale producers in sustainable fashion compared to large fast-fashion chains.

(iv) "Collective action and fashion sustainability." This keyword was used to identify studies exploring:
(a) Movements and initiatives promoting sustainable fashion (e.g., Fashion Revolution and Fair Trade Fashion)
(b) Programs involving local communities in ethical fashion production
(c) Policy frameworks and regulations influence the development of the sustainable fashion industry.

(v) "Traditional textile techniques and local economies." This keyword was utilized to search for studies examining:
(a) The impact of traditional weaving on local economies
(b) The role of women's cooperatives and small producers in preserving these techniques
(c) The connection between cultural heritage and local economic development.

In addition, Boolean operators (e.g., AND, OR), date filters (2000 – 2024), and language restrictions (English only) were applied when searching for the relevant articles. Published articles were sourced from reliable and scientifically recognized databases, including Web of Science, Scopus, ScienceDirect, SpringerLink, and the Multidisciplinary Digital Publishing Institute.

To ensure research validity and relevance, specific inclusion and exclusion criteria were established.

- Inclusion criteria:
  (i) Scientific articles published between 2000 and 2024
  (ii) Studies focusing on sustainable fashion and traditional textile techniques
  (iii) Research presenting empirical evidence (e.g., case studies)
  (iv) Articles examining the relationship between local economies and the fashion industry.
- Exclusion criteria:
  (i) Studies not addressing the social and economic impacts of traditional techniques
  (ii) Non-scientific or secondary sources (e.g., blogs and non-scientific articles)
  (iii) Research is lacking analysis related to sustainability.

In addition, the snowballing technique was applied retrospectively, following the previously established methodology by Wohlin,[40] as well as by Jalali and Wohlin,[41] and the procedure demonstrated in Figure 2.[40-42]

(i) Backward snowballing: The bibliographic references of selected articles were analyzed to identify relevant earlier studies
(ii) Forward snowballing: Tools such as Google Scholar and Scopus were used to trace subsequent publications that cited the original studies, allowing the investigation of ongoing developments in related research areas.

This approach contributes to the identification of critical theoretical frameworks and research gaps, thereby enhancing the comprehensiveness of the study.

3.3. Data collection and analysis

Following an initial screening of article titles and abstracts, the selected articles were evaluated in detail based on the criteria established by Denyer and Tranfield[43] to determine their relevance to the study's topic. Data were collected from the selected articles and books to capture key concepts, theoretical frameworks, and findings related to the integration of traditional techniques into fashion and sustainability. The assessment of internal validity was guided by established research in the field.[44]

The inclusion and exclusion of articles were carefully discussed to resolve any discrepancies, enhance relevance and quality, reduce bias, and ensure overall reliability.

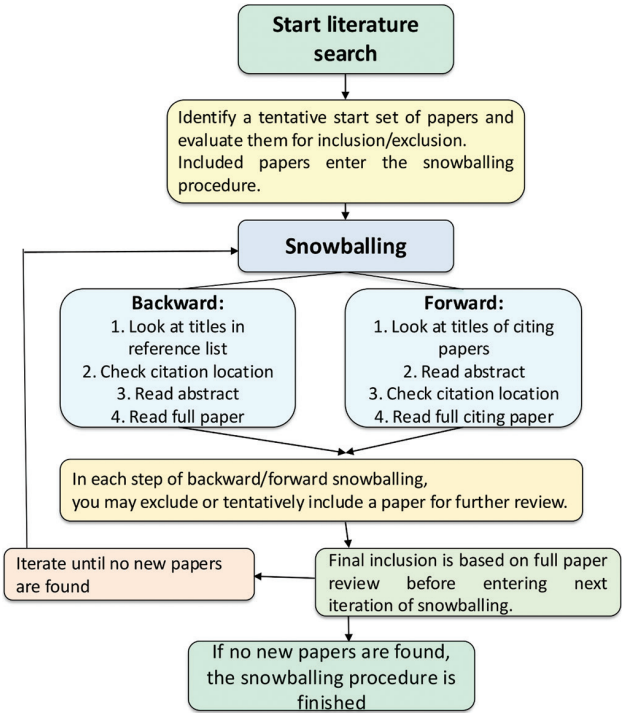

Figure 2. Snowballing procedure based on the methodology established by Wohlin[40]

The selected studies focus on cases in which traditional techniques and handicrafts constitute an integral part of the garment production process. They distinguish between techniques employed in the early stages of production and those applied during the transformation or decoration of garments – particularly in the context of reuse, recycling, and re-economy initiatives. These practices highlight the role of traditional crafts not only in the creation of new garments but also in extending the lifecycle of existing clothing through creative and sustainable methods.

The quality of the selected studies was assessed using the methodology proposed by Denyer and Tranfield,[43] which is based on clear and reproducible evaluation criteria. The studies were then categorized according to five key quality criteria:

(i) Clarity of the research question: Assessing whether the study clearly states a hypothesis or research framework
(ii) Methodological transparency: Examining whether the study clearly describes and justifies the methods employed
(iii) Analytical depth: Evaluating whether the study provides sufficient quantitative or qualitative analysis to support its findings
(iv) Empirical applicability: Determining whether the findings are supported by primary data or case study evidence
(v) Scholarly contribution: Identifying whether the study addresses existing gaps in the literature or suggests new research directions.

Each study was rated by two independent evaluators using a 1 – 5 scale, and those with an overall score above 3.5 were included in the systematic review. This strategy was adopted to ensure the reliability of the results and the validity of the conclusions.

Following the initial screening and quality assessment, relevant information from each included source was extracted using a structured form designed to capture:

(i) Type of technique or practice (e.g., weaving and dyeing)
(ii) Dimension of sustainability (e.g., environmental, social, and economic)
(iii) Demographic focus (e.g., women, elders, and minorities)
(iv) Connection to broader conceptual frameworks (e.g., we-economy, post-growth, and circularity).

The extracted data were subsequently analyzed using qualitative thematic synthesis, guided by an inductive coding process. An iterative, manual approach to open coding was then applied.

Emerging codes were grouped into higher-level themes aligned with the research questions, including:

(i) Environmental sustainability through natural techniques
(ii) Community-powered models and collective governance
(iii) Craft as economic infrastructure.

3.4. Literature review

A systematic method was applied to the literature review to achieve a comprehensive understanding of the study's topic. The review focuses on examining theoretical frameworks and current trends related to slow fashion and traditional handicrafts, while also gathering data from a diverse range of scholarly sources. In this section, the systematic literature review offers an in-depth understanding of the conceptual foundations of the slow fashion movement and its relationship with traditional techniques, including the ideological and economic aspects embedded within this context.

The following key trends and ideas were analyzed:

- Collectivity and locality: These are core principles of the slow fashion movement, emphasizing collaboration within communities and the promotion of local craftsmanship as essential for preserving cultural traditions. Local communities are reinforced through the promotion of products rooted in locally sourced materials and traditional production methods, thereby reducing dependency on large-scale industries.[45] Approximately 18.18% of the reviewed articles engage with the themes of "collectivity and locality," demonstrating the field's emphasis on reinforcing local economies and regional identities.
- Togetherness and the care economy: The concept of togetherness is linked to the creation of communities and collaborative networks, where producers and consumers engage collectively to promote sustainable practices.[46] The care economy emphasizes the importance of social and ethical responsibility, in which production and consumption occur with respect for both the environment and the local community.[13]. Approximately 18.18% of the reviewed articles are associated with the concept of "togetherness and the care economy," indicating a limited but increasing emphasis in the literature on the ethical dimensions of production.
- Community-powered solutions and the we-economy: Community-powered solutions and the concept of the we-economy promote the development of alternative economic models based on collaboration and solidarity, aiming to foster self-sustaining local economies. In the slow fashion movement, this is reflected in the

formation of small cooperative networks that support the production of high-quality products on a limited scale.[47] Table 1 outlines the traditional techniques used in slow fashion, their associated values, and key prerequisites. It highlights methods such as weaving, embroidery, and natural dyeing, and emphasizes principles such as quality, sustainability, cultural preservation, and local production. Approximately 22.73% of the selected studies pertain to themes related to "the we-economy and community-based solutions," reflecting a cautious yet meaningful shift in the literature toward alternative production models.

Approximately 21.21% of the reviewed studies engage with more than one thematic area, highlighting the interdisciplinary nature and conceptual interconnectedness evident in the relevant literature. In contrast, 19.7% of the selected articles do not align directly with any of the aforementioned categories, either due to a primary focus on technical or historical aspects, or a different theoretical perspective, such as a broader orientation toward sustainability. These distributions and thematic values are presented in Table 2 and illustrated in Figure 3.

3.5. Content analysis

In this study, content analysis focuses on identifying and categorizing thematic units related to traditional techniques and sustainable practices within the fashion industry. The systematic approach enabled the extraction of these thematic categories from the literature, with an emphasis on mapping sustainable practices across all stages of production – from raw materials to final products.

Table 1. Traditional techniques in slow fashion: Values and prerequisites

Traditional techniques in slow fashion	Values	Prerequisites
Weaving, embroidery, dyeing with natural colors, handmade garment construction, knitting, and felting.	Product quality, enhanced emotional durability, preservation of cultural heritage, the support of local economies, and the promotion of product longevity.	The use of natural, recyclable, or locally sourced materials; the practice of handicraft production; the incorporation of traditional techniques; engagement with local communities or production networks; and the implementation of upcycling methods.

Table 2. Bibliography trend categorization

Trend	Percentage
Collectivity and locality	18.18
Togetherness and the care economy	18.18
Community-powered solutions and we-economy	22.73
Multiple trends	21.21
No thematic match	19.7

The analysis highlights the connections between traditional handicraft techniques and sustainable development. These techniques are associated with practices such as the use of local and natural raw materials, waste reduction, and the reinforcement of local communities, while also challenging the traditional mass-production model in the garment industry.

The mapping of sustainable practices was organized according to the stages of the value chain, including raw materials, production, profit distribution, and consumption. The analysis also considered the need to align organizational and operational aspects to support the development of new business models that can effectively address sustainability challenges.[48]

To reduce the likelihood of bias in the analysis, the initial mapping results were revisited and adjusted, taking into account new parameters and data from diverse literature sources. This allowed for a more comprehensive and balanced approach, adapting the analytical methods to the specific needs of the research.

The quantitative classification of all case studies and academic references reveals distinct patterns regarding the types of traditional techniques most commonly highlighted in discussions of sustainable fashion. "Weaving" emerges as the most frequently cited technique (approximately 18.18%), reflecting its cultural depth, scalability, and ongoing relevance in both indigenous communities and contemporary sustainable design frameworks.

"Dyeing with natural colors" also holds a prominent place in the literature – appearing in approximately 13.72% of the reviewed articles – and is frequently associated with reduced environmental impact and the preservation of ancestral knowledge, particularly within South Asian and Andean contexts. "Handmade garment construction" and "embroidery" follow closely, underscoring their dual roles in cultural expression and value-added craftsmanship within slow fashion models.

While "knitting" and "felting" are less frequently discussed, they represent specialized practices often linked to elder artisans, local wool economies, and advanced material experimentation. In addition, approximately 19.15% of the selected studies engage with multiple techniques simultaneously, reflecting the hybrid and interdisciplinary nature of many sustainable fashion projects.

Finally, a notable portion of the literature (approximately 13.56%) does not explicitly focus on specific craft methods but instead examines broader supply chain models, design

philosophies, or systemic approaches to sustainability. These findings are summarized in Table 3 and illustrated in Figure 4.

3.6. Research limitations

This study is limited to the analysis of existing studies and does not include primary data collection or interviews. Therefore, the findings are based solely on published literature and may not fully capture the most recent developments or emerging practices in the field. Specifically:

(i) The scope of the study is limited to a qualitative, thematic synthesis of literature and case studies

Table 3. Craft technique representation

Craft technique	Percentage
Dyeing with natural colors	13.72
Embroidery	12.12
Weaving art	18.18
Multiple techniques	19.15
Handmade garment construction	12.67
Knitting	7.58
No specific craft	13.56
Felting	3.03

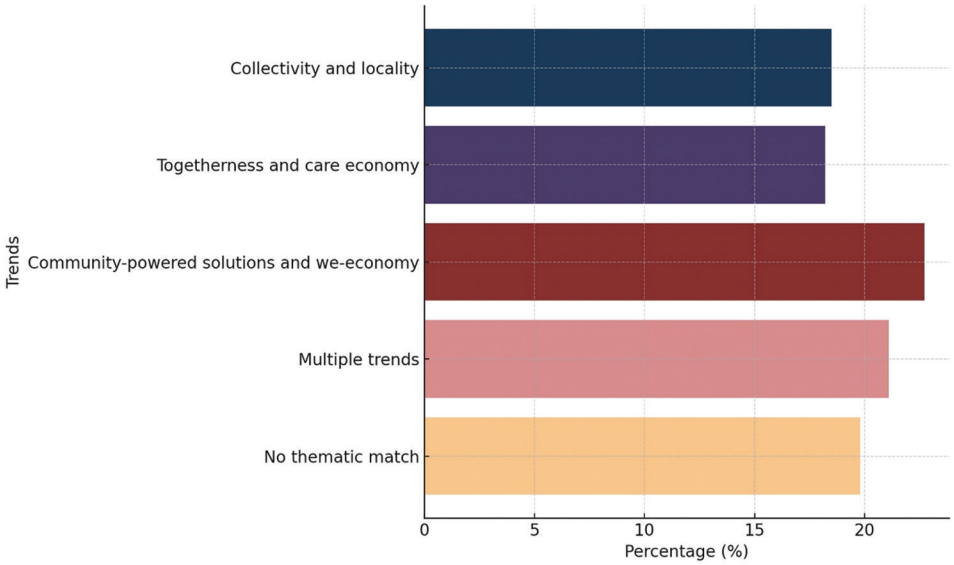

Figure 3. Graph of the bibliography trend categorization

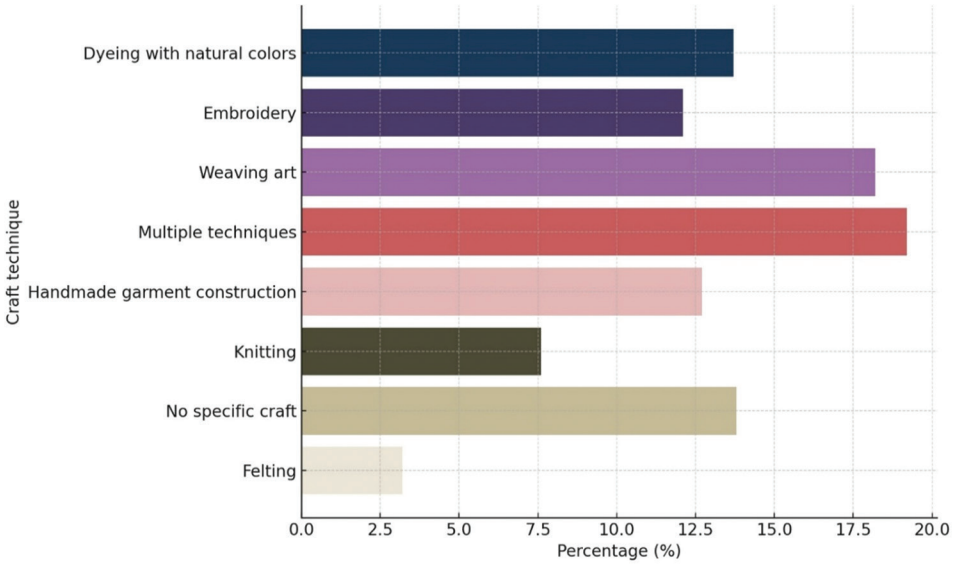

Figure 4. Craft technique representation graph

related to traditional textile techniques and their role in sustainable fashion systems and the we-economy

(ii) The analysis is restricted to English-language sources published between 2000 and 2024, potentially excluding relevant regional publications and non-academic perspectives

(iii) While a wide range of case examples is reviewed, the study does not include original fieldwork or empirical data and, as such, cannot offer generalized conclusions beyond the scope of the reviewed literature.

4. Content analysis and materials evaluation results

The content analysis conducted in this review focuses on the categorization and interpretation of the main themes that emerge from the examined sources. Traditional handicrafts – such as weaving, embroidery, and dyeing with natural pigments – are identified as key elements associated with sustainability in the fashion industry.

Quantitative data from the analysis confirm that traditional techniques significantly influence fashion sustainability, not only from an environmental perspective but also as instruments of social and economic empowerment. The presence of these themes in the literature demonstrates that sustainable fashion is intrinsically linked to local communities and their cultural traditions, serving as a mechanism for preserving these elements within the global market.

4.1. Sustainability and ethics in fashion

The connection between traditional handicrafts and sustainable, ethical fashion has been highlighted in numerous studies as an effective approach to achieving a more responsible and socially equitable production model. Traditional techniques – which often involve the use of local, natural materials and handmade production – offer alternative solutions to the dominant industrialized production system, promoting the concept of slow fashion.

According to Brown and Vacca,[49] traditional techniques contribute to reducing overconsumption and waste, as production is based on quality and the long-term use of products rather than rapid consumption and disposal (Figure 5).

Many traditional practices embody ethical values – such as the use of local raw materials and handmade production – which contribute to minimizing ecological impact. The research conducted by Karaosman *et al.*[50] notes that dyeing with natural colors and using renewable materials – such as cotton and linen – promote environmental sustainability. For example, the traditional art of fabric dyeing in India using natural dyes not only respects the environment but also supports local communities (Figure 6).[51,52]

Sustainability and ethics in fashion are critical issues in the modern industry, as consumers increasingly seek options that respect both the environment and local communities. The slow fashion movement promotes the

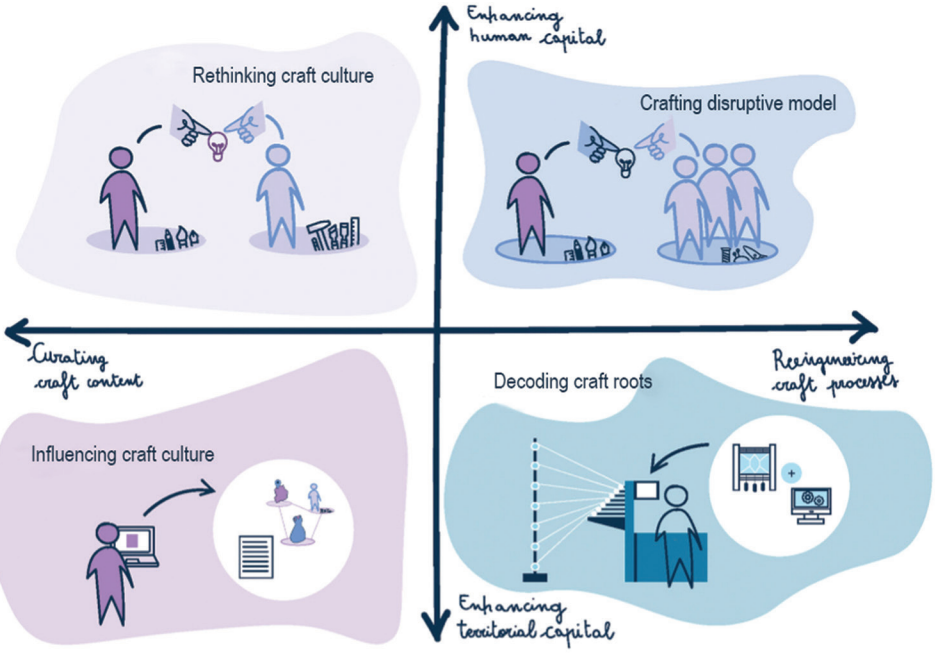

Figure 5. Cultural sustainability through craft: An interpretative model. Adapted from Brown and Vacca[49]

Mordant	K/S	L*	a*	b*	C*	H*	ΔE*
Unmordanted	0.6843	60.688	4.668	5.911	7.532	51.681	8.629
Alum	3.6043	62.878	9.504	15.036	17.788	57.68	5.909
Copper	3.0751	54.183	-1.4	-8.149	8.535	260.526	1.338
Iron	5.0298	51.815	-0.854	-8.953	8.994	264.517	1.317
Tin	3.7798	60.937	14.951	13.822	20.361	42.736	4.378

Figure 6. Absorption and scattering coefficients, along with colorimetric values of dyed cotton fabrics
Notes: CIELab color coordinates: L* indicates lightness value; a* represents lum- and tin-mordanted dyed fabrics support redness; b* signifies lum- and tin-mordanted dyed fabrics support slight yellowness; C* refers to Chroma (color intensity or saturation); H* represents Hue angle (the type of color – red, yellow, green, etc.); and ΔE indicates color difference (the perceived difference between two colors). Data were extracted from Kumbhar *et al.*[52]
Abbreviations: K: Absorption coefficient; S: Scattering coefficient.

idea that product quality and longevity are more important than overconsumption. The use of fabrics that foster collaboration and solidarity contributes to community building.[53]

Ethical consumption is also central to this discussion. Brown and Vacca[49] analyzed how traditional production techniques can contribute to sustainability by combining cultural heritage with contemporary fashion practices. The importance of consumer participation in supporting sustainable practices is also highlighted by Karaosman *et al.*,[50] who examined how localized production systems can enhance sustainability through conscious consumption.

Frater and Hawley[54] emphasize the importance of collaboration between designers and traditional artisans, demonstrating how such partnerships can create new products that respect cultural heritage while supporting environmental sustainability.

Moreover, international literature highlights the growing integration of traditional clothing techniques into contemporary fashion practices as a means of promoting ethical consumption. Gwilt and Rissanen[25] report cases in which international designers collaborate with local artisans, combining creative design with cultural heritage to produce unique products that appeal to sustainability-conscious consumers.

4.2. Traditional techniques and the fashion value chain

Traditional techniques and crafts in fashion are key components of cultural heritage and economic sustainability. These include:

- Weaving art: Techniques such as *ikat*, in which yarn is dyed before weaving, are well-established in many cultures, including Indonesian traditions[55]
- Embroidery: Traditional *kantha* embroidery from Bengal is renowned for its intricate craftsmanship[56]
- Natural dyeing: Techniques such as *shibori*, widely practiced in Japan, use natural dyes and reflect region-specific methods of textile coloring[57]
- Handmade garment construction: Techniques such as traditional hand sewing remain integral to garment-making in countries like India and Morocco[58,59]
- Knitting: Knitting continues to be a widely practiced craft associated with sustainable fashion, especially within the slow fashion movement. Small-scale producers employing this technique – both in developed and developing countries – often promote local production, material reuse, and the use of natural fibers such as organic cotton and recycled wool.[60-62] These practices not only support the economic sustainability of local communities but also integrate traditional values into the modern fashion industry
- Felting: Wool felting remains particularly important in regions such as Central Asia and the Alps and is recognized for its ecological benefits. This technique has re-emerged in sustainable fashion, emphasizing the use of natural raw materials while avoiding chemical processes in textile production.[63] In addition, designers now use felted fabrics to create products with high esthetic and cultural value, thereby enhancing sustainability and authenticity.[64,65]

The fashion value chain refers to the process that a product undergoes from production to consumer sale. It includes steps such as design, production, distribution, and retail.[66] A well-organized value chain can enhance economic sustainability by identifying ways in which traditional techniques can be integrated into contemporary practices (Figure 7).

According to Bassett,[67] the production of cotton fabric through traditional methods in West Africa not only promotes the local economy but also reinforces the cultural identity of the producers. These techniques create unique products that embody the collective voice of communities, strengthening the emotional connection between consumers and the products.

Similarly, Andorfer and Liebe[68] examined how ethical consumer practices are influenced by both product information and the ethical dimensions of production.

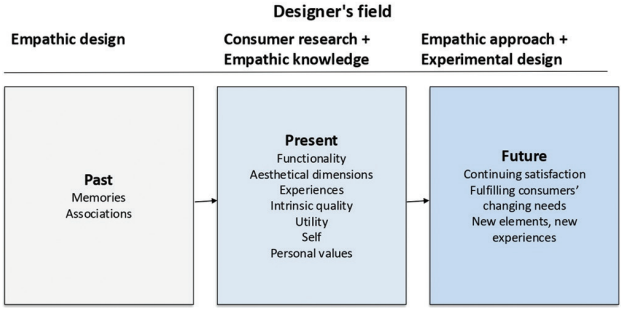

Figure 7. From disposable to sustainable: The complex relationship between design and consumption in the textile and clothing sector. Adapted from Andorfer and Liebe.[68]

Products derived from traditional techniques often have greater perceived value and are preferred by consumers seeking authenticity and quality.

Collaboration between contemporary designers and traditional artisans has led to the revitalization of old techniques. In the study by Hu *et al*.,[69] the importance of co-design is emphasized, in which traditional artisans collaborate with designers to create products that integrate innovation with tradition. This approach not only preserves traditional skills but also adapts them to meet modern market demands.

McQuillan[70] conducted research on zero-waste design, demonstrating how traditional techniques can contribute to reducing waste and creating sustainable products. These techniques offer alternative production methods that reduce the industry's ecological footprint.

Traditional production techniques – such as weaving, pottery, and handmade embroidery – enable local communities to maintain control over production activities, reducing reliance on large industries or intermediaries. For example, women's cooperatives in Bolivia producing handmade wool products engage directly with international markets, ensuring fair wages by bypassing intermediaries.[71,72]

Handicraft methods generally have lower production capacity compared to industrial fashion. However, through cooperative models and e-commerce, they can scale effectively without compromising quality or authenticity. Rather than integrating into existing fast-fashion chains, traditional techniques can facilitate the development of alternative, locally managed economic networks. In Sri Lanka, handmade embroidery (e.g., *batik*) entered the market through tourism businesses, generating employment and increasing local income.[73-75]

Communities that preserve traditional techniques tend to have higher employment rates and greater economic stability compared to those reliant on low-wage jobs in the fashion industry. Traditional techniques can offer viable business models with long-term resilience. They are not merely methods of production, but holistic ecosystems of economic, cultural, and social sustainability. A characteristic example is the Center for Traditional Textiles of Cusco in Peru, which preserves Andean weaving traditions while strengthening cultural identity and supporting local economies.[76-78]

4.3. Traditional handicrafts and sustainable production

Traditional techniques are essential for preserving the cultural identity of local communities and enhancing social cohesion. Handicrafts – such as weaving, knitting, embroidery, felting, and dyeing with natural pigments – form the foundation of sustainable production. They not only preserve cultural heritage but also offer a more sustainable alternative to mass industrial production. The use of local, natural materials and handmade processes contributes to reducing the environmental footprint while supporting local communities.

(i) Reduced water and energy consumption: Traditional dyeing techniques using natural extracts – such as indigo or plant-based colors – consume less water and fewer chemicals than industrial methods[79]
(ii) Reduced carbon dioxide emissions: The use of local raw materials minimizes the need for extensive transportation and imports, thereby lowering carbon footprints[80]
(iii) Biodegradable materials without environmental pollution: Local fabrics such as organic cotton, linen, and wool do not contain microplastics or toxic dyes, thus preventing water pollution[81]
(iv) Sustainable use of local resources: Many communities implement textile recycling techniques, such as patchwork or upcycling, which extend product life cycles[82]
(v) Increased local employment: Handmade production requires more skilled labor, thereby preserving and transmitting traditional skills[83]
(vi) Self-managed economic models: Local production enables communities to independently manage their resources, avoiding reliance on large supply chains.[84]

Almalki and Tawfiq[63] present a sustainable clothing design framework emphasizing the use of local wool to create women's garments using the felting technique. Their study investigates the potential of using local materials to reduce the environmental footprint and enhance the local economy. They also highlight the importance of sustainability in fashion by advocating for natural raw materials and ethical production practices. Surjit[85] explores the potential of wool recycling and

proposes strategies to enhance the sustainability of the process. Wool recycling contributes to reducing resource consumption and minimizing waste production – an aspect that is particularly important in the fashion sector, which increasingly promotes responsible consumption and circular economy principles.

Previous studies discussing the role of knitting and wool recycling within the context of sustainability, the circular economy, and Industry 4.0 provide valuable insights into the sustainable development of the garment and textile industry. Čuden[86] examines how knitting can be adapted to align with circular economy principles by incorporating smart technologies and Industry 4.0 processes to reduce the environmental footprint of textile products. Meanwhile, Maiti *et al.*[87] analyze the sustainability of knitting processes and resulting textile products, focusing on the use of eco-friendly materials, waste reduction strategies, and the optimization of production processes through advanced technologies.

Another example of a sustainable practice is dyeing with natural pigments. According to Niinimäki and Hassi,[88] natural dyes offer unique colors and are less harmful to the environment because they lack chemical additives. This method not only reduces environmental damage but also promotes creativity and authenticity in fashion. Their study investigates how sustainability influences consumer behavior in fashion and highlights the growing demand for ethically produced products.

Traditional techniques, such as embroidery, also provide significant economic opportunities for women in remote areas. A study by Li *et al.*[89] examines the potential for the sustainable development of traditional handicrafts through a design thinking-based approach. They analyze how design thinking can act as a catalyst for the revival and promotion of traditional techniques within a globalized and mass-production-driven context. The study proposes the development of a collaborative ecosystem involving designers, artisans, and consumers, aimed at integrating traditional techniques into modern markets in a way that ensures cultural preservation and economic empowerment of local communities (Figures 8-10).

Moreover, Niinimäki and Hassi[88] also emphasize that traditional techniques empower communities and enhance sustainability by combining cultural heritage with contemporary practices to promote sustainable fashion. Traditional handicrafts play a critical role in sustainable production, offering solutions that align cultural heritage with the needs of modern society. According to Raven,[90] the slow fashion movement incorporates traditional techniques and materials, thereby fostering community engagement around fabrics and garments that respect both the environment and the artisans who produce them, as shown in Figure 11.

Brown and Vacca[49] highlight the importance of cultural sustainability in fashion, emphasizing that traditional techniques can contribute to the preservation of cultural heritage and the promotion of sustainable development practices. They note that understanding cultural parameters can enhance appreciation for and demand for traditional products.

A study by Sandhu[91] analyzes sustainability strategies employed by designers such as Aneeth Arora, who integrate traditional techniques into contemporary design. This approach not only promotes ethical consumption but also creates opportunities for local communities, thereby enhancing the sustainability of production systems.

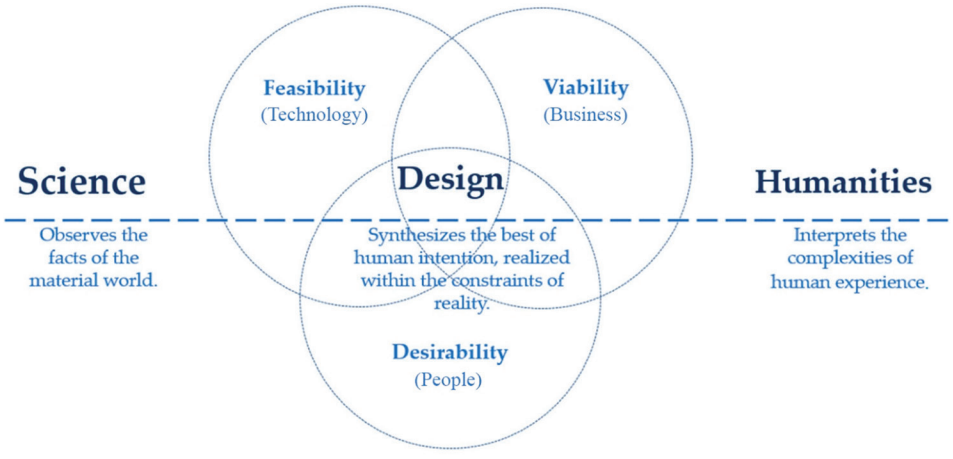

Figure 8. Design as a third culture: Positioned between science and the humanities, design addresses questions of feasibility, viability, and desirability. Adapted from Li *et al.*[89]

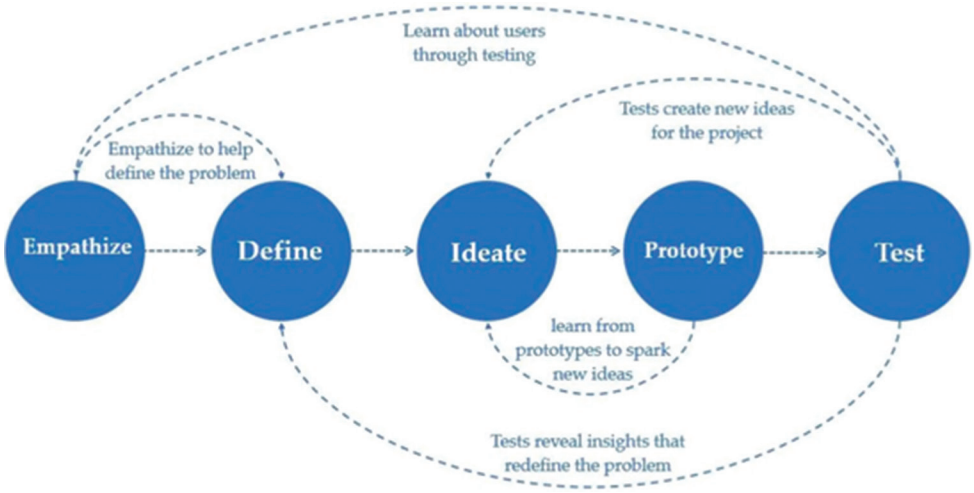

Figure 9. The proposed five-stage design thinking model: A non-linear process. Adapted from Li *et al.*,[89] based on the original model by Teo Yu Siang and the Interaction Design Foundation.

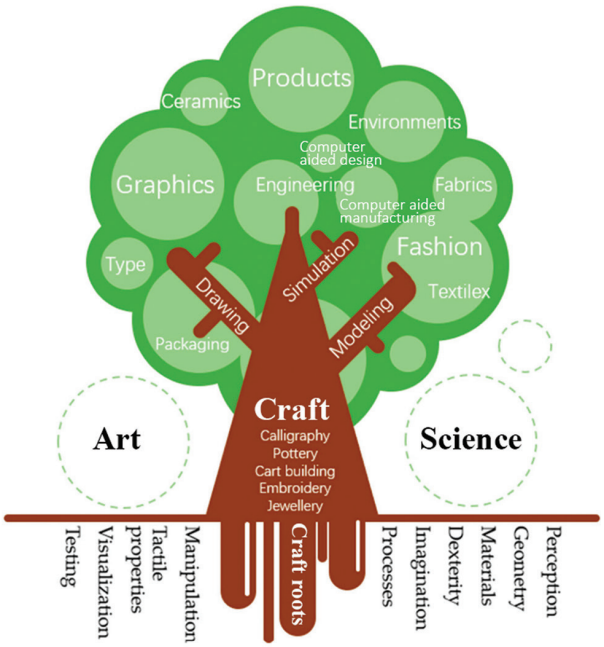

Figure 10. A tree diagram representing the structure and evolution of design. Adapted from Li *et al.*[89]

According to Wanniarachchi *et al.*,[92] the weaving industry in Sri Lanka showcases innovative production practices emerging from the combination of traditional and modern techniques. Several studies highlight that such practices can promote sustainability and strengthen local economies by ensuring fair compensation for producers. An illustrative example is the work of PBP International, whose mission centers on fostering sustainable livelihoods for Haitian artisans through locally rooted production, capacity building, and ethical partnerships – illustrating how design-led initiatives can support both cultural preservation and economic self-sufficiency (Figure 12).[93,94] Similarly, the brand "Maiwa" in Canada collaborates with artisans from India and Pakistan using natural dyes and traditional printing techniques to produce ethical fashion.[90] The United Nations' Ethical Fashion Initiative connects fashion designers with artisans from Africa, Asia, and Latin America, helping to preserve local techniques through fair trade practices.[95]

Xue *et al.*[96] analyze the consumption of traditional fashion by Chinese consumers, highlighting that authenticity and cultural heritage are significant factors influencing purchasing decisions. This study demonstrates how traditional techniques can be integrated with modern consumer preferences to promote sustainable products. Figure 13 presents the result of the study's questionnaire, which was administered to students as a pre-test to determine whether the items were well-designed and understandable.

The Self-Employed Women's Association (SEWA) in India is a notable initiative that provides employment to artisan women, thereby enhancing their economic autonomy. These women employ traditional weaving and embroidery techniques to produce sustainable clothing that is sold in international markets. SEWA's efforts have empowered numerous women artisans, enabling them to preserve cultural heritage while achieving financial independence.[97-99] A diagram of SEWA's proposed constitutional structure is presented in Figure 14.

Finally, the process of embroidery, as discussed by Dissanayake *et al.*,[100] can offer significant economic opportunities for women in remote areas. These practices encourage the development of new support networks and income streams, allowing women to actively participate in the

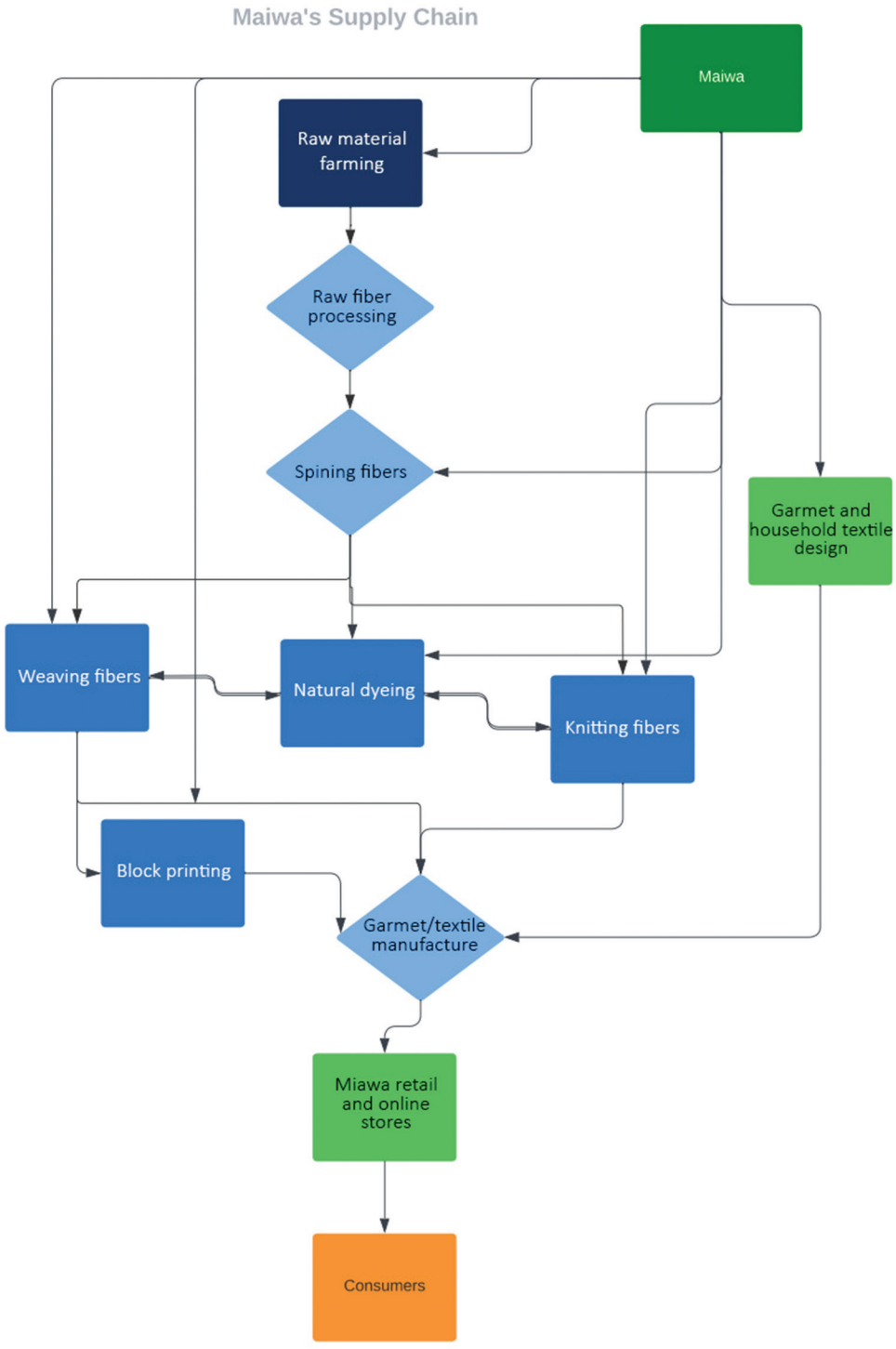

Figure 11. Textile production flow of Maiwa's supply chain. Adapted from Raven.[90]

economic life of their communities. Embroideries originating from local communities in Asia combine traditional craftsmanship with economic development, simultaneously promoting local cultural heritage and sustainability. Samples of these zero-waste-inspired works are shown in Figure 15.

4.4. Environmental sustainability

Environmental sustainability, as a foundation of sustainable fashion, is closely linked to traditional handicrafts that utilize local and natural materials. Dissanayake *et al.*[100] emphasize

Figure 12. Artisans and leatherworkers from Haiti.[94] Copyright © [2025], Deux Mains.

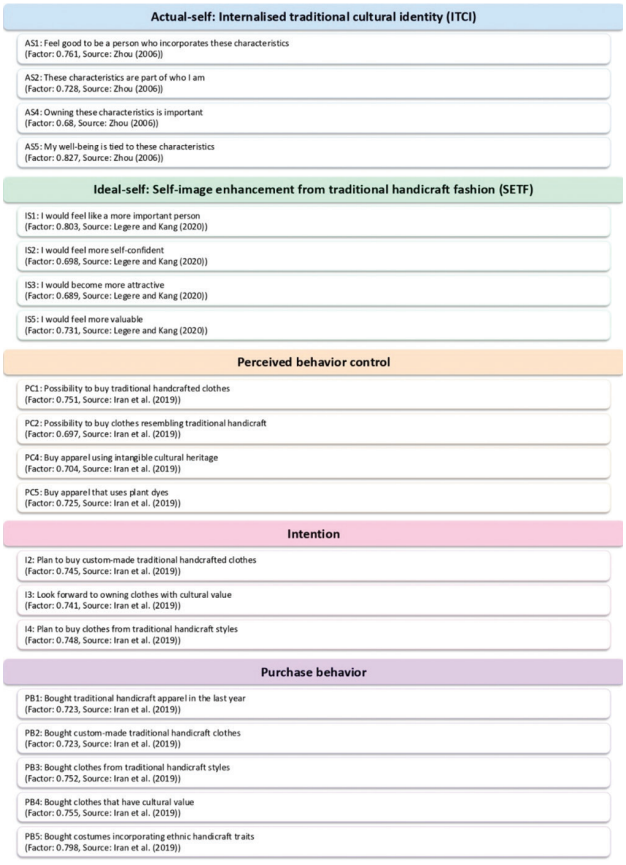

Figure 13. Results of a pre-test administered to 82 students to assess the clarity and design quality of questionnaire items. Adapted from Xue *et al.*[96]

the importance of adopting traditional techniques, which reduce dependence on chemicals and non-renewable resources. Indeed, as discussed by Cox,[101] the coexistence

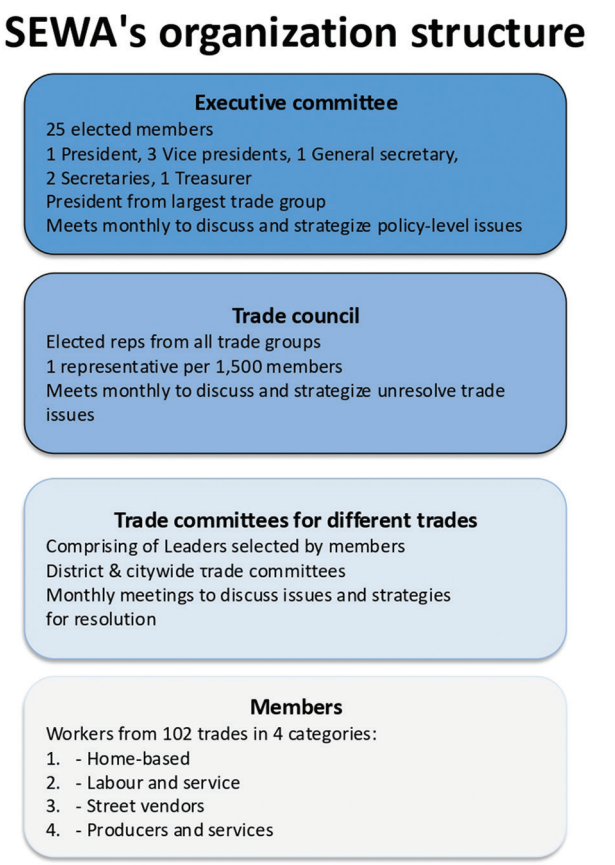

Figure 14. Organizational structure of SEWA. Adapted from the official SEWA website (https://www.sewa.org/about-us/sewas-structure/).[99] Abbreviation: SEWA: Self-Employed Women's Association.

of art and sustainable development can create new opportunities for local economies and communities.

The slow fashion movement highlights the value of traditional techniques. Several studies emphasize that products crafted using traditional methods possess greater durability, thereby contributing to the reduction of a culture of overconsumption. Beard[55] and Niinimäki[66] note that the consumption of ethical products, such as fair fashion, depends on consumers being informed about the broader impacts of their purchases.

The use of natural dyes and materials promotes sustainability and biodiversity while supporting local production. Sandhu[91] notes that engagement with local producers enhances not only product quality but also the conservation of natural resources. This approach is reflected in initiatives aligned with the principles of Fair Trade, which aim to strengthen producer networks and improve their quality of life, as demonstrated by Raynolds *et al.*[102]

Figure 15. Samples of zero-waste-inspired works[100]

Moreover, Lewis and Potter[103] highlight the social dimension of ethical consumption, emphasizing that consumers are often willing to pay more for products that are environmentally friendly and derived from equitable practices. This conscious choice, as shown in the study by Andorfer and Liebe,[68] is influenced by factors such as price, awareness, and ethical values.

Implementing sustainable practices through traditional handicrafts not only reinforces environmental sustainability but also promotes social cohesion. As Parker[104] states, initiatives that integrate tradition with contemporary sustainability principles can serve as models for a new approach to the fashion industry.

Dhingra *et al.*[66] note that the working conditions of artisans and their quality of life are critical to the development of sustainable handicraft industries. Traditional handicrafts, such as embroidery and weaving, contribute to the restoration of ecological balance.[105] For example, sustainable fashion initiatives rooted in local traditions create alternative economic models that prioritize environmental integrity and community reliance.

4.5. Social sustainability

Social sustainability is closely linked to fashion, as clothing production and consumption processes have direct impacts on the communities and workers involved. Ethical trade practices and the fair treatment of workers are key factors in achieving social sustainability. According to Dhingra and Dhingra,[105] the quality of life of workers in the handicraft industry significantly affects the social development of their communities.

Ensuring workers' rights and establishing fair working conditions are critical for social sustainability. As Dickson *et al.*[106] note, a lack of transparency in supply chains can lead to the exploitation of workers, affecting both individual and social well-being. Ethical trade, fair wages, and working conditions that respect human rights are prerequisites for achieving social justice in the fashion industry.

Moreover, social sustainability is directly related to strengthening the local economy and supporting community development by empowering small-scale producers and artisans. As discussed by Fletcher and Grose,[107] supporting local artisans and promoting traditional production methods enhances the local economy, thereby contributing to poverty reduction and fostering social stability, while providing communities with opportunities to develop sustainably.

According to Lundblad and Davies,[108] consumers also have a role in achieving social sustainability through their purchasing decisions. Increasing awareness of working conditions and corporate social responsibility encourages consumers to choose products produced in a socially responsible manner. This awareness creates pressure on businesses to improve their practices and promote social justice. The concept of social sustainability in fashion also ensures that the industry's social aspects – such as working conditions, equal opportunities, and community well-being – are maintained and adequately supported. Recent initiatives indicate that the fashion industry is increasingly focusing on integrating the social dimension into broader sustainability strategies.

Several studies explore the role of fashion design as a tool for social inclusion, particularly focusing on refugee

Figure 16. Bashir Salehi, a refugee from Afghanistan, started Palme Couture in January 2021 in La Rochelle, France, to provide tailoring services. Copyright © [2025], UNHCR/Benjamin Loyseau, the UN Refugee Agency, Content Production Section.

communities in Greece (Figure 16).[109,110] These studies investigate how design processes, within the broader context of social innovation, can create opportunities for marginalized groups – such as refugees – to integrate into local economies and societies. The research highlights the potential of fashion as a platform for empowerment, cultural expression, and skills development by engaging refugees in creative and collaborative design practices, which can lead to economic inclusion and social cohesion. Similar initiatives have emerged across Europe. For example, in Germany, a project supported by the United Nations High Commissioner for Refugees brings together refugee seamstresses from Syria and Afghanistan, helping them rebuild their lives and regain a sense of agency through a shared tailoring workshop.[111]

According to the United Nations' Fashion Industry Charter for Climate Action, renewed in 2021, the industry commits to achieving net-zero emissions by 2050 and publicly reporting its progress through scientifically substantiated targets (e.g., science-based targets). This initiative emphasizes corporate accountability and the publication of emission reduction plans, incorporating social responsibility as a key element of companies' commitments.[112]

Moreover, a report by the Global Fashion Agenda, presented at the 28th Conference of the Parties in 2023, highlights the need for a positive impact in the fashion sector by fostering safe and decent working conditions and promoting fairer wage systems. This report underscores social sustainability priorities, such as ensuring respect and safety in workplaces, improving wage structures, and adopting more sustainable material choices by collaborating with organizations like the Fair Labor Association and the Social and Labor Convergence Program.[113]

Social sustainability in fashion remains a significant challenge, as companies must balance sustainable development with the well-being of workers and communities affected by their activities. Efforts to align best practices and social performance continue, aiming to achieve the United Nations Sustainable Development Goals by 2030 and to limit global warming to below 1.5°C, as stipulated in the Paris Agreement.[112,113]

The systematic categorization of both practical case studies and academic sources reveals significant trends regarding the demographic focus of studies related to sustainability and traditional handcrafting. The group with the highest representation in the reviewed literature is women (approximately 31%), reflecting the long-standing connection between women's labor and production, empowerment through collective initiatives (e.g., SEWA), and the preservation of cultural heritage.

Minorities and local communities account for approximately 12%, primarily through examples such as the Nöl Collective, Andean artisans, and the incorporation of the *Nhat Binh* robe into fashion products for young consumers, as well as initiatives grounded in the solidarity economy.[114-116] Elders and youth are represented to a lesser extent (1% – 3%), indicating that the discussion around sustainable production often remains partially disconnected from the generational dimensions of knowledge – whether in terms of traditional transmission or youth-driven innovation, such as *Nhat Binh* robe's revival among younger consumers.

Previous research provides a comprehensive overview of how youth contribute to sustainability in the fashion industry and highlights young consumers' awareness, values, and behaviors related to sustainable fashion, while also identifying gaps in generational engagement (Figures 17 and 18).[117,118] Another example of ethical frameworks within sustainable fashion is the 3C Rule (Consent, Credit, Compensation ©2017) implemented by the Cultural Intellectual Property Rights Initiative® in a project developed in partnership with the Traditional Arts and Ethnology Centre in Laos and the Oma people of Nanam Village. This initiative emphasizes the importance of community-led free, prior, and informed consent, proper attribution, compensation, and control over how traditional designs are used and represented (Figure 19).[119,120]

Finally, approximately 50% of the reviewed articles follow neutral or systems-oriented approaches, focusing on sustainability at the level of supply chains, consumer behavior, technological innovations, or policy strategies, without targeting specific social groups.

These findings highlight the need for a more balanced

Figure 17. Designs from a local brand illustrate an effective and unique way of integrating traditional patterns into everyday fashion: (A) Application of *Nhat Binh* robe patterns in fashion products targeting young consumers; (B) Collaboration between Converse and La Quoc Bao's BARO[117]

Figure 18. Garment co-designed during a collaborative workshop, where participants altered and embellished existing clothing to address physical, emotional, and spiritual needs. (A) Hacked garment without bustle; (B) Hacked garment with removable bustle attached.[118]

Figure 19. Representatives of the Oma people of Laos at the Lao Handicraft Festival, 2020. Photo credits: Traditional Arts and Ethnology Centre, Laos. Reprinted with permission from OMA Māori LORE.[119] Copyright © [2025], Cultural Intellectual Property Rights Initiative®, TAEC, Oma People.[119,120]

demographic approach in future research, providing space for both traditional and marginalized populations, while also encouraging active youth participation and intergenerational connection. These findings are summarized in Table 4 and illustrated in Figure 20.

4.6. Economic sustainability

According to the globalized model of production and economy, exploitative relationships have emerged between the Global North (i.e., the world's developed countries) and the Global South within the fashion industry.[121] These challenges raise concerns about fair remuneration and value creation across different stages of production, particularly in relation to cultural appropriation. Traditional production techniques and methods can be linked to the ethical consumption of clothing, offering an alternative economic model of production networks. They also support the economic empowerment of local communities through alternative systems of economic management, production, and distribution. As noted by Beard,[55] ethical fashion may be considered a luxury, but it has the potential for broader appeal if consumers understand the values underpinning these products. According to Andorfer and Liebe,[68] ethical consumption is critical for economic sustainability, as consumers increasingly seek products that promote fair trade practices.

Bassett[122] and Ferraro *et al.*[123] highlight the importance of fair trade practices in agricultural sectors – such as cotton farming – as a means of alleviating poverty in regions such as West Africa. Ferraro *et al.*[123] examine the relationship between traditional techniques and sustainability, highlighting how local communities in Scotland integrate handicrafts to produce goods that are competitive in the international market. In addition, Parker[104] examines a case in Bangladesh where traditional fashion techniques have

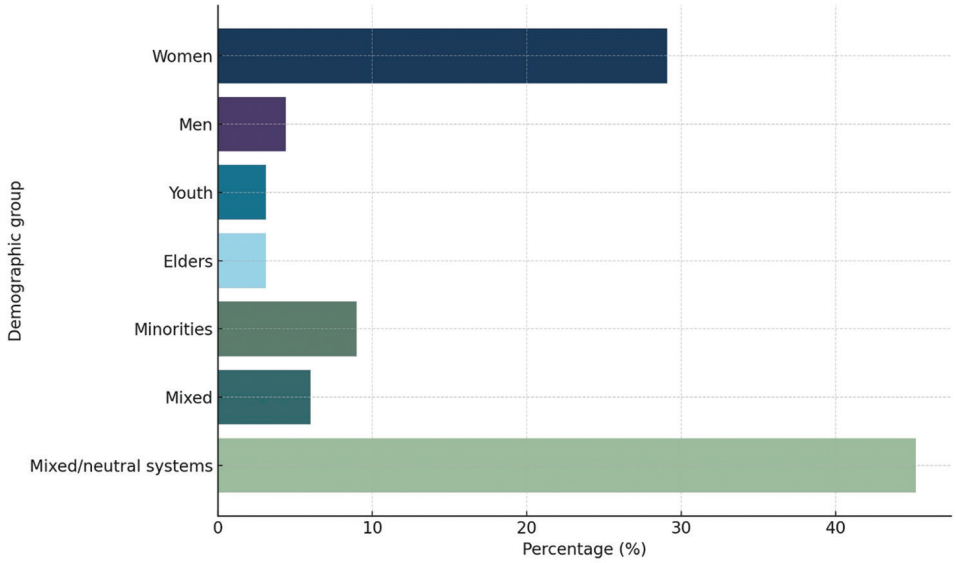

Figure 20. Graph of case study classification by demographic group

Table 4. Case study classification by demographic group

Demographic group	Percentage
Women	28.79
Men	4.55
Youth	3.03
Elders	3.00
Minorities	9.09
Mixed	6.00
Mixed/neutral systems	45.45

been revived through collaborations with international designers, leading to the development of alternative economic models that support sustainability.

The revival of traditional techniques contributes not only to environmental and cultural sustainability but also to enhanced consumer value. Niinimäki[66] argues that shifting from the consumption of disposable products to those that respect tradition can offer a new perspective in the market. The study highlights the importance of designing sustainable products that incorporate traditional techniques, thereby supporting economic sustainability in the fashion sector. Moreover, it demonstrates that education and investment in traditional skills can create new employment opportunities and strengthen local economies.

Recent studies, such as that of Imran *et al.*,[124] highlight the need for innovation and the growing importance of sustainability in the fashion industry, indicating that consumers are increasingly drawn to products that combine quality with social responsibility. Furthermore, Henninger *et al.*[125] demonstrate that modern consumers are willing to invest in sustainable products, thereby reinforcing the sector's long-term economic viability.

The development of ecological and social labeling systems, as discussed by Koszewska,[126] facilitates product differentiation and creates new opportunities for promoting traditional techniques. These labels can enhance the relationship between producers and consumers, contributing to a more equitable and sustainable economy.

In Sweden, the Reko-ring/Rejäl Konsumtion (REKO) program establishes closed-loop economic chains between producers and consumers by eliminating intermediaries. Although originally developed for agriculture, the REKO model is now being extended to the handicraft sector.[127,128]

In summary, economic sustainability in the fashion sector relies on the revitalization of traditional techniques and a commitment to ethical consumption, offering opportunities for local community growth and prosperity (Figure 21).

4.7. Application of traditional techniques and handicrafts in contemporary fashion

The application of traditional techniques and handicrafts in contemporary fashion has gained increasing significance as consumers become more aware of the social and environmental impacts of the industry. Some contemporary examples include:

- Clothing companies incorporating handicrafts: Companies such as Patagonia and Everlane incorporate traditional techniques into their manufacturing

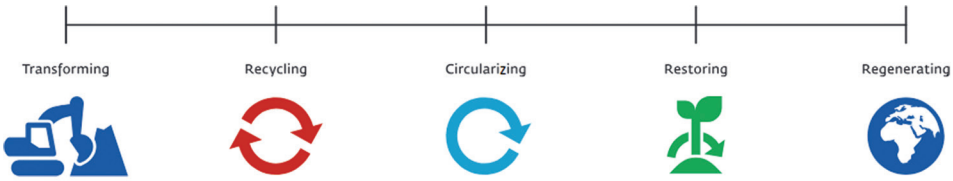

Figure 21. Five positions of value creation[34]

processes, thereby promoting sustainability and social responsibility.[129,130] Patagonia, for instance, collaborates with local artisans to produce environmentally friendly clothing using sustainable practices, while also carefully assessing the environmental impacts of fashion.[129,131]

- Artistic integration of handicrafts: The work of Celia Pym,an artist specializing in textiles and repair, is significant in this context. Her practice combines handicraft with artistic expression to explore themes such as decay, repair, and the value of objects through knitting and garment mending. Scholars have noted a shift in contemporary handicraft toward artistic curation and performative practice, as reflected in Pym's work, where the act of repair becomes a form of creative expression. Her work negotiates the concepts of wear and regeneration, highlighting the tension between the old and the new.[132,133] In Pym's approach, the repair and reuse of garments are examined within the broader context of circular fashion. Her emphasis on repair as both an artistic and ethical act aligns with the current trend in sustainable fashion and supports waste reduction through recycling and reuse (Figure 22).
- Fair compensation: Ensuring fair compensation for workers across production chains is critical to promoting social sustainability in the fashion industry. Companies such as People Tree implement fair trade practices that guarantee fair wages and safe working conditions.[134]
- Ethical platforms and artisan empowerment: Platforms such as XTANT promote ethical production, local sourcing, and artisan empowerment, aiming to bridge the gap between tradition and innovation. These initiatives not only support livelihoods but also contribute to the broader movement toward slow fashion and conscious consumerism. XTANT is a contemporary platform that celebrates and preserves traditional textile techniques, artisanal craftsmanship, and cultural heritage within the fashion industry. It connects global artisans with designers to foster collaborations that preserve and evolve traditional practices – as exemplified by designer Gabriela Martinez in Figure 23. XTANT seeks to elevate handcrafting techniques – such as weaving, embroidery, and dyeing – by integrating them into

Figure 22. Celia Pym: Double Denim, photographed by Michele Panzeri. Reprinted with permission from photographer Michele Panzeri. That is Not My Age[133] Copyright © [2025], Michele Panzeri.[133]

modern fashion, thereby supporting sustainable production and preserving cultural heritage.[135]

- Role of advocacy organizations: Advocacy organizations such as Fashion Revolution and the World Hope Forum play central roles in promoting sustainability in contemporary fashion. These organizations raise awareness of the need for transparency and ethical practices in the fashion industry, focusing on innovative economic models and collective solutions that contribute to a transition toward a more equitable and responsible system. Fashion Revolution was founded after the Rana Plaza tragedy in 2013 and campaigns for transparency, decent labor rights, and sustainable garment production practices. Through campaigns such as "Who Made My Clothes?," it urges the global fashion industry to recognize and protect the people and resources involved throughout the value chain.[136]
- Collective economic approach: The World Hope Forum incorporates the concept of the "we-economy" and emphasizes collective solutions to address global challenges such as overproduction and environmental degradation in fashion. It supports local communities by promoting the use of traditional techniques and handicrafts to enhance locality and foster solidarity through fashion.[137]
- Transparency in the production chain: Companies such as Stella McCartney, Ferragamo, and Vivienne

Westwood have committed to transparent production processes. They publish detailed reports on material sourcing and working conditions, thereby enhancing consumer trust.[138]

- Collaborations with designers: Initiatives such as Fashion for Good bring together creators, consumers, and businesses to promote sustainable fashion practices. By supporting innovative designers who incorporate traditional techniques, these initiatives contribute to sustainable development.[139]

The importance of fair compensation and transparency in production chains is crucial to advancing sustainable practices in fashion. Fair compensation ensures that workers are remunerated proportionally to their contributions, thereby supporting the economic sustainability of their communities. Transparency allows consumers to make informed purchasing decisions and fosters a culture of accountability within the industry.[140,141]

4.8. Challenges of integrating slow fashion and traditional techniques into the modern fashion model

Integrating slow fashion and traditional techniques into the modern fashion model presents numerous challenges related to both production processes and consumer perceptions. These challenges arise from the disparity between the demand for rapid, mass production and the need to preserve sustainable, culturally embedded practices.

- Commercial and operational challenges: Traditional techniques – such as hand weaving and natural dyeing – typically require more time and specialized labor, resulting in higher production costs and limited scalability (Figure 24). This creates a competitive disadvantage compared to fast fashion, which is driven by rapid production cycles and low pricing strategies.[102] Attempts to scale up traditional production may compromise the quality and authenticity of these practices, as pressure to increase output and reduce costs can negatively affect the handcrafted nature of products and the integrity of techniques.[68,142] Moreover, increased demand may lead to the industrialization of traditional techniques, making it difficult to maintain their authenticity and the cultural identity they embody.[143]
- Cultural preservation and appropriation: Integrating traditional techniques into slow fashion aims to preserve and revive these practices. However, their commercial exploitation may result in diminished authenticity or even cultural appropriation.[144] Recognition of, and respect for, cultural heritage and the contributions of local artisans by designers and businesses are critical to prevent the exploitation of these practices. Cultural appropriation – defined as the commercialization or extraction of traditional designs and techniques without the consent or participation

Figure 23. Intuitive embroidery by Gabriela Martinez, XTANT Craft Workshops. Reprinted with permission from XTANT (https://www.xtant.io/). Ref. XTANT.[135] Copyright © [2025], XTANT.[135]

Figure 24. Values context[142]

of the originating communities – remains a significant challenge to sustainable fashion.[62,107] It is essential to ensure that local artisans are actively involved and receive equitable compensation for the commercial use of their techniques, thereby safeguarding the continuity and integrity of their cultural heritage.[144]

- Changing consumer patterns: Slow fashion encourages consumers to prioritize product longevity and to reduce the overconsumption associated with fast fashion. However, this behavioral shift requires sustained education and awareness, as many consumers continue to be influenced by instant gratification and low-cost purchasing habits.[22,145] To facilitate this transition, companies must promote transparency by disclosing information about product origins and production processes, thereby supporting informed consumer decision-making.[146]
- Geographical inequality and the value chain: The fashion value chain often perpetuates structural inequalities between developing and developed countries. Lower wages and less stringent environmental regulations in the Global South have contributed to the systemic exploitation of workers and natural resources.[147] While slow fashion emphasizes ethical and sustainable production, its effectiveness as an alternative depends on collaborative efforts among value chain stakeholders to ensure decent working conditions and the protection of local communities.[48]
- Innovation and new technologies: Technological innovations – such as biomaterials and circular production systems – have the potential to reduce the environmental footprint of the fashion industry and foster more sustainable practices. The implementation of these technologies supports the development of new business models, such as the reuse and recycling of materials, thereby reinforcing circular economy principles.[147] Such transitions can enhance the industry's overall sustainability by reducing raw material consumption and limiting waste production.[131]

These challenges highlight the need for a comprehensive shift in the fashion industry's operational paradigm, emphasizing collaboration and continuous education for both consumers and producers. Promoting innovation within local craft communities and ensuring respect for human and environmental integrity are key to achieving sustainability in the fashion industry.

5. Prospects

The slow fashion sector presents significant prospects for the future, as increasing consumer awareness and evolving societal values highlight the need for sustainable and ethical practices.

- Rising consumer awareness: Consumers are becoming increasingly conscious of the environmental and social impacts of fast fashion and are opting for products that prioritize sustainability and quality. Studies indicate that the newer generation of consumers (e.g., Gen Z and Millennials) is shifting away from conventional fast fashion consumption patterns and is seeking alternatives that integrate product quality, supply chain transparency, and ethical production standards.[148]
- Emphasis on transparency and traceability: Consumers are placing greater emphasis on transparency across the supply chain and increasingly favor brands that provide information regarding material sourcing and labor conditions.[149] The integration of technologies such as blockchain can enhance traceability, thereby strengthening consumer trust and brand credibility.[150]
- Digitization and innovation: The digitization of production processes and the adoption of emerging technologies provide opportunities to enhance efficiency and sustainability. The use of three-dimensional printing and computer-aided design tools can reduce material waste and enable the production of customized garments with minimal waste production.[147]
- Reuse and the circular economy: The circular economy provides a framework for material reuse and recycling, thereby reducing the demand for newly extracted raw materials and mitigating environmental impacts.[151] Slow fashion businesses can implement practices such as upcycling and recycling to extend the lifecycle of garments and minimize textile waste.
- Collaborations and collective initiatives: Collaboration among diverse stakeholders – from designers and manufacturers to consumers and organizations – is critical for advancing the slow fashion movement. Initiatives such as the Fashion Revolution platform facilitate the exchange of knowledge and best practices, supporting efforts to improve transparency and sustainability across the fashion sector.[136]

This research aims to serve as a foundation for future studies and to connect local craft communities with the "we-economy" concept and the evolution of sustainable models in garment manufacturing.

Potential directions for future research include:

(i) Primary research in communities implementing the "we-economy" in fashion: Rather than relying solely on secondary literature, case studies can be conducted in local workshops that integrate traditional techniques to examine how workers' lives are affected
(ii) Quantitative and qualitative assessment of slow

fashion in relation to post-growth principles: This includes analyzing individual traditional techniques and processes within the framework of the circular economy

(iii) Exploration of consumer relationships with handmade fashion: Analyzing consumer preferences and investigating how traditional techniques can become more accessible through contemporary business models (e.g., social marketing).

6. Conclusion

This review highlights that traditional garment-making techniques are examined in the literature through the lens of human geography, as they are deeply embedded in local communities and reflect routine practices as well as the economic dynamics of specific ecosystems. Therefore, efforts to connect these techniques with contemporary garment production should be grounded in an alternative economic model that prioritizes local economies and aligns with the evolving movement from the local to the global.

By mapping traditional garment production techniques, it becomes evident how fashion value chains are created, emphasizing production methods, labor, and the individuals involved, thus shifting the garment's value away from brand names, which largely define the fast fashion industry. From the close connection between traditional techniques, craftsmanship, and communities, it is understood that these practices represent economic opportunities for local communities and a sustainable solution for the planet, viewed within the framework of slow fashion. In short, traditional techniques – as slow processes – compete with the fast cycles of fashion, introducing a new imaginary that challenges the prevailing model of perpetual growth.

To date, there has been no substantial convergence between the local economy (e.g., traditional techniques and craftsmanship) and the industry, in terms that are mutually beneficial for the entire value chain of garment production. Traditional techniques, being slow processes, often compete with the rapid cycles of the fashion industry. They require significant time investment, making them more expensive and primarily accessible to niche markets. This reflects the absence of a viable business model. Handmade products inherently carry the value of uniqueness and manual craftsmanship and, therefore, increase in value in market terms, positioning them as luxury products in the global high-fashion market.

The garment – as a product of traditional techniques and craftsmanship – represents an ethical and sustainable solution for the environment, people, and societies, though not necessarily for the global fashion economy. The global fashion economy faces persistent challenges in integrating traditional techniques into modern economic and business models. Labor inequality between countries of the Global South and the Global North continues to pose a significant barrier, particularly in relation to the production and distribution of traditional, local-economy products. Therefore, there is an urgent need to implement an alternative model, not solely economic, but also one that redefines ways of living, since ways of living are as closely linked to consumption patterns and actual human needs.

Most studies on traditional techniques focus either on their cultural dimension (as arts that must be preserved) or on their commercial potential (i.e., how they can be integrated into fashion). However, there is a lack of studies examining handcrafting as part of a self-sustaining economic system.

This study highlights that traditional techniques should not merely be preserved but also integrated into collaborative, alternative economic models. In addition, local production must be strengthened through the we-economy, enabling it to function as a self-sufficient and sustainable solution for communities. The we-economy could organize economic relations among all participants in the garment production process (e.g., designers, craftsmen, local artisans) in a more equitable and ethical way, thereby ensuring human and social well-being.

Moreover, this study underscores that the environmental footprint of handcrafting is significantly lower than that of industrial production, making it a credible strategy for sustainability. Rather than limiting itself to isolated examples, this research aims to connect the social, economic, and environmental dimensions of traditional handcrafting into a unified framework.

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