Luxury in Transition: Mapping Sustainability Practices and Challenges in Luxury Supply Chains – A Literature Review

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Abstract: The luxury apparel industry holds significant influence over consumer behavior and industry trends. This unique positioning represents both a challenge and an opportunity for driving sustainability transformation. As regulatory pressures tighten and consumer awareness rises, the need to address both environmental and social issues drives companies to make more responsible decisions. Luxury brands must be prepared to navigate the complexities of implementing sustainable practices across their supply chains. However, while academic contributions on sustainability in the fashion industry have gained increasing attention, research focusing on the peculiarities of the luxury segment remains limited, leaving a critical gap in understanding the drivers, enablers, and barriers to systemic change. The objective of this study is to bridge this gap through a literature review of academic research, industry reports, and relevant case studies from the past decade, aiming to map the sustainability practices adopted by luxury apparel brands, identify key challenges they encounter, and examine the presence of possible patterns. The analysis addresses critical issues such as supply chain transparency, responsible resource management, ethical labor practices, and the integration of circular economy models. By mapping the current state-of-the-art and synthesizing the existing knowledge in the segment, the study provides a comprehensive overview of sustainability developments in luxury apparel supply chains and establishes a foundation for further research. Ultimately, these findings aim to guide the luxury apparel industry, policymakers and researchers toward establishing new standards that may extend beyond luxury markets, potentially impacting broader business practices and consumption patterns, and creating meaningful, long-term, sustainable transformation.

Keywords: Sustainability; Supply Chain Management; Fashion Industry; Luxury; Social responsibility.

1. Introduction

What if the very symbols of excess, exclusivity, and consumption could become agents of change for a more ethical and sustainable future? At first glance, luxury and sustainability appear as paradoxes - two worlds not meant to coexist. Luxury is often associated with personal pleasure, ostentation, and superficiality, while sustainability evokes altruism, moderation, and ethics which often seem incompatible with luxury's core values (Widloecher, 2010 cited in Achabou & Dekhili, 2013). However, both concepts are more multifaceted than these initial contrasts suggest. Luxury's definition is highly dependent on cultural, historical, and individual interpretations and often includes dimensions such as craftsmanship, rarity, heritage, and long-term value (Kapferer and Michaut, 2015). Likewise, sustainability encompasses environmental, social, and economic dimensions—from reducing waste to ensuring fair labor practices (Brundtland Commission, 1987; McKinsey & Company, 2022). When viewed through these lenses, there is space for convergence. For instance, Gladwin et al. (1995), in a content analysis of sustainability definitions, identify prudence, inclusiveness, connectivity, and equity—values that can align with a redefined notion of luxury. The visibility of this intersection has grown considerably in recent years. Whether due to scandals exposing environmental harm and unethical labor conditions (Karaosman et al., 2020); rising consumer awareness, or companies seeking to transform sustainability into a competitive advantage, the luxury sector has seen increased academic and corporate interest in aligning luxury with sustainability. Rather than treating the two concepts as mutually exclusive, scholars such as Achabou and Dekhili (2013) and Henninger et al. (2017) advocate for a reconfiguration of luxury—one that places environmental stewardship and social responsibility at its core. As Kapferer and Michaut (2015) assert, "A high quality that pollutes is no quality at all today." Thus, it is time to shift towards a system that provides improved results in terms of the economy, society, and the environment (Ellen MacArthur Foundation, 2017). As social expectations evolve, the luxury industry has begun to respond. From Gucci's collaborations with UNICEF to Hermès' investment in circular initiatives, sustainability is increasingly treated as a competitive advantage (Achabou and Dekhili, 2013). However, despite this progress, structural barriers persist. Challenges such as supply chain opacity, global regulatory divergence, and resistance to change continue to hinder widespread adoption of

sustainable practices (Karaosman et al., 2016). In fact, Bhandari et al. (2022) identified a list of 20 critical barriers to sustainability implementation in fashion, such as undersupply of sustainable raw materials, uncertain return on investment, weak integration across supply chain partners, insufficient top management commitment, among others. Despite the growing body of literature on sustainable fashion, a notable gap remains in studies that systematically explore how the luxury sector operationalizes sustainability, particularly from a strategic and operational perspective. Most of the studies identified for this review are based on case study methodologies, which offer valuable insights but limit the generalizability of findings. This highlights the importance of conducting a systematic literature review (SLR) to synthesize existing knowledge, identify recurring patterns, and uncover research gaps. One of the few literature reviews among the selected studies is proposed by Karaosman et al. (2016), which addresses sustainability integration in fashion operations and proposes a classification framework mapping sustainability across product development, production processes, and supply chain dimensions. While comprehensive, this model is predominantly focused on the fashion industry as a whole. There is a need for updated research that investigates whether and how these practices have evolved in the luxury segment over the past decade. Addressing these challenges, this study focuses on the period following the 2015 Paris Agreement, a pivotal moment that marked intensified political and corporate commitments to climate action. It aims to investigate the tensions and transitions involved in integrating sustainability into luxury fashion by identifying key drivers, barriers, and practices in the last decade. To fill in this gap, a systematic literature review was performed to collect relevant data on the field and examine how the luxury sector is taking initiative to transcend its traditional image and act as a catalyst for circular, ethical, and forward-looking business models. The remainder of this paper is organized into five main sections. The section 2 provides the theoretical background, outlining the key concepts of luxury, sustainability, supply chain management and the intersection. The section 3 defines the research objectives and questions, along with the methodology used to select and study the sample. The section 4 illustrates the results while the section 5 discusses the results concluding with suggestions for future research.

2. Theoretical background

2.1. Personal luxury goods

The concept of luxury goods, since the great civilizations of the ancient world, has been associated with satisfaction of non-basic necessities, wealth, exclusivity and power (Brun and Castelli, 2013). Persisting over the centuries, up to the nineteenth century, the term "luxury" was predominantly used to describe products made from rare or precious materials and crafted with exceptional skills (Castelli and Sianesi, 2015). Acknowledging the subjective nature of luxury, Brun and Castelli (2013) combine common elements identified by various authors to provide a set of critical success factors (CSF) that characterize luxury products and drive competition in the luxury market. As summarized and pointed out by Castelli and Sianesi (2015), these CSFs include: consistent premium quality, artisanal heritage, exclusivity, strong emotional marketing, global brand reputation, distinctive design, association with a country of origin, uniqueness, superior performance, and the creation of a lifestyle. In essence, luxury products are traditionally recognized for their exceptional quality, advanced technology, durability, and refined design. While the concept of luxury is cross-industrial (Brun and Castelli, 2013), this study focuses specifically on the category 'Personal luxury goods', which, according to the same authors, includes: Apparel; Leather goods (including shoes); and accessories. These categories represent the core of the luxury fashion segment and serve as the unit of analysis throughout this research.

2.2. Supply chain management in the luxury segment of the fashion industry

Supply chain management (SCM) in the luxury fashion industry presents specific characteristics that distinguish it from other segments of the fashion sector. In a broader definition, SCM refers to the integration of several critical activities that ensure competitiveness, particularly in contexts where most operations are outsourced and the coordination between multiple actors becomes essential. (Karaosman et al., 2016). In luxury fashion, SCM is closely tied to brand positioning and quality assurance. As highlighted by Brun et al. (2008), maintaining high product quality is a key priority. This requires careful sourcing of premium raw materials and strict control across all manufacturing stages. The study shows that, unlike in mass-market fashion, supply chain decisions in luxury are not primarily cost driven. Instead, they aim to preserve product excellence, even at the expense of efficiency or cost savings (Brun et al., 2008). Castelli and Sianesi (2015) draw on Nueno and Quelch (1998) to emphasize the relevance of four supply chain processes to the luxury context: design and communication management, product line management, service management, and channel management. These reflect the sector's need to manage both tangible and intangible aspects of value creation. Still, there is no single model for how luxury supply chains are configured. As Brun et al. (2008) observe, approaches vary widely—from vertically integrated firms to brands that fully outsource production; from limited information sharing to detailed, transparent data flows; from artisan-led workshops to structured corporate strategies. While this flexibility allows luxury brands to preserve creative autonomy, it also creates challenges for coordination, traceability, and the implementation of consistent sustainability practices. Finally, as supply chains become

increasingly global and fragmented, the importance of collaboration grows. Addressing the Luxury sector Achabou and Dekhili (2013) state that "Luxury brands have both the opportunity and the responsibility to promote responsible consumption".

2.3. Sustainable Supply Chain management (SSCM)

The Brundtland Report defined 'Sustainable development' as "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). According to Seuring and Müller (2008), Sustainable Supply Chain Management (SSCM) can be defined as "the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social". These goals reflect not only regulatory and institutional expectations but also the demands of customers and stakeholders. In this model, companies are expected to uphold social and environmental standards to remain part of the supply chain, while also ensuring economic viability through competitive performance. This definition also comprises Green Supply Chain Management (GSCM), considered by Brun and Ciccullo (2022) as an antecedent of SSCM, however, now integrating ethical labor practices, transparency, and shared value creation. Brun and Ciccullo (2022) argue that positive and cooperative relationships among supply chain actors are necessary to support the integration of sustainability. The commitment of all partners involved is essential for ensuring that sustainability measures are effectively adopted and scaled throughout the network.

3. Methodology & Research objectives

Addressing the issues and gaps mentioned in the previous sections, this study follows a Systematic Literature Review (SLR) approach to identify, organize, and synthesize the existing academic research on the integration of sustainability into luxury fashion supply chains. A systematic review is particularly valuable in fields marked by rapid knowledge production and interdisciplinary fragmentation, as it provides a transparent, reproducible method to evaluate the current state of the literature and uncover relevant patterns and research gaps (Snyder, 2019). The main objective of this study is to develop a taxonomy that organizes sustainability-related practices, processes, and strategic actions within the supply chains of luxury fashion brands. The review also aims to map research trends and conceptual shifts in the field. Based on this aim, the following research questions were formulated:

RQ1: What sustainability practices and strategies have been adopted by luxury fashion brands in their supply chains over the past decade?

RQ2: What are the key drivers and barriers influencing the integration of sustainability in luxury fashion supply chains?

Based on the principles of the PRISMA framework (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), it includes four main stages: identification, screening, eligibility, and inclusion. The Scopus database was selected due to its broad and high-quality coverage of peer-reviewed literature and its extensive use in SLRs on sustainability and fashion (Snyder, 2019). The initial search was conducted using the following combination of keywords:

TITLE-ABS-KEY (fashion AND industry) AND TITLE-ABS-KEY (luxury) AND TITLE-ABS-KEY (product OR process OR supply AND chain).

This query was chosen after testing broader combinations, including keywords such as "sustainability", "green", or "circular". However, the authors decided to remove sustainability-specific terms from the query to avoid prematurely narrowing the sample and overlooking studies that address sustainability implicitly or under varied terminology (Seuring and Müller, 2008). This decision was especially important due to the multifaceted definitions of sustainability in fashion, which may not always cover the full triple bottom line. The query returned 329 results, which were then filtered using the following criteria. To refine the sample, the time period was limited to 2015–2025, aligned with the Paris Agreement (COP21). The agreement marked a pivotal moment in global climate policy, calling for urgent reductions in greenhouse gas emissions and promoting systemic changes across all sectors. Proceeding with the screening phase, only peer-reviewed journal articles and reviews, published in English were considered. Subsequently, a manual review of titles and abstracts was conducted to ensure that both sustainability and the luxury fashion segment were central to each article. During this phase, studies that lacked a clear connection to sustainability or focused exclusively on fast fashion, not addressing the luxury context were excluded. Additionally, papers primarily concerned with consumer behaviour, marketing strategies, branding, pricing models, or technological innovation unrelated to sustainability were also removed, as the aim was to focus on management and supply chain-oriented strategies. This refinement resulted in a sample of 80 articles, which was then filtered by journal quality: only papers published in Q1 journals according to the Scimago Journal Rank (SJR) were retained to ensure academic rigor and high-quality peer review. Lastly, a full-text analysis was conducted. This final step yielded a core sample of 26 articles, which constitute the foundation for both the descriptive and content analyses developed in this study. The list of the reviewed documents can be found in Appendix A.

4. Results

A descriptive analysis was conducted to outline the characteristics of the selected literature and identify overarching patterns. This step supports the organization of the content analysis, where the identified practices are further categorized into a proposed taxonomy. First, the categorization adopts the product – process – supply chain levels proposed by Karaosman et al., (2016). Subsequently, in order to understand better whether the practices implemented by the companies are proactive and systemic, or mostly reactive and isolated, and building upon Franzè et al. (2024), a new classification is proposed to group the practices by their intentionality: Core Strategic Sustainability, Enabling/Operational, Symbolic/ Communicative and Experimental/ Adaptive.

4.1. Publications by Year and Journal

The distribution of the 26 selected articles over time highlights the recent academic interest in sustainability within the luxury supply chain and it is showed in Figure 1. Publications span from 2015 to 2025, with a notable increase from 2020 onwards. While early contributions (e.g., 2015, 2017, 2018) were sparse and exploratory, the years 2022 to 2025 show a visible surge in scholarly output, accounting for over half of the total sample. This upward trend reflects the growing urgency and recognition of sustainability challenges and opportunities in luxury fashion, especially considering global events such as the COVID-19 pandemic and the acceleration of ESG-driven business models. The high number of publications in 2023 and 2024 suggests an intensifying focus on structural, material, and strategic innovations aligned with environmental and social performance.

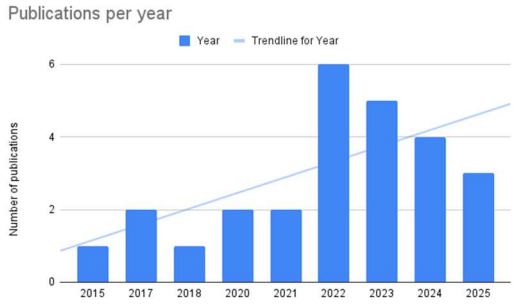

Figure 1: Publications per year.

Regarding the distribution by journal, Journal of Cleaner Production stands out as the most prominent source in the sample, appearing three times. It is followed by International Journal of Productivity and Performance Management and Journal of Global Fashion Marketing, each contributing two publications. The remaining journals, such as Business Strategy and the Environment, Journal of Fashion Marketing and Management, Sustainable Production and Consumption, and Fashion Practice, among others, appear once each, reflecting the interdisciplinary nature of sustainability research in luxury fashion supply chains.

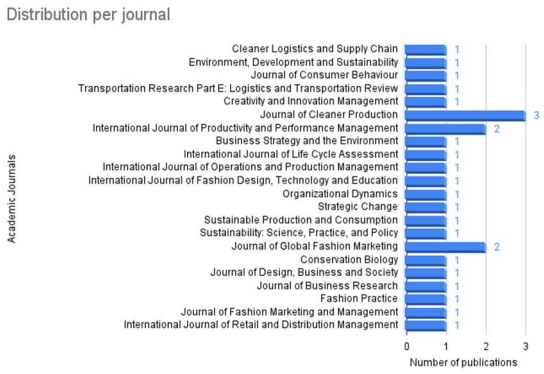

Figure 1: Distribution of research articles by journal.

4.2. Sustainability Integration in Product Design

Sustainability in luxury product design reflects a dual strategy: combining material innovation with symbolic and cultural value. Among the 20 practices identified, a large portion are strategic and environmentally driven, such as the use of eco-friendly materials, lifecycle assessments (LCA), circular product models, and eco-packaging. These core efforts are complemented by symbolic practices like ethical labels, transparency in durability, and digital sustainability communication, which aim to build consumer trust. Additionally, the review suggests that brands are embedding emotional and cultural dimensions through craftsmanship and limited-edition collections, reinforcing luxury's identity while supporting long-term use. Emerging experimental approaches, including consumer-centered innovation, indicate a shift toward co-creating value and deepening engagement. A detailed list of practices and their classifications is presented in Appendix B.

4.3. Sustainability Integration in Production Processes

Sustainability in production processes shows a more technical and operational orientation, with 24 mapped practices focusing on chemical management, energy and water efficiency, waste reduction, and digital innovation (Appendix C). These efforts are often driven by regulatory compliance or cost-reduction strategies rather than a deeper environmental commitment. These patterns reflect efforts to align with stricter environmental expectations and to reinforce process credibility, particularly in light of growing stakeholder pressure for supply chain transparency. Social and ethical concerns, such as fair labor practices, worker well-being, or community impact, remain less emphasized at this stage compared to product design or supply chain governance. Overall, production-level sustainability still reflects a limited scope, focused more on efficiency than on holistic responsibility (Appendix C).

4.4. Sustainability Integration in the Supply Chain

Given the considerably higher number of practices identified at the supply chain level compared to the product and process stages, practices were grouped into thematic clusters to improve analytical clarity and capture the diversity of approaches (Appendix D). This segmentation underscores a key finding of the review: while luxury

brands have expanded their sustainability agendas, the supply chain level concentrates both the greatest variety of initiatives and the most critical implementation challenges. Core strategic practices include circular business models, resale strategies, vertical integration, and slow fashion models that address structural issues like overproduction. Operational efforts, such as traceability systems and supplier audits, were frequently reported but often limited in scope due to persistent gaps in supply chain visibility and multi-tier coordination. In addition to environmental and governance-focused actions, the review also identified a set of socially oriented practices—such as improving labor conditions, ensuring worker welfare, and recognizing supplier contributions. While these human-centered efforts are less recurrent, their presence suggests an emerging awareness of the social dimension of supply chain sustainability in luxury fashion. Nevertheless, the gap between symbolic actions and transformative implementation remains a central tension in the sector.

4.4. Drivers and barriers to Sustainability in Luxury Supply Chains

Sustainability in luxury fashion supply chains is shaped by the tension between persistent barriers and emerging drivers. Governance-related challenges remain central, including weak accountability, reluctance to disclose information, limited stakeholder engagement, and risks of greenwashing. Economic barriers, such as high costs of sustainable materials, uncertain returns, and financial strain on SMEs, are particularly evident upstream. Structural fragmentation, power asymmetries, and low supplier integration further complicate systemic efforts. Internally, gaps in knowledge, eco-literacy, and training, alongside resistance to change, limit implementation capacity. Cultural tensions between exclusivity and transparency, as well as downstream issues like overconsumption and resale stigma, also hinder progress.

Conversely, a growing set of drivers pushes sustainability forward. External forces such as consumer pressure, investor scrutiny, regulatory frameworks, and evolving market dynamics (e.g., resale, digital platforms) generate momentum. Internally, leadership commitment, ethical values, a culture of innovation, and digital infrastructure are key enablers. Collaborative supplier relationships based on trust and shared values support long-term integration. Strategic benefits, like efficiency, resilience, and brand differentiation, reveal that sustainability can align with competitive advantage.

The review also finds that symbolic efforts, mainly in communication and labeling, often serve reputational goals without driving systemic change. In contrast, core strategic initiatives, especially in product design (e.g., eco-materials, durability, circularity) and supply chain governance (e.g., traceability systems, EP&L, vertical integration), embed sustainability into long-term value creation. Overall, advancing sustainability in luxury requires not only technical solutions, but also cultural transformation, supplier empowerment, and cross-tier collaboration.

5. Conclusions

This study systematically reviews and categorizes sustainability integration in luxury fashion supply chains, offering a tailored taxonomy of practices across the three operational levels. Drawing from other frameworks (Karaosman et al., 2016; Franzè et al., 2024), the analysis uses two main lenses: (i) scope (product, process, supply chain) and (ii) intentionality (core strategic, enabling, symbolic, experimental). the scope level (product, process, supply chain). The findings reveal that product-level practices are mostly strategic and environmental, such as eco-materials, circularity, and durability-by-design. Process-level actions are more technical, emphasizing resource efficiency and risk mitigation. Supply chain initiatives are the most diverse, with a strong presence of governance, traceability, and a few social responsibility instruments. These patterns align with strategic and contingency frameworks (Brun et al., 2017; Castelli & Sianesi, 2015), reinforcing the view that sustainability can support differentiation and long-term value.

The review also suggests strategic implications for luxury companies seeking genuine transformation. First, brands must redefine luxury by embedding sustainability into their core identity, learning how to make it compatible with exclusivity through innovation in materials, storytelling, and craftsmanship. Second, supply chain governance must shift toward co-responsibility, with mechanisms that empower suppliers, foster transparency, and distribute value more fairly. Third, companies should invest in internal capacity-building and stakeholder collaboration, aligning leadership, workforce, and consumer expectations around sustainability goals. These actions move beyond compliance and image to enable systemic change.

Despite its contributions, the study has limitations. By focusing solely on Q1 academic journals, it potentially overlooks valuable industry insights, white and grey literature. Potential language bias (English-only articles) may also be considered. Moreover, the relatively small final sample (26 articles) limits generalizability and reflects the emergent nature of research in this niche. Furthermore, the qualitative coding process, while systematic, involves interpretive judgment that may introduce some subjectivity. Nevertheless, the study paves the way for future research. Promising directions include exploring empirical methods, such as comparative case studies of luxury brands in different geographical regions or surveys measuring consumer perceptions of symbolic vs. core strategic sustainability initiatives. Additionally, future studies should assess the measurable impact of experimental practices, such as innovation labs and design co-working spaces, on long-term sustainability performance and brand equity.

Finally, as technologies evolve, research could examine how digital tools like blockchain, AI, and data analytics can be leveraged to enhance traceability, authenticity, and circularity in luxury fashion supply chains. By addressing these questions, future research can contribute to deepening our understanding of how image-centric industries like luxury fashion can serve as powerful catalysts for responsible innovation.

References

Achabou, M.A. and Dekhili, S. (2013). Luxury and sustainable development: Is there a match? *Journal of Business Research*, 66, 1896–1903.

Bhandari, N., Camuffo, A., and Fornasiero, R. (2022). Barriers to sustainable sourcing in the apparel and fashion luxury industry. *Sustainable Production and Consumption*, 31, 220–235.

Bernardi, A., Cantù, C.L., and Cedrola, E. (2022). Key success factors to be sustainable and innovative in the textile and fashion industry: Evidence from two Italian luxury brands. *Journal of Global Fashion Marketing*, 13(2), 116–133.

Bindi, B., Brusset, X., Caridi, M., and Zotteri, G. (2021). Supply chain strategy in the luxury fashion industry: impacts on performance indicators. *International Journal of Productivity and Performance Management*, 72(5), 1338–1367.

Brun, A., Castelli, C., and Karaosman, H. (2017). A focused supply chain strategy for luxury fashion management. *Journal of Fashion Marketing and Management: An International Journal*, 21(4), 544–563.

Brun, A. and Castelli, C. (2013). The nature of luxury: a consumer perspective. In *Luxury Marketing and Management*, 67–81. Palgrave Macmillan, London.

Brun, A. and Ciccullo, F. (2022). Factors affecting sustainability-oriented innovation in the leather supply chain. *Strategic Change*, 31(3), 305–321.

Brun, A., Caniato, F., Caridi, M., Castelli, C., and Miragliotta, G. (2008). Logistics and supply chain management in luxury fashion retail: Empirical investigation of Italian firms. *International Journal of Production Economics*, 114(2), 554–570.

Cassidy, T.D. (2017). Conceptualizing sustained high quality fashion products in a devalue dominated marketplace. *Fashion Practice*, 9(2), 235–253.

Castelli, C.M. and Sianesi, A. (2015). Supply chain strategy for companies in the luxury-fashion market: Aligning the supply chain towards the critical success factors. *International Journal of Retail & Distribution Management*, 43(10/11), 940–966.

Ellen MacArthur Foundation. (2017). *A New Textiles Economy: Redesigning fashion's future*. Ellen MacArthur Foundation, Cowes. (Accessed: 6 April 2025).

Fani, V., Mangiaracina, R., Perego, A., and Tumino, A. (2025). Sustainable reverse logistics network design using simulation: Insights from the fashion industry. *Cleaner Logistics and Supply Chain*, 14, 100201.

Franzè, C., Paolucci, E., and Ravetti, C. (2024). A dynamic view of strategic innovation for sustainability: A longitudinal case study of a luxury fashion engineering company. *Creativity and Innovation Management*, 33(4), 603–619.

Gladwin, T.N., Kennelly, J.J., and Krause, T.S. (1995). Shifting paradigms for sustainable development: Implications for management theory and research. *Academy of Management Review*, 20(4), 874–907.

Holmqvist, J., Ruiz-Alba, J.L., Foroudi, P., and Hultén, B. (2025). Luxury in the Circular Economy: An Engagement Journey Perspective. *Journal of Consumer Behaviour*, advance online publication.

Hrouga, M. and Michel, S. (2023). Towards a new supply chain manager dashboard under circular economy constraints: A case study on France textile and clothing industry. *Business Strategy and the Environment*, 32(8), 6074–6093.

Jestratijevic, I., Rudd, N.A., and Uanhoro, J. (2020). Transparency of sustainability disclosures among luxury and mass-market fashion brands. *Journal of Global Fashion Marketing*, 11(2), 99–116.

Jestratijevic, I., Uanhoro, J.O., and Rana, M.R.I. (2024). Transparency of sustainability disclosures among luxury and mass-market fashion brands: Longitudinal approach. *Journal of Cleaner Production*, 436, 140481.

Kapferer, J.-N. and Michaut, A. (2015). Luxury and sustainability: A common future? The match depends on how consumers define luxury. *Luxury Research Journal*, 1(1), 3–17.

Karaosman, H., Morales-Alonso, G., and Brun, A. (2016). From a systematic literature review to a classification framework: Sustainability integration in fashion operations. *Sustainability*, 9(1), 30.

Karaosman, H., Marshall, D., and Villena, V.H. (2023). Chrysalis of crisis: Covid-19 as a catalyst for awakening power and justice in a luxury fashion supply chain. *International Journal of Operations and Production Management*, 43(10), 1634–1666.

Karaosman, H., Perry, P., Brun, A., and Morales-Alonso, G. (2020). Behind the runway: Extending sustainability in luxury fashion supply chains. *Journal of Business Research*, 117, 652–663.

Keith, S. and Silies, M. (2015). New life luxury: upcycled Scottish heritage textiles. *International Journal of Retail & Distribution Management*, 43(10/11), 1051–1064.

Landi, F.F.A., Neri, A., Santolamazza, A., and Testa, F. (2023). Sustainable management in the slow fashion industry: Carbon footprint of an Italian brand. *The International Journal of Life Cycle Assessment*, 28(10), 1229–1247.

Liedong, T.A., Peprah, J.A., Amarteifio, E.N.A., and Moore, E. (2022). Gracious growth: How to manage the trade-off between corporate greening and corporate growth. *Organizational Dynamics*, 51(3), 100895.

Luo, S., Choi, T.-M., and Wang, Y. (2021). Sustainable what…? The role of corporate websites in communicating material innovations in the luxury fashion industry. *Journal of Design, Business and Society*, 7(1), 83–103.

Marsh, J., Wood, S., Chute, R., and Allwood, J. (2022). A value-driven business ecosystem for industrial transformation: The case of the EU's H2020 "Textile and Clothing Business Labs". *Sustainability: Science, Practice and Policy*, 18(1), 263–277.

McKinsey & Company. (2022). *Circular fashion in Europe: Turning waste into value*. McKinsey & Company, Brussels.

Natusch, D.J.D., Aust, P.W., and Shine, R. (2021). The perils of flawed science in wildlife trade literature. *Conservation Biology*, 35(5), 1396–1404.

Pérez-Bou, S. and Cantista, I. (2023). Politics, sustainability and innovation in fast fashion and luxury fashion groups. *International Journal of Fashion Design, Technology and Education*, 16(1), 46–56.

Seuring, S. and Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699–1710.

Shu, E. (2025). Behind the runway: Managing paradoxical tensions on sustainable luxury. *Environment, Development and Sustainability*, 27(2), 5421–5433.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339.

Tickle, M., Hannibal, C., and Zapparoli, M. (2024). The faster the better? Comparing sustainability performance information in fast and luxury fashion. *International Journal of Productivity and Performance Management*, advance online publication.

Vanacker, H., Lemieux, A.-A., and Bonnier, S. (2022). Different dimensions of durability in the luxury fashion industry: An analysis framework to conduct a literature review. *Journal of Cleaner Production*, 377, 134179.

Wang, Y., Choi, T.-M., and Luo, S. (2024). Sustainability versus exclusivity in the sharing economy: Should leftover luxury fashion products be destroyed? *Transportation Research Part E: Logistics and Transportation Review*, 192, 103759.

Appendix A. Articles ID

ID	Reference	ID	Reference	ID	Reference
A1	Karaosman et al., 2020	A10	Hrouga and Michel, 2023	A18	Vanacker et al., 2022
A2	Moretto et al., 2018	A11	Landi et al., 2023	A19	Liedong et al., 2022
A3	Jestratijevic et al., 2020	A12	Karaosman et al., 2023	A20	Brun and Ciccullo, 2022
A4	Brun et al., 2017	A13	Bindi et al., 2023	A21	Bhandari et al., 2022
A5	Shu, 2025	A14	Pérez-Bou and Cantista, 2023	A22	Marsh et al., 2022
A6	Holmqvist et al., 2025	A15	Keith and Silies, 2015	A23	Bernardi et al., 2022
A7	Franzè et al., 2024	A16	Fani et al., 2025	A24	Natusch et al., 2021
A8	Jestratijevic et al., 2024	A17	Wang et al., 2024	A25	Luo et al., 2021
A9	Tickle et al., 2024			A26	Cassidy, 2017

Appendix B. Sustainability Practices in Product

Sustainability Practices in Product	Intentionality Category	Reference Articles ID
Closed-loop Production & Circularity	Core Strategic Sustainability	A14;A2;A20;A22;A25;A3;A5;A7
Cultural Heritage & Craftsmanship		A1;A15;A19;A23
Design for Longevity		A18;A26
Design for durability and multi-cycle use		A26
Designing long-lasting products		A5
Development of sustainability-focused product lines and collections		A25
Development of unique, limited-edition luxury items		A15
Integration of both intrinsic (material) and extrinsic (emotional) dimensions into design		A18
Lifecycle Assessment (LCA)		A1; A2
Standardizing ecodesign		A5
Sustainable Material Innovation		A5
Use of Eco-friendly Materials		A1; A11; A2; A25; A3; A5; A6
Sustainable Packaging	Enabling / Operational	A1;A11;A7
Consumer-centered sustainable innovation and communication strategies	Experimental / Adaptive	A23
Consumer awareness campaigns	Symbolic / Communicative	A2
Influence consumer behavior for use-stage sustainability		A11
Integration of sustainability information into product pages and digital platforms		A25
Label for sustainably and ethically made products		A14
Sustainability in Branding		A6
Transparent communication of durability and resilience attributes to customers		A18
Visible sustainability actions for customers		A11

Appendix C. Sustainability Practices in Processes

Sustainability Practices in Processes	Intentionality Category	Reference Articles ID
Chemical management programs	Core Strategic Sustainability	A14
Closed-loop Production & Circularity		A14;A2;A20;A22;A25;A3;A5;A7
Process innovation		A1; A23
Renewable Energy Use		A1;A11
Reuse & Waste Reduction		A1;A15;A15;A20
Sustainability-oriented innovations (SOIs)		A7
Water stewardship		A1;A3
A matrix to categorize all chemical components	Enabling / Operational	A1
Chemical reduction in production line		A1
Data-driven Decision-making		A11
Emission Reduction		A1;A2;A15
Energy Efficiency		A3
Hazardous chemical elimination		A1
Laboratory test		A1
Reducing energy consumption		A5
Adoption of litehide™ process to eliminate salt in leather preservation	Experimental / Adaptive	A20
Collaborative production models (short-run production, local cmt hubs)		A22
Cross-functional innovation teams		A8
Digitalization of operations		A14
Eco-efficient store initiatives		A14
Sustainable design co-working spaces (design coworkings)		A22
Sustainable materials labs and innovation labs		A14
Carbon-neutral runway shows	Symbolic / Communicative	A14
Transparent production process		A15

Appendix D. Sustainable Practices in SC

Thematic Cluster	Example Practices	Intentionality Category	Reference Articles ID
Circular & Strategic Business Models	Second-hand & resale strategies; On-demand/slow fashion models; Vertical integration; Localized supply chains		A6, A11, A14, A15, A23, A26, A5
Carbon & Environmental Accountability	Carbon footprint measurement; Reductions and compensations for carbon neutrality; EP&L accounting; Sustainability benchmarking	Core Strategic Sustainability	A5, A7, A8, A10, A13, A14, A16, A19, A1
Governance & Strategic Integration	Sustainability governance; Definition of sustainability goals; Committing to stringent standards; Create a cultural change; Ethical governance		A1, A2, A5, A7
Stakeholder Dialogue & Partnerships	Multilateral dialogue with institutions; Collaborative partnerships with lower-tier suppliers; Engagement of second-tier suppliers		A1, A12, A20
Traceability & Compliance	Traceability systems; Supplier audits & compliance; Certificate of origin; Supplier selection (sustainability indexes); Monitoring compliance	Enabling / Operational	A1, A2, A3, A8, A14, A20, A22, A25
Sustainable Logistics & Inventory Management	Sustainable logistics; Automated storage & stock mapping; Centralized requalification; Use of FIFO inventory; Forecasting sales; Managing product categories		A1, A2, A4, A11, A13, A16
Supplier Development & Incentives	Supplier training; Supplier-level incentives; Training & capacity building; Use of supplier ranking system; Partner selection based on ESG		A1, A2, A8, A20
Human-Centered Social Responsibility	Developing decent work programs; Employee welfare & HR practices; Empowerment & protection of workforce; Career path support; Rewarding suppliers; Joint meetings	Enabling / Operational	A1, A2, A11, A12, A13, A19, A20
Governance Structures & Technical Support	Creation of committee of technical experts		A5
Communication & Transparency	Sustainability disclosure; Website communication; Transparency claims; Tailored communication strategies; Accessibility of info; Philanthropy & donations	Symbolic / Communicative	A1, A3, A8, A9, A17, A19, A25
Collaborative Innovation & Experimentation	Partnering with NGOs & academia; Participation in international projects; Collaboration with universities; Tcbl labs & co-innovation spaces; Sharing leftovers	Experimental / Adaptive	A5, A9, A14, A17, A22