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Research Article

Collaborative Leadership and Co-Creation in Fashion Technology Development

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ABSTRACT

The rapid convergence of digital technologies and sustainability imperatives has transformed the global fashion industry, necessitating new approaches to innovation and value creation. This study examines the role of collaborative leadership in enabling co-creation within fashion technology development. Grounded in Service-Dominant Logic, Stakeholder Theory, and Innovation Ecosystem Theory, the research adopts a qualitative methodology based on secondary data, including peer-reviewed literature, industry reports, and case studies. The findings reveal that collaborative leadership fosters stakeholder integration, trust, and shared decision-making, which are critical for effective co-creation processes. Digital platforms, consumer empowerment, and sustainability pressures are identified as key drivers, while organisational silos, governance complexity, and resource constraints remain significant challenges. The study highlights that co-creation enhances innovation outcomes, promotes sustainability through circular practices, and strengthens customer engagement. By integrating leadership and co-creation perspectives, this research contributes to a deeper understanding of collaborative innovation in fashion technology. The findings provide practical insights for industry practitioners seeking to leverage collaborative ecosystems for sustainable and competitive advantage.

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1. Introduction

The global fashion industry is undergoing a profound transformation shaped by rapid technological advancements, increasing environmental concerns, and evolving consumer expectations. Traditionally, the fashion sector has operated within a hierarchical and linear value chain characterised by centralised decision-making, mass production, and limited consumer involvement. However, in recent years, this model has been increasingly challenged by the emergence of fashion technology (fashion-tech) and the growing importance of collaborative innovation processes. Within this evolving landscape, collaborative leadership and co-creation have emerged as critical paradigms for driving sustainable and customer-centric innovation.

Fashion technology encompasses the integration of advanced digital tools such as artificial intelligence (AI), blockchain, augmented reality (AR), and 3D design into the fashion value chain. These technologies enable enhanced efficiency, transparency, and customisation, thereby transforming traditional production and consumption patterns (Niinimäki et al., 2020). At the same time, they facilitate new forms of interaction among stakeholders, including designers, manufacturers, retailers, and consumers. As a result, the boundaries between producers and consumers are increasingly blurred, giving rise to participatory innovation models.

One of the most significant shifts in this context is the movement toward co-creation, which refers to the collaborative process through which firms and stakeholders jointly create value. Rooted in service-dominant logic, co-creation emphasizes that value is not embedded in products but is co-developed through interactions and experiences (Vargo & Lusch, 2004). In the fashion industry, co-creation manifests through practices such as crowdsourced design, customizable apparel, and digital platforms that enable user participation in product development. These practices not only enhance innovation but also foster stronger emotional connections between brands and consumers (Prahalad & Ramaswamy, 2004).

Parallel to the rise of co-creation is the increasing relevance of collaborative leadership, which represents a departure from traditional top-down leadership models. Collaborative leadership emphasises shared responsibility, stakeholder engagement, and collective decision-making. It is particularly important in complex and dynamic environments such as fashion-tech, where innovation requires the integration of diverse knowledge and expertise (Chrislip & Larson, 1994). By fostering trust, communication, and inclusivity, collaborative leadership enables organisations to harness the full potential of co-creation processes.

The convergence of collaborative leadership and co-creation is especially significant in addressing the sustainability challenges faced by the fashion industry. The sector is widely recognised as one of the most resource-intensive and environmentally damaging industries, contributing to pollution, waste, and climate change (Niinimäki et al., 2020). In response, there has been a growing emphasis on sustainable practices, including circular economy models, collaborative consumption, and eco-friendly production methods. Collaborative leadership plays a crucial role in facilitating these practices by aligning the interests of multiple stakeholders and promoting collective action (Arrigo, 2021).

Moreover, digital transformation has accelerated the adoption of collaborative and co-creative approaches in fashion. Digital platforms and social media enable real-time interaction and feedback, allowing consumers to actively participate in design and innovation processes. This shift reflects a broader trend toward democratisation of innovation, where value creation is distributed across networks rather than confined within organisational boundaries (Botsman & Rogers, 2010). Consequently, organisations that embrace collaborative leadership are better positioned to leverage these opportunities and remain competitive in the digital age.

Despite the growing importance of collaborative leadership and co-creation, there remains a lack of comprehensive research examining their intersection within the context of fashion technology. Existing studies have largely focused on either leadership or co-creation in isolation, with limited attention to how these concepts interact to influence innovation outcomes. Furthermore, while there is increasing recognition of the role of digital technologies in enabling collaboration, the mechanisms through which leadership practices shape co-creation processes in fashion-tech ecosystems are not fully understood.

This study seeks to address these gaps by exploring the role of collaborative leadership in facilitating co-creation within fashion technology development. Specifically, it aims to examine the drivers, benefits, and challenges associated with collaborative innovation in the fashion industry. By adopting a qualitative research approach based on secondary data, the study provides a comprehensive analysis of existing literature and industry practices.

The research is guided by the following objectives:

- To analyse the role of collaborative leadership in fostering co-creation in fashion technology.
- To identify the key drivers and barriers influencing co-creation processes.
- To explore the implications of collaborative innovation for sustainability and competitiveness in the fashion industry.

By addressing these objectives, the study contributes to both academic and practical understanding of collaborative innovation in fashion-tech. It offers insights into how organisations can leverage leadership and co-creation strategies to navigate the complexities of digital transformation and sustainability challenges.

2. Literature Review

Collaborative leadership has emerged as a critical approach in managing complex organisational environments characterised by uncertainty, interdependence, and rapid change. Unlike traditional hierarchical leadership models, collaborative leadership emphasises shared power, collective decision-making, and stakeholder engagement (Chrislip & Larson, 1994). It is particularly relevant in innovation-driven industries such as fashion technology, where the integration of diverse expertise is essential for success.

Research indicates that collaborative leadership enhances organisational performance by fostering trust, communication, and knowledge sharing (Ansell & Gash, 2008). In the context of fashion, where supply chains are highly fragmented and globalised, collaborative leadership enables coordination among multiple actors, including designers, manufacturers, suppliers, and consumers. This coordination is crucial for achieving efficiency, innovation, and sustainability.

Furthermore, collaborative leadership aligns closely with the concept of network governance, which emphasises the role of relationships and partnerships in achieving organisational goals. Studies suggest that effective collaboration requires clear governance structures, mutual trust, and shared objectives (Emerson et al., 2012). In fashion-tech ecosystems, these elements are essential for managing complex interactions and ensuring successful co-creation.

2.1 Co-Creation and Service-Dominant Logic

The concept of co-creation is rooted in service-dominant logic (SDL), which posits that value is created through interactions between firms and customers rather than being embedded in products (Vargo & Lusch, 2004). This perspective challenges traditional notions of value creation and emphasises the importance of relationships, experiences, and collaboration.

Prahalad and Ramaswamy (2004) further developed the concept of co-creation by highlighting the role of consumer engagement in innovation processes. According to their framework, co-creation involves four key elements: dialogue, access, risk assessment, and transparency. These elements enable firms and consumers to collaboratively create value and enhance innovation outcomes.

In the fashion industry, co-creation has gained significant attention as a means of enhancing customer engagement and differentiation. Practices such as customizable products, crowdsourced design, and user-generated content exemplify the application of co-creation in fashion. These practices not only improve product quality but also strengthen brand loyalty and customer satisfaction (Martins et al., 2020).

2.2 Fashion Technology and Digital Innovation

Fashion technology represents the convergence of fashion and digital innovation, encompassing a wide range of technologies that transform the design, production, and consumption of fashion products. Key technologies include AI, blockchain, AR/VR, and 3D printing.

AI enables data-driven decision-making by analysing consumer preferences and predicting trends, thereby enhancing efficiency and personalisation. Blockchain technology improves supply chain transparency and traceability, addressing issues related to sustainability and ethical sourcing. AR and VR technologies provide immersive experiences, allowing consumers to virtually try on products and participate in design processes.

These technologies facilitate co-creation by enabling real-time interaction and collaboration among stakeholders. For example, digital platforms allow designers and consumers to co-create products through interactive interfaces. This shift reflects a broader trend toward digital transformation and innovation ecosystems in the fashion industry (Niinimäki et al., 2020).

2.3 Collaborative Consumption and Sustainability

Collaborative consumption refers to the sharing, renting, or exchanging of goods and services, often facilitated by digital platforms (Botsman & Rogers, 2010). In the fashion industry, collaborative consumption models include clothing rental, resale, and swapping platforms.

These models contribute to sustainability by reducing resource consumption, minimising waste, and promoting circular economy practices. Arrigo (2021) highlights that collaborative consumption in fashion enhances environmental performance while also providing economic and social benefits.

Moreover, sustainability has become a key driver of innovation in the fashion industry. Consumers are increasingly aware of the environmental impact of their purchasing decisions, leading to a growing demand for sustainable products and practices. Co-creation plays a crucial role in this context by involving consumers in the development of sustainable solutions.

2.4 Innovation Ecosystems in Fashion-Tech

The concept of innovation ecosystems provides a useful framework for understanding the dynamics of collaboration in fashion technology. An innovation ecosystem consists of interconnected actors, including firms, consumers, technology providers, and policymakers, who collaborate to create value (Adner, 2017).

In fashion-tech ecosystems, collaboration is essential for integrating diverse capabilities and resources. For example, partnerships between fashion brands and technology companies enable the development of innovative products and services. Similarly, collaborations with consumers facilitate co-creation and enhance market responsiveness.

Research suggests that successful innovation ecosystems require effective coordination, governance, and leadership (Adner, 2017). Collaborative leadership plays a key role in this context by fostering trust, aligning interests, and facilitating communication among stakeholders.

2.5 Challenges and Research Gaps

Despite the benefits of collaborative leadership and co-creation, several challenges remain. These include:

- **Organisational Silos:** Lack of integration across departments can hinder collaboration.
- **Resource Constraints:** Limited financial and technological resources may restrict participation.

- **Trust Issues:** Lack of trust among stakeholders can impede collaboration.
- **Governance Complexity:** Managing multiple stakeholders requires complex governance structures.

Furthermore, existing research has largely focused on developed markets, with limited attention to emerging economies. There is also a need for more empirical studies examining the interaction between collaborative leadership and co-creation in fashion-tech.

3. Theoretical Framework

This study is grounded in an integrative theoretical framework that combines Service-Dominant Logic (SDL), Stakeholder Theory, and Innovation Ecosystem Theory to explain how collaborative leadership facilitates co-creation in fashion technology development. These complementary perspectives provide a multidimensional understanding of value creation, stakeholder engagement, and innovation processes in complex and dynamic environments.

3.1 Service-Dominant Logic (SDL)

Service-Dominant Logic (SDL), introduced by Vargo and Lusch (2004), represents a paradigm shift from goods-centred to service-centred views of value creation. According to SDL, value is not embedded in tangible products but is co-created through interactions between firms and stakeholders, particularly customers. This perspective emphasises the importance of intangible resources such as knowledge, skills, and relationships in the value creation process.

In the context of fashion technology, SDL provides a foundational framework for understanding co-creation. Digital technologies enable continuous interaction between brands and consumers, allowing customers to actively participate in product design, customisation, and innovation processes. For example, virtual design platforms and AI-driven personalisation tools facilitate real-time collaboration, thereby enhancing value co-creation (Niinimäki et al., 2020).

Moreover, SDL highlights the role of operant resources, such as competencies and capabilities, in driving competitive advantage. Collaborative leadership plays a crucial role in mobilising these resources by fostering an environment that encourages knowledge sharing and stakeholder engagement. By aligning organisational capabilities with stakeholder contributions, collaborative leadership enhances the effectiveness of co-creation processes.

3.2 Stakeholder Theory

Stakeholder Theory, as articulated by Freeman (1984), emphasises that organisations must consider the interests of all stakeholders, not just shareholders, in their decision-making processes. Stakeholders include employees, customers, suppliers, communities, and other entities that can influence or are affected by organisational activities.

In fashion technology development, stakeholder engagement is particularly important due to the complexity and interdependence of the industry. Collaborative leadership aligns with stakeholder theory by promoting inclusive decision-making and fostering partnerships among diverse actors. This approach enhances transparency, trust, and mutual understanding, which are critical for successful co-creation (Ansell & Gash, 2008).

Furthermore, stakeholder theory provides a normative foundation for sustainability in fashion. By considering the environmental and social impacts of their activities, organisations can develop more responsible and ethical practices. Co-creation enables stakeholders, including consumers, to contribute to sustainability initiatives, such as designing eco-friendly products or participating in circular economy models (Arrigo, 2021).

Collaborative leadership facilitates these processes by balancing competing stakeholder interests and ensuring that all voices are heard. This is particularly important in fashion-tech ecosystems, where power dynamics and resource asymmetries can create challenges for effective collaboration.

3.3 Innovation Ecosystem Theory

Innovation Ecosystem Theory provides a systemic perspective on how innovation emerges through interactions among interconnected actors (Adner, 2017). An innovation ecosystem consists of firms, technology providers, consumers, regulators, and other stakeholders who collaborate to create and deliver value.

In the fashion-tech context, innovation ecosystems are characterised by the integration of digital technologies, creative industries, and consumer participation. Collaborative leadership is essential for orchestrating these ecosystems by aligning the goals and activities of diverse actors. Effective ecosystem leadership involves coordinating resources, managing interdependencies, and facilitating communication among stakeholders.

Co-creation is a central mechanism within innovation ecosystems, as it enables the integration of diverse knowledge and capabilities. For example, collaborations between fashion brands and technology companies can lead to the development of innovative products such as smart textiles and digital fashion platforms. Similarly, consumer participation in design processes enhances innovation by incorporating user insights and preferences.

Innovation ecosystem theory also highlights the importance of governance structures in managing collaboration. Collaborative leadership contributes to effective governance by establishing shared norms, building trust, and ensuring accountability. These factors are critical for sustaining long-term collaboration and achieving successful innovation outcomes.

3.4 Integration of Theoretical Perspectives

The integration of SDL, Stakeholder Theory, and Innovation Ecosystem Theory provides a comprehensive framework for understanding collaborative leadership and co-creation in fashion technology development.

- **SDL** explains how value is co-created through interactions.

- **Stakeholder Theory** emphasises the importance of inclusive engagement and ethical considerations.
- **Innovation Ecosystem Theory** highlights the systemic and networked nature of innovation.

Together, these theories suggest that collaborative leadership acts as a catalyst that connects stakeholders, facilitates interactions, and orchestrates innovation processes.

3.5 Conceptual Framework

Based on the theoretical integration, this study proposes a conceptual framework consisting of the following relationships:

- **Collaborative Leadership → Stakeholder Integration**: Collaborative leadership fosters trust, communication, and shared decision-making, enabling effective stakeholder integration.
- **Stakeholder Integration → Co-Creation**: Engaged stakeholders actively participate in value creation, leading to enhanced co-creation processes.
- **Co-Creation → Innovation and Sustainability Outcomes**: Co-creation drives innovation, improves product quality, and supports sustainable practices.

This framework underscores the central role of leadership in enabling collaborative innovation and highlights the interdependence of stakeholders in fashion-tech ecosystems.

4. Research Methodology

This study adopts a qualitative research design based on secondary data analysis to explore the role of collaborative leadership and co-creation in fashion technology development. Qualitative research is appropriate for this study as it allows for an in-depth understanding of complex social phenomena, including leadership practices, stakeholder interactions, and innovation processes (Creswell & Poth, 2018).

The use of secondary data is particularly suitable for examining emerging topics such as fashion technology, where primary data collection may be limited or resource-intensive. Secondary data provides access to a wide range of existing knowledge, enabling a comprehensive analysis of the research problem.

4.1 Data Sources and Selection Criteria

The study relies on multiple sources of secondary data, including:

- Peer-reviewed journal articles
- Industry reports
- Case studies
- Conference proceedings
- Books and scholarly publications

To ensure the quality and relevance of data, the following selection criteria were applied:

- **Relevance:** Sources must address collaborative leadership, co-creation, or fashion technology.
- **Credibility:** Preference was given to peer-reviewed journals and reputable industry reports.

- **Recency:** Emphasis was placed on studies published within the last 10–15 years, while including seminal works.
- **Diversity:** Sources from different disciplines (e.g., management, marketing, sustainability) were included to provide a multidisciplinary perspective.

4.2 Data Collection Procedure

The data collection process involved a systematic review of academic databases such as Scopus, Web of Science, and Google Scholar. Keywords used in the search included:

- "Collaborative leadership"
- "Co-creation"
- "Fashion technology"
- "Innovation ecosystems"
- "Collaborative consumption"

The search process yielded a large number of sources, which were then screened based on the selection criteria. Relevant studies were selected for detailed analysis.

4.3 Data Analysis Method

The study employs thematic analysis to identify patterns and themes within the collected data. Thematic analysis is a widely used qualitative method that involves systematically coding and categorising data to uncover meaningful insights (Braun & Clarke, 2006). The analysis process consisted of the following steps:

- **Familiarisation:** Reading and reviewing the selected sources to gain an overall understanding.
- **Coding:** Identifying key concepts and assigning codes to relevant data segments.
- **Theme Development:** Grouping codes into broader themes related to collaborative leadership and co-creation.
- **Interpretation:** Analysing the relationships among themes and linking them to the theoretical framework.

Key themes identified include:

- Leadership practices and stakeholder engagement
- Drivers of co-creation
- Barriers to collaboration
- Role of digital technologies
- Sustainability implications

4.4 Reliability and Validity

To ensure the rigour of the research, several strategies were employed:

- **Triangulation:** Using multiple data sources to validate findings.
- **Transparency:** Clearly documenting the data collection and analysis process.
- **Theoretical grounding:** Linking findings to established theories.

These measures enhance the credibility and reliability of the study.

4.5 Ethical Considerations

As the study is based on secondary data, it does not involve direct interaction with human participants. However, ethical considerations were addressed by Mannan & Farhana (2026):

- Properly citing all sources
- Avoiding plagiarism
- Ensuring accurate representation of original findings

4.6 Limitations of the Methodology

Despite its strengths, the methodology has certain limitations:

- **Lack of primary data:** The study relies on existing literature, which may limit the ability to capture current industry practices.
- **Potential bias:** Secondary data may reflect the perspectives of original authors.
- **Generalizability:** Findings may not be universally applicable across all contexts.

Future research could address these limitations by incorporating primary data through interviews or surveys.

5. Findings and Analysis

This section presents the findings derived from the thematic analysis of secondary data, focusing on how collaborative leadership enables co-creation in fashion technology development. The analysis is organised into five major themes: leadership dynamics, drivers of co-creation, digital enablers, sustainability outcomes, and barriers and constraints.

5.1 Collaborative Leadership as a Catalyst for Co-Creation

The findings indicate that collaborative leadership functions as a central enabler of co-creation processes in fashion-tech ecosystems. Unlike traditional hierarchical leadership, collaborative leadership fosters shared authority, trust, and inclusivity, which are essential for engaging diverse stakeholders (Ansell & Gash, 2008).

In fashion technology development, leaders act as facilitators rather than controllers, enabling cross-functional collaboration among designers, engineers, marketers, and consumers. This aligns with Service-Dominant Logic (SDL), which emphasises value creation through interactions rather than unilateral production (Vargo & Lusch, 2004). Leaders who adopt collaborative approaches encourage open communication and knowledge sharing, thereby enhancing innovation capacity.

Moreover, collaborative leadership supports psychological safety, allowing stakeholders to contribute ideas without fear of criticism. This is particularly important in creative industries such as fashion, where innovation depends on experimentation and risk-taking. Studies suggest that inclusive leadership practices significantly improve team creativity and co-creation outcomes (Emerson et al., 2012).

5.2 Stakeholder Integration and Networked Collaboration

A key finding is the importance of stakeholder integration in enabling co-creation. Fashion-tech ecosystems involve multiple actors, including:

- Designers and creative professionals
- Technology providers
- Manufacturers and suppliers
- Consumers and online communities

- Sustainability advocates and policymakers

Collaborative leadership facilitates the alignment of these stakeholders by creating shared goals and fostering mutual trust. This reflects the principles of Stakeholder Theory, which emphasises the importance of balancing diverse interests (Freeman, 1984).

The analysis shows that organisations that actively engage stakeholders in decision-making processes are more likely to achieve successful co-creation outcomes. For instance, involving consumers in product design leads to higher levels of satisfaction and brand loyalty (Prahalad & Ramaswamy, 2004). Similarly, partnerships with technology firms enable access to advanced capabilities, enhancing innovation potential.

The findings also highlight the role of networked collaboration, where value creation occurs across interconnected systems rather than within isolated organisations. This supports Innovation Ecosystem Theory, which views innovation as a collective process involving multiple actors (Adner, 2017).

5.3 Key Drivers of Co-Creation in Fashion Technology

The analysis identifies several key drivers that facilitate co-creation in fashion-tech:

Digital Platforms and Technological Infrastructure: Digital platforms are the most significant enabler of co-creation. Technologies such as AI, AR/VR, and 3D design tools allow real-time interaction and collaboration between stakeholders. These platforms enable consumers to participate in design processes, provide feedback, and customise products.

For example, virtual fitting rooms and digital design interfaces enhance user engagement and reduce the gap between producers and consumers. These tools align with SDL by enabling continuous interaction and value co-creation (Niinimäki et al., 2020).

Consumer Empowerment and Personalisation: The modern consumer is increasingly seeking personalised and meaningful experiences. Co-creation allows consumers to actively participate in product development, thereby enhancing their sense of ownership and satisfaction.

This shift reflects a broader trend toward consumer empowerment, where individuals have greater influence over production processes. Research indicates that empowered consumers contribute valuable insights that improve product quality and innovation (Prahalad & Ramaswamy, 2004).

Sustainability Pressures: Sustainability has emerged as a major driver of innovation in the fashion industry. Environmental concerns, regulatory requirements, and consumer awareness are pushing organisations to adopt sustainable practices.

Co-creation supports sustainability by involving stakeholders in the development of eco-friendly solutions. For example, collaborative consumption models such as clothing rental and resale reduce waste and resource consumption (Arrigo, 2021). Collaborative leadership plays a key role in aligning stakeholders around sustainability goals.

Globalisation and Knowledge Sharing: Globalisation has increased the complexity of fashion supply chains, making collaboration essential for managing interdependencies. Knowledge sharing across geographic and organisational boundaries enhances innovation and efficiency.

Collaborative leadership facilitates knowledge exchange by creating open communication channels and fostering a culture of learning. This is particularly important in fashion-tech, where rapid technological changes require continuous adaptation.

5.4 Role of Digital Transformation in Enhancing Co-Creation

Digital transformation is a critical factor shaping co-creation in fashion technology. The integration of digital tools enables new forms of collaboration, including:

- Virtual co-design platforms
- Crowdsourcing initiatives
- Social media engagement
- Blockchain-based transparency systems

These technologies reduce barriers to participation and enable real-time collaboration. For example, crowdsourcing platforms allow designers to gather input from global audiences, enhancing creativity and diversity.

Additionally, blockchain technology improves transparency and trust in supply chains, which is essential for collaboration. Trust is a key component of co-creation, as stakeholders must be willing to share information and resources.

5.5 Sustainability Outcomes of Co-Creation

The findings indicate that co-creation contributes significantly to sustainability in the fashion industry. Key outcomes include:

- Reduced waste through circular models
- Improved resource efficiency
- Enhanced product longevity
- Increased consumer awareness

Collaborative consumption models, such as rental and resale, are particularly effective in reducing environmental impact (Botsman & Rogers, 2010). Co-creation also encourages consumers to adopt more sustainable behaviours by involving them in the design and production process.

5.6 Barriers and Challenges

Despite its benefits, co-creation faces several challenges:

Organisational Silos: Many organisations operate in silos, which hinders collaboration and knowledge sharing.

Resource Constraints: Limited financial and technological resources can restrict participation in co-creation initiatives.

Trust and Governance Issues: Lack of trust among stakeholders can impede collaboration. Effective governance structures are needed to manage relationships and ensure accountability (Ansell & Gash, 2008).

Technological Barriers: While digital technologies enable co-creation, they also require significant investment and expertise.

6. Discussion

This section interprets the findings in relation to the theoretical framework and existing literature, providing deeper insights into the role of collaborative leadership in co-creation and fashion technology development.

6.1 Integration with Service-Dominant Logic

The findings strongly support the principles of Service-Dominant Logic (SDL), which emphasises that value is co-created through interactions (Vargo & Lusch, 2004). In fashion technology, co-creation processes facilitated by collaborative leadership enable continuous engagement between firms and stakeholders.

The role of digital platforms in enabling real-time interaction aligns with SDL's focus on operant resources such as knowledge and skills. Collaborative leadership enhances these interactions by creating an environment that encourages participation and innovation.

Furthermore, the findings suggest that co-creation is not limited to consumer engagement but extends to all stakeholders, including technology providers and suppliers. This broadens the scope of SDL and highlights the importance of networked collaboration.

6.2 Stakeholder Theory and Inclusive Innovation

The study reinforces the relevance of Stakeholder Theory in understanding collaborative innovation. By engaging diverse stakeholders, organisations can access a wider range of perspectives and resources, leading to more innovative and sustainable outcomes (Freeman, 1984).

Collaborative leadership plays a critical role in balancing stakeholder interests and ensuring equitable participation. This is particularly important in fashion-tech ecosystems, where power imbalances can create challenges for collaboration.

The findings also highlight the importance of inclusive innovation, where all stakeholders have the opportunity to contribute to value creation. This approach enhances social and environmental sustainability by addressing the needs of different groups.

6.3 Innovation Ecosystems and Networked Value Creation

The concept of innovation ecosystems provides a useful framework for interpreting the findings. The fashion-tech industry is characterised by interconnected networks of actors who collaborate to create value (Adner, 2017).

Collaborative leadership acts as an orchestrator within these ecosystems, aligning stakeholders and facilitating coordination. This role is critical for managing interdependencies and ensuring the success of co-creation initiatives.

The findings also suggest that successful ecosystems require strong governance structures, trust, and shared goals. These elements are essential for sustaining collaboration and achieving long-term innovation outcomes.

6.4 Implications for Sustainability and Circular Economy

One of the most significant contributions of this study is its emphasis on the role of co-creation in promoting sustainability. Collaborative consumption models and co-creation initiatives support the transition toward a circular economy, where resources are reused, and waste is minimised (Arrigo, 2021).

Collaborative leadership is essential for driving this transition by aligning stakeholders around sustainability goals and facilitating collective action. The findings suggest that organisations that adopt collaborative approaches are better positioned to address environmental challenges.

6.5 Managerial Implications

The study provides several practical implications for managers and industry practitioners:

- Adopt collaborative leadership styles to foster innovation
- Invest in digital platforms to enable co-creation
- Engage consumers and stakeholders in decision-making processes
- Promote sustainability through collaboration

These strategies can enhance competitiveness and support long-term success in the fashion industry.

6.6 Theoretical Contributions

This study contributes to the literature by integrating collaborative leadership with co-creation and innovation ecosystem theories. It extends existing frameworks by highlighting the role of leadership in facilitating stakeholder engagement and value creation.

6.7 Limitations and Future Research

While the study provides valuable insights, it has limitations related to the use of secondary data. Future research could explore:

- Empirical studies using primary data
- Comparative analysis across regions
- Quantitative measurement of co-creation outcomes

7. Conclusion

This study explored the intersection of collaborative leadership and co-creation in the context of fashion technology development, highlighting their combined role in driving innovation, sustainability, and competitive advantage. The findings demonstrate that collaborative leadership serves as a critical enabler of co-creation by fostering trust, inclusivity, and shared responsibility among diverse stakeholders. In contrast to traditional hierarchical leadership models, collaborative leadership promotes open communication and knowledge exchange, which are essential for navigating the complexities of the fashion-tech ecosystem.

The research further reveals that co-creation has become a central mechanism for value creation in the fashion industry. By actively involving consumers, technology providers, and other stakeholders in the design and development process, organisations can enhance product innovation, improve customer satisfaction, and build stronger brand relationships. This participatory approach aligns with the principles of Service-Dominant Logic, emphasising the co-production of value through interaction and collaboration (Vargo & Lusch, 2004).

Moreover, the study underscores the importance of digital transformation in facilitating co-creation. Technologies such as artificial intelligence, virtual design tools, and blockchain have significantly expanded the possibilities for collaboration, enabling real-time engagement and transparency across the value chain. These technological advancements not only improve efficiency but also support sustainable practices, such as circular economy models and resource optimisation (Niinimäki et al., 2020).

However, the research also identifies several challenges that organisations must address to fully realise the benefits of collaborative leadership and co-creation. These include organisational silos, resource limitations, and governance complexities, which can hinder effective collaboration. Addressing these challenges requires strategic investment in digital infrastructure, the development of collaborative cultures, and the establishment of robust governance frameworks.

In conclusion, this study contributes to the growing body of literature on collaborative innovation by integrating leadership, co-creation, and ecosystem perspectives. It highlights that organisations adopting collaborative approaches are better positioned to respond to the dynamic demands of the fashion industry. Future research should focus on empirical validation of the proposed framework and explore the application of collaborative leadership in different cultural and economic contexts.

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