



STIMULATING COLLECTIVE CREATIVITY IN FASHION SMALL AND MEDIUM ENTERPRISES: TOWARDS A RESOURCE-SENSITIVE INNOVATION MODEL

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Abstract. Creativity is an essential factor for the success of the fashion industry, but small and medium enterprises often face significant barriers when it comes to systematically developing innovation. Unlike major companies, small businesses do not have dedicated research and development infrastructure and are therefore highly dependent on collaborative and resource-efficient processes. This article discusses the gap in existing systems and proposes a conceptual model to stimulate collective creativity that is adapted to the realities of fashion small and medium enterprises. The model emphasizes resource sensitivity, less formalized management, and measurable results, including product novelty, go-to-market time, and customer engagement. By treating creativity as a collective capability, this study contributes both to theoretical insights into small and medium enterprises innovation processes and to practical guidelines for fashion industry practitioners seeking to increase competitiveness. The study concludes with recommendations for managers, policymakers, and future research on the applicability of the creativity model.

Keywords: co-creation, collective creativity, design thinking, fashion small and medium enterprises, innovation, open innovation.

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1. Introduction

Creativity has long been recognized as an important driver of innovation, competitiveness, and long-term sustainability in the fashion industry (Cillo & Verona, 2008; Ratten, 2023). In this highly dynamic sector, companies must constantly generate new ideas, re-interpret cultural and aesthetic trends, and respond quickly to changing consumer demands. For small and medium enterprises (SMEs), which are the backbone of the global fashion ecosystem, creativity is not only a crucial factor but also a survival mechanism (Millspaugh & Kent, 2016).

Unlike major multinational companies, fashion SMEs typically operate with limited resources, restricted access to research and development infrastructure, and less negotiating power in their supply chains (Bicen & Johnson, 2015). These limitations pose challenges to the continuous implementation of well-structured innovation processes. At the same time, SMEs often have unique advantages, such as flexibility, proximity to customers, and integration into cultural and social networks (Capaldo, 2007). To capitalize on these strengths, it is necessary to adopt an approach that treats creativity as a collective capacity that emerges from the

collaboration of designers, employees, consumers, and external partners, rather than as the result of isolated individuals.

Although the importance of creativity in fashion SMEs is well known, research shows that there is a shortage of structured, resource-sensitive systems that systematically stimulate and guide collective creativity in these companies (Perry-Smith & Mannucci, 2017). Current creativity models are often designed for large companies with specialized innovation departments, large prototyping budgets, or complex management systems that are unfeasible for SMEs. As a result, many fashion SMEs rely on *ad hoc* or intuitive processes, which limit the scale and sustainability of innovation outputs. This shortcoming points to the need for a tailored model that would allow fashion SMEs to foster, organize, and implement collective creativity in a way that takes into account their limited resources while increasing their competitiveness.

The purpose of this study is to develop and propose a conceptual model to promote collective creativity specifically for SMEs in fashion. The paper examines the following research question: how to develop a conceptual model to stimulate collective creativity in order to strengthen the innovation capabilities of fashion SMEs?

This study employs a conceptual, theory-building research design. It is based on an integrative narrative review and a synthesis of peer-reviewed literature from 2008 to 2025. This literature is related to collective creativity, co-creation, open innovation, design thinking, and SMEs innovation constraints within the fashion sector. Using deductive reasoning from established theoretical frameworks and inductive identification of gaps in existing models (particularly their lack of resource sensitivity and suitability for small firms), recurrent practices, tools (e.g., the *O-Generator* and digital prototyping) and enabling conditions were mapped. These elements were synthesized and structured into a new six-stage model to stimulate collective creativity tailored to fashion SMEs. The resulting conceptual framework was iteratively refined for internal coherence and practical applicability; however, it remains untested empirically. Validation will be deferred to future case studies or action research. This study makes a contribution to both theory and practice. Theoretically, it adds to the literature on collective creativity by applying it to the underexplored field of fashion SMEs, where innovation processes differ significantly from those of large companies. In practice, the study suggests practical advice for fashion business owners and managers on how to foster creativity using resource-sensitive (sustainable) methods, such as teamwork based on design thinking, digital prototypes, and a structured evaluation procedure.

Following this introduction, chapter 2 provides an overview of the relevant scientific literature on collective creativity, co-creation, open innovation, and SMEs innovation practices. Chapter 3 describes the structure of the concept and the proposed model. Chapter 4 discusses the implications for practical action and future research and presents conclusions summarizing the contributions and limitations of the work.

2. Theoretical approach and empirical background

Creativity is the key to competitiveness in the fashion industry, especially for small and medium-sized companies, which need to continuously innovate to remain relevant in rapidly

changing markets. Unlike major corporations, small businesses often lack the systematic resources and frameworks to develop creativity in a systematic way (Bicen & Johnson, 2015). Furthermore, the fashion sector is intrinsically collective in its creative processes, involving the interaction of networks of designers, employees, customers, and suppliers (Goretti et al., 2020). This chapter discusses the research literature on collective creativity, co-creation in fashion SMEs, open innovation and ecosystems, tools and methods for fostering creativity, bottlenecks faced by SMEs, and ways to measure results.

Collective creativity refers to the newly emerging group-level capacity to generate new and useful ideas through the interaction of people, tools, and organizational structures. Collective creativity is different from individual creativity because it emphasizes that organizations support collaboration, the exchange of ideas, and the integration of different approaches (Černevičiūtė & Strazdas, 2014). In the context of the fashion industry, collective creativity is particularly important due to the cross-disciplinary nature of design processes, which often require the integration of artistic, technical, and market insights (Cillo & Verona, 2008).

The foundation stage of collective creativity could be supported by business models (Li, 2020) analyses digital transformation in creative industries, developing a holistic business model framework showing how technologies enable portfolio models for multiple market segments. For fashion SMEs, this facilitates creative deployment of diverse models, though innovations are often evolutionary rather than radical, highlighting trends like multi-business model adoption. Santoro et al. (2020) examine collaborative modes with cultural and creative industries, finding that heterogeneous knowledge sources moderate innovation performance, while absorptive capacity does not. Informal collaborations produce stronger effects for SMEs, supporting open innovation, but noting barriers such as trust issues. D'Itria and Colombi (2023) propose a quadruple helix model (industry, government, university, and society) for sustainable fashion innovation, driven by design actions such as reuse and recycling. For SMEs, this fosters ecosystems for closed-loop chains, with government as facilitators and society revising consumption, enhancing collective creativity through open knowledge flows. Other sources by some authors (Ramos et al., 2024) on *SustainMeter* for sustainability assessment (Borchardt et al., 2024) and on uncaptured value in social enterprises, indirectly tie creativity to business models by addressing resource efficiency and circular practices, which demand innovative rethinking in SMEs.

Focusing on inspirational stage, a 2025 analysis warns that data-driven fashion prioritizes optimization and predictability over radical creativity, leading to generic designs optimized for social networks and sales, potentially eroding artistic risk-taking. For SMEs, this implies adopting low-risk, efficient models, but raises concerns about balancing algorithms with visionary expression to maintain cultural relevance, impacting collective processes by flattening trends, and reducing friction essential for innovation.

The European Institute of Innovation and Technology Culture and Creativity's Fashion Adaptor Programme (European Commission: EU Funding and Tenders Portal, 2026) offers 10-week training for SMEs on circular solutions, using digital tools to track impacts like waste and emissions, with peer-to-peer collaboration, mentorship, and workshops to develop transformation roadmaps. This fosters collective creativity through interactive exercises, shared benchmarking, and ecosystem partnerships, yielding outcomes such as business

model redesigns and investment-readiness, promoting regenerative practices and systemic change in resource-constrained environments.

The importance of the co-creation stage is grounded by many authors. Research on fashion designers' SMEs shows that creativity is fundamentally social and dialogical. Designers interact with colleagues, artisans, and customers to iterate design ideas (Goretti et al., 2020; Perry-Smith & Mannucci, 2017). Creativity in fashion SMEs often emerges through networks rather than isolated individuals, confirming the notion that models of collective creativity are more applicable to this sector than individualistic schemes (Capaldo, 2007). However, although collective creativity has been conceptually explored, structured models of stimulation tailored to SMEs are still underdeveloped.

Hur and Beverley (2023) address ideation tools for sustainable fashion innovation, evaluating a toolkit through co-creation workshops with 147 participants (designers, marketers, entrepreneurs). They highlight the need for tools that support the ideation phase, integrating management control systems, like design thinking, to bridge gaps in sustainability practices. The study critiques existing tools for lacking co-design focus, proposing guidelines for tool development that emphasize transparency and user experience, thus enabling SMEs to systematize creative processes amid resource constraints.

Some authors (Canag et al., 2024) explore democratization of fashion engagement via social media, noting how user-generated content and influencer collaborations foster co-creation, challenging traditional styles, and promoting sustainability. For SMEs, this shifts consumers from passive to active co-creators, though an attitude-behaviour gap persists where price trumps eco-practices. This democratized creativity reduces market uncertainty but requires tailored engagement strategies, echoing earlier co-creation discussions.

Sagala and Óri (2024) reviewed the digital transformation of SMEs, identifying core success factors such as aligned strategies considering baselines and limitations, incremental adoption, and investment in learning. In fashion SMEs, digitalization enables creative business models, but the study critiques the lack of empirical knowledge, suggesting gradual innovation to overcome barriers such as limited technological access.

Digital prototyping tools for fashion SMEs, such as *CLO* three-dimensional and *Marvellous Designer*, enable faster and more cost-effective sample creation, reduce waste, and accelerate product development cycles (Dai & Zhou, 2008; Zhang, 2022). These methods are well suited to promoting collective creativity, as they require ongoing collaboration and feedback.

Co-creation with customers can give SMEs access to new ideas and reduce market uncertainty (Millspaugh & Kent, 2016). Digital tools have expanded the possibilities for co-creation, making it possible to engage in collaborative creation, online voting, and consumer-initiated limited-edition collections. However, co-creation behaviour varies among different consumer groups, so companies need to develop individual engagement strategies to achieve maximum results (Füller et al., 2011). Detailed research on team creativity was conducted by researchers at Vilnius Gediminas Technical University, Lithuania, who identified factors that influence the effectiveness of teamwork (Strazdas et al., 2015).

Integrating 2025 research findings further emphasizes the intersection of sustainability, collaboration, and data to foster collective creativity for fashion SMEs. The creative industries 2025 conference *The Road to Sustainability* (University for the Creative Arts et al., 2025)

highlights sustainability challenges such as carbon tracking and circular economy adoption, recommending networks and forums for SMEs to enable scalable collaboration and knowledge exchange. Collective creativity is promoted through storytelling for behaviour change and design for circularity in fashion, aligning with United Kingdom policies like the 2024 Department for Culture, Media and Sport Sector Plan (UK Government, 2023), with calls for shared standards and United Nations Sustainable Development Goals (United Nations: Department of Economic and Social Affairs – Sustainable Development, 2026) integration in education to build confidence in sustainable practices.

Recent literature emphasizes the importance of maintaining creativity and highlights the social and collaborative nature of creativity in fashion SMEs. This literature often links creativity to sustainability, digital transformation, and innovation ecosystems. Some authors (da Silva et al., 2022) identify four explanatory factors for collective competencies in fashion design teams – collective spirit, interaction, cooperation, and relationship – based on a survey of 22 designers. These factors underscore how synergistic group dynamics foster shared actions and organizational alignment, essential for resource-limited SMEs to enhance creativity beyond individual efforts. This aligns with the dialogical view of creativity, emphasizing team-based attributes for effective idea generation.

In the fashion industry, collaborative networks are particularly important due to the complexity of global supply chains and the need for cultural sensitivity in design (Turker & Altuntas, 2014). Therefore, models of collective creativity in SMEs should integrate less formalized governance mechanisms to manage openness while protecting the core brand identity.

Despite their creative potential, small businesses face serious obstacles in promoting collective creativity. Studies on the resilience of SMEs to crises (e.g., COVID-19 pandemic) reveal gaps in the areas of digital technology adoption and capacity building (Zamfirache et al., 2025). Such challenges call for models that are resource-sensitive and adaptable to the realities of SMEs.

Critically, these sources reveal a focus on sustainability-integrated creativity, with digital and collaborative tools as enablers, but gaps in empirical validation and measurement persist. They extend the literature by emphasizing hybrid approaches, yet underexplore non-digital, craft-based creativity in diverse SMEs contexts. In addition, the literature reveals that collective creativity is highly important for fashion SMEs, but it is still not sufficiently systematized. Although co-creation, open innovation, and digital prototyping are promising, small enterprises face resource constraints and management challenges that limit their adoption. Therefore, there is a clear need to develop and evaluate a conceptual model to promote collective creativity that is tailored to the unique circumstances of fashion SMEs.

3. Modelling collective creativity in fashion small and medium enterprises

This chapter presents a conceptual model for promoting creativity in fashion SMEs based on the literature review of collective creativity, co-creation, and SMEs innovation practices (see chapter 2) and its main findings of foundation, inspiration, co-creation, and sustaining collective creativity. The model was developed to address the problem of resource scarcity

while simultaneously engaging internal and external stakeholders to generate, evaluate, and implement innovative ideas. It consists of six interrelated stages: 1) foundation; 2) inspiration; 3) co-creation; 4) evaluation; 5) implementation; 6) sustainability (see Figure 1). The evaluation and implementation stages included keeping in mind the structure of innovation development models:

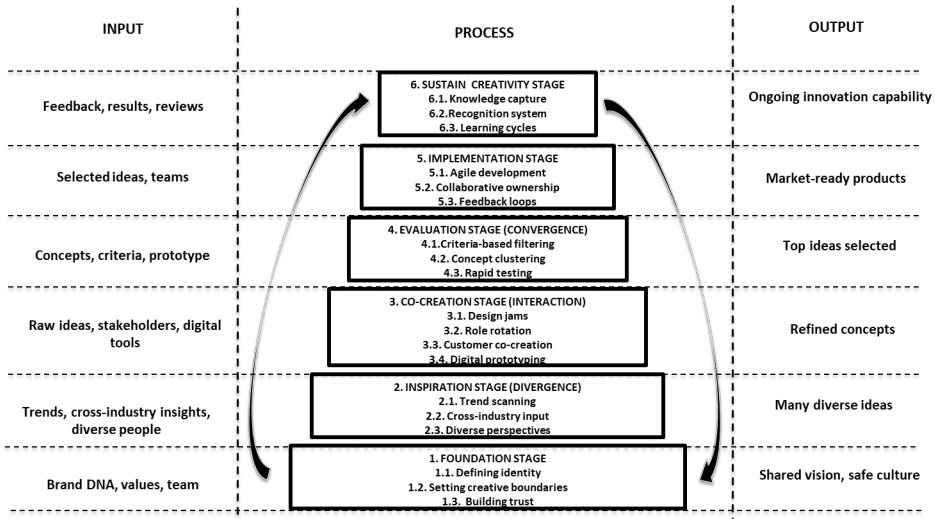


Figure 1. Conceptual collective creativity stimulation model for fashion small and medium enterprises (source: created by authors)

1. Foundation stage. The basis for collective creativity in SMEs starts with a shared vision and an organizational culture that supports collaboration and innovation. Key elements: 1.1. defining identity – a clear definition of the brand’s “deoxyribonucleic acid”, core values, and target audience ensures that creative efforts align with the company’s strategic direction (Cillo & Verona, 2008); 1.2. setting creative boundaries – mood boards, cultural references, and sustainability goals provide structure and guide idea generation; 1.3. building trust – fostering psychological safety and open dialogue encourages experimentation, “yes” thinking, and active participation from all team members (Edmondson, 1999). A strong cultural foundation creates a safe space;
2. Inspiration stage (divergence). The inspiration stage focusses on generating a wide variety of new ideas. This stage involves: 2.1. trend analysis – by regularly researching fashion trends, street style, and cultural changes, teams stay informed about changing market dynamics; 2.2. inter-industry input – insights from art, technology, music, sustainability, and digital fashion can inspire new perspectives; 2.3. diverse perspectives – engaging designers, marketers, artisans, and customers in the idea generation process and integrating different perspectives encourage creativity. At this stage of divergence, the emphasis is on the quantity and diversity of ideas rather than their implementation, developing collective creativity. When generating ideas, it is recommended to use the *O-Generator* tool (Strazdas et al., 2015);

3. Co-creation stage (interaction). At this stage, ideas are refined through collaboration and experimentation: 3.1. design jams – idea generation sessions through workshops. These involve short sprints (2–3 hours) during which multidisciplinary stakeholder teams create sketches, collages, or prototypes; 3.2. role rotation – by encouraging participants to adopt alternative viewpoints (e.g., designers thinking like marketers), understanding is broadened, and cross-functional empathy is fostered; 3.3. customer co-creation – engaging loyal customers in feedback sessions, surveys, or limited capsule design voting strengthens market alignment; 3.4. digital prototyping – tools such as *CLO* three-dimensional, *Marvellous Designer*, or artificial intelligence image generators enable rapid visualization, iteration, and inexpensive testing. Co-creation transforms diverse ideas into actionable concepts while fostering engagement and accountability across the enterprise;
4. Evaluation stage (convergence). Evaluation narrows the range of ideas to the most promising options. This stage involves: 4.1. criteria-based filtering – ideas are evaluated based on their suitability to the brand, cost-effectiveness, sustainability, and alignment with trends; 4.2. concepts clustering – similar ideas are grouped into coherent themes for clarity and focus; 4.3. rapid testing – low-cost prototypes (digital or physical) are tested internally or with target customers to assess their acceptability before further investment. This convergence stage balances creativity and practical barriers, ensuring that the selected ideas can be realistically implemented. When evaluating ideas, it is recommended to use the *O-Generator* tool (Strazdas et al., 2015);
5. Implementation stage. In the implementation phase, approved ideas are turned into market-ready products. This stage involves: 5.1. agile development – small capsules allow repeated product releases, reducing risk compared to whole seasonal collections; 5.2. collaborative ownership – assigning “idea leaders” ensures responsibility and momentum, rather than relying solely on managers; 5.3. feedback loops – continuous information from teams and customers helps to refine the product and informs subsequent iterations. Agile and collaborative implementation helps SMEs to effectively convert creativity into commercial results;
6. Sustain creativity stage. The model emphasizes the long-term continuity of innovation. This stage involves: 6.1. knowledge capture – documenting sources of inspiration, processes, and results preserves institutional memory; 6.2. recognition system – publicly acknowledging creative contributions boosts motivation and strengthens a culture of innovation; 6.3. learning cycles – periodic review of the factors that have promoted or hindered creativity allows continuous improvement. Sustainability mechanisms ensure that collective creativity remains a permanent capability rather than a one-time activity.

The proposed model for stimulating collective creativity consists of six stages and forms a coherent system tailored to SMEs in the fashion sector. By combining divergent and convergent processes, involving internal and external stakeholders, and highlighting resource sensitivity, the model provides both a theoretical framework and practical guidelines for strengthening innovation capabilities in resource-constrained companies.

4. Discussion, limitations, and conclusions

This study contributes to a better understanding of collective creativity in fashion SMEs by providing a resource saving model that encompasses cultural foundations, divergent and convergent processes, co-creation mechanisms, and sustainability routines. The results highlight the potential of collective creativity as a systematic and repeatable capability rather than an occasional or *ad hoc* phenomenon. In the model, creativity is linked to collaboration between employees, customers, and external partners, responding to the demand for systems that go beyond the individualistic aspects of creativity (Hargadon & Bechky, 2006; Perry-Smith & Mannucci, 2017). The generated tree corresponds to the identified factors of team creativity and broadens the principles applied in the *O-Generator* tool, adapting them to the fashion sector (Strazdas et al., 2015).

The model's focus on resource-efficient practices is directly relevant to the circumstances of fashion SMEs, as these companies typically lack the research and development infrastructure found in major corporations (Bicen & Johnson, 2015). Techniques such as teamwork/idea generation sessions/creative workshops based on design thinking, digital prototyping, and capsule collection launches allow SMEs to combine experimentation with implementation opportunities, enabling them to generate ideas in a structured way and test them in the market. Drawing on research on co-creation and open innovation (Chesbrough, 2006; Spithoven et al., 2013), the model emphasizes the importance of involving customers and partners, while recognizing the need for governance mechanisms to preserve brand identity and manage knowledge flows.

Furthermore, the integration of routines that strengthen psychological safety and trust is consistent with organizational learning theory (Edmondson, 1999), which demonstrates that the conditions under which creativity unfolds are as important as the techniques used. Thus, the six-step model is useful both theoretically and practically: theoretically, it broadens research on collective creativity to the understudied context of fashion SMEs; in practice, it provides fashion practitioners and managers with useful tools for stimulating innovation with limited resources.

However, it is important to acknowledge several limitations. First, the proposed model is conceptual and has not yet been empirically validated by long-term research or comparisons of different cases. Its practical effectiveness may vary depending on the cultural context, market segments, and company size, which limits the generalisability of the findings (Knight & Cavusgil, 2004). Second, although the model emphasizes digital tools such as *CLO* three-dimensional or artificial intelligence-supported prototyping, barriers to adoption such as training needs, costs, and resistance to change may reduce their accessibility to micro-enterprises (Zamfirache et al., 2025). Third, the model focusses primarily on measurable outcomes (e.g., innovations, time to market, customer engagement), but less tangible elements such as brand reputation, informal knowledge exchange, and emotional value remain challenging to assess (Im & Workman Jr., 2004). Fourth, the importance of creativity processes in SMEs depends on context: for example, companies with strong craft traditions may prioritize different forms of co-creation than digitally orientated startup companies. Finally, as with many concepts, subjective assessments of practices and outcomes lead to diversity in their applicability, requiring practitioners to adapt carefully to context.

This article presents a model for promoting collective creativity, tailored to fashion SMEs, comprising six interrelated stages: 1) cultural foundations; 2) inspiration; 3) co-creation; 4) evaluation; 5) implementation; and 6) sustainability. By treating creativity as a collective capacity and incorporating resource-conserving practices, the model provides both theoretical insights into the dynamics of collaborative innovation and practical guidance for managers working in a constrained environment.

This research provides a basis for future empirical testing of the structured creativity model of small businesses, which could be adapted to other creative industries such as design, media, and cultural production. For practitioners, the model provides guidance on how to incorporate creativity into the daily activities of an organization to achieve more sustainable and applicable innovation results. For policymakers and industry associations, the research findings highlight the importance of supporting small businesses through accessible digital tools, collaborative networks, and training programmes to maintain competitiveness in the global fashion ecosystem.

In summary, although the model has certain limitations, it stimulates discussion on how resource-efficient collective approaches can turn creativity into a sustainable driver of innovation and growth for fashion SMEs.

References

- Bicen, P., & Johnson, W. H. A. (2015). Radical innovation with limited resources in high-turbulent markets: The role of lean innovation capability. *Creativity and Innovation Management*, 24(2), 278–299. <https://doi.org/10.1111/caim.12120>
- Borchardt, M., Gonçalves da Silva, M., Nunes Macedo de Carvalho, M., Burdzinski, C. S., Weber Kirst, R., Medeiros Pereira, G., & Amado da Silva, M. (2024). Uncaptured value in the business model: Analysing its modes in social enterprises in the sustainable fashion industry. *Journal of Creating Value*, 10(1), 79–101. <https://doi.org/10.1177/23949643231220777>
- Canag, L. C., Loquinario, A. J. F., Pepano, R. M. V., & Peninoy, R. B. (2024). Democratizing fashion consumer engagement and redefining style in the digital age. *International Journal of Research and Innovation in Social Science*, 8(12), 935–949. <https://doi.org/10.47772/IJRISS.2024.8120078>
- Capaldo, A. (2007). Network structure and innovation: The leveraging of a dual network as a distinctive relational capability. *Strategic Management Journal*, 28(6), 585–608. <https://doi.org/10.1002/smj.621>
- Chesbrough, H. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
- Cillo, P., & Verona, G. (2008). Search styles in style searching: exploring innovation strategies in fashion firms. *Long Range Planning*, 41(6), 650–671. <https://doi.org/10.1016/j.lrp.2008.08.001>
- Černevičiūtė, J., & Strazdas, R. (2014). Kūrybingumo sampratų raida: nuo genijaus į kūrybines sistemas. *Coactivity: Philosophy, Communication*, 22(2), 113–125. <https://doi.org/10.3846/cpc.2014.10.001>
- D'Itria, E., & Colombi, Ch. (2023). Fostering fashion ecosystems: A Quadruple Helix-Based model for European sustainable innovation. *Systems*, 11(9). <https://doi.org/10.3390/systems11090478>
- Dai, L., & Zhou, J. (2008). The application of 3D digital technology to fashion design. *Asian Social Science*, 4(6), 57–59. <https://doi.org/10.5539/ass.v4n6p57>
- Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350–383. <https://doi.org/10.2307/2666999>
- European Commission: EU Funding and Tenders Portal. (2026). *Call for participants: Fashion adaptor programme 2025* (Document: EIT CC – BP2024-2025). <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/competitive-calls-cs/11422>

- Füller, J., Hutter, K., & Faullant, R. (2011). Why co-creation experience matters? Creative experience and its impact on the quantity and quality of creative contributions. *R&D Management*, 41(3), 259–273. <https://doi.org/10.1111/j.1467-9310.2011.00640.x>
- Goretti, G., Cianfanelli, E., Terenzi, B., Tufarelli, M., & Trivellini, E. (2020). Artisan as a maker or artisan as a not recognized co-designer? In M. di Nicolantonio, E. Rossi, & Th. Alexander (Eds.), *Advances in Intelligent Systems and Computing. Advances in Additive Manufacturing, Modeling Systems and 3D Prototyping: Proceedings of the AHFE 2019 International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping* (Vol. 975, pp. 48–59). Washington D.C., USA. J. Kacprzyk (Series Ed.). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-030-20216-3_5
- Hargadon, A. B., & Bechky, B. A. (2006). When collections of creatives become creative collectives: a field study of problem solving at work. *Organization Science*, 17(4), 484–500. <https://doi.org/10.1287/orsc.1060.0200>
- Hur, E., & Beverley, K. (2023). Fostering sustainable fashion innovation: Insights from ideation tool development and co-creation workshops. *Sustainability*, 15(21). <https://doi.org/10.3390/su152115499>
- Im, S., & Workman Jr., J. P. (2004). Market orientation, creativity, and new product performance in high-technology firms. *Journal of Marketing*, 68(2), 114–132. <https://doi.org/10.1509/jmkg.68.2.114.27788>
- Knight, G. A., & Cavusgil, S. T. (2004). *Erratum*: Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(4), 124–141. <https://doi.org/10.1057/palgrave.jibs.8400071>
- Li, F. (2020). The digital transformation of business models in the creative industries: A holistic framework and emerging trends. *Technovation*, 92–93. <https://doi.org/10.1016/j.technovation.2017.12.004>
- Millspaugh, J., & Kent, A. (2016). Co-creation and the development of SME designer fashion enterprises. *Journal of Fashion Marketing and Management: An International Journal*, 20(3), 322–338. <https://doi.org/10.1108/JFMM-10-2015-0085>
- Perry-Smith, J. E., & Mannucci, P. V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, 42(1), 53–79. <https://doi.org/10.5465/amr.2014.0462>
- Ramos, L., Bermeo, M., Quelal, A., Crespo, A., Cajamarca, G., & Rivas-Echeverría, F. (2024). *SustainMeter*: A knowledge-based system for assessing sustainability of SMEs in the fashion industry. *SoftwareX*, 25. <https://doi.org/10.1016/j.softx.2023.101611>
- Ratten, V. (2023). Entrepreneurship: Definitions, opportunities, challenges, and future directions. *Global Business and Organizational Excellence: A Review of Research and Best Practices*, 42(5), 79–90. <https://doi.org/10.1002/joe.22217>
- Sagala, G. H., & Óri, D. (2024). Toward SMEs digital transformation success: A systematic literature review. *Information Systems and E-Business Management*, 22, 667–719. <https://doi.org/10.1007/s10257-024-00682-2>
- Santoro, G., Bresciani, S., & Papa, A. (2020). Collaborative modes with cultural and creative industries and innovation performance: The moderating role of heterogeneous sources of knowledge and absorptive capacity. *Technovation*, 92–93. <https://doi.org/10.1016/j.technovation.2018.06.003>
- Silva, da L. H., Schmitt, T., Molon da Silva, F., Ghedine, T., & Yula Tutida, A. (2022). Explanatory factors of collective competencies in fashion design teams. *Contextus: Revista Contemporânea de Economia e Gestão*, 20(10), 125–136. <https://doi.org/10.19094/contextus.2022.77949>
- Spithoven, A., Vanhaverbeke, W., & Roijakkers, N. (2013). Open innovation practices in SMEs and large enterprises. *Small Business Economics*, 41, 537–562. <https://doi.org/10.1007/s11187-012-9453-9>
- Strazdas, R., Černevičiūtė, J., Jančoras, Ž., Kregždaitė, R., & Morkevičius, V. (2015). *Macro, meso and micro factors for creative industry development: Continuous improvements and system innovations*. Vilnius Gediminas Technical University.
- Turker, D., & Altuntas, C. (2014). Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports. *European Management Journal*, 32(5), 837–849. <https://doi.org/10.1016/j.emj.2014.02.001>
- UK Government. (2023). *The UK's modern industrial strategy: Creative industries. sector plan*. https://assets.publishing.service.gov.uk/media/685943d3db328f1ba50f3cf15/industrial_strategy_creative_industries_sector_plan.pdf

- United Nations: Department of Economic and Social Affairs – Sustainable Development. (2026). *The 17 goals*. <https://sdgs.un.org/goals>
- University for the Creative Arts; The Centre for Sustainable Design; Creative Industries Policy and Evidence Centre; Research England. (2025, 23 May). *Creative Industries 2025 Conference The Road to Sustainability*, Canterbury, Kent, United Kingdom. https://cfsd.org.uk/wp-content/uploads/2025/06/CI25_outcomes_June-2025.pdf
- Zamfirache, A., Dragomir, C.-C., Albu, R.-G., & Foris, T. (2025). Collaborative actions to support SMEs' sustainability in times of crisis. *Journal of Business, Economics and Management*, 26(3), 621–643. <https://doi.org/10.3846/jbem.2025.23777>
- Zhang, J. (2022). Research on the application of 3D virtual simulation technology in fashion design from the perspective of meta universe. *Scientific and Social Research*, 4(12), 19–23. <https://doi.org/10.26689/ssr.v4i12.4550>