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Cristiano Pedroso-Roussado \*

Posted Date: 6 October 2023

doi: 10.20944/preprints202310.0250.v1

Keywords: Fashion research; Sustainable fashion design; Fashion research methods; Sustainable design; ChatGPT



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Review

# Investigating the Limitations of Fashion Research Methods in Applying a Sustainable Design Practice: A Systematic Review

Cristiano Pedroso-Roussado <sup>1,2</sup>

<sup>1</sup> ITI/LARSyS, Instituto Superior Tecnico, Av. Rovisco Pais 1, 1049-001, Lisbon, Portugal; cristiano.roussado@tecnico.ulisboa.pt / twitter handle: PRoussado

<sup>2</sup> UNIDCOM/IADE, Av. Dom Carlos I 4, 1200-649, Lisboa

**Abstract:** Research is a human activity that needs both scientific rigour and creativity. The need of research is often a complex issue is of difficult comprehension, validation, but it helps scientists test hypothesis within previously defined research questions. The standardization of methodologies, deeply rooted in the scientific method, has allowed humanity to progress. However, we are facing unprecedented challenges at a global scale that are pushing the boundaries of human capabilities. Since the fashion industry represents one of the most problematic industries globally, it is paramount to research its problems through rigorous and validated methodologies that will potentially allow the full comprehension of the issues while paving the way for the development of a wide range of practical and disseminated solutions. The goal of this systematic review is to outline the most used methodologies in the fashion research field that are being explored to achieve sustainability. The findings highlight the fragmentation of the literature in fashion research methodologies pointing out the main limitations of currently used methods. Interviews and case studies are the most used methodologies while other less conventional – like Social Life Cycle Assessment – have been also tried. This work reveals the handicaps of the fashion research methodologies and show an example on how ChatGPT can be assessed to help the fashion practitioners define research plans to achieve sustainable goals.

**Keywords:** fashion research; sustainable fashion design; fashion research methods; sustainable design; ChatGPT

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## 1. Introduction

“The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom.” Isaac Asimov

The fashion industry's worldwide apparel and footwear market size forecast for 2023 is almost 2 trillion dollars, representing a 6% growth for the period 2022-2023 (<https://fashionunited.com/companies/euromonitor-international>, consulted in May 29, 2023). However, the trend is to decrease its growth for the post-pandemic period, where it rescued the 18% loss. Still, the fashion industry faces numerous challenges. From the environmental cost of manufacturing (Bick *et al.*, 2018; Pal and Gander, 2018), to the social issues (Bick *et al.*, 2018; Adamkiewicz *et al.*, 2022), and the economic unpredictable shifts (Hernandez and Haddud, 2018; Nikosey, 2020; Castaneda-Navarrete *et al.*, 2021). These combined factors represent a global environmental justice dilemma supplemented with strong economic risks with no clear solution foreseen (Pedersen *et al.*, 2018; Brydges *et al.*, 2020; Galanakis *et al.*, 2022).

Humankind has been using a manyfold of research approaches to explore, comprehend, develop, and test solutions for its own progress (Williams, 2007). Despite the fact that the pace of producing data (<https://explodingtopics.com/blog/data-generated-per-day>, consulted in May 29, 2023) and the specialization degree (Young and Muller, 2015) has been increasing, there is a need for a better understanding of the long-term impact of human activities (Mensah, 2019).

During the recent years the lack of circularity of the fashion industry has gathered interest from the mainstream media with brands like H&M and Zara finding themselves under huge scrutiny

(Dragomir and Dumitry, 2022). Such attention is paving the way for the improvement of the consumers’ choices in terms of sustainability and social responsibility of their buying behaviour.

Ultimately the climate crisis is a complex issue to be solved by efforts coming from many disciplines of knowledge and stakeholders, and therefore it is necessary to foster an enhanced research practice with standardized methodologies able to generate results that could be compared. To cite a wicked example, a widely cited paper recently published in *Nature Reviews Earth & Environment* by Niinimäki and colleagues about the environmental impacts of the global clothing system used a reasonable amount of grey literature, presenting questionable methods and some contradictory estimations (Niinimäki *et al.*, 2020). So, there is an urgent need to improve the field of fashion research by increasing the criticality of the field. Only a combined effort at a global level can represent an example and force a multitude of progressive actions towards the resolution of the current and, perhaps, upcoming crises. Therefore, this systematic review aims to critically analyse the most relevant fashion research methodologies published during the period ranging from 2015 and 2023 and delineate guidance considerations.

2. Methodology

The systematic approach method here used was adapted from the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) method (Page *et al.*, 2021). The method consists of a checklist composed of 27 items and a flow diagram that guides the reporting of systematic reviews based on transparency, accuracy, and comprehensiveness. So PRISMA 2020 is used for clear and complete identification of the relevant literature under the objective of answering the research question: how has fashion research methodologies being implemented to achieve sustainable goals?

2.1. Identified Studies

For the purpose of this study the records were identified through Scopus databases (Table 1). For the identification phase, a different combination of appropriate keywords was searched using “AND” or “OR” whenever applicable in the database. The first search on Scopus used the combination “fashion research” AND “fashion design” AND “sustainability”, resulting in 29,825 articles. The second search on Scopus used the combination “fashion research” AND “fashion design” AND “sustainability” AND (“methods” OR “methodology” OR “methodologies”) and was limited to *Business, Management and Accounting*, and *Environmental Science*, resulting in 7,351 articles. Finally, the third search used the combination “fashion research” AND “fashion design” AND “sustainability” AND (“methods” OR “methodology” OR “methodologies”) AND (“limitations” OR “challenges”) AND “fashion industry” AND “environmental impact” AND “fashion research methods”, limited to the same fields, resulting in 3,144 articles. All searches found in Scopus were limited to Research Articles and Case Reports published between the years 2015 and 2023. Only Open access & Open archive were considered resulting in a total of 656 articles (Table 1).

Table 1. Research methodology description.

Identification Criterion	Description
Research objective	Investigate the impact of fashion research methodologies in sustainable design practice
Database	Scopus, assessed in April 15 <sup>th</sup> 2023
Article types	Research articles, Case reports

Identification Criterion	Description
Keywords	Fashion research, sustainability, methods, methodology, methodologies, limitations, challenges, fashion industry, environmental impact, fashion research methods
Language	English
Research criteria	Based on 3 research criteria: (1) ‘fashion research’ and ‘fashion design’ and ‘sustainability’, (2) ‘fashion research and ‘fashion design’ and ‘sustainability’ and ‘methods’ or ‘methodology’ or ‘methodologies’ and limited to the subject areas ‘Business, Management and Accounting’ and ‘Environmental Science’, (3) ‘fashion research and ‘fashion design’ and ‘sustainability’ and ‘methods’ or ‘methodology’ or ‘methodologies’ and ‘limitations’ or ‘challenges’ and ‘fashion industry and ‘environmental impact’ and ‘fashion research methods’ and limited to the same subject areas.
Research years	2015–2023

2.2. Screened Studies

In order to filter the retrieved papers, their titles and abstracts were assessed to check the relevance for the research objective. From the initial 656 entries, a total of 49 were selected for relevance in answering the research question under analysis. A total number of 607 entries were excluded from the records identified throughout the databases for the following reasons: not aligned with the research objective (n = 511), no relevant outcome, or not focused on fashion (n = 50), literature review-based articles or perspectives (n = 24), focus on COVID-19 pandemic (n = 17), and potential conflict of interests or bias (n = 5).

2.3. Analyses of Studies and Bias

Since the entries were filtered manually there is a potential risk of bias or exclusion of relevant papers. However, since the PRISMA 2020 method was applied this risk is considered throughout the study and the results and discussion presented must be interpreted as potentially relevant but not final (Appendix 1). One important thing to be considered is the fragmentation of the literature in the scope here studied. Such fragmentation increases the challenge of reporting, comprehending, and comparing between researchers and increase difficulties of further studies, not to mention the gap between the results obtained and the implementation in the field. Thus, the transfer of results and knowledge may be hindered. For the purpose of this study literature reviews included as part of the selected and screened studies were neglected since they do not represent truly experimental and verifiable approaches.

3. Results and Discussion

The starting scope of this research was intended to span a longer timeline to take into account initiatives about fashion design methodologies tackling sustainable challenges happening earlier than 2015. However, the high number of entries retrieved by the database used revealed that a strong interest in the sustainable aspect of fashion design and fashion industry is huge and presenting an increasing trend, despite the fragmented and unclear approaches documented.

The most used research methods were interviews (n = 13), surveys (n = 11), and life cycle assessments (n = 7). There were several research methods only used by one study, such as adaptive choice-based conjoint analysis, focus groups, and the two-round disaggregative Delphi approach (Table 2). Despite the recent interest in biodesign and related subareas (e.g., biofabrication (Moroni *et al.*, 2018)), there was no screened study that explored those areas.

**Table 2.** Total number of studies per type of method with respective references.

Type of Method (n = total)	Reference
Adaptive choice-Based conjoint analysis (n = 1)	Fuchs and Hovemann, 2022
Case study (n = 10)	Camacho-Otero <i>et al.</i> , 2019; Brydges, 2021; Pal <i>et al.</i> , 2021; Cooper and Claxton, 2022; Dragomir and Dumitru, 2022; Gossen and Kropfeld, 2022; Salmi and Kaipia, 2022; Valor <i>et al.</i> , 2022; Garcia-Ortega <i>et al.</i> , 2023; López <i>et al.</i> , 2023
Compositional analysis (n = 1)	Wesley <i>et al.</i> , 2023
Focus group (n = 1)	Aydin <i>et al.</i> , 2023
Framework development/ Theoretical model (n = 5)	Turunen and Halme, 2021; Shou <i>et al.</i> , 2022; Aydin <i>et al.</i> , 2023; Kautish <i>et al.</i> , 2023; Shamsuzzaman <i>et al.</i> , 2023
Index Decomposition Analysis through the Logarithmic mean divisia index, and decoupling analysis (n = 1)	Román-Collado <i>et al.</i> , 2023
Interactive action research (n = 1)	Sandberg, 2023
Interview (n = 13)	Padilha and Gomes, 2016; Singh <i>et al.</i> , 2019; Fontana <i>et al.</i> , 2021; Gossen and Heinrich, 2021; Sandberg and Hultberg, 2021; Siderius <i>et al.</i> , 2021; Bocken and Konietzko, 2022; Laukkanen and Tura, 2022; Nayak <i>et al.</i> , 2022; Amasawa <i>et al.</i> , 2023; Dukovska-Poposka <i>et al.</i> , 2023; Persson and Hinton, 2023; Shamsuzzaman <i>et al.</i> , 2023
Life cycle assessment (n = 7)	Stone <i>et al.</i> , 2020; Martin and Herlaar, 2021; Angelis-Dimakis <i>et al.</i> , 2022; Mölsä <i>et al.</i> , 2022; Shou <i>et al.</i> , 2022; Amasawa <i>et al.</i> , 2023; Wesley <i>et al.</i> , 2023
Material flow analysis (n = 1)	Schmutz and Som, 2022
Material flow analysis and carbon cost analysis (n = 1)	Millward-Hopkins <i>et al.</i> , 2023
Mathematical approach (n = 1)	Peters <i>et al.</i> , 2021
Scanning electron microscopy (n = 1)	Wesley <i>et al.</i> , 2023
Scenario development (n = 2)	Repp <i>et al.</i> , 2021; Shou <i>et al.</i> , 2022
Social life cycle assessment (n = 1)	Martin and Herlaar, 2021
Stakeholder analysis (n = 1)	Singh <i>et al.</i> , 2019
Survey (n = 11)	Dhir <i>et al.</i> , 2021; Bhandari <i>et al.</i> , 2022; Dangelico <i>et al.</i> , 2022; de Oliveira <i>et al.</i> , 2022; Fuchs and Hovemann, 2022; Johnstone and Lindh, 2022; Schmutz and Som, 2022; Xue <i>et al.</i> , 2022; Amasawa <i>et al.</i> , 2023; Pandey and Yadav, 2023; Scott <i>et al.</i> , 2023
Systematic analysis (n = 2)	Jain <i>et al.</i> , 2021; Cooper and Claxton, 2022
Systems model technique (Causal loop diagram) (n = 1)	Singh <i>et al.</i> , 2019
Thematic analysis (n = 1)	Bocken and Konietzko, 2022
Thermal transformation of waste cotton textile into carbon fibre (n = 1)	Wesley <i>et al.</i> , 2023
Thermo-gravimetric analysis (n = 1)	Wesley <i>et al.</i> , 2023
Two-round disaggregative Delphi approach (n = 1)	Louma <i>et al.</i> , 2022
X-ray diffraction (n = 1)	Wesley <i>et al.</i> , 2023

In terms of the limitations found during this study, they can be summarized in:



- Low number of participants/objects under study, limited geographies included (namely one country or in the same region), and limited range of time of the participation (Padilha and Gomes, 2016; Camacho-Otero *et al.*, 2019; Brydges, 2021; Dhir *et al.*, 2021; Fontana *et al.*, 2021; Gossen and Heinrich, 2021; Sandberg and Hultberg, 2021; Siderius *et al.*, 2021; Turunen and Halme, 2021; Bocken and Konietzko, 2022; Bhandari *et al.*, 2022; Dangelico *et al.*, 2022; de Oliveira *et al.*, 2022; Fuchs and Hovemann, 2022; Gossen and Kropfeld, 2022; Louma *et al.*, 2022; Nayak *et al.*, 2022; Salmi and Kaipia, 2022; Valor *et al.*, 2022; Xue *et al.*, 2022; Aydin *et al.*, 2023; Garcia-Ortega *et al.*, 2023; Kautish *et al.*, 2023; Román-Collado *et al.*, 2023; Pandey and Yadav, 2023; Scott *et al.*, 2023; Shamsuzzaman *et al.*, 2023).
- Limited knowledge and few technological tools from and for the stakeholders to enhance sustainability and/or collaborative actions (Repp *et al.*, 2021; Pal *et al.*, 2021; Siderius *et al.*, 2021; Cooper and Claxton, 2022; Bhandari *et al.*, 2022; Dragomir and Dumitru, 2022; Fuchs and Hovemann, 2022; Gossen and Kropfeld, 2022; Laukkanen and Tura, 2022; Louma *et al.*, 2022; Nayak *et al.*, 2022; Shou *et al.*, 2022; Valor *et al.*, 2022; Kautish *et al.*, 2023; López *et al.*, 2023; Millward-Hopkins *et al.*, 2023; Román-Collado *et al.*, 2023)
- Limited scope of the developed methodology (Padilha and Gomes, 2016; Dhir *et al.*, 2021; Repp *et al.*, 2021; Martin and Herlaar, 2021; Turunen and Halme, 2021; Angelis-Dimakis *et al.*, 2022; Bhandari *et al.*, 2022; Bocken and Konietzko, 2022; Dragomir and Dumitru, 2022; Fuchs and Hovemann, 2022; Laukkanen and Tura, 2022; Mölsä *et al.*, 2022; Schmutz and Som, 2022; Shou *et al.*, 2022; Valor *et al.*, 2022; Aydin *et al.*, 2023; Kautish *et al.*, 2023; López *et al.*, 2023; Millward-Hopkins *et al.*, 2023; Sandberg, 2023; Scott *et al.*, 2023; Shamsuzzaman *et al.*, 2023)

There was also observed that no discussion was presented regarding the particular methodology limitations used in some screened studies (Jain *et al.*, 2021; Johnstone and Lindh, 2022; Stone *et al.*, 2020; Persson and Hinton, 2023; Schmutz and Som, 2022; Wesley *et al.*, 2023).

All the limitations summarized above were highlighted by the respective authors which means that there is a chance of an underrepresentation of the limitations of particular methods. This is exemplified by Bocken and Konietzko (2022) since the authors assumed the replicability limitation of their interviewing methodology which was not assumed by the other researchers who also perform interviews. The same occurred with surveys (Dhir *et al.*, 2021).

### 3.1. Discussion using ChatGPT<sup>1</sup>

#### 3.1.1. First Round

*Prompt by the author*

Tell me what are the main challenges for fashion design research in terms of the global sustainability goals?

*Reply from ChatGPT*

Fashion design research faces several challenges in terms of achieving the global sustainability goals. Here are some of the main challenges:

##### (1) Material Selection

Finding sustainable and eco-friendly materials is a significant challenge. Many traditional materials used in fashion, such as polyester and conventional cotton, have a high environmental impact due to their production processes and use of harmful chemicals. Researching and developing alternative materials that are biodegradable, recycled, or derived from renewable sources is crucial.

##### (2) Supply Chain Transparency

Ensuring transparency and traceability throughout the fashion supply chain is a complex task. It involves understanding the origins of raw materials, manufacturing processes, and the environmental and social impacts associated with each stage. Fashion design research must focus on

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<sup>1</sup> ChatGPT, personal communication, May 26-30, 2023)

developing tools, technologies, and standards that enable brands to track their supply chains effectively and make informed sustainable decisions.

### (3) Waste Management

Addressing the issue of textile waste is a significant challenge. The fashion industry generates a substantial amount of waste through production cut-offs, unsold inventory, and discarded garments. Design research should focus on developing innovative techniques for recycling, upcycling, and repurposing textile waste, as well as exploring circular economy models that minimize waste generation.

### (4) Consumer Behavior

Shifting consumer behavior towards more sustainable choices presents a challenge. Fashion design research needs to understand consumer attitudes, preferences, and motivations to develop products that align with sustainable values. Educating consumers about the environmental and social impacts of their fashion choices is essential to encourage more responsible consumption patterns.

### (5) Collaboration and Industry Transformation

Achieving sustainability goals requires collaboration among various stakeholders, including designers, manufacturers, policymakers, and consumers. Fashion design research needs to foster interdisciplinary collaboration and facilitate knowledge sharing to drive industry-wide transformation. This includes engaging with policymakers to create supportive regulations and standards that promote sustainable practices.

### (6) Scaling Sustainable Solutions

While there are many innovative and sustainable fashion solutions, scaling them up to an industry-wide level remains a challenge. Research needs to focus on developing scalable technologies, production methods, and business models that can be adopted by fashion brands across the globe. This involves considering factors like cost, scalability, and compatibility with existing industry infrastructure.

### (7) Longevity and Timelessness

Fast fashion, with its focus on disposable and short-lived trends, contributes to environmental degradation. Fashion design research needs to explore concepts like durability, longevity, and timelessness in garment design. Creating timeless designs and encouraging the use of quality materials can contribute to reducing the environmental impact associated with frequent fashion consumption.

By addressing these challenges, fashion design research can play a vital role in driving the industry towards more sustainable practices and achieving the global sustainability goals.

*Prompt by the author*

Based on those 7 points may you define a research methodological framework based on a blend of the scientific method and creativity methods in order to test the feasibility of potential solutions?

*Reply from ChatGPT*

Certainly! Here's a research methodological framework that combines elements of the scientific method and creativity methods to test the feasibility of potential solutions for sustainable fashion design:

#### (1) Problem Identification and Research Question

- Clearly define the problem or challenge related to sustainable fashion design.
- Formulate a research question that guides your investigation.

#### (2) Literature Review

- Conduct a comprehensive review of existing literature and research related to sustainable fashion design, materials, supply chains, waste management, consumer behaviour, collaboration, and industry transformation.
  - Identify gaps and areas that require further exploration.
- (3) Hypothesis Generation
- Based on the literature review, generate hypotheses or potential solutions that address the identified challenges.
  - These hypotheses should propose innovative and sustainable approaches to the problem.
- (4) Data Collection
- Design and implement data collection methods that align with your research question and hypotheses.
  - This may involve qualitative methods such as interviews, focus groups, and observations, as well as quantitative methods like surveys and data analysis.
- (5) Idea Generation and Ideation
- Utilize creative methods and ideation techniques, such as brainstorming sessions, design thinking workshops, or participatory design, to generate a wide range of potential solutions.
  - Encourage diverse perspectives and collaboration among stakeholders to foster creativity.
- (6) Prototyping and Testing
- Select a subset of the generated ideas and develop prototypes or minimum viable products (MVPs) that represent the potential solutions.
  - Test the prototypes in controlled environments or real-life scenarios to assess their feasibility, functionality, and sustainability performance.
  - Gather feedback from users, experts, and other relevant stakeholders to refine the prototypes.
- (7) Evaluation and Analysis
- Analyse the data collected from testing and prototype evaluation.
  - Assess the potential solutions based on predefined criteria, such as environmental impact, social implications, economic viability, scalability, and compatibility with industry practices.
  - Use statistical analysis, qualitative analysis, or a combination of both to draw meaningful conclusions.
- (8) Iteration and Refinement
- Based on the evaluation results, refine and iterate on the potential solutions.
  - Modify the prototypes or generate new ideas if necessary.
  - Repeat the testing and evaluation process to continuously improve and validate the feasibility of the solutions.
- (9) Documentation and Reporting
- Document the research methodology, data collection process, results, and conclusions.
  - Communicate findings through research papers, reports, presentations, or other appropriate mediums.
  - Share insights with the academic community, industry professionals, policymakers, and other relevant stakeholders.

By integrating elements of the scientific method (hypothesis generation, data collection, evaluation) with creativity methods (idea generation, prototyping, iteration), this framework allows



for a systematic and rigorous approach to testing the feasibility of potential solutions in sustainable fashion design research.

### 3.1.2. Second round

*Prompt by the author*

Now assume you are a decision-maker with full powers in your region, country, and continent. You also have influence globally. You were asked to develop a research plan to create and validate a framework for fashion practitioners (designers and professionals in companies) to fully transform the field. You have control on the budget to perform the project and to hire the necessary people to help you throughout the process. The brief is the following: 1) timeline of 3 years; 2) the outcomes of the project must be easily actionable across the fashion industry, despite further necessary adaptations and particular validations and optimizations; 3) take into consideration the following handicaps of current methodologies: i) Low number of participants/objects under study, limited geographies included (namely one country or in the same region), and limited range of time of the participation, ii) Limited knowledge and technological tools from and for the stakeholders to enhance sustainability and/or collaborative actions, and iii) Limited scope of the developed methodology. Now please develop the research plan in less than 1000 words.

*Reply from ChatGPT*

Research Plan:

Developing a Transformative Framework for Sustainable Fashion Design

Objective:

The objective of this research plan is to develop and validate a transformative framework for fashion practitioners (designers and professionals in companies) that can drive sustainable practices across the fashion industry. The framework should be easily actionable, adaptable to different contexts, and capable of addressing the handicaps of current methodologies.

Timeline:

The research plan will span a period of three years, structured into the following phases:

Year 1: Preparatory Phase

- Assemble a multidisciplinary research team consisting of experts in sustainable fashion, design, supply chain management, consumer behavior, and technology.
- Conduct an extensive literature review to gather existing knowledge on sustainable fashion practices, methodologies, and frameworks.
- Identify and engage with key stakeholders in the fashion industry, including designers, manufacturers, policymakers, and NGOs, to understand their challenges, needs, and perspectives.

Year 2: Framework Development Phase

- Design and implement a large-scale global research study that overcomes the handicaps of current methodologies:
- Ensure a diverse and representative participant pool from various countries and regions, involving designers, professionals, and other stakeholders from different fashion sectors.
- Employ advanced technology tools, such as data analytics, machine learning, and blockchain, to enhance sustainability and collaborative actions within the study.
- Develop an expansive and adaptable methodology that encompasses different geographies, cultures, and timeframes to capture a comprehensive understanding of sustainable fashion practices.
- Collect data through mixed methods, including surveys, interviews, observations, and industry case studies, to generate rich insights into sustainable fashion practices, challenges, and opportunities.
- Apply iterative and participatory design processes, involving stakeholders in co-creation sessions to refine and validate the framework's components.

- Continuously assess the feasibility and practicality of the framework to ensure its actionability and adaptability across the fashion industry.

#### Year 3: Validation and Dissemination Phase

- Validate the framework through pilot implementations in collaboration with selected fashion companies and organizations.
- Assess the impact of implementing the framework on sustainability performance, consumer behavior, supply chain transparency, and collaboration within the participating organizations.
- Gather feedback from practitioners and stakeholders involved in the pilot implementations to refine and optimize the framework.
- Develop practical guidelines, toolkits, and training materials that distill the framework's key principles and actionable steps for easy adoption across the fashion industry.
- Disseminate the research findings, framework, and associated resources through publications, industry conferences, workshops, and online platforms.
- Collaborate with global fashion associations, NGOs, and policymakers to advocate for the adoption of the framework and support its implementation at a broader scale.

#### Budget and Resource Allocation:

Allocate a substantial budget to support the research plan, including funding for the research team, data collection tools, technology infrastructure, participant recruitment, pilot implementations, and dissemination activities. Establish partnerships with academic institutions, industry sponsors, and funding agencies to secure additional financial resources.

Hire a diverse and skilled research team comprising sustainable fashion experts, data analysts, design researchers, and project managers. Collaborate with external consultants, industry professionals, and stakeholders to ensure comprehensive expertise and perspectives throughout the research plan.

#### Conclusion:

This research plan outlines a comprehensive three-year timeline for developing and validating a transformative framework for sustainable fashion design. By addressing the handicaps of current methodologies, leveraging advanced technologies, and involving global stakeholders, the resulting framework will be actionable, adaptable, and capable of driving sustainability practices across the fashion industry.

## 4. Conclusions

This study evidences the non-trivial nature of researching within fashion disciplines. Despite the methodological arsenal social sciences provide to fashion research (*e.g.*, surveys, case studies) and the increasing use of more quantitative approaches (*e.g.*, circular economy metrics and LCA) there is a widespread focus in terms of the common goal to be obtained down the line. The scientific viewpoints highlighted during this study are manifold which constitute a handicap to decision-making because the competencies must be transdisciplinary in order to provide meaningful information that could guide concrete actions. As conclusion it is suggested that a broad network of universities, companies, not-for-profit organizations, alongside informed citizens combine their interests and expertise to co-design and validate a powerful set of methodologies for fashion research purposes such as seen in order initiatives like the BoSS (<https://cordis.europa.eu/project/id/101079995>), EUROWEB (<https://euroweb.uw.edu.pl>), CONTEXT (<https://www.context-cost.eu>), REFREAM (<https://cordis.europa.eu/project/id/825647>), CORENET (<https://cordis.europa.eu/project/id/260169>), and MICRO-DRESS (<https://cordis.europa.eu/project/id/260113>) European funded projects (happening mandatory consortia).

Finally, this study may be helpful for policy making since it uncovers the handicaps of performing relevant research in the realm of fashion design and fashion industry, supplemented with a prototype guidance from ChatGPT to allow a fast and reliable discourse under the scope of the objective of this study.

**Conflicts of Interest:** The author declares no conflict of interests.

**Copyright consent:** The author gives permission for copyright purposes upon publication of this article.

**Declaration of Generative AI and AI-assisted technologies in the writing process:** During the preparation of this work the author used ChatGPT in order to add a contribution to the discussion based on a broad AI-based answers to two questions related to the areas and research methodologies to be explored in fashion-related studies to achieve sustainability. After using this tool, the author reviewed the content but chose to leave it not edited. Still, the author takes full responsibility for the content of this publication.

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