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The Carrot or the Stick? Stakeholder Support for Mandatory Regulations towards a Circular Fashion System

Saskia Manshoven * and Wim Van Opstal

Unit Sustainable Materials Management, Flemish Institute for Technological Research, VITO NV, 200 Boeretang, 2400 Mol, Belgium

* Correspondence: saskia.manshoven@vito.be

Abstract: In recent years, fast fashion has boosted global production and consumption, decreasing the lifespans of garments and increasing volumes of discarded textiles which are neither reusable or recyclable. Consequently, multiple visions and strategies regarding circular fashion have been developed, addressing a broad range of features pertaining to a potential circular fashion system. Most remain vague about concrete ambitions and policy measures. However, the design of transition pathways involves a good understanding of the policy instruments among stakeholders that operate in a globalized industry with complex value chains. In this study, we investigate stakeholder support for policy instruments that could contribute towards a circular and sustainable fashion system. We identify 30 aspects of a circular fashion system, based on a screening of visions and strategies published by supranational bodies, NGOs, and sectoral organizations. Then, we present survey and focus group results, displaying broad stakeholder support for government intervention, particularly mandatory regulations. A plausible explanation is the prisoner's dilemma most stakeholders face regarding global value chains, indicating the need for a more level playing field. We identify and address the differences between stakeholder preferences and conclude that mandatory regulations appear to be a necessary but not a sufficient condition for a transition towards a circular fashion system.

Keywords: circular fashion; circular economy; environmental policy; transition pathways; stakeholder participation; strategic interaction; survey research

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1. Introduction

Fashion is big business. Every year, around 130 billion pieces of new clothing are produced worldwide, of which around 80 billion are sold [1]. Clothing production has doubled since 2000, driven both by an increasing global middle-class and by increased per capita sales [2]. At the same time, the average lifetime of clothing has halved [3]. These trends are mainly a result of the 'fast fashion' model, which delivers fast-changing fashion styles and countless new collections per year, often at low prices [4,5]. While most European brands released only two new collections per year in 2000, this number increased to almost five new collections per year in 2011. Some brands deliver up to twenty-four new clothing collections each year [3,6]. Today, 'ultra-fast fashion' is taking over at an even faster pace, putting new styles up for sale in only a few days and fuelled by e-commerce, which has soared since the COVID-19 pandemic in 2020 [7,8]. Post-COVID-19, it is expected that fashion demand will grow further, supported by further technological developments such as artificial intelligence, augmented reality, blockchain, and mobile commerce [9].

This high level of fashion consumption comes with a downside. A first concern is that global fashion production and consumption generated about 92 million tons of waste in 2015 [10–12]. It is estimated that only about one third of all garments that are produced are sold at full price; another third is discounted and the remaining third is not sold at all and eventually ends up in landfill or incineration [13]. Globally, about 75% of textile waste is landfilled or incinerated, while only 25% is collected for reuse or recycling and less than

1% is recycled into new fibres for clothing [2]. Fibre-to-fibre recycling is challenging due to many technical limitations, low technology readiness levels (TRL), costly infrastructure, and unfavourable market conditions [14]. Second, the textiles manufacturing industry is one of the most polluting in the world. Cotton cultivation requires vast amounts of land, water, fertiliser, and pesticides, while the production of synthetic textiles uses fossil feedstock and energy, and are considered a major source of microplastic emissions [15,16]. Additionally, textile processing uses a variety of chemicals, such as dyes and finishing agents, which cause water pollution, as connection to wastewater treatment is often limited or lacking in many production regions [17,18]. Finally, there are the social impacts in the producing countries, where a majority of mostly female workers are working in unsafe and unhealthy labour conditions at low wages and often below the national minimum wage [12].

A transition to a circular economy has been frequently mentioned as a strategy to achieve the sustainable use of resources and eliminate waste, by promoting longer use, reuse and recycling. Many definitions of the concept have been proposed [19,20], and circular economy approaches have been explored to improve sustainability of various product systems, such as electronics [21,22], plastics [23,24], and construction [25,26]. Circular product design, entailing measures to enable longer product lives or facilitate disassembly and repair, is a key feature to adapt products into a circular economy, although design strategies to reduce overall environmental performance of a product (i.e., ecodesign) are often mentioned too [27]. Crucially, the establishment of a circular economy is a means by which to achieve sustainability, and not a goal in itself [28].

In their review study, Dissanayake and Weerasinghe [29] define the term circular fashion as:

> *"a fashion system that moves towards a regenerative model with an improved use of sustainable and renewable resources, reduction of non-renewable inputs, pollution and waste generation, while facilitating long product life and material circulation via sustainable fashion design strategies and effective reverse logistics processes. Application of circular fashion needs a system perspective where all the designers, manufacturers, suppliers, retailers and consumers are involved and committed with a positive shift in mind set."*

To tackle the environmental and social impacts of the fashion industry, many strategies have been taken in recent years by governments and industry to make the fashion system more sustainable, circular and fair. Within Europe, the Circular Economy Action Plan has paved the way for an ambitious EU Strategy for Sustainable and Circular Textiles [30], inspired by the awareness that "textiles are the fourth highest pressure category for the use of primary raw materials and water, after food, housing and transport, and the fifth for greenhouse gas emissions" [31,32]. Together with industry stakeholders, a Transition Pathway is under development to make commitments more concrete [33]. Additionally, within the textile industry, initiatives are being implemented to reduce the negative impacts of fashion production. Many fashion brands are committing to the use of recycled fibres to replace conventional synthetic fibres [34], pioneering repair and reuse services, or experimenting with rental systems as an alternative to traditional sales [35]. Other initiatives focus on the use of safe and circular materials [36], or a more efficient monitoring of sustainability [37]. As an increasing number of consumers are concerned about the social and environmental impact of the products they buy, companies are responding with an increasing range of eco-friendly clothing and working to ensure that ethical manufacturing practices are in place throughout their supply chains. Ethical brands can use sustainability certifications, such as GOTS-certified cotton and Fairtrade labels to qualify their sustainable commitments. However, while consumer pressure and voluntary measures taken by brands can help steer the fashion sector towards more sustainable practices, it may be necessary to put stricter laws and regulations in place to achieve a true transition to a circular fashion system [38].

At the policy level, textiles and fashion have been acknowledged to significantly contribute to the environmental impacts of EU consumption [16], and are identified as one of the priority sectors for a circular economy [32]. Additionally, in popular media,

the impacts of fashion production, consumption and waste management have received increasing attention in recent years [8,39–42]. Moreover, academic attention to the transition of the fashion system towards a circular economy has also flourished over the last few years [29,43–45]. In several review papers, policy initiatives formed by both governments and the industry itself have been identified as both barriers to and enablers of the transition towards a circular economy. Existing legislation and regulations have been reported to act as a barrier by hindering the use of waste as a resource [46–48], restraining cross-border waste transfers [49] and impeding innovation [45]. On the other hand, a lack of enforceable laws and regulations to stimulate circularity at every stage of the supply chain has been identified as a principal barrier as well [50–53]. This is a particular concern for developing countries, as fashion companies tend to outsource production processes to countries with less regulations [43,54,55]. Furthermore, scholars point out a lack of systematic regulation [56–58], inconsistent policies [59–61] and a lack of policy support to create openness and a competitive environment for circular businesses [62–64]. Conversely, regulations, legislation, CSR and awareness campaigns have been identified as major enablers for a circular economy; affecting how companies operate [43,65,66], provide incentives for businesses and consumers to implement circular business models [67,68], and provide directives that steer consumer behaviour in line with circular strategies, such as the separated collection of waste [69–72]. Policy instruments can reduce the up-front investments costs of circular business models [73], stimulate environmental procurement criteria with suppliers [45,74] and drive companies towards investments in and the implementation of circular economy strategies [75].

While a wide variety of policy instruments are available, varying from non-mandatory subsidy schemes to mandatory regulations to ban the use of specific materials, the design, implementation, and evaluation of a consistent and coherent policy mix remains a major challenge. It involves political processes, path dependencies, implementation costs, compliance costs, and side-effects [76]. Setting novel 'rules of the game' to accelerate the transition to a circular economy means creating new relationships, arrangements, terms of agency, and therefore, may cause tensions and contestations [77]. A wide systems perspective is required to reduce the risk of burden-shifting along the value-chain [78]. In this respect, the fashion system is particularly challenging, as the fashion industry involves a complicated supply chain with many different stakeholders and various interconnected processes across the globe [29,79]. Stakeholder groups in the fashion supply chain include companies, civil society organisations, trade unions, service providers (e.g., finance and IT services), education and research institutes, and consumers [80]. Companies in the fashion supply-chain engage in one or multiple activities, varying from product design, the production of raw materials, yarn, or fabric, dyeing and printing, confection, distribution, branding, retail, packaging, logistics, and finally, collection, sorting, and recycling [81].

Within supply chains, stakeholder pressure is recognised as a significant tool by which to implement circular strategies [82–84]. Stakeholder support has also been studied as an important driver to increase the quality of policymaking, enabling a transition in complex issues, including environmental policies [85–88] and social policies [89]. Therefore, a successful policy mix design should involve the support of these stakeholders, aligning their incentives to engage in collective action towards a circular fashion system. This requires a thorough understanding of incentives, strategic interactions, and externalities among and between stakeholders [90–92].

In this paper, we investigate stakeholder support for a variety of policy instruments to foster the transition towards a circular fashion system. We formulate the following research questions:

- RQ1—What policy instruments are preferred by various stakeholders for a transition to a circular fashion system?
- RQ2—What differences in policy instrument preferences do we notice between different aspects of a circular fashion system?

- RQ3—What is the relationship between personal, stakeholder, and company characteristics and policy instrument preferences?

First, we identify different aspects of a circular fashion system as mentioned in the literature, and screen how leading policy and industry initiatives address these aspects. Then, we investigate stakeholder support for different types of policy instruments, making use of a stakeholder survey and focus group research. We then aim to inform policymakers and other leading initiatives in their design of policy mixes that align incentives towards a circular fashion system, in addition to its academic originality.

The rest of the paper is structured as follows. Section 2 presents a list of features of a circular fashion system as identified in the literature, including an empirical mapping of ambitions and policy instruments related to these circular fashion features by leading public and private institutions. Then, we describe the methodological approach to validate stakeholder support for different types of policy instruments. Section 3 describes the results of the survey and focus group research, followed by a discussion of these results and an overview of its limitations and suggestions for further research in Section 4. In Section 5, we conclude and provide recommendations for policymakers and companies.

2. Materials and Methods

2.1. Identifying Aspects of a Circular Fashion System

Recently, a multitude of visions, pledges, roadmaps, and guidelines have been published about sustainable and circular fashion [30,93–99]. Some only focus on certain features of sustainability or circularity, while others adopt a broader scope. Conceptual scholarly work on circular fashion models, as well as review studies, summarise the most common elements that should be encompassed in a circular fashion system. While some of them mainly focus on recycling and reverse logistics [45], other authors include reduction and reuse within their scope [44].

In their conceptual paper on circular fashion, Mishra et al. [100] addressed the mitigation of environmental impacts, the reduction of waste generation, the promotion of sustainable supply chains, and the maximisation of product life cycles by promoting zero-waste design, reuse, repairability, and resource-sharing practices.

A circular fashion system consists of a broad range of features. Different actions can be taken along the value chain of textiles, from material choice and extraction to garment production, use, and waste treatment [10]. After an extensive review of policy papers and reports by governmental, sector, and company initiatives regarding sustainable and circular fashion (e.g., [2,30,36,94–99]), and those identified during a stakeholder workshop in the framework of a European research project on circular fashion (https://scirt.eu, accessed on 26 September 2022) [101], as well as an academic review of the literature (e.g., [2,10,15,16,29,44,45,60,102,103]), we identified 30 features of concern for a circular fashion system, organised into four lifecycle dimensions (design, production, use, and waste management) and three transversal dimensions (waste prevention, social justice, and value chain collaboration). First, we provide a short presentation of these features. In Section 2.2, we explore how these features are incorporated in the most salient visions of and strategies for circular fashion.

Textile design is a key factor in determining production impact, product durability, and recyclability [102,104]. Therefore, low impact fibres are an important starting point in considering a circular fashion system, including the use of recycled fibres [2,102], the use of renewable fibres [105,106], and the use of fibres which are less prone to micro-fibre shedding [15,107]. A circular fashion system also encompasses low impact production processes. These include some features of sustainable agricultural practices: using natural fibres [108,109], efficient water use [110–112], and efficient energy use [113–115]. Other relevant features include phasing out substances of concern that are hazardous to human health or the environment [93,116,117], the reduction of carbon emissions [118,119], and a shift to sustainable modes of transport and logistics [120,121].

A third dimension of a circular fashion system involves the longer use of garments, including durability, repair, and reuse, which are enabled by design strategies [122,123]. Design for durability is an important starting point in determining a garment's longevity, which includes both 'physical durability', i.e., quality and resistance to wear and tear, and 'emotional durability', i.e., designing clothes that people become attached to and want to keep using [16,124]. Emotional durability can be supported by long-lasting fashion styles, focusing on timeless 'basics' that do not go out of fashion [125,126]. A second aspect to making garments last is the ability to extend a garment's life by enabling disassembly and repair, by adopting dedicated design for repair strategies [127]. Longer use also entails new market practices, such as the development of re-use and second-hand markets [128,129], and sharing platforms [130]. In general, many of these features are strongly interconnected with the deployment of circular business models [67,68,131] and the development of insights into customer behaviour [83,132,133].

Recycling is a fourth important dimension within a circular fashion system. Designing clothes for recycling is crucial in order to allow the closing of resource loops at the end-of-life, by choosing recyclable fibres or fibre combinations. Mono-materials are preferred, and if different materials are used, their assembly should support disassembly to enable fibre sorting. [134,135]. Then, improved waste collection and sorting systems, as well as high quality recycling technologies, need to be developed further [66,136]. Additionally, phasing out waste exports to developing countries is also considered an important part of the circular fashion system [137,138].

Furthermore, there are a few cross-cutting elements that should be applied throughout all the stages of a circular value chain. First, there is waste prevention [139]. This encompasses the minimisation of overproduction, e.g., by producing on demand, a cap on the number of fashion collections per year, or imposing a ban on the destruction of unsold garments [30,140,141]. Furthermore, it includes design and process adaptations to minimise production waste and a reconsideration of logistics to reduce packaging waste [139,142]. Finally, a reduction of post-consumer waste should be taken into account; for example, by supporting longer product lives, upcycling initiatives, or nudging consumers to correctly separate textile waste to enable high-quality automated sorting for reuse and recycling [143,144]. A second cross-cutting feature of any circular and sustainable system is social justice [145]. This concern is particularly pressing in the fashion industry, as media have repeatedly accused fashion brands of violating the human rights of textile workers in producing countries, who are underpaid and forced to work long hours in unsafe sweatshop-like conditions [40,146,147]. Fair fashion involves healthy and safe working conditions [148,149], fair wages [150,151], increased social protection [152,153], a ban on forced labor and child labor [62,154], and the abolishment of discrimination on the work floor [1,155]. Finally, a third thread in circular systems is value-chain collaboration. This is particularly challenging for the fashion industry and involves a highly globalised, complex, and extremely fragmented supply chain [156,157]. Collaboration involves increased transparency [71,157] and traceability [66,158] throughout the supply chain, as well as partnerships between producers and waste processors to allow closing resource loops [120,159].

2.2. Screening Ambitions and Policy Instruments

In recent years, many public and private institutions have created concepts concerning circular fashion, sometimes including concrete targets or policy measures. An extensive literature study was undertaken to map these intergovernmental, non-governmental, and sectoral initiatives. We provide an overview of some leading initiatives in Table 1, and indicate to what extent they include in their vision the different aspects of a circular fashion system discussed above.

In terms of policy, the most important document from a European perspective is the recently published EU Strategy for Sustainable and Circular Textiles, which formulates an

ambitious vision for 2030, announcing the development of binding product-specific design requirements in terms of circularity [30]:

> *"By 2030 textile products placed on the EU market are long-lived and recyclable, to a great extent made of recycled fibres, free of hazardous substances and produced in respect of social rights and the environment. Consumers benefit longer from high quality affordable textiles, fast fashion is out of fashion, and economically profitable re-use and repair services are widely available. In a competitive, resilient, and innovative textiles sector, producers take responsibility for their products along the value chain, including when they become waste. The circular textiles ecosystem is thriving, driven by sufficient capacities for innovative fibre-to-fibre recycling, while the incineration and landfilling of textiles is reduced to the minimum."*

An important element of the strategy is the planned revision of the Ecodesign Directive into a new Sustainable Products Initiative by the end of 2022, which will contain binding product-specific design requirements in order to support durability, reusability, repairability, and fibre-to-fibre recyclability. It also aims to reduce carbon and environmental footprints and minimise the presence of substances of concern and microplastics release. It will also contain mandatory recycled fibre content requirements.

From an NGO perspective, the Ellen MacArthur Foundation's "vision of circular economy for fashion" focuses on products that are (1) used more, (2) made to be made again, and (3) made from safe and recycled or renewable inputs [93]. From the industry position, the Global Fashion Agenda launched a vision consisting of five pillars: (1) respectful and secure work environments, (2) better wage systems, (3) circular systems, (4) efficient use of resources, and (5) smart material choices [94]. Some other supranational initiatives have a more specific focus, e.g., on transparency [97] or on climate action [98]. Our screening exercise also includes the roadmap 'Textiles 2030', led by WRAP [99], the OECD Due Diligence Guidance [95], and the Circular Economy Action Agenda Textiles, created in 2018 by the World Economic Forum and hosted by the World Resources Institute [96].

The overview presented in Table 1 shows which of these initiatives state ambition levels regarding different features of a circular fashion system, as defined in Section 2.1. In the case of the EU strategy, we were able to go further and look at the kind of policy instruments proposed or suggested. By increasing order of compulsion, we identify awareness building, voluntary industry targets, non-mandatory policies, and mandatory regulations. Awareness building is considered the least compulsory policy instrument. Even while more consumers become environmentally conscious, many of them do not see ethical and ecological problems associated with a fast fashion consumer culture [44,132,160–162]. Their awareness is often limited to energy consumption issues, while they do not see sustainability as an issue inherent to purchasing clothing [133]. Many studies identify a lack of awareness as a major barrier to a circular economy [43,70,71,163,164]. This lack of awareness and education is also problematic among the workforce, since this largely hinders the transition of organisations towards the circular economy [29]. Kirchherr et al. pointed out that a 'hesitant company culture' is often a greater barrier to a circular transition than technological challenges [164]. This is especially true of top management, with the decisive power to steer company strategies, who need to be aware of the competitive advantages and business opportunities that circular economy strategies can bring [165,166]. Other authors highlight the importance of including key features of a circular economy in design education [66,167]. Overall, it is essential to promote awareness and provide knowledge, tools, and training to all actors throughout the supply chain [168].

As a second instrument type, we included voluntary industry targets. Given pressures imposed by NGOs and reputational effects among customers, voluntary industry targets and CSR policies can be considered as more compulsory than awareness building, while enhancing companies to remain competitive in the long term [82,169,170]. Finally, government policies can be considered the most compulsory, taking into account the difference between non-mandatory policies, e.g., fiscal incentives, and mandatory regulations that are enforceable [45,76]. Notably, there is a generally higher concentration of mandatory EU

legislation towards the end of the life cycle (e.g., waste policies), while policies targeting consumption are typically less compulsory.

In the results of our screening exercise, as shown in Table 1, a confirmation of the relevance of the different features of a circular fashion system, as defined in Section 2.1, can be observed. However, a lack of specific policy measures presented or envisioned in the most leading initiatives on circular fashion also exists. At best, examples of policy instruments are given. In the case of the EU strategy, most policy instruments refer to legislation that will be developed in the years to come. This confirms the relevance of our study, to investigate stakeholder support for policy instruments with varying levels of compulsion.

2.3. Survey and Focus Group Research

The results of this paper stem from a wider envisioning exercise that was undertaken in a European research project on circular fashion (https://scirt.eu, accessed on 26 September 2022) [101]. Within this research project, we launched an online survey among relevant stakeholders in the fashion value chain to explore their preferences with respect to policy instruments. The use of stakeholder surveys is a well-established research practice [171] that has been used in evaluations of a variety of sustainability challenges and policies [172–174].

Our survey questions included personal and company characteristics (where applicable) as control variables. Personal characteristics included gender, age, country, professional position, stakeholder type, and the number of years active in (or working in) the fashion industry. Company characteristics included value chain activities, the type of markets served, the number of employees, the geographical scope of sourcing materials, operational activities (manufacturing and design), and sales. The survey was tested by multiple researchers and stakeholder types before its launch in February 2022. The survey was distributed by newsletters, social media, and direct mail sent out to a variety of stakeholders by sector federations, research institutions, and fashion companies. This resulted in 382 responses collected between February 2022 and May 2022. As 61 were collected by a single major fashion brand among its employees, which could cause bias, we only included the remaining 321 respondents in our analysis. Correcting for item non-response, we obtained full data on policy instrument preferences from a total of 261 respondents. Descriptive statistics of the survey responses are reported in Tables A1–A3 (Appendix A).

The results of our survey were presented at a participatory user board, and focus groups were organised to validate the results and identify policy recommendations. These focus groups were organised around the themes of "fibre technology", "textile design", "retail and use", and "waste collection and management", and were moderated by the authors and two other experienced researchers. The duration of the focus groups was between 50 and 90 min. More details on these focus groups are included in Appendix B. In this Appendix, we also describe the methodology used by our project partner to identify, map, and select stakeholders following a stakeholder-integrated (STIR) approach [80,175]. This approach resulted in the involvement of a broad range of stakeholders from the fashion system, including companies at different stages in the value chain (fibre producers, brands, retailers), sector organisations, research institutes, policy makers, and public interest groups.

The advantage of this mixed-method approach is that it combines the analytic rigor of multivariate statistical analysis techniques with qualitative techniques that fully consider the undocumented and implicit knowledge of stakeholders in a descriptive way [176]. Focus group research within the domain of circular economy research has been used to gain an in-depth understanding of value propositions and boundary conditions for the implementation of circular business models and circular economy strategies [177–181]. A mixed-method approach has been applied to circular economy challenges, such as stakeholder awareness [182], reverse logistics [183], and organisational implementation practices [184].

Table 1. Screening of ambitions and policy instruments for a circular fashion system in policy documents.

Aspects of a Circular Fashion System	EU Strategy 2022 [30]	EMF Vision 2020 [93]	GFA Agenda 2021 [94]	UNECE Pledge 2021 [97]	UNFCCC Fashion Charter 2021 [98]	WRAP 2021 [99]	OECD Due Diligence Guidance 2018 [95]	Circular Economy Action Agenda Textiles [96]
Low impact fibres								
Use of recycled fibres	MR	x	x	NA	x	x	NA	x
Use of renewable fibres	AB	x	x	NA	NA	NA	NA	NA
Reduce micro-fibre shedding	MR	x	x	NA	NA	NA	NA	NA
Low impact processes								
Sustainable agricultural practices	VIT	x	x	NA	x	NA	x	X
Efficient water use	AB	x	x	NA	NA	x	x	NA
Efficient energy use	AB	x	x	NA	x	x	x	NA
Phase out chemicals of concern	MR	x	x	NA	NA	x	x	NA
Reduce CO_2 emissions	MR	x	x	NA	x	x	x	x
Reduce transport and logistics	NA	NA	NA	NA	x	NA	x	NA
Longer use of garments								
Design for durability	MR	x	x	NA	NA	x	x	x
Design for repair	MR	x	x	NA	NA	x	NA	x
Long-lasting fashion styles	AB	x	NA	NA	NA	x	NA	x
Re-use and second-hand markets	MR	x	x	NA	NA	x	X	x
Sharing models (e.g., garment rental systems)	AB	x	x	NA	NA	x	NA	x
Recycling								
Design for recycling	MR	x	x	NA	NA	x	x	x
Improved waste collection and sorting systems	MR	x	x	NA	NA	x	NA	x
High quality recycling technologies	MR	x	x	NA	NA	x	NA	x
Phasing out waste exports	MR	NA	x	NA	NA	NA	NA	x

Table 1. *Cont.*

Aspects of a Circular Fashion System	EU Strategy 2022 [30]	EMF Vision 2020 [93]	GFA Agenda 2021 [94]	UNECE Pledge 2021 [97]	UNFCCC Fashion Charter 2021 [98]	WRAP 2021 [99]	OECD Due Diligence Guidance 2018 [95]	Circular Economy Action Agenda Textiles [96]
Waste prevention								
Minimising overproduction	MR	x	x	NA	NA	NA	NA	NA
Minimising production waste	AB	x	x	NA	NA	x	NA	NA
Minimising packaging waste	NA	x	NA	NA	NA	NA	X	NA
Minimising post-consumer waste	NMP	x	x	NA	NA	x	NA	NA
Social justice								
Healthy and safe working conditions	VIT	NA	x	x	NA	NA	x	x
Fair wages	VIT	NA	x	NA	NA	NA	x	x
Increased social protection	NA	NA	x	NA	NA	NA	x	x
No forced labor, nor child labor	MR	NA	x	NA	NA	NA	x	x
Non-discrimination	VIT	NA	x	NA	NA	NA	x	x
Value chain collaboration								
Transparency throughout the value chain	MR	x	x	x	x	x	x	x
Traceability of the supply chain	MR	x	x	x	NA	x	x	x
Partnerships between producers and waste processors	AB	NA	x	x	x	x	x	x

Abbreviations: NA = no ambition levels, AB = awareness building, VIT = voluntary industry targets, NMP = non-mandatory policies (e.g., tax incentives), MR = mandatory regulations (e.g., product norms), x = this aspect is mentioned but no policy instrument has been identified.

3. Results

3.1. Stakeholder Preferences on Policy Instruments

In Figure 1, we present summary statistics of the preferences our respondents expressed in terms of policy instruments to be used for a transition towards a circular fashion system. These preferences are mapped for each aspect of the circular fashion system identified in Section 2.2 (Table 1). Policy instruments are presented in order of their compulsory character.

The most noticeable observation is that, in general, there is considerable support for mandatory regulations. As several survey respondents pointed out in open comment fields: "*very stringent legislation on all these issues is a no-brainer*". Mandatory regulations are preferred by almost all respondents for aspects of social justice, especially when it comes to forced labour and child labour.

On the other hand, preferences for mandatory regulations are weaker when it concerns the use phase of the fashion system, being the lowest for sharing models and long-lasting fashion styles. One survey respondent formulated their opinion as follows: "*Fashion styles can by no means be long-lasting. Fashion is short-term*". Another survey respondent wrote: "*I think garments are personal items like tooth-brushes. If someone was forced to buy secondhand cloth, there must be a strong reason for it*", recognising the role of fashion in presenting one's identity. Additionally, reasons behind fashion consumption are often more emotionally or culturally inspired than by mere functionality, as illustrated by the comment made by another survey respondent: "*We must recognise that new clothing acquisition is not always (and arguably rarely) to replace worn out ones. So, we need to look at bringing down volumes of new clothing put on the market every year too*". Since fashion choices are considered very personal expressions of personal identity and freedom of choice, it makes it potentially more challenging to interfere with strict regulations on fashion consumption. Or, as put by another survey respondent: "*I think it is a community culture rather than rules that would make the system work and prosper*".

However, overall support for mandatory regulations is very high. Focus group participants and survey respondents using open comment fields gave specific examples of mandatory regulations they considered as effective and pressing. We provide an illustrative overview in Table 2. Focus groups participants also highlighted the importance of non-mandatory policies, voluntary industry targets, and awareness building as complementary measures that strengthen the impact of mandatory regulations. We also include specific examples in Table 2.

3.2. Profile Differences

Separate from features related to 'longer use of garments', where support for mandatory regulations was lower than in other dimensions, most aspects of a circular fashion system shared similar results with respect to policy preferences. Moreover, scores on policy instrument preferences for all 30 aspects showed a very high level of internal consistency (Cronbach's alpha = 0.9596). Therefore, for each respondent we calculated a score representing their average preference across all 30 features, and continued our analysis by investigating statistical differences between these scores [185].

Figure 2 shows the differences in the average scores of different stakeholder types. Here, on average, respondents representing NGO's and trade unions are most in favour of mandatory regulations, while companies and their sector federations, on average, show a lower preference for compulsory measures. Notably, the scores are high for all stakeholder positions, indicating that there is significant support for government regulations (both non-mandatory and mandatory) across stakeholder types.

Similarly, Figure 3 focuses on respondents that represent companies in the fashion value-chain, reporting differences in preference between professional positions within a company. Support for compulsory measures is the highest among designers, and the lowest among respondents in strategic and general management.

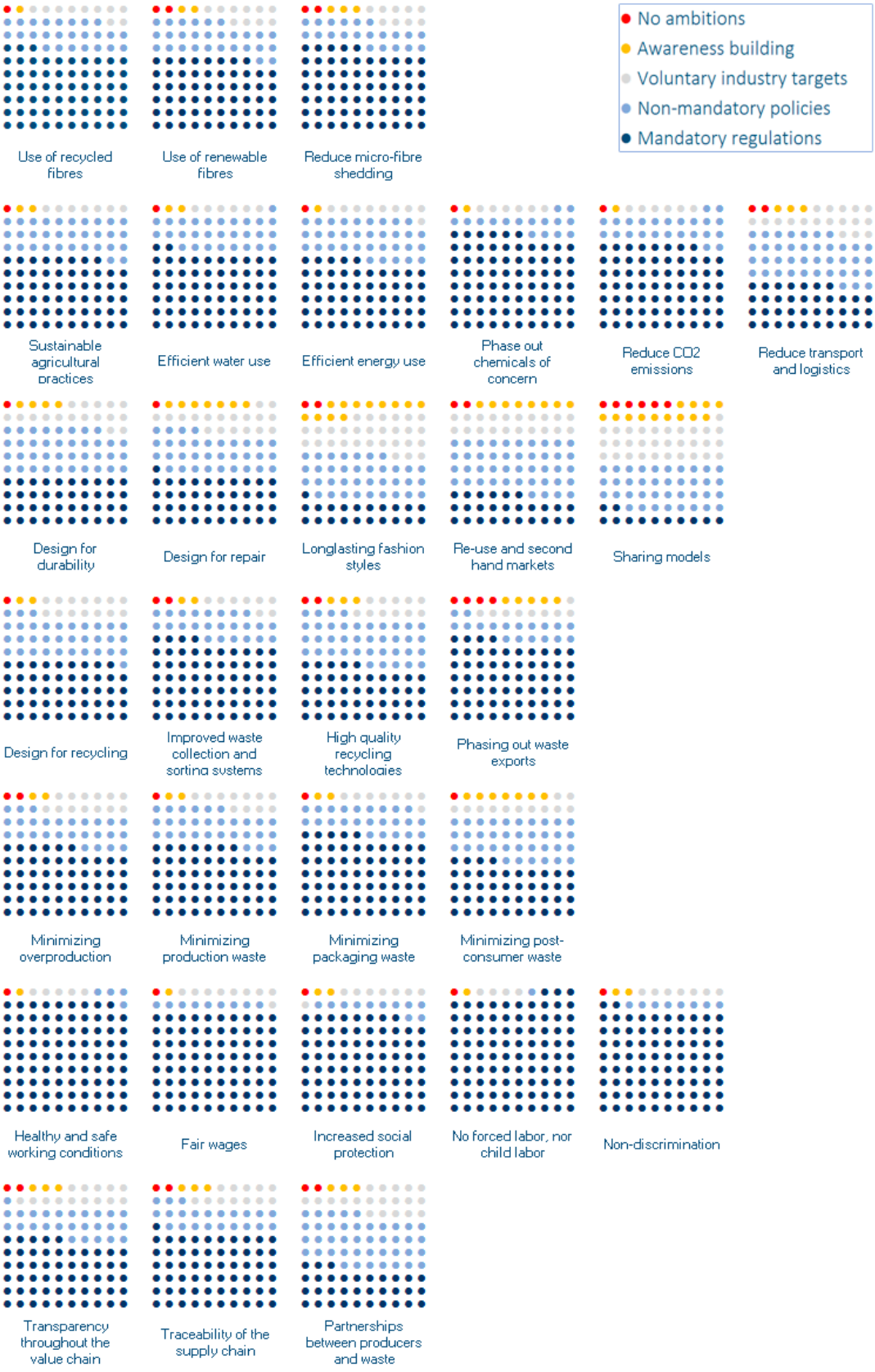

Figure 1. Preferences of survey respondents on policy instruments towards a circular fashion system. Note: Every dot represents 1% of the survey respondents (n = 261).

Table 2. Examples of policy instruments provided by focus group participants and survey respondents.

Topic	Mandatory Instruments	Non-Mandatory Instruments
Low impact fibres	Design requirements on the use of recycled and renewable fibres Mandatory uniform digital product passports for all new products Import regulations on fibre quality	Including recycled content criteria in public tenders Labels with % recycled content Training for designers and toolkit development for material choice
Low impact processes	Ban on the use of chemicals of concern Carbon taxes on imported garments	Certification schemes R&D support on technology development
Longer use of garments	Design requirements for longer product lifespans Mandatory repair services by retailers Cap on the number of fashion collections per year	Offering repair schemes and tutorials EPR-schemes including durability and repairability requirements
Recycling	Design requirements for recyclability Separate waste disposal obligations and mandatory collection of used textiles Ban on the export of textile waste	R&D support for recycling technologies Support market development for recycled fibres Local e-mobility solutions for collection
Waste prevention	Restrictions on discount sales Ban on the destruction of unsold items Import controls on textile quality	On-demand production (e.g., with 3D sizing avatars) EPR schemes with eco-modulation Educational contributions on overconsumption
Social justice	Implementation of social protection and working conditions along ILO guidelines Taxes that internalise social costs in product pricing	Voluntary Human Rights and Environmental Due Diligence (HREDD) Awareness building on true costs
Value chain collaboration	Mandatory product passports to enable traceability and transparency	Match-making apps and events to connect (small) retailers with producers Blockchain solutions that enable traceability of disposed textiles

When investigating other bivariate differences, *t*-tests showed significantly lower preferences for compulsory instruments by male respondents ($p = 0.0019$), professionals with more than 20 years of experience ($p = 0.0010$), and SMEs with 11 to 50 employees ($p = 0.0403$). Preferences for compulsory instruments were significantly higher among respondents younger than 25 years old ($p = 0.0303$) and companies serving business-to-consumer markets ($p = 0.0293$). However, despite the statistical significance of these differences, we can conclude that there is strong general support for government regulations across all stakeholder types.

To identify statistical differences while mutually accounting for all relevant personal, stakeholder, and company characteristics, we applied a multivariate regression technique. Since many respondents indicate a preference for mandatory regulations, making use of ordered probit regressions for each aspect of a circular fashion system often resulted in completely determined observations, rendering standard errors questionable. Essentially, it is hard to identify meaningful profile differences when almost all respondents indicate a preference for mandatory regulations, e.g., for forced labour. Trying to learn as much as possible from variations in our data, we counted the number of times respondents indicated they were not in favour of mandatory policies. This allowed us to perform a Poisson regression, an appropriate regression technique to deal with count data.

In Table 3, we present the results of two Poisson regressions: one for the entire set of respondents, and one that focuses on respondents representing companies. Notably,

coefficients in a Poisson regression can be interpreted as semi-elasticities; e.g, for a unit change in the predictor variable, the difference in the logs of expected counts is expected to change by the estimated regression coefficient, given the other predictor variables in the model are held constant. For example, the coefficient of NGOs in the first regression is estimated at −0.4074. This means that the expected number of times a respondent working in an NGO indicates a non-mandatory policy instrument as his preferred choice is 40.74% lower compared to that of other respondents (all other things being equal).

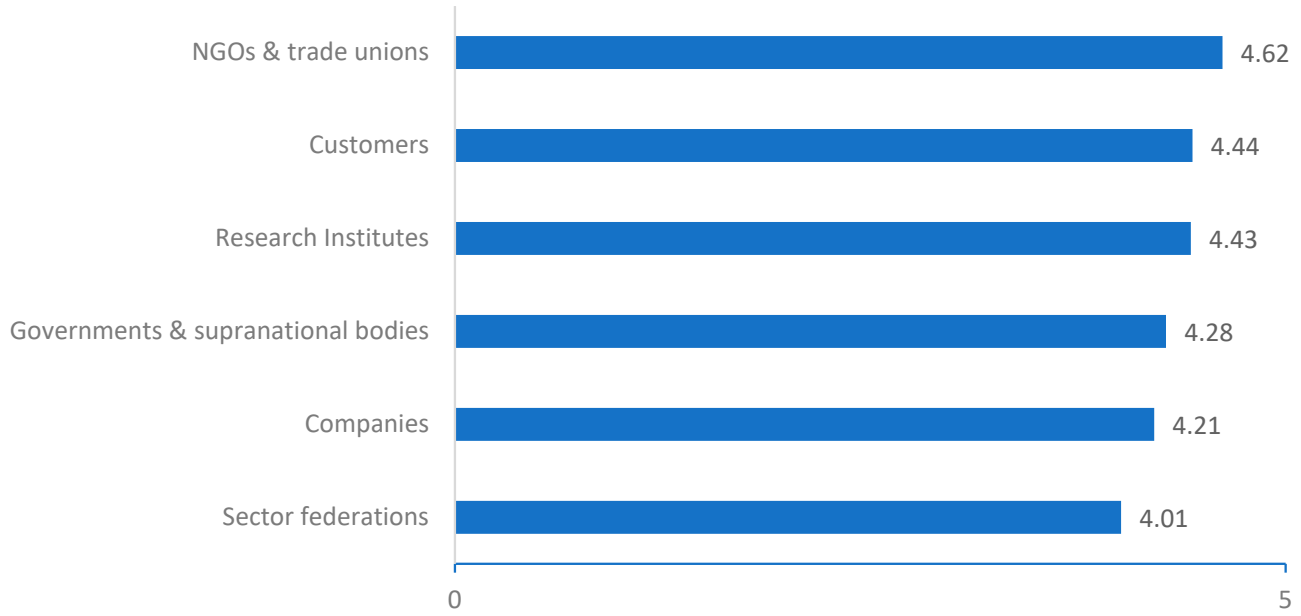

Figure 2. Average preferences of respondents from different types of stakeholders for compulsory policy instruments (0 = no ambitions, 5 = mandatory regulations).

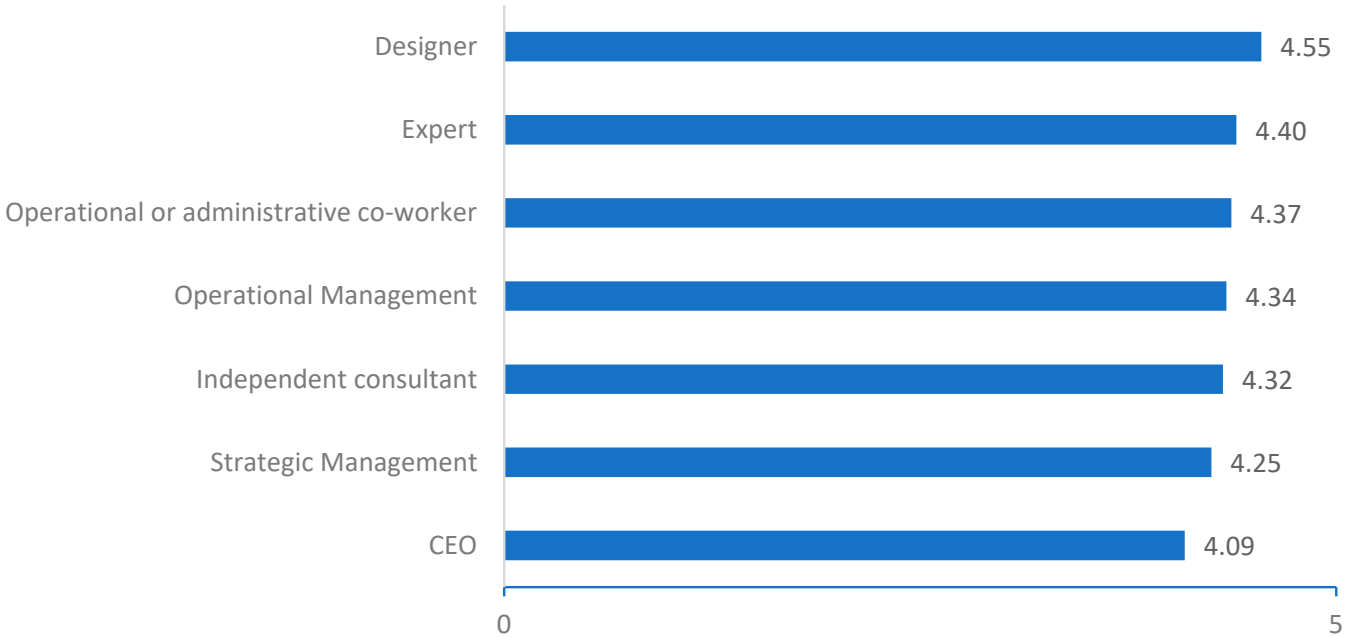

Figure 3. Average preferences of respondents with different professional positions within companies for compulsory policy instruments (0 = no ambitions, 5 = mandatory regulations).

Table 3. Who is least in favour of mandatory policies?

	All Respondents	**Companies**
n	260	105
Prob > chi2	0.0000	0.0000
Pseudo R2	0.0634	0.1471
Dependent variable: the number of times a respondent prefers a non-mandatory policy instrument		
Constant term	**2.7093 (0.2231)** **	**2.9817 (0.2290)** **
Male	**0.1312 (0.0380)** **	0.0545 (0.0594)
Age (ordinal)	**0.0491 (0.0157)** **	0.0266 (0.0283)
Position: CEO	−0.0482 (0.1599)	0.0346 (0.1039)
Position: Strategic management	−0.1098 (0.1616)	**0.2539 (0.1082)** *
Position: Operational management	−0.1840 (0.1596)	0.0963 (0.1060)
Position: Operational or administrative co-worker	−0.2337 (0.1576)	−0.0017 (0.1268)
Position: Designer	**−0.3537 (0.1691)** *	**−0.4099 (0.1498)** **
Position: Expert	−0.2762 (0.1561)	
Position: Independent consultant	−0.2902 (0.1615)	
Position: Student	−0.3327 (0.1793)	
Country: EU	−0.0888 (0.0787)	−0.1707 (0.1737)
Stakeholder: Company	−0.0177 (0.1545)	
Stakeholder: Government	0.1108 (0.1726)	
Stakeholder: Supranational organisation	−0.1419 (0.2325)	
Stakeholder: NGO	**−0.4074 (0.1632)** *	
Stakeholder: Sector Federation	0.1330 (0.1670)	
Stakeholder: Research Institute	−0.0509 (0.1647)	
Stakeholder: Customer	−0.0899 (0.1599)	
Value Chain: design		−0.0310 (0.0875)
Value Chain: fibre producer		−0.0706 (0.1090)
Value Chain: textile manufacturer		0.0536 (0.0851)
Value Chain: fashion manufacturer		−0.0635 (0.0685)
Value Chain: logistics		**−0.2047 (0.0852)** *
Value Chain: retail		**−0.1723 (0.0769)** *
Value Chain: reuse centre		**−0.4312 (0.1621)** *
Value Chain: waste management		0.0514 (0.0948)
BtC-market		−0.0689 (0.0719)
BtB-market		0.0178 (0.0720)
BtBtC-market		**0.1756 (0.0621)** **
BtG-market		−0.1146 (0.0874)
Size (ordinal)		−0.0496 (0.2777)
Geographical scope of sourcing materials (ordinal)		**−0.0071 (0.0017)** **
Geographical scope of operational activities (ordinal)		**0.0030 (0.0012)** **
Geographical scope of sales activities (ordinal)		**−0.0055 (0.0026)** *

Note: Poisson regression results, * significant at the 5% level, ** significant at the 1% level. Standard errors between brackets.

Poisson regression results show that male and older respondents were less in favour of mandatory policies. The multivariate analysis confirms the stronger preference for mandatory policies among designers and respondents working at NGOs. When we focus on respondents that work in a company, Poisson regression results in Table 3 confirm again the stronger preference of designers and lower preference of strategic management for mandatory policies. Looking into the value-chain, we also see a stronger preference for mandatory policies among respondents working in logistics, retail, and reuse centres.

When looking at the type of markets companies serve, we noticed a lower preference for mandatory policies among companies that serve business-to-business-to-consumer markets. We also accounted for the geographical scope a company was active in. Results showed that the more international the scope of sourcing and sales, the higher the preference

for mandatory policies, while companies with an international scope of manufacturing have lower preferences for mandatory policies.

4. Discussion

4.1. Significant Support for Mandatory Regulations

Our results show significant support for government policies in general, and for mandatory regulations in particular, to encourage the transition towards a circular fashion system. This finding was confirmed by the responses in the open comment sections of the stakeholder survey: "We need a clear message from governments and concrete legislation urgently"; "Nothing moves without regulations". During focus group discussions with stakeholders from throughout the value chain, further support for a strong policy-led transition was expressed.

The support for government policies held for all features of a circular fashion system, from design, fibre selection, and manufacturing processes to the use and end-of-life phases, including transversal aspects like social justice, transparency, traceability, and value-chain collaboration. In order to understand this observation, we have to consider the importance of strategic interactions between actors throughout the fashion value chain. While a sustainable, circular, and fair fashion system would be beneficial for all stakeholders in the long term, each individual actor has an incentive to opt for non-sustainable options, which are often cheaper or more convenient in the short term. In game theory, this kind of strategic interaction is called a prisoner's dilemma.

A prisoner's dilemma is characterised by the fact that cooperation would be mutually beneficial, but each player has an incentive to deviate for its own gains, resulting in a sub-optimal Nash equilibrium. A Nash equilibrium is a game theoretical concept, indicating a combination of strategies where all players play the best reaction on each other's strategies. Therefore, in a Nash equilibrium, no single player has an incentive to deviate solely from his/her strategy, even when the outcome is detrimental for all players. In a prisoner's dilemma, playing a non-cooperative strategy is always more rewarding for a player, regardless of the cooperative or non-cooperative behaviour of other players. Many empirical applications of a prisoner's dilemma can be found in the overutilisation of common goods and the underinvestment in public goods [186,187]. Fortunately, humanity has been sufficiently creative to resolve situations where prisoner's dilemmas have occurred. These include mandatory rules, financial and social punishment mechanisms, reputational effects, and psychological instruments including guilt, shame, and identity formation [188–190]. These mechanisms alter incentives and change payoff structures in such a way that cooperative outcomes may be achieved.

According to Robèrt and Broman (2017), the prisoner's dilemma is an often misunderstood concept [191]. Instead of a race to the bottom, they argue that companies may develop a competitive advantage when they engage in sustainable practices. The potential self-benefit of understanding the dynamics of major system changes better than one's competitors may alter incentives of these companies sufficiently to prevent a potential prisoner's dilemma. The transition towards a circular, sustainable, and fair fashion system may be such a major system change. However, we can only expect the development of competitive advantage in a context of monopolistic competition (having heterogeneous goods, such as specific brands). In markets that are characterised by perfect competition (with homogeneous goods, such as cotton fibre), companies cannot differentiate sufficiently towards their clients to signal sustainable practices. On the other hand, in markets that are characterised by significant market power, companies have no incentive to alter their strategies. Therefore, we can expect that the prisoner's dilemma plays a crucial role in most environmental and social externalities along the textile value chain.

In business terms, mandatory regulations are very useful in levelling the playing field between competitors or in supplier-client relations. While it limits the degrees of freedom that can be used in strategic and operational decision-making, it may prevent adversarial effects of strategic interaction, including free-riding and a race to the bottom

of prices, quality standards, and working conditions [192]. Since all parties effectively have their hands tied, they can easily explain this to their clients and stay competitive, at least if mandatory policies are effectively enforced and count for all market players in the same way.

Even in cases where there is significant support to behave in a 'just' way (e.g., to ban forced labour), mandatory government regulations remain important. An important reason for this, is the fact that many operations within the fashion supply chain are subject to a high degree of asymmetric information [193–195]. Customers are typically not able to detect whether a fashion brand acts in a sustainable, circular, or fair way. Similarly, due to opaque and complex supply chains, companies are often not fully aware of the production conditions provided by their suppliers upstream. Governments, on the other hand, have superior mechanisms by which to detect and enforce the application of standards and procedures, levelling the playing field for all actors involved.

Therefore, mandatory rules can often be a necessary condition in order to foster the transition towards circularity. However, one major challenge remains the highly globalised nature of the fashion system and the fact that no international government exists to impose mandatory regulations across the globe. This results in a prisoner's dilemma between the governments of producing countries, discouraging the implementation of stricter social or environmental regulations in fear of creating a competitive disadvantage for local companies compared to companies in other countries with less strict regulations [196–198]. Therefore, regulations have to be designed in such a way that authorities have an incentive to punish parties who do not comply [199]. A lack of incentive compatibility to enforce regulations, because of administrative burdens, corruption, or protectionism, is therefore detrimental for the implementation of mandatory regulations.

Supranational institutions such as the World Trade Organisation and the European Union have been designed to resolve these issues and should be looked to to develop strong policy instruments. Nevertheless, fashion value chains are still too complex to resolve this in a short timeframe.

4.2. Investigating Profile Differences

This study identified some significant profile differences that deserve further discussion. Concerning personal characteristics, it was found that men were less supportive of mandatory policies and young respondents showed greater support. Studies on the impact of gender and age on preferences towards circularity remain scarce. Some studies have found that women were, on average, more informed, aware, and passionate than men with regard to the application of sustainability principles in various fields [83,200]. This gap is commonly explained because of differences in socialisation [201], and the fact that eco-friendly behaviors and lifestyles may be judged as un-feminine [202]. Moreover, within boards of directors, women have been found to be more oriented towards social and environmental actions, being more philanthropically driven and community-oriented than their male counterparts [203,204]. With respect to age, survey research has revealed a growing attention among younger generations to sustainability and the circular economy [83].

In terms of those occupying professional positions within companies, respondents in strategic management showed a significantly lower level of support for mandatory regulations. Mandatory rules offer less degrees of freedom in a business environment, which is accompanied by challenges other than circularity issues. While circular strategies can be promising in the long term for shareholders, people in strategic management often receive incentives to be successful in the short term [205]. Moreover, many companies do not see the adoption of circular strategies as a strategic priority yet [206]. This highlights the importance of values, beliefs, and institutional structures with respect to circularity and sustainability at top management level, who have the strategic decision-making power, in order to encourage the implementation of circular economy in a company context [165,166].

On the other hand, our findings showed that designers are very supportive of mandatory policies. While sustainable fashion design is still a niche market, a circular economy

can foster new design innovations [207]. Within traditional product development processes, designers may find themselves having a relatively low influence on corporate sustainability strategies [208]. Additionally, circular product design requires strong interactions between designers, material developers, and chemists, who should all have a high awareness and knowledge of sustainability to be able to develop a circular product [66]. Moreover, traditional design teams are often pushed to pursue fast fashion cycles and profits, and are rarely given opportunities to consider circular alternatives [29]. Therefore, these elements may contribute to the fact that designers seem to be more in favor of mandatory policies to gain leverage towards a circular fashion system.

When looking at stakeholder positions, the fact that NGOs are in favor of mandatory regulations may not come as a surprise, as this complements their objectives to achieve a sustainable, circular, and fair fashion system [82]. The same applies to the finding that reuse companies are supportive of mandatory policies that enable and enforce the longer use and reuse of garments. Appropriate design, good quality, and durability are essential for garment reuse [209,210]. Sustainable fashion also requires increased consumer awareness, as consumers tend to be reluctant to purchase used clothes, while they express less concerns about buying other used items [128]. A well-developed reuse market in industrialised countries can also reduce sustainability issues stemming from exports of used garments to secondhand clothing markets overseas [211]. Given all these factors, mandatory regulations imposed on various stakeholders may foster the development of reuse markets.

More surprising was the finding that companies in retail and logistics were supportive of mandatory policies. A potential clarification is that these supply chain actors face strong price competition, leading to a race to the bottom with respect to quality standards and working conditions. Since they face increasing social pressures to engage in sustainable practices, levelling the playing field by imposing mandatory regulations may be the only pathway that may bring them towards a circular fashion system without putting their competitive position at risk. Moreover, the organisation of reverse logistics and the development of reuse shops may generate business opportunities for both retailers and logistics firms, but these are only expected to be viable if the same rules apply to everyone in the value chain [65].

While companies in Business-to-Consumer (BtC) markets feel the pressure of end-consumers, and Business-to-Business (BtB) and Business-to-Governments (BtG) markets are increasingly confronted with green procurement criteria, companies in Business-to-Business-to-Consumer (BtBtC) often remain overlooked. Therefore, it should not come as a surprise that these companies are less supportive of mandatory policies.

The results also show a significant relation between the geographical scope of a company in the fashion industry and its preference on mandatory regulations. Companies that source their materials on a global scale are more supportive of mandatory policies. While sourcing location decisions are traditionally based on an assessment of cost and time criteria, it has been found that social and environmental sustainability considerations represent a new key criterion to orientate sourcing location decisions [212]. Since fashion companies are often criticised for low transparency within their supply chains, they may need a level playing field to be able to engage in circular and sustainable practices. Similarly, companies that organise sales on a global level are more supportive of a level playing field, as online shopping makes it increasingly easy to compare prices and collections on a global scale. Conversely, we see that companies that organise their manufacturing on a global scale are less in favor of mandatory policies. Here, the financial constraints of reverse logistics at a global scale may impose a major barrier, as well as the transaction costs of organising audits throughout a complex global supply chain. Moreover, companies may lack trust in the extent to which mandatory regulations on manufacturing will be implemented and enforced, in an equal and just way across all countries. Additionally, the role of the informal economy can be very different between countries and regions, making the implementation and control of regulations very challenging [45,65,213].

When interpreting and discussing these results, important features touched upon during our focus group discussions should not be forgotten. First, it was mentioned that mandatory regulations may be a necessary condition to allow a shift towards circularity in the fashion industry to occur. However, participants stressed that without an accompanying culture shift, this will not be a sufficient condition. Therefore, a sustained investment in awareness building is an important policy instrument that should be used in a complementary way with regulations. Otherwise, consumers will remain attached to fast fashion consumption and not perceive its negative consequences [44,214]. When aiming toward a reduction in purchasing and production volumes, a policy mix that encompasses insights from a sufficiency approach will be crucial. While sufficiency seems to contradict business goals in the short term, the development of service- and sharing-oriented business models may create new business opportunities [210].

4.3. Limitations and Suggestions for Further Research

When interpreting the results of this study, it is important to consider its limitations. Limitations include its geographical scope, the risk of self-selection bias, and a lack of responses from consumers in our empirical strategy. We are fully aware that most of our survey respondents (92.83%) and a vast majority of our focus group respondents are situated in the EU. However, for policy purposes related to the EU strategy, this is a relevant approach. Moreover, many of the companies and NGOs involved are active on a global scale or have decision centres outside the EU. Nevertheless, any transfer of these conclusions to other regions should be considerate of differences, particularly in developing countries. Therefore, further research on stakeholder support in these settings is highly recommended.

We are also aware of the consequences of self-selection to participate in our survey. While this criticism applies to most surveys in academic research, we are aware of potential biases this may generate. One plausible bias includes that our respondents were highly aware of the challenges and opportunities presented by the transition towards a circular fashion system. Therefore, we expect that our results mainly reflect the preferences of frontrunners. However, barriers mentioned by frontrunners are as valid as those of other value chain participants who may lag behind. Therefore, our conclusions should be interpreted rather as necessary conditions instead of sufficient conditions.

Finally, we are aware that no specific empirical strategy was developed to capture the preferences of end-consumers. While consumers play an important role in putting pressure on fashion companies to change, many consumers are not aware of the consequences of traditional fashion models [214,215]. Therefore, further research should conduct a large N survey to capture consumer preferences in a nuanced way.

5. Conclusions and Recommendations

In this paper, we studied policy and stakeholder features of the transition to a circular and sustainable fashion system. In addition to its academic novelty, the aim of this work was to inform policymakers and other leading initiatives in their design of policy mixes that align incentives towards a circular fashion system. First, we identified different aspects of a circular fashion system and screened how leading policy and industry initiatives addressed these aspects. From this screening exercise, we learned that most initiatives remain vague regarding the choice of instruments to be used to direct this transition. Then, we reported findings of a stakeholder survey and focus group research to investigate stakeholder support for different types of policy instruments. These instruments included awareness building, voluntary industry targets, non-mandatory policies, and mandatory regulations, reflecting an increasing level of compulsion.

From this research, we concluded that there is broad support for government intervention in general, and for mandatory policies in particular across all stakeholder types throughout the fashion value chain. This support was most outspoken on aspects related to social justice and fair working conditions, while it was weaker regarding features related

to the longer use of garments. Regarding stakeholder profiles, we found that designers tended to be more in favour of mandatory regulations than stakeholders working in management positions. We advocated that the focus on short-term profitability and the lack of a level playing field in the global fashion system causes fashion stakeholders to be prone to a prisoner's dilemma. Although a prisoner's dilemma prevents value chain actors from collaborating in an optimal way, psychological and social mechanisms, such as reputational effects, may alter incentives and partially enhance sustainable outcomes. Nevertheless, mandatory regulations, led by governments and supranational institutions such as the EU, are powerful means by which to create a level playing field and mobilise collective action to shift focus towards long-term sustainability.

However, while mandatory regulations appear to be a necessary condition, they are by no means a sufficient condition to achieve a circular fashion transition. Complementary, non-mandatory, and often economic incentives, such as tax shifts, may be necessary to support and encourage brands to adopt more circular practices. Companies can also play a leading role in the transition, by initiating and participating in voluntary industry initiatives that lead the way. Local governments and companies, as well as NGOs, have a role to play in provoking a culture shift from fashion consumerism towards conscious production and the use of more durable fashion, especially in terms of physical longevity and emotional attachment; achieved by establishing awareness campaigns that engage consumers in fundamental behavioural changes, involving reduced consumption, longer use, repair, and adequate waste disposal.

During the survey and focus group discussions, participants provided a broad range of examples of policy instruments they considered effective. Focus groups participants also highlighted the importance of non-mandatory policies, voluntary industry targets, and awareness building as complementary measures, and stressed the need for economic incentives, such as tax reductions, eco-modulated EPR schemes, and investment support, to enable the necessary shifts among industry players. This shows that a combination of 'carrot and stick' will be required to achieve a transition to a circular and sustainable fashion system. Considering the implementation challenges presented by global and complex value chains, the optimal use of these approaches, in order to foster a circular transition, provides promising research potential for many fields of study, including game theory, policy studies, and behavioral economics and psychology.

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Institutional Review Board Statement: Ethical review and approval were waived for this study due to reasons: (1) The research did not target any vulnerable groups. (2) The aims of the research were clearly stated to the participants, and no form of deception was involved in the test setup. (3) Participation to the research survey and focus groups was entirely voluntary and not linked to any reward or adverse consequence on those players that refused to participate. (4) The research did not entail any activities that would result in any form of risk, pain, anxiety, physical or psychological stress for the participants. (5) No sensitive data were gathered or processed; all results were reported anonymously.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Additional information can be obtained from the authors upon request.

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Appendix A

Table A1. Summary statistics of personal characteristics.

Variable (*n* = 321)	**Frequency**	**%**
Gender		
- Male	110	34.27%
- Female	206	64.17%
- Non-binary	0	0.00%
- Prefer not to share this information	5	1.56%
Age		
- <25 years	30	9.35%
- 26–35 years	86	26.79%
- 36–45 years	83	25.86%
- 46–55 years	74	23.05%
- 56–65 years	44	13.71%
- >65 years	4	1.25%
Number of years active in (or working on) the fashion industry		
- <3 years	55	17.13%
- 3–5 years	34	10.59%
- 6–10 years	31	9.66%
- 11–20 years	37	11.53%
- +20 years	63	19.63%
- I am not working in/on the fashion industry	101	31.46%
Current professional position		
- CEO/General Management	52	16.20%
- Strategic Management	32	9.97%
- Operational Management	36	11.21%
- Expert	78	24.30%
- Designer	29	9.03%
- Operational or administrative co-workers	41	12.77%
- Independent consultant	35	10.90%
- Other	18	5.61%
Country		
- Belgium	160	49.84%
- France	42	13.08%
- Germany	26	8.10%
- Ireland	19	5.92%
- Netherlands	12	3.75%
- Italy	7	2.18%
- Countries with 6 respondents: Austria, Sweden	12	3.75%
- Countries with 5 respondents: Switzerland	5	1.56%
- Countries with 4 respondents: China, Denmark, Spain	12	3.75%
- Countries with 3 respondents: Egypt, Portugal	6	1.87%
- Countries with 2 respondents: Bulgaria, Poland, Turkey, United Arab Emirates	8	2.5%
- Countries with 1 respondent: Afghanistan, Australia, Bangladesh, Brazil, Croatia, Greece,Luxembourg, North Macedonia, Romania, Serbia, Slovenia, United States of America	12	3.75%
Stakeholder Type		
- Company	121	37.69%
- Government	13	4.05%
- Supranational organization (EC, UN, ILO, WTO, . . .)	4	1.25%
- Non-governmental organization (NGO)	32	9.97%
- Sector Federation	22	6.85%
- Trade Union or Worker Movement	7	2.18%
- Research Institute	26	8.10%
- Myself, as a Fashion Customer	77	23.99%
- Other	19	5.92%

Table A2. Summary statistics of company characteristics.

Variable (*n* = 118)	**Frequency**	**%**
Value chain activities		
- Retail and sales	41	34.75%
- Fashion designer	39	33.05%
- Fashion manufacturer (finished goods)	36	30.51%
- Textile manufacturer (yarn, fabric, . . .)	20	16.95%
- Logistics and distribution	19	16.10%
- Waste management	16	13.56%
- Fibre producer	9	7.63%
- Reuse shop	6	5.08%
- Other	22	18.64%
Type of market(s)		
- BtC	70	59.83%
- BtB	80	68.38%
- BtBtC	32	27.35%
- BtG	14	11.97%
- Peer-to-Peer	4	3.42%
Company size (number of employees)		
- >1000 employees	13	11.02%
- 251–1000 employees	13	11.02%
- 51–250 employees	31	26.27%
- 11–50 employees	23	19.49%
- 1–10 employees	27	22.88%
- No employees	11	9.32%
Geographical scope of sourcing materials		
- Local (<100 km)	9	7.63%
- Regional (<500 km)	18	15.25%
- Supra-regional (<5000 km)	25	21.19%
- Global	57	48.31%
- Not applicable	9	7.63%
Geographical scope of operational activities (manufacturing/design)		
- Local (<100 km)	26	22.03%
- Regional (<500 km)	15	12.71%
- Supra-regional (<5000 km)	25	21.19%
- Global	43	36.44%
- Not applicable	9	7.63%
Geographical scope of sales activities		
- Local (<100 km)	9	7.63%
- Regional (<500 km)	25	21.19%
- Supra-regional (<5000 km)	26	22.03%
- Global	55	46.61%
- Not applicable	3	2.54%

Table A3. Summary statistics of policy instrument preferences.

Instrument choice: preferences (*n* = 261) **1 = No Ambition Levels, 2 = Awareness Building, 3 = Voluntary Industry Targets, 4 = Non-Mandatory Policies (e.g., Tax Incentives), 5 = Mandatory Regulations (e.g., Product Norms)**	**Average (stdev)**	**Median**
Low impact fibres		
- Use of recycled fibres	4.49 (0.7776)	5
- Use of renewable fibres	4.40 (0.8610)	5
- Reduce micro-fibre shedding	4.42 (0.9439)	5

Table A3. *Cont.*

Instrument choice: preferences (*n* = 261) **1 = No Ambition Levels, 2 = Awareness Building, 3 = Voluntary Industry Targets, 4 = Non-Mandatory Policies (e.g., Tax Incentives), 5 = Mandatory Regulations (e.g., Product Norms)**	**Average (stdev)**	**Median**
Low impact processes		
- Sustainable agricultural practices	4.43 (0.8269)	5
- Efficient water use	4.49 (0.7777)	5
- Efficient energy use	4.40 (0.7912)	5
- Phase out chemicals of concern	4.64 (0.7387)	5
- Reduce CO2 emissions	4.57 (0.7385)	5
- Reduce transport and logistics	4.05 (0.9349)	4
Longer use of garments		
- Design for durability	4.10 (0.9119)	4
- Design for repair	4.05 (1.0028)	4
- Long-lasting fashion styles	3.63 (1.0057)	4
- Re-use and second-hand markets	3.85 (0.9605)	4
- Sharing models (e.g., garment rental systems)	3.38 (1.0528)	4
Recycling		
- Design for recycling	4.28 (0.8616)	4
- Improved waste collection and sorting systems	4.47 (0.8570)	5
- High quality recycling technologies	4.22 (0.8807)	4
- Phasing out waste exports	4.36 (1.0522)	5
Waste prevention		
- Minimizing overproduction	4.35 (0.8798)	5
- Minimizing production waste	4.38 (0.8405)	5
- Minimizing packaging waste	4.49 (0.8209)	5
- Minimizing post-consumer waste	4.14 (0.9603)	4
Social justice		
- Healthy and safe working conditions	4.78 (0.7101)	5
- Fair wages	4.66 (0.8014)	5
- Increased social protection	4.63 (0.8156)	5
- No forced labour, nor child labour	4.83 (0.6715)	5
- Non-discrimination	4.68 (0.7965)	5
Value chain collaboration		
- Transparency throughout the value chain	4.30 (0.9411)	5
- Traceability of the supply chain	4.39 (0.9122)	5
- Partnerships between producers and waste processors	4.02 (0.9049)	4

Appendix B

Appendix B.1. Stakeholder Identification and Mapping

Within the SCIRT project, stakeholders were identified and mapped to be engaged in stakeholder engagement activities using the Prospex-CQI methodology [80]. Prospex-CQI is part of the stakeholder integrated research (STIR) approach, to stakeholder engagement in research projects. This method ensures that all relevant stakeholder categories are covered by the mapping. The method has been tested and published in a peer-reviewed journal [175], and has been applied in various research projects engaging stakeholders.

The CQI abbreviation stands for:

- C—Criteria: Defining a set of criteria and categories for stakeholder groups that are or could either be affecting the topic, be affected by it (or both), in order to map all relevant stakeholders,
- Q—Quotas: Setting specific minimum quotas for all categories for each engagement activity;
- I—Individuals: Identifying individuals that fit the categories, with the overall selection fitting the quotas set for each engagement activity.

Appendix B.2. Focus Groups—Vienna (11 and 12 May 2022)—Participants

Table A4 gives an overview of the focus group participants that participated at two sessions (11 May and 12 May 2022) during a User Board meeting of the SCIRT project.

Table A4. Overview of focus group participants, by stakeholder type.

Stakeholder Type	Number of Participants
Production and sourcing of fibres and raw materials	2
Product design and textile production	1
Distribution, branding, and retail	4
Business models and innovation	3
Recyclers, reuse, and waste management	6
Civil Society	2
Policy Makers	2
Education and research	3
Finance	1
End-users and consumers	1

Appendix B.3. Focus Groups—Session 1 (11 May 2022)

Four simultaneous focus groups were held along the following themes: Fibre Technology, Waste Collection and Management, Textile Design, and Retail and Use.

Questions:

1. What is a feasible ambition level for the 2030 vision? What could be concrete targets?
2. What policy measures are most suited to support this transition to the vision?

Appendix B.4. Focus Groups—Session 2 (12 May 2022)

Four simultaneous focus groups were held along the following themes: Fibre Technology, Waste Collection and Management, Textile Design, and Retail and Use.

Questions:

1. What is the most important pain point for your organisation for the transition towards a circular fashion system?
2. What is a concrete solution to address at least one of these pain points?

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