# Resizing the Fashion System

## Policy options for addressing overproduction and overconsumption

### Key Messages

- Today's fashion system is oversized, with overproduction and overconsumption driving significant environmental and social harms.
- Our research highlights four structural lock-ins which explain the growth in fashion production and consumption, from fossil-fuel–based fibre production to globalised low wage value chains, from high-volume advertising and marketing models to digital shopping environments that foster fast and frequent consumption.
- Policy efforts in the EU thus far have focussed on efficiency measures and product-level improvements, however, these approaches will likely fail to deliver reduced environmental impacts, due to the presence of rebound effects in which growth in overall consumption and production volumes negates efficiency gains.
- We need to move from reactive policies that try to mitigate harmful symptoms of the fashion system, to a policy mix which includes transformative policies that fundamentally redesign and disrupt the logic of the system.
- We need a transformative policy mix with interventions that address each of the structural lock-ins driving overproduction and overconsumption.
- Whilst more difficult to implement, transformative policies are vital to set the industry on a path to sufficiency, where everyone's needs can be met equitably within the planet's limits. Without them, incremental efficiency improvements will be consistently outpaced by growth in production and consumption, driving further environmental and social pressure.

### Sufficiency Approaches to Fashion and the Environment (SAFE)

This policy brief series is the culmination of a 2-year research project, led by the Hot or Cool Institute in consultation with researchers, policy makers and civil society organisations, to drive systemic change in the fashion sector.

Building on the findings from our 2021 Unfit Unfair Unfashionable Report, the SAFE project aimed to co-create transformative pathways to a fashion sector that operates within planetary limits.

To inform this research we have pioneered the use of participatory systems thinking methodology, which involved three key aspects. **1) Visioning:** aligning stakeholders around a shared vision of what a just and sustainable fashion sector looks like **2) Understand:** Through desk research and four expert workshops, we were able to map the key dynamics driving overproduction and overconsumption in the fashion system, identifying key feedback loops and leverage points. **3) Transform:** This systemic understanding was then used as the foundation to co-design and evaluate policy interventions, identifying transformative policy options which can shift the fashion sector towards more sustainable and just outcomes.

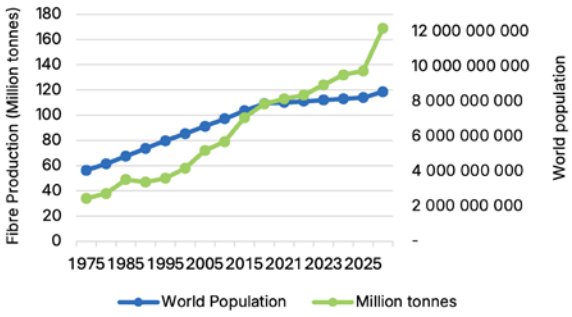
## Current Status and Trends

Overproduction and overconsumption are intrinsic to today's global fashion system. Between 2005 and 2015 global textile production doubled, while the global population only grew by 20% (Ellen MacArthur Foundation, 2017). Furthermore, estimates suggest that 4-9% of textiles produced and placed on the EU market are landfilled or incinerated before being used for their intended purpose, meaning scarce carbon and resource budgets are currently being used to produce waste (EEA, 2024). In the context of a climate and nature emergency, this symptom of overproduction is simply unacceptable.

Consumption patterns have also changed significantly with the widespread availability of mass-produced, low-cost garments. In 2022 Europeans consumed on average 19 kg of clothing, footwear and household textiles per person – up from 17 kg in 2019 (EEA, 2025). Between 1996 and 2012 the amount of clothes bought per person in the EU increased by 40%, while prices have dropped more than 30% in the same period (Sajn, 2022). European garment lifespans have dropped by 36% in two decades, with items now worn only 7–8 times on average (EEA, 2022). It is estimated that 50% of clothes in people's wardrobes in the EU have not been used for at least a year (Sajn, 2022).

In 2024 global fibre production hit a record 132 million tonnes, up from 125 million tonnes in 2023 (Textile Exchange, 2025). At the same time there are significant inequalities in fashion consumption both between countries and different income groups, with overconsumption dominating in the global North and among high income consumers (Coscieme et al., 2022).

**World population and global fibre production**




Source: World Bank, Textile Exchange (2025)

## Impacts of an Oversized System

The dire environmental and social consequences of this oversized system are well documented.

- Textile consumption in the EU, in 2020, had the 4th highest impact on the environment and climate change from a global life cycle perspective, after food, housing, and mobility (EEA, 2022).
- The carbon impacts across the supply chain from EU consumption are responsible for an estimated 335 kg of $CO_2$ per person in 2022. (EEA, 2025). That's a staggering one-third of the entire 1.5 aligned carbon budget of 1.1 tonnes tCO2e per capita by 2035 (Hot or Cool Institute, 2025) on fashion alone.
- In 2022 textile consumption per person in the EU required 523 kg/person of raw materials, 323 $m^2$ of land, and 12 $m^3$ of water (EEA, 2025).
- The sector is one of the largest users of fresh water in the world, putting already water insecure producer countries at risk of future water crises (Sharpe et al., 2022).
- The dyeing and finishing of textile products are estimated to be responsible for nearly 20% of all clean water pollution. It is estimated that 16-30% of global microplastic pollution in oceans originates from textiles. (EEA, 2022).
- Further environmental harms are also perpetuated downstream by the trade in second-hand clothing to countries without the necessary waste management infrastructure, resulting in leakage into the environment and pollution. Exports of second-hand textiles from the EU increased from approx. 400,000 tonnes in 2003 to 1.4 million tonnes by 2023 (EEA, 2025).
- Overall the apparel industry generated 8.3 million tons (Mt) of plastic pollution in 2019, corresponding to 14% of the estimated 60 Mt from all sectors. (Kounina et al., 2024)
- Overall, less than 1% of the global fibre market comes from pre- and post-consumer recycled textiles (Textile Exchange, 2025). Incineration and landfilling remain the dominant waste management options for textiles.
- In 2025 workers in 28 key garment-producing countries earned only an average of 41% of a living wage (Wage Indicator Foundation, 2025).
- Low wages and poor working conditions disproportionately affect women, as they account for 80% of the global garment workforce (Sajn, 2022). Women's labour is concentrated in the lowest-skilled and lowest-paid tasks such as weaving and sewing, while men tend to be employed in higher-skilled positions within management structures *(ILO, 2021)*.
- The impacts of fashion are also highly unequal. While the carbon footprint of the richest 20% of fashion consumers in the UK is 83% above the 1.5-target, 74% of people in Indonesia live below sufficiency consumption levels of fashion (Coscieme et al., 2022).

## A Systems Perspective on Fashion

The Iceberg Model (Figure 1) is a systems-thinking tool that illustrates how the visible impacts of a problem, what we see "above the surface" represent only a small fraction of the whole. The deeper drivers of that problem lie hidden beneath the surface in the form of patterns, structures, and mental models. Understanding these deeper layers is essential for meaningful and lasting change.

In the fashion sector, addressing environmental and social impacts requires looking beyond visible symptoms such as waste, GHG emission, and pollution and uncovering the structural lock-ins that drive chronic overproduction and overconsumption. Today's policy landscape largely operates at the tip of the iceberg, attempting to **react** to acute issues and **anticipate** emerging problems. These efforts include measures such as encouraging better product design, regulating waste, improving recycling and collection systems, or banning the destruction of unsold goods. While important, these interventions treat symptoms rather than addressing root causes.

What is needed is a shift below the waterline, toward policies that focus on redesigning the underlying structures and transforming the dominant mental models that currently shape the fashion system. In doing so policy makers can level the playing field and create the enabling conditions for sustainable business models to emerge. To this end, this project aimed to identify the interventions capable of **redesigning** and **disrupting** the incentives, norms, and assumptions that lock the fashion industry into excessive throughput. Only by addressing these deeper layers can we move from short-term fixes to genuine system transformation.

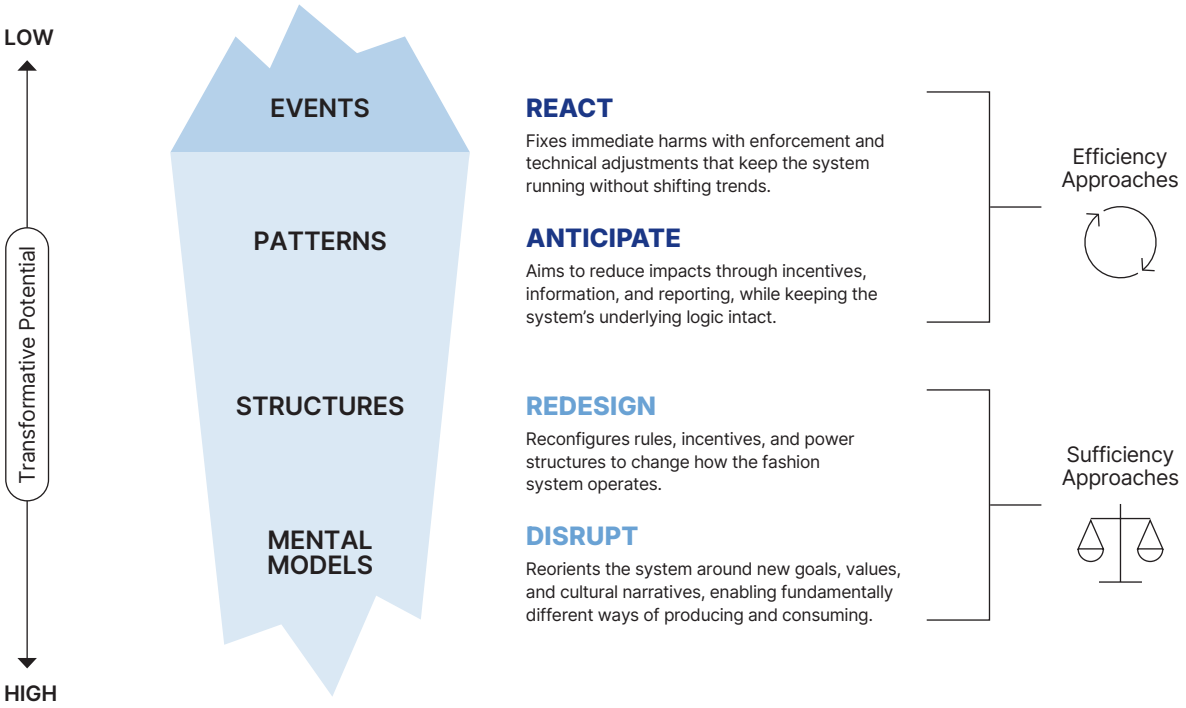



**Figure 1.** The Iceberg Model: A Systems Approach for Policy Making based on Donella Meadows leverage framework. (Hot or Cool)

## What is driving the trends in the fashion sector?

### Unpacking Systemic Lock-ins

Informed by Systems Thinking methodologies, this policy brief series offers a simplified mapping (Figure 2) of the systemic lock-ins which drive overproduction and overconsumption in the fashion sector. This mapping was constructed through desk research, and four multi-stakeholder policy workshops, each bringing together 15-20 domain experts.

The analysis reveals how the fashion system is currently sustained by four areas of systemic lock-in:

Four systemic lock-ins:

**The Stable Input**

The consistent low cost and wide availability of fossil-fuel-based synthetic fibres make high-volume, rapid-turnover production financially attractive. This reinforces business models built on speed and scale, locking the fashion system into dependence on cheap synthetic inputs. (See Policy Brief 1)

**The Low-Cost Engine**

Low wages and poor working conditions in producing countries keep manufacturing costs artificially low. This enables high production volumes and entrenches unequal supply-chain relationships, locking in purchasing practices that perpetuate low prices. (See Policy Brief 2)

**Aspiration Accelerator**

A powerful advertising and media ecosystem continuously fuels new trends and consumer aspirations. By normalising fast, frequent consumption as a marker of identity and status, it reinforces demand patterns that keep the system locked into ever-increasing throughput. (See Policy Brief 3)

**Friction Remover**

E-commerce platforms and in-app shopping technologies are designed to minimise friction in purchasing decisions driving fast and frequent consumption. By making shopping instantaneous, seamless, and personalised, they incentivize impulse buying and normalize a culture of convenience, locking in fast and frequent consumption habits. (See Policy Brief 4)

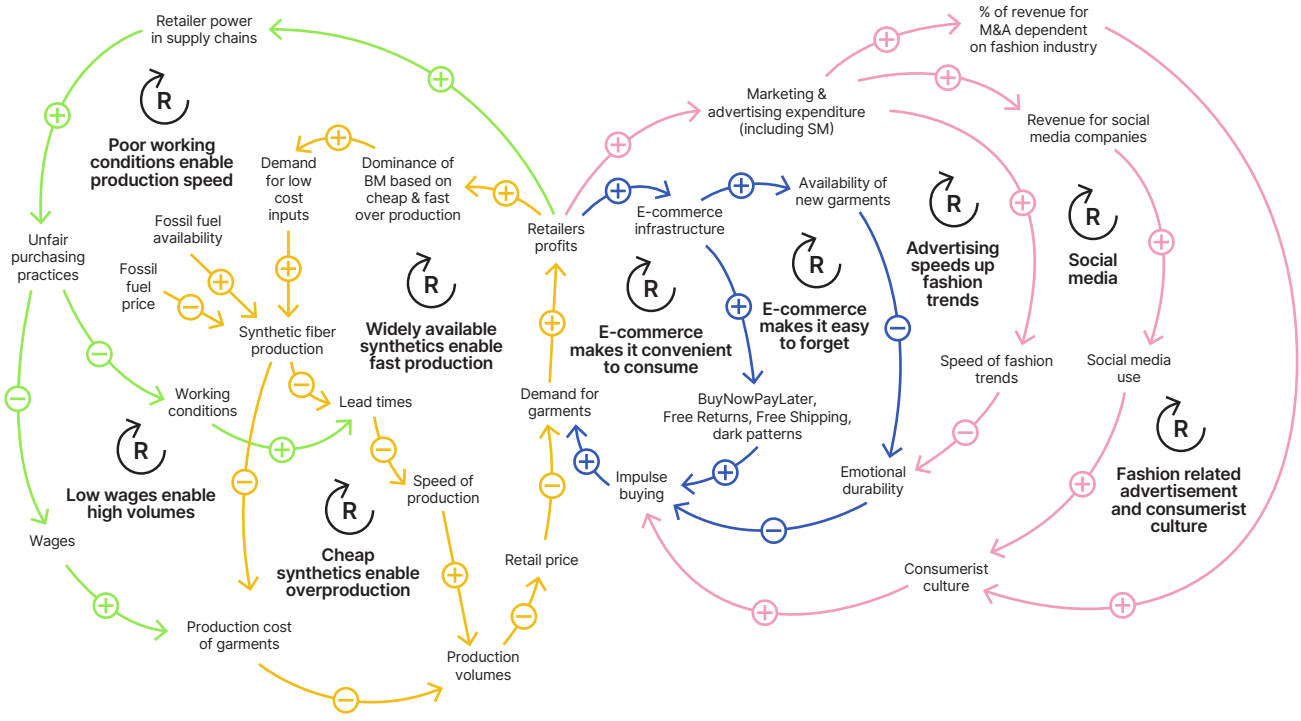



**Figure 2.** Systems Mapping: Unpacking the systemic lock-ins driving overproduction and overconsumption

A causal loop diagram defines the relationship between different parts of the system. In this diagram, a **"+" arrow** means the two variables move in the **same direction**. E.g. If one increases, the other also increases. If one decreases, the other decreases. A **"–" arrow** means the variables move in **opposite directions**. If one increases, the other decreases, and vice versa. The colour coding corresponds to the structural lock-ins described above.

Reinforcing Loop (R): A reinforcing loop is a feedback loop that amplifies change. Whatever direction the system is moving in growth or decline, it will continue accelerating in that same direction becoming a systemic lock-in.

## Current Progress in Fashion Policy – The Efficiency Trap.

Under the Strategy for Sustainable and Circular textiles, the EU has adopted a range of policy measures aimed at improving the quality, durability and repairability of garments and addressing waste volumes through improved waste management infrastructure.

The strategy largely contains efficiency measures - technical interventions which enhance the environmental performance of products - operating mostly in the react and anticipate levels of the iceberg in Figure 1. These measures are failing to deliver overall reductions in environmental impacts as they do not address the structural drivers of overproduction and overconsumption (shown in Figure 2).

Global fibre production is expected to reach around 169 million tonnes in 2030 if business continues as usual (Textile Exchange, 2025). The fast and continual growth in production erodes efficiency gains from existing circular strategies (such as product life time extension, reuse and recycling) and is responsible for increasing resource use and overall worsening of environmental outcomes from the textile sector (Bocken et al., 2022; Fletcher & Tham, 2019; Fuchs et al., 2021; Klepp et al., 2023; Payne & Mellick, 2022; Sharpe et al., 2022). A recent study found that circular innovations in the textiles sector led to a 155% backfire rebound effect, meaning that efficiency gains were more than offset by increases in overall clothing consumption, ultimately increasing total environmental pressures by 55% (Yerushalmi & Saha, 2025). To overcome these rebound effects we must pursue sufficiency approaches - that address overproduction and overconsumption from its root-causes.

Despite growth in circular offerings such as resale and reuse platforms in recent years, these developments are not translating into tangible environmental or social improvements. Research shows that second hand consumption is positively correlated with new clothing purchases, particularly among young consumers (Mizrachi & Sharon, 2025). Thus, the growth of reuse markets in textiles are not displacing linear production but rather exists as a growth market on top of traditional linear models. Prioritising lower impact strategies of the circular economy (such as reuse and recycling) and investing in the corresponding infrastructure without tackling overall production and consumption volumes, also risks locking in a system where recovering those investments depends on maintaining unsustainably high levels of consumption and production.

The circular economy - in its theoretical conception - is both about efficiency and sufficiency (Coscieme et al, forthcoming), as encapsulated by the 9R framework (EEA, 2023). However, in its actual implementation, particularly in the EU Strategy for Sustainable and Circular textiles, it has been reduced to efficiency only (e.g. through lifetime extension, reuse and recycling). To achieve the full ambitions of a circular economy – and deliver a resilient, competitive and socially inclusive Europe - policy makers must therefore shift focus to sufficiency measures which address overproduction and overconsumption. The following policy briefs outline how we can do so, presenting policy pathways that can redesign and disrupt the logic of today's oversized fashion system.

**0.6%**

Resale from their second hand platform Selpy accounted for just 0.6% of H&M Group's total revenue in 2023 (H&M Group, 2024)

**Efficiency strategies**
Refers to technical innovations which enhance the environmental performance of products, services and operations with less energy/material input. In the context of fashion this involves strategies such as improved product design for durability, material substitution or increased recycling.

**Sufficiency strategies**
A set of measures and daily practices that avoid the demand for resources (energy, materials, land and water) while delivering human wellbeing for all within planetary boundaries. In the context of fashion this means targeting absolute reductions in end textile volumes.

# 155%

The backfire rebound effect from circular innovations in the textiles sector is estimated at 155%.

**‘When policy appraisals fail to account for rebound effects, the materials, energy and emissions ‘saved’ by such measures may be overestimated.’**

IRP, 2020

Our 2021 Report, Unfit, Unfair, Unfashionable defined a Fair Consumption Space for fashion, an equitable opportunity space between the sufficiency level where all clothing needs can be met and the environmental ceiling of the 1.5-degree target of the Paris Agreement. Through scenario modelling the report demonstrated that pursuing efficiency approaches and product level improvements alone cannot achieve decarbonisation goals. Rather, to achieve meaningful decarbonisation we must pursue **sufficiency approaches** that can address overproduction and overconsumption from its root-causes, to `resize´ the global fashion system in line with the Fair Consumption Space.

## A Policy Framework for Transformative Change

To avoid these rebound effects and tackle the root causes of the sectors environmental and social impacts, policy efforts must therefore shift away from product-level efficiency improvements and prioritise transformative sufficiency approaches that address the systemic lock-ins driving overproduction and overconsumption (as shown in Figure 2).

We must shift from policies that try to manage harmful symptoms to policies that change the underlying structure of the system that produces them.

**Addressing the system as a whole:**
The four policy briefs in this series present the outcomes from our systemic analysis in further detail, unpacking the key systemic lock-ins driving overproduction and overconsumption (as detailed in Figure 2). The research proposes four key systemic shifts needed to move away from the current lock-ins so that the fashion system can deliver wellbeing for all within ecological boundaries.

**Four Systemic Shifts:**

**Reshaping the global fibre market**
Transformative policies that address the market incentives driving the growth in synthetic production and end fossil fuel dependency can move the fashion industry beyond extractive volumes-based business models.

**Building fair and equitable value chains**
Transformative policies that incentivise business models based on fair labour conditions, address power dynamics in supply chains and redistribute value can address overproduction.

**Reimagining fashion culture**
Transformative policies that disrupt the advertising business model and foster non consumerist aspirations can address the root causes of overconsumption.

**Designing sustainable e-commerce**
Transformative policies that regulate the design and shift the goal of e-commerce platforms from increasing basket size and frequency of purchases to fostering intentional purchasing practices, can align the e-commerce with sustainable consumption.

Policymakers often intervene at a single point in the system, for example, by focussing on product durability or tightening labour standards. But when one driver is targeted in isolation, existing lock-ins continue to reinforce the system as it is.

To meaningfully reduce the sector's negative impacts, policy action must operate simultaneously across all four systemic shifts. Within the current EU policy context, Extended Producer Responsibility (EPR) schemes, if designed with ambition, illustrate how a single policy lever can operate across all four shifts, influencing production and design decisions, labour standards, marketing and advertising practices together.

**Designing a transformative package:**
Table 1 offers a summary of non-exhaustive options which can facilitate policy makers in designing an effective policy mix.

The different levels of intervention – **React, Anticipate, Redesign, Disrupt** – represent increasingly powerful leverage points (As shown in Figure 1):

**React:** Fixes immediate harms with enforcement and technical adjustments that keep the system running without shifting trends. The power of transformation is non-existent or very low.

**Anticipate:** Try to anticipate problematic trends, providing incentives, information, and reporting, but keeping the system's underlying logic intact. The power of transformation is higher than in reactive policies but still low.

**Redesign:** Reconfigure rules, incentives, and power structures to change how the fashion system operates, enabling different trends to emerge. The power of transformation is medium to high.

**Disrupt:** Reorients the fashion system around new goals, values, and cultural narratives, redefining aspirations and enabling fundamentally different ways of producing and consuming. The power of transformation is the highest.

**A robust policy mix must therefore combine interventions at all four levels, across the four systemic shifts.** While more transformative measures (redesign and disrupt) are the most challenging to implement, the analysis shows they are essential. Some interventions, particularly those in relation to building fair value chains and reshaping the global fibre market, will likely have ripple effects across all the systemic lock-ins, as they disrupt the logic and incentives driving high volume business models. Without changes at this level of system design, goals and mental models, incremental efficiency improvements will be consistently outpaced by growth in production and consumption, ultimately resulting in a net increase in environmental and social impacts.

**Policy options for addressing overproduction and overconsumption**

LOW

Transformative Potential

HIGH

| | Reshaping the global fibre market | Building fair value chains | Reimagining fashion culture | Designing sustainable e-commerce |
|---|---|---|---|---|
| **REACT**<br><br>**Fixes immediate harms with enforcement and technical adjustments that keep the system running without shifting trends.** | Explore the use of textile waste export bans to address the plastic pollution resulting from synthetic garments.<br><br>Improve life cycle assessments and environmental footprint tools to better account for environmental and social impacts of synthetics. | Use Corporate Sustainability Reporting Directive to empower collective bargaining in garment producing countries.<br><br>Ban Unfair Purchasing Practices and explore anti-trust policies to challenge buyer power in supply chains. | Regulate volume and frequency of advertising on digital and non digital channels. | Stronger monitoring and compliance of e-commerce actors. |
| **ANTICIPATE**<br><br>**Aims to reduce impacts through incentives, information, and reporting, while keeping the system's underlying logic intact.** | Internalise externalities of fossil fuel inputs through taxation or via Extended Producer Responsibility fees to disincentivise synthetic fibre use.<br><br>Incorporate plastics and chemicals into the EU Emissions Trading Scheme and Carbon Border Adjustment mechanism.<br>End finance of petrochemical infrastructure. | Establish eco-design criteria for design and production process itself reshaping business models and design norms and responsibilities. | Use financial tools – either through EPR or taxation to address incentives for advertised emissions in the fashion sector. | Use EPR schemes to increase transparency and reporting on the strategies brands use to increase basket size on platforms. |
| **REDESIGN**<br><br>**Reconfigures rules, incentives, and power structures to change how the fashion system operates.** | Tax polymer producers as source to increase the cost of virgin synthetic production.<br><br>Remove fossil fuel subsidies which extend through petrochemical supply chains and redirect funds to circular sectors. | Explore anti-trust policies that challenge the profit concentration in the fashion sector and redistribute value along supply chains. | Create alternative financing models for social media to reduce dependence on advertising revenues, limiting the exposure to fashion advertising on social media platforms. | Regulate and penalise problematic e-commerce strategies including bans on specific tactics such as: fake scarcity, buy now pay later add ons, free returns/shipping, air shipping for non-essential products. |
| **DISRUPT**<br><br>**Reorients the system around new goals, values, and cultural narratives, enabling fundamentally different ways of producing and consuming.** | Work towards Fossil Fuel Non-Proliferation treaty to close loopholes for the petrochemical sector in climate governance. | Explore corporate governance reforms such as wage ratios, worker representation on boards, and employee ownership, shifting business purpose away from profit maximisation.<br>Reform global trading system so that it is more aligned with the principles of sustainable development. | Increase non-consumerist campaigns and education to transform values and relationship to garments.<br><br>Redesign of public space away from advertising and commerce. | Create an e-commerce framework that fundamentally shifts platform purpose, business model, and consumer culture towards sustainable consumption. |

## References

Bocken, N. M. P., Niessen, L., & Short, S. W. (2022). The Sufficiency-Based Circular Economy—An Analysis of 150 Companies. *Frontiers in Sustainability, 3*, 899289. https://doi.org/10.3389/frsus.2022.899289

Coscieme, L., Akenji, L., Latva-Hakuni, E., Vladimirova, K., Niinimäki, K., Henninger, C. E., Joyner-Martinez, C., Nielsen, K., Iran, S., & D´Itria, E. (2022). *Unfit, Unfair, Unfashionable: Resizing Fashion for a Fair Consumption Space.*

EEA. (2022). *Textiles and the environment: The role of design in Europe's circular economy* [Briefing]. European Environment Agency. https://www.eea.europa.eu/publications/textiles-and-the-environment-the/textiles-and-the-environment-the

EEA. (2023). *Accelerating the circular economy in Europe.* https://www.eea.europa.eu/en/analysis/publications/accelerating-the-circular-economy

EEA. (2024). *The destruction of returned and unsold textiles in Europe's circular economy* [Briefing]. European Environment Agency. https://www.eea.europa.eu/publications/the-destruction-of-returned-and/the-destruction-of-returned-and

EEA. (2025, March 25). *Circularity Metrics Lab—Textiles.* https://www.eea.europa.eu/en/circularity/sectoral-modules/textiles

Ellen MacArthur Foundation. (2017). *A New Textiles Economy: Redesigning Fashion's Future.* https://emf.thirdlight.com/link/2axvc7eob8zx-za4ule/@/preview/1?o

Fletcher, K., & Tham, M. (2019). *Earth Logic: Fashion Action Research Plan.* The JJ Charitable Trust.

Fuchs, D., Sahakian, M., Gumbert, T., Giulio, A. D., Maniates, M., Lorek, S., & Graf, A. (2021). *Consumption Corridors: Living a Good Life within Sustainable Limits* (1st ed.). Routledge. https://doi.org/10.4324/9780367748746

Hot or Cool Institute. (2025). *A Climate for Sufficiency: 1.5-Degree Lifestyles Report.*

International Labour Organization. (2021). *Moving the needle: Gender Equality and Decent Work in the Garment Sector in Asia.* FOP.

Klepp, I. G., Berg, L. L., Sigaard, A. S., Tobiasson, T. S., & Gleisberg, L. (2023). *THE PLASTIC ELEPHANT: overproduction and synthetic fibres in sustainable textile strategies.*

Kounina, A., Daystar, J., Chalumeau, S., Devine, J., Geyer, R., Pires, S. T., Sonar, S. U., Venditti, R. A., & Boucher, J. (2024). The global apparel industry is a significant yet overlooked source of plastic leakage. *Nature Communications, 15*(1), 5022. https://doi.org/10.1038/s41467-024-49441-4

Mizrachi, M. P., & Sharon, O. (2025). Secondhand fashion consumers exhibit fast fashion behaviors despite sustainability narratives. *Scientific Reports, 15*(1), 34968. https://doi.org/10.1038/s41598-025-19089-1

Payne, A., & Mellick, Z. (2022). Tackling Overproduction? The Limits of Multistakeholder Initiatives in Fashion. *International Journal for Crime, Justice and Social Democracy, 11*(2), 30–46. https://doi.org/10.5204/ijcjsd.2424

Sajn, N. (2022). *Textiles and the environment.* https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729405/EPRS_BRI(2022)729405_EN.pdf

Sharpe, S., Veem, K., Kallio, K., Martinez-Fernandez, C., International Labour Organization., & ILO Regional Office for Asia and the Pacific. (2022). *Opportunities for a Just Transition to environmental sustainability and COVID-19 recovery in the textile and garment sector in Asia.* ILO. https://doi.org/10.54394/QCRR8620

Textile Exchange. (2025). *Materials Market Report 2025.* https://textileexchange.org/knowledge-center/reports/materials-market-report-2025/

Wage Indicator Foundation. (2025). *The industry we want.* https://www.theindustrywewant.com/wages

Yerushalmi, E., & Saha, K. (2025). How Circular Economy Innovation Can Backfire on the Environment: Quantifying the Rebound Effect of the Textiles and Clothing Sector. *Business Strategy and the Environment*, bse.70135. https://doi.org/10.1002/bse.70135

**Please cite as** Hot or Cool Institute. 2026.
Resizing the Fashion System: Policy options for addressing overproduction and overconsumption.
Hot or Cool Institute, Berlin.



## Acknowledgements

**Authors:** Hedda Roberts, Aimée Aguilar Jaber, Dr. Luca Coscieme. (Hot or Cool institute)

**Thanks to the following reviewers:**
Alessandro Galli (Hot or Cool Institute)

**Graphics** Sebastiano Renzetti
**Design and Layout** Jalo Toivio Design

Hot or Cool