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**Fashion Exposed: Research Pathways for a Just Transition
in Fashion Operations and Supply Chain Management**

Journal:	<i>International Journal of Operations and Production Management</i>
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Manuscript Type:	Impact Pathways
Keywords:	Fashion, Supply management, Just transition, Workers, Research pathways, Sustainability

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**Fashion Exposed: Research Pathways for a Just Transition in Fashion Operations and Supply Chain
Management**

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Conflict of Interest

The authors declare they have no conflict of interest.

Fashion Exposed: Research Pathways for a Just Transition in Fashion Operations and Supply Chain Management

Purpose: This impact pathways paper proposes that operations and supply chain management (OSCM) can help to ensure that the transition from a high-carbon to low-carbon fashion industry takes place in a just, inclusive and fair way. By immersing ourselves in fashion brands, suppliers and workers' realities across multiple supply chains, we identify challenges and issues related to just transitions, while proposing research pathways to inspire future OSCM research and collaboration using innovative and creative methods to answer complex questions related to just transition.

Design/methodology/approach: The research we introduce used a multi-level field research approach to investigate multiple fashion supply chains in transition.

Findings: We uncovered that in the pursuit of lowering carbon emissions, fast-fashion giants work with industrial associations to create top-down governance tools, leading to severe problems in supply chain data and paradoxical demands. These demands are cascaded onto the workers in these supply chains. The goals and tools dictated by the fashion giants exclude workers, while the physiological and psychological effects on the workers are routinely ignored. These issues impede a just transition to a low-carbon fashion industry.

Originality: We introduce concepts largely missing from OSCM literatures and ensure representation of the most marginalised group, supply chain workers, in a novel setting in a call for research in this emerging area.

Keywords: Fashion, Supply management, Just transition, Workers, Sustainability, Impact, Research pathways

1. INTRODUCTION

Climate change is the biggest threat to humanity with multiple climate change indicators breaking records every year (United Nations, 2022a). A transition to a low-carbon future is vital but the means to achieve this are contested. Communities and people are routinely ignored (Robertson-Fall, 2022), and workers in supply chains are already experiencing severe health and safety issues (Dominish et al., 2019). In an attempt to address the social inequity caused by previous industrial transitions, commentators are calling for a *just transition* to ensure that climate actions also protect communities, their rights and wellbeing (Abraham, 2017; Casano, 2019).

A just transition is defined as “ensuring the climate actions we take protect the planet, people and the economy.” (ILO, 2019). Fundamental to a just transition is the idea that actions to combat climate change must ensure social justice (Novitz, 2020). However, the social side of environmental transitions has received very limited attention, particularly in operations and supply chain management (OSCM) literatures, with no consensus on how to ensure workers (Herberg et al., 2020) are cared for and protected during these transitions.

Major economies, such as the European Commission (EC), aim to become climate neutral by 2050 and encourage all economic sectors to play a crucial role in this (European Commission, 2021). The €2.5 trillion fashion and textile industry is a priority sector (European Commission, 2022; European Environment Agency, 2022; United Nations, 2022b) and many large fast fashion brands, who we call fashion giants, have now set ambitious climate objectives. For example, both H&M¹ and Inditex² aim to reach net zero by 2040. However, this focus is largely on environmental actions with most fashion giants paying lip service to issues of representation, working conditions, living wages and the plight of the people working across fashion supply chains (Cernansky, 2022). The industry employs one out of six people in the world, with less than two per cent of them earn a living wage (Thomas, 2019). 181 million workers work in precarious and insecure conditions (Common Objective, 2018) across secretive and complex supply chains (Newbold 2018). The industry is responsible for approximately 10% of all GHG emissions (Niinimäki et al., 2020) but suffers from some of the worst working conditions. Fashion giants regularly and systematically put economic benefits ahead of environmental and social interests (Lewis, 2020), creating dire environmental, economic, social and psychosociological consequences (Mayer, 2020), particularly for workers. We argue that OSCM and OSCM research could provide the answers we need to transition to a low-carbon future while allowing workers in fashion supply chains to flourish.

¹ [https://hmggroup.com/sustainability/circularity-and-climate/](https://hmggroup.com/sustainability/circularity-and-climate/climate/)

² <https://www.inditex.com/itxcomweb/en/sustainability>

2. THEORETICAL BACKGROUND

OSCM literature has increasingly embraced sustainability with several OSCM studies investigating environmental and social issues (e.g., Miemczyk and Luzzini, 2019) and sustainability transitions (e.g., Chizaryfard et al., 2022). However most theories still used within OSCM research are based on traditional economic models from the perspective of the power holder (e.g., European or US buying firms) that control supply chains in accordance with their agendas. Triple-bottom-line-thinking, which was supposed to deliver a radical, new alternative to capitalism, has now been reduced to an accounting tool and has failed to bring systemic change (Elkington, 2018).

The majority of OSCM research and practice takes an instrumental view (McCarthy et al., 2018), focusing on operational performance, competitive advantage and risk mitigation (Wieland, 2021). This mindset leads *“not only to envelop humanity and the human condition in the lineal ideas of civilisation and progress, but also to entangle modernity further with its underside: coloniality”* (Walsh, 2010:15). Colonialism has shaped the way supply chains are structured, organised and governed, especially in the fashion industry (Mayer, 2020). The postcolonial legacy is power asymmetries between buying firms and suppliers, which has resulted in marginalised stakeholders, particularly workers, being silenced (Touboullic et al., 2020). Therefore, it is imperative for OSCM researchers to understand that supply chain workers are disproportionately affected by the environmental transitions and practices of buying firms (Oei et al., 2020; Snell, 2018).

3. METHODOLOGY

The fashion industry was chosen for our research due to its size, global characteristics and fragmented supply chains where environmental and social scandals are rife. By responding to the need to extend beyond survey and case-study methods (Benstead et al., 2018) as well as the single firm/brand and their first-tier suppliers (Karaosman et al., 2023), our research took a supply chain and anthropological approach and used a multi-level field research. It included managers and workers across four supply chains including 19 organisations over three tiers. The research was conducted in Turkey, a strategic production country for several fashion giants. Further details can be found in supplementary material.

4. FINDINGS

4.1 Supply chain level characterised by cascading paradoxical demands: The fashion giants' dominant logic of financial growth was operationalised by cost-reduction strategies, which were routinely passed onto their suppliers. Fashion giants claimed to engage in supply chain sustainability, but suppliers stated that fashion giants demanded paradoxical requirements from them. For example, demands for water-intensive designs *and* colours and for water-footprint reduction; better quality

products *and* cost reduction; on-time delivery *and* last-minute orders; operational flexibility, reduced costs, increased production, *and* increased sustainability requirements. Tier-1 suppliers managed the fashion giants' multiple and conflicting operational, quality and sustainability demands by cascading demands onto lower-tier suppliers.

4.2 Organisational level characterised by standardised tools and relationship detachment: Fashion giants created top-down governance structures to manage their fragmented supply chains. They work with third-party institutions that share similar business agendas, leading to arms-length industry standards to manage suppliers. These standardised tools resulted in unforeseen consequences. Not only did suppliers manipulate data to increase scores, but they also acted unethically and used the tools to distract from these behaviours. Suppliers disclosed lower performance scores tactically or reported manipulated numbers, knowing that getting a higher score the following year would be easier. Other sustainability innovations, which were much more radical in driving climate goals, were ignored by these systems.

An average tier-1 supplier produced approximately 20% of the finished garments for their supply chains, the remaining 80% was outsourced to 'shadow' subcontractors, creating a complex and fragmented supply chain characterised by coercion and danger. The fashion giants worked with third-party auditors to check and validate data, but as subcontractors were hidden the data collected were inherently flawed. The fashion giants detached themselves from their lower-tier suppliers and workers by using third parties to manage these relationships.

4.3 Individual level characterised by physical and psychological damage to workers: Fashion giants were unaware of the lived realities of the workers in their supply chains and the impact of their paradoxical requirements and standardised tools. Workers were under constant pressure because of daily speed and quality targets. Physiological and psychological damage were stated by most of the workers interviewed. Protection equipment, required for compliance with the fashion giants' health and safety rules, went unused as it impacted the speed and quality of production. Ideas of sustainability, low-carbon transition and the climate emergency, usually in the form of training and audits, were disruptive for the production line because workers needed to deliver finished garments as fast as possible. In some instances, if there was a delay in production, line managers became aggressive towards workers.

Even when management teams intervened on behalf of workers, the overriding culture in many factories was characterised by fear and dominated by the line managers armed with brands' demands, to the detriment of the workers' safety and physical and mental health.

5. RESEARCH PATHWAYS: JUST TRANSITION IN COMPLEX SUPPLY CHAINS

There are many challenges facing fashion supply chains in adapting to a low-carbon future that considers the workers directly affected by this transition. Therefore, we propose several pathways for OSCM researchers to investigate how we achieve a just transition. There are critical issues at different levels illustrated in Figure 1. These issues impede radical and inclusive climate action in fashion supply chains and generate tensions between just transition and OSCM and require attention.

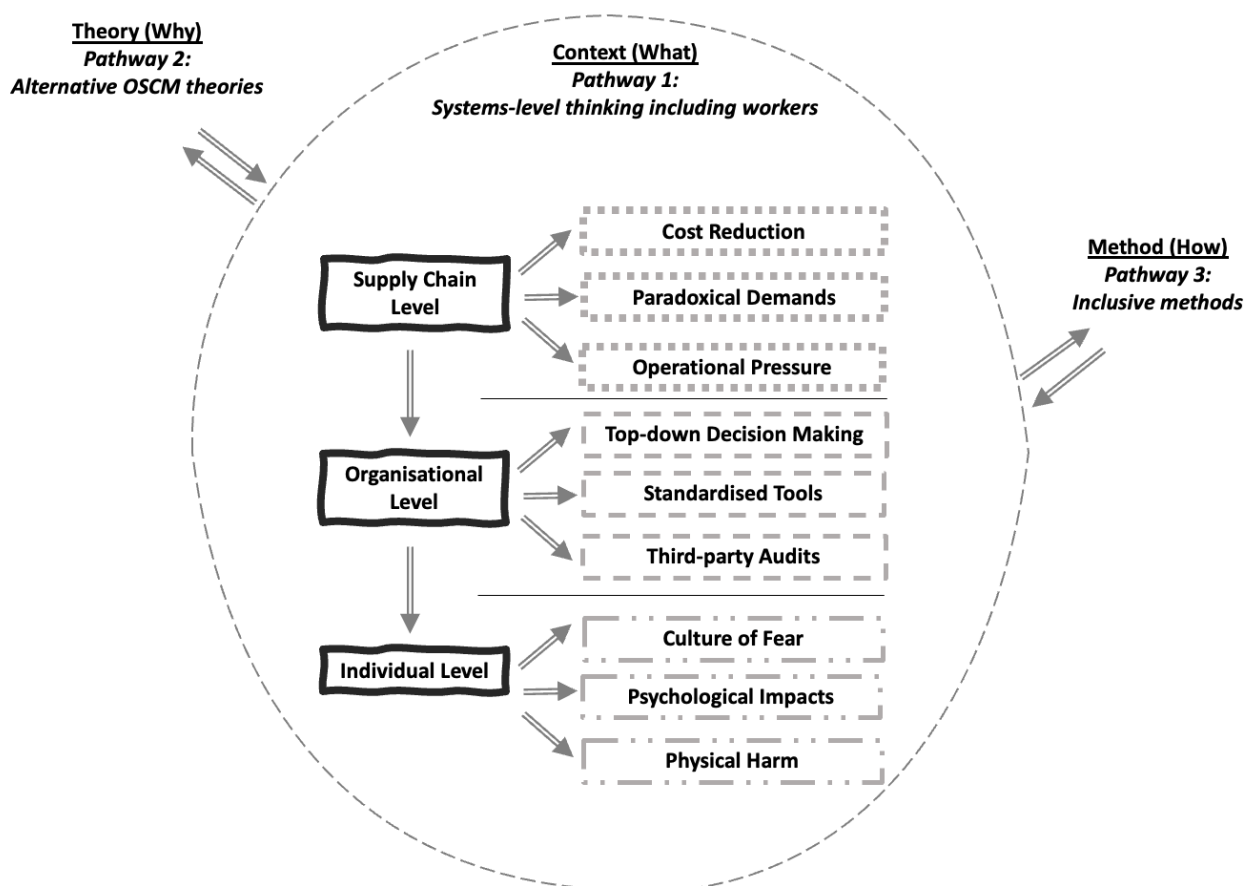


Figure 1: Pathways to explore critical issues impeding inclusive, radical climate action in OSCM

5.1 Pathway 1 – Embrace systems-level thinking and include workers

OSCM needs to explore the root causes of environmental and social problems beyond emission reduction, risk mitigation and operational health and safety. But first it is vital to question how the current fashion system, based on hegemonic political and industrial agendas and environmental and social resource exploitation, is undermining inclusive and radical climate action. OSCM research will be pivotal in showcasing exemplars in fashion supply chains, or beyond, that are reaching their targets.

Archival quantitative data in conjunction with qualitative data and observations would be useful in this research. OSCM researchers should focus on:

- Units produced annually, collected at brand, supplier and sub-supplier levels (country, tier, product including material mix and volume of deadstock);
- Climate-goals, climate-actions and outcomes-related data collected at brand, supplier and sub-supplier levels;
- Sourcing, production and supply chain management practices data collected at brand, supplier and sub-supplier levels;
- Material development, product development, sourcing and production planning-related data at brand, supplier and sub-supplier levels.

It is equally important to analyse the paradoxical tensions between climate goals, social issues and brands' operational demands (cost, delivery, design and quality) at brand, supplier and sub-supplier levels. Particularly how paradoxical tensions impact senior managers, line-managers and workers at multiple tiers and if there are mechanisms to overcome these tensions and ensure climate actions are undertaken in fair and just ways. For example, what can be learned from supplier-driven, bottom-up collaborations we identified that appeared to bring fair and equal treatment for workers while driving the transition to low-carbon supply chains?

Our research revealed that OSCM approaches were characterised by top-down decision making, standardised industrial tools and third-party audits. OSCM research needs to critically analyse the governance tools and mechanisms used in fashion supply chains. Qualitative and ethnographic detail is needed to reveal the experiences of senior managers, line managers and workers at brand, supplier and sub-supplier levels to understand how governance models, structures and hegemony intersect to impede climate goals and social justice.

Finally, it is vital to focus on the workers in supply chains. In particular, the physiological and psychological impacts of current business and OSCM practices and how different company and industry governance tools and mechanisms affect workers' mental and physical health and safety.

5.2 Pathway 2 – Explore alternatives to traditional OSCM theories

It is important that OSCM research uses different theoretical lenses to develop alternatives to traditional economic models and business theories. Theories linked with proposed research questions are important to enhance understanding of just transition and expand the scope of OSCM.

Organised hypocrisy (Glover and Touboulic, 2020; Higgins et al., 2020) is an important lens for OSCM scholars to understand and critique the distance between brands' commitments and actions, especially in contexts where power holders promote behaviours they do not practice.

Critical management theories should be used to explore the intertwined crises of climate emergency and social inequity and how it relates to OSCM. For example, *social justice theories* and alternative lenses such as *decolonialisation* (e.g., *Buen Vivir*) and *recognition theory* will help us understand how to develop an alternatives to top-down OSCM governance and structures by ensuring a harmonic relationship between stakeholders.

Marginalised stakeholder theory (Chowdhury et al., forthcoming) is another lens that could help OSCM scholars make meaningful contributions using evidence from misinterpreted, neglected and ignored communities at all supply chain levels. *Paradox theory* can also help OSCM explore the tensions and problems between short-term climate interventions and long-term societal implications and prevent unforeseen consequences. Last but not least, OSCM scholars should utilise and better understand *postcolonial theory* to be more critical of the political, cultural and economic system in which OSCM operates with attention paid to natural, social and emotional resource exploitation and the impact on the workers.

5.3 Pathway 3 – Engage inclusive methods

Survey and case-study methods, albeit important, are insufficient for understanding the complex and paradoxical nature of climate change in the context of OSCM and diversity in terms of methodologies and epistemologies is imperative (Silva et al., 2022). We encourage critical, engaged research to expand the boundaries of OSCM to include collective social visions and perspectives of how just transition should be. This can happen when “*the traditional power relations between researcher and participants are not taken for granted and the emphasis shifts toward longitudinal engagement with participants, co-creation and reflexivity*” (Touboulic et al., 2020: 37).

Researchers must involve marginalised and silenced stakeholders at all levels (e.g., local communities, workers, environmental defenders, human-rights defenders, lower-tier suppliers, agents, workers, trade unions, grassroots organisations and NGOs) who are neglected in and from our research. These diversified voices with different ideologies and objectives as well as their knowledge, concerns, suggestions, experiences and perspectives could support the emancipation of fashion supply chains through just transition. Hence, research that ensures representation and inclusion of marginalised communities is encouraged to ensure epistemic and ontological justice and build actionable solutions.

The researcher’s voice and agency is vital to ensure clear reflections (Touboulic and Walker, 2016) and to theorise from a longitudinal perspective with context-conscious knowledge (Touboulic et al., 2020).

As Chowdhury (2021:135) states *“As much as we need to follow rigour, structure and generalizability to produce robust research, we also need to be immersed with our subjects in a way that we do not only rely on observable phenomena”*.

Just transition could be a decisive tool to tackle climate change while ensuring social justice in complex supply chains; however, workers have to be asked what a just transition means to them (Markova, 2021). Climate action should not become a global lip service tool characterised by vague corporate commitments. Real climate action must guarantee that the people working at different supply chain stages do not lose their livelihoods and that they are integrated into decision-making processes.

Despite earlier research suggesting that lower-tier suppliers might be passive when it comes to carbon footprint reduction (*e.g.*, Villena and Gioia, 2018), we found that lower-tier suppliers and their workers, have tacit knowledge and creative solutions for environmental impact reduction and social impact maximization. Yet, most of these context-specific and culturally shaped innovations are ignored by power holders. Climate action can become radical and fair only when ignored and neglected voices are represented and valued.

6. CONCLUSION

In this Impact Pathways paper, we call for further research to understand and use the just transition concept within OSCM. There are few signs from fashion giants espousing some of the most ambitious climate goals that they are transitioning fast enough or are including workers in their supply chains. This is no less than a fight for survival where every organisation, particularly those doing the most damage and with the most resources, must play a leading role. For too long, OSCM researchers have kept quiet about the scale of the challenge, but researchers can no longer afford to remain silent.

OSCM can be a leading discipline for just transition providing solid conceptualisation and empirical analysis of behaviours and strategies that can lead to new and alternative theories and novel narratives that are fundamental for radical change and societal, theoretical and practical impact. We believe the research pathways can inspire innovative, creative and critical research to shape a future where our world and its people are no longer exploited. This paper is the beginning of a conversation, inviting scholars to join the research to create radical change in industries with complex supply chains.

OSCM scholars are invited to be inspired, for example, by the Union of Concerned Researchers in Fashion ([UCRF](#)) that advocates for whole-system change and has created an activist knowledge ecology that moves beyond industry-led, growth-driven, incremental frameworks. The organisations in our sample as well as our extended networks in fashion are key points of contact and will create

further OSCM research opportunities. Therefore, OSCM scholars are encouraged to get in touch to develop further empirical, engaged research.

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Appendix 1 | Supplementary Material

CONDUCTING RESEARCH WITH WORKERS

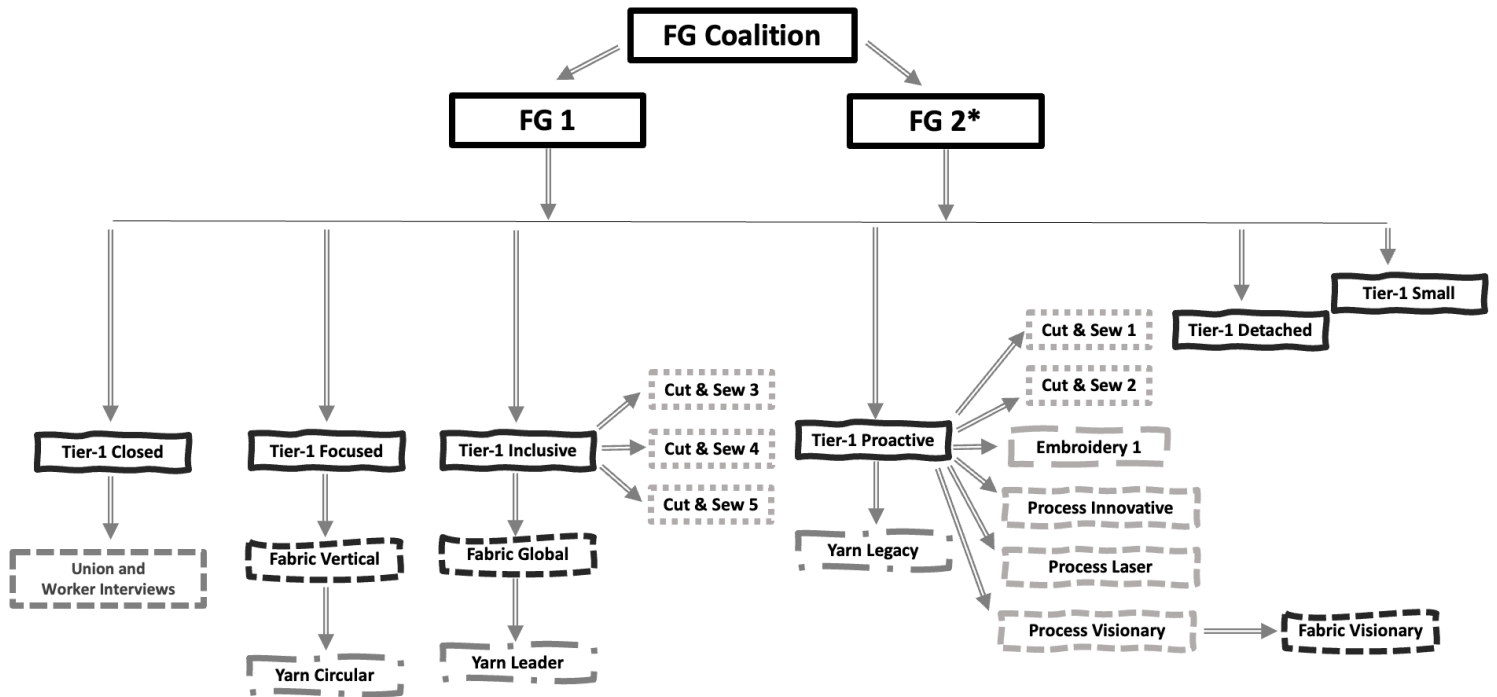
Existing research is primarily limited to survey and case-study methods, which are insufficient for understanding the complexity of sustainability in supply chain management (Benstead et al., 2018). We, therefore, conduct multi-level field research, used in the organisational behaviour field, to investigate an attempt to transition to low-carbon supply chains by a large fashion brand (FG1) and its multi-tier supply chains. By responding to the need to extend beyond the single firm/brand and their first-tier suppliers, we took a supply chain and anthropological approach, in which we included managers and workers and engaged with them simultaneously at various organisations across multiple tiers.

First, we looked at the most influential global fashion and apparel coalition and one of the biggest and most influential fashion giants (FG1) with ambitious net-zero and circularity targets. We conducted desk research to understand their sustainability strategy and practice development, key product categories, strategic sourcing destinations, supply chain strategies and transition goals and objectives. We situated this research in a fast-changing and politically, socially, and environmentally complex nation, Turkey, which is a strategic production country for many European fashion giants, particularly for FG1 and another influential important fashion brand, FG2, induced from data.

We evaluated FG1's supply chain in Turkey based on their disclosed supplier list. We next selected a sample of tier-1 suppliers, based on the brands' supplier lists, who they listed as strategically important. We also wanted to ensure that the key fashion product categories (jersey and woven garments) were included. Suppliers were chosen through theoretical (different to each other) and literal replication (similar to each other) in order to generalise to theory. We then worked with six tier-1 suppliers located in the main production regions of Turkey to ensure access to their managers and workers over an extended period (from 1-7 days).

Three tier-1 finished garment manufacturers (Tier-1 Focused, Tier-1 Inclusive and Tier-1 Proactive), gave us unlimited access to their production plants where we had extensive conversations with workers, line managers, managers and senior managers. Tier-1 Detached and Tier-1 Small tentatively agreed to be part of the research, and their sustainability managers were interviewed however, after many attempts, we could not gain access to interview the people working in their factories. In addition, we had multiple interviews with two industry experts in Turkey, including one trade union president and one country coordinator for an international non-governmental organisation (NGO). The trade union president organised interviews with worker representatives from Tier-1 Closed. Confidentiality and anonymity were assured.

Following research with tier-1 suppliers, we engaged 13 lower-tier suppliers (fabric producers, yarn manufacturers and service providers such as printing, embroidery and dyeing that were linked with tier-1 suppliers). These lower-tier suppliers provide essential services for garments and were tier-2 and tier-3 to FG1 as shown in Figure 2.



* Induced from data

Figure 2: Multi-level field research sample across multiple tiers

Field work took place from October 2021 to March 2022 in Turkey, focused on the experiences of the people working at 19 companies across tier-1, tier-2, and tier-3 to understand how brands achieve, or do not achieve, their climate and social goals and what key challenges and issues stand in the way of a just transition in complex supply chains. This research is ongoing with results providing the basis for further engagement with all parties in these supply chains.

Appendix 2 | Data Coding Tree

Theme	Second-order Category	Representative Quote
Supply Chain Level	Cost Reduction	<i>'When it comes to pricing, the suppliers that pay much less attention to sustainability than us, will get the order if they give two lira less than us. At the end of the day everything is about cost.'</i> (Production Manager, Tier-1 Inclusive)
	Paradoxical Demands	<i>'[FG1] tell us not to exceed 11 hours a day [to ensure overtime compliance] but then demands 230.000 products to be shipped by, for example, the coming Wednesday. You [FG1] pressure the production department [for on-time delivery] while also pushing the sustainability department for social compliance.'</i> (Sustainability Officer 1, Tier-1 Proactive)
	Operational Pressure	<i>'The brand tells us that you [as the manufacturer] will treat your employees well without coercion, without ill-treatment, without discrimination, but at the same time the brand pressures the manufacturer for fast production. If a worker works overtime until eleven at night, she's working to get that product out for you.'</i> (Sustainability Officer 1, Tier-1 Proactive)
Organisational Level	Top-down Decision Making	<i>'I am responsible for Tier 2, from their water use to their energy use. And FG1 never communicate with them. I am the bridge between them because the product comes from me. And FG1 say, "You have to supervise your supplier. You have to evaluate their water, their energy use" and if there is something missing, FG1 don't ask or go back to them. Then their performance score is reduced, and so is mine'</i> (Health & Safety Manager, Tier-1 Inclusive)
	Standardised Tools	<i>'There are data points where we can't really meet some of their requests. It also differs from workshop to workshop. It is very difficult to implement these requests in every workshop. Even if the operation of the job is the same, the context and environmental conditions may not be the same.'</i> (Sustainability Officer 2, Tier-1 Inclusive)
	Third-party Audits	<i>'Previously the brand was sending its own employees, the employee was auditing us. At that time, there was no inspection fee. But in recent years, it's not such a small number, in other words we pay almost \$10,000 dollars just for this. There are certain items [in the audits], where we say we are a dyeing house, in our case, so certain things, for example, the needle fracture procedure does not exist. We are not apparel. We don't sew, we don't knit. So that happens in knitting or weaving, it happens in clothing, but they [FG1 and the auditors] insist on it. Some inspectors lack chemical knowledge. We try to explain, but we can't explain the whole situation.'</i> (Sustainability Manager, Process Laser)
Individual Level	Culture of Fear	<i>'Most people [the workers] here are silent, are afraid of complaining, thinking that "if we say this, we might lose our job or they might treat us worse". Most workers cannot voice their complaints.'</i> (Worker 5, Tier-1 Inclusive)
	Psychological Impacts	<i>'We are sad, our enthusiasm decreases because they [managers and line-managers] don't listen to us. They think shouting will increase [our performance], but that's not how it works. When we are sad, numbers drop</i>

		<i>even more, we can't work. We work in hard and challenging conditions to get the work done. We are exhausted.'</i> (Worker 5, Tier-1 Inclusive)
	Physical Harm	<i>'They don't even respect human rights in this profession. It is two hours [to reach home], at 11, midnight, you go to bed. Well, this man [a worker] comes to work tired in the morning and then his finger gets caught in the machine or cut with a needle.'</i> (Worker 7, Tier-1 Inclusive)