

# The circular economy in the Tuscan fashion industry: A value chain approach

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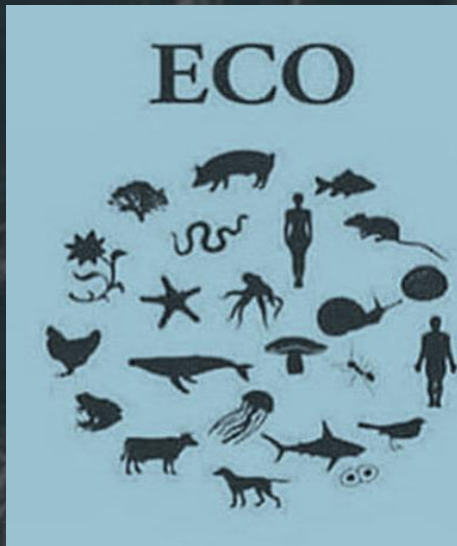
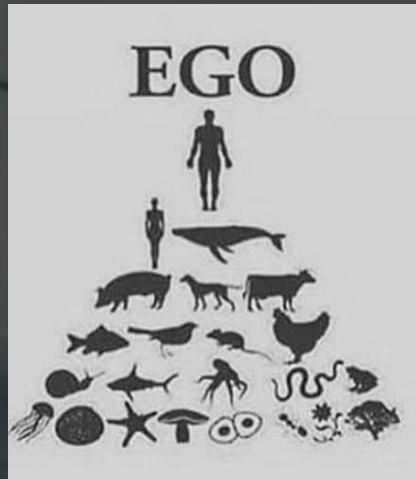


# Aims and motivations

- The extreme pressure on the environment due to the depletion of non-renewable resources and the global warming push for a paradigmatic change in the way we produce and consume → from “cradle-to-grave” to “cradle-to-cradle”
- “Using the cradle-to-cradle framework, we can *upcycle* to talk about how human industry can be just “less bad”, but how it can be more good, an extraordinary positive world” (McDonough and Braungart, 2013)

# Aims and motivations

- The main aim of this research is to understand whether and how the supply chain can channel a more environmental-friendly attitude of firms;
- In particular, to what extent the relations between customers and suppliers are able to affect the shift towards a more sustainable business model, eg. Circular economy (CE)
- CE is here defined as new eco-friendly conceptual framework providing for the minimisation of waste generation and material inputs through eco-design, recycling and reusing of products

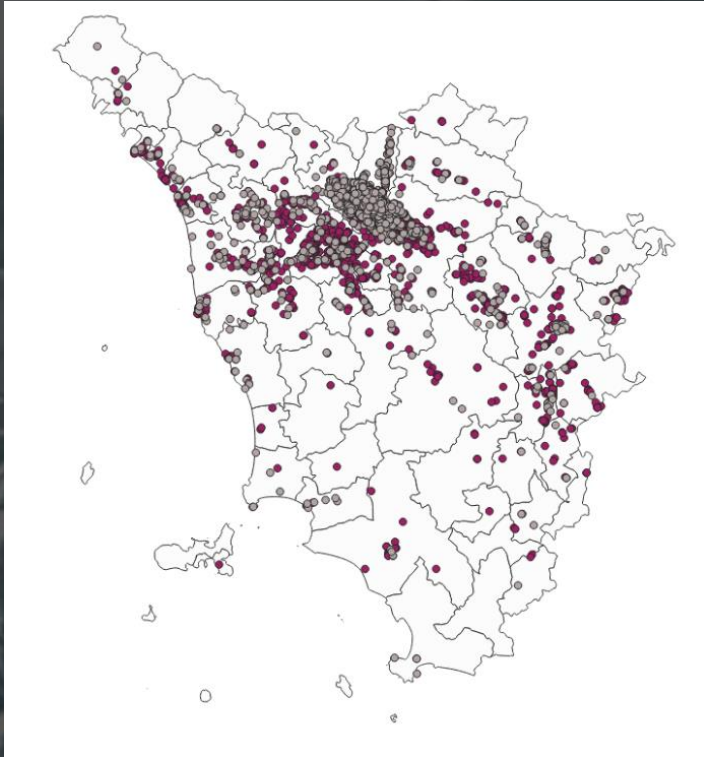


“Since the economic process materially consists of a transformation of a low entropy into higher entropy, i.e., into waste, and since this transformation is irrevocable, natural resources must necessarily represent one part of the notion of economic value. And because economic process is not automatic, but willed, the services of all agents, human or material, also belong to the same facet of that notion. For the other facet, we should note it would be utterly absurd to think that the economic process exists only for producing waste. The irrefutable conclusion is that the true product of that process is an immaterial flux, the enjoyment of life” (Georgescu-Roegen, 1971, p. 18).

# CE in a value chain perspective

- Production in modern economies is increasingly organized in value chains. At the same time, it is locally clustered and globally fragmented;
- The position in the value chain influences the ability to affect the production processes and their impact, among some others, on the environment;
- The value chain approach allows to identify the environmental impact at each phase of production and where the environmental costs are mostly located.
- Therefore, the value chain approach turns to be well suited to the study of the CE, since they both have to do with the **product life cycle**.

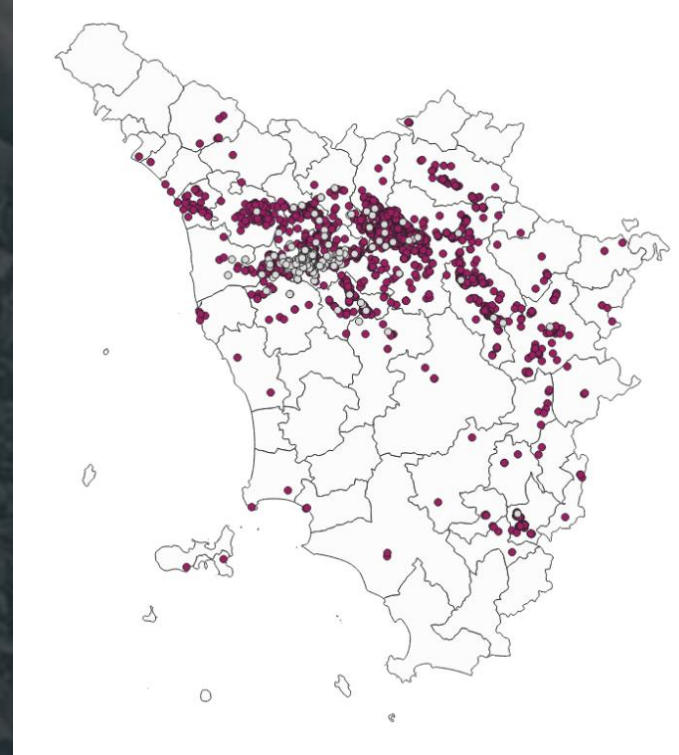
# The fashion industry in Tuscany



*Textiles and Apparel*

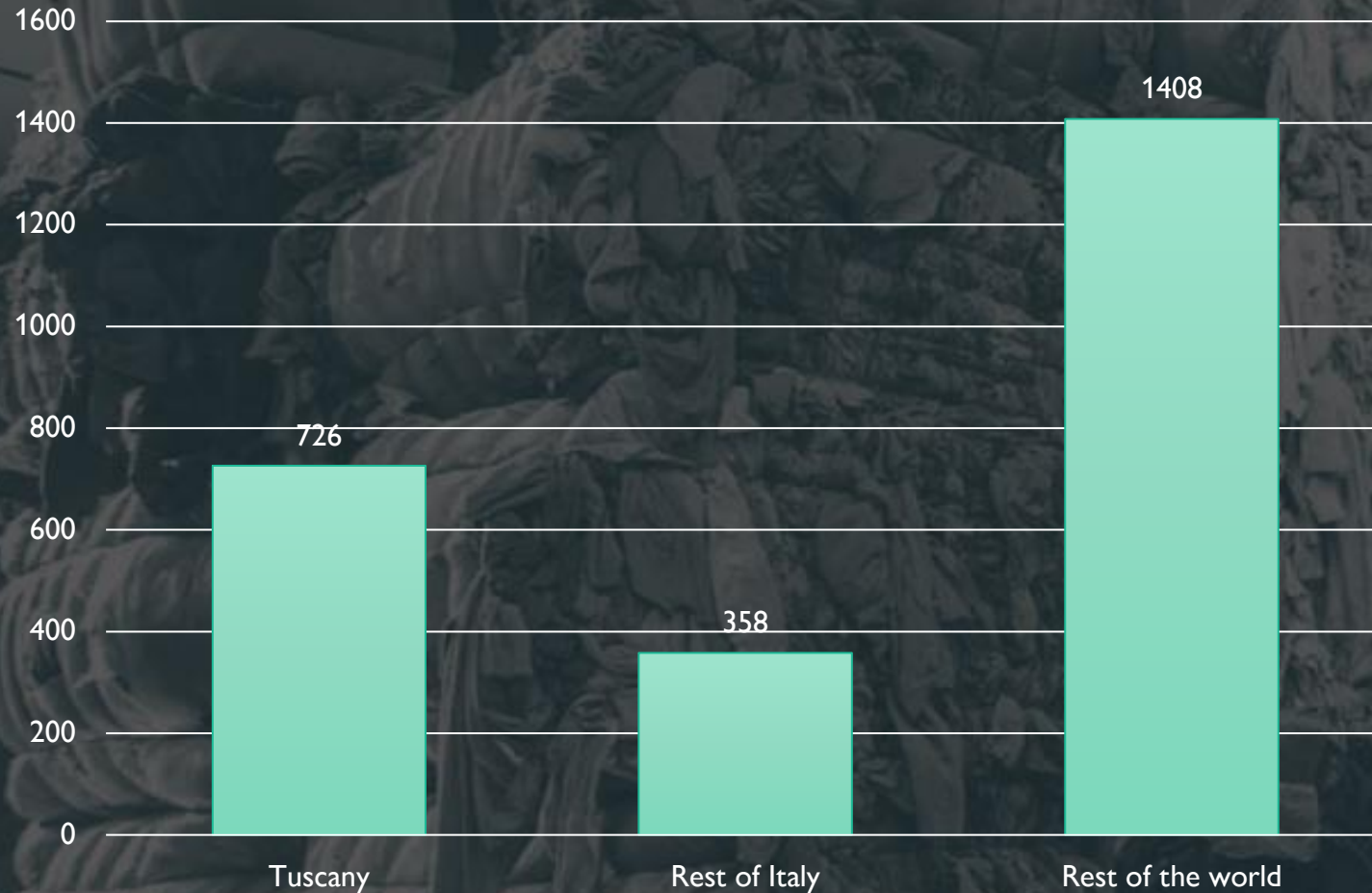


*Tanning and Leather*



1. It accounts for **38% of employees in manufacturing**; 35% of goods exports
2. The value chain is **fragmented locally** (industrial districts; few large MNEs and many micro firms); externally: **backward** (due to offshoring) and **forward** (27% of employees in production of intermediate goods; textiles and tanning)
3. Environmental impact of local productions: several activities are **water and energy intensive**; intensive use of **chemicals**

# The carbon footprint of the Tuscan fashion value chain (the case of exports)



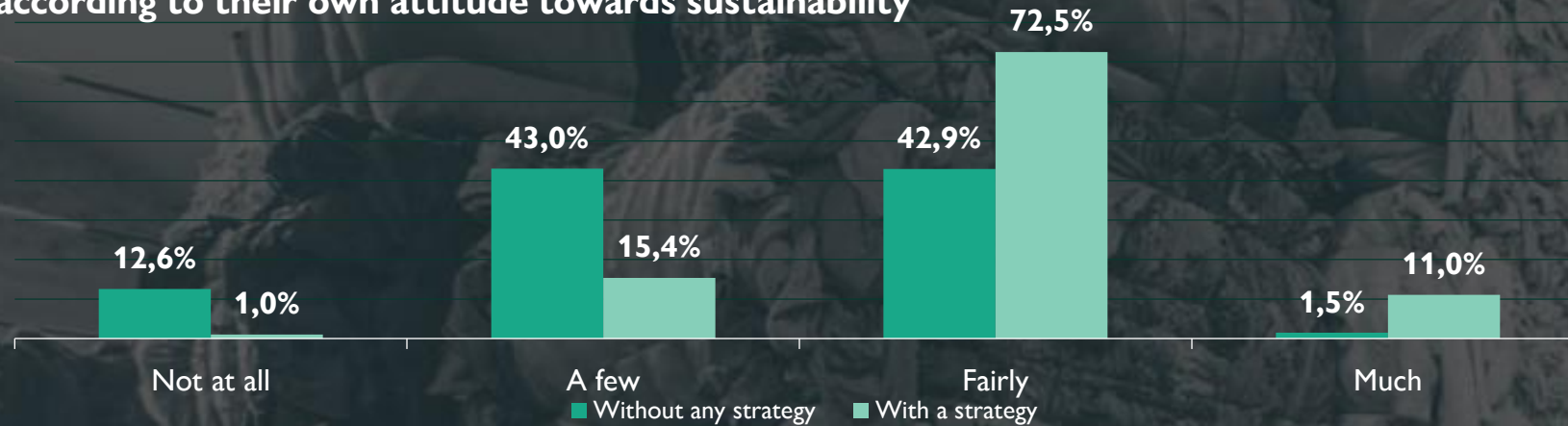
# Descriptive analysis

- Sample of 1247 manufacturing firms (representative at NACE rev.2 two digits level);
- We have investigated to what extent sustainability issues have entered their business strategies and whether firms' organisations have been redesigned in order to manage sustainability
  - IRPET (2019). Gli investimenti in sostenibilità ambientale delle imprese manifatturiere toscane.

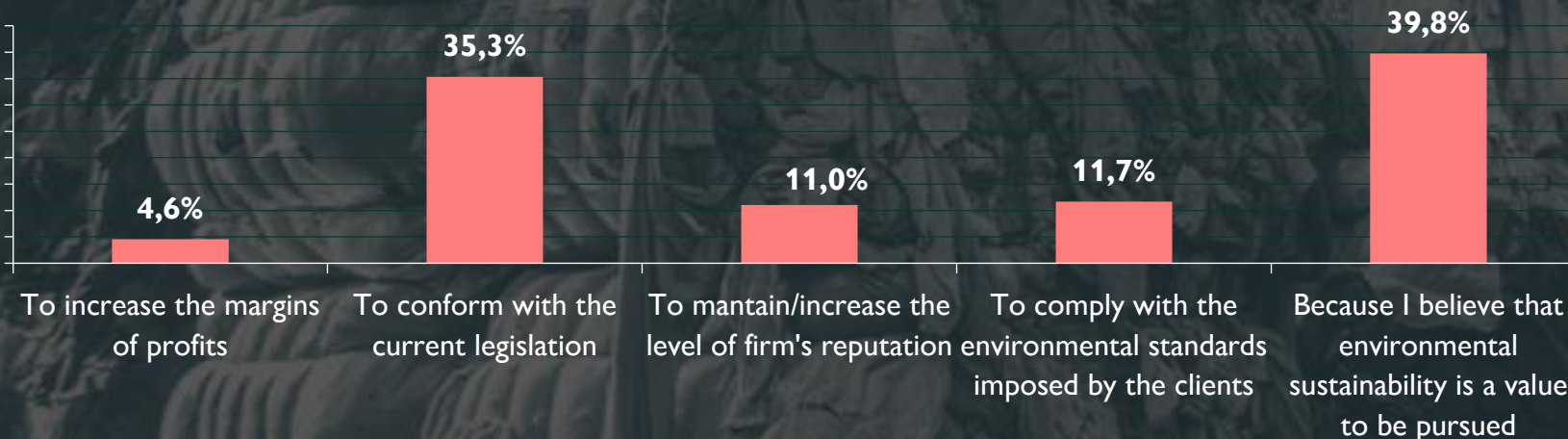


# Descriptive analysis: main drivers

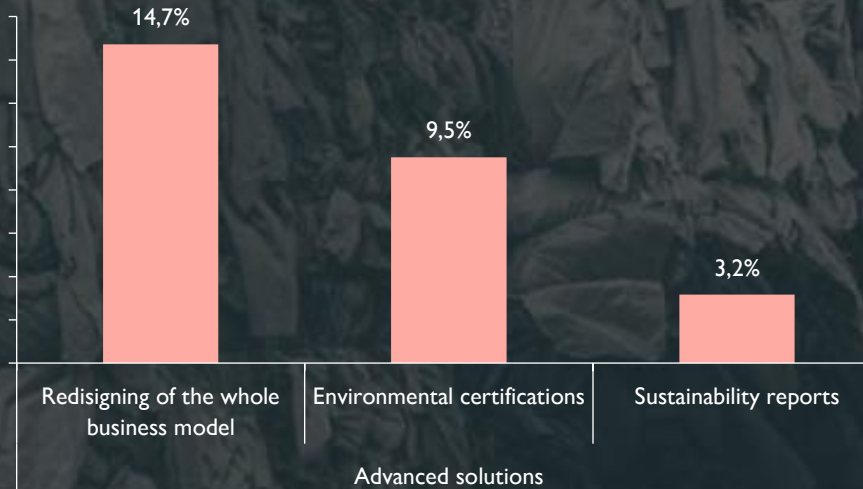
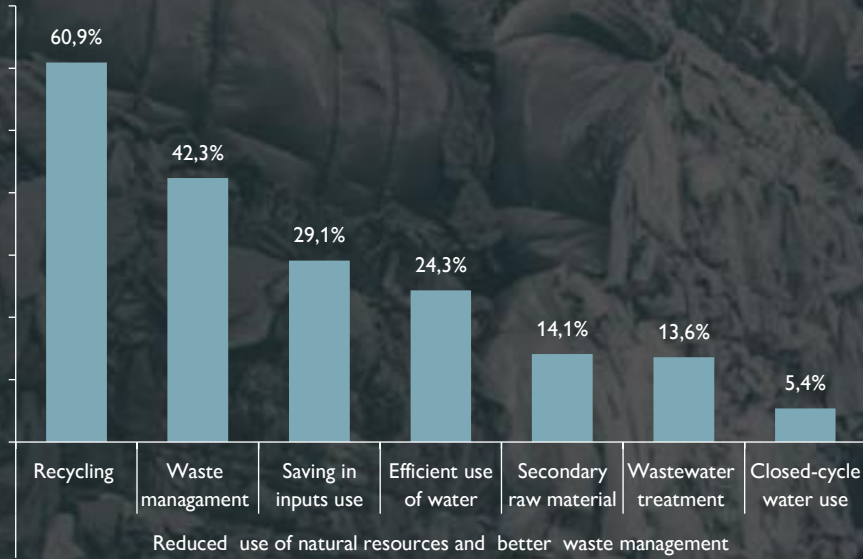
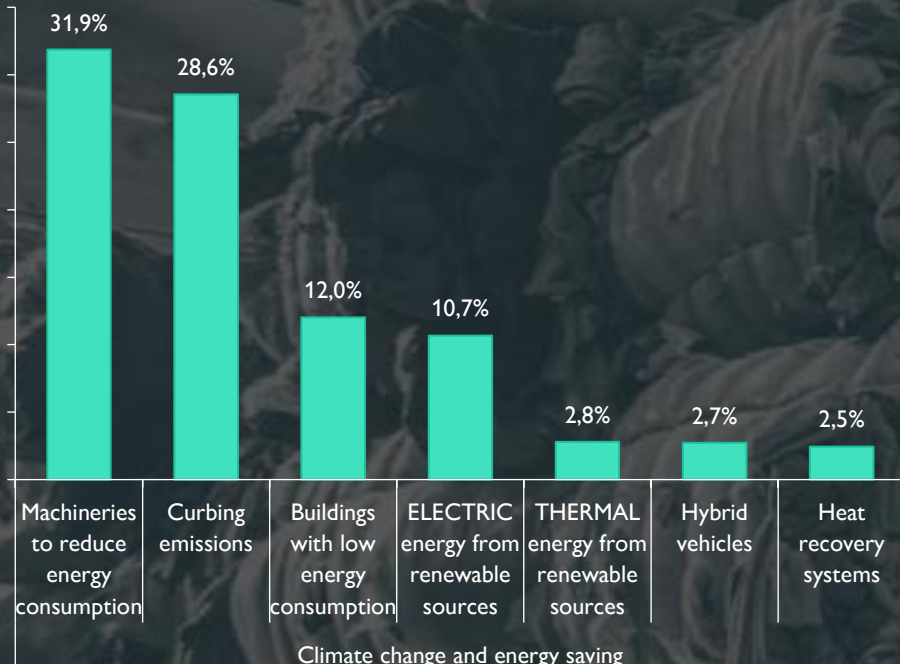
Share of fashion firms without/with an explicit strategy of sustainability according to their own attitude towards sustainability



## Main reasons driving change



# Descriptive analysis: initiatives



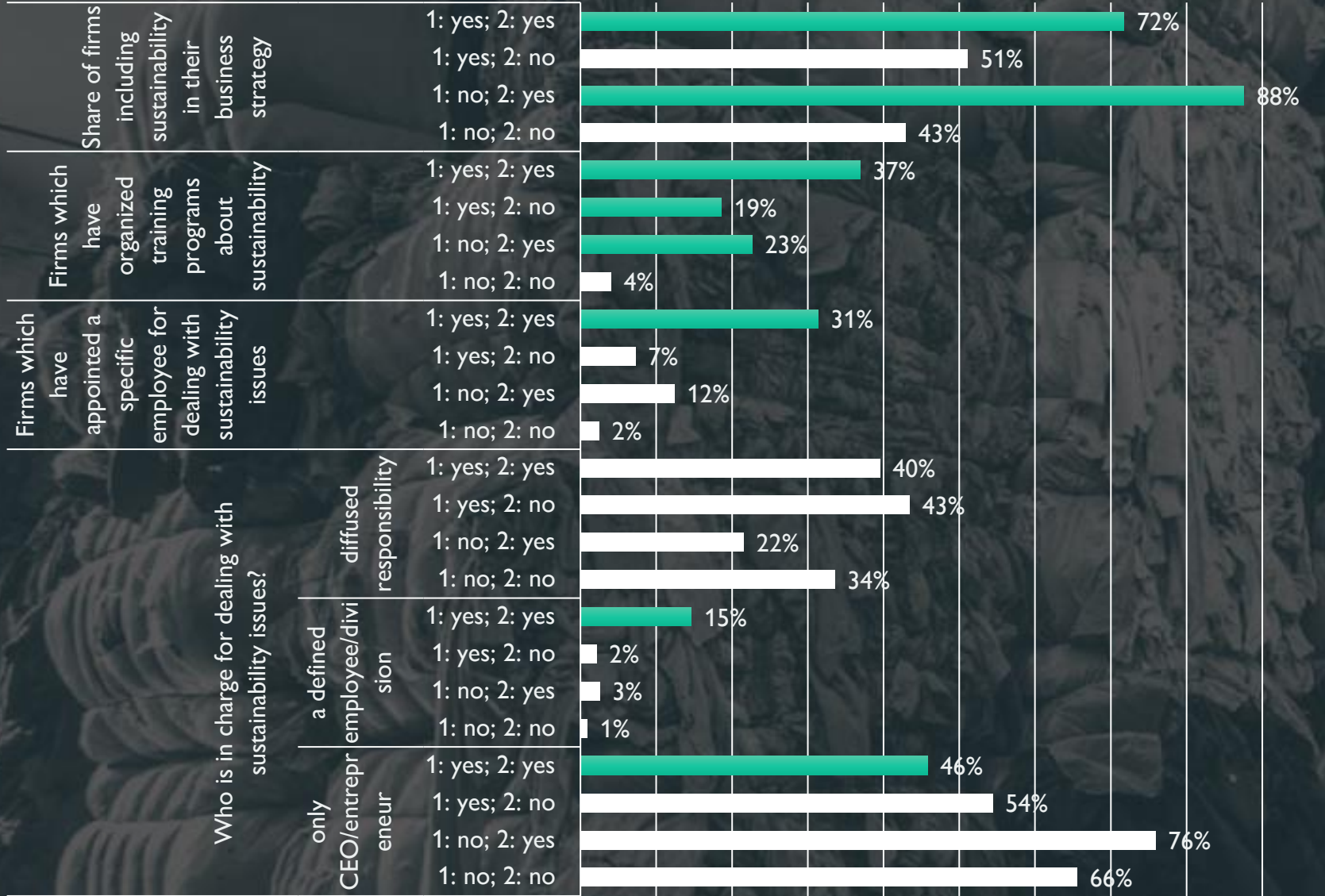
# Assessing the value chain as a transmission mechanism: the role of sustainable firms

1. We partition the space of Tuscan fashion manufacturing firms by applying multiple correspondence analysis (**MCA**) over two dimensions:
  - Undertaking of **initiatives towards a circular economy**
  - A **shift in the business model**
2. We end up with a **4-dimensional space** according to the scores over the two dimensions (above/below the mean)
3. We then analyze the behavior of our 4 groups of firms with respect to:
  - **Internal sustainability culture**
  - **Their attitudes towards transmitting sustainability outside the boundaries of the firm**

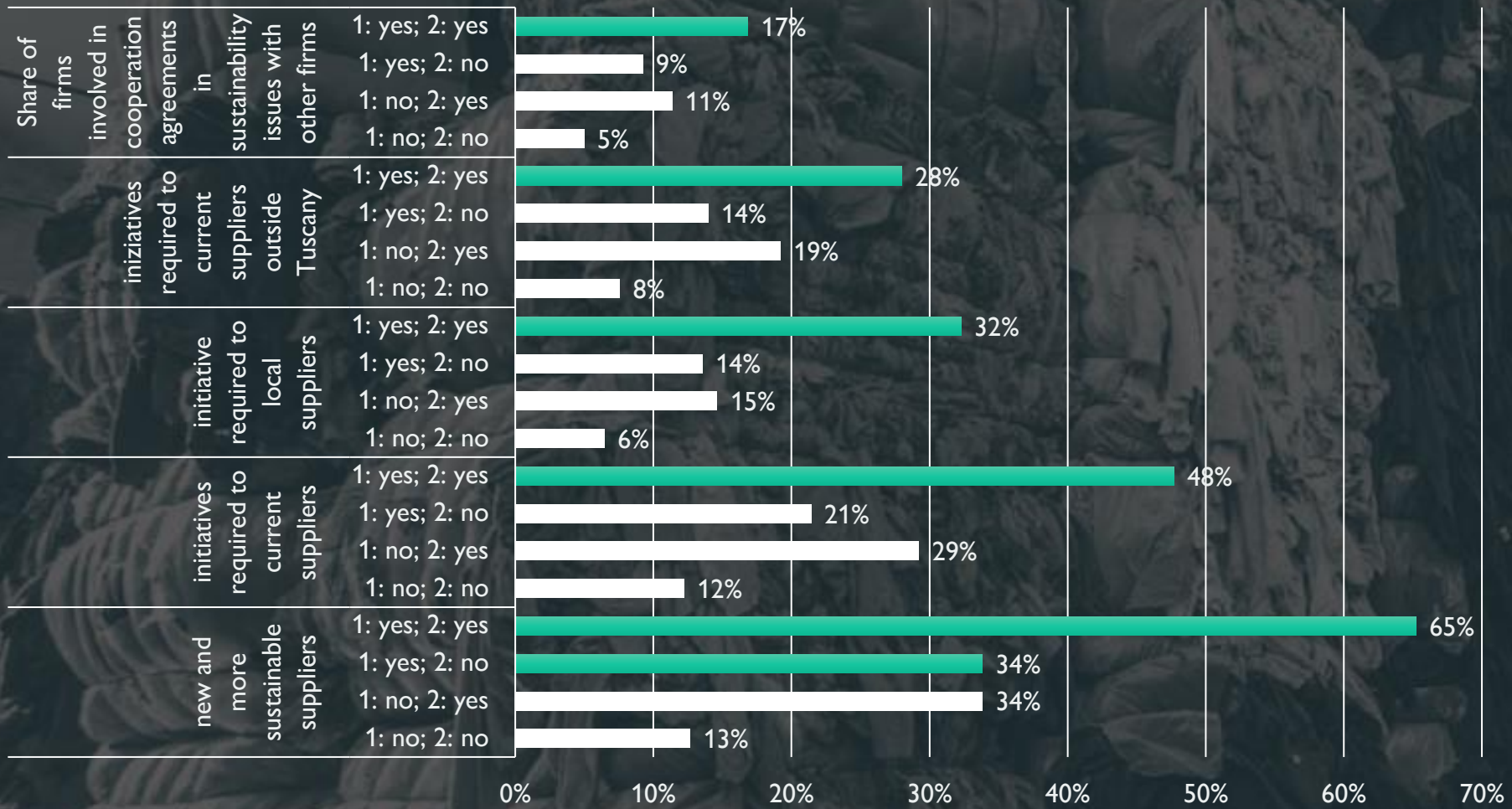
# Partitioning the space of firms through MCA

		Engaged in a shift of the business model	
		no	yes
Engaged in initiatives towards CE	no	62%	4%
	yes	18%	16%

# Internal culture



# Outside the boundaries of the firm



# Concluding remarks

1. Whereas the Tuscan fashion industry lags slightly behind if compared to the rest of the manufacturing sector, firms are getting more conscious about the need for preserving resources and saving inputs
2. However, when the upgrading is so paradigmatic, such as in the case of the shift towards CE, fixed investments alone are not sufficient and more profound changes in the business model are required
3. Indeed, the group of firms which have complemented CE with more advanced solutions have also made relevant organisational changes and improved their human capital through targeted training programs

# Concluding remarks (*con't*)

4. The activation of the value chain channel requires to have adopted specific environmental innovations. Indeed, firms combining fixed investments with advanced solutions are largely more likely to spread innovations to their suppliers, both within and outside the regional context, either selecting the most sustainable among them and/or requiring specific actions to their current suppliers.
5. These results are further emphasized when firms are located into industrial districts. The presence of advanced firms can be an incentive to overcome local boundaries and spread a culture of sustainability among their commercial partners, irrespective of their geographical location.





Thank you for  
attention

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