

Factors that influence an SME's decision to carry out energy audits

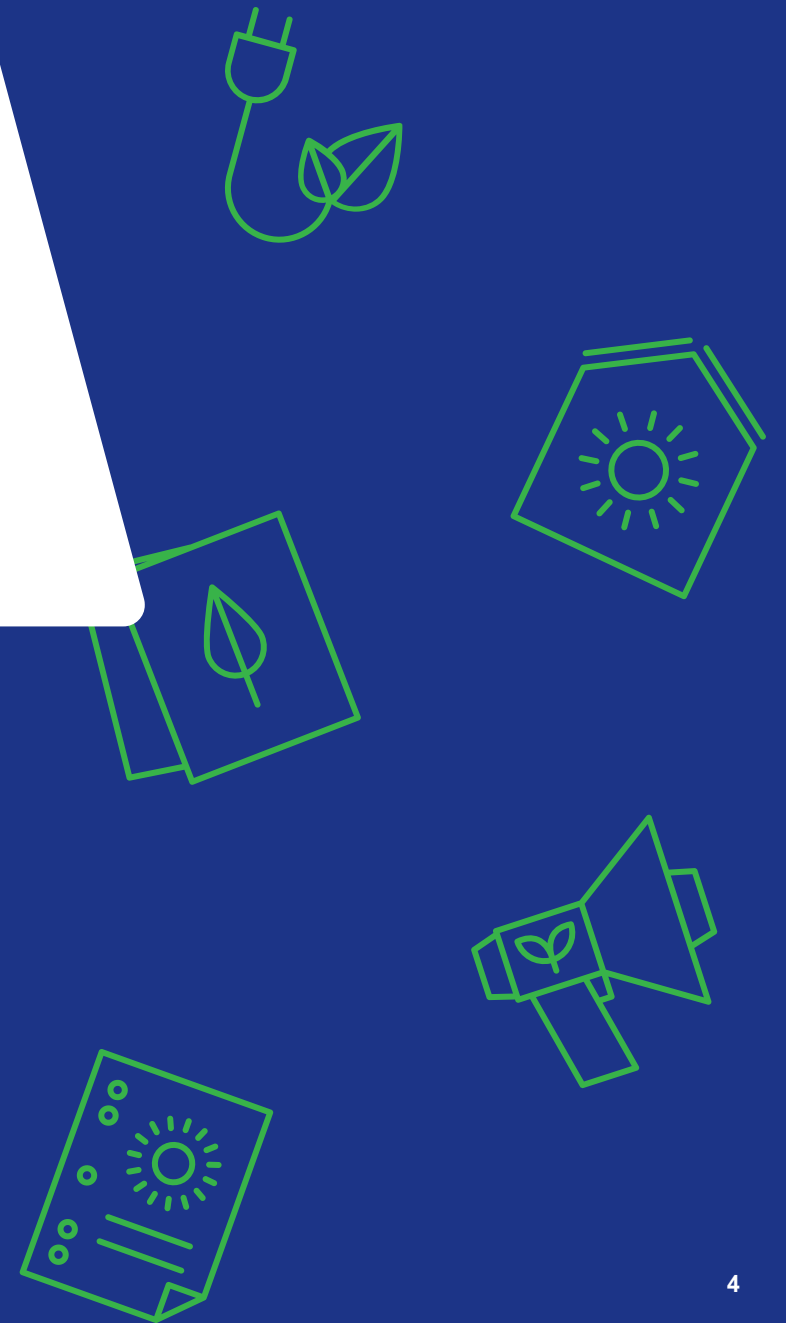
A behavioural change perspective

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The challenge: why focus on SMEs?



There are **25 million SMEs** in Europe.

SMEs make **99% of all businesses** in Europe

SMEs account for at least **13% of global final energy consumption** annually*

Investment in energy efficiency is expected to **fall 9%** this year.

SMEs are key to meeting the targets set out in the EU Green Deal.

*Source: International Energy Agency

Research questions & approach

How do internal stakeholders influence SME decisions to invest in energy efficiency?



To what extent do internal stakeholders influence SME decisions to invest in energy efficiency?



What does this mean for SME policy and programme design?

Methodology

Rapid evidence assessment

26 papers reviewed

Sector focus: Construction (1), Horticulture (1), Hospitality and retail (1), Manufacturing (18), other (5)

Location: Europe (20), International (3), not specified (3)

Sample size of studies: Between 20 and 1000 businesses

Expert interviews

5 experts from academia

1 SME support practitioner

All experts work in the **European** context

Behavioural factors to consider when promoting investment in energy efficiency among SMEs

Professional/ industry-related

- Network participation and access to energy efficiency experts
- Increase in internal competencies
- Prevailing technologies

Personal/ employee attributes

- Management sensitivity to energy efficiency
- Great ambition and entrepreneurial mind
- Pride in work
- Positive working relationships

Qualitative results from expert interviews

- Engage with their priorities and values
 - Find out what's important to them and their business model
 - Widen the scope of engagement to climate change more broadly
 - Non-energy benefits
- Event-driven interventions and support
 - Growth milestones, expansions and diversification
 - Contract renewals, if applicable
 - Maintenance and repair services
- Knowledge and awareness of issues
 - Improvement option and availability of public and private funds

How to engage with businesses?

When and what are there opportunities to engage?

What information and support is relevant and needed?

Thank you for your attention!

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Sustainability from the Top



Maïke Keil, Prof. Dr. Katrin Arning
(Junior Professorship for Risk Perception and Communication, RWTH Aachen University)



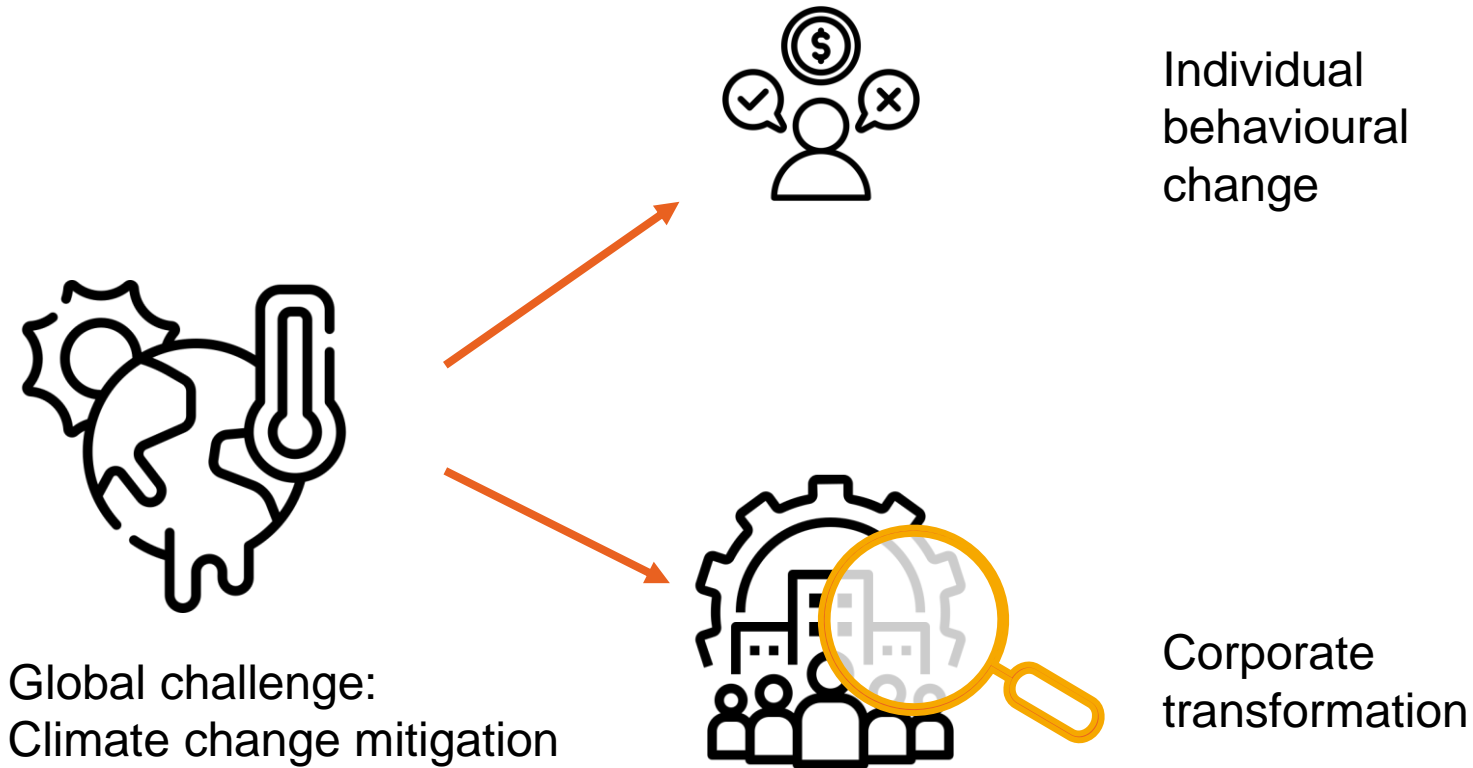
Valerie Michaux, Prof. Dr. Martina Ziefle
(Chair of Communication Science, RWTH Aachen University)



ENRI – Decision factors for sustainable re-investments in companies
(Funded by the German Federal Ministry for Economic Affairs and Energy, BMWi)



Corporate Transformation for Sustainability



Global challenge:
Climate change mitigation

Individual
behavioural
change

Corporate
transformation

Corporate Sustainability

Impact factors:

- personal factors (of managers and employees)
- financial context
- corporate culture
- communication
- strategy

Research Gap: Integrated perspective on individual and organizational factors

Research Aims

 Apply a multifactorial approach to investigate attitudinal, behavioural, and organisation-related factors influencing corporate sustainability



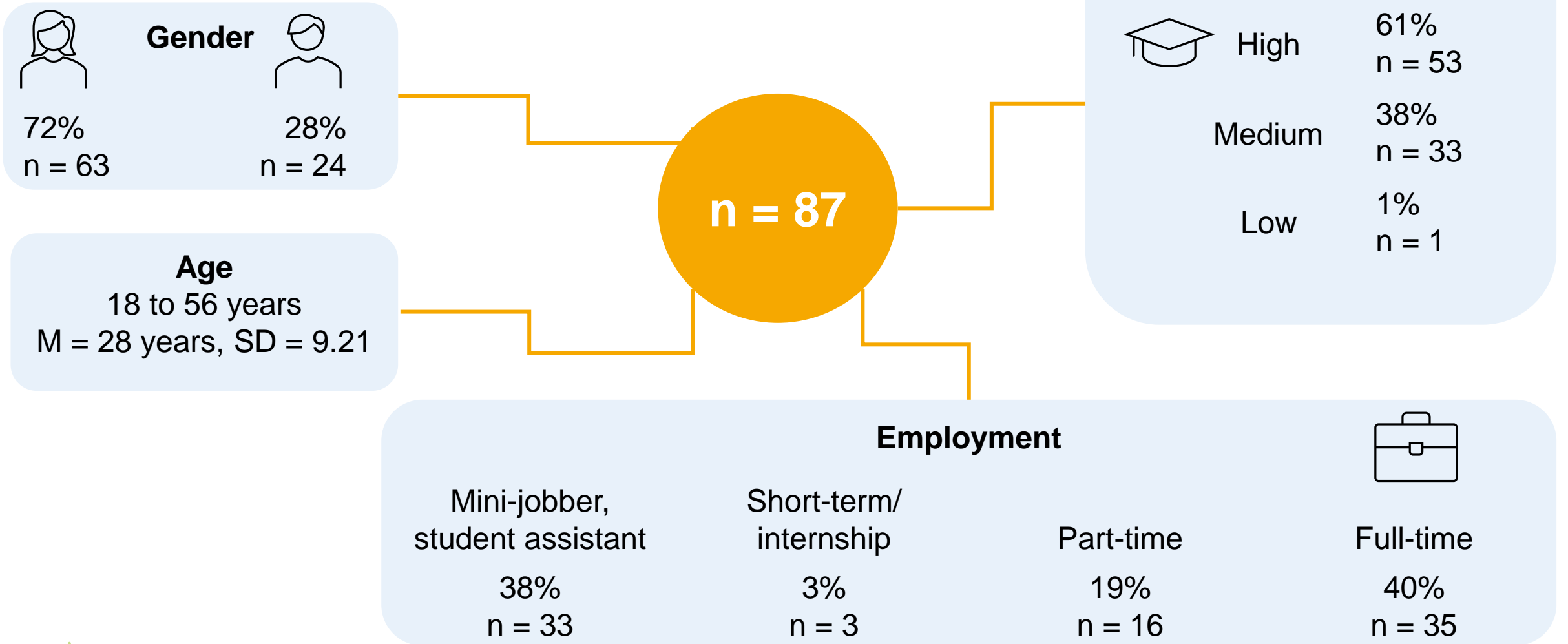
 Develop a novel instrument for measuring corporate sustainability

Identify predictors of corporate sustainability

Methodology: Survey Structure and Variables

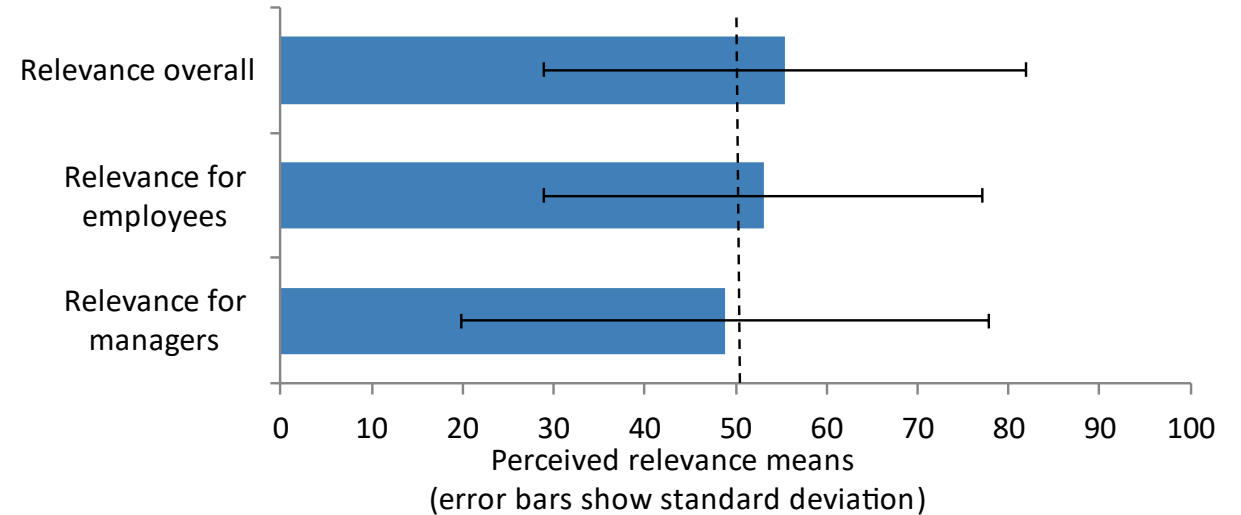
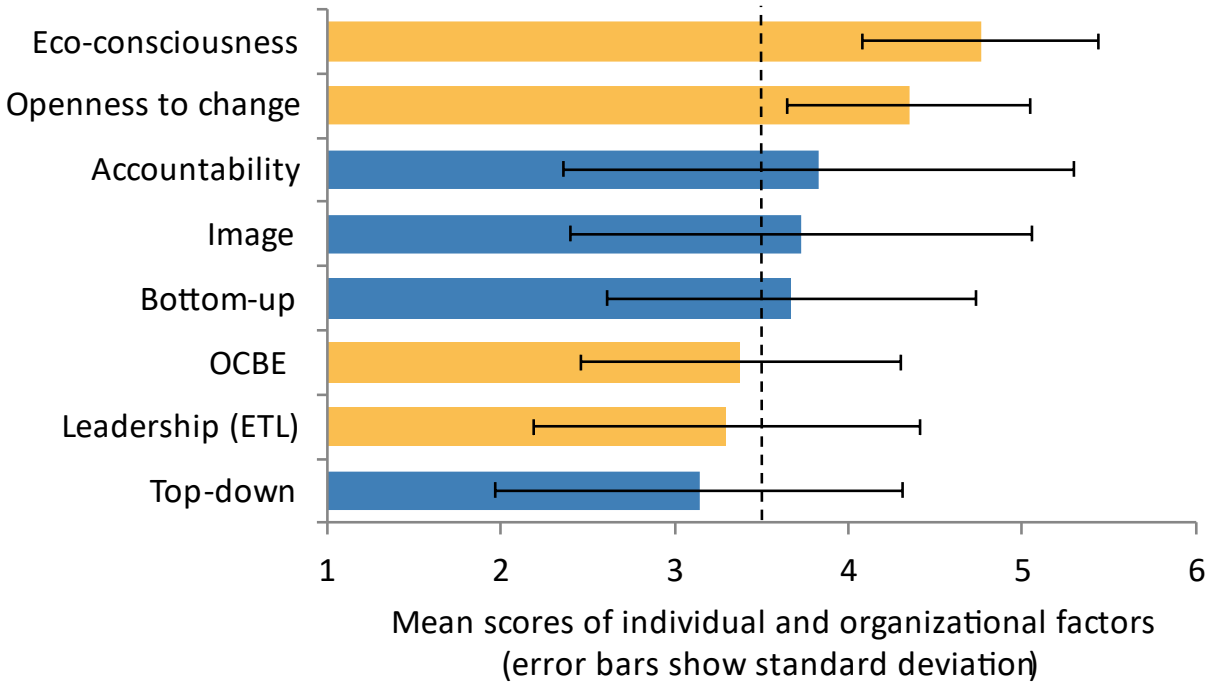


Survey Sample: Company employees



Results: Attitudinal, behavioural factors and corporate sustainability (n = 87)

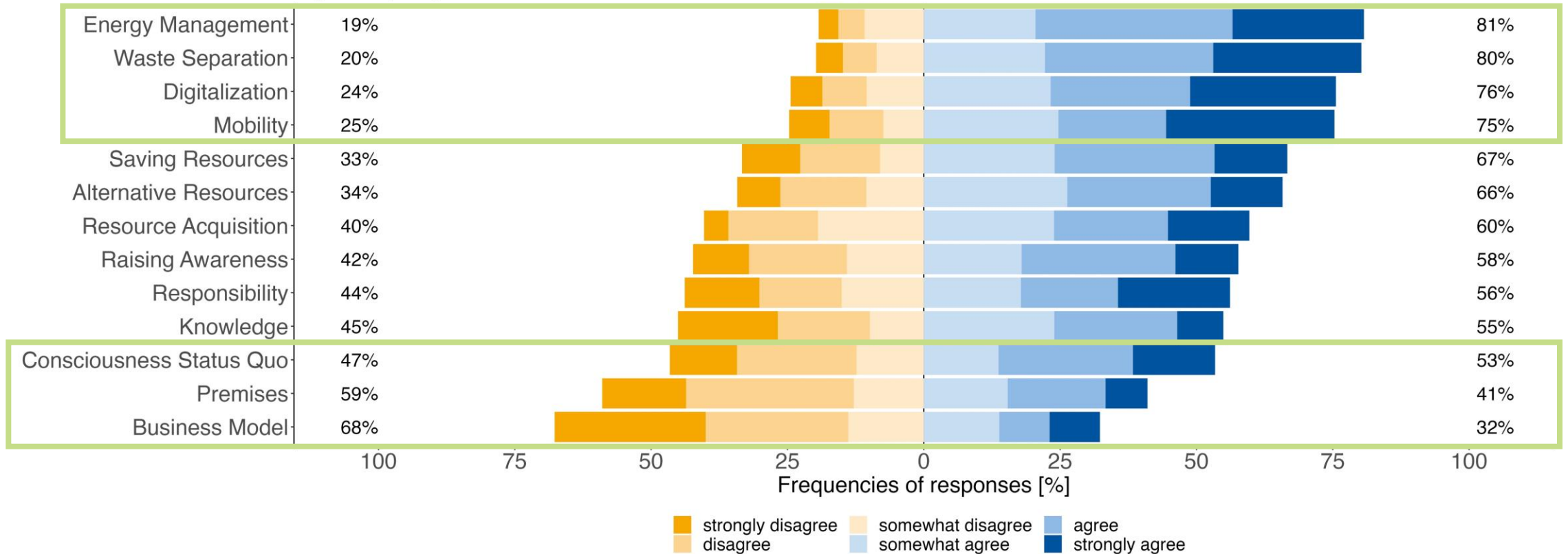
Sample exhibited an elevated environmental consciousness and openness to change



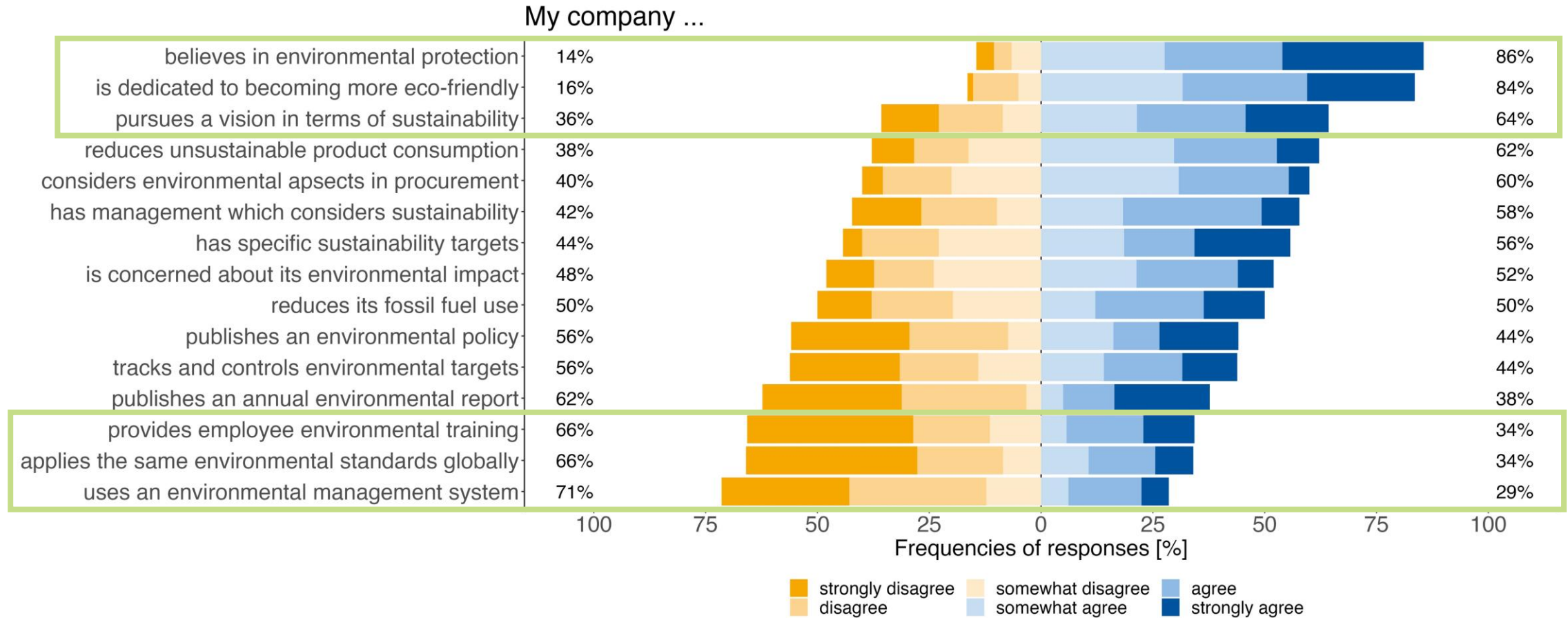
Individual factors Organizational factors

Results: Corporate Sustainability Measures

To become more sustainable,
my company has taken measures in the area of ...



Results: Corporate Environmental Policies



Results: Factors correlating with Corporate Sustainability

Step 1 – Index Formation



Sustainability Measures
(13 items)



Corporate Environmental Policies
(15 items)



Corporate Sustainability Index (CSI)
(28 items, $\alpha = .96$)

Step 2 – Individual Factor Correlations

		Eco Conciousness	Openess to change	OCBE	ETL
CSI	Spearman's rho	-0.132	0.068	0.208	0.664
	p-value	0.223	0.532	0.053	< .001*

Step 3 – Organizational Factor Correlations

		Top-down	Bottom-up	Accountability	Image	Relevance Overall	Relevance for Employees	Relevance for managers
CSI	Spearman's rho	0.702	-0.073	0.755	0.762	0.647	0.533	0.691
	p-value	< .001*	0.499	< .001*	< .001*	< .001*	< .001*	< .001*

Results: Prediction of Corporate Sustainability

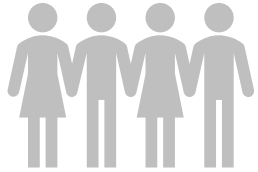


Stepwise, hierarchical regression of CSI

Variables	Model 1	Model 2	Model 3
ETL	0.65***	0.34**	0.15
Top-down		0.44***	0.35***
Accountability			0.54***
Adjusted R ²	0.41	0.51	0.74

Dependent Variable: Corporate Sustainability Index (CSI); Asterisks indicate level of significance (*p < 0.05, **p < 0.01, ***p < 0.001)

Results: Difference between SMEs and large enterprises



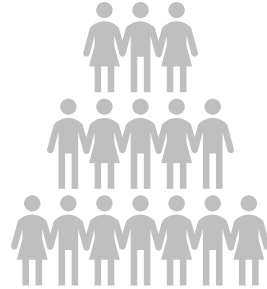
Group 1 Small and medium-sized

Up to 249 employees

$n = 43$

$M = 3.31$

$SD = 0.86$



Group 2 Large enterprises

250 or more employees

$n = 44$

$M = 3.95$

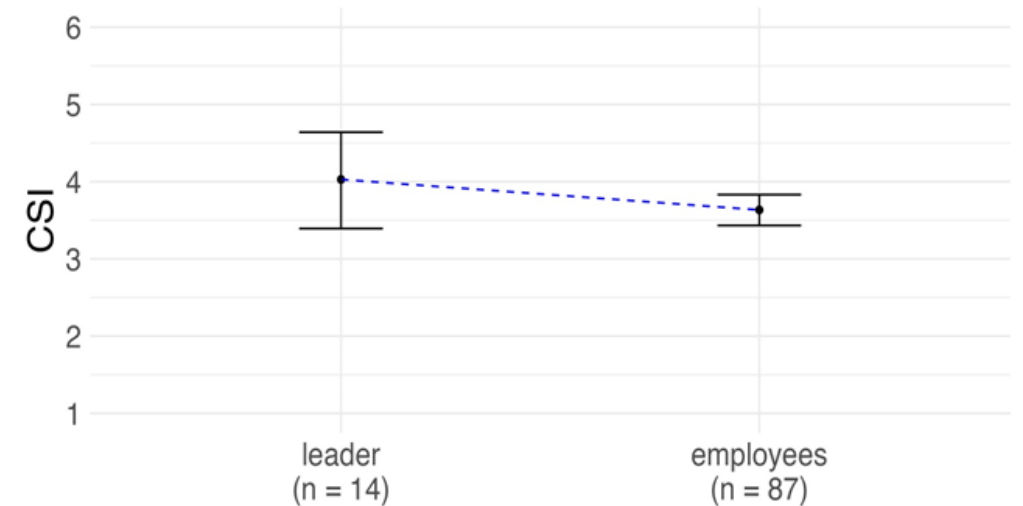
$SD = 0.94$

Large enterprises are more progressive in terms of sustainability and thus have significantly **higher CSI** scores than SMEs

$t(84.6) = -3.29, p < .01$

Discussion: Importance of Sustainability Leaders

- 1 Corporate sustainability is **leader-driven**
 - Employee attitudes and behaviours had no direct influence on the CSI
- 2 **Train and sensitise** leaders
- 3 Create **clear responsibilities** for sustainability
 - e.g. by making it mandatory for companies with a specific size or annual turnover
- 4 **Integrate sustainability in the corporate culture** as a top-down approach
- 5 **Incentivize and support SMEs** regarding sustainability



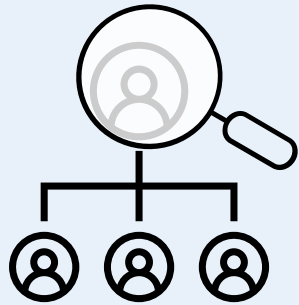
Leaders' OCBE ($M = 4.03$, $SD = 1.32$)

Leaders' **OCBE** correlated highly significantly with **CSI**

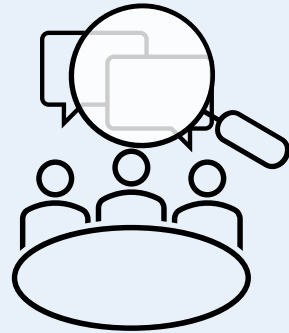
$r = 0.78$, $p < 0.001$

Future Research Steps

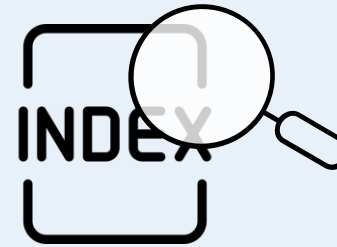
Focus on leaders responsible for sustainability to investigate which of their **psychological factors** influence corporate sustainability.



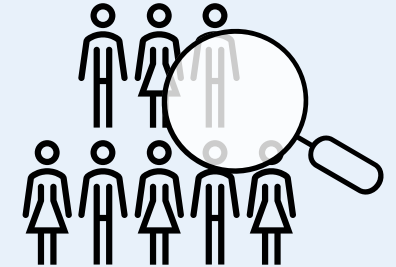
Investigate **sustainability communication** and focus on how accountability is communicated.



Refine and validate the **CSI** as a sustainability index.



Include **larger and more diverse samples**.



References

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