



**Involving green employees for
eco-innovation development:
Individual and organizational factors driving
employee-driven eco-innovation**

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Eco-innovations

New products, services and processes whose ‚greenness‘ is significantly better or that impose **smaller environmental costs** than conventional or competitive equivalents (Driessen et al., 2013).



Drivers & Sources

- *External*: e.g. customers, collaborations with research institutes or NGOs
- *Internal*: R&D departments, innovation or environmental experts



Employee Contributions

- 1) Which role play **(green) employees** for eco-innovation development?
- 2) Which **organizational factors** influence (green) employees' eco- innovation activities?

Definition

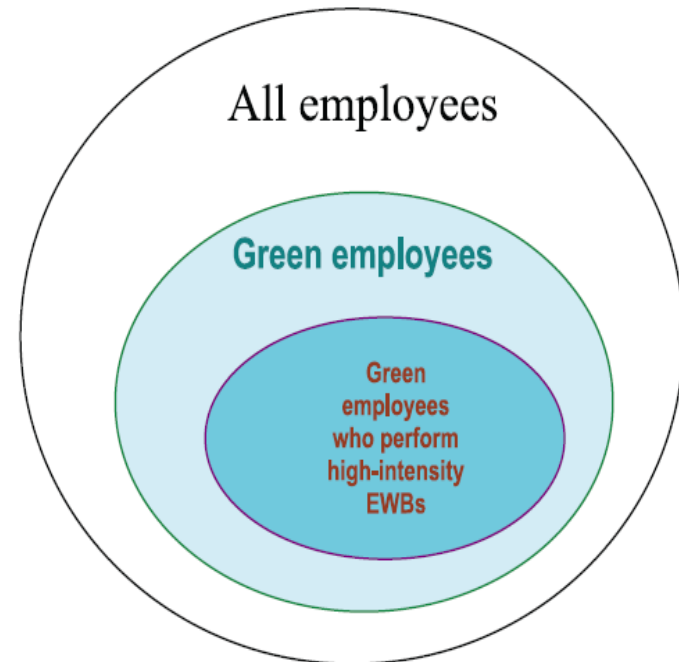
“ordinary employees’ **voluntary** engagement in **innovation** activities within an organizational context that lead to **environmental improvements**” (Buhl et al., 2016).

EDEI Process



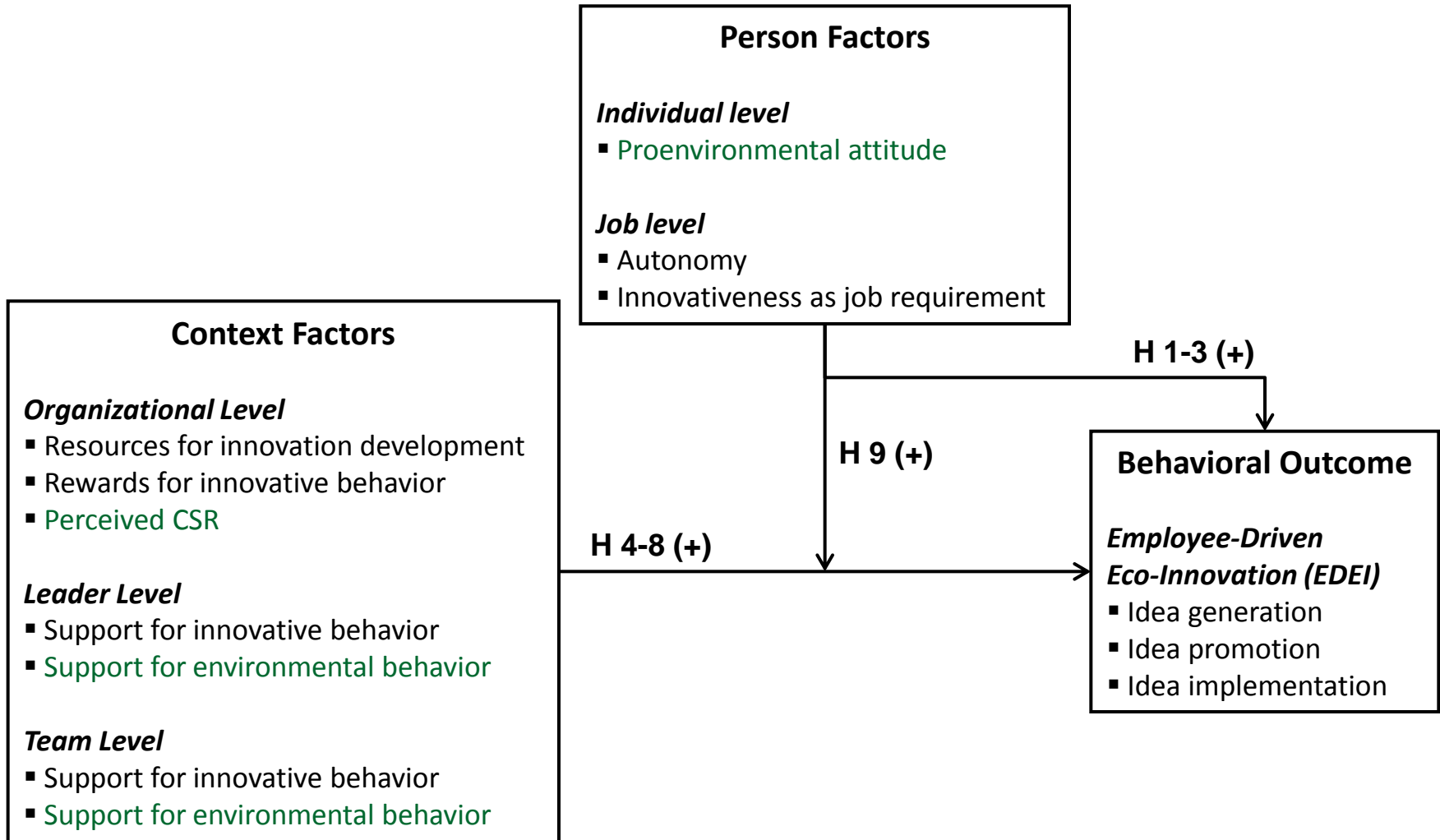


- **Environmental Identity**
 - **Intrinsic motivation** to protect the environment through work
 - **Consistency** between home and work environmental behaviors
- “Green employees can make a positive impact on the environment no matter where they are situated, given the right combination of individual traits and organizational characteristics” (Ciocirlan, 2017).*



EWBs = Environmental Workplace Behaviors

Conceptual Model



Data Collection

- **Method:** Online survey (self-reports)
- **Sources:** Employees of 5 German eco-companies
- **Survey Period:** May-October 2016
- **Final sample size:** 454 completed questionnaires

Analysis

- **Structural equation modeling (SEM)**



(Preliminary) SEM Results: MAIN EFFECTS (I)



Summary

Hypotheses	expect	real
H 1 The stronger the employee's proenvironmental attitude , the more EDEI.	+	+
H 2 The higher the degree of autonomy , the more EDEI.	+	-
H 3 The more innovativeness is a job requirement , the more EDEI.	+	+
H 4 The higher resource availability , the more EDEI.	+	+
H 5 The higher rewards availability , the more EDEI.	+	-
H 6 The higher companies' perceived CSR performance , the more EDEI.	+	-
H 7 The more leader support for eco-innovative behavior, the more EDEI.	+	?
H 8 The more colleague support for eco-innovative behavior, the more EDEI.	+	+

(Preliminary) SEM Results: MAIN EFFECTS (II)



Details

parameter		estimate	p	st'dized estimate	p
EDEI on					
<i>individual factor</i>	GRSC	0.501	***	0.249	***
<i>job factors</i>	AUTO	-0.274	***	-0.231	***
	ROLE	0.287	***	0.265	***
<i>organizational factors</i>	RES	0.314	**	0.248	**
	REW	-0.245	**	-0.179	**
	CSR	-0.437	*	-0.199	*
<i>leader factors</i>	LDSUPP				
<i>team factors</i>	CLSUPP	0.259	*	0.232	*

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

(Preliminary) SEM Results: PHASE DIFFERENCES



parameter		st'dized estimate	p	st'dized estimate	p	st'dized estimate	p
EDEI on		<i>Idea Generation</i>		<i>Idea Promotion</i>		<i>Idea Realization</i>	
<i>individual factors</i>	GRSC	0.157	**	0.299	***	0.222	***
<i>job factors</i>	AUTO	-0.173	**	-0.239	***	-0.209	***
	ROLE	0.224	***	0.111		0.338	***
<i>organizational factors</i>	RES	0.171		0.203	*	0.277	***
	REW	-0.170	*	-0.154	*	-0.128	*
	CSR	-0.198	**	-0.191	*	-0.120	
<i>team factors</i>	CLSUPP	0.240	*	0.261	**	0.109	

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

(Preliminary) SEM Results: INTERACTION EFFECTS



H 9: An employee's level of **[a] proenvironmental attitude**
([b] autonomy; [c] innovativeness as a job requirement)
 moderates the effect of intra-organizational factors on EDEI activities.

Interactions	[9a] GRSC			[9b] AUTO			[9c] ROLE		
	GEN	PROM	REAL	GEN	PROM	REAL	GEN	PROM	REAL
RES								+	+
REW									
CSR									
LDSUPP	+						+	+	+
CLSUPP	+						+	+	+

Example: The stronger an employee's **proenvironmental attitude**,
 the stronger the effect of **leader support** on her **generation of eco-innovations**.



Green employees

- **Valuable sources** for organization's eco-innovation development
- **Hardly differ** from other employees with regard to perception of intra-organizational factors



For managers

- **Adapt recruitment messages** to better attract green
- **Adapt job descriptions** by including innovative behavior



For future research

- Replicate study in **different organizational settings** (e.g. size, environmentalism)
- Investigate **attitudinal outcomes** of employees' EDEI engagement (e.g. organizational commitment, job satisfaction)

Thank you for your attention!



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Person & Context Factors on EDEI

Individual Level

H 1: The stronger the employee's **proenvironmental attitude**, the more EDEI.

Job Level

H 2: The higher the degree of **autonomy**, the more EDEI.

H 3: The more **innovativeness is a job requirement**, the more EDEI.

Organizational Level

H 4: The higher **resource availability**, the more EDEI.

H 5: The higher **rewards availability**, the more EDEI.

H 6: The higher **companies' perceived CSR performance**, the more EDEI.

Leader Level

H 7: The more **leader support** for [a] innovative ([b] environmental) behavior, the more EDEI.

Team Level

H 8: The more **colleague support** for [a] innovative ([b] environmental) behavior, the more EDEI.

Measures



	#	Construct	Abb.	References
Individual factors	1	Employee-driven Eco-innovation	EDEI	Janssen, 2000
	2	Proenvironmental attitude (Green Scale)	GRSC	Haws et al., 2013
Job factors	3	Autonomy	AUTO	Ramamoorthy et al. (2005)
	4	Innovation as a job requirement	ROLE	Yuan & Woodman, 2010
Organizational factors	5	Resources for innovation development	RES	Scott & Bruce, 1994
	6	Rewards and recognition for innovative behavior	REW	Baer et al., 2003
	7	Perceived CSR	CSR	Valentine & Fleischman, 2008
Leader factors	8	Leader Support for innovative behavior	LDSUPP	Janssen, 2005
	9	Leader Support for environmental behavior		Zhang & Bartol, 2010
Team factors	10	Colleague Support for innovative behavior	CLSUPP	Axtell et al., 2000
	11	Colleague Support for environmental behavior		Paillé et al., 2016