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1. Introduction

The role of employees as a relevant stakeholder group for achieving corporate sustainability (CS) has recently gained greater attention in the academic literature – a focus that goes hand in hand with a holistic approach towards CS, taking into account that strategic initiatives can only be implemented with the active support and participation of individual employees (Lozano, 2015; van Marrewijk and Werre, 2003). Within this approach, workforce engagement is regarded as a central element or a resource for "transforming a firm's sustainability mission, strategy, and values into measurable results" (Galpin and Whittington, 2012: 41). Various conceptualizations of employee contributions towards corporate greening that may subsequently influence management practices can be distinguished. A first strand concentrates on the user knowledge of employees for improving products and services and develop eco-innovations (Buhl et al., 2016; Ramus, 2003). A second strand seeks to benefit from tacit employee knowledge in order to improve work processes and routines that can have an impact on the sustainability of the fabrication process, such as in detecting sources of pollution and toxic emissions (Wolf, 2013). A third approach, which can be seen as part of a holistic strategy for greening the workplace, is to motivate employees towards sustainable behavior within the organization (Muster, 2011; Süßbauer and Schäfer, 2018). From this perspective, employees are not simply regarded as a resource; rather, they simultaneously feature as a target group for CS activities. Holistic CS strategies can enable businesses to go beyond technological innovations – not only shaping economic life but also stimulating changes in the culture that underlies market expectations (Jackson, 2005; Michaelis, 2003; Paech and Pfriem, 2002).

Although there are some concepts that seek to combine employee engagement and workplace greening (e.g. green work–life balance, Muster and Schrader, 2011), empirical insights into holistic corporate sustainability practices are still scarce. Most existing studies tend to have an isolated focus on either individual determinants or organizational factors (Lo et al., 2012). The objective of the present study, therefore, is to identify corporate strategies of workplace greening that may change consumption routines among employees while also allowing for their participation. By consumption routines we refer to everyday activities described in the literature as having lower environmental footprints, including practices associated with eating and drinking, energy use, commuting and travelling as well as waste prevention or separation (Spaargaren and van Koppen, 2009).

We apply a conceptual framework inspired by Social Practice Theory (SPT) and theories of organizational learning to suggest some necessary components for changing consumption practices at the workplace towards sustainability (section 2). In contrast to most existing studies, our framework reconciles aspects of workplace greening related to structure and individual agency. Based on this framework, we have conducted an interorganizational comparison of eight sustainability-oriented German firms from different industrial sectors (section 3). Empirical data was obtained through guided interviews with management personnel, focus group discussions with regular employees as well as staff surveys. By comparing the case studies, we have derived four types for workplace greening and, on that basis, have formulated recommendations for large traditional companies as well as smaller ecopreneurs (section 4). We discuss the benefits and limitations of using an SPT approach for the analysis of sustainable consumption at the workplace as well as for management (section 5). Finally, we outline some questions for future research and draw some conclusions (section 6).

2. Theoretical background

There are two main approaches in management studies that are concerned with sustainable consumption in the workplace: literature focused on organizational culture, on the one hand, and that on employee pro-environmental behavior (PEB)[1], on the other. Referring critically to these two strands of the

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[1] We use employee pro-environmental behavior (PEB) as synonym for the following terms: environmental workplace behavior, environmental behavior in the workplace, organizational pro-environmental behavior, workplace

management literature, we here present our conceptual framework, which aims at integrating aspects of structure and of agency.

2.1 Workplace greening and the missing link between structure and agency

In the literature on corporate sustainability, organizational culture is regarded a key factor for incorporating environmental considerations throughout the entire organization (e.g., Linnenluecke and Griffiths, 2010; Loverock, 2010; Thomas and Lamm, 2012; Wesselink et al., 2017), with scholars finding a positive relationship between supportive work environments and formation of workplace environmentally oriented behavior. This work has, however, been criticized for an "over-reliance on simplified formulae for cultural change and a lack of insight into how culture change might occur" (Linnenluecke and Griffiths, 2010). For example, it is often assumed that sustainability as a value automatically spreads in a cascade effect from the management level to all hierarchies (e.g., Robertson and Barling, 2013; Welford, 1995), whereas Harris and Crane (2002) found, instead, that companies remain unchanged by formal greening strategies if there is no supportive informal culture to complement them. They recommend concentrating not only on the official organizational culture but also analyzing routines, structures and strategies as manifestations of culture. This finding is confirmed by a recent cross-cultural study on low-carbon energy behaviors in the workplace: although organizations publicly expressed their commitment to sustainability, this did not always translate into effective behavioral support strategies within them (Dumitru et al., 2016).

Aspects of organizational change have been primarily addressed by organizational psychology scholars, with a growing body of literature focused on employee PEB that is rather informal and "non-obligatory" (e.g., Boiral, 2009; Daily et al., 2009; Lamm et al., 2013; Lülfs and Hahn, 2013). These authors suggest that the sum of pro-environmentalbehavioral patterns might have a significant impact on corporate greening, including responsible energy usage, sensible handling of waste, switching off office lights and printers or substituting business-related flights with video conferences. Such behaviors are understood as being "voluntary" (not specified in official job descriptions) and "discretionary acts" (Daily et al., 2009) which are usually neither demanded nor rewarded by the organization. Studies taking this approach usually assume that behaviors are consciously directed towards environmental improvement in order to "help to make the organization and/or society more sustainable" (Lamm et al., 2013) and that employees "proactively" (Bissing-Olson et al., 2013) engage in PEBs that move beyond the realm of their required work tasks as a "natural and unconstrained extension of green citizenship" (Boiral, 2009). Empirical studies in this field often focus on employees who are positively predisposed towards PEB (e.g. Loverock, 2010; Smith and O'Sullivan, 2012); they are considered to be "green employees" and are assumed to have "an environmental identity, an intrinsic motivation to protect the environment through work, and aim for consistency between home and work environmental behaviors" (Ciocirlan, 2017: 52). From this perspective, personal norms, values and attitudes are central predictors or determinants of employee PEB.

Qualitative studies, though, have not been able to fully confirm the seemingly rather optimistic assessments of some researchers regarding potential environmental awareness and behavior of workers and their motivation to participate actively in creating green workplaces (Hargreaves, 2011; Remmen and Lorentzen, 2000). To our understanding, this is partly due to the fact that PEB at the workplace is mostly embedded in daily routines (such as eating, using energy, producing waste or travelling), which are rarely reflected upon by employees (Süßbauer and Schäfer, 2018). Similar to which are embedded in their private lives, people rarely evaluate their workplace routines critically, although they go there almost every day and, over the course of a lifetime, spend much of their time there (Hitchings, 2011). However, in the literature on employee PEB, habitual behavior is often excluded from analysis referred to as "low-intense" (Ciocirlan, 2017), "short-term" (Lülfs and Hahn, 2013) or merely an "extension of domestic behavior" (Smith and O'Sullivan, 2012). What is more, the material conditions and structures of the workplace are rarely considered in empirical studies on sustainable employee behavior (Lo et al., 2012). The holistic nature of connections within and between both organizational and cognitive factors in their influence on the general behavior of individual employees is often neglected or only poorly addressed in such studies (Ones and Dilchert, 2012; Tudor et al., 2008).

2.2 Changing consumption routines at the workplace: a practice theory perspective

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pro-environmental behavior, environmentally friendly behaviors in the workplace, and environmentally responsible behavior in the workplace.

To consider the habitual character of sustainable behaviors at the workplace, we draw primarily on Social Practice Theory (SPT), wherein social practices are defined as routine-driven types of behaviors that are shared by groups of people as part of their daily lives (Reckwitz, 2002; Verbeek and Mommaas, 2008). Consumption is not only a reflection of individual preferences but also perceived to be a result of engaging in everyday-life practices. Thus, environmentally relevant behaviors are regarded as the "visible" part of social practices, with recycling behaviors, for example, being seen as part of more deeply embedded practices related to shopping, parenting or gardening.

Being reproduced over time at different locales, social practices are relatively stable entities. According to Reckwitz (2002), this is due to their dependence on a specifically interconnected configuration of three elements – materials, meaning, and competences – but which cannot be reduced to any one of them. For their continued existence, social practices depend on the use of objects, infrastructure, tools, hardware or the body itself, all considered under the category *materials*. Social practices are also connected to mental activities, emotions and motivational knowledge, which form *meaning*. Meanwhile, *competences* refer to shared understandings of good and appropriate performance as well as skills required to carry out a practice (Shove et al., 2012). These three elements are integrated via the everyday performance of social practices.

Although the routine nature of social practices is achieved through their repetitive enactment, this does not mean that they cannot change over time (Warde, 2005).Shove et al. (2012) describe different stages in a life of a practice depending if links between the three elements are not yet made ("proto-practices"), are being made ("practices") or no longer exist ("ex-practices") (see Figure 1).
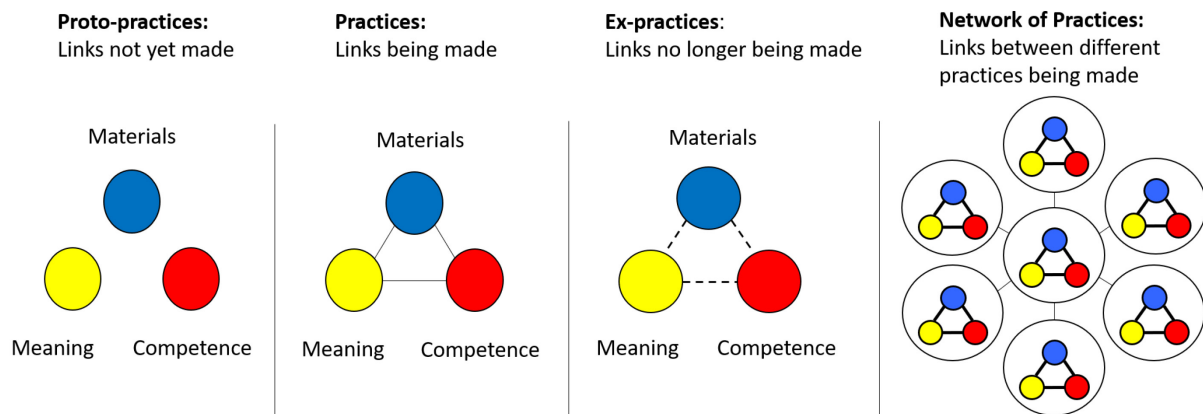

Figure 1: Stages in a life of a practice (Source: modified from Shove et al., 2012)

Highlighting the links between the elements, these stages offer opportunities for practice transformation. For example, people create combinations of new and existing elements, such as with newly acquired competences or new technology (e.g., disappearance of the coal oven for heating and emergence of the wood pellet oven; Gram-Hanssen, 2011) or people can connect old behaviors to new meanings (Schäfer et al., 2012; Shove and Pantzar, 2005). Referring to the necessity of stabilizing new practices, we add another stage called "network of practices" (e.g. Macrorie et al., 2015; Spurling and McMeekin, 2015). This stage refers to the integration of a new practice in networks of existing different everyday practices. Food consumption activities, for instance, can be seen as part of daily maneuvering between food practices and other practices in the social organization of everyday life, including parental, work and transportation practices (Halkier and Jensen, 2011).

2.3 Exploring corporate strategies of workplace greening: a conceptual framework

We have developed a conceptual framework that seeks to operationalize SPT concepts outlined above for an integrative and systematic analysis of existing corporate strategies towards workplace greening (see Table 1). With "workplace greening" we refer to corporate strategies that aim at changing everyday consumption routines of all company members towards sustainability.

Table 1: Framework for analyzing corporate strategies of workplace greening. (Source: modified from Süßbauer and Schäfer, 2018)

Approach to practice transformation	Level of workplace greening	Enabling structures and Activities

Providing sustainable elements of social practices ("proto-practices")	(1) Opportunity	Meaning	Corporate culture • Explicit: vision, mission • Implicit: social norms and values	(4) Employee participation • Formal: idea management • Informal: participate structures
		Competences	Competences • Formal: training • Informal: inspiring learning environment	
		Materials	Design of offices, building(s) and open spaces • Infrastructure • Equipment • Financial incentives	
Establishing links to new sustainable elements of practices ("practices")	(2) Experimentation		Social activities to experiment with new sustainable practices • Single events/initiatives • Regular campaigns Rules for appropriate performance of sustainable practices • Codes of conduct • Unwritten rules • Standards (of working)	
Destabilizing links between old unsustainable elements of practices ("ex-practices") & strengthening links between new elements of practices				
Establishing links between multiple practices ("network of practices")	(3) Stabilization		Enable sustainable consumption across settings • Work-to-life interventions • Life-to-work interventions	

According to the four above-mentioned stages in the life of a practice and respective approaches to practice transformation (see first column), we formulate three levels of workplace greening: opportunity, experimentation, and stabilization (see second column). Since companies have evolved certain culture(s) and norms over time, it is important to consider management practices and social dynamics between employees when studying strategies of workplace greening. Thus, we complement SPT with studies on organizational learning and organizational change whose authors emphasize the value of integrating employee needs and experiences into the development of enabling structures and activities at the workplace (Hargreaves, 2008, 2011; Heisserer, 2013; Klade et al., 2013; Nicolini, 2012; Nye and Hargreaves, 2010; Remmen and Lorentzen, 2000; Schultz and Seebacher, 2010). By referring to these studies, we added a fourth cross-cutting level of workplace greening: employee participation.

We propose that all levels in the framework need to be addressed by companies to enable change of employee consumption routines, because they address underlying social practices. In the following subsections, we describe structures and activities associated with these different levels and give some examples of their manifestations in the workplace setting (see third column).

(1) Opportunity

Activities on the level of opportunity are related to the incorporation of sustainability goals and practices into the material and organizational structure of a company (Süßbauer and Schäfer, 2018). In accord with the logic of SPT, there need to be activities and structures that address all three elements of practice: materials, meaning and competences. First, a coherent sustainability orientation could be expressed by providing *supportive material conditions* for all relevant consumption domains, including the use of renewable energies for electricity, rainwater for toilets, offering drinking fountains with tap water and vegetarian/organic meals in the canteen or procurement of ecological office equipment. Second, sustainability needs to be seen as an integral part of the respective company's *corporate culture*, manifested in corresponding activities, including acknowledging employees' sustainable activities by, for example, giving awards or other forms of public appreciation. Another component of sustainability culture is that an organization's management personnel can serve as a positive role model of what sustainable consumption routines at the workplace could look like by, for example, cycling to work or taking trains

for business trips. Third, *competences regarding how to act sustainably in everyday life*, such as how to reduce and separate waste or repair one's own bike, could be provided through training or, more informally, through an inspiring learning environment (Schultz and Seebacher, 2010).

(2) Experimentation

Providing elements and conditions for sustainable consumption practices is a necessary step towards building green workplaces but does not guarantee that employees will change their routines. Because practices can only be changed as they are being performed (Reckwitz, 2002), it is essential that employees, as the carriers of a practice, can interact with the sustainable structures outlined above. Thus, to stimulate change in social practices towards SC, companies can offer *opportunities to experiment with sustainable elements of practice*, including providing e-bikes for commuting or via campaigns or initiatives, such as CO_2-saving competitions between companies in a region or between divisions within a company. Besides creating opportunities for having new experiences, the *provision of rules for SC* (in the form of codes of conduct, unwritten rules or working standards) is an option to strengthen links between the sustainable elements of various practices while destabilizing links to unsustainable elements. A rule that no airline flights are to be used for national business trips, for instance, can seek to establish links to sustainable practices (e.g. taking trains) while simultaneously dismantling links to unsustainable practices (e.g. airplane travel). Drawing on qualitative studies, we additionally assume that change of routine often happens through imitating the behavior of other colleagues (Heisserer, 2013; Schultz and Seebacher, 2010).

(3) Stabilization

Whereas experimentation can deliver key impulses towards trying out new behaviors and stimulate change in social practices, the stabilization level is important for fully integrating new behaviors into the everyday life routines of employees. Stabilization of social practices requires "ongoing accomplishments in which similar elements are repeatedly linked together in similar ways" (Shove et al., 2012: 24). Therefore, stabilization can only be attained over longer periods of time, during which links between the sustainable elements of a new sustainable practice become more firmly embedded in everyday routines. One way to foster stabilization is the establishment of links between multiple practices from different settings; for example, mobility behaviors might be closely linked to grocery shopping, bringing children to school and the like. Although companies only have limited possibilities for supporting integration of new practices in complex networks of practices, in some fields it is possible to offer activities or incentives which can link the workplace to the domestic domain. Offering car-sharing options or the possibility to order organic meat/vegetables via the company are examples of such work-to-life interventions (Muster and Schrader, 2011).

(4) Employee participation

A cross-cutting category of workplace greening is employee participation. Depending on the corresponding level of workplace greening, employee participation encompasses activities that seek to involve employees in decision making, planning, or implementation of change (Remmen and Lorentzen, 2000). For example, employees can – via informal or formal channels – bring in their ideas regarding the material and organizational conditions for sustainable workplace behavior (see level 1). Moreover, existing studies show that it is crucial to build interventions upon tacit employee knowledge about concerns such as time restrictions (Klade et al., 2013; see level 2). Measures offered are likely to be more successful if shaped or re-shaped by the employees themselves (Schultz and Seebacher, 2010). Additionally, we assume that encouraging employees to share their private sustainability experiences can provide them with chance to link domestic to workplace practices. In the long run, this can lead to mutual adjustment between the work and domestic domains, resulting in stabilizing patterns of sustainable consumption (see level 3).

3. Research design

In the following, we first present the case study companies (section 3.1) and then describe how we collected (section 3.2) and analyzed the data (section 3.3) from the companies.

3.1 Case study companies

Our work is based on an interorganizational comparison of eight German companies[2]. We focused on sustainability-oriented companies, because we assume that they are more likely to also foster sustainable consumption among their own employees. Two types of companies with presumably different kinds of sustainability culture have been included (Hockerts and Wüstenhagen, 2010): *Greening Goliaths* are large companies whose sustainability innovations aim at the mass market, providing benefits to a larger part of society, whereas *Growing Green Davids* are small or medium-sized ecopreneurs that focus on attractive market niches with targeted eco products. While the smaller Davids explicitly aim at providing not only economic value but also social and environmental value, Goliaths are large, established firms which tend to be older and have a relatively high market share.[3] We chose enterprises of these two types, because we expected to find differences between them regarding organizational and material structures that can favor cultivating sustainable consumption among employees and encouraging their participation in corporate strategies and activities.

In addition to size and strategic orientation towards sustainable entrepreneurship, the selected companies also differ from each other regarding the economic sectors to which they belong (see Table 2). We deliberately chose sectors associated with everyday-use products or services such as cosmetics, cleaning devices, clothes, or mail order businesses, since it can be expected that employees are also consumers of such products or types of business.[4] Moreover, the selected case studies are located in different parts of Germany (North, South, and West).

Table 2: Characteristics of case-study companies.

Type	Code name	Characteristics		
		Sector	Size*	Sustainability profile
Greening Goliath	Goliath A	Mail order business	3,400	Founded in 1949; family business; sustainability and environmental protection as a corporate goal since 1986; "Corporate responsibility strategy 2020" with focus on the value chain
	Goliath B	Consumer goods and retail sales	2,000	Founded in 1949; family business; sustainability strategy since 2006 with focus on international voluntary agreements; several CSR awards
	Goliath C	Washing and cleaning devices & cosmetics	5,500	Founded in 1876; sustainability report since 2014 aiming at decoupling of economic growth from ecological footprint by factor 3; systematic integration of sustainability in the development of product innovations
Growing Green David	David A	Cosmetics & pharmaceutical products	900	Founded in 1935; anthroposophical founder; natural manufacturing processes; no use of preservatives; capital belongs a company foundation; energy and resource efficiency of the company site; plenty awards on environmental friendly employer
	David B	Washing and cleaning devices	60	Founded in 1977; natural manufacturing processes; no use of preservatives; holistic innovation, quality and social concept (including occupational health); capital belongs a non-profit company foundation; no CO2 emissions of company site; various national and European awards
	David C	Mail order business	350	Founded in 1987; distribution of natural products for everyday life; profit participation of employees; no CO2 emissions of company site

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[2] We have anonymized the names of the companies as we agreed with them not to publish confidential data.

[3] Hockerts and Wüstenhagen (2010) argue that both the emergence of Davids as well as a process of Greening Goliaths can result in the transformation of industry towards sustainability.

[4] Other work packages of the overall research project that we were involved in were focused on sustainability innovations of core business matters and how regular employees can be integrated into such innovation processes from the consumer point of view.

David D	Print and online media	65	Founded in 1979; information on natural food; employees are shareholders of the company since 2011; no CO_2 emissions of company site; mission statements after probation period
David E	Electricity supply	100	Founded in 1994 by protest movement; use of renewable energies and decentralized energy supply; focus on core business and corporate citizenship

*No. of employees working at the main company site.

3.2 Data collection

Relating to the framework described in section 2.3, we need to look at integrative strategies of workplace greening from both perspectives top-down ("official description of organizational culture") as well as bottom-up ("manifestations of organizational culture"). Thus, to obtain a comprehensive picture of the case-study companies, we combined three methods representing both perspectives: guided interviews with management personnel, focus groups with regular employees and staff surveys (see Figure 2). All empirical components of this study consisted of questions regarding enabling structures and activities for sustainable consumption as well as for integrating employees into the design and maintenance of such structures and activities (employee participation).

First, we conducted *guided interviews* with three to five executive staff members belonging to relevant departments in each company, including sustainability and human resource management, workers' council, innovation and facility management, public relations and marketing. In the ecopreneur companies with less hierarchical levels, the directors were also included. The interviews took approximately 60 minutes each. We used this method to learn more about pertinent structures and activities for greening the workplace. Essentially, we asked how the company supports sustainable behaviors at the workplace (e.g. via formal trainings, sustainable equipment and infrastructure or financial incentives) what sustainability means to the company, if they distinguish between abstract sustainability goals and their own behavior at the workplace as well as instruments for employee participation (see guideline in Appendix A). Combined with information from official reports and websites, we take the management interviews to represent the official culture of the case-study companies, with a top-down view on sustainable consumption at the workplace and integration of employees.

Second, we conducted *focus group discussions* with five to ten employees in each company (except for Goliath C). Focus group discussions can be used to learn more about typical modes of perception and evaluation as well as underlying structures of meaning (Kühn and Koschel, 2011). Thus, we used these discussions to learn more about consumption routines in the companies.[5] Complementary to examining the official claims and values articulated during the management interviews, the focus groups allowed us insights into the manifestation of corporate cultures. To learn about the social and institutional contexts of the reported behaviors, we asked focus group participants to refer to behavioral changes in the past, routines of their colleagues and their perceptions of what is regarded as "normal behavior" within the company or within the departments they belong to (Halkier and Jensen, 2011; Hitchings, 2012). Additionally, we asked about participants' experiences with the existing innovation management practices and possibilities for participating in designing sustainable workplace conditions. Finally, we asked for their experiences with work-to-life interventions (see guideline in Appendix B).

Except for the focus group at Goliath A, where employees were selected by an open call, all management interviews and focus groups were convenient samples. Participating employees were appointed by the project leader of the company either because they were engaged or interested in issues of sustainability (focus groups) or dealing with it professionally (management interviews). To bring together a typical group of employees of each respective company, we asked the project leaders to select a heterogeneous mix of employees in terms of their positions, work areas and length of tenure. Furthermore, we considered several aspects to avoid social desirability (Kühn and Koschel, 2011). First, in excluding immediate supervisors, presenting rules for the discussion, sitting in a circle and starting with a warm-up exercise, we tried to create a relaxing atmosphere and a group dynamic so that participants would feel that they could speak freely. Second, to stimulate verbal expression of unconscious habits and self-evident meanings, we started the discussion by showing pictures of daily activities and asked participants to firstly write down some associations. In doing so, we tried to avoid imposing scientific concepts

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[5] The data collection on consumption routines was reduced to what the participants reported in the focus groups. Within the project context, it was not possible to carry out complementary participatory observation.

(e.g. sustainability) on the participants. Third, we constantly posed immanent and open requests (e.g. "could you please give an example on that") to stimulate descriptions rather than rational explanations, as the latter tend to be based on cognitive concepts rather than informal practices such as habits, routines and meanings. The focus groups took 180 minutes each. Both the guided interviews and the focus group discussions were audiotaped and later transcribed in German, with selected quotations being translated into English for publication purposes.

Third, to raise the validity of findings and gain a comprehensive impression of green workplace strategies, we supplemented the two qualitative methods with a quantitative data collection method: data triangulation. In 2016, we ran *staff surveys* in which we asked about employee satisfaction with their company's support of sustainable workplace behavior as well as channels for submitting new ideas. All case-study companies except for Goliath B and C took part, amounting to about 4,870 employees in total. The questionnaires covered 101 questions on employee attitudes towards the environment and innovation as well as perceived support of employee-driven eco innovation. Since we are only interested here in the questions regarding the workplace, this paper only refers to two questions from the survey (see Appendix C). The questionnaires were provided to all employees via an online system. In two companies, workers without a personal computer received a paper-based questionnaire. The questions included several items and the answer options were generally based on a five-tier Likert scale, with a quality rating from high ("I agree") to low ("I disagree"). In total, we received 804 questionnaires, of which 616 were deemed valid.

3.3 Data analysis

We primarily pursued a qualitative approach to data analysis to better understand how the organizational and material structures in the studied companies seek to foster sustainable routines in the everyday lives of their employees. Results from the quantitative staff surveys were used in a second analytical step to complement the qualitative data and be able to define different types of workplace greening (see Figure 2).
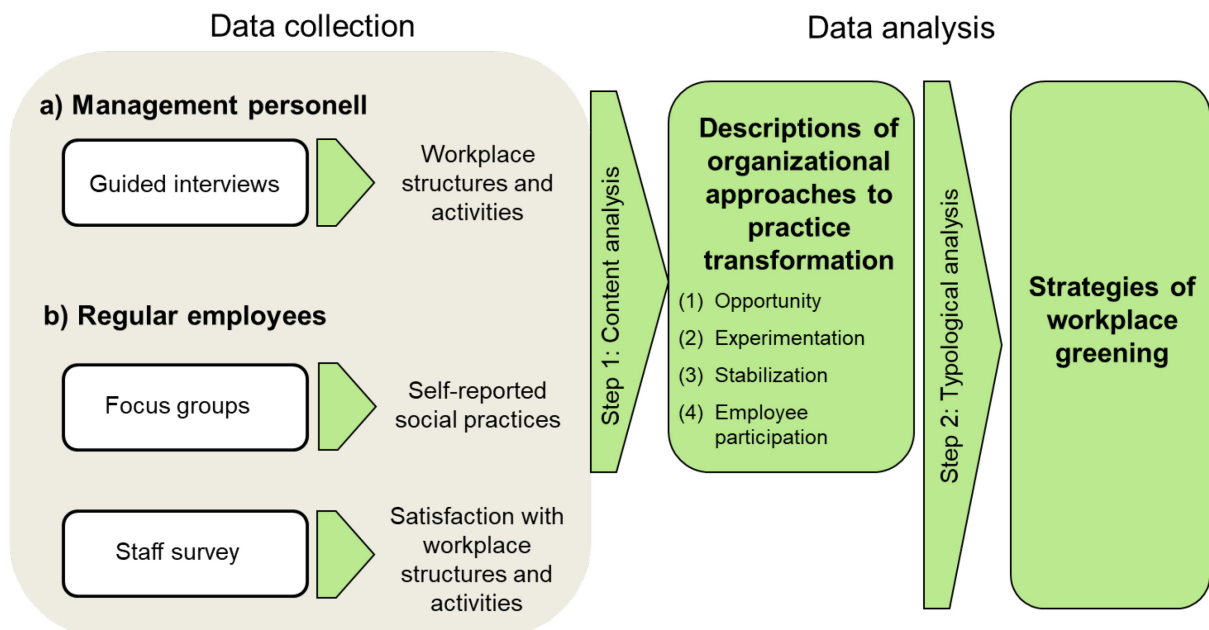

Figure 2: Steps for data collection and analysis.

The data analysis included two major steps: First, to structure the data from the guided interviews and focus groups, we applied qualitative content analysis, a method that is regarded as being suitable for systematic, theory-driven analysis of large quantities of data (Mayring, 2014). We used the framework presented in section 2.3 to describe the companies' strategies for supporting sustainable consumption at the workplace, looking at existing structures and activities as well as self-reported practices. Based on that, we produced individual case-study descriptions. To avoid selective perception and illuminate blind spots, two researchers alternately coded the data.

Second, by systematically comparing the individual case study descriptions, we identified different types of workplace-greening strategies that go beyond the individual cases. We applied typological analysis, which is a method in qualitative social research for detecting central differences and similarities within

data and aiming at the formulation of tentative hypotheses regarding causal relations and structures of meaning (Kluge, 2000). A typology is the result of a grouping process: The properties of a type[6] must be as similar as possible (internal heterogeneity on the level of the type) and the differences between the types must be as great as possible (external heterogeneity on the level of the typology). To elaborate these properties and their dimensions, we switched between deductive and inductive procedures of data analysis: based on the categories of the framework and with the help of software for qualitative data analysis, we detected central similarities and differences within the data regarding causal relations and structures of meaning. As a result, we found two different degrees of enabling sustainable consumption at the workplace (coherent and fragmented) and three different forms of employee participation (paternalistic, permeable and participative).

4. Results

Based on the above-mentioned typological analysis, we differentiate two major dimensions that appear to be relevant for exploring differences and similarities in greening the workplace: A) enabling structures for sustainable consumption and B) employee participation. In the following two subsections, the sub-dimensions of these two dimensions are described using data from the management interviews, focus groups and staff surveys. In combining the two dimensions and their properties, we have developed a typology of corporate strategies for workplace greening, which is presented in section 4.3. To avoid excessive quotation, we have been highly selective in presenting only a few that illustrate informant views and opinions. To preserve the anonymity of respondents, some details have been altered.

4.1 Dimension A: Enabling structures for sustainable consumption

The analyzed companies reveal different degrees of ability to enable sustainable consumption at the workplace, which we categorize under the two sub-dimensions of *coherent* (A1) and *fragmented* (A2).

4.1.1 Coherent (A1)

The case-study companies David A, David B and David D exhibited coherent enabling structures which are characterized by supportive structures and activities in all consumption areas (resource use, energy use, food, mobility) and continuous endeavors to improve them. The focus groups in these companies indicated that coherent enabling structures manifest themselves in the habitual performance of sustainable consumption practices, and the quantitative survey found that company endeavors are positively recognized by almost half of the employees, as 44 to 51% of them claimed to be satisfied with the support provided for sustainable consumption at their workplace (see Appendix C, Table C1).

Opportunity Level

Companies with coherent enabling structures exhibit strong interpretations of sustainability, aiming at a real decrease of resource and energy consumption at the company site and the decoupling of growth and resource consumption. This mission is demonstrated by, for example, a company producing its own renewable energy (David B) or via rejection of approaches aimed at compensation of CO_2 emissions (David A). Holistic interpretations of corporate sustainability are mirrored in, for example, the exemplary behavior of company directors.

> *The management board is the embodiment of sustainable living, demonstrating this strongly in every action. This influences other people who come here and, later, show this [attitude] to others.* (interview 2, David B)

In addition to informal knowledge exchange, there are formal and informal opportunities for gaining competencies that are necessary for sustainable consumption at the workplace, including via training or personal coaching, bike repair workshops, in-house technical support for cyclists, a waste representative (all from David A).

The infrastructure in companies with coherent enabling structures is energy and resource efficient, often including photovoltaic plants, rainwater for toilets, or local energy use (Davids A, B and D). Sustainable equipment is available in all consumption areas, including ecological office supplies, e-bikes for internal transport, carbonators for tap water, showers for cyclists, and parking spaces for car sharing (Davids A,

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[6] A type can be defined as a combination of its properties. Between the particular properties of a type, both empirical correlations and meaningful relationships must exist (Kluge, 2000).

B and D). Financial incentives for sustainable consumption behavior are available for all employees, such as complete refunds for public transport or bike leasing (both from David A).

Experimentation Level

The companies with coherent enabling structures included repeated activities for gaining experience with new practices, such as an annual summer competition for cycling to work. These were accompanied by opportunities for regular informal exchange, including monthly staff meetings. Initiatives for experimentation in these companies are often long-term, team-based, include social interaction between employees and are combined with financial incentives and digital tools to ease the integration of new practices into the everyday lives of employees. The focus groups revealed that some employees taking part in these initiatives find their own adaptive forms of sustainable consumption routines, such as commuting halfway to work by car and the rest by bike (David A). By supporting the establishment of links between sustainable practices, such initiatives seem to simultaneously contribute towards destabilizing links with unsustainable practices.

Additionally, there are explicit rules in such companies – regularly communicated in written or oral manner throughout the company, such as codes of conduct for new employees – that seek to help in establishing links between sustainable practices, while destabilizing unsustainable ones (Davids B, D). As a result, sustainable consumption becomes regarded as "normal behavior". Saving energy in the office, for example, is not an abstract rule but is actively embedded in everyday lives of employees through social interaction with others.

> *Basically, I like how everybody purchases electricity. Also, that we can make our colleagues aware of their behavior regarding heating, opening windows, pulse ventilation and so on. That's really something everybody's constantly paying attention to.* (person 7, focus group David D)

> *It has become more or less normal in the manufacturing department to really pay attention and switch off the lights.* (person 4, focus group David A)

Other examples of routinized sustainable behavior within a company or department include reusing office materials, carpooling, or using buses and trains for business trips. Rules like avoiding domestic flights (David D) destabilize links between unsustainable practices. Furthermore, consumption routines, such as (the frequency of) eating meat, are intensely discussed. Even if such companies do not always succeed in introducing new organizational routines, as for example a veggie day (David A), debate on them contributes towards growth of an experimental culture.

Stabilization Level

Furthermore, companies with coherent enabling structures also include opportunities for bridging work and private domains, such as providing options for ordering organic meat for employees' private households or offering support for reduced train tickets (both David A). Meanwhile, employees are also encouraged to contribute their own private sustainability experiences and ideas through, for example, beekeeping at the workplace (David D) or offering surplus vegetables from their own gardens to coworkers. Such activities can contribute towards integration of new practices in more complex systems of practice, extending to a variety of other domains.

Employees also pointed out the positive effects of initiatives that pointed towards their domestic consumption routines:

> *Well, you get a lot of inspiration here, also for the home. Due to the social interaction [here], which is even welcome, you always get more ideas. And all these initiatives – well, I think it's really fantastic what I took out [of it all] for me, just for myself so to say.* (person 3, focus group David A)

4.1.2 Fragmented (A2)

Meanwhile, the majority of the case-study companies did not exhibit what we consider to be coherent enabling structures but, rather, only fragmented facilities and offers characterized, for example, by sector-related and temporary measures and activities. We found fragmented enabling structures in all Goliath companies (Goliath A, B and C) as well as in Davids E and C. From our perspective, provision of fragmented enabling structures was reflected in the answers to the quantitative survey, wherein only 15 to 23% of employees were satisfied with the support provided for sustainable behavior at the workplace of such companies (see Annex, table 3). Additionally, analysis of the qualitative data from the focus

groups indicates that fragmented enabling structures go along with either unsustainable consumption routines or co-existence of unsustainable and sustainable practices.

Opportunity Level

The corporate understanding of sustainability in such companies is often reduced to environmental management in response to external expectations. The focus of sustainability activities is, thus, on core business concerns, neglecting the potential for greening the workplace in the long term, as the quote of one of the managers illustrates:

> *I think the crucial aspects are not at the workplace. This is, I would say, rather a hygiene factor. How much paper you print, how much energy is consumed in the building, that's all negligible.* (interview 5, Goliath C)

It also appears that directors of companies with fragmented enabling structures do not necessarily implement sustainable practices in their own private lives, and there seems to be a discrepancy between formal and informal meanings of sustainable workplace behavior:

> *In fact, our CEO leads by example: he also drives an e-car. We are always on top of the company ranking. At the same time, though, he's got a Maserati at home. Well, that's his private concern – in terms of the company, he exhibits exemplary behavior.* (interview 2, Goliath B)

In line with the quantitative survey findings, the participants of the focus group from these companies note that there is more potential for supporting sustainable consumption at the workplace:

> *Technically, among the employees, awareness about the issues regarding sustainability and the environment should be raised. If I think of that, so many dimensions of the problem come to mind; my company could really give some further impetus for daily routines at the workplace.* (person 4, focus group Goliath A)

Competences necessary for sustainable behavior are often not addressed or are reduced to just being theoretical knowledge, as for example providing information/stickers on energy saving strategies in the intranet or in the company magazine (Goliath C).

With regard to material providing conditions for sustainable behavior, fragmented workplaces are often limited to infrastructural endeavors, such as rainwater or green-electricity usage (Goliath A, David E), which do not usually interfere with the perception of daily routines among employees and, consequently, do not generally bring them closer towards changing their own habits. However, sometimes buildings where such companies are situated are not well-equipped according to the newest efficiency standards, such as not having water-saving buttons for toilets (David C). In some cases, sustainable equipment or offers exist but are not communicated in ways that draw employee attention, such as regarding climate-friendly dished in the canteen (Goliath A). Furthermore, financial incentives for sustainable consumption practices are often limited to management personnel, such as first-class tickets for train trips rather than flying (Goliath B).

Experimentation Level

Companies with fragmented enabling structures mostly offer one-time events or short-term campaigns for experimenting with sustainable practices. These activities often have a focus on awareness-raising for sustainability in general, such as competitions over climate-friendly consumption (Goliaths A, B), sustainability days with activities like planting trees in the company garden (Goliath C) or stickers about saving energy at the workplace (Goliath C).

The focus groups in the companies with fragmented structures revealed that only a very small part of the staff takes part in these kinds of activities, which is very likely why they have little effect on organizational consumption routines as a whole. Additionally, the consumption routines of the employees who take part largely only change during the time of the campaign and go "back to usual" afterwards, as illustrated here:

> *Once in a while, there is a campaign aiming at saving paper and so on. It is short-lived. Some people don't even notice it. They don't care about it, and then that's it.* (person 4, focus group Goliath A)

In companies with fragmented enabling structures, rules which support the establishment of links between sustainable practices or destabilize links between unsustainable ones are absent or communicated insufficiently, such as with regard to waste separation (David C, Goliath A) or printing (Goliath A, David E):

I think it's a pity that we don't really sort the waste for recycling in this building. Unfortunately, it doesn't affect everybody's conscience. (person 5, focus group Goliath A)

Sometimes I realize that colleagues still print out every single e-mail they get, even if it is just about a date for lunch. (person 4, focus group Goliath A)

Furthermore, in this kind of company, standardized working practices do not tend to support sustainable consumption, as for example the informal rule that suggestions have to be printed out to be discussed at meetings (Goliath B) or default settings of the online system for booking domestic business trips preferring flights instead of railway trips (Goliath A), as explained here:

I often hear […] that people take the plane in the morning rather than taking the train one night before with an overnight stay. That would make more sense, energy-wise, especially if we talk about domestic flights to [location of the other branch of the company]. We could practically run our own airline there. (person 3, focus group Goliath A).

In some companies we found that the default settings for electronic devices, such as one-sided printing, do not support sustainable behavior (David C). Additionally, a lack of shared rules regarding sustainable consumption leaves little room for peer-to-peer learning among colleagues, as reflected in this comment:

I think it's always difficult to say as an individual: 'Come on, turn off your monitor'. Because then people think I want to educate them or that I'm a tree hugger or something like that. Therefore, I would prefer something like that [rules for sustainable behavior] come from the top or from all sides or something. (person 2, focus group Goliath A)

Stabilization Level

Companies with fragmented enabling structures rarely extend their sustainability efforts to the private domain via bridging activities that would support integration of new practices to systems of practices. Furthermore, employees have the impression that the introduction of private ideas is structurally not supported or even regarded as unwelcome.

4.2 Dimension B: Employee participation

The second basic dimension we analyzed is the kinds of organizational structures that are in place for integration of employees' needs, ideas and experiences into workplace design and related activities. We classify these forms under three subdimensions: *paternalistic* (B1), *permeable* (B2) and *participative* (B3). To describe this cross-cutting dimension, we distinguish between idea management (formal integration) and support for implementing ideas (informal integration).

4.2.1 Paternalistic (B1)

All Goliath companies (A, B and C) as well as David E are regarded as having a paternalistic style of employee integration. These companies provide formal ways of submitting ideas, for example, online tools for green ideas, a green letter box or formal meetings. However, the focus groups in these companies indicated that, by and large, employees neither get feedback on their ideas nor an explanation of why their proposals are not considered for implementation. Supporting this qualitative finding, the staff survey shows that only 4 to 7% of employees working in these companies think that their ideas are appreciated (see Appendix C, Table C.2).

The paternalistic form is characterized by a hierarchical decision-making culture, which is a barrier for employees who want to bring in new ideas and promote their implementation informally. Especially in the bigger companies (Goliaths A, B, C), employees pointed out that involvement in activities other than their professional core tasks is not appreciated by management. Proactive employees have even been confronted with the suspicion that they are not fully engaged in their core tasks and, as this comment suggests, are wasting work time:

The innovative capacity is there, people are willing to participate but somehow there seems to be a fear of losing control: 'Wait, they have time to deal with organizational questions [snaps finger] – this person will get an additional task!'. (person 3, focus group Goliath A)

Consequently, employees have the impression that it is impossible for them to approach decision makers in the company and have become frustrated by the existing organizational culture impeding partici-

pation. Especially young (or new) employees who have chosen the company because of its sustainability orientation are disappointed that they have very few possibilities to contribute their own ideas and initiatives, with any attempts at change being associated with great effort and uncertainty:

You actually really, really need a huge personal initiative. At least in my experience. You have to fight your way through, and often you don't know what happens at the top. (person 1, focus group Goliath A)

4.2.2 Permeable (B2)

Davids B and C exhibited a different form of employee integration, which we call *permeable*. On the one hand, these companies have no professional means of idea management to gather and process ideas, which can lead to a loss of potential. On the other hand, they are characterized by flat hierarchies and an open-door policy. The focus groups revealed that employees can easily access decision makers and introduce their ideas, especially regarding decisions in their professional core areas. According to the staff surveys, 11 to 34% of employees working in these two companies think that their ideas are appreciated. Interestingly, the company with higher ratings (David B) has coherent enabling structures while the other one has fragmented structures (David C). Such employee appreciation of this type of integration is expressed here:

Well, I think that also includes the considerable freedom that everybody has here in decision making. Everyone is allowed to make a lot of decisions in his or her area without having to go through a long approval process. That makes it a lot easier for us, of course. (person 7, focus group David B)

Regarding greening of the workplace, there is a general openness, but employees are not necessarily given enough time resources to develop an idea further and implement it. Thus, they feel responsible for organizing implementation on their own and in their free time. This ambivalence is also mirrored in the staff survey at David B, where 18% of employees think that their ideas are not appreciated by the company, as this quotation illustrates:

It's not like somebody throws in an idea and somebody else takes it up and even regards it as an innovation. Rather, you also have to work on it by yourself. (person 2, focus group David C)

4.2.3 Participative (B3)

Our third type of employee integration, *participative*, was observed in Davids A and D, as both companies provide instruments for bringing in ideas, including regular committees for submitting and discussing ideas at all hierarchical levels. Idea management within these companies includes constructive feedback: each employee submitting ideas gets a response containing possibilities for their realization within a certain period of time, as mentioned appreciatively here:

It is quite nice that everything submitted will be checked concerning whether it can be implemented. And only if it's not possible somehow, then it's impossible. But I have a feeling that many ideas from employees are implemented. (person 3, focus group David A)

Furthermore, we found three formal instruments enabling employees to realize their ideas: a) the provision of a certain amount of hours for sustainability at work (David D), b) the opportunity to be part of an operational team working on sustainability issues at the workplace (David A) and c) the installation of a contact person for environmental issues, mediating between regular employees and management (David A), as described here:

What I also like is that both environmental commissioners are very present. […] That means you know them and you know their names and you can go to them with anything, anytime. They either say: 'I am the right person for you' or they point you to someone else. Thus, there are good opportunities to present your ideas. (person 1, focus group David A)

These formal instruments are combined with a dialogical culture of decision making that appreciates employees for their entire personalities, beyond their professional roles. There is a general openness as well as possibilities for informal exchange of ideas among all employees, regardless of hierarchy, gender or age. Employee satisfaction in these companies is rather high, with 24 to 44% thinking that their ideas are appreciated.

4.3 Types of corporate strategies for greening the workplace

In combining the previously described dimensions and their subcategories, we have derived four ideal types[7] of corporate strategies for greening the workplace: formalizing, dialogical, separative and individualizing (see Figure 3).
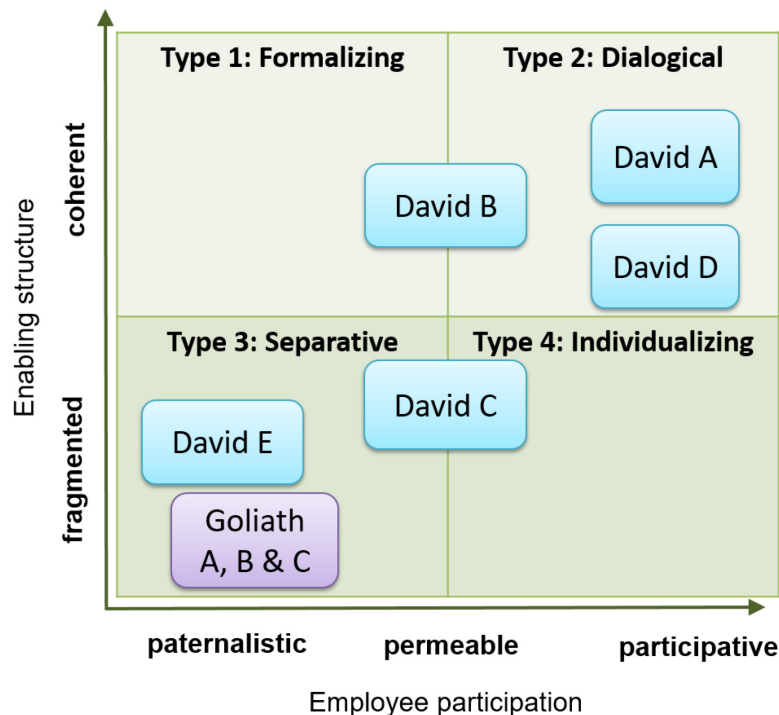

Figure 3: Types of corporate strategies for greening the workplace.

In the following, we describe the four ideal types and provide recommendations for ecopreneurs as well as large enterprises. Additionally, we have been able to group one or more case studies as examples of some of the ideal types. However, case studies are normally not completely congruent with one ideal type and sometimes they combine elements of several types. For example, Davids B and C, which have a permeable form of employee integration, can be categorized as a mixture of two types.

Type 1: The *formalizing strategy type* provides professional idea management and comprehensive supportive structures and activities for sustainable consumption at the workplace. Sustainable consumption practices, as for example saving energy in the office, are regarded as normal. At the same time, it is characterized by a hierarchical decision-making culture which inhibits employees from weighing in with their experiences and knowledge for greening the workplace. For large enterprises with a low-level sustainability orientation, the formalizing approach could be a means for starting the greening process. Ecopreneurs that want to move to the dialogical strategy could try to minimize the cultural divide between management personnel and non-managerial employees regarding sustainable consumption. Within this study, we were not able to assign one of the case studies to this type; however, David E and David B are close to it (see Figure 3).

Type 2: Companies adopting the *dialogical strategy type*, endeavor to provide far-reaching possibilities for participation, including employees acting as shareholders at one of the studied companies. These options are combined with an explicitly dialogical culture and a widespread acceptance of diverse practices. Due to the completion of formal with informal participative formats and the provision of coherent enabling structures, sustainable consumption practices are part of the daily routines of most employees at such companies. Participative ecopreneurs show a better adaptation to employees' everyday needs

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[7] An ideal type is formed from the characteristics and elements of a given phenomenon but is not meant to correspond to all the characteristics of any one particular case. Originating from Max Weber, the term is not supposed to refer to perfect things, moral ideals or statistical averages, but rather to stress certain elements common to most instances of the given phenomenon.

and therefore rather diverse performances of consumption practices. Communicating a strong meaning of sustainability for daily activities probably leads to a dominance of "green" employees working in this type of company, which in turn results in more stable sustainable consumption practices. Besides David D with a special form of ownership where employees are shareholders at the same time, the biggest of our *David* case studies, David A with approximately 900 employees, showed this style of greening the workplace. Thus, we suggest that a participative approach of greening the workplace is also suitable for smaller ecopreneurs that want to grow economically.

Type 3: The *separative strategy type* combines fragmented enabling structures and activities with a low level of employee participation. This type is limited to singular activities without an integrative strategy covering all consumption domains. The integration of employee ideas and experiences is mostly limited to certain aspects related to core business concerns, and extra-role employee behavior is not appreciated. Daily routines are dominated by unsustainable practices, showing little flexibility for change. For sustainability-oriented employees, this culture can lead to feelings of isolation because they do not feel supported. For those employees who do not identify themselves completely with this goal, however, the fragmented nature of sustainability at the workplace is perceived positively. This seems to be important especially regarding food, where free choice is considered crucial. Interestingly, all Goliaths (A, B and C, with more than 2,000 employees) but also one of the smaller companies – David E (with 100 employees) – could be assigned to this type. Understandably, the visibility and implementation of opportunities and activities to establish sustainable consumption routines is more complicated in larger enterprises. However, it is quite surprising that the companies that took part in the study have yet to provide adequate participative formats, although they publicly aim to achieve a progressive sustainability image.

Type 4: The *individualizing strategy type* is characterized by having only fragmented enabling structures but does offer employees possibilities for designing the workplace and for bringing in their private experiences. Hierarchies are flat, and ideas on how to green the workplace can be taken up and implemented in an autonomous way. This type is appropriate for companies with few resources for workplace greening but with innovative employees (e.g. startups). However, this management style should be limited to companies of small size and, therefore, is not recommended for ecopreneurs seeking economic growth. Employees can feel overburdened if they are left alone with implementation of new ideas and are not provided with appropriate finances or time. David C partly belongs to this type.

5. Discussion

We tested an SPT-based framework by examining the sustainability strategies of eight German companies and have identified various paths towards workplace greening. Conceptualizing environmental workplace behaviors as consumption routines that are highly habituated, we included informal aspects of corporate greening that are usually left out in studies which focus on formal procedures (e.g. on the introduction of environmental management systems). Moreover, we have spotlighted supportive material and organizational structures and activities at the workplace that seek to motivate change in consumption routines while also allowing employees to participate in creating such changes. In the following, we refer, firstly, to the limitations of the research design (section 5.1). Then we discuss the contributions of our findings, both for management (section 5.2) as well as for theory development (section 5.3). Finally, we outline future research questions (section 5.4).

5.1 Limitations of the research design

Although we applied methods and selection criteria that aim at gaining comprehensive insights of the companies and their strategies of workplace greening, our research design has some limitations. First, since we used the term "sustainability" in the invitation letter for the focus groups and in the survey questionnaire, the selection of respondents might have been biased, including more employees who were already interested in sustainability. It would be interesting to repeat the study without a focus on the environmental orientation of both company and employees and without using the term "sustainability".

Second, we only investigated self-reported behaviors and, as a consequence, were not able to gain a systematic overview of company consumption routines from the entire staff. To evaluate employees' daily routines in the workplace thoroughly, it would likely be better to combine interviews and focus group discussions with researcher observations or providing information regarding methods of self-observation to those under study. To gain deeper insights on how habits at work are related to domestic routines, these observations should also include home and leisure settings.

Third, we did not evaluate the effects of the sustainability measures and work-to-life interventions undertaken by the companies but, rather, relied on anecdotal evidence from the interviews and group discussions. Linking research on enabling structures with analysis of the CO_2 emissions generated by employee behaviors, possibly comparing companies from the same sector, could be insightful and provide a clearer picture of the effects of providing supportive structures.

Fourth, our main goals were to test the framework and develop qualitative categories. A quantitative survey with a higher number of companies from different sectors would be necessary to validate the presented typology and analyze whether employee practices really differ between these types. In addition to that, it might turn out that other types emerge if a greater variety of companies is included in further studies.

5.2 Contributions to management strategies

We want to highlight three results and discuss their contributions for sustainability as well as human resource management. First, our study underlines the importance of coherent enabling structures for sustainable consumption. In companies with these kind of structures, employees' satisfaction and commitment was higher, because they felt that their company "walks the talk" regarding corporate sustainability (see section 4.1.1). Since they could experience sustainability in their everyday life, employees felt valued as entire personalities and not being treated only as a "human resource". We suggest that larger, more traditional companies can use workplace greening as a strategy to increase the willingness for extra-role engagement among employees. When designing a program for participatory workplace greening, a gradual approach could be helpful, including trying out certain instruments or measures with groups of active and willing employees. In doing so, it is however crucial that measures address all three levels of practice transformation – opportunity, experimentation and stabilization – if routines are expected to change in a long-term manner (see section 2.3). Especially work-to-life interventions, such as the collective purchase of organic food or bike leasing, are promising since they support the alignment of practices in working life and private life of employees. For ecopreneurs, a holistic understanding of sustainability is important as well since employees and customers expect a pioneering role in all sustainability areas which they should be able to live up to (Gibbs, 2006).

Second, the companies that were included in our study exhibited very different preconditions for the participation of employees in environmental activities. We found that larger companies, but also those that have undergone a change of perspective after the founding generation, hardly included "ordinary" employees in creating green workplaces. Consequently, employees felt overburdened and left alone with the implementation of their ideas. Next to an appreciative culture, provision of appropriate financial or time resources was missing. Thus, our study underlines the importance of formal instruments for employee participation in bigger companies to support sustainable consumption at the workplace. We assume that values and norms do not automatically spread within larger companies, whereas in smaller companies, corporate culture grows organically and less formal instruments for employee participation are necessary. Hence, participatory management practices could be an important missing link for generating more holistic corporate sustainability concepts. Moreover, we suggest that participative workplace greening can counteract inequality at work through a "humanization of work" (Remmen and Lorentzen, 2000) as well as contribute to a "green work–life balance" (Muster and Schrader, 2011).

Third, we found that sustainability-oriented companies did not only differ in terms of their strategies for greening the workplace but also that these strategies were often implicit. Companies rarely included activities related to workplace greening in their official sustainability strategy to enhance their trustworthiness – neither within the organization nor towards the community in which they are located or their customers. Even those companies that are very active in workplace greening did not promote the issue strategically for image enhancement. We suggest that, to open the approach to a broader range of enterprises, the advantages of workplace greening should be communicated more clearly (e.g. benefits of a green work–life balance). As companies usually need to calculate costs and benefits, we assume that there is a need for the development of concrete tools and methods for implementation of integrative and participative strategies for workplace greening. Experiences in social innovation research, public involvement in urban planning or citizen science might be good sources of inspiration in that regard.

5.3 Contributions to theory development

There are only few scholars that have applied a SPT-informed approach to analyze conditions for sustainable behavior at the workplace (Hargreaves, 2008, 2011; Heisserer, 2013; Klade et al., 2013; Nye and Hargreaves, 2010; Schultz and Seebacher, 2010; Süßbauer and Schäfer, 2018). In the following,

we discuss the contributions of our study to this field of research as well as the benefits of applying an SPT-informed approach compared to the PEB literature.

First, in taking SPT as a starting point, the focus is less on individual changes in behaviors, but rather on routinized forms of behaviors that dominate within the organization. These routinized forms of behavior (called "social practices") are bound to certain infrastructures, normative expectations and informal codes of conduct within organizations.[8] This means, even if each employee has its individual needs, there are certain rules and norms of what is "normal" to do or to say within an organization which form the basis of organizational practices. The advantage of this perspective on organizational change, compared to the PEB literature, is a more holistic picture of possible elements of corporate sustainability strategies. For instance, it can reveal disjointed approaches towards workplace greening (e.g. strict rules on energy saving, but supporting the use business trips by airplane) or even contradictions between the "doings" and "sayings" (Schatzki, 1996) regarding sustainability.

Second, we developed a framework that operationalizes SPT concepts for studying the emergence and transformation of sustainable practices in organizational settings. Our framework suggests that workplaces offer opportunities to tackle different stages in the lives of practices simultaneously, ranging from "proto-practices" in which elements exist but are not yet integrated to "network of practices" that spread among different settings in everyday life (Süßbauer and Schäfer, 2018). To be able to analyze degrees of organizational routinization, we define different levels of workplace greening: opportunity, experimentation, and stabilization. Stable practices are achieved, in our understanding, through ongoing performances of sustainable practices in which similar elements are repeatedly linked together in similar ways. Thus, stabilization can only be attained over longer periods of time (Shove et al., 2012). Compared to the PEB literature that concentrates on individual contributions (of "green" employees) and isolated behaviors, our framework can be applied for analyzing and stimulating long-lasting greening of entire organizations – disregarding economic sectors, sizes or organizational forms. It is, therefore, especially useful as an instrument in transdisciplinary research projects aiming at knowledge integration in broader sustainability transformations.

Third, our integrative approach underlines the importance of social dynamics and collective learning processes for sustainable consumption at the workplace. This aspect is usually missing in SPT-informed research on (usually domestic) sustainable consumption, but has been highlighted by scholars applying SPT to the workplace setting (Hargreaves, 2011; Klade et al., 2013; Schultz and Seebacher, 2010). The focus group discussions in our study showed that employees align their everyday consumption behavior according to existing meanings and norms within the organization. Furthermore, they are more motivated to change routines if there are opportunities for making joint experiences with new social practices (e.g. car sharing) and if they can benefit from an inspiring learning environment. This finding confirms that social norms and values of employees are not something static, but rather contextual. Thus, one benefit of our study, compared to the PEB literature, is that it provides means for contextualizing sustainable behavior at the workplace. While behavioral models that are usually used in the PEB literature tend to construct "the context" as a preexisting, external input to individualized decision-making processes, our framework allows for analyzing the social contexts of interaction and how these dynamic relationships shape the enactment of behavior in reflexive ways (Nye and Hargreaves, 2010).

5.4 Future research questions

Next to the above-mentioned benefits of using SPT for analyzing strategies of workplace greening, we also want to point out some future research questions. First, because of our comprehensive approach regarding consumption domains, we could not "zoom in" (Nicolini, 2009) on single practices like car sharing or food sharing among colleagues nor on the interrelations between single practices within the same consumption domain (like mobility) or between different domains (like mobility and food practices). It would be interesting to apply the framework to specific practices or consumption domains to see if additional (sub-)categories emerge.

Second, the findings also show that the relationship and negotiations between practices at home and at work requires more research, especially concerning the "intersectings" (Hui, 2017) between multiple practices. Our data pointed to different overlaps and commonalities between practices at home and at work, e.g. laptops used in both settings or shared time use patterns. These questions are especially important considering the emergent trend of blurring borders between gainful employment and private

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[8] This is why, for Schatzki (2006: 1863), an organization is defined as "a bundle of practices and material arrangements".

life and related new conceptualizations of work (Becke and Warsewa, 2018; Muster, 2014). In this regard, future studies could use employees' practical knowledge on the one hand to learn more about cultural habits of consuming in different settings and on the other hand for integrating employees' perspectives from the beginning of a research project.

Third, within the study, we could not compare the relevance of meanings, materials and competences for sustainable consumption in detail. For future research, it would be especially interesting to focus more on the different meanings connected to industry sectors or organizational fields. In our study, the three Goliath companies offered less enabling structures for sustainable consumption at the workplace than the smaller David companies, although they have greater financial resources for environmental management and professional CSR departments. This result might demonstrate that designing workplaces to be sustainable might follow other rules than achieving sustainability in the core business (Michaelis, 2003). To analyze these aspects, SPT could be combined with research on institutional logics (e.g. Kok et al., 2017). In this regard, the framework could also be used to gain insights into conventional companies that are tied to a non-sustainable logic. Since workplaces are settings that influence employee consumption routines in any case, it would be interesting to analyze how material conditions, meaning and competences contribute to non-sustainable behavior at the workplace. Processes of negotiation and contradictions that hinder sustainable consumption, such as job insecurity, could be included in the analysis to also consider the reactions of employees if, for example, they feel that their company is only engaging in greenwashing (Dumitru et al., 2016; Unsworth et al., 2013). In some group discussions, hindering aspects of corporate structures and negotiation processes were mentioned. Since our focus was on the provision of supportive structures and activities, however, we did not analyze this aspect in detail.

Fourth, the comparison of "Greening Goliaths" and "Growing Green Davids" revealed that company founders and the motivations for founding a company might influence workplace behaviors and might explain the dominance of certain sustainability strategies, such as a focus on energy saving or sustainable nutrition, which we could not analyze in detail in the context of this research project. Our findings suggest that these background conditions can be quite diverse among ecopreneurs. Future studies on workplace greening could, thus, concentrate on the roots and history of sustainability-oriented companies (e.g. protest movements, educated green citizens, anthroposophical movement or family business) and their influence on workplace greening, which are not covered by our typology.

5 Conclusions

The study presented in this paper seeks to contribute to the literature on workplace greening as an approach towards holistic corporate sustainability (CS) in a threefold manner: First, we have provided empirical descriptions of structures for supporting sustainable workplace consumption from individual eight cases that differ in terms of several formal dimensions, such as sustainability culture, size, and sector (see sections 4.1 and 4.2). We have shown that sustainable consumption at the workplace is part of daily routines that can be embedded in several social practices, ranging from practices of eating and drinking, energy use, commuting and travelling as well as practices of waste prevention and separation. Qualitative insights on how these practices are interrelated, across domains as well as across the work and the home settings, is still necessary to learn more about changing unsustainable consumption practices.

Second, in defining four levels of organizational practice transformation – opportunity, experimentation, stabilization, and participation – we have been able to unravel and systemize the activities and structures provided by the studied companies and have identified two types of enabling structures: *coherent* and *fragmented*. Results from our staff survey reveal that employees working in companies with coherent structures are significantly more satisfied than those working in companies with fragmented structures. Also, employees in companies with a *participative* leadership style feel that their ideas are more appreciated than employees working in those with a *paternalistic* style. We take this as a positive indication regarding the validity of the identified categories. However, as this has been an explorative study, it would be interesting to see if these qualitative categories can be further validated with a larger set of companies.

Third, by using qualitative typological analysis, we have derived four ideal types that can be used for the analysis of other sustainability-oriented companies, the strategies of which can be seen as *formalizing*, *dialogic*, *separative*, or *individualizing*. These types are a combination of kinds of enabling structures and modes of employee participation. Since sustainability is a global concept, we suggest that the types

can also be found in other countries than Germany. Thus, they can be used to compare different company types.

We conclude that workplaces as settings are, on the one hand, designed by companies but, on the other hand, are being continually (re)shaped by the employees using them. Our results suggest that employee participation can improve compatibility between enabling structures at the workplace and individual needs and, thereby, enhance general satisfaction at work. Furthermore, participatory strategies for workplace greening can also help to bring about adjustment between the desired organizational culture and the daily practices of employees. Thus, it is an opportunity for cultural change, which can also be an interesting avenue to explore for businesses that have not yet been working on becoming sustainable and want to start corporate greening. As ordinary employees are the experts for workplace greening and can verify corporate activities in this regard, this can become a means towards avoiding greenwashing. At bottom, the workplace needs to be understood as a co-evolving process and not as a finished product.

Acknowledgements

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