LEUPHANA
UNIVERSITÄT LÜNEBURG

Employee roles in sustainability transformation processes A move away from expertise and towards experience-driven sustainability management

Süßbauer, Elisabeth; Maas-Deipenbrock, Rina Marie; Friedrich, Silke; Kreß-Ludwig, Michael; Langen, Nina; Muster, Viola

Employee roles in sustainability transformation processes

A move away from expertise and towards experience-driven sustainability management

Corporate sustainability management usually relies on innovation experts – that is, it relies on top-down and staff-unit approaches. Seeking out the involvement of employees from all company departments can substantially contribute to corporate greening. "Ordinary" employees are not trained as sustainability experts, yet it is precisely their experience within their own field and within the organisation that can give rise to knowledge that is essential for transforming the economy towards sustainability. Hence, employees need to be empowered by appropriate structures and organisational culture. Transferring practical experience to expertise can prove very helpful in assisting and stimulating sustainability transformations in various business fields.

Elisabeth Süßbauer, Rina Marie Maas-Deipenbrock, Silke Friedrich, Michael Kreß-Ludwig, Nina Langen, Viola Muster

Abstract

Although ordinary employees are typically regarded as an important stakeholder group for enhancing corporate sustainability, they are seldom seriously addressed in business or research practice. To learn from the practical experience of what takes place at workplaces, we analysed four transdisciplinary research projects all aimed at initiating, accompanying and analysing processes of sustainability transformation within companies, but which focused on different sectors and organisational contexts. Based on the assumption that ordinary employees can hold three different roles in processes of sustainability transformations (implementers, ambassadors and recipients of corporate sustainability practices), we compared the findings from practices of employee involvement within the four projects. Based on these findings, we examined the implications for companies and highlighted future research needs.

In organisational studies, there is a broad consensus that comprehensive corporate greening requires initiatives and engagement by employees at all levels of a company (Daily et al. 2009, Lamm et al. 2013, Lülfs and Hahn 2013). Human resource management is regarded as key for the successful implementation of corporate sustainability (Lam and Khare 2010, Sarvaiya et al. 2018). Although most workers are, according to their job descriptions, not explicitly considered responsible for developing sustainability innovations or realising sustainability activities (Kesting and Ulhøy 2010), "ordinary" employees certainly can contribute to corporate sustainability in at least three ways (Muster and Schrader 2014):

1. Through everyday experience with their employer's technical operations and products, they gain valuable tacit knowledge, which can be used to *implement changes* within the organisation, such as through detecting sources of toxic emissions in the fabrication process (Wolf 2013, Becke 1998) or creating new eco-friendly products and services (Buhl et al. 2016, Ramus 2003).

2. Because employees interact and communicate with external stakeholder groups, including customers and suppliers, they can be ambassadors of the company's products and services

Dr. Elisabeth Süßbauer | Technische Universität Berlin | Center for Technology and Society (ZTG) | Hardenbergstr. 16–18, HBS 1 | 10623 Berlin | Germany | +49 30 31429822 | suessbauer@ztg.tu-berlin.de

Rina Marie Maas-Deipenbrock, MSc | Leuphana University of Lüneburg | Department of Tourism Management | Lüneburg | Germany | maas-deipenbrock@posteo.de

Silke Friedrich, BSc | Münster University of Applied Sciences | iSuN – Institute of Sustainable Nutrition | Münster | Germany | silke.friedrich@fh-muenster.de

Michael Kreß-Ludwig, MA | ISOE – Institute for Social-Ecological Research | Transdisciplinary Methods and Concepts | Frankfurt am Main | Germany | kress-ludwig@isoe.de

Prof. Dr. Nina Langen | Technische Universität Berlin | Institute of Vocational Education and Work Studies | Department Education for Sustainable Nutrition and Food Science | Berlin | Germany | nina.langen@tu-berlin.de

Dr. Viola Muster | Technische Universität Berlin | Institute of Vocational Education and Work Studies | Berlin | Germany | viola.muster@tu-berlin.de

(Hasu et al. 2015). Through talking with colleagues, friends and acquaintances, they also influence the perception of the company within the communities where they live.

3. Employees are at the same time recipients of internal corporate sustainability measures aimed at achieving good working conditions (Muster and Schrader 2011) and green workplaces (Süßbauer and Schäfer 2018, Ruppert-Winkel et al. forthcoming). These measures are important for matching a company's official sustainability strategy with appropriate organisational structures and culture (Harris and Crane 2002).

In sum, theoretically, integrating ordinary employees into corporate sustainability practices is regarded as crucial for sustainability transformation of the economy and even as a linking element between environmental and social aspects of sustainable labour (Becke and Warsewa 2018, Brandl and Hildebrandt 2002). However, in business as well as in research practice, ordinary employees are rarely seriously considered. For example, when it comes to their innovation activities, most companies still rely on top-down investments in their research and development departments (Birkingshaw and Duke 2013) and other innovation experts. This is why ordinary employees, for example, those working in contact with consumers, do not necessarily recognise the innovative potential of their practices (Hasu et al. 2015).

We argue that ignoring the potential of ordinary employees can be an obstacle to a sustainable economy. Thus, we present practical examples of how to address and involve workers in processes of sustainability transformations in different industry sectors and organisational contexts. We discuss the findings from these processes for corporate sustainability management and formulate recommendations for each employee role. Based on these insights, we point out future research questions as well as needs for future transdisciplinary projects.

Case studies

The examples presented in this paper stem from four transdisciplinary research projects that ran from 2015 to 2018 within the funding measure *Sustainable Economy* of the German Ministry of Research and Education (BMBF) (box 1). All projects involved practice partners from businesses and, in some cases, public institutions and business associations but focusing on different sectors (e. g., tourism, food service) and contexts (e. g., rural areas, eco-pioneers, small and medium-sized enterprises, SMEs). Thus, sustainability fields and specific research questions differed among the projects. However, all projects aimed at initiating, accompanying and analysing processes of sustainability transformation[1].

---

1 With sustainability transformation we refer to "recent political, socio-economic, and cultural shifts resulting from attempts to address the social-ecological crisis [...] challenging not only existing technologies and market structures, but also the underlying patterns of production and consumption" (Brand and Wissen 2017, p. 1).

BOX 1: The four transdisciplinary projects and their research aims

A Model for an Integrated Transformation Process towards Sustainable Business Practices in Tourism (Green Travel Transformation)
Green Travel Transformation worked together with small, medium and large enterprises (travel agencies, tour operators) as well as travel associations to analyse how to more effectively use the potential of travel agencies as a distribution and communication channel for sustainable travel options.

Integrating Employees as Consumers in Sustainability Innovation Processes (IMKoN)
IMKoN involved large enterprises and several smaller eco-pioneers from diverse business-to-consumer sectors (cosmetics, energy supply, mail order, cleaning devices, publishing) to develop a method for integrating consumer-based employee knowledge into generation of sustainable product and workplace innovations (Muster et al. 2016).

Developing, Testing and Disseminating Concepts of Sustainable Production and Consumption in the Field of Out-of-Home Catering (NAHGAST)
NAHGAST aimed at initiating, supporting and distributing transformation processes within the hospitality and food service sector. Small, medium and large enterprises and several public institutions (schools, universities, hospitals, business canteens, event gastronomy) participated in the project. Different intervention types were implemented in canteens, including provision of information regarding the sustainability performance of meals (e. g., via a three-level label), participatory approaches wherein customers developed means to guide themselves and others towards more sustainable choices (e. g., assigning the role of food hero to older pupils who then acted as models for youngsters) as well as nudges that aimed to unconsciously lead customers towards choosing the most sustainable meals (e. g., descriptive food names).

Regional Transformation through Corporate Socio-Ecological Activities (RegioTransKMU)
RegioTransKMU focused on regional transformation through the social-ecological actions of companies, involving SMEs in rural areas from diverse sectors (e. g., energy supply, financial services, laboratory analysis and consulting, passenger transport, engineering) as well as associated universities and vocational schools. The main question was: how can SMEs in rural regions contribute to the attractiveness of these regions and enterprises as places to work and live?

In the four projects, different methods were used to analyse employees' knowledge and partially integrate it into the sustainability transformation process: staff surveys, innovation workshops, qualitative interviews, real experiments and focus groups (table 1, p. 212). These methods were either part of the original research design or were adopted during the transdisciplinary research process.

Furthermore, context-specific instruments were developed by the project teams to foster sustainability transformations within each project's respective business field (table 1). In some cases, the developed instruments were based on the expertise of ordinary employees (e. g., innovation toolbox, guideline for rural SMEs), whereas others were informative tools (e. g., sustainability infor-

>

TABLE 1: Overview of the four case study projects with regard to involved practice partners, involvement of employees, methods used to analyse and integrate (knowledge of) employees, and instruments for sustainability transformations. SMEs = small and medium-sized enterprises.

PROJECT	INVOLVED SECTORS AND TYPES OF ORGANISATIONS	ADDRESSED EMPLOYEE ROLE(S)	METHODS OF INTEGRATING EMPLOYEES DURING THE PROJECT	DEVELOPED INSTRUMENTS FOR CONTEXT-SPECIFIC SUSTAINABILITY TRANSFORMATIONS
Green Travel Transformation	small, medium-sized and large enterprises and business associations from tourism sector	ambassador	focus groups and qualitative interviews with travel agents; stakeholder workshops	■ on- and off-line training for travel agents, source: *https://green-counter.drv.de* ■ database for sustainability information in booking systems, *source: https://greentravelindex.com* ■ familiarisation trips for tour operators
IMKoN	large enterprises and eco-pioneers from diverse business to customer sectors	recipient; implementer	focus groups; interviews; innovation workshops	innovation toolbox: *Design Thinking for Sustainability (DT^N)*, source: *www.nachhaltigkeitsinnovation.de*
NAHGAST	small, medium-sized and large enterprises and public institutions from hospitality and food service sector	implementer	real field experiments in transition labs; stakeholder workshops	tool for sustainability assessment of meals: *NAHGAST* calculator (Engelmann et al. 2017), source: *www.nahgast.de/rechner*
RegioTransKMU	SMEs in rural areas from diverse sectors, associated universities and vocational schools	recipient	online survey among employees in different rural SMEs	guidelines for rural SMEs on the implementation of social and ecological activities (Ruppert-Winkel et al. 2017)

mation in booking systems, *NAHGAST* calculator) not based on employee knowledge, but according to their experience and work environment.

Considering ordinary employees in sustainability transformation processes – a synthesis

In the following, we give examples of how ordinary employees have been addressed within the four research projects presented above. Based on Muster and Schrader (2014), we differentiate between employees' roles as implementers, ambassadors or recipients of corporate sustainable practices.

Employees as implementers

The *NAHGAST* project aimed at transforming practices in the German hospitality and food service sector. Initially, potential contributions of ordinary employees within this process were not considered but, rather, came to researchers' attention during the transdisciplinary study itself. For example, for interventions in canteens, it became clear that harmonised menus across all participating enterprises were necessary, to compare the effects of interventions in different settings. Menus had to be viable for all target groups of the participating canteens (e. g., school children or hospital patients) and should fit into the ongoing operations of companies. Thus, the project team decided to organise a joint workshop with workers from different areas of the involved companies. The project teams' aim was to, first, agree on a harmonised menu for the intervention period and, second, harmonise meal-optimisation means – including reducing portions and meat and relying on organic/regional ingredients and fairtrade spices – throughout the menu. In the following step, employees brought in their specific knowledge: kitchen managers revised recipes to optimise meals in favour of sustainable supply; the purchasing department or-

dered new products and even looked for new suppliers; the marketing department edited the (digital) menus; and workers at serving counters revamped communication with consumers. This intensive cooperation among different employee groups was a key ingredient in successfully improving meals, the effects of which lasted beyond the project period. This experience illustrated how heterogeneous knowledge from all areas of the companies was crucial for developing sustainable services, while also showing that it is possible to adapt research design towards employee integration.

Another example from *NAHGAST* regarding employees as implementers occurred in one participating enterprise from the catering sector, where cashiers kept tally sheets of sold components for sustainable meals. Contrary to normal cash-register data, which is not examined by the cashiers themselves, these tally sheets enabled direct feedback about the effects of sustainable-meal changes made in the kitchen on sales and the popularity of particular meals. This experience reveals that workers value being able to directly modify workplace structures or working routines. Although such "small" adaptations on the ground level are limited in terms of their immediate benefits for a company, they can have a huge positive effect on employee perceptions of self-efficacy.

The *IMKoN* project, by contrast, concentrated from the beginning on employees as implementers (figure 1). It aimed at testing a method for developing sustainability innovations for various organisational contexts and sectors, based on employees' consumer knowledge (Muster et al. 2016, Buhl et al. 2019). During the research process, it turned out, that for most of the companies, involving employees in developing and implementing corporate sustainability measures is still far from being a matter of course. Moreover, various factors are relevant for whether and how employees can effectively contribute to innovation development. One important factor is the core business of the company. As the results suggest, in highly specific and technically sophisticated busi-

ness areas, employees can hardly contribute to the development of the product itself. For example, if the company produces natural cosmetics, employees can rarely implement changes, because the product's composition is highly regulated. In contrast, in companies with less complex products or as well with regard to workplace conditions and processes, it seemed to be easier for ordinary employees to contribute their ideas and experiences. These findings seem to reveal that, on the one hand, in their role as implementers ordinary employees are not sufficiently considered and integrated into business practice. On the other hand, ordinary employees have innovation potential which is suitable for some, but not all areas of innovation.

Employees as ambassadors

As experiences in the *Green Travel Transformation* project indicated, next to customer requests, budget and availability, personal convictions about products among employees is a central factor within travel-agency consultations. Travel agents tend to sell products they know and are convinced of, and focus groups with travel agency employees showed that they like to recommend products familiar to them or to their colleagues. Some travel agents were sceptical about sustainability in general and, thus, would not recommend corresponding products.

A central concern for travel agents was verification of sustainability standards: for labelling and promoting a product as sustainable, travel agents want assurance that standards and quality are met. Since many travel agents have returning customers who trust in them, they do not want to risk this relationship. This finding has been confirmed by a representative survey of customers (Kreilkamp et al. 2017): customers trust the expertise of travel agents, want to assign responsibility to a direct contact person, and even expect travel agents to be able to consult on sustainable travel, as they consider this part of the travel agent's expertise. Therefore, the project developed extensive on- and offline training for travel agents regarding sustainable tourism. Additionally, a database was developed, which through an interface enables sustainability information regarding products to be fed into informational and booking tools. As it is considered fruitful to let travel agents experience sustainable products in order to increase product conviction and, through that, increase recommendation rates for such products, so-called familiarisation trips ("fam trips") for tour operators are very common in the tourism industry. Within the project, exemplary concepts for sustainable fam trips were drafted.

In *IMKoN*, some companies enabled all kinds of employees to gain experience with the products and services of their own company, for example via discounts, an employee shop or ubiquitous opportunities for practical experience of the company's product (e.g., annual involvement as harvest workers or obligatory production internship during their first week of employment). Such experiences enhanced employee identification with their company and job satisfaction in general. Thus, employees gaining experience with products and services may not only be useful for convincing or advising clients about sustainable offers but may also indirectly positively affect the organisation itself and facilitate dif-
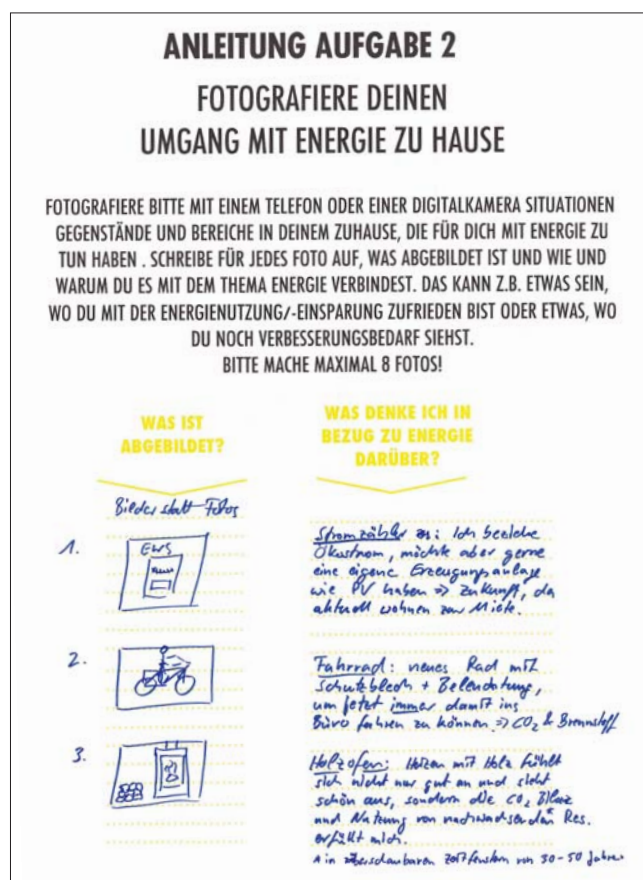

FIGURE 1: *Design Thinking for Sustainability (DT^N)* is a workshop method for involving employees in sustainability innovations. So-called cultural probes are one element of this method: observing oneself in everyday life. In the present case, the participant drew pictures of her electricity meter, her bicycle and her wood stove, and noted her associations with the theme of energy and sustainability.
© *www.nachhaltigkeitsinnovation.de/Beispiele/b1.html*

fusion of sustainable consumption patterns among employee milieus (e.g., family, friends).

Employees as recipients

In the *RegioTransKMU* project, employees of rural SMEs[2] were addressed via an online survey, which was also given to students at vocational schools and universities residing in the same region as the SME. Results of this survey suggest that socio-ecological measures (as one element of corporate sustainability practices) are less important to employees compared to other company characteristics, such as salary or job security (Ruppert-Winkel et al. forthcoming). Moreover, the employees valued social measures (e.g., flexible worktime models or measures against discrimination) much more than ecological measures (e.g., use of renewable energies or measures to reduce resource use). Perceiving an immediate benefit from measures seemed to be decisive to them – ei-

>

---

2 Those rural SMEs have no focus on sustainability in their core business and belong to diverse sectors, for example, energy supply, financial services, laboratory analysis and consulting.

ther directly as employees (e.g., flexible working models) or in their role as residents of the region or municipality (e.g., financial support for sports clubs or regional initiatives). Regarding ecological measures, the survey revealed that corporate sustainability practices affecting employees personally, such as offering bicycle parking spaces or promoting use of public transport, are more valued than those that seem more distant or abstract.

Employees' role as recipients has also been addressed in the *IMKoN* project. Company project leaders were allowed to choose whether they wanted to develop an eco-product innovation or enhance workplace conditions, within the scope of the project. For some companies, innovation workshops on enhancing workplace conditions were regarded as a chance to raise work quality and use the creativity of their own employees at the same time. Thus, they addressed employees in their roles as recipients as well as implementers. For other companies, sustainable workplace structures and behaviours (e.g., saving paper) were less important, since they were not part of the core business and its respective tasks. This implies that integration of employees in their role as recipients depends on the sustainability culture of the company (Süßbauer and Schäfer 2019).

Discussion

In the following, we first present the implications of the findings for corporate sustainability management. Second, we point out the limitations of our synthesis and formulate future research needs.

Implications for companies

As illustrated above, ordinary employees can significantly contribute to sustainability no matter if they were addressed a priori by the project design or if they only got involved in the course of the transdisciplinary process. Depending on the focus and context of the company, employees can disseminate sustainable products and services in the region, develop sustainable service innovations, create green workplaces or communicate sustainable values through face-to-face contact with customers. In the following, we discuss the implications of the findings for each employee role: *implementer, ambassador* and *recipient* of corporate sustainability practices.

If companies want to address employees as *implementers* for sustainability practices, they should carefully consider which areas within the company they want to change, for example, innovating their products and services or greening the workplace. Each modification may impose specific structural and personnel demands as well as entail different employee motivation. Furthermore, the area of change also depends on the practical knowledge of the employees. As results from *NAHGAST* and *IMKoN* projects suggest, employees can more easily act as implementers if they feel themselves to be "experts" in what they do (and like to do) in their daily lives – regardless of whether this knowledge is considered officially part of their core tasks. For example, they can be experts on technical issues even when working in a company that sells naturally produced products. Or, conversely, they can have in-

teresting ideas regarding the reduction of packaging while working in the IT department. Employees' innovative potential thus can be defined by the employees themselves and not by their job descriptions, the management or company-wide sustainability strategies. Companies are therefore well advised to regard their workers as multifaceted personalities with experiences and ideas from many different areas of life – regardless of their professional positions. To tap this "hidden" innovative potential of employees, companies may need to be open to allow for an iterative transformational process with uncertain outcomes (Süßbauer et al. forthcoming) and show flexible decision-making structures (Süßbauer and Schäfer 2019). These prerequisites are more likely to exist in SMEs with flat hierarchies.

As the synthesis showed, companies that want to address employees as *ambassadors* need to create opportunities for employees to engage with their products, even on the lower levels of the hierarchy. Possibilities for experimenting privately with sustainable consumption practices (e.g., local tourism) should be provided to employees to influence their daily habits and preferences (Süßbauer and Schäfer 2018). At the same time, incentive schemes, such as product-based commissions or sales targets of tourism operators, should not oppose to sustainable behaviour. Thus, a respective corporate culture and businesses practices can positively influence the identification of workers with company products and, thereby, indirectly stimulate the other two roles. Besides, the case studies have shown that informed, empowered and product-convinced employees are essential in the communication and distribution of sustainable services and products. Hence, for service companies, cultivating trust in frontline personnel can be used to overcome fears of greenwashing among consumers. In the digital age, it seems that some positive personal contact can enhance trust.

If companies want to primarily address employees as *recipients* of corporate sustainability activities, they should apply sustainability principles or targets also to their own organisations and aim at corporate greening. Corporate greening goes beyond external determinants such as legislation and market structures: corporate greening also considers company-internal determinants like the organisation's culture and structure as well as formal company-level initiatives such as the implementation of environmental management systems or the development of human resource programmes to improve employees' environmental competencies (Lülfs and Hahn 2013). Employees might appreciate this attitude and practices, which could then improve their satisfaction and productivity. This, in turn, could stimulate them to act as ambassadors for the company's products. Since the role of labour has changed and people want to find meaning in their work (Becke and Warsewa 2018), companies with holistic[3] sustainability approaches that also involve employees as recipients might be regarded as more trustworthy. For SMEs in rural areas with limited financial resourc-

---

3 A holistic sustainability approach includes social components as well as working conditions. In addition, a company that claims to offer sustainable products should also act sustainably in its own business practices and solutions (keyword "green workplace").

es available for personnel and sustainability issues, the exploitation of this synergy between corporate sustainability practices and employee recruitment and retention seems particularly recommendable. Respective sustainability measures and engagement of employees can create synergies in terms of influencing the region positively as well as attracting more skilled workers. Furthermore, results from *RegioTransKMU* and *IMKoN* have shown that appropriate communication on the part of employers and opportunities for experimenting with sustainable practices (e. g., via trainings, competitions or practice manuals) appear to be crucial for positive evaluation of sustainability measures.

Limitations and future research needs

Based on the explorative findings from the four projects, we provided examples for methods and practices of addressing employees' roles within sustainability transformation. A limitation of our synthesis is that we could not zoom into the organisational structures and cultures of the participating companies and compare the prerequisites for employee participation and involvement in detail. However, we can draw some indications.

Furthermore, regarding organisational culture, the comparison of findings from *IMKoN* and *RegioTransKMU* indicate that eco-pioneers might have a different, more holistic understanding of sustainability than conventional SMEs. While eco-companies in *IMKoN* regarded innovation workshops with workers as a chance for enhancing employee satisfaction and "workplace greening" (Süßbauer and Schäfer 2019), conventional SMEs participating in *RegioTransKMU* have not yet identified employees as a target group for sustainability practices (Ruppert-Winkel et al. 2017). Thus, future transdisciplinary research could concentrate on transferring lessons learned from eco-pioneers to conventional SMEs (located within one single region and/or within one sector).

Another aspect, which could be analysed in more detail, is employees' implicit or practical knowledge on sustainable consumption practices. There are many studies investigating formal management instruments and corporate practices for employee integration like idea management or trainings (e. g., Ramus 2003). However, implicit knowledge is often unconscious and requires specific noncognitive methods like narrative interviews or focus group discussions that stimulate workers to talk about their every-

The involvement of ordinary employees in sustainability transformation processes is a chance for companies intending to move from a traditional hierarchical concept of labour where innovation experts are the main driver to a "subjectivist" one where work is regarded as meaningful for society, nature and politics – by both employers and employees.

Findings from *NAHGAST* and *IMKoN* indicate that the organisation and the culture of a company considerably influence the possibilities of individual employees to foster sustainable actions within their work and behave according to the normative idea of sustainable conduct and the company's sustainability norm. This room for manoeuvre depends on the unequally distributed responsibilities for certain aspects of sustainable conduct between different departments. Flat hierarchies and team-oriented working structures enable participation in the design of sustainable processes, products and services. Thus, more research is needed in particular on the possibilities of larger companies (with more complex company structures) to empower their employees. Based on other studies, we suggest that, in these kinds of companies, different sub-cultures (Linnenluecke and Griffiths 2010) and groups of employees with different practical knowledge, everyday needs, understandings of the organisation and perceptions of sustainability (Hargreaves 2008) co-exist within a single company. Future research could concentrate on existing conflicts between opposing logics, goals and interests within one company, such as conflicts between work quality and ecological innovation (Becke forthcoming), between different communities of practice (Hargreaves 2008) or between socio-ecological transformation and commodification of work (Barth et al. 2018).

day experiences and reveal perceptions of "normal behaviours". In this regard, enterprises can learn from transdisciplinarity research – which explicitly aims at integrating different types of knowledge (Vilsmaier et al. 2015, Bunders et al. 2010, Lang et al. 2012) – how to involve employees better. If applied in the beginning of projects or organisational changes, transdisciplinary methods can demonstrate employees that their knowledge is valued and equally important as scientific or, in case of enterprises, expert knowledge. However, increased involvement of ordinary employees could lead to overload and resistance (Muster and Schrader 2011). It should be further investigated which forms, and which intensity of involvement are perceived as appropriate by employees and employers.

Furthermore, future research could concentrate on the role researchers could play within processes of employee integration. For example, researchers could act as intermediaries or "process facilitators" (Pohl et al. 2010) between different groups of employees or between management and workers. In order to become such intermediaries and hence to really understand rules, conventions and norms in the organisation and facilitate experience-based learning, we recommend an initial "praxis phase" where researchers gain hands-on experience of the organisation and can better understand employee interdependencies (Andresen et al. 2000).   >

To support such transdisciplinary research on sustainability transformations of businesses, funding structures and rules should allow for more iterative research practices. For example, adaptation of a project's research design after an experimental "praxis phase" could be helpful. According to experiences from the *NAHGAST* project, it is possible to adapt methods during the research process: in the end, the spontaneous adaptation of working routines by cashiers led to feelings of self-efficacy, which increased their acceptance of the "sustainability calculator" developed by the researchers. Moreover, establishing research networks between researchers and businesses and long-term research projects in this field can help to build trust, which is necessary for acting as intermediaries or mediators.

Conclusions

The involvement of ordinary employees in sustainability transformation processes is a chance for companies intending to move from a traditional hierarchical concept of labour where innovation experts are the main driver to a "subjectivist" one (Becke and Warsewa 2018) where work is regarded as meaningful for society, nature and politics – by both employers and employees. By providing convenient tools and empowering employees through suitable structures, their experience can develop into expertise and thus enforce sustainability transformations.

However, more research is needed, first, to identify prerequisites for employee involvement regarding different transformational fields and organisational contexts (e.g., conventional vs. eco-enterprises, rural vs. urban companies, small vs. big companies) and, second, to transfer experiences with participative methods of knowledge integration from transdisciplinary research to corporate practice.

References

Andresen, L., D. Boud, R. Cohen. 2000. Experienced-based learning. In: *Understanding adult education and training.* Edited by G. Foley. 2nd edition. London: G. Allen & Unwin. 207–219.

Barth T., G. Jochum, B. Littig. 2018. Nachhaltige Arbeit – die sozial-ökologische Transformation der Arbeitsgesellschaft befördern. *GAIA* 27/1: 127–131.

Becke, G. 1998. Erfahrungswissen als Grundlage für ökologische Produkt-innovationen in Unternehmensverbünden. *WS-Mitteilung* 51/5: 302–311.

Becke, G. Forthcoming. *Gute Arbeit und ökologische Innovation.* Munich: oekom.

Becke, G., G. Warsewa. 2018. Neue Chancen für nachhaltige Arbeits-gestaltung: Wie Arbeitnehmer(innen) Nachhaltigkeit im Betrieb vorantreiben können. *GAIA* 27/1: 122–126.

Birkinshaw, J., L. Duke. 2013. Employee-led innovation. *Business Strategy Review* 24/6: 46–51.

Brand, U., M. Wissen. 2017. Social-ecological transformation. In: *International encyclopedia of geography.* Edited by D. Richardson, N. Castree, M. Goodchild, A. Kobayashi, W. Liu, D. Marston. Hoboken, NJ: Wiley. 1–9.

Brandl, S., E, Hildebrandt. 2002. *Zukunft der Arbeit und soziale Nachhaltigkeit: Zur Transformation der Arbeitsgesellschaft vor dem Hintergrund der Nach-haltigkeitsdebatte.* Wiesbaden: Springer Fachmedien.

Buhl, A., S. Blazejewski, F. Dittmer. 2016. The more, the merrier: Why and how employee-driven eco-innovation enhances environmental and competitive advantage. *Sustainability* 8/9: 946.

Buhl, A. et al. 2019. Design thinking for sustainability: Why and how design thinking can foster sustainability-oriented innovation development. *Journal of Cleaner Production* 231: 1248–1257.

Bunders, J. F. G., J. E. W. Broerse, F. Keil, C. Pohl, R. W. Scholz, M. B. M. Zweekhorst. 2010. How can transdisciplinary research contribute to knowledge democracy? In: *Knowledge democracy: Consequences for science, politics, and media.* Edited by R. J. in 't Veld. Berlin: Springer. 125–152.

Daily, B., J. Bishop, N. Govindarajulu. 2009. A conceptual model for organizational citizenship behaviour directed toward the environment. *Business and Society* 48/2: 243–256.

Engelmann, T. et al. 2017. Sustainability assessment of out-of-home meals: Potentials and challenges applying the indicator sets *NAHGAST* meal-basic and *NAHGAST* meal-pro. *Sustainability* 10: 562.

Hargreaves, T. 2008. *Making pro-environmental behaviour work: An ethno-graphic case study of practice, process and power in the workplace.* Unpublished PhD thesis, University of East Anglia, Norwich, UK.

Harris, L., A. Crane. 2002. The greening of organizational culture: Management views on the depth, degree and diffusion of change. *Journal of Organizational Management* 15/3: 214 – 234.

Hasu, M., M. Toivonen, T. Tuominen, E. Saari. 2015. Employees and users as resource integrators in service innovation: A learning framework. In: *The handbook of service innovation.* Edited by R. Agarwal, W. Selen, G. Roos, R. Green. London: Springer. 169 – 192.

Kesting, P., J. P. Ulhøy. 2010. Employee-driven innovation: Extending the license to foster innovation. *Management Decision* 48/1: 65 – 84.

Kreilkamp, E., J. Krampitz, R. Maas-Deipenbrock. 2017. *Nachhaltigkeit bei Urlaubsreisen – Wunsch und Wirklichkeit. Green travel transformation. Endkundenbefragung 2017.* Leuphana Universität Lüneburg.

Lam, H., A. Khare. 2010. HR's crucial role for successful CSR. *Journal of International Business Ethics* 3/2: 3 – 15.

Lamm, E., J. Tosti-Kharas, E. Williams. 2013. Read this article, but don't print it: Organizational citizenship behavior toward the environment. *Group and Organization Management* 38/2: 163 – 197.

Lang, D. J. et al. 2012. Transdisciplinary research in sustainability science: Practice, principles, and challenges. *Sustainability Science* 7/1: 25 – 43.

Linnenluecke M., A. Griffiths. 2010. Corporate sustainability and organizational culture. *Journal of World Business* 45/4: 357 – 366.

Lülfs, R., R. Hahn. 2013. Corporate greening beyond formal programs, initiatives, and systems: A conceptual model for voluntary pro-environ-mental behavior of employees. *European Management Review* 10/2: 83 – 98.

Michaelis, L. 2003. The role of business in sustainable consumption. *Journal of Cleaner Production* 11/8: 915 – 921.

Muster, V., U. Schrader. 2011. Green work-life balance: A new perspective for green HRM. *German Journal of Research in Human Resource Management* 25/2: 140 – 156.

Muster, V., U. Schrader. 2014. Mitarbeiter im Zentrum einer glaubwürdigen Unternehmensverantwortung. In: *Gesellschaftliche Verantwortung von Unternehmen. Wege zu mehr Glaubwürdigkeit und Sichtbarkeit.* Edited by U. Schrader, V. Muster. Marburg: metropolis. 277 – 295.

Muster, V. et al. 2016. Integration von Mitarbeitern als Konsumenten in Nachhaltigkeitsinnovationsprozesse. Erprobung eines neuen Forschungsansatzes im Rahmen eines BMBF-Verbundprojekts. *UmweltWirtschaftsForum* 24/4: 417 – 421.

Pohl, C. et al. 2010. Researcher's roles in knowledge co-production: Experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal. *Science and Public Policy* 37/4: 267 – 281.

Ramus, C. 2003. *Employee environmental innovation in firms: Organizational and managerial factors.* Aldershot/Hampshire, UK: Ashgate

Ruppert-Winkel, C. et. al. 2017. Nachhaltiges Handeln in Unternehmen und Regionen. Ein Wegweiser für den Ausbau und die Kommunikation von sozialen und ökologischen Aktivitäten insbesondere von kleinen und mittleren Unternehmen (KMU) in ländlichen Regionen. ZEE Working Paper 10-2017. Freiburg: Albert-Ludwigs-Universität Freiburg, Zentrum für Erneuerbare Energien (ZEE).

Ruppert-Winkel, C., M. Kress-Ludwig, K. Papke, M. Böhm, C.-S. Scherf, S. Funcke. Forthcoming. Bedeutung sozialer und ökologischer Maß-nahmen in KMU für (potenzielle) Mitarbeiter*innen. Eine Fallstudie auf Basis von Befragungen von Mitarbeiter*innen, zukünftigen Fachkräften und Unternehmensvertreter*innen im Kreis Steinfurt. *Umweltpsychologie*.

Sarvaiya, H., G. Eweje, J. Arrowsmith. 2018. The roles of HRM in CSR: Strategic partnership or operational support? *Journal of Business Ethics* 153/3: 825 – 837.

Süßbauer, E., M. Schäfer. 2018. Greening the workplace: Conceptualising workplaces as settings for enabling sustainable consumption. *International Journal of Innovation and Sustainable Development* 12/3: 327 – 349.

Süßbauer E., M. Schäfer. 2019. Corporate strategies for enabling sustainable consumption at the workplace: Findings from sustainability-oriented companies in Germany. *Journal of Cleaner Production.* 226: 564 – 577.

Süßbauer, E., A. Buhl, V. Muster. Forthcoming. Die Alltagsdimension der Innovation – organisationale Bedingungen für das Aufgreifen konsum-bezogener Erfahrungen Beschäftigter. In: *Gute Arbeit und ökologische Innovation.* Edited by G. Becke. Munich: oekom.

Vilsmaier, U., M. Engbers, P. Luthardt, R. M. Maas-Deipenbrock, S. Wunderlich, R. W. Scholz. 2015. Case-based mutual learning sessions: Knowledge integra-tion and transfer in transdisciplinary processes. *Sustainability* 10/4: 563 – 580.

Wolf, J. 2013. Improving the sustainable development of firms: The role of employees. *Business Strategy and the Environment* 22/2: 92 – 108.

Elisabeth Süßbauer

Born 1981 in Cologne, Germany. Studies in sociology, political science and romance studies at the Universities of Münster, Germany, and Salamanca, Spain. 2014 PhD in political science from the University of Kassel, Germany. Since 2015 research associate at the Center for Technology and Society (ZTG) at Technische Universität Berlin, Germany; since 2019 head of the junior research group *PuR – Precycling as a means of resource efficiency. Systemic solutions for packaging prevention.* Research interests: sustainable consumption in everyday life, organisational change, sustainability innovation processes.

Rina Marie Maas-Deipenbrock

Born 1987 in Hagen, Germany. Studies in tourism and leisure management (BA) at IMC University of Applied Sciences Krems, Austria, and sustainability science (MSc) at Leuphana Univer-sity of Lüneburg, Germany. Currently PhD student at Leuphana University of Lüneburg. Research interests: sustainability com-munication in tourism, travel behaviour, digitalisation and sus-tainability.

Silke Friedrich

Born 1963 in Rheine, Germany. Studies in home economics (BSc). Since 2009 research associate at iSuN – Institute of Sustainable Nutrition, Münster University of Applied Sciences, Münster, Germany. Research interests: reduction of food waste along the value chain as well as sustainable production and consumption, all with focus on out-of-home dining sector.

Michael Kreß-Ludwig

Born 1981 in Herdecke, Germany. Studies in sociology, psy-chology and ethnology. Since 2018 research associate in the research area *Transdisciplinary Methods and Concepts* at ISOE – Institute for Social-Ecological Research, Frankfurt, Germany. Research interests: transdisciplinarity and knowledge transfer, participation in sustainability processes, environmental aware-ness and behaviour.

Nina Langen

Born 1979 in Cologne, Germany. Studies in agricultural scienc-es with a focus on economics and social sciences of agriculture. 2013 PhD. Since 2016 professor for education for sustainable nutrition and food science at Technische Universität Berlin, Germany. Research interests: sustainable food consumption and production, behavioral economics.

Viola Muster

Born 1982 in Leipzig, Germany. Studies in politics, sociology, social psychology and business administration. 2015 PhD. Research associate at the Institute of Vocational Education and Work Studies, Technische Universität Berlin, Germany. Research interests: sustainable consumption, consumer policy, work-life-balance, removal of boundaries and subjectivation of work, environmentally oriented and sustainable personnel management, home economics.