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ENCOURAGING PRO-ENVIRONMENTAL BEHAVIOUR: AFFORDANCES AND INSTITUTIONAL LOGICS IN IS-ENABLED ORGANISATIONAL SUSTAINABILITY TRANSFORMATIONS

Research in Progress

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Abstract

While many studies have addressed encouraging employees' pro-environmental behaviour (PEB) in the workplace, the roles of structures and institutions have received little attention and thus remain unclear. We draw on the concept of affordances as being enacted and embedded in institutional logics, which provide a frame of reference for individual and organisational behaviours. Given our emphasis on organisational sustainability transformations, we explain how organisations can encourage their employees to act pro-environmentally in the workplace with the help of green information systems (Green IS). We address technological, organisational, and human factors that strengthen PEB. Thus, we respond to the call to bring together institutional logics and affordance theory. We present preliminary findings of 55 semi structured interviews with informants from 20 companies, along with internal and external documents. This allows us to develop a pro-environmental corporate logic, which guides employees' PEB in our case companies. These preliminary findings allow us to develop a research agenda on the interplay of this institutional logic and motivational affordances. We conclude with an outlook on how to tackle the emerging research questions.

Keywords: Green IS, Pro-environmental Behaviour (PEB), Institutional Logic, Motivational Affordances

1 Introduction

In response to increasing environmental concerns and stakeholder pressures, firms are seeking to reduce their environmental footprints. A key building block of improving organisational sustainability is employees' *pro-environmental behaviour* (PEB), which improves the availability of materials or energy, or alters the biosphere's structure (Stern, 2000). PEB is considered a key category of employee behaviour and positively impacts economic and environmental performance indicators (Lubin and Esty, 2010; Butler et al., 2015). However, although organisations might support pro-environmental values and beliefs, employees often do not adhere to these values, which either do not benefit or even conflict with their personal goals. Thus, it is challenging to motivate employees to behave pro-environmentally. Green information systems (Green IS) research shows that the use of IS by individuals, groups, organisations, and society encourages eco-sustainable practices to emerge and diffuse (e.g., Dedrick, 2010; Watson et

al., 2010; Kranz and Picot, 2011). Thus, how can organisations encourage their employees to behave pro-environmentally in the workplace with Green IS?

To shed light on this question, it is crucial to investigate the interplay between organisational, technological, and human factors and therefore their effects on one another, since IS research has tended to deemphasize the contextual dimensions of PEB (Seidel and Berente, 2013; Volkoff and Strong, 2013). Correspondingly, motivational affordances are important, since they eventually determine whether or not employees actualize the affordances provided by an IS and as they determine whether and how users' motivational needs are supported (Zhang, 2008a, 2008b). Thus, satisfying users' motivational needs is a prerequisite for leveraging PEB via IS.

Further, the organisational literature has primarily examined institutional logics and psychological factors, but has marginalized IS's potential to influence behaviour (Battilana and Dorado, 2010). Interestingly, psychological research on PEB has also mainly focused on norms and goals, but has neglected institutional logics (Lo et al., 2012, 2014), which refer to values, beliefs, and norms as guidelines for actions and one's identification in the institutional setting (e.g., Thornton et al., 2005, 2012; Thornton and Ocasio, 2008). As encouraging employees for PEB is subject to complex organisational processes, which are reflected in institutional logics, institutional logics should be considered when designing IS high in motivational affordances. The suggested conceptualization of our research unravels institutional logics that relate to motivational affordances in the context of employee behaviour in organisational sustainability transformations.

Our proposed study responds to the call to bring together institutional logics and affordance theory (Seidel and Berente, 2013; Volkoff and Strong, 2013). By analysing Green IS's potential to encourage employee PEB, we respond to calls in the Green IS literature to apply existing Green IS theories (Gholami et al., 2016). We extend the range of influential affordances, particularly for the Green IS field (Malhotra et al., 2013) and point out practical implications (Watson et al., 2010). Thus, we help to address a grand societal challenge (Seidel et al., 2013; vom Brocke et al., 2013; Gholami et al., 2016).

In the remainder of this paper, we proceed as follows. First, based on a thorough literature review on motivational affordances and institutional logics, we present and elucidate gaps regarding both theories in the context of sustainability transformations. We then present our methodological approach and a pro-environmental corporate logic as our preliminary result. Based on this preliminary study, we elaborate research questions, bringing together the theories on motivational affordances and institutional logics. Finally, we provide an outlook on how these questions can be addressed in future research.

2 Conceptual Background

To elaborate on how Green IS can help to encourage employees' PEB, our research contributes to motivational affordances' roles in fostering PEB at the workplace. Because employee behaviour is influenced by a large variety of organisational factors, we draw on institutional logics that encompass institutional and organisational behaviours. We use the theory of affordances and institutional logics to examine IS-enabled organisational sustainability transformations, as illustrated in our research model (Figure 1), on which we elaborate in the following.

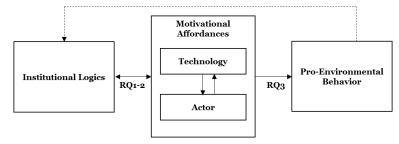


Figure 1. The interplay of organisational, technological, and human factors for PEB

2.1 Motivational Affordances in Green IS

Green IS comprise information technologies (IT), people, processes, and software to "support individual, organisational, or societal goals" (Kranz et al., 2015, p. 8) and thus support organisations' and individuals' sustainable practices and decisions (Butler, 2011; e.g., Baskerville et al., 2016). Green IS have the potential to mitigate negative environmental impacts by changing processes and customs (Watson et al., 2010; Kranz et al., 2015), and practices, sensemaking, and business processes, which have impacts on the environment (Seidel et al., 2013, 2017). Several studies have demonstrated IS' potential to positively influence individuals' behaviour, both in a private (Watson et al., 2011; e.g., Loock et al., 2013) and an organisational context (e.g., Bengtsson and Ågerfalk, 2011; Seidel et al., 2013).

Bengtsson and Ågerfalk (2011) examined a sustainability initiative in an organisational context that sought to decrease transport logistics in a municipality by means of IS. The results show that IS can serve as a key "change actant in sustainability innovation" (Bengtsson and Ågerfalk, 2011, p. 96) if institutionalised behaviour – the most critical barrier – can be overcome. Most resistance has emerged in situations in which the required changes have conflicted with prevailing practices and the organisational structure (Bengtsson and Ågerfalk, 2011). These findings indicate that, for IS to successfully improve organisational PEB, we must thoroughly understand organisational routines and standards (e.g., Bengtsson and Ågerfalk, 2011; Marett et al., 2013).

We utilize the concept of *affordances* (Gibson, 1986) to elaborate on Green IS' potential in organisational sustainability transformations, which have the capacity to answer the question how Green IS provide its users with functionality (Baskerville et al., 2016). Affordances relate to "the potential for behaviours associated with achieving an immediate concrete outcome and arising from the relation between an object (e.g., an information technology artefact) and a goal-oriented actor" (Volkoff and Strong, 2013, p. 823). To actualize IS' affordances into actions, employees must recognize the provided IS affordances and must then show problem awareness, motivation, and a positive attitude prior to using a system (Seidel et al., 2013; Henkel et al., 2017).

To foster motivation, Zhang (2008b) proposed design principles for IS. These present a starting point to form the concept of motivational affordances, since an object's properties determine whether or not and how it can support one's motivational needs (Zhang, 2008b). We concentrate on the motivational needs of competition and emotion since, first, competitive affordances have shown the potential to change individual behaviour (Jung et al., 2010). Second, the environmental psychology literature emphasizes that emotions play a key role in motivating PEB (Lindenberg and Steg 2007). Emotions are motives that invigorate and guide behaviours and reveal how well an individual adapts to a new situation (Zhang, 2008b). However, emotional affordances have been under-researched (Beaudry and Pinsonneault, 2010).

2.2 Institutional Logics and Eco-sustainability

Based on the idea of institutional fields (Bourdieu, 1984; DiMaggio and Powell, 1991), Friedland and Alford (1991) introduced the concept of institutional logics to intertwine individual practices and social institutions. An institutional logic is defined as "the socially constructed patterns of cultural symbols and material practices, assumptions, values, beliefs, and rules by which individuals and organisations produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton and Ocasio 2008, p. 804). Institutional logics define actors' identities and interests (Lok, 2010) and are essential for sensemaking in social situations (Glynn and Lounsbury, 2005). Since institutional logics represent frames of reference, they play a major role in individual and organisational behaviours (Martin et al., 2017).

Every organisation can be institutionally plural, and every individual can draw on different institutional logics, whether consistent or competing ones (Seidel and Berente, 2013). Depending on whether or not actions are in line with an institutional logic, they are seen as either legitimate or illegitimate (Fiedler and Welpe, 2010; Flickinger et al., 2013). To ensure the establishment of a desired behaviour such as PEB, this behaviour needs to be legitimated by dominant institutional logics (Seidler et al., 2017).

Thornton et al.'s (2012) corporation logic can be used to draw on underlying assumptions, values, and beliefs of corporate organisations, such as companies. Concerning the enactment of PEB within organisations, to date, we have limited insights from an institutional logics perspective. We know that PEB can be established in societies by non-governmental movement organisations, which foster a pro-environmental logic (Lee and Lounsbury, 2015). In organisations, corporate sustainability initiatives, such as Green IT projects, are often enabled by a prevailing institutional logic that supports corporate sustainability at a project level (Corbett et al., 2015). Although this project logic can explain the emergence of Green IT projects, the insights into PEB within corporate organisations in general remain vague. We theoretically derived an eco-sustainability logic in a previous study (Schick et al., 2016), which is grounded in the work of Lee and Lounsbury (2015), Corbett et al. (2015), and the well-established framework of Thornton et al. (2012), and is likely to guide PEB.

However, especially in organisational transformations, hybrid logics may evolve (e.g., Kraatz and Block, 2008; Reay and Hinings, 2009) that incorporate intact elements from different institutional logics (Pache and Santos, 2013; e.g., Besharov and Smith, 2014). Thus, the enactment of PEB could also be supported by a hybrid logic, incorporating elements from a corporation logic and an eco-sustainability logic (Seidler et al., 2017). In sum, although institutional theory has been extended to the question of pro-environmentalism (Bothello and Salles-Djelic, 2018), a dominant institutional logic encouraging employee PEB in corporate organisations has only barely been addressed. Since PEB in organisations is subject to complex organisational processes, unveiling the institutional logic that reflects these processes becomes important when designing IS high in motivational affordances.

3 Methods

Case studies allow one to analyse complex relationships and provide a nuanced, holistic, and empirically rich account of the specific phenomena under research (Bennett and Checkel, 2014). We draw on a multiple-case study approach, since this allows us to study the complex organisational processes involved in encouraging employees for PEB (Bhattacherjee, 2012), which are reflected in institutional logics and should be considered when designing IS high in motivational affordances. A comparison of the findings among firms results in higher external validity of the results (Yin, 2009). We chose three companies that recently won the most prestigious national sustainability award, because they may serve as role models for PEB in their industries. This provides an impactful setting for encouraging PEB. We further draw on the case companies' competitors that have eco-sustainability as a goal in their corporate strategy. This allows for a profound grounding of the dominant institutional logic.

To reveal the dominant institutional logic that guides employee PEB and to elaborate on an interplay between this logic and motivational affordances in influencing PEB, our preliminary study relies on semi structured interviews with 55 informants from 20 companies. These interviews were supported by internal sources (e.g., internal policies and activities in enterprise social networks) and external documents (e.g., corporate and sustainability reports) to verify the consistency of interviewees' statements on past developments and dominant assumptions, values, and beliefs. We stopped conducting further interviews once we had developed a comprehensive and consistent understanding (Paré, 2004).

Drawing on Flick (2014), we designed a semi structured interview guide on environmental values, attitudes, motivational triggers, and Thornton et al.'s (2012) framework elements. To unveil the dominant institutional logic, we asked questions such as *How important is sustainable behaviour in your department?* or *Why do you comply with your company's (eco-sustainable) values and principles?* The interviewees were from different departments and hierarchical levels (Table 1). All interviews were taperecorded and transcribed according to Flick's (2014) transcription procedure, using Thornton et al.'s (2012) framework categories as coding scheme. Following Flick (2014), we coded the interviews in a three-step approach, including single-case analysis, in-depth analysis, and group comparison, to provide generalizations regarding the characteristics of the dominant logic.

Interviewee		Company	Branch	Interviewee	Company	Branch
#1 #2 #3 #4	Head of HR EMEIA Key Account Manager Head of R&D Unit I Chief Sustainability Officer	Company A	Chemistry	 #34 Head of Sustainability Manage ment #35 Division Manager Business Model Innovation 	Company C	Electrical engineering
#5 #6 #7 #8	Global Head of IT Manager Production Manager Site & Service Manager CSR			 #36 Global Business Development Manager #37 Business Development Manager Germany 	Competitor A	Chemistry
#9 #10	Head of R&D Unit II Travel Manager			#38 Sales Representative #39 Manager Sales	Competitor B	Cosmetics
#14 #15	Manager CI / CD			 #40 Manager Sales Europe #41 Manager Business Development Unit I #42 Manager Business Development Unit II 	Competitor C Competitor D	Chemistry Food
#17	Manager Employee Mobility Division Manager Travel Man-	Company B	Automotive	#43 Sales Representative #44 Manager Campaign Marketing Germany	Competitor E Competitor F	Chemistry Cosmetics
#19	agement Research Analyst Assistant Sustainability			#45 Global Business Manager #46 Head of Marketing & Sales EMEIA	Competitor G Competitor H	Chemistry Food
	Assistant Automated Driving Assistant Command Functions Production Employee R&D			 #47 Key Account Manager EMEIA #48 Manager New Business #49 Manager Costumer Engagement Germany 	Competitor I Competitor J Competitor K	Chemistry Chemistry Chemistry
#24 #25 #26 #27	Senior CSR Manager Employee CSR Manager Facility Services Supply Chain Manager			#50 Manager Sales #51 Marketing Manager #52 Account Manager Germany	Competitor L Competitor M Competitor N	Food Chemistry Chemistry
#28 #29	Manager Corporate Citizenship HR Business Partner			#53 Manager International Marketing	Competitor O	Chemistry
#30 #31 #32 #33	Manager Operations Team Lead Production Employee IT Employee CSR			#54 Marketing Manager #55 Sales Representative	Competitor P Competitor Q	Chemistry Chemistry

Table 1. Overview of the interviewees

4 Preliminary Findings

The companies are dominated by a hybrid pro-environmental corporate logic (Seidler et al., 2017; see Table 2). They realized the potentials of a pro-environmentally strengthened market position and base their business model on this. Thus, their strategy inhibits pro-environmentalism as a growth model, which is supported by pro-environmental top management. Employees not only identify with their bureaucratic roles, but also with corporate pro-environmental values and norms. Thus, for them it is important to be employed in an eco-sustainable company. Receiving attention is based on hierarchical position and on PEB. The companies' pro-environmental culture serves as an informal control mechanism. We identified this pro-environmental corporate logic as a hybrid logic that guides behaviours in our case companies. We will now elaborate on this institutional logic's interplay with motivation affordances in sustainability transformations when setting up a research agenda in the following.

Categories (Thornton et al., 2012)	Pro-environmental corporate logic	Exemplary interviewee statements		
Root metaphor	Pro-environmentalism as business model	We realized that a sustainable business model is a seminal business model for us. [Interviewee 4]		
Sources of legitimacy Pro-environmentally streng ened market position		These are the things [referring to pro-environmental initiatives] that have hugely advanced our market differentiation. [Interviewee 4]		
Sources of authority	Pro-environmental top management	This is also triggered by our CEO's pro-environmental investment, since he promotes eco-sustainability. [Interviewee 35]		
Sources of identity	Association with bureaucratic roles and pro-environmentalism	Everyone is responsible [for pro-environmentalism]; one has greater responsibility, the other has less responsibility, based on the nature of their tasks. [Interviewee 1]		
Basis of norms	Employment in pro-environ- mental firm	[Pro-environmentalism] is incorporated in the organizational culture by our top management. [Interviewee 20]		
Basis of attention	Status based on hierarchy and pro-environmental behavior	People began to listen attentively. [Pro-environmental behavior] is realized by our CEO at least as much as by other colleagues in other regions. [Interviewee 2]		
Basis of strategy	Pro-environmentalism as growth model	With the acquisition of [target name], we take customers' demands for naturalness as growth potential. [Interviewee 9]		
Informal control mechanism	Pro-environmental organisation culture	[Pro-environmentalism] is part of many projects. We don't need to mention it, but everyone is aware of its positive effects. [Interviewee 4]		
Economic system	Managerial capitalism	What is forcing us is the market, customers, consumers. They want to see pro-environmentalism. [Interviewee 1]		

Table 2. Pro-environmental corporate logic (based on Seidler et al., 2017)

5 Research Agenda on the Interplay of Institutional Logics and Motivational Affordances

As conceptualized in our model (cf. Fig. 1), we presume that, for effective IS-enabled sustainability transformations, institutional logics and motivational affordances should be jointly investigated. To advance research on the potential interplay between these two concepts in influencing PEB, we draw on the pro-environmental corporate logic's interplay and IS affording emotions as well as competition. We propose three research questions.

RQ1: How do competitive motivational affordances interplay with a pro-environmental corporate logic in influencing PEB?

The sustainability literature identifies eco-efficiency and eco-effectiveness as two broad sustainability goals (Dyllick and Hockerts, 2002). Eco-efficiency can be achieved by progressively reducing ecological impacts and resource intensity in line with business needs (DeSimone and Popoff, 1997). Eco-effectiveness goes beyond eco-efficiency, since it requires a shift in mindset and corporate behaviour (McDonough and Braungart, 2002; Drucker, 2006). The pro-environmental corporate logic incorporates corporate characteristics such as the importance of a company's market position and corporate growth, as elements that support direct business needs. These efficiency-based characteristics can be seen as related to eco-efficiency. The corporate characteristics are combined with factors that drive PEB, such as pro-environmental norms, values, or the company's pro-environmental growth potential, which are directed towards eco-effectiveness. Thus, based on pro-environmentalism as a business model, the pro-environmental corporate logic combines eco-efficiency and eco-effectiveness.

Especially Green IS that support measures to increase eco-efficiency are more likely to be introduced (Butler and Daly, 2009; Henkel et al., 2017); for instance, virtual meetings to lower travel costs (Seidel et al., 2014). The resulting lowered impact on the environment and cost reductions are in line with corporate goals (Watson et al., 2010). This essential orientation towards efficiency and success can be fostered by IS affording competition in an organisational sustainability transformation (Zhang, 2008a; Jung et al., 2010). For instance, employee motivation can be supported with Green IS interventions that ask them to solve personally tailored tasks and displaying immediate progress in PEB (Zhang, 2008b). Individuals following an eco-effectiveness notion tend to do what is best for the environment "instead of making the wrong things less bad" (McDonough and Braungart, 2002, p. 76). These actions are motivated by individuals' pro-environmental attitudes and knowledge about the impacts of behaviours (Meinhold and Malkus, 2005). Given a positive attitude towards and adequate knowledge about PEB,

an individual inherently seeks to act in the best possible way to care for the environment (Lindenberg and Steg, 2007). IS can afford competition to motivate employees in advancing their knowledge of PEB (Zhang, 2008b), for instance by completing a daily quest to guide specific behaviour and thus to improve individuals' knowledge of, attitudes to, and impacts on the environment. Since our examined pro-environmental corporate logic combines eco-efficiency and eco-effectiveness, we expect to gather insights into how to influence employee actions by satisfying their needs to thrive economically and ecologically.

RQ2: How do emotional motivational affordances interplay with a pro-environmental corporate logic in influencing PEB?

Although there is some general research into emotions' influences on PEB, we know very little about organisational and technical factors that influence this relationship. To date, studies neither considered the results of emotional influence on PEB in relation to a pro-environmental corporate logic, nor considered IS as intervention methods in organisational sustainability transformations. Since hierarchical structures are incorporated into the pro-environmental corporate logic, superiors can positively stimulate their employees' emotions and can therefore motive individuals to engage in PEB (Dasborough and Ashkanasy, 2002; Cardon et al., 2009). If these emotions are framed positively, they may create optimism about an individual's contribution to organisational sustainability transformations. In turn, this leads to the individual's conviction that their behaviour matters (Vallerand et al., 2003; Cardon et al., 2009). Thus, we can assume that a hierarchy notion supports employees' acceptance and enactment of their superiors' propositions and exemplification in their own behaviours. This can be reinforced by IS affording emotion. For instance, effective IS affording emotions in a pro-environmental corporate logic could include positive emotional quotes to trigger the desired PEB.

The pro-environmental corporate logic incorporates an association with PEB as influencing one's status. The logic includes organisations' and individuals' openness to PEB and a subscription to pro-environmental values. As research has shown, intrinsic motivation for PEB is closely connected to emotional attachment and leads to higher engagement in sustainability programs (De Young, 2000; Steg, 2005; e.g., Seidel et al., 2010). Correspondingly, a significant relationship between PEB and emotion has been established (Smith et al., 1994). It has also become clear that pleasure and satisfaction play key roles in individuals' willingness to engage in PEB (Pelletier et al., 1998). Lindenberg and Steg (2007) highlight that PEB should be made more appealing and more enjoyable by eliciting positive emotions (e.g., happiness, joy), while environmentally harmful behaviours should be made less appealing and less enjoyable by inducing negative emotions (e.g., sadness, anger). These emotions could for instance be evoked by IS incorporating pictures that show positive or negative environmental states. Since we know that IS can satisfy emotional motivational needs and that emotions can influence PEB, further research is needed to provide insights into how emotional IS can increase PEB, how they need to be designed, considering a pro-environmental corporate logic, and how they interplay with this logic.

RQ3: How should Green IS be designed to provide employees' motivational affordances that encourage PEB?

Since we assume that the dominant institutional logic and competitive and emotional motivational affordances are intertwined, Green IS design relates closely to this interplay. While existing studies demonstrate the transformational power of Green IS (e.g., Bengtsson and Ågerfalk, 2011; Marett et al., 2013), they do not convey how Green IS should be fundamentally designed for successful sustainability projects in organisations. As motivating employees for PEB, especially in the long run, is hard yet pivotal to sustainability initiatives' success (De Young, 2000; Gifford et al., 2011), triggering motivational needs relating to competition has the potential to change individual behaviour (Jung et al., 2010). Thus, Jung et al. (2010) demonstrated that satisfying this need via the use of IS that afford optimal challenges and positive feedback. These affordances also satisfy the motivational need, for instance, by solving problems and completing tasks (De Young, 2000). Recent studies show that gamified IS that provide competitive motivational affordances can be effective in encouraging behavioural changes (e.g., Franceschi et al., 2009; Leimeister et al., 2009). The goal of incorporating gamification design elements into software design is to activate individual motivational needs to influence users' attitudes and behaviours (Blohm and Leimeister, 2013). Thus, including gamification in the design of competitive motivational

affordances for PEB provides an interesting new avenue. Gamification research has further proposed visual cues to make using a system more enjoyable and fun (Hamari, 2013). Since we know from the environmental psychology literature that emotions are key in motivating PEB (Lindenberg and Steg 2007), designing gamified IS high in emotional affordances may add to advancements in PEB.

6 Discussion and Outlook

Presuming that for effective IS-enabled sustainability transformations, institutional logics and motivational affordances should be jointly investigated, we used a multiple-case study approach to develop a pro-environmental corporate logic that guides behaviour in the observed organisations. We used this institutional logic as a starting point to derive three research questions that should be addressed by future research to design impactful IS for effective organisational sustainability transformations. Apart from characterizing the dominant institutional logic, our explorative interviews enable us to understand which motivational sources and needs can be used to design IS that provide motivational affordances in line with the dominant institutional logic for supporting PEB. Further, based on our profound literature review, we see great potential in including emotional and competitive affordances in IS-based organisational sustainability transformations.

Since there has been limited theoretical groundwork on the interplay of motivational affordances and institutional logics, further research should empirically address this relationship so as to contribute to impactful Green IS theory-building. Thus, future research should investigate our three research questions via a multimethod approach that reveals divergent views and strong inferences (Venkatesh et al., 2013). Building on our preliminary findings, promising research incorporates randomized, controlled field experiments, and surveys to measure regularities across organisations on multiple levels. A multimethod approach is particularly suitable, since it allows one to understand idiosyncrasies of human, organisational, and technical factors. Thus, it is appropriate to follow Morgan and Smircich's (1980) approach of *description*, *explanation*, *and recommendation* by (1) describing the tensions between the prevailing institutional logic and motivational affordances in influencing PEB; (2) explaining potential reasons for this interplay; (3) recommending solutions to solve these tensions to facilitate long-term PEB.

Design science research, which incorporates subjectivist and objectivist research elements (Morgan and Smircich, 1980), can help to explore, design, develop, and evaluate suitable motivational affordances in line with the dominant institutional logic for supporting PEB. Design science research offers a paradigm to address practical problems or goals by attempting to develop, apply, and evaluate new technology. To be able to recommend solutions for potential tensions between institutional logics and motivational affordances, an objectivist approach could be included (Morgan and Smircich, 1980). Randomized, controlled field experiments and surveys can help to hypothesize and test these tensions. This will then provide insights into how organisations can encourage employee PEB in the workplace.

In our view, the outlined research approach allows researchers to understand prerequisites for PEB (Banerjee, 2001; Gifford et al., 2011; Lo et al., 2012), to study de facto instead of only self-reported behaviours (McKenzie-Mohr, 2000; Gifford et al., 2011), and to investigate the concept of motivational IS affordances in an organisational setting (Zammuto et al., 2007; Volkoff and Strong, 2013; Strong et al., 2014). The research design helps to fill a gap regarding qualitative research into PEB at work (Lo et al., 2012). Investigating the research questions outlined above among different organisations allows for inter-organisational comparisons, as called for by Lo et al. (2012).

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References

- Banerjee, S. B. (2001). "Managerial perceptions of corporate environmentalism: Interpretations from industry and strategic implications for organizations." *Journal of Management Studies*, 38(4), 489–513.
- Baskerville, R., Pries-Heje, J. and Recker, J. (2016). "Principles for re-designing information systems for environmental sustainability." In: F. J. Mata & A. Pont (Eds.), *ICT for Promoting Human Development and Protecting the Environment* (pp. 14–25). San José, Costa Rica.
- Battilana, J. and Dorado, S. (2010). "Building sustainable hybrid organizations: The case of commercial microfinance organizations." *Academy of Management Journal*, 53(6), 1419–1440.
- Beaudry, A. and Pinsonneault, A. (2010). "The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use." MIS Quarterly, 34(4), 689–710.
- Bengtsson, F. and Ågerfalk, P. J. (2011). "Information technology as a change actant in sustainability innovation: Insights from Uppsala." *Journal of Strategic Information Systems*, 20(1), 96–112.
- Bennett, A. and Checkel, J. (2014). "Process tracing: From methodological roots to best practices." In: A. Bennett & J. T. Checkel (Eds.), *Process Tracing in the Social Sciences: From Metaphor to Analytic Tool* (pp. 3–38). Cambridge: Cambridge University Press.
- Besharov, M. L. and Smith, W. K. (2014). "Multiple institutional logics in organizations: Explaining their varied nature and implications." *Academy of Management Review*, 39(3), 364–381.
- Bhattacherjee, A. (2012). Social Science Research: Principles, Methods, and Practices.
- Blohm, I. and Leimeister, J. M. (2013). "Gamification Design of IT-based enhancing services for motivational support and behavioral change." *Business & Information Systems Engineering*, 5(4), 275–278.
- Bothello, J. and Salles-Djelic, M.-L. (2018). "Evolving conceptualizations of organizational environmentalism: A path generation account." *Organization Studies*, *39*(1), 93–119.
- Bourdieu, P. (1984). *Distinction: A Social Critique of the Judgement of Taste*. London: Harvard University Press.
- Butler, T. (2011). "Compliance with institutional imperatives on environmental sustainability: Building theory on the role of Green IS." *Journal of Strategic Information Systems*, 20(1), 6–26.
- Butler, T. and Daly, M. (2009). "Environmental responsibilty and Green IT: An institutional perspective." *17th European Conference on Information Systems*, 1–13.
- Butler, T., Daly, M. and Hackney, R. (2015). "Socio-technical transitions towards environmental sustainability through Green ICT." In: SIGGreen Pre-ICIS 2015 Workshop (pp. 1–12).
- Cardon, M. S., Wincent, J., Singh, J. and Drnovsek, M. (2009). "The nature and experience of entrepreneurial passion." *Academy of Management Review*, 34(3), 511–532.
- Corbett, J., Webster, J. and Jenkin, T. A. (2015). "Unmasking corporate sustainability at the project level: Exploring the influence of institutional logics and individual agency." *Journal of Business Ethics*.
- Dasborough, M. T. and Ashkanasy, N. M. (2002). "Emotion and attribution of intentionality." *Leadership Quarterly*, 13, 615–634.
- De Young, R. (2000). "Expanding and evaluating motives for environmentally responsible behavior." *Journal of Social Issues*, 56(3), 509–526.
- Dedrick, J. (2010). "Green IS: Concepts and issues for information systems research." *Communications of the Association for Information Systems*, 27(1), 173–184.
- DeSimone, L. D. and Popoff, F. (1997). "Eco-efficiency: The business link to sustainable development." *European Management Journal*, 12(3), 322–331.
- DiMaggio, P. and Powell, W. (1991). "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields." In: W. Powell & P. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 63–82). Chicago, MI: University of Chicago Press.
- Drucker, P. (2006). "What executives should remember." Harvard Business Review, 84(2), 144–153.
- Dyllick, T. and Hockerts, K. (2002). "Beyond the business case for corporate sustainability." *Business Strategy and the Environment*, 11(2), 130–141.
- Fiedler, M. and Welpe, I. (2010). "How do organizations remember? The influence of organizational

- structure on organizational memory." Organization Studies, 31(4), 381–407.
- Flick, U. (2014). The Sage Handbook of Qualitative Data Analysis. London: Sage.
- Flickinger, M., Gruber-Mücke, T. and Fiedler, M. (2013). "The linkage between human resource practices and organizational ambidexterity: An analysis of internal labor market dynamics in a port-of-entry context." *Journal of Business Economics*, 83(8), 923–946.
- Franceschi, K., Lee, R. M., Zanakis, S. H. and Hinds, D. (2009). "Engaging group e-learning in virtual worlds." *Journal of Management Information Systems*, 26(1), 73–100.
- Friedland, R. and Alford, R. (1991). "Bringing society back in: Symbols, practices, and institutional contradictions." In: W. Powell & P. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 232–266). Chicago, MI: University of Chicago Press.
- Gholami, R., Watson, R. T., Hassan, H., Bjørn-Andersen, N. and Molla, A. (2016). "Information systems solutions for environmental sustainability: How can we do more?" *Journal of the Association for Information Systems*, 17(8), 521–536.
- Gibson, J. J. (1986). The Ecological Approach to Visual Perception. London: Psychology Press.
- Gifford, R., Kormos, C. and McIntyre, A. (2011). "Behavioral dimensions of climate change: Drivers, responses, barriers, and interventions." *Wiley Interdisciplinary Reviews: Climate Change*, 2(6), 801–827.
- Glynn, M. A. and Lounsbury, M. (2005). "From the critics' corner: Logic blending, discursive change and authenticity in a cultural production system." *Journal of Management Studies*, 42(5), 1031–1055.
- Hamari, J. (2013). "Transforming homo economicus into homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service." *Electronic Commerce Research and Applications*, 12(4), 236–245.
- Henkel, C., Seidler, A.-R., Kranz, J. and Fiedler, M. (2017). "How to become a sustainability leader? The role of IS affordances in enabling and triggering sustainability transformations." In: *Proceedings of the 38th International Conference on Information Systems (ICIS 2017), Seoul, South Korea* (pp. 1–18).
- Jung, J. H., Schneider, C. and Valacich, J. (2010). "Enhancing the motivational affordance of information systems: The effects of real-time performance feedback and goal setting in group collaboration environments." *Management Science*, 56(4), 724–742.
- Kraatz, M. and Block, E. (2008). "Organizational implications of institutional pluralism." In: R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The Sage Handbook of Organizational Institutionalism* (pp. 243–275). Thousand Oaks, CA: Sage.
- Kranz, J., Kolbe, L. M., Koo, C. and Boudreau, M.-C. (2015). "Smart energy: Where do we stand and where should we go?" *Electronic Markets*, 25(1), 7–16.
- Kranz, J. and Picot, A. (2011). "Why are consumers going green? The role of environmental concerns in private Green-IS adoption." In: *Proceedings of the 19th European Conference on Information Systems (ECIS 2011), Helsinki, Finland* (pp. 1–12).
- Lee, M. P. and Lounsbury, M. (2015). "Filtering institutional logics: Community logic variation and differential responses to the institutional complexity of toxic waste." *Organization Science*, 26(3), 847–866.
- Leimeister, J. M., Huber, M., Bretschneider, U. and Krcmar, H. (2009). "Leveraging crowdsourcing: Activation-supporting components for IT-based ideas competition." *Journal of Management Information Systems*, 26(1), 197–224.
- Lindenberg, S. and Steg, L. (2007). "Normative, gain and hedonic goal frames guiding environmental behavior." *Journal of Social Issues*, 63(1), 117–137.
- Lo, S. H., Peters, G.-J. Y. and Kok, G. (2012). "A review of determinants of and interventions for proenvironmental behaviors in organizations." *Journal of Applied Social Psychology*, 42(12), 2933–2967.
- Lo, S. H., Peters, G. J. Y., van Breukelen, G. J. P. and Kok, G. (2014). "Only reasoned action? An interorganizational study of energy-saving behaviors in office buildings." *Energy Efficiency*, 7(5), 761–775.
- Lok, J. (2010). "Institutional logics as identity projects." *Academy of Management Journal*, 53(6), 1305–1335.

- Loock, C.-M., Staake, T. and Thiesse, F. (2013). "Motivating energy-efficient behavior with Green IS: An investigation of goal setting and the role of defaults." *MIS Quarterly*, *37*(4), 1313–1332.
- Lubin, D. A. and Esty, D. C. (2010). "The sustainability imperative." *Harvard Business Review*, 88(5), 2–9.
- Malhotra, A., Melville, N. P. and Watson, R. T. (2013). "Spurring impactful research on information systems for environmental sustainability." *MIS Quarterly*, *37*(4), 1265–1274.
- Marett, K., Otondo, R. and Taylor, G. (2013). "Assessing the effects of benefits and institutional influences on the continued use of environmentally munificent bypass systems in long-haul trucking." MIS Quartly, 37(4), 1301–1312.
- Martin, G., Currie, G., Weaver, S., Finn, R. and McDonald, R. (2017). "Institutional complexity and individual responses: Delineating the boundaries of partial autonomy." *Organization Studies*, *38*(1), 103–127.
- McDonough, W. and Braungart, M. (2002). "Cradle to cradle: Remaking the way we make things." *Chemical and Engineering News*.
- McKenzie-Mohr, D. (2000). "Promoting sustainable behavior: An introduction to community-based social marketing." *Journal of Social Issues*, *56*(3), 543–554.
- Meinhold, J. L. and Malkus, A. J. (2005). "Adolescent environmental behaviors: Can knowledge, attitudes, and self-efficacy make a difference?" *Environment and Behavior*, *37*(4), 511–532.
- Morgan, G. and Smircich, L. (1980). "The case for qualitative research." *The Academy of Management Review*, 5(4), 491–500.
- Pache, A.-C. and Santos, F. (2013). "Inside the hybrid organization: Selective coupling as a response to competing institutional logics." *Academy of Management Journal*, 56(4), 972–1001.
- Paré, G. (2004). "Investigating information systems with positivist case research." *Communications of the Association for Information Systems*, 13(18), 233–264.
- Pelletier, L. G., Tuson, K. M., Green-Demers, I., Noels, K. and Beaton, A. M. (1998). "Why are you doing things for the environment? The motivation toward the environment scale (MTES)." *Journal of Applied Social Psychology*, 28(5), 437–468.
- Reay, T. and Hinings, C. R. (2009). "Managing the rivalry of competing institutional logics." *Organization Studies*, *30*(6), 629–652.
- Schick, A.-R., Henkel, C., Kranz, J. and Fiedler, M. (2016). "The role of motivational affordances and institutional logics in IS-enabled organizational sustainability transformations A research agenda." In: *Proceeding of the SIGGreen Pre-ICIS Workshop 2016*.
- Seidel, S. and Berente, N. (2013). "Toward 'third wave' information systems research: Linking sociomaterial practice with broader institutional logics." In: *Proceedings of the 34th International Conference on Information Systems (ICIS 2013), Atlanta, GA, USA* (pp. 1–14).
- Seidel, S., Chandra Kruse, L., Székely, N., Gau, M. and Stieger, D. (2017). "Design principles for sensemaking support systems in environmental sustainability transformations." *European Journal of Information Systems*, 1–38.
- Seidel, S., Recker, J. and Pimmer, C. (2010). "Enablers and barriers to the organizational adoption of sustainable business practices." *Proceeding of the 16th Americas Conference on Information Systems* (AMCIS 2010), Lima, Peru, 12–15.
- Seidel, S., Recker, J. and Pimmer, C. (2014). "IT-enabled sustainability transformation The case of SAP." *Communications of the Association for Information Systems*, 35(1), 1–17.
- Seidel, S., Recker, J. and Vom Brocke, J. (2013). "Sensemaking and sustainable practicing: Functional affordances of information systems in green transformations." *MIS Quarterly*, *37*(4), 1275–1299.
- Seidler, A.-R., Henkel, C., Fiedler, M. and Kranz, J. (2017). "Greening the organisation: An institutional logics approach to corporate pro-environmentalism." In: *Proceedings of the British Academy of Management Conference 2017, Warwick, UK*.
- Smith, S. M., Haugtvedt, C. P. and Petty, R. E. (1994). "Attitudes and recycling: Does the measurement of affect enhance behavioral prediction?" *Psychology and Marketing*, 11(4), 359–374.
- Steg, L. (2005). "Car use: Lust and must. Instrumental, symbolic and affective motives for car use." *Transportation Research Part A: Policy and Practice*, 39(2–3), 147–162.
- Stern, P. C. (2000). "Toward a coherent theory of environmentally significant behavior." Journal of

- Social Issues, 56(3), 407–424.
- Strong, D. M., Volkoff, O., Johnson, S. A., Pelletier, L. R., Tulu, B., Bar-on, I., ... Garber, L. (2014). "A Theory of Organization-EHR Affordance Actualization." *Journal of the Association for Information Systems*, 15(2), 53–85.
- Thornton, P. H., Jones, C. and Kurry, K. (2005). "Institutional logics and institutional change in organizations: Transformation in accounting, architecture and publishing." *Research in the Sociology of Organizations*, 23, 125–170.
- Thornton, P. H. and Ocasio, W. (2008). "Institutional logics." In: R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin-Andersson (Eds.), *Handbook of organizational institutionalism* (pp. 99–129). London: Sage.
- Thornton, P. H., Ocasio, W. and Lounsbury, M. (2012). *The Institutional Logics Perspective: A New Approach to Culture, Structure, and Process*. Oxford: Oxford University Press.
- Vallerand, R. J., Blanchard, C., Mageau, G. A., Koestner, R., Ratelle, C., Léonard, M., ... Marsolais, J. (2003). "Les passions de l'âme: On obsessive and harmonious passion." *Journal of Personality and Social Psychology*, 85(4), 756–767.
- Venkatesh, V., Brown, S. A. and Bala, H. (2013). "Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems." *MIS Quartly*, *37*(3), 855–879.
- Volkoff, O. and Strong, D. M. (2013). "Critical realism and affordances: Theorizing IT-associated organizational change processes." *MIS Quarterly*, *37*(3), 819–834.
- vom Brocke, J., Watson, R. T., Dwyer, C., Elliot, S. and Melville, N. P. (2013). "Green information systems: Directives for the IS discipline." *Communications of the Association for Information Systems*, 33(1), 509–520.
- Watson, R. T., Boudreau, M. C. and Chen, A. J. (2010). "Information systems and environmentally sustainable development: Energy informatics and new directions for the IS community." *MIS Quarterly*, 34(1), 23–38.
- Watson, R. T., Boudreau, M. C., Chen, A. J. and Sepulveda, H. H. (2011). "Green projects: An information driven analysis of four cases." *Journal of Strategic Information Systems*, 20(1), 55–62.
- Yin, R. K. (2009). Case Study Research: Design and Methods. Los Angeles: Sage.
- Zammuto, R. F., Griffith, T. L., Majchrzak, A., Dougherty, D. J. and Faraj, S. (2007). "Information technology and the changing fabric of organization." *Organization Science*, 18(5), 749–762.
- Zhang, P. (2008a). "Motivational affordances: Reasons for ICT design and use." *Communications of the ACM*, 51(11), 145.
- Zhang, P. (2008b). "Toward a positive design theory: Principles for designing motivating information and communication technology." In: M. Avital, R. Bolland, & D. Cooperrider (Eds.), *Designing Information and Organizations with a Positive Lens, Advances in Appreciative Inquiry Series* (pp. 45–74). Oxford: Elsevier.