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Antecedents and consequences of environmental stewardship in boundary-spanning B2B teams

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Abstract The authors examine antecedents and consequences of environmental stewardship in frontline business-to-business teams. On the basis of data from members of 34 teams organized into regional networks, they demonstrate the differential impact of team environmental stewardship on customer satisfaction ratings and sales. Furthermore, the results reveal lagged individual-level effects of autonomy and supervisory support on environmental stewardship, as well as lagged group-level effects of past performance. Finally, dispersion models of team stewardship differentially moderate antecedent–stewardship relationships. Whereas within-team consensus strengthens the impact of past satisfaction ratings on subsequent stewardship, between-team consensus weakens the negative impact of past sales.

Keywords Boundary-spanning teams · Environmental stewardship · Dispersion models · Multi-level modeling

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Introduction

In a climate-changing world, both regulatory bodies and customers demand environmentally responsible business practices, and investors focus on sustainability indices as measures of companies' long-term viability. As a result, environmental accountability has evolved from a social responsibility issue into a strategic imperative (Porter and Reinhardt 2007). However, environmentally responsible strategies present serious challenges, including bridging the gap between the strategic views expressed in annual sustainability reports and the attitudes and behaviors of frontline or customer contact employees (Tilley 1999). As many companies organize their boundary-spanning operations around multiple, team-based structures (Sundstrom 1999), the challenge becomes further complicated by the need to develop consensual, shared environmental accountability within and between teams of engaged employees. At the heart of the matter is the problem of how to align the emerging need for environmental responsibility with traditional business performance parameters. Despite evidence that an environmentally focused business strategy has positive effects on operational efficiency (i.e., cost savings), revenues, and access to lower cost equity capital (Griffiths 2007), its impact on frontline performance parameters in service firms has been documented less convincingly (Brío et al. 2007).

Recent theory in economic sociology and marketing identifies two prototypical roles that consider either responsible behavior (i.e., “do the right thing”) or what is advantageous from a business perspective (i.e., “do things right”) (Heide and Wathne 2006). These roles are termed ‘friend’ versus ‘businessperson’ roles. Whereas the latter focuses on economic consequences and tends to describe decision making as a result of utility maximization, the

friend role follows the so-called logic of appropriateness, which results in norm-based decisions (March 1994). In marketing literature, this conceptual framework rests at the heart of the distinction between agency (e.g., Bergen et al. 1992; Singh and Sirdeshmukh 2000) and stewardship (Block 1993; Hernandez 2008). In reference to the notion of stewardship, the team role of serving customers in a responsible manner depends largely on consensual perceptions of shared accountability (Donaldson and Davis 1991). The stewardship role has its theoretical roots in the ascendancy of communal goals over the pursuit of self-interest (Block 1993) and the norm of improving the social context within which people operate (Davis et al. 1997). Hernandez (2008, p. 122) argues that “organizational actors aim to balance their obligations to stakeholders inside and outside the organization while upholding a broader commitment to societal and universal moral norms.” As Heide and Wathne (2006) propose, both roles should be integrated to manage marketing relationships, yet we do not know how the activation of one role may influence the other. Therefore, this study attempts to examine how environmental stewardship may relate to traditional organizational performance measures. Specifically, we aim to contribute to marketing literature by examining three substantive issues.

First, we introduce the concept of environmental stewardship as a shared belief among boundary-spanning marketing teams. As stewards, employees believe that companies and customers have a legacy to uphold and should purposefully contribute to improving environmental conditions (Donaldson et al. 1997). For example, in addition to selling and servicing office equipment, boundary-spanning teams at Rank Xerox advise clients about how to improve the efficiency of their business information flows and reduce their carbon footprint (Rothenberg 2007). In multiteam operations, each team may possess its own shared set of perceptions of acting responsibly in relation to the environment in contacts with customers. Therefore, we advance the construct of environmental stewardship within the context of multiple, frontline teams.

Second, shared team beliefs provide convergent indicators of team-enacted policies, procedures, and practices and thus mediate the impact of work context characteristics on performance (Zohar and Luria 2004). We develop a conceptual framework that identifies predictors of environmental stewardship, including autonomy and support. Patagonia, for example, allows its frontline employees the liberty to schedule time to work on environmental impact projects and design strategies for consumer “choice editing”, i.e., consciously attempting to limit the range of environmentally desirable options available for customers. In addition and consistent with emerging role theory, group beliefs form progressively as a

result of series of performance-reinforcing cycles, as well as on the basis of feedback and information sharing (Mathieu et al. 1993). Therefore, we include key performance criteria, such as customer satisfaction and sales, as both predictors and consequences of environmental stewardship.

Third, consensus represents a defining characteristic of stewardship (Davis et al. 1997). Hernandez (2008, p. 122) states that “stewardship is created through social exchanges.” Research on team processes suggests that perceptual agreement among team members moderates the impact of antecedents on collective beliefs. According to role theory (Dawes and Messick 2000; Weber et al. 2004), a multiteam context causes between-team variation, which may affect environmental stewardship formation at the team level. We contribute to existing literature on boundary-spanning marketing teams by exploring whether within- and between-team stewardship consensus moderates antecedent–environmental stewardship relations.

In addressing these issues, we structure our article as follows. We first provide a brief synthesis of the role theory perspective and its relevance for the context of boundary-spanning marketing teams. We subsequently develop hypotheses pertaining to the antecedents and consequences of environmental stewardship. On the basis of employee, customer, and sales data, we empirically examine the effects of the hypothesized antecedents and consequences. We conclude by discussing theoretical and managerial implications of our findings.

Theoretical framework and hypotheses

The conceptual underpinnings of our study come from role theory (for a recent overview and research agenda, see Heide and Wathne 2006). Many authors focus on both functional (e.g., describe actors in channels, such as retailers and wholesalers) and structural (e.g., interaction patterns, networks) roles. However, as Heide and Wathne (2006) note, the traditional role theory perspective of actor exchange relationships as principal–agent dyads fails to do justice to the multifaceted nature of commercial relationships. Further theorizing has attempted to broaden this perspective and introduced the notion of the collective mind (Kohli and Jaworski 1990) to take into account shared beliefs as characteristic of the roles of actors. Heide and Wathne (2006) also introduce an emerging specification of roles in marketing contexts, focusing on the distinction between the role of a friend and that of a businessperson, which are based on alternative logics for decision making (Montgomery 1998).

The role of a friend relates to the so-called logic of appropriateness (March 1994), which signifies that people's behavior in social environments results from their interpretation of the appropriate behavior in a given situation. Research in marketing (e.g., Dwyer et al. 1987; Heide and John 1992) shows that appropriate behavioral rules in relational exchanges develop into norms and thus the primary intrinsic motivational force. This development appears in the theory of stewardship to account for behavior that implies service to a larger community, guided by social norms (Block 1993; Davis et al. 1997).

Alternatively, in the more economically rational role of a businessperson, people reportedly behave according to the logic of consequences and choose rationally to maximize utility in terms of the expected consequences (Montgomery 1998). This prototypical role appears in a variety of present-day theories used in marketing, such as transaction cost theory, agency theory, and game theory. Operationally, it corresponds to sales maximization as a means to meet targets associated with incentives, which in turn reflect the extrinsic nature of this motivation.

According to the logic of appropriateness, beliefs about behavior should be shaped by social heuristics or responsibility norms. These norms do not reflect a scripted course of action or a “green” version of the Hippocratic oath, but rather a global behavioral norm or even moral considerations that guide employees to decide how they should act in relation to other actors (e.g., customers). In our study context, responsible behavior includes stewardship considerations related to the natural environment. A high-involvement or empowerment management (e.g., delegating authority, offering support) may be conducive to the development of responsibility norms (Lawler 1992). In contrast, a focus on performance consequences, rooted in economic rationality, can promote opportunistic behavior or calculative trust at best (Williamson 1993). Heide and Wathne (2006) contend that both role orientations coexist, particularly in boundary-spanning marketing contexts. Therefore, the emergent role theory perspective seems particularly suitable to examine environmental stewardship in relation to traditional company performance parameters. Furthermore, responsibility norms, such as environmental stewardship, can function as mediators between the characteristics of the organizational context and performance (Barbuto and Wheeler 2006; Groesbeck 2001).

Recent theorizing on role theory also indicates that collective identities represent an important characteristic of social contexts, because heuristics reflect shared beliefs (Weber et al. 2004). The logic of appropriateness suggests that perceptions of empowerment and support not only influence individual employee perceptions of suitable

behavior but also create an idea of how other employees will behave in the same condition (March 1994). Thus, work teams must converge toward similar perceptions of how and what they should accomplish (Cannon-Bowers et al. 1993). This convergence requires a relatively high level of intrinsic motivation and attachment to the focus of stewardship (Becker and Billings 1993). Recent conceptualizations of the term “stewardship” in reference to the environment point to responsibility for the sustainable handling of natural resources for current and future generations. Managerially, companies express this responsibility as the central tenet of their annual environmental reporting. For example, in its report, Dell (2006, p. 33) states that its “mission is to fully integrate environmental stewardship into the business.” Stewardship reflects the fact that “organizational actors take personal responsibility for the effects of organizational actions on stakeholder welfare” (Hernandez 2008, p.122). At the personal and group levels environmental responsibility should be integrated and this requires balancing interests of stake and stockholders (Hernandez 2008). With regard to customer contact employees, environmental stewardship provides a way to reconcile a firm's strategic objectives of sustainability and customer orientation (Brío et al. 2007). Therefore, for boundary-spanning teams, we conceptualize environmental stewardship as a collectively held sense of responsibility toward the environment, as reflected in the policies, procedures, and actions used during employee encounters with customers.

Finally, based on classic experiments conducted by Campbell (1965), we suggest an intricate interplay may exist between within-group coordination and between-group competition in relation to the aforementioned logics. For example, between-group competition influences the dynamics of responsibility norms (Dawes and Messick 2000). Therefore, we develop hypotheses regarding the antecedents and consequences of environmental stewardship beliefs across individual and collective levels of analysis.

Individual-level antecedents

Drawing on the appropriateness framework, we contend that in a high-involvement context, employees in work-groups are more likely to develop a sense of responsibility toward the environment; we examine how this development may affect performance parameters. Heide and Wathne (2006) argue that rules of behavior gradually develop into norms, which reflects the temporal development of the logic of appropriateness. Similarly, Davis et al. (1997) contend that initial stewardship beliefs influence subsequent beliefs as interest alignments shift and shared expectations devel-

op. Therefore, we propose that employees' initial beliefs (at time $t-1$) about their role as environmental stewards provide substantive predictors of subsequent (time t) stewardship beliefs:

Hypothesis 1: There is a positive effect of initial environmental stewardship ($t-1$) on environmental stewardship (t).

March (1994) argues that people develop conceptions of appropriate action on the basis of the rules of the organization, which they use as environmental cues. In case of stewardship, intrinsic motivation is a key driver (Davis et al. 1997). The authors argue that 'a steward's autonomy should be deliberately extended to maximize the benefits of a steward (Davis et al. 1997, p. 25). Moreover, Hernandez (2008) argues that a sense of choice and the regulation one's own actions promotes stewardship. When they have choices, stewards can accept full responsibility and accountability for their outcomes (Block 1993). In turn, the extent to which team members perceive that they have the autonomy to make decisions provides a substantive foundation for intrinsic motivation in work groups. Conceptualizations of autonomy primarily refer to team members' perceptions of the level of discretion they are allowed to exercise (Kirkman and Rosen 1999). Empirical research further demonstrates that autonomy delegation provides a strong predictor of team processes (Mathieu et al. 2006). Teams with autonomy are better equipped to self-align their collective efforts and accept responsibility and accountability for the outcomes over time (Kirkman and Rosen 1999). Because alignment, responsibility, and accountability constitute the defining characteristics of environmental stewardship, we hypothesize:

Hypothesis 2: There is a positive effect of autonomy ($t-1$) on environmental stewardship (t).

Weber et al. (2004) argue that leaders in organizations provide situational cues of appropriate behavior. Stewardship theorists contend that leaders should provide clear and consistent role indications (Davis et al. 1997). Supportive leadership, therefore, should represent a necessary condition for the development of cooperative behavior. Zaccaro et al. (1995, p. 17) state that leadership by supervisors essentially aims to build "perceptions among individual members of their combined and collective abilities." By rewarding, coaching, and providing specific performance feedback, team supervisors may foster employee confidence about taking responsibility and accountability for their actions (Jung and Sosik 2003). Hernandez (2008 p. 121) conceptualizes stewardship as "an outcome of leadership behaviors". Moreover, Ramus (2001) demonstrates that support from immediate super-

visors stimulates environmental or "eco-innovations" by employees. Hence, we posit:

Hypothesis 3: There is a positive effect of supervisory support ($t-1$) on environmental stewardship (t).

Group-level antecedents

Tenbrunsel and Messick (1999) demonstrate that framing governance mechanisms, such as monitoring performance, influences the adoption of friend versus businessperson roles in organizations. Heide and Wathne (2006) mention various examples of monitoring linked to the businessperson role, such as vendor report charts, mystery shopping, and supplier audits. These monitors typically lead employees to adopt a self-serving mode, focusing on reaping economic, balanced scorecard-based rewards, which are less conducive to developing responsible considerations of the natural environment. Boundary-spanning teams frequently use two categories of performance parameters: (1) customer-based, perceptual measures (e.g., satisfaction) and (2) objective, quantifiable performance criteria (e.g., sales). Drawing on the logic of the appropriateness framework, we suggest that feedback regarding these performance measurements has a negative impact on employee perceptions of environmental stewardship. Therefore,

Hypothesis 4: There is a negative effect of satisfaction ($t-1$) on environmental stewardship (t).

Hypothesis 5: There is a negative effect of sales ($t-1$) on environmental stewardship (t).

Heide and Wathne (2006) further argue that for role theory to develop, it must incorporate units of analysis beyond the individual or dyad. Weber et al. (2004) also state that groups may apply the logic of appropriateness differently than do individuals. Theoretically, we know little about the determinants and mechanisms that shape motivation in workgroups. Researchers also propose that the perceptions of individual team members are meaningful for team-level analyses (e.g., Chen et al. 2002; Mathieu et al. 2000). As a result of the social context in which they develop, team members' individual beliefs about the sources of their workgroup's conjoint capabilities should converge and therefore may be conceptualized at the team level (Kozlowski and Klein 2000). That is, team members likely develop shared understandings of the psycho-social characteristics of their workgroup. These shared beliefs differ conceptually from constructs that operate uniquely at the group level, such as past performance (Gully et al. 2002). However, such aggregate-level concepts share the same content as their individual-level counterparts, and recent studies provide a typology of

elemental compositions that specify functional relationships between constructs across multiple levels of analysis (e.g., Bliese 2000).

In particular, composition models reflect the process of constructing a higher-level measure from a collection of lower-level measures; the most frequently used is the direct consensus model, which assumes that individual-level constructs can be aggregated to the group level on the basis of within-group consensus among lower-level units (e.g., individual members of a team) (Chan 1998). Aggregate-level constructs therefore result from social interactions and common experiences within the team (Hackman 1987). As emerging group-level properties, these variables reflect what people think of themselves (Mischel and Northcraft 1997). By working together as a team, members gain information about one another's knowledge, skills, attitudes, and beliefs. When group members exchange viewpoints, provide feedback on ideas, and integrate their opinions into decision-making processes, they develop shared perceptions of their team's orientation toward the environment, then develop beliefs that are unique to the team. To include these contextual influences on perceptions, we propose that at the aggregate level, initial environmental stewardship, autonomy, and supervisory support have incremental, positive impacts on stewardship (i.e., beyond the individual level of analysis). Hence, we posit:

Hypothesis 6: At the group level of analysis, there are positive effects of (a) initial environmental stewardship ($t-1$), (b) autonomy ($t-1$), and (c) supervisory support ($t-1$) that account for a significant amount of additional variance in environmental stewardship (t).

Moderating influence of within-team stewardship consensus

Research into the antecedents of shared perceptions provides a considerable lack of uniformity with regard to the direct effects across different work settings, which indicates the presence of moderating variables. Many studies of team processes explore situational and/or task-related variables as moderators of predictor–criterion relationships (e.g., Stewart and Barrick 2000), but recent studies also focus on the moderating impact of interpersonal processes within teams. Stewardship pertains to the convergence of values and responsibility for the environment, so we extend our model accordingly. However, we also must consider how to conceptualize and operationalize constructs that reflect social processes as moderators of team performance relationships. Hackman (1987) argues that the extent of synergy in social normative processes

within workgroups moderates predictor–criterion relationships. Following his assumption, several authors (e.g., Lindell and Brandt 2000; Schneider et al. 2002; Zohar and Luria 2005) propose that it may be more meaningful to compose group-level team constructs according to the consensus of team member beliefs. Recent studies also propose modeling within-group dispersion as a suitable form of aggregation to reflect the extent of synergy regarding appropriate conduct (e.g., Lindell and Brandt 2000; Schneider et al. 2002). Typically, frontline employees who work in teams tend to be (partly) monitored and rewarded individually (Batt 1999). Therefore, team members' beliefs should differ and reflect systematic variation. Higher levels of agreement or uniformity are particularly relevant to environmental stewardship, because they foster consistency, increase interpersonal synergy, and improve performance predictability. Consensus in team member beliefs may help team members cope with poor environmental conditions (e.g., unsupportive management) and stimulate consistency in their beliefs over time and across employees. Hence, environmental stewardship consensus should moderate the impact of the antecedents:

Hypothesis 7: When within-team stewardship consensus ($t-1$) is higher, the positive effects of (a) initial environmental stewardship ($t-1$), (b) autonomy ($t-1$), and (c) supervisory support ($t-1$) on environmental stewardship (t) will be stronger, whereas the negative effects of (d) satisfaction ($t-1$) and (e) sales ($t-1$) on environmental stewardship (t) will be weaker.

Moderating influence of between-team stewardship consensus

Weber et al. (2004) argue that intergroup competition has a strong positive impact on the development of responsibility norms within a group. As Dawes and Messick (2000) note, such groups have a vigorous tendency to support one another in the face of competition. Organizations or business units may represent social systems that frequently compete with multiple groups (cf. Hoegl et al. 2004; Kozlowski and Klein 2000). Although organizations may strive to achieve coherence in their policies and procedures and set a corresponding zone of tolerance for variability in frontline operations, empowerment and the use of incentives may cause differential (i.e., nonrandom) stewardship beliefs in different teams within one context. Furthermore, teams may become polarized about certain issues as a result of conformity pressures within groups or competition in the organizational environment. Therefore, workgroups may

develop diverging environmental stewardship perceptions. High between-team consensus, which reflects a coherent pattern of perceptions, should instead narrow the range of interpretation about the impact of group-level sources of within-team perceptions. Hence, we hypothesize:

Hypothesis 8: When between-teams stewardship consensus is higher, the positive effects of (a) initial environmental stewardship ($t-1$), (b) autonomy ($t-1$), and (c) supervisory support ($t-1$) on environmental stewardship (t) will be stronger, whereas the negative effects of (d) satisfaction ($t-1$) and (e) sales ($t-1$) on environmental stewardship (t) will be weaker.

Consequences of environmental stewardship

Frontline teams also need to balance their processing of normative considerations with the requirements imposed by performance targets (Batt 1999). As we argued previously, traditional performance parameters and monitoring are associated more with the businessperson role than with the role of friend. The latter role instead entails the development of specific skills and internalized values (cf. Heide and Wathne 2006, “Saturnizing dealership employees”). In turn, we hypothesize negative relationships between environmental stewardship (logic of appropriateness) and performance measures (logic of consequences):

Hypothesis 9: At the group level of analysis, there is a negative effect of environmental stewardship on satisfaction.

Hypothesis 10: At the group level of analysis, there is a negative effect of environmental stewardship on sales.

In Fig. 1, we depict our conceptual framework and provide an overview of these issues.

Empirical study

Research sample

We sent surveys to members of the customer teams of a major office equipment and business services supplier, as well as to their customers. Company activities include outsourcing print room processes, operation and maintenance of complete copier and printer systems, fleet management, managing electronic and physical archives, and scanning and mailroom activities. Given the nature of its business, which is largely paper based, the company acknowledges that the potential environmental impact of its products significantly constrains its activities and its license

to operate. In other words, producing and servicing paper processing-based products appears likely to become a vulnerable business strategy. In its 2005 sustainability report, the company explicitly stated that employees should accept individual and collective responsibility and explore opportunities associated with sustainability. The company views itself as part of an integral chain and concludes that its sustainability is codetermined by the sustainability of its partners. It organizes so-called “tool-box” sessions on a regular basis to allow team members to share their experiences with environmentally related issues and solutions.

Customer contact employees have a wide array of products and services available that were developed taking into account the environment, such as toner recycling services, a range of soy-based ink cartridges, asset recovery services (product revisions aimed at more environmentally-friendly operation) and on-site energy and ozone-emission assessment. According to the results of a client survey, which are rendered in the firm’s sustainability report, environmental issues that will become increasingly important as purchasing criteria are an efficient use of paper and toner, recyclability of products [meaning waste reduction], reduced energy consumption and reduced emissions of ozone and fine dust.

During a new product introduction event at the company headquarters a group discussion with representatives from two of the company’s most important business segments; (1) professional printing companies and (2) architects. To identify whether environmental stewardship is an important theme, the central question was “why bother having a green supplier”. The response to this can be summarized by the following main conclusions:

- *A personal as well as company need to be environmentally conscious.* Personal conviction, moral obligation, but also the fact that their own clients demand responsibility for the environment. Respondents indicated that public opinion and stakeholders require this, and for them too it was clear that a responsibility towards the environment is directly related to their license to operate.
- *You only are as green as your supply chain* As a manufacturer is the beginning of the supply chain, they expect it to set the standard and this is likely to have an impact on the rest of the chain.
- *The reputation is on the front line* They increasingly evaluate their relationship with their supplier in the light of environmental issues; “Eco-labelling and sustainability reports are easy to produce, it is actions that count”
- *The number of green stakeholders is growing* It was indicated that clients themselves are increasingly con-

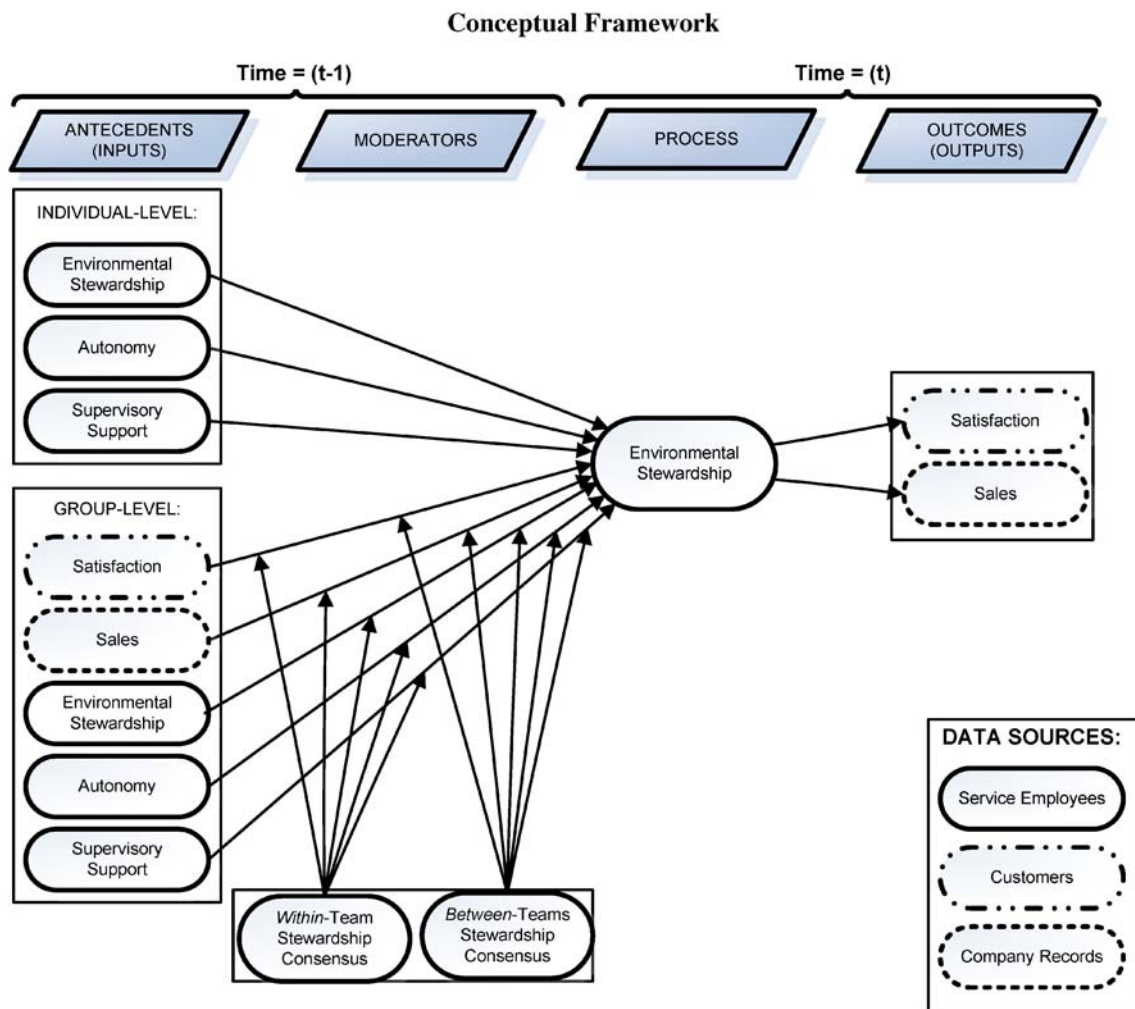


Figure 1 Conceptual framework.

fronted with activist groups inquiring about carbon-footprints, recycling of paper, and paperless information streams.

- *It's not only about threats, but also opportunities* This gets back to the fact that a good reputation sells in the market, but also that the pressing need for environmental responsibility is sparking collaborative, innovation projects. Two of the respondents mentioned as an example the recent asset recovery initiative that the company has launched where it takes responsibility (at a fee) to discard old equipment and take care of its recycling.

The firm employs approximately 23,000 people, 45% of whom deliver services and sell product parts, and after-sales support through a team organization. In addition to servicing products and managing the relationship with the customer, the teams recently received sales quota assignments. The quotas primarily refer to direct selling of equipment upgrades and product accessories, as well as

cross- and up-selling of service contracts. Teams depend on both geographic location and segmentation (i.e., regional networks) and vary in size between 6 and 14 members. Multiple teams (commonly two or three) typically work in the same local network. The teams can be regarded a meaningful entity as they share a history, present and future (cf. Gully 2000). Despite the fact that employees work individually at customer sites, they frequently cooperate on complex issues and meet for training activities. They frequently consult each other and collectively use a dispatch system to divide the workload. Moreover, they collectively decide on the use of resources, budgets, performance measurement and hiring new team members. As Mathieu et al. (2007, p. 897) state 'the efforts of individuals are really the by-products of the contributions and coordination of many others from their team'.

As part of an annual, international, employee and customer research program, all 52 customer contact teams of the largest business unit received a special appendix of

the survey for our environmental stewardship research project (408 employees). We collected data at $t-1$ and t (8 months later) and received 351 questionnaires (86.0%) from 37 teams at $t-1$ and 324 questionnaires (79.4%) from 34 teams at t . Therefore, we use 34 teams and 324 questionnaires for the analyses. For the customer portion of the survey, we randomly selected samples of 50 customers per team, again at $t-1$ and t . In total, we gathered 416 (16.0%) questionnaires at $t-1$ and 312 (12.0%) questionnaires at t for the analysis.

Among the employee sample, 48% are younger than 40 years, most are men (93%), and most have a technical background (83%). More than half of the customer contact employees possess extensive company experience (52% > 10 years) but have been with their current team for a relatively short time (58% < 3 years). In the customer sample, the majority again are men (79%). Most customers had developed a long-term (71% > 10 years) relationship with the company.

Measures

With the notable exceptions of Groesbeck (2001) and Barbuto and Wheeler (2006), who develop five-item scales for general group and company stewardship, respectively, no existing scales are tailored to our research domain. Therefore, we adapt our scale for environmental stewardship from general stewardship scales, on the basis of 11 comprehensive interviews with team members. Our operationalization is consistent with earlier studies on stewardship, that emphasize stewardship as social responsibility over self-interest (Block 1993). We borrow the scale for the autonomy construct (4 items) from Kirkman and Rosen (1999). Our operationalization of the supervisory support scale (4 items), was inspired by the scales of Hyatt and Ruddy (1997) and Campion et al. (1993). All scale items by means of the employee survey on a 7-point scale, ranging from “strongly disagree” (1) to “strongly agree” (7). Operationalizations of these scales are provided in the [Appendix](#).

Furthermore, the variable team size and team tenure were included as controls. Team size reflects the number of employees that a team counts and team tenure denotes the number of years an employee is a member of the team. The latter variable consisted of six answer categories ranging from ‘<1 year’ (1) to ‘>5 years’ (6).

In addition, we evaluated the measurement properties of these measures at the individual employee level ($t-1$) by conducting a confirmatory factor analysis (CFA) with three latent variables (environmental stewardship, autonomy, and supervisory support). We assessed the distributional properties for the items used in the analysis and found that none exhibited excessive univariate skewness ($g1 < 3$) or univar-

iate kurtosis ($g2-3 < 10$; Kline 2005). However, Mardia’s ($g2, p$) normalized estimate for multivariate kurtosis equals 35.90. As a consequence, we decided to employ robust maximum likelihood estimation in EQS 6.1 to obtain the estimates (Bentler 1995). Our analysis reveals a good fit to the data: $\chi_{SB}^2(62)=107.86$, $p < .001$, Tucker-Lewis index (TLI)=.95, confirmatory fit index (CFI)=.96, incremental fit index (IFI)=.96, and root mean squared error of approximation (RMSEA)=.048. These measures indicate unidimensionality. To assess the convergent validity of the measures, we determined whether the manifest variables load significantly and adequately in magnitude on the hypothesized latent variable (Anderson and Gerbing 1988). All (standardized) loadings are significant at $\alpha=.05$ with a mean of $\geq .70$, and all of them exceed .6, as recommended by Bagozzi and Yi (1988). The (standardized) loadings, pattern of the residuals, and Lagrange multiplier tests show that none of the items should be omitted from the analysis. We calculated the composite reliability (CR) and average variance extracted (AVE) for each measure and find that the CRs exceed the recommended cut-off value of .7 (autonomy [CR=.81], supervisory support [CR=.87], environmental stewardship [CR=.86 ($t-1$) and .92 (t)] and that AVE exceeds the recommended cut-off value of .5 (Fornell and Larcker 1981). Finally, to assess discriminant validity, we compared the square root of the AVE with the (attenuated) correlations of the latent variables (Fornell and Larcker 1981). For each pair of the latent variables, the square root of the AVE exceeds the (attenuated) correlations between the latent variables, which indicates discriminant validity.

We operationalize within-team stewardship consensus using the standard deviation of team member perceptions of their team. We use the standard deviation instead of the $r_{WG(j)}$ statistic, because it better reflects the (lack of) within-team consensus (Schneider et al. 2002; Zohar and Luria 2005), whereas the distribution underlying the $r_{WG(j)}$ does not always reflect the response range accurately (Bliese 2000). Our operationalization of the between-team stewardship consensus parameter relies on Zohar and Luria’s (2005) operational definition of climate variability. Specifically, we operationalize between-team stewardship consensus by taking the standard deviation of the group means of team stewardship for each local network.

We assess customer satisfaction with respect to the following attributes related to employee attitudes and behavior: competence, empathy, friendliness, helpfulness, accuracy, and attentiveness. Customer respondents rate the six items on five-point scales ranging from “very dissatisfied” (1) to “very satisfied” (5). The items of the customer satisfaction scale are provided in the [Appendix](#).

We also perform a CFA to assess the construct validity. For both $t-1$ and t , we find good fits to the data ($t-1$: $\chi_{SB}^2(9)=$

36.04, $p < .001$, TLI = .97, CFI = .98, IFI = .98, RMSEA = .057; $t: \chi_{\text{SB}}^2(9) = 46.15$, $p < .001$, TLI = .96, CFI = .98, IFI = .98, RMSEA = .061). To assess reliability, we calculate both CR and AVE; they exceed the recommended cut-off values (satisfaction CR = .89 (t-1) and .90 (t)). Finally, we obtain data about sales per customer from the company's internal database (results per quarter in K Euro).

We evaluate the longitudinal invariance of the environmental stewardship and satisfaction measures using multi-sample CFA to analyze the equality of the sample variance/covariance matrices for t-1 and t ($\Sigma^1 = \Sigma^2$; Vandenberg and Lance 2000). The equality hypotheses for the variance/covariance matrices cannot be rejected for stewardship ($\chi_{\text{SB}}^2(15) = 20.23$, $p = .16$, TLI = .99, CFI = .99, IFI = .99, RMSEA = .033) or satisfaction ($\chi_{\text{SB}}^2(21) = 26.51$, $p = .19$, TLI = .99, CFI = .99, IFI = .99, RMSEA = .041).

We analyze the linkage between environmental stewardship and its consequences at the group level of analysis. From a conceptual point of view, satisfaction represents the outcome of synergetic work processes among team members, as reflected by outgroup-homogeneity theory, which states that people tend to observe other groups as more uniform than their own (Quattrone and Jones 1980). The implication for our research setting is that customers (as members of the external customer group) likely perceive the attitudes and behavior of one or a few frontline employees as the general feature of the team. Finally, because the company prioritizes a privacy policy, we cannot empirically match employee and customer evaluations or sales at the individual level of analysis. Therefore, we aggregate stewardship and satisfaction to the group level.

Justification for aggregation

We calculate the $r_{\text{WG}(j)}$ statistic and intra-class correlation (ICC) coefficients for autonomy, environmental stewardship at t-1 and t, supervisory support, and satisfaction at t-1 and t to justify our data aggregation to the team level. The $r_{\text{WG}(j)}$ coefficient, which indicates homogeneity in individual ratings within teams, results in high values for all variables (from .86 to .96). These findings demonstrate that individual ratings within groups are highly consistent (James et al. 1993). Whereas the $r_{\text{WG}(j)}$ coefficient only takes into account differences among individuals within groups, the ICC (1) coefficient involves a ratio of between-group variance to total variance and thus captures both within- and between-group variation. The ICCs (1)¹ for all

variables are significant (F-values, $p < .07$), ranging from .05 to .25, which indicates that each variable possesses a sizable amount of between-group variance. We also calculate ICC (2), which more precisely assesses the impact of interdependence because it accounts for group size. Except for autonomy (ICC (2) = .34), the ICC (2) values for all variables are greater than .50, which represents convincing evidence that group means can be considered reliable, even if the ICC (1) values are relatively small (Bliese 2000).

Means, standard deviations, and individual-level correlations between the employee variables are presented in Table 1. In Table 2, group-level means, standard deviations, and (partial) correlations of employee variables and external outcomes are represented. Environmental stewardship (t) appears to have the highest correlations with customer satisfaction. Furthermore, the antecedent-satisfaction correlations are noticeably weaker when the effect of environmental stewardship (t) is accounted for, implying that environmental stewardship (t) mediates the antecedent-customer satisfaction relationships (cf. Baron and Kenny 1986). In relation to sales, the mediating role of environmental stewardship is less obvious.

Results of the analyses

We specify hierarchical linear regression models using MLwiN software (Rasbash et al. 2000) to estimate the lagged effects of the antecedent variables at t-1 on environmental stewardship at t. We initially include the control variables and the antecedents at the individual and group levels (direct consensus model 1). Next, we add interactions between within-team stewardship consensus and the antecedents to test the full model (dispersion model

Table 1 Means, standard deviations, and correlations of individual-level variables

Variables	Mean (s.d.)	1	2	3	4	5
1. Team tenure (t-1)	3.53 (1.83)	–				
2. Initial environmental stewardship(t-1)	5.50 (.88)	.03	–			
3. Autonomy (t-1)	6.24 (.65)	.14**	.47***	–		
4. Supervisory support (t-1)	4.59 (1.22)	.03	.28***	.31***	–	
5. Environmental stewardship (t)	5.60 (.81)	.11*	.40***	.42***	.38***	–

* $p < .10$; ** $p < .05$; *** $p < .001$.

$N = 324$ respondents of 34 groups.

¹ We correct the ICC values for measurement error, defined as $[1 - \alpha]$ (cf. van Yperen and Snijders 2000).

Table 2 Group-level means, standard deviations, and correlations of group-level variables

Variables	Mean (s.d.)	N=34											
		1	2	3	4	5	6	7	8	9	10	11	12
1. Customer satisfaction (t)	4.17 (.16)	–				.32	–.03	–.03	–.02	–.13			
2. Sales (t)	2.44 (.60)	–.06	–			–.20	–.77**	.06	.57**	.16			
3. Team tenure (t–1)	3.52 (.59)	.12	.33*	–									
4. Team size (t–1)	7.85 (3.43)	–.29*	.34*	.13	–								
5. Customer satisfaction (t–1)	4.18 (.16)	.40**	–.21	.10	–.44**	–							
6. Sales (t–1)	2.71 (.46)	–.10	.76*****	.22	.49**	–.26	–						
7. Initial environ. stewardship (t–1)	5.51 (.38)	.34*	.01	–.31*	.09	.03	.02	–					
8. Autonomy (t–1)	6.20 (.28)	.20	.44**	.01	.15	–.18	.20	.67***	–				
9. Supervisory support(t–1)	4.54 (.65)	.08	.12	.02	–.31*	.05	–.03	.38**	.30*	–			
10. Within-team stewardship cons. (t–1)	.78 (.18)	.15	.18	.39**	.26	–.13	.13	–.57***	–.21	–.37**	–		
11. Between-teams stewardship cons. (t–1)	.20 (.19)	–.12	–.11	.16	–.28	.08	–.25	–.51**	–.39**	–.01	.38**	–	
12. Environ. stewardship (t)	5.56 (.33)	.37**	–.04	–.08	–.24	.37**	–.18	.68***	.57***	.48**	–.44**	–.35**	–

* $p < .10$; ** $p < .05$; *** $p < .001$.

$N=34$. Correlations among variables are represented in the lower triangle. Coefficients in the upper triangle are the *partial* correlations between antecedents and outcomes. Regarding the partial correlations with the antecedents (t–1), the effect of environmental stewardship (t) has been partialled out.

2a). Finally, we test a competing model (dispersion model 2b) with interactions of between-team stewardship consensus and the antecedents. Our full model represents the following multilevel equation:

$$\begin{aligned}
 STEW_{(t),ij} = & \gamma_{00} + \gamma_{10}TEN_{(t-1),ij} + \gamma_{20}STEW_{(t-1),ij} + \gamma_{30}AUT_{(t-1),ij} + \gamma_{40}SUP_{(t-1),ij} \\
 & + \gamma_{50}(STEW_{(t-1),ij} \times STEWCON_{(t-1),j})_{ij} + \gamma_{60}(AUT_{(t-1),ij} \times STEWCON_{(t-1),j})_{ij} \\
 & + \gamma_{70}(SUP_{(t-1),ij} \times STEWCON_{(t-1),j})_{ij} + \gamma_{01}TEN_{(t-1),j} + \gamma_{02}TSIZE_{(t-1),j} \\
 & + \gamma_{03}STEW_{(t-1),j} + \gamma_{04}AUT_{(t-1),j} + \gamma_{05}SUP_{(t-1),j} + \gamma_{06}SERVQUAL_{(t-1),j} \\
 & + \gamma_{07}SALES_{(t-1),j} + \gamma_{08}STEWCON_{(t-1),j} + \gamma_{09}(STEW_{(t-1),j} \times STEWCON_{(t-1),j})_j \\
 & + \gamma_{010}(AUT_{(t-1),j} \times STEWCON_{(t-1),j})_j + \gamma_{011}(SUP_{(t-1),j} \times STEWCON_{(t-1),j})_j \\
 & + \gamma_{012}(SERVQUAL_{(t-1),j} \times STEWCON_{(t-1),j})_j + \gamma_{013}(SALES_{(t-1),j} \times STEWCON_{(t-1),j})_j \\
 & + u_{0j} + u_{1j} + u_{2j} + u_{3j} + u_{4j} + e_{ij},
 \end{aligned}
 \tag{1}$$

where i refers to individuals; j indicates groups; $STEW_{(t)}$ is the employee’s environmental stewardship appraisal at $t-1$; $TEN_{(t-1)}$ and $TSIZE_{(t-1)}$ refer to team tenure and team size at $t-1$, respectively; $STEW_{(t-1)}$, $AUT_{(t-1)}$, and $SUP_{(t-1)}$ are environmental stewardship, autonomy, and supervisory support at $t-1$, respectively; and $STEWCON_{(t-1)}$, $SAT_{(t-1)}$, and $SALES_{(t-1)}$ are stewardship consensus (either within- or between-teams), satisfaction, and sales at $t-1$, respectively. In addition, e_{ij} denotes the individual-level error term. The random terms u_{qj} ($q=0, \dots, 4$) reflect the unique variation of group j from the overall effect on the intercept (β_{0j}), after we partial out the effects of all group-level predictors. The

coefficients $\beta_{0j}, \dots, \beta_{4j}$ are random terms that may vary across teams.

We split the environmental stewardship, autonomy, and supervisory support variables according to group means and the individual scores of the employees to compare their group- and individual-level effects on environmental stewardship. To calculate the group-level coefficients, we use group means, but we derive the individual-level coefficients from the individual scores. The individual-level coefficients thus act as controls on the group-level coefficients (e.g., Vancouver et al. 1994); if the group-level coefficient of an antecedent remains significant after we

include its individual-level coefficient, the coefficient explains additional variance in stewardship, beyond what its individual-level counterpart can explain. In this case, we can conclude that the antecedent has a specific group-level effect on the dependent variable.

To estimate our models with interaction terms, we employ a centring procedure that enables us to avoid multicollinearity between the main effects and the interaction variables. Therefore, we grand-mean-center the first-order variables first, and then develop the interaction terms (see Aiken and West 1991).

In Table 3, we present the findings of our multilevel analyses. All three models yield a higher R^2 at the group level than at the individual level, which indicates that the antecedents explain between-group variation of stewardship better than they do within-group variation. The findings further reveal that Model 2a does not provide a better fit ($\chi^2(6)=11.145$) than Model 1, whereas Model 2b yields a significantly better fit than Model 1 ($\chi^2(6)=24.328$) and displays substantially higher explanatory power than Model 2a. Specifically, Model 2b reveals positive individual-level effects of environmental stewardship, autonomy and supervisory support ($t-1$) on environmental stewardship (t) in support of Hypotheses 1–3. At the group level and contrary to our expectations, we find a positive significant effect of satisfaction ($t-1$) on stewardship (t), so we fail to support Hypothesis 4. In line with our expectations, we also uncover a negative effect of sales ($t-1$) on environmental stewardship, in support of Hypothesis 5. The significant positive group-level effects of stewardship ($t-1$) and supervisory support ($t-1$) on stewardship (t) supports Hypotheses 6a and 6c. Conversely, autonomy ($t-1$) appears not to have a significant group-level effect on stewardship (t), so we cannot support Hypothesis 6b.

To test Hypothesis 7, we construct interaction terms of within-team stewardship consensus and the antecedents (see Model 2a) and find a significant, positive interaction of within-team stewardship consensus and satisfaction. That is, when within-team stewardship consensus increases, the positive effect of satisfaction on team stewardship strengthens, in contrast with Hypothesis 7d. None of the interactions of within-team stewardship consensus with the other four antecedents demonstrates significance, which means that we do not find support for Hypotheses 7a–c or 7e.

Next, we specify interactions between the antecedents and between-team stewardship consensus to test Hypothesis 8 (see Model 2b). We find a significant positive direct effect of between-team stewardship consensus on team stewardship and significant interactions with three antecedents. First, a significant positive group-level interaction exists for between-team stewardship consensus and initial stewardship on stewardship (t), which implies that when stewardship consensus between teams increases, the positive effect of initial

stewardship on subsequent stewardship becomes stronger, in support of Hypothesis 8a. Second, and contrary to our expectations, we find a significant negative interaction of between-team stewardship consensus and group-level supervisory support. When between-team stewardship consensus increases, the positive impact of supervisory support on stewardship (t) is weaker, indicating no support for Hypothesis 8c. Third, our findings reveal a significant positive interaction of between-team stewardship consensus and sales ($t-1$), such that when between-team consensus increases, the negative effect of sales weakens, in support of Hypothesis 8e. We do not find significant interactions of between-team stewardship with group-level autonomy or satisfaction ($t-1$). Hence, we fail to find support for Hypotheses 8b and 8d.

Finally, we find that none of the specified cross-level interactions in Models 2a and 2b turn out to be significant. In relation to the control variables, all models feature only a positive individual-level effect of team tenure on environmental stewardship perceptions.

We use the data collected at t to estimate the group-level effects of team stewardship on its consequences (i.e., Hypotheses 9 and 10) through a multivariate regression model, formulated as a two-level hierarchical linear model, where level 1 reflects the dependent variables indexed by $h=1, \dots, m$, and level 2 represents the teams $j=1, \dots, N$. To formulate the multivariate regression model as a hierarchical linear model, we employ the dummy variables d_1 to d_m to reflect the dependent variables (i.e., satisfaction and sales). Dummy variable d_h equals 1 or 0, depending on whether the data line refers to the dependent variable Y_h or to the other dependent variable. Thus, the regression models for the m dependent variables can be integrated into a two-level hierarchical model, in which the variables (including the intercept) multiply with the dummy variables. This approach yields the following equation:

$$Y_{hj} = \gamma_{0h} + \gamma_{1h} \text{STEW}_j + e_{hj}, \quad (2)$$

where Y_{hj} is the measurement of the h th variable for team j , and STEW is the team's average environmental stewardship score at t . Our results in Table 4 reveal a significant positive effect of environmental stewardship on satisfaction, but no relationship exists with sales; hence, we fail to find support for Hypotheses 9 and 10.

Additionally, we set up a system of equations which allowed us to test for the mediation of the antecedents of environmental stewardship(t) and the outcomes, sales(t) and customer satisfaction(t) (Iacobucci et al. 2007; MacKinnon 2008). Since the outcome variables, sales(t) and customer satisfaction(t) are only available at the team level, mediation can only be assessed using group-level variables. For sales(t) we found no significant influence of environmental stewardship(t) using a significance level of 0.05. Therefore,

Table 3 Lagged multilevel regression analyses of antecedent–environmental stewardship relationships

Variables	Model 1 Standardized coefficients	Model 2a Standardized coefficients	Model 2b Standardized coefficients	Hypo-thesis
Individual-level variables:				
Team tenure	.119**	.115**	.127**	
Initial environmental stewardship	.168**	.212**	.232**	H1
Autonomy	.222**	.181**	.166**	H2
Supervisory support	.233**	.233**	.241**	H3
Group-level variables:				
Team tenure	−.078	−.093	.006	
Team size	.065	.016	.131	
Initial environmental stewardship	.151*	.030	.249**	H6A
Autonomy	.025	−.001	.061	H6B
Supervisory support	−.027	−.009	.171*	H6C
Customer satisfaction	.150*	.116*	.235**	H4
Sales	−.152*	−.117*	−.291**	H5
Within-team stewardship consensus		.069		
Between-teams stewardship consensus			.377**	
Cross-Level Interactions: Stewardship consensus × individual level variables				
Within-team stewardship consensus × env. stewardship		.047		
Within-team stewardship consensus × autonomy		.021		
Within-team stewardship consensus × supervisory support		−.035		
Between-teams stewardship consensus × env. stewardship			−.052	
Between-teams stewardship consensus × autonomy			.019	
Between-teams stewardship consensus × supervisory support			.032	
Group-Level Interactions: Stewardship consensus × group level variables				
Within-team stewardship consensus × env. stewardship		−.129		H7A
Within-team stewardship consensus × autonomy		−.006		H7B
Within-team stewardship consensus × supervisory support		.047		H7C
Within-team stewardship consensus × satisfaction		.181**		H7D
Within-team stewardship consensus × sales		.090		H7E
Between-teams stewardship consensus × env. stewardship			.687**	H8A
Between-teams stewardship consensus × autonomy			−.150	H8B
Between-teams stewardship consensus × supervisory support			−.275*	H8C
Between-teams stewardship consensus × satisfaction			−.068	H8D
Between-teams stewardship consensus × sales			.175**	H8E
Increase in model fit ^a :	$\chi^2(15)=125.7^{**}$	$\chi^2(9)=12.3$	$\chi^2(9)=25.8^{**}$	
Explained individual level variance (%)	36.0%	39.2%	41.7%	
Explained group-level variance (%)	59.4%	69.9%	75.5%	

* $p < .05$; ** $p < .01$.

$N=324$. Significance is based on one-tailed tests.

^a For Models 2a and Model 2b, this number equals the increase in model fit relative to Model 1.

we may conclude that environmental stewardship(t) does not mediate the relationships between the antecedents and sales(t). However, for customers satisfaction our results suggest complete mediation for customer satisfaction(t−1), environmental stewardship(t−1) and autonomy(t), as the null hypothesis that direct effects of the

antecedents are equal to zero could not be rejected using a Wald test ($F(7,76)=0.82, p=0.58$; cf MacKinnon 2008). Using the bootstrap approach suggested by Shrout and Bolger (2002) to determine the standard error of the indirect effects (Sobel test) we found that at a significance level of 0.05 the indirect effects of customer satisfaction

Table 4 Multiresponse regression analysis of environmental stewardship–outcome relationship

	Standardized coefficients	R ² (%)	Hypo-thesis
Env. stewardship → Satisfaction	.371**	13.8%	H9
Env. stewardship → Sales	-.043	.2%	H10
Residual between-group (co)variance terms ^a :			
$\sigma_h^2 = \text{var}(e_{hj}), (h=1)$.022 (.005)		
$\sigma_h^2 = \text{var}(e_{hj}), (h=2)$.352 (.085)		
$\sigma_{12} = \text{cov}(e_{1j}, e_{2j})$	-.004 (.015)		
Increase in model fit ^b :		$\chi^2(3)=5.215$	

* $p < .05$; ** $p < .01$.

$N=34$; significance is based on one-tailed tests.

^a Standard errors of (co)variances appear in parentheses.

^b Increase in model fit when we include the predictor variables and covariance term among the outcome variables.

($t-1$) [$b=0.12, z=1.78, p=0.04$], environmental stewardship($t-1$) [$b=0.07, z=1.72, p=0.04$] and autonomy(t) [$b=0.08, z=1.82, p=0.03$] are significant.

Discussion

We provide a comprehensive assessment of the drivers of environmental stewardship in boundary-spanning teams across individual, group, and area analysis levels and also explore its impact on performance parameters. At the individual level, initial environmental stewardship, autonomy, and supervisory support exert positive influences on subsequent stewardship perceptions at time t . The initial stewardship beliefs of individual employees associate positively with stewardship appraisals at later stages, which confirms Sundaramurthy and Lewis's (2003) notion of stewardship cycles. Similarly, the positive effect of autonomy that we uncover affirms findings from previous studies and reveals that individual notions of responsibility norms positively affect collective work group beliefs (e.g., Mathieu et al. 1993). The positive impact of individual-level perceptions of supervisory support empirically substantiates the notion that supportive management helps employees pursue environmentally responsible practices.

The group-level measures of initial stewardship and supervisory support contribute uniquely to the prediction of stewardship beliefs at time t , which signifies that individual beliefs about stewardship and supervisory support converge as a result of social, synergetic processes. This substantiates the claim that a clear, consensual understanding of the team's level of supervisory support and role in addressing environmental issues is important in the customer-contact environment. Such an environment often is characterized by a lack of role clarity and heterogeneity in task performance, as well as customer requirements (Batt

1999). A common view of team roles is imperative in markets in which sustainability issues rank high on the corporate agenda. Conversely, we find no group-level effects of autonomy or supervisory support. The influence of these predictors instead seems to be a function mainly of employees' personal cognitions. With regard to supervisory support, our measure refers to the supportive attitude of lower-level leaders who function at operational levels, frequently managing two or three teams and focusing on day-to-day issues. This layer of management may be more focused on the role of assisting individual employees, whereas upper-echelon management tends to focus on more strategic issues.

An additional explanation for our results may involve the lagged nature of the hypothesized relationships. Apparently, shared employee perceptions about inherent team properties have a more persistent influence on subsequent environmental stewardship beliefs than do individually or organizationally related sources. In general, our findings indicate that predictors of stewardship are not universally isomorphic, nor do they hold at multiple levels of analysis across time. However, constructs that are substantively associated with the group level (i.e., initial stewardship and team performance parameters), rather than individual- or organization-related cues, exhibit a lagged group-level effect on employees' stewardship beliefs. This finding is consistent with recent studies about the development of collective cognitions, such as team efficacy and potency in marketing teams (e.g., de Jong et al. 2006).

Past performance validates the team's efforts as constructive and efficacious. Group-level past performance parameters have significant though divergent effects on stewardship perceptions. Whereas past customer satisfaction ratings have a positive impact on environmental stewardship, the reverse is true for past sales data. The positive impact of satisfaction may occur because the role of stewards is to act in the service of

the interests of stakeholders, which is akin to the role of a friend. In contrast, sales performance involves maximizing returns and cost controls, which may conflict with maximal responsiveness to aligning the interests of the environment and the customer.

The two dispersion models of environmental stewardship that we specify both have moderating but diverging impacts on predictor–criterion relationships. On the one hand, within-team stewardship consensus moderates the impact of satisfaction, such that satisfaction ($t-1$) has a stronger impact on stewardship (t) if the consensus among members about their team's stewardship beliefs is high. This result empirically substantiates Hackman's (1987) contention that synergy among members fosters the development of norms and shared views.

On the other hand, our findings show that the negative effect of past sales performance on environmental stewardship is weaker when between-team consensus is high. Therefore, the negative association between past sales and team stewardship should be attenuated when greater agreement in beliefs marks teams in an organizational collective. Similarity in these intergroup beliefs may provide an affirmation of the existing group's position on the environment as a dimension of service excellence. A proximal benchmark (i.e., beliefs of peers within the same team) may weaken the negative impact of past sales performance. Moreover, in contrast with our expectations, the group-level measure of supervisory support has a weaker positive effect on stewardship when between-team consensus is high. Therefore, supervisory support is most influential when uniformity between teams does not exist—a situation in which operational management leadership must make the difference.

Group-level initial stewardship appears to have a stronger positive impact on subsequent stewardship perceptions when between-team consensus is high. The team's initial level of stewardship thus appears more critical to stewardship development when the organizational unit exhibits minimal belief variability between teams. Agreement between teams provides an extra driver of progressive stewardship development over time. Finally, our results demonstrate that stewardship beliefs relate primarily to customer satisfaction rather than to sales performance. Mediation analysis reveals that it is not a mediator of sales performance. This result reflects the inherently competing facets of collective cognitions, such as priorities for customer orientation versus transactional efficiency.

Theoretical implications

Our study offers several implications for theory development. First, stewardship relates positively to customer perceptions but not to sales performance. This divergence seems typical of the two role foci that typically mark boundary-spanning marketing operations centered on sales targets rather than customer needs. Further longitudinal research should explore whether both performance parameters converge and how stewardship beliefs might accomplish both role requirements. In addition, by drawing on diverse data sources, additional work should assess the generalizability of our findings beyond our business-to-business setting (e.g., consumer services, contact center services).

Second, we contribute to emerging literature on marketing roles by taking a longitudinal perspective and investigating the lagged impact of antecedents on norms of responsibility. In this sense, we extend current multilevel research that is based primarily on cross-sectional designs. In addition to the importance of the lagged impact of initial beliefs, we show that past performance has a direct impact on later-stage perceptions. Further longitudinal research would enrich our understanding of the theory behind the cyclic nature of stewardship–performance relationships and substantively address causality in the effects.

Third, lagged predictor–stewardship relationships are not homologous across levels, a finding that empirically substantiates recent research by Boh et al. (2007), who demonstrate that the effect of the type of experience differs across levels of analysis. In view of the limited empirical evidence on homology across individual and team levels, we suggest that more research should identify which antecedents predict stewardship at both levels and whether this prediction depends on the type of teams or the organizational context in which teams operate. In addition, because the object of our research is boundary-spanning teams, this study focuses on cognitions of group processes rather than individual cognitions, which also is consistent with mainstream team effectiveness models. Nevertheless, employees' personal cognitions and individual values may be important variables in a team context. Therefore, further research should extend our work by taking into account the role of these individual variables.

Fourth, our study contributes to the emerging body of literature on multilevel team research by investigating within- and between-group dispersion constructs as

moderators of team stewardship development. In particular, we reveal that dispersion models are relevant not only at the team level but also at the interteam level of aggregation. Within- and between-team stewardship consensus have differential moderating impacts on past performance–stewardship relationships. Specifically, whereas high within-team consensus strengthens the impact of past satisfaction, consensus between teams weakens the negative impact of past sales. The moderating impact of between-team stewardship consensus also is more pronounced—unlike within-team consensus—because it moderates the impact of initial stewardship and supervisory support. These findings imply that rather than synergetic processes among members within the team, coherence among multiple teams within the larger organizational structure or business units might explain team stewardship (Marks et al. 2005). Research therefore cannot focus exclusively on internal team work practices but rather should take a multilevel perspective and consider interteam interfaces as a means to acquire a more complete picture of stewardship development.

Managerial implications

Our results can assist managers of team-based frontline operations develop a more in-depth understanding of the mechanisms underlying environmental stewardship–performance relationships. We translate the most important findings from our complex analysis strategy into managerial takeaways. First, the group-level impact of initial stewardship at $t-1$ implies that developing stewardship beliefs occurs at the group level and progressively over time. One way to promote the development of environmental stewardship within teams therefore is to identify a network of internal champions. At Hewlett-Packard for example, product stewards represent their teams in a virtual leadership council that discusses sustainability issues weekly (Preston 2001). These stewards then foster collective dialogue within their groups and promote and recognize sustainability in daily operations. Environmental impact workshops and virtual forums could be organized to help ‘green ideas and initiatives’ gain momentum. Employees could be invited to share how they implement sustainability in their daily routines in on-site customer visits. Furthermore, by facilitating interaction between team members and by offering online knowledge archives teams can

access for the sake of informing customers a team spirit of environmental consciousness can be fostered.

Second, companies should institutionalize specific feedback programs to facilitate information exchanges about performance. By implementing databases and groupware through which employees can share information on their eco-initiatives a virtuous performance cycle could be created. This recommendation also has implications for stimulating within-team consensus. Because its importance in terms of the impact of customer quality assessments, management should create opportunities for team members to interact, share knowledge, convincing arguments and viewpoints, jointly determine task priorities, and reduce interpersonal conflicts within the workgroup, as well as reward or recognizes employee environmental initiatives.

Third, our findings regarding the moderating impact of within- and between-team consensus, imply that within-team consensus about environmental issues represents an essential determinant of the impact of past satisfaction on subsequent stewardship. Managers should enhance consensus about environmental stewardship through training programs and develop team learning plans that outlines the development of environmental stewardship skills that identify the congruence of collective values and green business cases. Such programs could include experiential exercises that focus on selling environmentally friendly solutions to customer problems. However, consensus about stewardship beliefs involves another influential mechanism as well. To increase the likelihood of high between-team consensus, management should promote clear, coherent policies and procedures and prioritize common objectives to avoid conflicts between teams that focus on operational excellence and those focused on environmental awareness.

Finally, collective stewardship beliefs relate positively to satisfaction, but we could not confirm them as drivers of sales performance. To bridge the gap between such apparently conflicting goals, management should stimulate stewardship beliefs that include the convergence of customer orientation and transactional efficiency. By triggering beliefs about teams’ capabilities to develop environmentally smarter service routines, focusing on returns to service quality and the cost of equity, and training teams to cross-sell environmentally friendly business solutions, firms might develop new forms of stewardship actions and procedures in which relative priorities coexist.

Appendix

Table 5 Measures and measurement criteria

Measures	St. Loadings ^a	t-values ^b
Employee Data		
Environmental Stewardship		
[T1: $n=5$, CR=0.86, AVE=0.54; T2: $n=5$, CR=0.92, AVE=0.71]		
1. Our team feels a collective sense of responsibility for the environment	0.77	na
2. Our team feels a sense of ownership for the environmental impact of our work	0.69	9.31
3. In addressing customer problems, we attempt to come up with solutions that are best for the environment	0.83	13.92
4. Our team helps customers to maintain a green environment for future generations.	0.69	10.38
5. In our team, we believe that we need to play a leading role in the development of environmentally sustainable business.	0.71	11.58
Autonomy		
[T1: $n=4$, CR=0.81, AVE=0.51]		
1. Our team is permitted to determine as a team how things are done	0.70	na
2. Our team is allowed a high degree of initiative.	0.71	8.31
3. In our team, we are allowed complete freedom in our work.	0.72	7.45
4. In our team, we are allowed to do our work the way we think best.	0.71	7.20
Supervisory Support		
[T1: $n=4$, CR=0.87, AVE=0.64]		
1. Our team always receives timely information from our supervisor.	0.70	na
2. Our team members feel comfortable speaking with our supervisor about business issues.	0.71	11.97
3. Our team is treated with respect by our supervisor.	0.84	13.07
4. Our team communicates with our supervisor as needed.	0.92	14.22
Customer Data		
Customer Satisfaction (T1/T2)		
[T1: $n=6$, CR=0.89, AVE=0.61; T2: $n=6$, CR=0.90, AVE=0.62]		
1. The extent to which employees make clear appointments	0.60	na
2. The competence of the service by employees	0.72	14.36
3. The attention employees pay to you	0.85	12.65
4. The politeness of employees	0.79	12.12
5. The extent to which the employees show empathy	0.87	14.39
6. The readiness of the employees to help you	0.86	12.60

^a The standardized factor loadings and accompanying t-values are based on the CFAs for data collected at T1. The CFAs at T2 demonstrate similar results.

^b All t values are $p < .05$.

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References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Thousand Oaks, CA: Sage.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: a review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423. doi:10.1037/0033-2909.103.3.411.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. doi:10.1007/BF02723327.
- Barbuto, J. E., & Wheeler, D. W. (2006). Scale development and construct clarification of servant leadership. *Group & Organization Management*, 31, 300–326. doi:10.1177/1059601106287091.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173.

- Batt, R. (1999). Work organization, technology and performance in customer service and sales. *Industrial & Labor Relations Review*, 52(4), 539–563. doi:10.2307/2525063.
- Becker, T. E., & Billings, R. S. (1993). Profiles of commitment: an empirical test. *Journal of Organizational Behavior*, 14, 177–190. doi:10.1002/job.4030140207.
- Bentler, P. M. (1995). *EQS structural equations program manual*. Encino, CA: Multivariate Software.
- Bergen, M. E., Dutta, S., & Walker, O. C., Jr. (1992). Agency relationships in marketing: a review of the implications and applications of agency and related theories. *Journal of Marketing*, 56(3), 1–24. doi:10.2307/1252293.
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations*, (pp. 349–381). San Francisco: Jossey-Bass.
- Block, P. (1993). *Stewardship. Choosing Service over Self-Interest*. San Francisco: Berrett-Koehler.
- Boh, W. F., Slaughter, S. A., & Espinosa, J. A. (2007). Learning from experience in software development: a multilevel analysis. *Management Science*, 53(8), 1315–1331. doi:10.1287/mnsc.1060.0687.
- Brió, J. Á., Fernández, E., & Junquera, B. (2007). Customer interaction in environmental innovation: the case of cloth diaper laundering. *Service Business*, 1(2), 141–158. doi:10.1007/s11628-006-0011-x.
- Campbell, D. (1965). Ethnocentrism and other altruistic motives. In D. Levine (Ed.) *The Nebraska symposium on motivation* (pp. 283–311).
- Campion, M. A., Medsker, G. J., & Higgs, C. A. (1993). Relations between work group characteristics and effectiveness: implications for designing effective work teams. *Personnel Psychology*, 46, 823–850. doi:10.1111/j.1744-6570.1993.tb01571.x.
- Cannon-Bowers, J. A., Salas, E., & Converse, S. (1993). Shared mental models in expert team decision making. In J. N. Castellan (Ed.), *Individual and group decision making*, (pp. 221–46). Hillsdale, NJ: Erlbaum.
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: a typology of composition models. *The Journal of Applied Psychology*, 83(2), 234–246. doi:10.1037/0021-9010.83.2.234.
- Chen, G., Bliese, P. D., Payne, S. C., Zaccaro, S. J., Webber, S. S., & Mathieu, J. E. (2002). Simultaneous examination of the antecedents and consequences of efficacy beliefs at multiple levels of analysis. *Human Performance*, 15(4), 381–409. doi:10.1207/S15327043HUP1504_05.
- Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22(1), 20–47. doi:10.2307/259223.
- Dawes, R., & Messick, D. (2000). Social dilemmas. *International Journal of Psychology*, 35, 111–116. doi:10.1080/002075900399402.
- De Jong, A., de Ruyter, K., & Wetzels, M. (2006). Linking employee confidence to performance: a study of self-managing service teams. *Journal of the Academy of Marketing Science*, 34(4), 576–587. doi:10.1177/0092070306287126.
- Dell (2006). Sustainability report.
- Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance, and shareholder returns. *Australian Journal of Management*, 16, 49–64.
- Donaldson, L., Schoorman, D., & Davis, J. H. (1997). Towards a stewardship theory of management. *Academy of Management Review*, 22(1), 20–47. doi:10.2307/259223.
- Dwyer, R., Schurr, P., & Oh, S. (1987). Development of buyer-seller relationships. *Journal of Marketing*, 51(April), 11–27.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *JMR, Journal of Marketing Research*, 18, 39–50. doi:10.2307/3151312.
- Griffiths, A. (2007). Climate of change, BRW (pp. 56-57).
- Groesbeck, R. L. (2001). *An empirical study of group stewardship and learning: implications for work group effectiveness*. Doctoral dissertation: Virginia Polytechnic Institute and State University.
- Gully, S. M. (2000). Work teams research: Recent findings and future trends. In M. M. Beyerlein (Ed.), *Work teams: Past, present and future*, (pp. 25–44). Netherlands: Kluwer Academic.
- Gully, S. M., Joshi, A., Incalcaterra, K. A., & Matthew Beaubien, J. (2002). A meta-analysis of team-efficacy, potency, and performance: interdependence and level of analysis as moderators of observed relationships. *The Journal of Applied Psychology*, 87(5), 819–832. doi:10.1037/0021-9010.87.5.819.
- Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational Behavior*, pp. 315–342. Englewood Cliffs, NJ: Prentice-Hall.
- Heide, J., & John, G. (1992). Do norms matter in marketing relationships? *Journal of Marketing*, 56(April), 32–44. doi:10.2307/1252040.
- Heide, J., & Wathne, K. H. (2006). Friends, businesspeople, and relationship roles: a conceptual framework and a research agenda. *Journal of Marketing*, 70(July), 90–103. doi:10.1509/jmkg.70.3.90.
- Hernandez, M. (2008). Promoting stewardship behavior in organizations: a leadership model. *Journal of Business Ethics*, 80, 121–128. doi:10.1007/s10551-007-9440-2.
- Hoegl, M., Weinkauff, K., & Gemuenden, H. G. (2004). Interteam coordination, project commitment, and teamwork in multiteam R&D projects: a longitudinal study. *Organization Science*, 15(1), 38–55. doi:10.1287/orsc.1030.0053.
- Hyatt, D. E., & Ruddy, T. M. (1997). An examination of the relationship between work group characteristics and performance: once more into the breach. *Personnel Psychology*, 50, 553–585. doi:10.1111/j.1744-6570.1997.tb00703.x.
- Iacobucci, D., Saldanha, N., & Deng, X. (2007). A mediation on mediation: evidence that structural equation models perform better than regressions. *Journal of Consumer Psychology*, 17(2), 139–153. doi:10.1016/S1057-7408(07)70020-7.
- James, L. R., Demaree, R. G., & Wolf, G. (1993). An assessment of within-group interrater agreement. *The Journal of Applied Psychology*, 78(2), 306–309. doi:10.1037/0021-9010.78.2.306.
- Jung, D. I., & Sosik, J. J. (2003). Group potency and collective efficacy: examining their predictive validity, level of analysis and effects of performance feedback on future group performance. *Group & Organization Management*, 28(3), 366–391. doi:10.1177/1059601102250821.
- Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: antecedents and consequences of team empowerment. *Academy of Management Journal*, 42(1), 58–74. doi:10.2307/256874.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. New York: The Guilford.
- Kohli, A., & Jaworski, B. J. (1990). Market orientation: the construct, research propositions, and managerial implications. *Journal of Marketing*, 54(April), 1–18. doi:10.2307/1251866.
- Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations*, pp. 3–90. San Francisco: Jossey-Bass.
- Lawler, E. (1992). *The ultimate advantages*. San Francisco: Jossey Bass.
- Lindell, M. K., & Brandt, C. J. (2000). Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *The Journal of Applied Psychology*, 85(3), 331–348. doi:10.1037/0021-9010.85.3.331.

- MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York: Erlbaum.
- March, J. (1994). *A primer on decision-making: How decisions happen*. New York: Free Press.
- Marks, M. A., DeChurch, L. A., Mathieu, J. E., Panzer, F. J., & Alonso, A. (2005). Teamwork in multiteam systems. *The Journal of Applied Psychology, 90*(5), 964–971. doi:10.1037/0021-9010.90.5.964.
- Mathieu, J. E., Martineau, J. W., & Tannenbaum, S. I. (1993). Individual and situational influences on the development of self-efficacy: implications for training effectiveness. *Personnel Psychology, 46*, 125–147.
- Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., Cannon-Bowers, J. A., et al. (2000). The influence of shared mental models on team process and effectiveness. *The Journal of Applied Psychology, 85*, 273–283. doi:10.1037/0021-9010.85.2.273.
- Mathieu, J. E., Gilson, L. L., & Ruddy, T. M. (2006). Empowerment and team effectiveness: an empirical test of an integrated model. *The Journal of Applied Psychology, 91*(1), 97–108. doi:10.1037/0021-9010.91.1.97.
- Mathieu, J. E., Travis, M. M., Taylor, S. R., Gilson, L., & Ruddy, T. (2007). An examination of the effects of organizational district and team contexts on team processes and performance: a meso-mediational model. *Journal of Organizational Behavior, 28*(7), 891–910.
- Mischel, L., & Northcraft, G. (1997). *I think we can, I think we can: The role of self-efficacy beliefs in group and team effectiveness* (pp. 177–197). *Advances in Group Processes*.
- Montgomery, J. (1998). Toward a role theoretic conception of embeddedness. *American Journal of Sociology, 104*, 92–125. doi:10.1086/210003.
- Porter, M. E., & Reinhardt, F. L. (2007). A strategic approach to climate (pp. 22–26). *Harvard Business Review*, (October).
- Preston, L. (2001). Sustainability at Hewlett-Packard, from theory to practice. *California Management Review, 43*(3), 26–37.
- Quattrone, G. A., & Jones, E. E. (1980). The perception of variability within in-groups and out-groups: implications for the law of small numbers. *Journal of Personality and Social Psychology, 38* (1), 141–152. doi:10.1037/0022-3514.38.1.141.
- Ramus, C. (2001). Organizational support for employees: encouraging creative ideas for environmental sustainability. *California Management Review, 43*(3), 85–105.
- Rasbash, J., Browne, W., Goldstein, H., Yang, M., Plewis, I., Healy, M., et al. (2000). *A user's guide to MLwiN*. London: Multilevel Models Project Institute of Education, University of London.
- Rothenberg, S. (2007). Sustainability through servicing. *MIT Sloan Management Review, 48*(2), 83–89.
- Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: a new direction for climate research. *The Journal of Applied Psychology, 87*(2), 220–229. doi:10.1037/0021-9010.87.2.220.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods, 7*(4), 422–445. doi:10.1037/1082-989X.7.4.422.
- Singh, J., & Sirdeshmukh, D. (2000). Agency and trust mechanisms in relational exchanges. *Journal of the Academy of Marketing Science, 28*(Winter), 150–167. doi:10.1177/0092070300281014.
- Stewart, G. L., & Barrick, M. R. (2000). Team structure and performance: assessing the mediating role of intrateam process and the moderating role of task type. *Academy of Management Journal, 43*(2), 135–148. doi:10.2307/1556372.
- Sundaramurthy, C., & Lewis, M. (2003). Control and collaboration: paradoxes of governance. *Academy of Management Review, 28* (3), 397–415.
- Sundstrom, E. (1999). *Supporting work team effectiveness: best management practice for fostering high performance*. San Francisco: Jossey Bass.
- Tenbrunsel, A., & Messick, D. (1999). Sanctioning systems, decision frames and cooperation. *Administrative Science Quarterly, 44*(4), 684–707. doi:10.2307/2667052.
- Tilley, F. (1999). The gap between the environmental attitudes and the environmental behaviour of small firms. *Business Strategy and the Environment, 8*, 238–248. doi:10.1002/(SICI)1099-0836(199907/08)8:4<238::AID-BSE197>3.0.CO;2-M.
- Van Yperen, N. W., & Snijders, T. A. B. (2000). A multi-level analysis of the demands-control model: is stress at work determined by factors at the group level or the individual level? *Journal of Occupational Health Psychology, 5*(1), 182–190. doi:10.1037/1076-8998.5.1.182.
- Vancouver, J. B., Millsap, R. E., & Peters, P. A. (1994). Multilevel analysis of organizational goal congruence. *The Journal of Applied Psychology, 79*(5), 666–679. doi:10.1037/0021-9010.79.5.666.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*(1), 4–70. doi:10.1177/109442810031002.
- Weber, M., Kopelman, S., & Messick, D. (2004). A conceptual review of decision-making in social dilemmas: applying a logic of appropriateness. *Personality and Social Psychology Review, 8*, 281–207. doi:10.1207/s15327957pspr0803_4.
- Williamson, O. (1993). Calculativeness, trust, and economic organization. *The Journal of Law & Economics, 36*, 453–486. doi:10.1086/467284.
- Zaccaro, S., Blair, V., Peterson, C., & Zazanis, M. (1995). Collective efficacy. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment*, (pp. 305–328). New York: Plenum.
- Zohar, D., & Luria, G. (2004). Climate as a social-cognitive construction of supervisory safety. *The Journal of Applied Psychology, 89*(2), 322–333. doi:10.1037/0021-9010.89.2.322.
- Zohar, D., & Luria, G. (2005). A multilevel model of safety climate: cross-level relationships between organization and group-level climates. *The Journal of Applied Psychology, 90*, 616–662. doi:10.1037/0021-9010.90.4.616.