



Green innovations and environmental championing: A resource-based approach to innovation implementation

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ABSTRACT

To explain employees' proactive innovation support, we propose a resource-based framework for individual-level innovation engagement. Drawing on conservation of resources theory (COR), our model posits that employees' positive perceptions of green innovations drive proactive environmental championing. The framework introduces the COR perspective of cross-domain resource flow, highlighting how workplace innovations stimulate proactive leisure crafting in non-work domains. Our analysis, based on multi-wave, multi-source data from 365 employees and their supervisors, confirms that positive perceptions of green innovations enhance employees' leisure crafting during non-work hours, which, in turn, promotes environmental championing at work. This cross-domain resource flow is more pronounced when employees' tasks are routinized, providing the necessary resource surplus to activate resource mobilization and transfer across work and non-work domains. This study offers a new resource-based perspective on employees' proactive engagement with green innovations and underscores the broad implications of such processes across multiple life domains of employees.

1. Introduction

Organizations face mounting pressure to address escalating environmental challenges such as global warming, resource scarcity, and pollution (Fang & Shao, 2022; Wang, Huang, Zhou et al., 2020). Thus, many firms have introduced green innovations and technologies aimed at conserving resources, reducing ecological harm, and advancing sustainability goals (Gu & Yuan, 2024; Zhang, Xing, & Wang, 2020). Although such innovations can strengthen firms' sustainable competitiveness (Aldieri, Kotsemir, & Vinci, 2020; Rahman, 2023), their effectiveness ultimately hinges on employees' active participation rather than the technologies per se (Segarra-Ciprés, Escrig-Tena, & García-Juan, 2019). In this study, we focus on environmental championing, defined as employees' proactive efforts to advocate for, promote, and integrate environmental initiatives that go beyond formal job requirements (Boiral, 2009; Zafar, Tian, Ho et al., 2025). Such championing behaviors play a critical role in realizing the intended sustainability benefits of green innovations. Building on this premise, our aim is to examine the key factors, underlying mechanisms, and boundary conditions that motivate employees to proactively engage with and advocate for green innovations.

Prior studies provide important insights into firm-level structural and technological conditions for implementing innovations but tend to overlook the micro-level processes through which green innovations are actually enacted in the workplace (Wang et al., 2021; Yu, Li, & Zhang, 2024). This gap is consequential, as employees are the core agents who directly interpret, adapt, and use innovations in their daily work, thereby translating environmental initiatives into sustained behavioral change (Robertson & Barling, 2017). Without understanding these individual-level mechanisms, it remains unclear why some employees champion green innovations while others reject such efforts. By centering on employees' proactive environmental championing, this study reveals the micro-level dynamics that underpin innovation implementation and elucidates how individual perceptions and behaviors ultimately determine whether green innovations succeed in the workplace (Boiral, 2009).

Another limitation of extant innovation research involves its predominant focus on employees' passive compliance with or acceptance of organizationally initiated innovations (Zhou et al., 2021). This top-down orientation implicitly portrays employees as passive recipients, thereby neglecting the possibility and value of employees' proactive roles as active contributors in the innovation process (Heyden et al.,

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2016). Building on this distinction, our study examines environmental championing as a proactive, voluntary form of advocacy that complements employees' implementation of green innovations. Whereas implementation refers to the formal process and employee behavior through which an innovation becomes embedded in organizational systems, routines, and workflows, championing reflects employees' voluntary, advocacy-oriented efforts to promote and mobilize support for the innovation (Howell & Higgins, 1990; Shane, 1994). Understanding such championing behaviors is essential because they help transform innovations from top-down directives into enduring bottom-up practices that reflect employees' initiative and commitment to green initiatives (Chen & Choi, 2025; Boiral, 2009).

To address these challenges, we develop a new theoretical framework that explains the individual-level processes driving proactive innovation engagement as a means of facilitating the effective implementation of green innovations. We integrate Conservation of Resources (COR) theory (Hobfoll, 1989, 2001) with the Technology Acceptance Model (TAM) (Davis, 1989; King & He, 2006) to understand how employees mobilize, invest, and sustain personal resources when engaging with innovations. Integrating COR and TAM offers a coherent resource-based perspective on why and how favorable innovation perceptions energize employees' proactive behaviors in support of innovation. In particular, when employees perceive green innovations as beneficial and manageable, these positive innovation perceptions function as psychological resources that fuel environmental championing.

Building on this resource-based perspective on innovation, we further highlight the *cross-domain* nature of resources, which is a fundamental property of resources as multidimensional, dynamic entities that can accumulate, deplete, and transfer across life domains (Halbesleben et al., 2014; Hobfoll, 2011). In the current research framework, a key mechanism enabling this cross-domain transfer of resources is leisure crafting, which is defined as individuals' proactive efforts to shape their leisure time in ways that foster human connection, personal growth, and goal attainment (Berg, Grant, & Johnson, 2010; Chen, 2020). Leisure crafting offers a distinctive lens for understanding how employees build, refine, and mobilize resources beyond the confines of the workplace.

Unlike job crafting, which involves altering aspects of one's job within the constraints of organizational structures (Wrzesniewski & Dutton, 2001), leisure crafting unfolds during non-work hours and is not bound by formal role expectations (Petrou & Bakker, 2016). This characteristic aligns closely with the core assumption of COR theory that resources can be mobilized across life domains to meet situational demands and sustain goal-directed behaviors (Hobfoll, 2011). Accordingly, leisure crafting functions as a behavioral conduit through which employees' positive perceptions of green innovations are transformed into sustained environmental championing. In doing so, it enriches the innovation literature by highlighting cross-domain resource flows that extend beyond the confines of the workplace.

To further extend the resource-based perspective, we identify a key

boundary condition related to employees' access to workplace resources. Specifically, we focus on job routinization, given its critical role in conserving employees' cognitive and emotional energy (Chae & Choi, 2019). When tasks are routinized, employees can rely on well-practiced procedures that require minimal cognitive effort, which enables them to conserve mental resources and mobilize resources across domains with ease (Ohly, Göritz, & Schmitt, 2017). From a COR perspective, such resource conservation enhances employees' capacity to transfer surplus resources across domains, making them better positioned to engage in leisure crafting. Therefore, our framework proposes that work conditions such as job routinization can amplify cross-domain resource flows by preserving employees' cognitive and emotional capacity, which strengthens their engagement in discretionary behaviors that advance green innovations. The overall theoretical model, which is empirically validated using multi-wave, multi-source field data, is presented in Fig. 1.

In sum, this study makes several important contributions to the literature on innovation implementation, environmental management, and COR theory. First, it introduces a novel resource-based perspective on innovation implementation by drawing upon the COR framework. In doing so, it shifts scholarly attention beyond the commonly examined passive acceptance of innovations and foregrounds the *active* role of employees in driving successful implementation through proactive advocacy behaviors such as environmental championing.

Second, by conceptualizing proactive innovation engagement as a cross-domain resource process, our COR-based model expands the traditional scope of implementation research. Existing studies have largely focused on within-organization factors and workplace dynamics (Choi & Chang, 2009). By integrating cross-domain resource flows, we highlight that effective implementation depends not only on organizational contexts and technological characteristics of a given innovation but also on resources cultivated outside the workplace.

Third, by identifying job routinization as a facilitator of cross-domain resource flow, this study offers an innovative perspective on its role in driving proactive employee behavior. Rather than viewing routinization solely as a structural job characteristic, we conceptualize it as an enabler of cross-domain resource flow that promotes employee capacity to engage in leisure crafting and, ultimately, to champion environmental initiatives. Together, these contributions deepen theoretical understanding of how resource dynamics shape employees' proactive engagement in environmental initiatives and offer new insights into the micro-level processes that determine the success of green innovations.

2. Theoretical Background and Hypothesis Development

COR theory has been widely applied to explain the dynamic processes underlying human behavior from a resource-based perspective (Hobfoll, 1989). Over the past three decades, it has evolved into a comprehensive motivational framework used to understand diverse

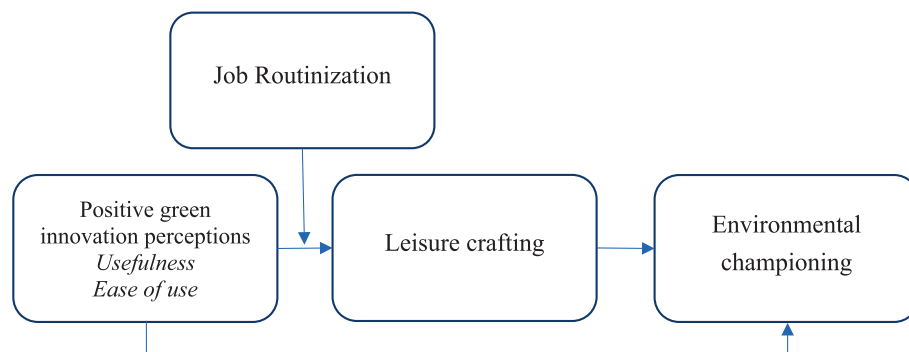


Fig. 1. Theoretical Framework.

organizational phenomena, such as stress and burnout, job performance, proactive behaviors, workplace deviance, leadership, and organizational justice (Halbesleben et al., 2014; Liao & Hui, 2021).

In its original formulation, COR theory distinguished four categories of resources: objects/materials, personal characteristics, psychological energies, and conditions (Hobfoll, 1989, 2001). Among these, *conditions* have received considerable attention in organizational research because they represent contextual factors and workplace characteristics that shape employees' access to other resources (i.e., material, personal, and psychological resources) (Hobfoll, 2001; Liao & Hui, 2021). Conditions reflect environmental features and situational elements that define the work context and guide employee behavior. For example, job autonomy, a widely recognized job resource, provides employees with discretion over how to perform their tasks, thereby fostering creativity and initiative (Liao & Hui, 2021). More broadly, conditions capture the environmental affordances and structural provisions that enable employees to conserve, accumulate, or invest resources within their work environment.

Researchers have categorized workplace conditions into three types: job-related (e.g., autonomy, task significance), people-related (e.g., interpersonal trust, coworker competence), and organization-related (e.g., organizational culture, perceived organizational support) (Hobfoll et al., 2018; Liao & Hui, 2021). Among these, organization-related conditions are especially consequential, as they capture the broader work environment and situational features that employees encounter in their daily roles. Consistent with this perspective, our theoretical framework conceptualizes the work environment surrounding green innovations as an organization-related condition resource. Thus, COR theory offers a robust basis for the present study, which examines how organizational contexts involving the implementation of green innovations serve as a resource-enriching environment for employees.

2.1. Positive innovation perceptions as Resource-Enriching condition for employees

For employees, the organizational context and associated events constitute critical condition resources that shape the extent to which they can access and utilize resources in the workplace (Biswas, Makel, & Andresen, 2022). Prior research demonstrates that the effects of workplace conditions, such as HR practices or organizational initiatives, depend less on their formal presence and more on how employees perceive and interpret those conditions (Nishii, Lepak, & Schneider, 2008). Accordingly, employees' perceptions of organizational contexts such as innovation initiatives determine whether these situations are experienced as resource-enriching or resource-depleting, thereby influencing the level of contextual resources available to them (Hobfoll, 1989; Nishii et al., 2008).¹ Thus, positive perceptions of green innovations constitute the immediate, psychologically resourceful condition that facilitates employees' proactive engagement with innovations.

Integrating TAM through the lens of COR theory, we propose that employees may regard green innovations as resource-enriching conditions when they perceive these innovations as useful and easy to use.

¹ We acknowledge that the resource value of green innovations may vary depending on the nature and demands of the specific innovation being implemented. Certain green technologies, particularly those requiring substantial technical adaptation or radical process changes, may initially be experienced as resource-depleting rather than resource-enriching. However, consistent with COR theory's perception-based definition of resources as "anything perceived by the individual to help attain his or her goals" (Halbesleben et al., 2014, p. 1338), what qualifies as a resource is determined by employees' appraisals rather than by the innovation's objective characteristics. Accordingly, in our framework, the resource condition emerges from employees' evaluations of green innovation initiatives, which shape whether these innovations function as condition resources capable of fueling further proactive engagement (Hobfoll et al., 2018).

According to TAM (Davis, 1989), perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance," whereas perceived ease of use denotes "the degree to which a person believes that using a particular system would be free of effort" (p. 320). From a COR perspective, these two perceptions fulfill distinct yet complementary resource functions (Halbesleben et al., 2014; Hobfoll, 2001).

Specifically, perceived usefulness reflects a resource-gain mechanism. Employees who view green innovations as beneficial are likely to see them as aligned with their goals and values, interpreting their adoption as an opportunity to enhance capability, influence, and performance (Choi & Yu, 2014). In contrast, perceived ease of use represents a resource-conservation mechanism, reducing the cognitive effort, uncertainty, or strain typically associated with learning or adapting to new technologies. By reducing the demands for extra resources, ease of use frees cognitive capacity that can later be invested in discretionary efforts toward innovation advocacy (Wang et al., 2020).

These considerations underscore the theoretical importance of examining both perceived usefulness and perceived ease of use, as each activates a distinct mechanism within COR theory. Perceived usefulness signals the potential for resource acquisition and goal attainment, thereby motivating proactive engagement through anticipated resource gains. In contrast, perceived ease of use indicates that such gains can be pursued with minimal expenditure of existing resources, thus attenuating concerns about resource depletion. Taken together, usefulness energizes proactive behavior by foregrounding prospective gains, whereas ease of use enables such behavior by reducing the perceived costs of resource investment. In this light, the two perceptions jointly create a psychologically resourceful state: one rooted in resource gain, the other in resource conservation.

2.2. Green innovations and environmental championing

Resource availability stemming from the positive perceptions of green innovations may empower individuals to engage in proactive behaviors in favor of sustainability, such as environmental championing (Mehboob & Othman, 2020). The original concept of championing refers to supporting or defending a cause (Balven, Fenters, Siegel et al., 2018). In the workplace, championing reflects proactive behaviors aimed at introducing, promoting, and implementing new or favorable changes (Faupeil & Süß, 2019; Islam, Furuoka, & Idris, 2020). In this study, environmental championing reflects employees' proactive, change-oriented behaviors that not only support but actively promote environmental initiatives.

A fundamental principle of COR theory emphasizes that individuals must invest existing resources to acquire additional resources, prevent resource loss, or recover from depletion (Hobfoll et al., 2018). In this framework, positive perceptions shaped by resourceful work conditions enable employees to identify and mobilize cognitive, motivational, and emotional resources that support proactive behaviors (Chen & Choi, 2025).² In the context of green innovations, a supportive work

² It is important to note that the absence of positive perceptions does not automatically equate to negative evaluations. Employees may simultaneously hold favorable and unfavorable appraisals, for example, perceiving an innovation as valuable yet difficult to use, or easy to use but of limited value. Such ambivalence constitutes a mixed resource context in which potential gains coexist with potential strains (Ashforth, Rogers, Pratt, & Pradies, 2014; Hobfoll et al., 2018). We argue that only when negative appraisals become predominant, such as when innovations are experienced as overly complex, unreliable, or misaligned with work goals, does the context shift toward genuine resource depletion. Thus, perceptions of green innovations may range across positive, ambivalent, and negative states. In the present study, we focus specifically on how positive perceptions of innovations operate as a motivational resource as employees evaluate these innovations as facilitating goal attainment and aligning with their work values.

environment for their implementation provides employees with additional workplace resources, empowering them to engage in proactive innovation behaviors. Thus, positive perceptions of green innovations play a critical role by providing employees with psychological and motivational resources needed for environmental championing (Zappalà, Radassao, & Toscano, 2023). We thus advance the following hypothesis:

Hypothesis 1. *Positive green innovation perceptions are positively related to environmental championing.*

2.3. Leisure crafting as a Cross-Domain Mediator

To deepen the understanding of the microprocesses involved in innovation implementation through a resource-based lens, we explore how workplace innovations can drive broader changes in individuals' proactive behaviors across both work and non-work domains. To this end, COR theory is particularly well suited because it explains not only how individuals acquire and conserve resources but also how resources flow across life domains (Hobfoll et al., 2018). The spillover of resources between domains, manifested in phenomena such as work–family enrichment, work–life balance, or cross-domain interference, has been a central focus of COR-based organizational research (Biswas et al., 2022).

Recognizing that resources flow across multiple life domains (Hobfoll, 1989), we focus on the cross-domain function of leisure crafting as an intervening mechanism that connects work experiences to non-work activities and then back to the domain of work. Leisure crafting builds on the foundations of job crafting theory, which posits that individuals proactively modify their tasks, relationships, and cognitions to enhance the meaningfulness and engagement of their work experiences (Wrzesniewski & Dutton, 2001). Similarly, leisure crafting involves proactive efforts to shape non-work activities in ways that foster personal resources, such as psychological energy and social connections (Chen & Choi, 2024). By facilitating the generation and transfer of resources, leisure crafting bridges the work and non-work domains.

Notably, unlike job crafting, which largely remains confined to the boundaries of the work role, or identity-based perspectives on pro-environmental identity, which primarily explain why employees feel motivated to support environmental causes, leisure crafting more directly captures how resources are actively generated, replenished, and transferred across domains (Clayton, 2003; van der Werff et al., 2014). In this regard, leisure crafting is theoretically distinctive in that it captures the cross-domain resource dynamics articulated in COR theory. Accordingly, it provides a particularly valuable lens for explaining how favorable perceptions of green innovations are translated into sustained environmental championing through ongoing resource building and transfer processes that span life domains (Hobfoll, 2011; Petrou & Bakker, 2016).

In this research, there are two key reasons for incorporating leisure crafting into the current model. First, while positive perceptions of green innovations serve as a workplace resource that can directly influence environmental championing, focusing solely on workplace implications overlooks the broader resource management processes that span both work and non-work domains (Halbesleben et al., 2014). Consistent with the principles of COR theory, we consider leisure crafting as a mechanism that facilitates the regeneration and renewal of resources across these life domains (Chen, 2020). After work, individuals with sufficient resources may proactively craft their non-work leisure activities to replenish personal resources such as intellectual growth, emotional well-being, and social connections (Petrou et al., 2012). These renewed resources, cultivated during non-work hours, are essential for enabling employees to engage in resource-intensive behaviors like environmental championing when they return to work (De Clercq & Pereira, 2022).

Second, leisure crafting serves as a complementary process that enables employees to maintain and regenerate resources outside the workplace. While workplace resources derived from positive

perceptions of green innovations can support proactive behaviors, these resources may diminish after work if opportunities for replenishment in other life domains are insufficient (Hobfoll, 1989). Leisure crafting addresses this challenge by allowing individuals to engage in activities that align with their personal goals and values, thereby replenishing and even expanding their resource pool (Chen, 2020). Thus, resources gained in the work domain are not confined to the workplace; rather, individuals strategically leverage these resources across domains to enhance their overall resource pool (Chen & Fellenz, 2020). Thus, we hypothesize the following:

Hypothesis 2. *Positive green innovation perceptions are positively related to leisure crafting.*

We further propose that leisure crafting functions as a cross-domain pathway linking positive perceptions of green innovations to environmental championing. When engaging in leisure crafting, employees can maintain their resource levels by generating additional personal and social resources essential for proactive and resource-intensive workplace behaviors (Chou, 2015). Proactive behaviors, such as environmental championing, demand significant investments of personal, social, and intellectual resources (De Clercq & Pereira, 2022). Through leisure crafting, employees can acquire valuable resources, including new knowledge, relational support, and enhanced self-efficacy. These resources are critical for sustaining the high resource levels needed for environmental championing (Petrou & Bakker, 2016; Sonnentag & Fritz, 2014). In line with COR theory's emphasis on cross-domain resource flow, we expect that leisure crafting provides a dynamic cross-domain mechanism for resource generation and reinvestment linking work and non-work domains, leading to the following mediation hypothesis.

Hypothesis 3. *Leisure crafting mediates the relationship between positive green innovation perceptions and environmental championing.*

2.4. Job routinization as a Task-related resource Contingency

We further extend the innovation literature through the lens of COR theory by identifying a resource-based boundary condition within the current framework. Specifically, we propose job routinization as a moderating factor that strengthens the positive relationship between green innovation perceptions and leisure crafting. Job routinization refers to the repetition of work tasks, leading to automaticity characterized by unintentionality, lack of conscious effort, and increased efficiency (Ohly et al., 2017). Although job routinization is often intuitively linked to employee resource conservation, its broader cross-domain implications remain underexplored. From a COR perspective, job routinization is best conceptualized not as a uniformly beneficial job characteristic but as a conditional resource context that shapes whether and how employees conserve, mobilize, and transfer resources across domains (Hobfoll et al., 2018; Halbesleben et al., 2014). When routinization reduces cognitive and emotional demands, it can free up surplus resources, thereby facilitating cross-domain resource transfer. However, when routinization becomes excessive, it may constrain such processes by narrowing attentional scope, limiting learning opportunities, and reducing openness to change.

Routinization reduces cognitive demands and promotes learning and proficiency, allowing employees to complete tasks more efficiently (Ackerman & Humphreys, 1990; Verplanken & Orbell, 2003). Employees with highly routinized jobs not only conserve their existing resources but also accumulate new ones as they become more proficient in their tasks (Chae & Choi, 2019). As a result, employees with routinized jobs are more attuned to opportunities to acquire additional resources and are more likely to respond positively to resources provided by green innovations. Job routinization thus enhances employees' readiness to capitalize on green innovations by freeing up resources that enable them to engage more fully with and respond positively to favorable organizational conditions (Clark, 2000; Halbesleben et al., 2014).

By contrast, employees with low job routinization may have fewer remaining resources, as their tasks often demand greater cognitive and emotional effort. According to the negative resource spiral concept under conditions of resource loss or depletion (the primacy of loss principle, [Hobfoll et al., 2018](#)), such employees are less likely to recognize opportunities for resource gains and thus less receptive to the resources provided by green innovations. Therefore, we propose that job routinization strengthens the positive relationship between green innovation perceptions and leisure crafting, facilitating cross-domain resource mobilization.

Hypothesis 4. *Job routinization positively moderates the relationship between positive green innovation perceptions and leisure crafting.*

The conceptual framework depicted in [Fig. 1](#) proposes that job routinization moderates the indirect effect of green innovation perceptions on environmental championing through leisure crafting. Specifically, this indirect effect is more pronounced in high-routinization settings, where employees conserve resources through routine tasks and can reinvest these resources more readily. In such roles, employees are more likely to perceive green innovations as opportunities to expand their resource pool, which initiates a cross-domain flow of resources from work to leisure, ultimately promoting environmental championing at work ([Petrou et al., 2012](#)). Based on this reasoning, we propose the following moderated mediation hypothesis.

Hypothesis 5. *Job routinization moderates the indirect relationship between positive green innovation perceptions and environmental championing mediated by leisure crafting.*

3. Methods

3.1. Research setting and data collection procedure

We collected a three-wave, two-source field data from employees in Taiwanese organizations to test the proposed research model. For this research, Taiwan constituted a suitable research setting as the Taiwanese government has actively endorsed pro-environmental policies and green innovations, aimed at positioning Taiwan as a global leader in addressing environmental challenges such as climate change ([Tsai, Lu, & Chang, 2017](#)). This governmental encouragement has motivated Taiwanese firms to develop and implement various green technologies to minimize environmental impacts. Consequently, Taiwan offered a relevant and plausible context for investigating how green innovations influence employee behavior ([Huang, Liao, & Li, 2019](#)).

To recruit participants, we collaborated with a leading Taiwanese survey firm that specializes in academic and organizational research. With more than a decade of experience conducting large-scale studies for universities and research institutes, the company ensures methodological rigor and high data quality based on its strong track record in managing multi-source, multi-wave data collection. The survey company utilized its extensive network of partnerships with organizations across various industries to identify firms that had recently implemented green innovations. This process involved direct communication with organizational leaders and HR departments to confirm the adoption of environmentally sustainable technologies, such as energy-efficient production systems, waste reduction technologies, and sustainable supply chain practices. Only organizations that verified the implementation of such green innovations were included in the sampling frame, ensuring

the relevance and adequacy of the study sample. After identifying eligible organizations, the survey company collaborated with HR managers to compile a list of employees directly involved in integrating or utilizing green innovations in their daily work. Survey agents then contacted these employees, providing detailed information about the purpose of research and ensuring they met the inclusion criteria.³

In sum, the sampling procedure effectively identified participants capable of offering meaningful insights into implementing green innovations in organizations. Data validity was further strengthened by implementing multiple safeguards for data quality. The survey company conducted double screening to verify respondents' full-time employment status and their involvement in green-innovation initiatives. In addition, responses displaying patterned answering or implausibly short completion times were eliminated. Moreover, the three-wave survey design, combined with separately collected supervisor ratings, helped minimize common-method bias by using an external criterion to corroborate self-reports.

3.2. Sample and participants

At Time 1, we distributed the questionnaire to 829 employees whose company was involved in green innovations, from which 706 usable questionnaires were returned, yielding a response rate of 85.2%. In the Time 1 survey, we measured the participants' demographics, green innovation perceptions, and job routinization. At Time 2, two weeks after completing the Time 1 survey, we distributed another set of questionnaires to the 706 employees, from which 515 usable questionnaires were returned, yielding a response rate of 72.9%. In the Time 2 survey, we measured the respondents' leisure crafting. Another two weeks after completing the Time 2 survey, we distributed the final set of questionnaires to the manager, leader, or supervisor of the 515 employees who completed both Time 1 and Time 2 surveys, inviting them to evaluate the focal employee's environmental championing behavior. A total of 365 usable evaluations were eventually received, yielding a response rate of 70.8%.

Most participants were female (64.1%). The participants' ages ranged between 21 and 30 years old (27.1%), 31 and 40 years old (46.8%), and 41 and 50 years old (22.2%). Most participants had a bachelor's degree (76.2%), followed by a high school/vocational diploma (12.6%) or a graduate degree (9.6%). The participants' work functions included engineering/technology (43%), manufacturing/operation (20.5%), and management/service (17.5%). Their work experiences were 1–3 years (15.6%), 3–5 years (18.6%), 5–7 years (16.7%), 7–9 years (11.8%), and 10 years and above (30.1%).

3.3. Measures

Following the practice recommended by [Brislin \(1980\)](#), we back-translated all survey items from English to Mandarin and from Mandarin to English to maintain the original meaning of those items using the translation service of the collaborating survey company. All items and the psychometric properties of each construct used in the study are presented in the Appendix.

Positive green innovation perceptions (Employees, Time 1). We measured the participants' positive perceptions of green innovations in their workplace using a six-item scale ($\alpha = 0.90$) constructed by [Venkatesh, Morris, Davis et al. \(2003\)](#), which has been widely used to

³ All procedures followed the Declaration of Helsinki and adhered to Taiwan's ethical guidelines for social and behavioral research. Participants were informed of the study's purpose, the voluntary nature of their involvement, and their right to withdraw at any time without penalty. Informed consent was obtained prior to participation, and no personally identifiable information was collected. The survey firm also complies with strict ethical and data-protection standards to ensure participant confidentiality and the integrity of the dataset.

evaluate perceived usefulness and ease of use of a given technology. The survey initially defined green innovations as *new technologies developed and implemented to support sustainable and environmentally friendly business operations, including service delivery, manufacturing processes, and supply chain management*. Sample items are “Green innovations in my workplace would enable me to accomplish my tasks more effectively” (perceived usefulness) and “I find it easy to use green innovations in my job” (perceived ease of use). The participants rated these items on a six-point Likert scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

To ensure the robustness of the current analysis and enhance the practical value of the empirical findings, we conducted separate hypothesis-testing analyses for the usefulness and ease-of-use dimensions of green innovations. The two dimensions, both measured by three items each, were highly correlated ($r = 0.72, p < 0.001$), consistent with prior empirical studies (Choi, Sung, Lee et al., 2011; Malureanu, Panisoara, & Lazar, 2021). The detailed analysis results are presented in the Online Supplemental Materials OSM). As reported in OSM Tables A1 through A4, the analysis results were consistent for both the usefulness and ease-of-use dimensions, aligning closely with the findings based on the combined measure of positive green innovation perceptions. These results reinforce the validity of our hypothesis testing and confirm the robustness of the combined measure in capturing the effects of the two green innovation perception dimensions.

Job routinization (Employees, Time 1). We adopted a five-item scale ($\alpha = 0.85$) of job routinization developed by Verplanken and Orbell (2003). Sample items are “I do my main tasks without consciously remembering the method” and “I do my main tasks automatically.” The response format was a seven-point Likert scale ranging from 1 (*Not at all*) to 7 (*Extremely*).

Leisure crafting (Employees, Time 2). The measure of leisure crafting was based on a nine-item scale ($\alpha = 0.95$) constructed by Petrou and Bakker (2016). Sample items are “I try to build relationships through leisure activities” and “My leisure time is a chance for me to grow and develop.” The participants responded to these items using a five-point Likert scale ranging from 1 (*Not at all*) to 5 (*Very much*).

Environmental championing (Managers, Time 3). We employed a three-item scale ($\alpha = 0.85$) from Herscovitch and Meyer (2002) to evaluate environmental championing. We modified the items to fit the current study purpose because the scale was initially developed to self-report organizational change championing behavior. For example, we amended the original item “I tried to overcome coworkers’ resistance toward the initiative” as “This employee tried to overcome coworkers’ resistance toward pro-environmental initiatives.” The other two items are “This employee embraced the pro-environmental initiative and “sold” it to others” and “This employee spoke positively about the pro-environmental initiative to outsiders.” The response format was a seven-point Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

We controlled for the participants’ demographic characteristics that are found to be related to pro-environmental behaviors (e.g., Fredriksson & Wang, 2011; Luu, 2018; Ofek-Manu, 2009; Rice, 2006). The inclusion of these control variables in our analyses offered a robust examination of the proposed hypotheses by eliminating potential confounding explanations (Bernierth & Aguinis, 2016). The analysis results remained the same regardless of whether those control variables were included or not.

4. Results

We conducted a confirmatory factor analysis (CFA) on the hypothesized measurement model to assess the empirical distinctiveness of the study variables. The CFA results, based on a single measurement model incorporating all focal constructs, indicate that the proposed four-factor model exhibits an acceptable fit to the observed data ($\chi^2(df = 185) = 474.20, \chi^2/df = 2.56; CFI = 0.94; NFI = 0.91; SRMR = 0.08$). To further assess the discriminant validity of the study variables, we compared the

hypothesized four-factor model with several alternative measurement models, such as three-, two-, and single-factor models.⁴ The CFA results demonstrate that the hypothesized four-factor model provided the best fit compared to all competing alternative models (all χ^2 difference tests, $p < 0.001$). These findings confirm the distinctiveness of the study measures, supporting their validity.

We also examined the potential for non-response bias among participants with varying demographics, including age, gender, education, and occupation. The results were nonsignificant across all focal measures collected over the three waves, indicating that there was no systematic non-response bias in the data. This pattern supports the reliability and representativeness of the current dataset (Armstrong & Overton, 1977; Menard, 2002). We presented descriptive statistics and correlation coefficients of the study variables in Table 1.

The hypothesized model depicted in Fig. 1 was validated using the SPSS PROCESS Macro (Model 7), which facilitated the analysis of direct, indirect, and moderated mediation effects, as presented in Tables 2 and 3. PROCESS is specifically designed for testing moderated mediation models and employs bootstrapping techniques to estimate indirect effects, ensuring robust and reliable results without assuming normality, which is often violated when testing moderated mediation effects (Hayes, 2022).⁵ To account for categorical demographic variables (e.g., gender and occupation), we employed dummy coding, a standard analysis technique that compares each category against a reference group. This approach ensured that any potential differences were appropriately controlled for without violating statistical assumptions (Bernierth & Aguinis, 2016; Menard, 2002). These dummy-coded demographic variables, along with other controls, were included in the PROCESS Macro as covariates.

4.1. Direct and indirect effects

Hypothesis 1 specified that positive green innovation perceptions positively predict environmental championing. The analysis results presented in Table 2 show a positive and significant relationship between the two variables ($b = 0.62, p < 0.001$), thereby offering empirical support for Hypothesis 1.

Hypothesis 2 proposed that positive green innovation perceptions positively relate to leisure crafting. As reported in Table 2, such a positive relationship was confirmed ($b = 0.32, p < 0.001$). This pattern supports Hypothesis 2 regarding the cross-domain effect of workplace innovations on employees’ personal life domain.

In Hypothesis 3, we further expected that leisure crafting mediates the relationship between green innovation perceptions and environmental championing. As presented in Table 3, the indirect effect of positive green innovation perceptions on environmental championing via leisure crafting was significant and positive (indirect effect = 0.14, 95% confidence interval (CI) = [0.07, 0.25]). Our analysis provided

⁴ Specific CFA results are as follows: (a) a three-factor model combining positive green innovation perceptions and environmental championing into a single factor ($\chi^2(df = 187) = 893.21, \chi^2/df = 4.78; CFI = 0.85; NFI = 0.83; SRMR = 0.20$), (b) a three-factor model merging green innovation perceptions and job routinization into a single factor ($\chi^2(df = 187) = 993.14, \chi^2/df = 5.31; CFI = 0.84; NFI = 0.81; SRMR = 0.11$), (c) a two-factor model combining green innovation perceptions, job routinization, and leisure crafting into a single factor ($\chi^2(df = 188) = 1972.61, \chi^2/df = 10.49; CFI = 0.64; NFI = 0.62; SRMR = 0.17$), and (d) a single-factor model ($\chi^2(df = 189) = 2280.28, \chi^2/df = 12.07; CFI = 0.58; NFI = 0.56; SRMR = 0.18$).

⁵ While structural equation modeling (SEM) is well-suited for models involving latent constructs, our study relies entirely on observed variables, making the PROCESS macro a more appropriate choice. In addition, prior research has demonstrated that for models based on observed variables, PROCESS produces statistically equivalent results to SEM while offering greater interpretability and robustness, aligning well with the analytical objectives of our study (Hayes, Montoya, & Rockwood, 2017).

Table 1
Means, standard deviations, and correlation among study variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age			—												
2. Gender			0.10*	—											
3. Education			−0.05	0.06	—										
4. Tenure			0.57***	0.17***	−0.01	—									
5. Occupation 1			0.09	−0.11*	−0.06	0.06	—								
6. Occupation 2			0.08	−0.03	−0.06	0.06	−0.07	—							
7. Occupation 3			0.03	0.11*	0.09	−0.06	−0.23***	−0.06	—						
8. Occupation 4			−0.04	−0.09	−0.09	−0.05	−0.11*	−0.44***	−0.10	—					
9. Occupation 5			0.01	−0.01	0.09	0.04	−0.03	−0.11*	−0.18***	−0.07	—				
10. Occupation 6			−0.01	0.04	0.13*	0.04	0.04	−0.16**	−0.15**	−0.27***	0.00	—			
11. Positive green innovation perceptions	4.41	0.74	0.05	−0.02	−0.15**	0.13*	−0.05	0.05	−0.01	0.07	−0.08	0.00	—		
12. Job routinization	5.59	0.79	7.02	−0.10	−0.02	0.10	0.02	0.07	−0.02	0.05	−0.20***	0.02	0.36***	—	
13. Leisure crafting	3.28	0.82	−0.03	0.10	0.02	−0.002	0.04	0.03	0.09	−0.01	−0.08	−0.02	0.34***	0.20***	—
14. Environmental championing	4.87	1.02	−0.02	0.02	−0.06	0.02	−0.03	−0.04	−0.01	0.11*	−0.12*	0.00	0.45***	0.31***	0.46***

Note: $N = 365$. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Age: 1 = 20 years old or under, 2 = 21–30 years old, 3 = 31–40 years old, 4 = 41–50 years old, 5 = 51–60 years old, 6 = 61 years old or older; Gender: 1 = Female, 2 = Male; Education: 1 = Elementary/primary school and under, 2 = Junior high school, 3 = Senior high/vocational school, 4 = Bachelor's degree, 5 = Master's degree, 6 = Doctoral degree and above; Tenure: 1 = Less than an year, 2 = 1–3 years, 3 = 3–5 years, 4 = 5–7 years, 5 = 7–9 years, 6 = More than 10 years; Occupation: 1 = Agriculture and forestry/fishery and animal husbandry, 2 = Manufacturing/operation, 3 = Engineering/technology, 4 = Business/service, 5 = Medical/law/professional, 6 = Military/education, 7 = Others.

Table 2

Results for the main and moderating effects.

Predictors	Outcome: Environmental championing	Outcome: Leisure crafting	Outcome: Environmental championing
Age	−0.03 (0.07)	−0.04 (0.07)	−0.01 (0.07)
Gender	0.08 (0.10)	0.19 (0.09)	0.01 (0.09)
Education	0.03 (0.09)	0.10 (0.09)	−0.01 (0.09)
Tenure	−0.01 (0.04)	−0.02 (0.04)	−0.00 (0.04)
Occupation 1	−0.16 (0.44)	0.75 (0.64)	−0.49 (0.36)
Occupation 2	−0.21 (0.25)	0.35 (0.27)	−0.37 (0.32)
Occupation 3	−0.11 (0.26)	0.44 (0.28)	−0.32 (0.32)
Occupation 4	−0.01 (0.24)	0.30 (0.27)	−0.14 (0.30)
Occupation 5	−0.47 (0.33)	0.13 (0.35)	−0.53 (0.39)
Occupation 6	−0.11 (0.28)	0.25 (0.27)	−0.21 (0.35)
Positive green innovation perceptions	0.62 (0.07)***	0.32 (0.10) ***	0.45 (0.09)***
Job routinization		0.16 (0.07) *	
Leisure crafting			0.44 (0.08) ***
Positive green innovation perceptions * Job routinization		0.17 (0.08) *	
R ²	0.22	0.18	0.32

Note: $N = 365$. * $p < 0.05$; *** $p < 0.001$.

Occupations: 1 = Agriculture and Forestry/fishery and animal husbandry, 2 = Manufacturing/operation, 3 = Engineering/technology, 4 = Business/service, 5 = Medical law/Professional, 6 = Military/Education, 7 = Others.

Unstandardized regression coefficients are shown. Values in parentheses are standard errors.

empirical support for [Hypothesis 3](#).

4.2. Moderation and moderated mediation effects

[Hypothesis 4](#) proposed that job routinization positively moderates the relationship between green innovation perceptions and leisure crafting. [Table 2](#) shows that job routinization has a positive direct effect on leisure crafting ($b = 0.16$, $p < 0.05$). The interaction between job routinization and positive green innovation perceptions served as a significant, positive predictor of leisure crafting ($b = 0.17$, $p < 0.05$). We conducted a simple slope analysis to probe this significant interaction further. As depicted in [Fig. 2](#), the relationship between green innovation perceptions and leisure crafting was more positive for those with high levels (1 SD above the mean) of job routinization ($b = 0.49$, $p < 0.001$) than those with low levels (1 SD below the mean) ($b = 0.32$, $p < 0.001$). These interaction patterns confirmed [Hypothesis 4](#).

Lastly, [Hypothesis 5](#) posited that job routinization moderates the indirect relationship between green innovation perceptions and environmental championing mediated by leisure crafting. This moderated mediation hypothesis was tested by comparing the conditional indirect effects at different levels of job routinization. [Table 4](#) reports that the indirect effects of positive green innovation perceptions on environmental championing through leisure crafting were stronger for those with high levels (1 SD above the mean) of job routinization (indirect effect = 0.20, 95% CI = [.11, 0.34]) than their counterparts with low levels of job routinization (indirect effect = 0.08, 95% CI = [.00, 0.19]). Moreover, the index of moderated mediation was statistically significant (Index = 0.08, 95% CI = [.01, 0.15]), confirming that the indirect effects were significantly different at varying levels of job routinization. Thus, our analysis supported [Hypothesis 5](#).

4.3. Post-hoc analysis

In the current model, job routinization was hypothesized to

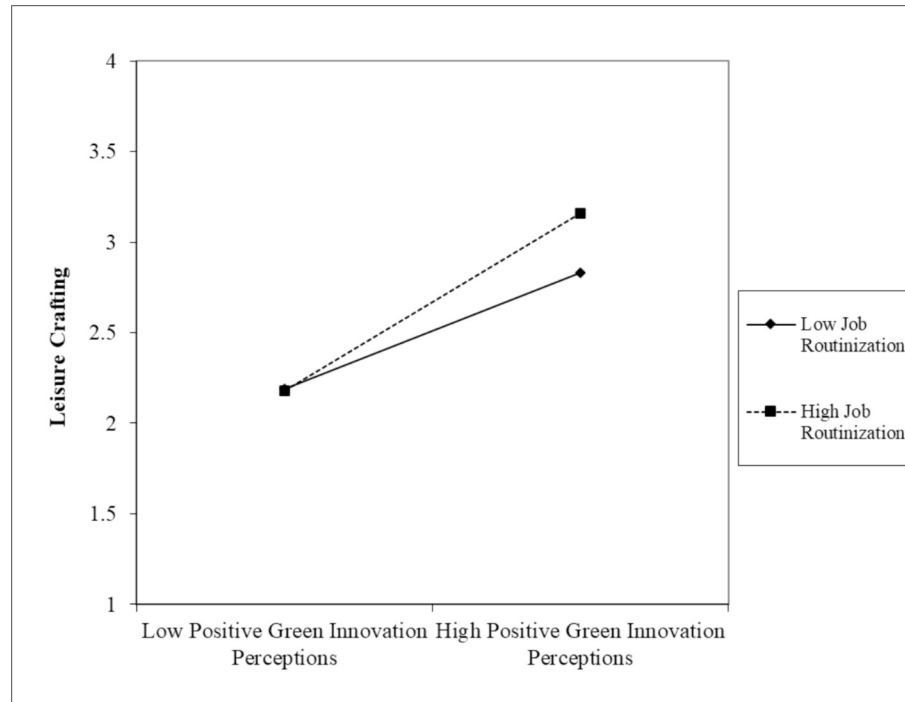
Table 3

Results for the conditional indirect effects of moderated mediation.

Independent variable	Mediator	Dependent variable	Moderator	Moderator level	Conditional indirect effect	Bootstrapping bias-corrected 95% CI	
						Lower limit	Upper limit
Positive green innovation perceptions	Leisure crafting	Environmental championing	Job routinization	Low	0.08	0.002	0.19
				Medium	0.14	0.07	0.25
				High	0.20	0.11	0.34
Index of moderated mediation					0.08	0.01	0.15

Note: N = 365. Bootstrap sample size = 5,000.

CI = confidence interval.

**Fig. 2.** Moderating effect of job routinization on the relationship between positive green innovation perceptions and leisure crafting.

moderate the relationship between green innovation perceptions and leisure crafting, serving as a first-stage moderator of the indirect effect. However, we also explored the possibility that job routinization might act as a second-stage moderator, amplifying the relationship between leisure crafting and environmental championing. Specifically, we posited that when employees acquire and sustain resources through leisure crafting, they might more effectively channel these resources into proactive environmental championing under a routinized job setting. Such workplace settings provide greater resource slack, facilitating the cross-domain transfer of resources from non-work to work domains (Chen & Choi, 2024; Halbesleben et al., 2014). In this context, job routinization may fulfill a resource-conserving role, moderating how leisure-generated resources are utilized to drive proactive workplace behaviors (Fritz & Sonnentag, 2006; Sonnentag, 2001).

To evaluate this alternative hypothesis, we tested the simple moderation effect of job routinization on the relationship between leisure crafting and environmental championing and also examined the moderated mediation effect by positioning job routinization as a second-stage moderator. The results were not statistically significant for either the simple moderation ($b = 0.00, p > 0.05$) or the moderated mediation (index of moderated mediation = -0.01 , 95% CI = $[-0.11, 0.08]$). These findings suggest that job routinization does not significantly moderate the relationship between leisure crafting and environmental

championing in the context of this model.

Additionally, although not explicitly hypothesized, it is plausible that the direct effect of green innovation perceptions on environmental championing could be amplified when employees perform routine tasks that enhance the utility of newly available resources. To explore this possibility, we conducted a simple moderation analysis. However, the moderation effect was found to be not statistically significant ($b = 0.11, p > 0.05$), suggesting that job routinization does not significantly modify the direct relationship between green innovation perceptions and environmental championing.

5. Discussions

This study presents a resource-based framework for understanding innovation implementation at the individual level, specifically in the context of green innovations. Based on COR theory, we proposed that positive perceptions of green innovations benefit leisure crafting, thereby contributing to proactive environmental championing. Moreover, job routinization, as a critical resource-related factor in the workplace, was expected to accentuate this cross-domain resource flow. Our analysis of the field data based on a multi-wave, multi-source design supported the indirect effect of green innovation perceptions on environmental championing through leisure crafting, which became

stronger when job routinization was high. The following section discusses the current study's theoretical contributions and practical implications. We also note research limitations and provide future research directions.

5.1. Theoretical contributions

This study offers several novel insights into the literature on innovation, environmental management, and COR theory. First, this study extends the innovation literature by examining individual-level processes leading to employees' proactive engagement with green innovations. Given that innovation implementation encompasses the changes in structural, technological, and organizational aspects (Damanpour & Aravind, 2012), employees' environmental championing should not be equated with or considered a direct measure of successful implementation. However, it remains a critical element that propels the effective integration of green innovations into existing organizational practices and functions (Boiral, 2009; Andersson & Bateman, 2000).

Specifically, this study theoretically articulates and demonstrates how employees' positive perceptions of green innovations increase their proactive innovation engagement, i.e., environmental championing. In doing so, it addresses a critical limitation in existing innovation research, which has primarily examined how innovation properties (i.e., perceived usefulness and ease of use) influence users' acceptance of innovations (Davis, 1989; Venkatesh & Davis, 2000). By shifting the focus from passive acceptance to proactive engagement such as environmental championing, this study offers new insights into how individuals can become proactive drivers of innovation-supportive initiatives, making broader and more impactful contributions to innovation.

Second, by integrating COR theory with the construct of leisure crafting, this study advances a unified, resource-based, cross-domain perspective on innovation implementation. Through this integration, our study connects multiple theoretical perspectives to demonstrate that innovation engagement is not confined to the workplace but is sustained through continuous, cross-domain resource flows (Hobfoll et al., 2018). Leisure crafting exemplifies such a cross-domain mechanism: employees proactively build personal, social, and psychological resources during off-job time, which can subsequently be reinvested into their work roles. Extending its original conceptualization as a coping strategy aimed at enhancing well-being in one's private life (Petrou & Bakker, 2016), leisure crafting is positioned here as a dynamic resource-generation mechanism that complements existing models of innovation implementation.

Our broader resource-based lens suggests that the benefits of green innovations extend beyond reducing organizational pollution and operational costs, as highlighted in previous studies (e.g., Saunila, Ukko, & Rantala, 2018). The current analysis uncovers a dynamic mechanism of resource acquisition and conservation through employees' positive evaluations of green innovations, which stimulate proactive resource-building activities in their non-work domain through leisure crafting. By identifying this mechanism, our model highlights a recursive movement of resources from the work domain (positive innovation perceptions) to the non-work domain (leisure crafting) and back to the work domain (environmental championing).

Regarding the construct of leisure crafting, which has been theorized as a means of fulfilling unmet psychological needs from work to enhance personal well-being (Petrou & Bakker, 2016; Petrou et al., 2017), our findings indicate that it also functions as a proactive resource-generation mechanism with direct consequences for workplace behavior. This reconceptualization positions leisure crafting as a vital cross-domain conduit for resource accumulation and transfer, illustrating how off-job experiences replenish employees' resources and enable greater environmental championing upon returning to work. Accordingly, our framework enriches both the innovation and well-being literatures by showing how workplace innovations shape not only organizational

outcomes but also broader behavioral dynamics across life domains.

Third, drawing on COR theory (Hobfoll, 1989), this study extends the innovation literature by identifying job routinization as a conditional resource context that can amplify the cross-domain flow of resources from work to non-work domains when it conserves employees' cognitive and emotional capacity. Our model demonstrates how highly structured and predictable work environments can facilitate the mobilization and transfer of resources, enabling employees to leverage their work resources gained from green innovations to engage in proactive behaviors beyond the workplace. The synergistic resource-generating effects of green innovation perceptions and job routinization indicate that resource availability in one's task environment can enhance the efficiency with which employees acquire and channel additional resources from broader organizational conditions, such as green innovation implementation.

Despite these findings, we acknowledge that routinization may become constraining when it is excessive, as it can restrict adaptability and openness to change, thereby rendering it a double-edged condition. Although routines help conserve employees' cognitive resources and enable them to focus more effectively on positive organizational initiatives, excessive routinization can limit exposure to new ideas, reduce learning opportunities, and dampen intrinsic motivation, particularly for employees who value challenge and growth (Ohly et al., 2017; Unsworth & Clegg, 2010; Deci & Ryan, 2000). This perspective suggests that routinization supports innovation championing only within an optimal range; beyond that point, it may constrain proactive engagement of employees by narrowing their cognitive and motivational scope.

In summary, the current findings offer a promising avenue for expanding the current resource-based framework of innovation implementation by incorporating a broader array of workplace conditions, including job-related, people-related, and organization-related resources (Biswas et al., 2022). Exploring these diverse resource conditions suggested by COR theory may provide a more comprehensive understanding of how various workplace resources influence employees' behaviors across both work and non-work domains. Future research could also investigate potential nonlinear or contingent effects of routinization to identify the point at which the balance between stability and flexibility in work properties (e.g., job routinization) produces the most favorable outcomes for innovation-related behaviors. This extended perspective offers fertile ground for future research, particularly in contexts where work-life integration plays a critical role in shaping innovation outcomes.

5.2. Practical implications

The present findings offer several important insights for practitioners seeking to implement green innovations effectively and enhance organizational sustainability. First, the results underscore that employees' perceptions of an innovation's usefulness and ease of use constitute critical motivational resources. Organizations should therefore design communication and training initiatives that make the tangible benefits of green innovations salient. For example, internal campaigns and training programs can help employees recognize that green technologies may improve operational efficiency, reduce waste, or generate cost savings without imposing substantial additional burden.

Second, managers can foster resource regeneration by actively supporting leisure crafting as part of broader employee well-being and sustainability initiatives. Rather than viewing leisure as unrelated to work, organizations can design HR policies that recognize the cross-domain value of off-job activities. Practices such as offering flexible scheduling or additional leave for participation in green volunteering or forming partnerships with local organizations to offer eco-focused workshops are examples of initiatives that cultivate employees' personal resources in the non-work domain (Sonnetag & Fritz, 2007).

Third, organizations can cultivate recovery-supportive conditions that enable employees to effectively engage in leisure crafting. For

instance, managers can design HR policies that grant employees greater autonomy over their non-work time, discourage unnecessary after-hours communication, and establish clear norms regarding availability outside formal working hours to legitimize employees' personal use of off-job time. These practices are critical because leisure crafting depends not only on employees' motivation but also on whether organizational norms provide sufficient space for psychological detachment, recovery, and proactive resource investment in non-work domains (Kuehner, Rudolph, Derk et al., 2023). These structured opportunities enable employees to return to work more energized and better prepared to champion environmental initiatives.

Fourth, the findings indicate the benefit of job routinization in mobilizing resources across the life domains. However, given the prior study findings of potential detriments associated with routinization (Parker & Grote, 2022), managers should assess and design job structures to maintain an optimal balance between stability and novelty or flexibility. To address this, organizations might embed low-cost "micro-innovation" opportunities even within highly routinized roles. For instance, managers may invite employees to propose small sustainability improvements, participate in green idea challenges, or engage in brief task rotations that provide fresh perspectives without compromising efficiency. Such practices preserve the resource-conserving benefits of routine while sustaining cognitive engagement and innovation readiness.

5.3. Study limitations and future research directions

Despite the multi-wave, multi-source design used for our field data, some limitations exist and are acknowledged below. First, our data were collected from a single country, Taiwan, which may raise concerns regarding the generalizability of our findings to other national contexts. However, we are not aware of any theoretical claims or empirical evidence suggesting that Taiwanese employees are systematically more likely to under- or over-report on our focal measures compared to employees of other nationalities in a way that could bias our results. Nonetheless, we encourage future research to replicate and extend our framework in different cultural settings to enhance the generalizability of our findings.

Second, managers rated the focal employees' environmental championing two weeks after measuring their leisure crafting and four weeks after measuring their innovation perceptions. Although using the two-week time lag is an appropriate design choice, the results may not be completely free from the limitations in causal explanations due to the endogeneity issue (Hill, Johnson, Greco et al., 2021). Thus, we recommend that future research validates our research model by adopting alternative research designs such as longitudinal or experimental methods.

Third, our analysis did not include several control variables, such as organizational sustainability culture, green leadership, and environmental training, which could influence employees' engagement in environmental championing independent of their perceptions of green innovations. Future research should incorporate these additional control variables to address the possibility of potential confounding effects and more precisely isolate the effects of green innovation perceptions.

Finally, the wording of certain items may have introduced

ambiguity, potentially affecting the precision of participants' responses. For example, the items used to evaluate positive perceptions of green innovations combined employees' perceptions and experiences of using green innovations. Future studies should replicate and expand the current resource-based framework of innovation implementation using refined measures that clearly differentiate constructs and avoid potential ambiguities.

6. Conclusion

The current study presents a resource-based framework that offers intriguing new insights into micro-processes of innovation implementation in the context of emerging green innovations. Underpinned by COR theory, we extend the innovation literature by theorizing and showing that positive innovation perceptions may supply additional resources for employees that enable them to perform proactive behaviors in a cross-domain manner (from work to leisure) that enable them to acquire additional resources to perform environmental championing (from leisure to work) eventually. This cross-domain resource flow was further highlighted by the facilitating role of job routinization that strengthens the positive impact of green innovation perceptions on leisure crafting and environmental championing. Our study propels the theoretical and empirical advancements of the innovation and environment management literature by introducing the resource-based view informed by COR theory. Future studies may further develop and elaborate this line of theoretical developments to address the critical emerging concerns on environmental issues through proactive engagement of employees in pro-environmental actions.

Data availability statement

Research data are not shared as the authors did not gain permission from the respondents to share the data.

CRediT authorship contribution statement

I-Shuo Chen: Writing – original draft, Methodology, Data curation, Conceptualization. **Jin Nam Choi:** Writing – review & editing, Supervision, Methodology, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix:. Measurement items

Constructs	Measurement items	Factor loading	CR	AVE
Positive green innovation perceptions	Green innovations in my workplace would enable me to accomplish my tasks more effectively	0.83	0.91	0.64
	Green innovations in my workplace would increase productivity in my job.	0.80		
	Green innovations in my workplace would lead to positive changes in my job.	0.81		
	The process involved in green innovations in my workplace should be easy to understand.	0.80		
	I find it easy to use green innovations in my job.	0.78		
Leisure Crafting	Green innovations in my workplace should be easy to apply to my job.	0.78	0.95	0.69
	I try to build relationships through leisure activities.	0.79		
	I try to find challenging activities outside of work.	0.83		
	I try to increase my skills through leisure activities.	0.85		
	I try to increase my learning experiences through leisure activities.	0.86		
	I try to set myself new goals to achieve through leisure activities.	0.86		
	Through my leisure activities, I look for inspiration from others.	0.82		
	Through my leisure activities, I try to obtain novel experiences.	0.82		
	My leisure time is a chance for me to grow and develop.	0.84		
	I look for new experiences through leisure activities to keep myself mentally stimulated.	0.78		
Job routinization	I do my main tasks without consciously remembering the method.	0.74	0.86	0.55
	I do my main tasks automatically.	0.72		
	I do my main tasks without thinking.	0.76		
	My main tasks belong to my daily/weekly/monthly routine.	0.78		
	I do my main tasks frequently.	0.71		
Environmental Championing	This employee spoke positively about the pro-environmental initiative to outsiders.	0.86	0.82	0.64
	This employee tried to overcome co-workers' resistance toward pro-environmental initiatives.	0.77		
	This employee embraced the pro-environmental initiative and "sold" it to others	0.77		

Data availability

The authors do not have permission to share data.

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