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Green innovation in the **hospitality industry:** The role of **green organisational culture** and **identity**

Dong Xuan Dam[1] [dam.dongxuan@phenikaa-uni.edu.vn]

Le Chi Cong[2] [conglechi@ntu.edu.vn]

Thi Thuc Anh Phan[3] [anh.ptt@vinuni.edu.vn]

Tran Thi Huyen Trang[4] [tranhuyentrang@neu.edu.vn]

Abstract | This paper investigates if and how employee perceptions of the elements of green organisational culture help to create green innovation in the delivery processes and in shaping a green image of the hotel industry. It explores and tests the moderating role of organisational identity in the relationship between subjective norms and components of green innovation. A sample of 315 employees in luxury hotels/resorts participated in this study. The AMOS software platform was used to evaluate the measurement scales of the constructs, the measurement model, and the structural model within structural equation modelling. The results support six out of eight hypotheses within structural equation modeling. Especially, the effects of subjective norms on green innovation in the process and green image innovation become stronger with a positive moderating effect of organisational identity. Based on the research findings, the paper gives recommendations to help organisations promote the role of green organisational culture by encouraging employees to improve green innovation behaviour.

Keywords | green innovation, green organisational culture, identity, hospitality

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[1] Dean; School of International Education, Phenikaa University, Hanoi 12116, Vietnam
[2] Corresponding author; Dean of Tourism Faculty, Nha Trang University, No. 2, Nguyen Dinh Chieu Street, Nha Trang, Vietnam
[3] Director of the Smart Green Transformation Center, VinUniversity, Da Ton, Gia Lam, Hanoi, Vietnam
[4] Faculty of Tourism and Hospitality, National Economics University, No. 207, Giai Phong street, Hanoi, Vietnam

1. Introduction

Developing green, eco-friendly products has always been a fundamental requirement of the tourism industry in general, as well as the hospitality sector (Alreahi et al., 2023; Chen, 2007). Green, environmentally friendly products are almost always evaluated in the context of innovation and creativity (Gürlek & Tuna, 2017; Lin et al., 2014; Méndez-Picazo et al., 2021; Orfila-Sintes et al., 2005; Janjua et al., 2024).

The current perception of green innovation in the hospitality industry remains controversial (Gürlek & Tuna, 2017; Ngo, 2024). A number of large hotels that have policies that rapidly adapt to the environment and climate change have adjusted regulations on processes, products/services, and marketing in quick response to green innovation (Chen et al., 2012). However, a thorough view of this approach indicates the involvement of actions more so than long-term strategic directions (Chang, 2011; Chen, 2007; Gürlek & Tuna, 2017; Oliveira et al., 2023). At the same time, this approach may be better suited to larger organisations where there are more problems to solve in the short term, as these activities tend to cost a lot of time and money in the first stage, rather than changing the whole operation to a green innovation. This raises questions about defining the core foundation that helps hotels implement green innovation. Does the organisational culture require adjustment to fully and strategically respond to environmental issues (Gürlek & Tuna, 2017; Linnenluecke & Griffiths, 2010)? The role of organisational culture, and whether green innovation can be successfully implemented in hotels, is up for debate.

The green organisational culture not only contributes to raising awareness among members of the organisation about the importance of green practices but also motivates them to demand the implementation of said practices. The researchers have used the theory of organisational culture to explain their effects on green innovation (Gürlek & Tuna, 2017; Linnenluecke & Griffiths, 2010). The various components that constitute organisational culture have been examined in numerous contexts. For example, researchers have highlighted the importance of employee trust in corporate social responsibility performance (Lam et al., 2016) and its relationship with employee green behaviour, such as recycling, using materials responsibly, participating in sanitation initiatives, and supporting environmental protection (De Roeck & Farooq, 2018). Nevertheless, and to the authors' understanding, confidence in green organisations – an important factor for green innovation in organisations – has not been tested in recent studies.

Awareness of green organisational culture has been shown to have a direct positive relationship to the adoption of green supply practices, including green purchasing and eco-design (Wu & Chen, 2014). In addition, the conceptual development of green organisational culture suggests that raising awareness in this area can promote the adoption of sustainable practices (Linnenluecke & Griffiths, 2010). This said, the effects of perceptions of green organisational cultural values that directly impact the behaviour of participating in green process innovation or green image innovation have not been explored.

Subjective norms guide individual behaviour within the organisation and trigger internal and emotional motivations for participation in the organisation's activities. Subjective norms can also interact or coexist with other behavioural determinants, such as physical incentives, awareness of the consequences of actions, and strategic interactions with other actors (Cardenas, 2011). To the understanding of the authors, studies of subjective normative perceptions related to the actions of key members of the organisation are mainly used in extended behavioural theory (Armitage & Conner, 2001; Cardenas, 2011; Turner et al., 2006) and have not yet addressed the problem of the impact on green innovation in organisations.

A few previous studies have extended the traditional theories of planned behaviour (Ajzen, 1991) and suggested that organisational identity should be included in the models as a moderator in the attitude/norm-behaviour relationships (Terry & Hogg, 1996; Wellen, Hogg & Terry, 1998). More holistically, this study seeks to integrate organisational identity as a moderator of the effects of subjective norm on components of green innovation. As subjective norms are purported to have influence on process and green image innovation behaviour, this study contributes to the social-identity theory (Terry et al., 2000b) by exploring whether the subjective norm-process and green image innovation behaviour relationship is moderated by organisational identity.

The above work is mainly carried out in developed countries with established environmental protection laws and strong law enforcement (Cho & Kim, 2017; Lee et al., 2020). Under the weak legal system and deficient law enforcement mechanisms of Vietnam (Nguyen et al., 2013; Malesky et al., 2020; Ngo, 2024), environmental protection, green initiatives, and practices depend largely on levels of awareness and the perceptions of relevant stakeholders. This study was conducted in hotels located in some beach cities of Vietnam that have demonstrated strong tourism growth in the past, but are now facing problems of pollution generated from tourist activities and local communities. It aims to explore employees' perceptions of the elements of organisational culture that foster green innovation in delivery

processes and support the development of a green image within the hotel industry. Secondly, it examines the moderating effect of organisational identity on the relationship between subjective norms and both process-related and green image innovation behaviours. Finally, the findings are expected to make a significant contribution to the hotel industry by promoting green innovation activities and guiding tourism towards greater sustainability.

2. Theoretical framework

This study begins by approaching the fundamental concepts of green organisational culture and green innovation as a foundation for developing the research model and hypotheses in subsequent sections.

2.1. Green organisational culture and green innovation

The concept of green organisational culture is still debated (Ravasi & Schultz, 2006). It is seen as a set of shared mental assumptions that guide interpretation and action in organisations by identifying behaviour that is appropriate for different environmental situations (Ravasi & Schultz, 2006). Research by Chang (2015, pp. 461) indicates that "green organisational culture includes symbols, social stereotypes and shared values, beliefs, and norms related to environmental management, shaping the standard behaviours expected from individuals within the organisation".

Chen (2011) argues that green organisational culture plays a role in defining organisational boundaries. In this sense, culture distinguishes organisations that perform well on environmental issues from those that do not (Crane, 2000; Linnenluecke & Griffiths, 2010). Such a culture helps disseminate environmental values and practices among members of the organisation, encouraging them to identify with, understand, and act on behalf of environmental goals. It also motivates employees to work towards the collective good of the organisation. Acting as a unifying force, green organisational culture sets clear standards that guide employees in contributing both to organisational success and environmental protection. Finally, it exerts a regulating influence by shaping employees' attitudes and behaviours towards environmental responsibility.

In the hospitality industry, process innovation refers to behind-the-scenes innovations that aim to increase productivity and efficiency (Gürlek & Tuna, 2017; Hjalager, 2010). Green process

innovation offers businesses the opportunity to differentiate through quality improvement and product design (Chang & Chen, 2014; Lin et al., 2013; Janjua et al., 2024; Wang et al., 2021). With this approach, hotels can offer their services at a higher price and achieve a greater profit margin (Chen et al., 2006; Chen et al., 2012). Green innovation can also increase resource productivity through material savings, reduced energy consumption, increased waste recycling, and less resource use (Bernauer et al., 2007). In this way, green innovation not only reduces negative environmental impacts but offers a competitive advantage through cost reduction (Chang, 2011; Chen et al., 2012; Wang et al., 2021). Green organisational culture not only contributes to raising awareness among its members about the importance of green innovation activities but also prompts them to carry out activities in the green innovation process. As a result, a green organisational culture creates the conditions that enable green innovation to be realised (Chang, 2015).

2.2. Research model

Trust in green organisations and green innovation in organisations

Green organisational trust is also highlighted among organisations committed to conducting business in an environmentally friendly manner (Su & Swanson, 2019). In such instances, employees have confidence in their leadership's commitment to services of process innovation that help to protect the environment and increase the reputation of that business in the market (Su & Swanson, 2019). For organisations with a clear commitment to environmental action, employee awareness and behaviour will increase (Su & Swanson, 2017). Researchers have shown the importance of employee trust in corporate social responsibility (Lam et al., 2016) and its relationship to employee green behaviour, such as recycling, using materials properly, participating in sanitation, and environmental protection (De Roeck & Farooq, 2018). Yet, to the authors' understanding, confidence in green organisations – an important factor for green innovation in organisations – has not been tested in recent studies. The context of green innovation in the organisation requires the active participation of the staff. So, in the researchers' opinion, if employees have deeply held beliefs in implementing the commitments of a green organisation, participation behaviour in green process innovation or new green image innovation will take place. Therefore, the following hypotheses are proposed:

Hypothesis H1: Trust in green organisations positively affects the green process innovation in the organisation.

Hypothesis H2: Trust in green organisations positively affects the green image innovation in the organisation.

Perception of the values of green organisational culture and green innovation in organisations

The perception of a green organisational culture is defined as recognition by the organisation's members of the environmental impact of its activities on society and the community (Marshall et al., 2015). Recognising green organisational cultural values allows members to consider the need to participate in activities to reduce environmental pollution, turning the shared values into a philosophy that promotes decision-making among all members (Fraj-Andrés et al., 2009; Pagell & Wu, 2009). Most empirical studies in the field of discussion have focused on sustainability or environmental sustainability as a general concept. Some studies have found that organisations with a culture of green orientation are more likely to adopt sustainable practices within and beyond regulation (Fraj-Andrés et al., 2009; Marshall et al., 2015; Pagell & Wu, 2009). An awareness of the values of green organisational culture has been shown to have a direct positive relationship with the adoption of green supply practices, including green purchasing and eco-design (Wu & Chen, 2014). The conceptual development of green organisational culture predicts that increasing awareness of its values will lead to the adoption of sustainable practices (Linnenluecke & Griffiths, 2010). However, the consequences relating to perceptions of green organisational culture that directly impact the behaviour of participating in green process innovation, or in green image innovation, have not been explored. Therefore, this study proposes the following hypotheses:

Hypothesis H3: Perception of green organisational culture positively affects the green process innovation in the organisation.

Hypothesis H4: Perception of green organisational culture positively affects the green image innovation in the organisation.

Subjective norms related to the environment and green innovation in organisations

Subjective norms refer to the perceived pressure or influence from significant individuals within the organisation who expect a person to act in a certain way (Terry et al., 2000a; Terry et al., 2000b). These norms can play a role in shaping behaviours and institutions, as recognised in Social Exchange Theory (Cardenas, 2011). Subjective norms guide individual behaviours within the organisation and trigger internal and emotional motivations for participation in the organisation's activities. They can also interact or coexist with other behavioural determinants, such as physical incentives, awareness of the consequences of actions, and strategic interactions with other actors (Cardenas, 2011). Studies of subjective normative perceptions related to the actions of key members within organisations are mainly applied within extended behavioural theory (Armitage & Conner, 2001; Cardenas, 2011; Turner et al., 2006). To the researchers' understanding, these studies have not yet addressed the problem of the impact on green innovation in organisations. This is a space for empirical research to demonstrate the influence of the constituent elements of green organisational culture on green innovation within the organisation. Therefore, the following hypotheses are proposed:

Hypothesis H5: Perception of subjective norms related to the green environment positively affects green process innovation in the organisation.

Hypothesis H6: Perception of subjective norms related to the green environment positively affects green image innovation in organisations.

Leadership commitment related to green environmental enforcement and green innovation within organisations

Leadership commitment within an organisation is understood as "the relative strength of an individual's identity and participation in a particular organisation" (Afsar et al., 2019, p. 302). Commitment to leadership within the organisation is an important factor influencing employee attitudes and behaviour (Afsar et al., 2019; Devece et al., 2016). Leadership commitment within the organisation increases the employees' willingness to put in the extra effort beyond their standard duties (Devece et al., 2016). Certain environmental behaviours, such as saving paperwork and energy and recycling materials for the organisation, are practical actions by which employees demonstrate a willingness to meet leadership commitments. This demonstrates a sustainable organisational culture (Kim et al., 2017; Lamm

et al., 2013). Therefore, it is expected that leadership commitment within the organisation can enhance environmental behaviour (Khassawneh et al., 2024).

This study develops a research model that builds on mechanisms through which leadership commitment influences green innovation behaviour among employees (Lamm et al., 2013). At present, and to our knowledge, there are few mechanisms by which the leadership's commitment to green environmental enforcement affects green innovation behaviour. Research has sought to fill this gap by looking at a dual-process model in which the leadership's commitment to green environmental enforcement in the organisation serves as an interoperability mechanism. Leadership action is responsible for green innovation behaviour by employees. The following hypotheses are proposed:

Hypothesis H7: Leadership commitment to green environment enforcement positively affects green process innovation in the organisation.

Hypothesis H8: Leadership commitment to green environment enforcement positively affects green image innovation in the organisation.

Moderating effect of organisational identity

Social identity theory is a general framework which explains group processes and intergroup relations in terms that distinguish group phenomena from interpersonal phenomena (Hogg & Abrams, 1988; Terry & Hogg, 1996; Ravasi & Schultz, 2006; Chen, 2011a). In empirical studies, the term "group" may be contextualised to specifically refer to family, friends, club members, or sports teams, etc. (Ravasi & Schultz, 2006; Chen, 2011a). This study focuses on organisations as the primary group and defines organisational identity as a form of social identity in which an individual comes to view him or herself as a member with strong ties with the organisation he or she is a member of (Ravasi & Schultz, 2006; Chen, 2011a).

Previous studies have also indicated that subjective norms are not always a good predictor of intention and behaviour (Armitage & Conner, 2001; Cardenas, 2011; Turner et al., 2006). Some studies focusing on organisational context also show that subjective norms have a weak to moderate influence on individual behaviour (Cardenas, 2011). However, Christensen et al. (2004) proposed that if individuals conform to a norm and evaluate their identity positively, they will persist with the same behaviours. Smith and Louis (2009) emphasised that the effect of social norms on intentions is significantly stronger among people who identified strongly with the reference group, such as an organisation. Furthermore, staff are more likely to

comply with organisational attitudes if they receive normative support regarding their attitude and behaviour from organisational members (Ravasi & Schultz, 2006; Chen, 2011a). Chen (2011) further argues that enhancing the socialisation of practices can reinforce subjective norms, thereby amplifying their influence on process-related and green image innovation behaviours. For example, the socialisation of practices will vary with subjective norms, depending on how much the process is subject to innovation, the kinds of process organisational member innovation, and how they share these experiences. Based on the above discussions, this study suggests that organisational identity positively moderates the relationship that subjective norms have with green process innovation and green image innovation behaviour.

H9: Organisational identity strengthens the relationship between subjective norms and green process innovation behaviour.

H10: Organisational identity strengthens the relationship between subjective norms and green image innovation behaviour.

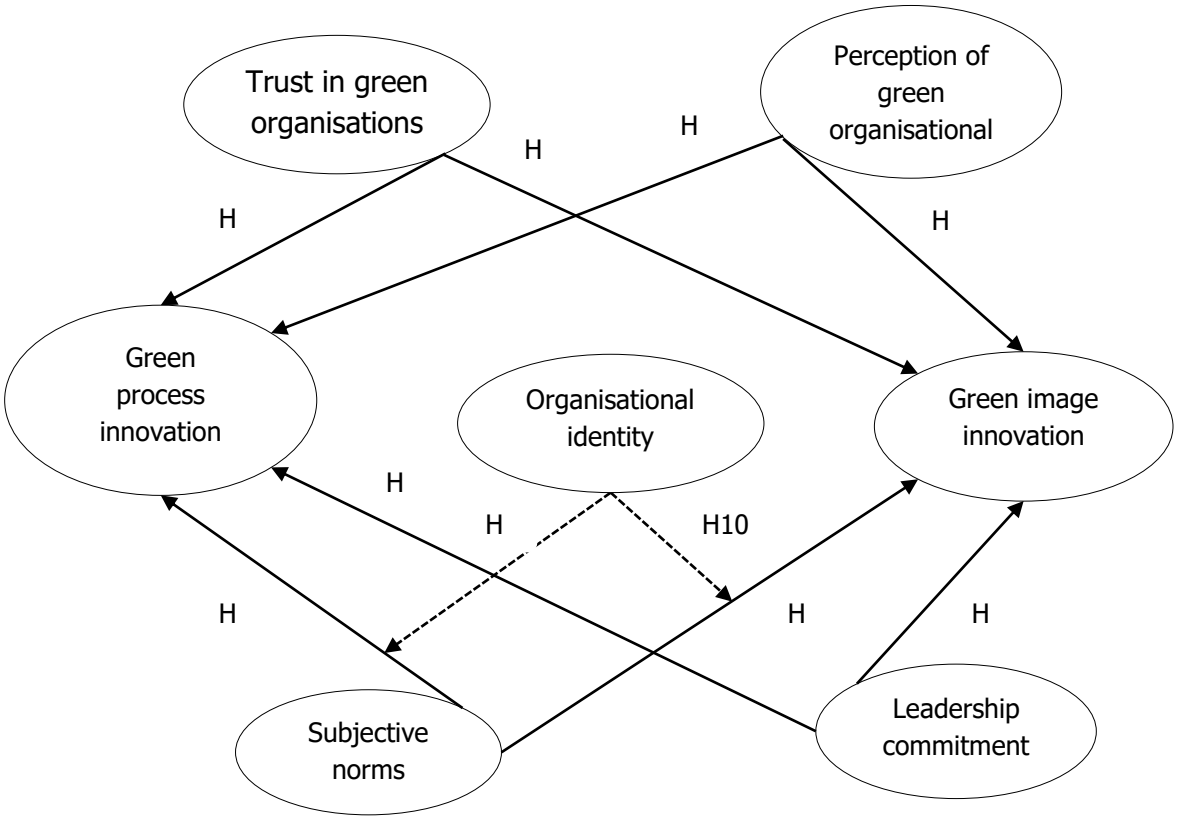


Figure 1. The research proposal

Source: Authors' Elaboration

3. Methods

3.1. Sample and procedure

This study uses the technique of direct interviews and detailed questionnaires delivered to employees working in luxury resorts and hotels in Nha Trang and Phu Quoc. The two localities have been selected as the leading examples in the tourism business that have needs for protecting the coastal and island tourism environment. The number of luxury resorts/hotels in these areas has increased over the past five years by about 12% per year, the highest among localities with island tourism in Vietnam (VNAT, 2022). The study involved direct interviews with employees from four luxury hotels in Nha Trang and Phu Quoc: Sunrise Nha Trang, InterContinental Nha Trang, Movenpick Resort Cam Ranh, and Vinpearl Resort & Spa Phu Quoc. A quota sampling method was employed to ensure representation across key demographic variables, including gender, age, job position, education level, and marital status. With an average workforce of over 300 employees per hotel, the study surveyed 80 employees from each location, representing 25% of the workforce at each hotel.

The sample statistical results show that 51.7% of respondents are men, 32.7% of respondents are between 25–35 years of age, 54.6% of respondents are married, more than 80% of respondents are employees of the hotel administration, and nearly 87% of respondents have an education level of high school or less (Table 1).

Table 1. Socio-demographic profile of respondents (*n=315*)

Socio-demographic	N	Percentage
Gender		
Male	163	51.7
Female	152	48.3
Age		
Under 25 years	51	16.2
25–35 years	103	32.7
36–45 years	99	31.4
46 years and older	62	19.7
Position		
Head of department	66	21.0
Chamber staff	80	25.4
Desk and bar staff	86	27.3
Administrative department staff	83	26.3

Socio-demographic	N	Percentage
Education level		
High school diploma	49	15.6
College degree	113	35.9
Bachelor's degree	99	31.4
Postgraduate degree	54	17.1
Marital status		
Single	143	45.4
Married	172	54.6

Source: Data collected by the author, 2023

3.2. Measures

All variables were measured using a seven-point Likert-type scale. The model was developed based on previous studies and preliminary qualitative research. *Green process innovation* was measured using four items adapted from a recent study by Kam-Sing Wong (2012) as follows: 'Your company has developed new products/processes to minimise health risks for tourists'; 'Your company has developed new products/processes to benefit employees'; 'Your company has developed new products/processes to reduce health and safety risks for staff'; and 'Your company has developed new products/processes to deliver high-quality services to tourists.'

Green image innovation was measured using three items adapted from Chen (2007) as follows: 'Your company is considered a benchmark for best practices in environmental management'; 'Your company is regarded as professional in environmental management'; and 'Your company is perceived as successful in environmental management in the eyes of customers.'

Green organisational trust includes five items that were used previously by De Roeck and Farooq (2018) and Lam et al., (2016), as follows: 'Your company has a responsibility to build a green organisational culture.'; 'I have a strong belief in the company's commitment to implementing its environmental strategy.'; 'I trust that the company's strategy toward building a green organisation will be successful.'; 'I believe the company has a responsibility to foster a green organisational culture.'; 'I trust that a green organisational culture is a high-priority activity in my company.'; 'I believe the company consistently provides information to all employees about the importance of a green organisational culture.'.

Perception of green organisational culture includes three items have often been used in studies measuring green organisational values by Fraj-Andrés et al., (2009); Gürlek & Tuna (2017); Marshall et al., (2015) as follow: ‘Environmental protection is a core value of our company.’; ‘Environmental awareness is a value commonly shared within the company."; "A green organisational culture is a central value of your company.’.

Subjective norms related to the environment includes four items that were used to assess subjective standards related to the environment by Armitage & Conner, (2001); Cardenas (2011); Turner et al., (2006) as follow: ‘Important people in the Company encourage me to practice environmental protection’; ‘Leaders in the Company encourage me to practice environmental protection’; ‘Colleagues in the Company advise me to practice environmental protection’; and ‘I perceive that members of the Company are conscious of environmental protection’.

Leadership commitment includes four items are measured through the following by Afsar et al., (2019); Devece et al., (2016) as follow: ‘The Company’s leadership has a clear policy statement promoting green organisational culture in all areas of operation’; ‘The Company’s leadership consistently strives to promote green organisational culture as a key objective across all departments’; ‘The Company’s leadership consistently sets an example in implementing green organisational culture commitments’; ‘The Company’s leadership has worked hard for a green organisational culture image’.

Organisational identity includes three items have often been used in previous studies seeking to quantify organisational identity by Terry & Hogg (1996); Ravasi & Schultz (2006); Chen (2011a) as follow: ‘I am proud of the company's history of environmental management and protection’; ‘I feel that the company has created an important position for environmental management and protection’; ‘I feel that the company has established good environmental goals and missions’.

3.3. Data analysis

These analyses were conducted using maximum likelihood estimation in AMOS 25.0. Indexes such as the chi-square (χ^2), goodness-of-fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were applied to evaluate the overall model fit (measurement and construct model) (Browne & Cudeck, 1992).

3.4. Moderating effect testing

To test the moderating effect of organisational identity, this paper conducted a two-step analysis. The first step involved testing the invariance of the measurement models (Steenkamp & Baumgartner, 1998), followed by a multiple-group analysis in the second step (Steenkamp & Baumgartner, 1998). This procedure is useful as a preliminary check of the evidence for a moderating effect where measurement invariance is tested before invariance for individual path coefficients is assessed.

4. Results

4.1. Convergent and discriminant validity

The results indicate a value for the χ^2 /df < 4, RMSEA <0.08, GFI > .90, TLI > .90, and CFI > .90. The measurement model fits well with the data. The index's factor weights were statistically significant at .001 (all *t*-statistics were greater than 10,684) and ranged from .712 to .943. The remaining scales all have high aggregate reliability, far exceeding the recommended level of .80, and the values of variance extracted are all large > .60. This proves that the scale is simple and reliable and has a high convergence value (Browne & Cudeck, 1992) (Table 2).

Table 2. Overall confirmatory factor analysis (CFA) for the measurement model

Constructs	Items	Item reliability			CR	AVE
		Factor loading	Standard errors	*t*-Values		
GOT	GOT1➔GOT5	.736➔.850	.075➔.077	12.045➔15.565	.91	.66
GOC	GOC1➔GOC3	.815➔.926	.063➔.068	13.718➔16.125	.90	.75
GNOR	GNOR1➔GNOR4	.786➔.943	.062➔.066	13.823➔18.571	.92	.75
GCL	GCL1➔GCL4	.712➔.0894	.063➔.095	10.684➔12.317	.89	.67
OI	OI1➔OI3	.871➔.887	.042➔.043	17.933➔18.111	.91	.77
PPIno	PPIno1➔ PPIno4	.789➔.900	.049➔.056	14.922➔19.375	.92	.74
PGIno	PGIno1➔ PGIno3	.739➔.897	.071➔.073	11.917➔14.692	.87	.68

Source: Data analysed by the author, 2023

Goodness of fit was assessed using the following criteria: χ^2 /df = 1.802 < 4, RMR < .008, RMSEA < .008, GFI > .90, AGFI > .90, NFI > .90, CFI > .90. This indicates a highly discriminatory measure. The scale used is reliable and has a high value, suitable for further analysis (Table 3).

Table 3. Construct means, standard deviation, and correlations

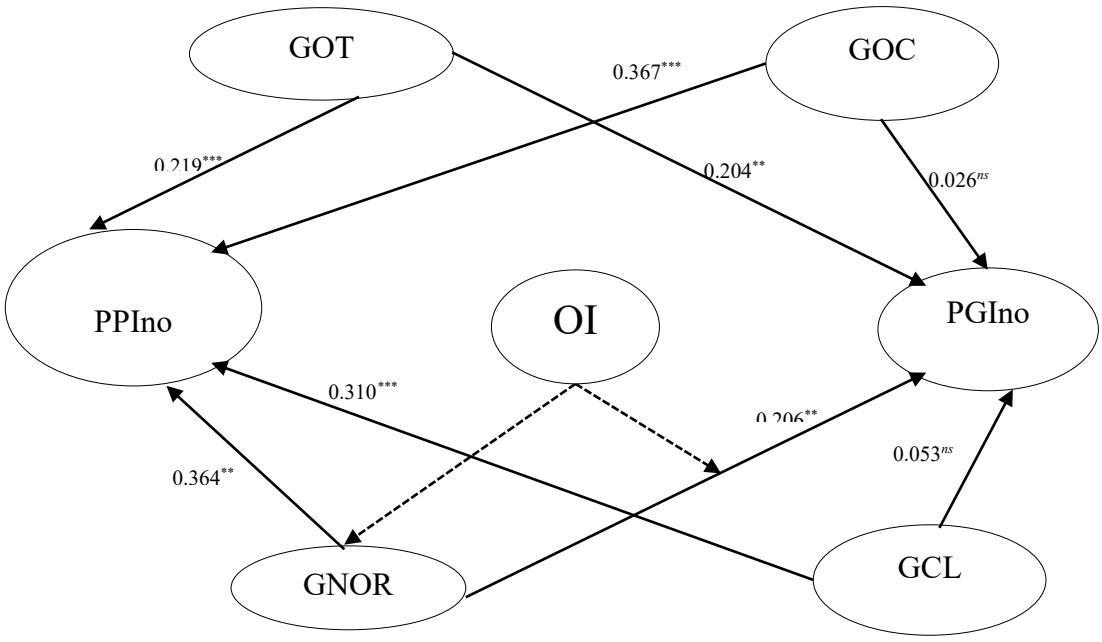
	PPIno	PGIno	GOT	GOC	GNOR	GCL	OI
PPIno	-						
PGIno	.55***	-					
GOT	.56***	.58***	-				
GOC	.62***	.53***	.54***	-			
GNOR	.51***	.56***	.51***	.55***	-		
GCL	.57***	.50***	.45***	.46***	.54***	-	
OI	.34***	.37***	.42***	.44***	.35***	.36***	-
Mean	5.68	5.77	5.62	5.47	5.61	5.43	5.22
SD	1.11	1.15	1.16	1.21	1.16	1.18	1.12

*** *p<0.001*

Source: Data analysed by the author, 2023

4.2. Test of hypotheses

The analysis results of the main impacts of the concepts in the theoretical model proposed in Figure 1 are presented in Figure 2. The suitability of the structural model to the data is acceptable (χ^2 /df < 4, RMSEA < .08; GFI > .90; TLI > .90, CFI > .90). Results support the six out of eight research hypotheses outlined.



Notes: *** *p < 0.001;* ** *p < 0.005;* ns *= non-significant*

Figure 2. Estimated model

Source: Authors' Elaboration

Hypothesis H1 proposes a belief in green organisations that positively affects the green process innovation behaviour in the organisation. Research results support the hypothesis ($\beta 1$ = .219, t = 5.812, p <.001), and ($\beta 2$ = .204, t = 5.331, p <.001). The study expects that the perception of green organisational culture positively affects green process innovation behaviour within the organisation. Research results support hypothesis H3 ($\beta 3$ = .367, t = 5.812, p <.001). However, the study has not demonstrated a positive relationship between the perception of green organisational culture and the green image innovation behaviour in the organisation ($\beta 4$ = .026, t = .621, *ns*). At the same time, the study demonstrates that subjective normative perception related to the green environment positively affects the green process innovation and the green image innovation behaviour in the organisation. Research results support hypothesis H5 ($\beta 5$ = .364, t = 6.679, p <.001), and hypothesis H6 ($\beta 6$ = .206, t = 3.013, p <.005). Finally, the study also demonstrates that the leadership's commitment to green environmental enforcement positively affects the green process innovation behaviour in the organisation. Research results support hypothesis H7 ($\beta 7$ = .310, t = 4.721, p <.001). However, the study has not demonstrated that the leadership's commitments to green environmental enforcement positively affect the green image innovation behaviour in the organisation ($\beta 8$ = .053, t = .910, *ns*).

4.3. Testing moderating effects

The results in table 4 show a satisfactory fit of the configural model, which implies that the same underlying constructs are observed across the subgroups (Steenkamp & Baumgartner, 1998). To test full metric invariance, a model with all factor loadings constrained to be invariant across the subgroups - termed the full metric invariance model - was compared to the configural invariance model. The results show an improvement in the fit of the former model compared with the latter model. Thus, the full metric invariance model appears to be more accurate for this set of data. Next, for testing scalar invariance, an initial scalar model was created by constraining all the item intercepts to be equal across the subgroups. The fit of this model is worse than the full metric invariance model. Therefore, the initial scalar model is less preferred. Each item of intercept for each construct in the partial scalar model was then relaxed. The results indicate that the fit of this partial scalar model is almost the same as the fit of the full metric invariance model. Thus, the partial scalar invariance model is suitable. These results are suitable for testing the moderating effects of organisational identity.

Table 4. Measurement invariance analysis

Invariance model	χ^2	Df	χ^2 /df	RMSEA	AIC	TLI	CFI
Configural	400.277	126	3.17	.066	472.535	.916	.917
Full metric	394.138	125	3.15	.066	399.787	.917	.916
Initial scalar	397.229	126	3.15	.066	398.516	.916	.918
Partial scalar	400.225	126	3.17	.066	389.537	.917	.917

Source: Data analysed by the author, 2023

Hypothesis 9 suggested that organisational identity has a positive moderating effect on the subjective norms-green process innovation behaviour relationship. This requires the effect of subjective norms on green process innovation behaviour to be significantly higher in the high-organisational identity subgroup than in the low-organisational identity subgroup. The findings supported this hypothesis. The effect of the subjective norms on green process innovation behaviour is significantly higher in the high-organisational identity subgroup (β = .41, t = 6.341, p < .001) than in the low-organisational identity subgroup (β = .33, t = 5.510, p < .001).

Table 5.Testing the moderating effects of organisational identity

Structural path and hypotheses	Low OI (n = 150)		High OI (n = 165)		χ^2 difference (df = 1)	Conclusion
	Estimate	t-value	Estimate	t-value		
GNOR →PGIno (H9)	.33	5.510***	.41	6.341***	4.55***	Supported
GNOR → PPIno (H10)	.24	4.322***	.31	5.371***	2.557*	Supported

Notes: ns: non-significant; *p < .10; **p < .01; ***p < .001

Source: Data analysed by the author, 2023

Hypothesis 10 suggested that organisational identity has a positive moderating effect on the subjective norms-green image innovation behaviour relationship. The findings supported this hypothesis by indicating that the effect of subjective norms-green image innovation behaviour in the high-perceived destination knowledge subgroup (β = .31, t = 5.371, p < .001) is significantly higher than in the low-organisational identity subgroup (β = .24, t = 4.322, p < .001).

5. Conclusion

This study confirms that a belief in green organisations positively affects the green process innovation behaviour in the organisation. Research results support the hypothesis and studies in different organisational management contexts (De Roeck & Farooq, 2018; Lam et al., 2016; Su & Swanson, 2019). Accordingly, the more confident employees believe in implementing their commitment to a green organisation, the faster the behaviour of participating in green process innovation in luxury hotels/resorts becomes. The article expects that belief in green organisations positively affects the green image innovation behaviour in the organisation. The results of this study support the researchers' argument that fostering green innovation within an organisation requires active staff participation. When employees strongly believe in the organisation's green commitments, they are more likely to engage in activities that enhance the organisation's green image.

The study expects that the perception of green organisational culture positively affects the green process innovation behaviour in the organisation. Research results support the hypothesis and recent studies (Fraj-Andrés et al., 2009; Marshall et al., 2015; Pagell & Wu, 2009). Accordingly, the perception of green organisational culture has been shown to have a direct positive relationship with the adoption of green supply practices, including green purchasing and eco-design (Wu et al., 2014). However, the study has not demonstrated a positive relationship between the perception of green organisational culture and the green image innovation behaviour in the organisation. This can be explained by several reasons. Firstly, perception only reflects attitudes and does not necessarily lead to action. Secondly, the organisation may lack supportive mechanisms or incentives for employees to engage in innovation, such as appropriate policies or technologies. Thirdly, green image innovation is a complex process requiring creativity, financial resources, and marketing strategies, while the perception of green organisational culture represents only a small part of this process. Lastly, intermediary factors, such as individual attitudes or leadership support, may not have been thoroughly examined. More research needs to be conducted in different contexts to clarify this point.

At the same time, the study demonstrates that subjective normative perception related to the green environment positively affects the green process innovation and the green image innovation behaviour in the organisation. Research results support the hypothesis. To the authors' understanding, these are new findings for the discipline. While studies of subjective normative perceptions related to the actions of key members of the organisation are used

mainly in extensive behavioural theory (Armitage & Conner, 2001; Cardenas, 2011; Turner et al., 2006), they have not yet solved the problem of the impact on green innovation behaviour in organisations.

The study also demonstrates that the leadership's commitment to green environmental enforcement positively affects the green process innovation behaviour in the organisation. Research results support the hypothesis. This result broadens the perspectives of the research by asserting that leadership commitment in the organisation is an important factor affecting employee attitudes and behaviour, including product innovation behaviour (Afsar et al., 2019; Devece et al., 2016). However, the study has not demonstrated that the leadership's commitment to green environmental enforcement positively affects the green image innovation behaviour in the organisation. This can be explained by several reasons. Firstly, leadership's commitment to green image innovation may remain at the level of declarations or policies without being accompanied by specific actions and effective enforcement measures. This could diminish the impact of the commitment, particularly if employees are unaware of or lack trust in the leadership's intentions, leading to a lack of motivation to act. Secondly, limitations in communication and connection between leadership and other organisational departments also hinder implementation effectiveness. Finally, green image innovation is a complex process requiring financial resources, technology, and creativity from the entire organisation. If these factors are not sufficiently strong, leadership's commitment is unlikely to produce clear and tangible results. More research needs to be conducted in different contexts to clarify this point.

The results of this study demonstrate that beliefs regarding the implementation of green organisational commitments, awareness of the values of green organisational culture, environmentally related subjective norms, and leadership commitment to enforcing green practices are all important factors in explaining green innovation behaviour in upscale hotels. Consequently, a comprehensive focus on green organisational culture is regarded as a valuable resource for developing a green innovation model in these hotels. In particular, this study has also demonstrated the effect of a strong belief in the implementation of green organisational commitments and subjective norms related to the green environment, not only directly affecting product innovation behaviour but also helping to explain green image innovation behaviour. This is meaningful for luxury hospitality businesses to promote internal strengths to build the image of a green luxury hospitality provider in the eyes of employees as well as customers.

Therefore, to thoroughly implement the green innovation process in the luxury hotel business today, luxury hotel/resort managers need to pay more attention to promoting green cultural platforms in the organisation. Business leaders not only develop green innovation strategies but also boldly carry out clear green innovation commitments. Hotels should promote the role of their managers and influencers to encourage, motivate, and monitor the implementation of the green innovation commitments within the hotel. Employee confidence in the commitment to implementing a green organisation is an important prerequisite for focusing more on the proposed green innovation and hospitality activities.

For today's luxury hotel/resorts, declaring the implementation of green innovation is not difficult, but implementing the content and fully grasping all internal audiences, as well as raising awareness among customers, is critical. The research results demonstrate the need to integrate the theory of green organisational culture when implementing green innovation actions in luxury hotels/resorts, as money for the application of science to develop business activities towards sustainability. Therefore, to effectively implement green innovation in the hospitality sector, businesses need to effectively (i) implement commitments to green organisations with stakeholders (employees and travellers); (ii) implement knowledge dissemination, education, persuasion, and reminders to employees to participate in good green organisation practices; (iii) use part of the business's budget to organise training courses on green environment and green sanitation in surrounding areas; and, (iv) encourage hotel members to participate in environmental volunteer days.

This article is based on integrating three theories: green innovation, green organisational culture and identity. Looking at the whole picture, future studies will need to expand the focus to integrate other theories, such as social exchange theory, sustainable development theory, and value theory. Factors that can be integrated into the proposed models include, for example, comparisons of perceived costs with the perceived benefits of green products; evaluations of employee involvement with green organisations; evaluations of environmental knowledge (Roczen et al., 2014); attention to environmental protection; considerations of future consequences (Petrocelli, 2003; Strathman et al., 1994); and perceived image (Montes-Guerra et al., 2023). This article considers only hotel and island coastal resorts in Nha Trang and Phu Quoc. Future research should expand the research scope to have a more comprehensive view of the factors that explain green innovation behaviour in today's hospitality businesses.

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References

Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Afsar, B., Maqsoom, A., Shahjehan, A., Afridi, S. A., Nawaz, A., & Fazliani, H. (2019). Responsible leadership and employee's pro-environmental behaviour: The role of organisational commitment, green shared vision, and internal environmental locus of control. *Corporate Social Responsibility and Environmental Management, 27*, 297–312. https://doi.org/10.1002/csr.1806

Alreahi, M., Bujdoso, Z., David, L. D., & Gyenge, B. (2023). Green supply chain management in hotel industry: A systematic review. *Sustainability, 15*(7), 5622. https://doi.org/10.3390/su15075622

Armitage, C., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*(4), 471–499. https://doi.org/10.1348/014466601164939

Bernauer, T., Engel, S., Kammerer, D., & Sejas Nogareda, J. (2007). Explaining green innovation. Ten years after Porter's win-win proposition: How to study the effects of regulation on corporate environmental innovation? In K. Jacob, E. Biermann, P. O. Busch, & P. H. Feindt (Eds.), *Politik und Umwelt. Politische Vierteljahresschrift Sonderheft 39* (pp. 323–341). Verlag für Sozialwissenschaften

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230–258. https://doi.org/10.1177/0049124192021002005

Cardenas, J. C. (2011). Social norms and behaviour in the local commons as seen through the lens of field experiments. *Environmental and Resource Economics, 48*, 451–485. https://doi.org/10.1007/s10640-010-9452-8

Chang, C.-H. (2011). The influence of green IS practices on competitive advantage: Mediation role of green innovation performance. *Journal of Business Ethics, 104*(3), 361–370. https://doi.org/10.1007/s10551-011-0914-x

Chang, C.-H. (2015). Proactive and reactive corporate social responsibility: Antecedent and consequence. *Management Decision, 53*(2), 451–468. https://doi.org/10.1108/MD-02-2014-0060

Chang, C.-H., & Chen, Y.-S. (2014). Managing green brand equity: The perspective of perceived risk theory. *Quality & Quantity, 48*(3), 1753–1768. https://doi.org/10.1007/s11135-013-9872-y

Chen, Y. (2007). The driver of green innovation and green image – green core competence. *Journal of Business Ethics, 81*(3), 531–543. https://doi.org/10.1007/s10551-007-9522-1

Chen, Y. S. (2011). Green organisational identity: Sources and consequence. *Management Decision, 49*(3), 384–404. https://doi.org/10.1108/00251741111120761

Chen, Y.-S., Chang, C.-H., & Wu, F.-S. (2012). Origins of green innovations: The differences between proactive and reactive green innovations. *Management Decision, 50*(3), 368–398. https://doi.org/10.1108/00251741211216197

Chen, Y.-S., Lai, S. B., & Wen, C. T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. *Journal of Business Ethics, 67*(4), 331–339. https://doi.org/10.1007/s10551-006-9025-5

Cho, S. Y., & Kim, S. K. (2017). Horizon problem and firm innovation: The influence of CEO career horizon, exploitation and exploration on breakthrough innovations. *Research Policy, 46*(10), 1801–1809. https://doi.org/10.1016/j.respol.2017.08.007

Christensen, P. N., Rothgerber, H., Wood, H., & Matz, C. M. (2004). Social norms and identity relevance: A motivational approach to normative behaviour. *Personality and Social Psychology Bulletin, 30*(10), 1295–1309. https://doi.org/10.1177/0146167204264480

Crane, A. (2000). Corporate greening as amoralization. *Organisation Studies, 21*(4), 673–696. https://doi.org/10.1177/0170840600214001

De Roeck, K., & Farooq, O. (2018). Corporate social responsibility and ethical leadership: Investigating their interactive effect on employees' socially responsible behaviours. *Journal of Business Ethics, 151*(4), 923–939. https://doi.org/10.1007/s10551-017-3656-6

Devece, C., Palacios-Marqués, D., & Alguacil, M. P. (2016). Organisational commitment and its effects on organisational citizenship behaviour in a high-unemployment environment. *Journal of Business Research, 69*(5), 1857–1861. https://doi.org/10.1016/j.jbusres.2015.10.069

Fraj-Andrés, E., Martínes-Salinas, E., & Matute-Vallejo, J. (2009). Factors affecting corporate environmental strategy in Spanish industrial firms. *Business Strategy and the Environment, 18*(8), 500–514. https://doi.org/10.1002/bse.611

Janjua, N. A., Shi, D., & Sahibzada, U. F. (2024). Harnessing green innovation via green transformational leadership in Italian luxury hotels: Key strategic takeaways. *International Journal of Hospitality Management, 120*, 103739. https://doi.org/10.1016/j.ijhm.2024.103739

Gürlek, M., & Tuna, M. (2017). Reinforcing competitive advantage through green organisational culture and green innovation. *The Service Industries Journal*, 2–25. https://doi.org/10.1080/02642069.2017.1402889

Hjalager, A. M. (2010). A review of innovation research in tourism. *Tourism Management, 31*(1), 1–12. https://doi.org/10.1016/j.tourman.2009.08.012

Hogg, M. A., & Abrams, D. (1988). *Social identifications: A social psychology of intergroup relations and group processes*. London: Routledge.

Kam-Sing Wong, S. (2012). The influence of green product competitiveness on the success of green product innovation: Empirical evidence from the Chinese electrical and electronics industry. *European Journal of Innovation Management, 15*(4), 468–490. https://doi.org/10.1108/14601061211272385

Kim, A., Kim, Y., Han, K., Jackson, S. E., & Ployhart, R. E. (2017). Multilevel influences on voluntary workplace green behaviour: Individual differences, leader behaviour, and coworker advocacy. *Journal of Management, 43*(5), 1335–1358. https://doi.org/10.1177/0149206314547386

Khassawneh, O., Mohammad, T., Bouchon, F., & Behery, M. (2024). Eco-innovation and customer satisfaction in the hospitality industry in Dubai: The role of green leadership. *Journal of Human Resources in Hospitality & Tourism, 23*(3), 413–438. https://doi.org/10.1080/15332845.2024.2335120

Lam, A. Y. C., Lau, M., & Cheung, R. (2016). Modelling the relationship among green perceived value, green trust, satisfaction, and repurchase intention of green products. *Contemporary Management Research, 12*(1), 47–60. https://doi.org/10.7903/cmr.13842

Lamm, E., Tosti-Kharas, J., & Williams, E. G. (2013). Read this article, but don't print it: Organisational citizenship behaviour toward the environment. *Group & Organisation Management, 38*(2), 163–197. https://doi.org/10.1177/1059601112475210

Lee, J. M., Kim, J., & Bae, J. (2020). Founder CEOs and innovation: Evidence from CEO sudden deaths in public firms. *Research Policy, 49*(1), 103862. https://doi.org/10.1016/j.respol.2019.103862

Lin, R. J., Chen, R. H., & Huang, F. H. (2014). Green innovation in the automobile industry. *Industrial Management & Data Systems, 114*(6), 886–903. https://doi.org/10.1108/IMDS-11-2013-0482

Lin, R. J., Tan, K. H., & Geng, Y. (2013). Market demand, green product innovation, and firm performance: Evidence from Vietnam motorcycle industry. *Journal of Cleaner Production, 40*, 101–107. https://doi.org/10.1016/j.jclepro.2012.01.001

Linnenluecke, M. K., & Griffiths, A. (2010). Corporate sustainability and organisational culture. *Journal of World Business, 45*(4), 357–366. https://doi.org/10.1016/j.jwb.2009.08.006

Malesky, E. J., Nguyen, V. T., Bach, N. T., & Ho, D. B. (2020). The effect of market competition on bribery in emerging economies: An empirical analysis of Vietnamese firms. *World Development, 131*(1), 1–18. https://doi.org/10.1016/j.worlddev.2020.104957

Marsh, K., & Bugusu, B. (2015). Food packaging roles, materials, and environmental issues. *Journal of Food Science, 72*(3), 39–55. https://doi.org/10.1111/j.1750-3841.2007.00301.x

Marshall, D., McCarthy, L., McGrath, P., & Claudy, M. (2015). Going above and beyond: How sustainability culture and entrepreneurial orientation drive social sustainability supply chain practice adoption. *Supply Chain Management: An International Journal, 20*(4), 434–454. https://doi.org/10.1108/SCM-08-2014-0267

Méndez-Picazo, M., Galindo-Martín, M., & Castaño-Martínez, M. (2021). Effects of sociocultural and economic factors on social entrepreneurship and sustainable development. *Journal of Innovation & Knowledge, 6*(2), 69–77. https://doi.org/10.1016/j.jik.2020.06.001

Montes-Guerra, M. I., Zapata-Cuervo, N., & Jeong, M. (2023). U.S. travelers' perceived image of Latin America as their future travel destination. *Journal of Tourism & Development, 41*, 95–112. https://doi.org/10.34624/rtd.v41i0.27856

Ngo, Q. H. (2024). The impact of green market orientation and ambidextrous green innovation on organisational performance: Empirical study on small restaurants in Vietnam. *Business Strategy & Development, 7*(4). https://doi.org/10.1002/bsd2.70042

Nguyen, V. T., Le, T. B. N., & Bryant, S. (2013). Sub-national institutions, export strategy, and firm performance: A multilevel study of private manufacturing firms in Vietnam. *Journal of World Business, 48*(1), 68–76. http://dx.doi.org/10.1016/j.jwb.2012.06.008

Oliveira, A. J. de, Pereira, A. M., Augusto, L. P., Santo, P. M., & Santos, S. C. (2023). The influence of tourists' motivations when visiting different destinations: Evidence for destination communication. *Journal of Tourism & Development, 40*, 47–56. https://doi.org/10.34624/rtd.v40i0.31420

Orfila-Sintes, F., Crespí-Cladera, R., & Martínez-Ros, E. (2005). Innovation activity in the hotel industry: Evidence from Balearic Islands. *Tourism Management, 26*(6), 851–865. https://doi.org/10.1016/j.tourman.2004.05.005

Pagell, M., & Wu, S. (2009). Building a more complete theory of sustainable supply chain management using case studies of ten exemplars. *Journal of Supply Chain Management, 45*(2), 37–56. https://doi.org/10.1111/j.1745-493X.2009.03162.x

Petrocelli, J. V. (2003). Factor validation of the consideration of future consequences scale. *Journal of Social Psychology, 143*(4), 404–413. https://doi.org/10.1080/00224540309598453

Ravasi, D., & Schultz, M. (2006). Responding to organisational identity threats: Exploring the role of organisational culture. *Academy of Management Journal, 49*(3), 433–458. https://doi.org/10.2307/20159775

Rihova, I., Buhalis, D., Moital, M., & Gouthro, M.-B. (2015). Conceptualising customer-to-customer co-creation in socially dense tourism contexts. *International Journal of Tourism Research, 17*(4), 356–363. https://doi.org/10.1002/jtr.1993

Roczen, N., Kaiser, F. G., Bogner, F. X., & Wilson, M. (2014). A competence model for environmental education. *Environment and Behaviour, 46*(8), 972–992. https://doi.org/10.1177/0013916513492416

Smith, J. R., & Louis, W. R. (2009). Group norms and the attitude-behaviour relationship. *Social and Personality Psychology Compass, 3*(1), 19–35. https://doi.org/10.1177/0146167296228002

Strathman, A., Gleicher, F., Boninger, D. S., & Edwards, C. S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behaviour. *Journal of Personality and Social Psychology, 66*(4), 742–752. https://doi.org/10.1037/0022-3514.66.4.742

Steenkamp, J. B. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*(1), 78–90. https://doi.org/10.1086/209528

Su, L., & Swanson, S. R. (2017). Perceived corporate social responsibility's impact on the wellbeing and supportive green behaviours of hotel employees: The mediating role of the employee-corporate relationship. *Tourism Management, 72*, 437–450. https://doi.org/10.1016/j.tourman.2019.01.009

Tan, H. H., & Tan, C. S. F. (2000). Toward the differentiation of trust in supervisor and trust in organisation. *Genetic, Social, and General Psychology Monographs, 126*(2), 241–260.

Terry, D. J., & Hogg, M. A. (1996). Group norms and the attitude-behaviour relationship: A role for group identification. *Personality and Social Psychology Bulletin, 22*(8), 776–793. https://doi.org/10.1177/0146167296228002

Terry, D. J., Hogg, M. A., & McKimmie, B. M. (2000a). Attitude-behaviour relations: The role of in-group norms and mode of behavioural decision-making. *British Journal of Social Psychology, 39*(3), 337–361. https://doi.org/10.1348/014466600164534

Terry, D. J., Hogg, M. A., & White, K. M. (2000b). Attitude-behaviour relations: Social identity and group membership. In D. J. Terry & M. A. Hogg (Eds.), *Attitudes, behaviour, and social context: The role of norms and group membership* (pp. 67–94). Lawrence Erlbaum Associates.

Turner, J. J., Kelly, J., & McKenna, K. (2006). Food for thought: Parents' perspectives of child influence. *British Food Journal, 108*(3), 181–197. https://doi.org/10.1108/00070700610651007

Vietnam National Administration of Tourism (VNAT). (2022). Tourist statistic visitors. http://www.vietnamtourism.com

Wang, M., Li, Y., Li, J., & Wang, Z. (2021). Green process innovation, green product innovation and its economic performance improvement paths: A survey and structural model. *Journal of Environmental Management, 297*(1). https://doi.org/10.1016/j.jenvman.2021.113282

Wellen, J. M., Hogg, M. A., & Terry, D. J. (1998). Group norms and attitude-behaviour consistency: The role of group salience and mood. *Group Dynamics: Theory, Research, and Practice, 2*(1), 48–56. https://doi.org/10.1002/ejsp.172

Wu, S. I., & Chen, Y.-J. (2014). The impact of green marketing and perceived innovation on purchase intention for green products. *International Journal of Marketing Studies, 6*(5), 81–100. https://doi.org/10.5539/ijms.v6n5p81